Maintenance Documentation

Variables

The Regex class represents a read-only regular expression. It also contains static methods that allow use of other regular expression classes without explicitly creating instances of the other classes.

Variable Name	Data Type	Scope	Location	Purpose
userlevel	String	Global	MyGlobals	To know the userlevel of the logged in user from anywhere in the program
username	String	Global	MyGlobals	To know the username of the logged in user from anywhere in the program
selectedRoom	String	Global	MyGlobals	To know the most recently selected room
rectangles	Rectangle List	Global	MyGlobals	A list of rectangle objects which represent a room each
resolveDate	DateTime	Global	MyGlobals	Used for checking if the user has validated a room
Path	String Array	Global	MyGlobals	A list of folder and file paths from the folder where the program is being run
JSONPath	String	Global	MyGlobals	The file path where the json file is stored
Name	String	Global	rectangle	The room name for the rectangle
locationX	Int	Global	rectangle	The x location of the rectangle
locationY	Int	Global	rectangle	The y location of the rectangle
sizeX	Int	Global	rectangle	The x size of the rectangle
sizeY	Int	Global	rectangle	The y size of the rectangle
penColor	String	Global	rectangle	The colour the box should be
fileIsFound	Boolean	Local	LoginForm	Used to determine if the rectangle file is found
pathRegex	Regex	Local	LoginForm	A regular expression to match with rectanglesOut.json files
s	String	Local	LoginForm	Used in looping through a list
row	DataRow	Local	LoginForm	An class instance of a database row
tempRectangles	Rectangle List	Local	LoginForm	A list of rectangle objects which represent a room each
i	Int	Local	LoginForm	Used in a while loop
newrec	rectangle	Local	LoginForm	A class variable of type rectangle. Used to add a new rectangle to the rectangle list
json	String	Local	LoginForm	A string which contains the contents of the json file
editingEnabled	Boolean	Local	BuildingPlanForm	Used to determine if editing is enabled
currentRectangleName	String	Local	BuildingPlanForm	The name of the currently selected rectangle
mouseOffsetX	Int	Local	BuildingPlanForm	The offset of the mouse from the origin of the rectangle in the x direction
mouseOffsetY	Int	Local	BuildingPlanForm	The offset of the mouse from the origin of the rectangle in the y direction
numberRegex	Regex	Local	BuildingPlanForm	A regular expression that matches with numbers only
Sr	Streamreader	Local	BuildingPlanForm	A custom class from a standard library for reading json files

rectangleJSON	String	Local	BuildingPlanForm	A string which contains the contents of the json file
json	String	Local	BuildingPlanForm	A string which contains the contents to be written to the json file
defaultPen	Pen	Local	BuildingPlanForm	An instance of the Pen class used for drawing rectangles to the screen
selectedPen	Pen	Local	BuildingPlanForm	An instance of the Pen class used for drawing rectangles to the screen
brush	Brush	Local	BuildingPlanForm	An instance of the Brush class used for drawing rectangles to the screen
font	Font	Local	BuildingPlanForm	An instance of the Font class used for drawing text to the screen
Bm	Bitmap	Local	BuildingPlanForm	A variable for a bitmap image
gr	Graphics	Local	BuildingPlanForm	An instance of the Graphics class used for drawing images to the screen
thisRectangle	rectangle	Local	BuildingPlanForm	An instance of the rectangle class which is used to change information about each rectangle
defectNum	Int	Local	BuildingPlanForm	Used in a while loop to count the number of loops through
i	Int	Local	BuildingPlanForm	Used to control a while loop
TT	Tooltip	Local	NewDefectForm	An instance of the Tooltip class used for creating tooltips on the screen
selectedRowIndex	Int	Local	ViewDefectsForm	The index of the row currently selected
DefectIDSearchRegex	Regex	Local	ViewDefectsForm & ViewRoomDefectsForm	A regular expression that matches only with numbers
filter	String	Local	ViewDefectsForm & ViewRoomDefectsForm	Used in filtering
token	String	Local	ViewDefectsForm & ViewRoomDefectsForm	Used in filtering
i	Int	Local	ViewDefectsForm	Used in a loop to count the number of loops through
previousDate	DateTime	Local	ViewDefectsForm	Contains the date that was previously selected
field	String	Local	ViewDefectsForm & ViewRoomDefectsForm	The field to filter by
whiteSpaceRegex	Regex	Local	NewRoomForm	A regular expression that matches with blank text
newRoom	rectangle	Local	NewRoomForm	A class variable of type rectangle. Used to add a new rectangle to the rectangle list
Json	String	Local	NewRoomForm	A string which contains the contents to be written to the json file
EmailRegex	Regex	Local	NewUserForm	A regular expression that matches with valid emails
TelRegex	Regex	Local	NewUserForm	A regular expression that matches with valid telephone numbers
report	String	Local	ReportForm	The report to display
passedReport	String	Local	ReportForm	The value passed to the form when it is shown
reportDataSource	ReportDataSource	Local	ReportForm	A class variable of type rectangle. Used

				to assign a datasource for the report
filter	String	Local	ViewUsersForm	Used in filtering
token	String	Local	ViewUsersForm	Used in filtering
field	String	Local	ViewUsersForm	The field to filter by
buildingPlanForm	Form	Local	AdminMenuForm	Used to display a form
viewRoomDefectForm	Form	Local	AdminMenuForm	Used to display a form
viewUsersForm	Form	Local	AdminMenuForm	Used to display a form
report	Form	Local	AdminMenuForm	Used to display a form

All other variables are available in the .designer files. E.g. for the "SeatingPlan" form the designer file is "seating.designer.cs."

Procedure	Purpose	Parameters
adminMenuForm_Load()	Loads a form including the resources required	None
buildingPlanBtn_Click()	Runs code when the button is clicked	Information about the object that called the function
BuildingPlanForm_FormClosing()	Runs code when the form is closing	None
pictureBox1_MouseDown()	Runs code when the mouse button is pressed down while over the pictureBox	Information about the object that called the function and the mouse
pictureBox1_MouseMove()	Runs code when the mouse moves over the pictureBox	Information about the object that called the function and the mouse
pictureBox1_MouseUp()	Runs code when the mouse button is released while over the pictureBox	Information about the object that called the function and the mouse
RectangleHeightBox_KeyPress()	Runs code when a key is pressed while the control is selected	Information about the object that called the function and the key that was pressed
timer1_Tick()	Runs code after each tick	None
DescriptionTBox_Enter()	Runs code when a control gains focus	Information about the object that called the function
DescriptionTBox_Leave()	Runs code when a control loses focus	Information about the object that called the function
DescriptionTBox_MouseClick()	Runs code when the mouse is clicked on a control	Information about the object that called the function and the mouse
DescriptionTBox_TextChanged()	Runs code when text is changed in a control	Information about the object that called the function
dataGridView1_CellClick()	Runs code when a cell is clicked	Information about the object that called the function and the data grid
bindingNavigatorDeleteItem_Click()	Runs code when a button on a navigation bar is clicked	Information about the object that called the function
Hide()	Hides a control or form	None
ShowDialog()	Shows a form as a dialog	None
Show	Shows a control or form	None
ToString	Converts a variable to a string	None
Fill	Fills a table adapter with data from the database	None
ReadToEnd	Reads a file from beginning to end	Filepath String
Close	Closes a form	None
Deserialise	Deserialises a string from json	String
SerialiseObject	Serialises a string intro json	String
WriteAllText	Writes the entirety of a string to a file	String
Clear	Clears the graphics object	Colour
DrawRectangle	Draws a rectangle to the graphics object	Pen, Xcoord, Ycoord, Xsize, Ysize Pen,Int/Float

ToInt32	Converts a variable to integer	None
Delete	Deletes an item from a table	None
Trim	Trims a string	None
IsMatch	Checks to see if a regular expression matches a string	String
GetCurrentDirectory	Gets a list of files and folders in the current running directory of the program	None
Insert	Inserts a row into a table	Value for each required fieldtype
Update	Updates the database	Tablename
Add	Adds a new item to a list	The item to be added

Annotated Listings

LoginForm.cs

```csharp
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using System.IO;
using System.Text.RegularExpressions;
using Newtonsoft.Json;
using System.Web.Script.Serialization;

namespace CG4_Solution
{
    public partial class LoginForm : Form
    {
        public LoginForm()
        {
            InitializeComponent();
            this.MaximizeBox = false;
            this.MinimizeBox = false;

            usernameTBox.Text = "admin";
            passwordTBox.Text = "admin";
        }


        private void LoginForm_Load(object sender, EventArgs e)
        {

    // TODO: This line of code loads data into the 'cG4DatabaseDataSet.RoomTable' table. You can
move, or remove it, as needed.
            this.roomTableTableAdapter.Fill(this.cG4DatabaseDataSet.RoomTable);

    // TODO: This line of code loads data into the 'cG4DatabaseDataSet.UserTable' table. You can
move, or remove it, as needed.
            this.userTableTableAdapter.Fill(this.cG4DatabaseDataSet.UserTable);

            //Variable for checking if the file exists
            bool fileIsFound = false;
            //Regular Expression for finding the correct file
            Regex pathRegex = new Regex(@"^*rectanglesOut.json*$");

    //Checks through all the files from the programs directory to see if the file we want is ther
e
            foreach (string s in MyGlobals.path)
            {
```

```csharp
                                //Check if the regex matches
                                if (pathRegex.IsMatch(s))
                                {
                                        //Set the file directory to the current directory
                                        MyGlobals.JSONPath = s;
                                        //Show the file has been found
                                        fileIsFound = true;
                                }
                        }
                        //If the file was not found
                        if (!fileIsFound)
                        {
                                createJSON();
                        }
                }

        private void loginBtn_Click(object sender, EventArgs e)
        {
                //Find the correct row from the UserTable
                var row = cG4DatabaseDataSet.UserTable.FindByUserId(usernameTBox.Text);
                //Check if the entered password matches the one stored in the database
                if (passwordTBox.Text == row.Password.Trim())
                {
                        //Set the global variables for the userlevel and name
                        MyGlobals.userlevel = row.User_Level.Trim();
                        MyGlobals.userName = row.UserId.Trim();

                        //Show the correct form for the userlevel
                        if (row.User_Level == "admin")
                        {
                                Form adminMenuForm = new adminMenuForm();
                                this.Hide();
                                adminMenuForm.ShowDialog();
                                Application.Exit();
                        }
                        if (row.User_Level.Trim() == "user")
                        {
                                Form buildingPlanForm = new BuildingPlanForm();
                                this.Hide();
                                buildingPlanForm.ShowDialog();
                                Application.Exit();
                        }
                }

                //Show an error messagebox
                else
                {

        MessageBox.Show("Login Failed\n\nThe username or password was incorrect", "Login failed", Mes
sageBoxButtons.OK, MessageBoxIcon.Error);
                }
        }

        private void createJSON()
        {
                //Display error message. If the answer is yes then create a new file

        if (MessageBox.Show("The file 'rectanglesOut.json could not be found in the directory:\n\n" +
 Directory.GetCurrentDirectory() + " \n\nWould you like to create this file?",
                                                                "Error - File Not Found",
                                                                MessageBoxButtons.YesNo,

        MessageBoxIcon.Error) == DialogResult.Yes)
                        {
                                //Create an empty list of rectangles
                                List<rectangle> tempRectangles = new List<rectangle>();
                                //Go through each row in the RoomTable
                                int i = 0;
                                while (i < cG4DatabaseDataSet.RoomTable.Rows.Count)
                                {
                                        //Create a new rectangle for each row
```

```csharp
                                        rectangle newrec = new rectangle();

        newrec.name = ((string)dataGridView1.Rows[i].Cells[0].Value).Trim();
                                        newrec.locationX = 0;
                                        newrec.locationY = 0;
                                        newrec.sizeX = 100;
                                        newrec.sizeY = 100;
                                        newrec.penColor = "default";
                                        //Add the rectangle to the list
                                        tempRectangles.Add(newrec);

                                        i++;
                                }
                                //Convert the list to json and write to a new file

        string json = JsonConvert.SerializeObject(tempRectangles, Formatting.Indented);

        File.WriteAllText(Directory.GetCurrentDirectory() + "/rectanglesOut.json", json);

                                //Confirmation messagebox and close the program

        MessageBox.Show("The file has been created. Please restart the application.\n\n The applicati
on will now close", "File Created", MessageBoxButtons.OK, MessageBoxIcon.Information);
                                this.Close();
                        }
                        else
                        {
                                //Request the user to find the file and close the program

        MessageBox.Show("The Application will now exit\nPlease locate the file and place it in:\n\n"
+ Directory.GetCurrentDirectory(), "Error -
 File Not Found", MessageBoxButtons.OK, MessageBoxIcon.Information);
                                this.Close();
                        }
                }
                private void cancelBtn_Click(object sender, EventArgs e)
                {
                        //Close the application
                        this.Close();
                }
        }

        //Declare global variables to be used throughout the program
        public static class MyGlobals
        {
                public static string userlevel;
                public static string userName;

                public static string selectedRoom;

                //Create a list of the type rectangle
                public static List<rectangle> rectangles = new List<rectangle>();

                public static DateTime resolveDate;

                //Get a list of the file paths for all the files in the programs working directory
                public static string[] path = Directory.GetFiles(Directory.GetCurrentDirectory());

                public static string JSONPath;
        }
        //Create the rectangle class
        public class rectangle
        {
                public string name;
                public int locationX;
                public int locationY;
                public int sizeX;
                public int sizeY;
                public string penColor;

        }
}
```

LoginForm.Designer.cs

```csharp
namespace CG4_Solution
{
    partial class LoginForm
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
            base.Dispose(disposing);
        }

        #region Windows Form Designer generated code

        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        private void InitializeComponent()
        {
            this.components = new System.ComponentModel.Container();
            this.label1 = new System.Windows.Forms.Label();
            this.label2 = new System.Windows.Forms.Label();
            this.label3 = new System.Windows.Forms.Label();
            this.usernameTBox = new System.Windows.Forms.TextBox();
            this.passwordTBox = new System.Windows.Forms.TextBox();
            this.loginBtn = new System.Windows.Forms.Button();
            this.cancelBtn = new System.Windows.Forms.Button();
            this.cG4DatabaseDataSet = new CG4_Solution.CG4DatabaseDataSet();
            this.userTableBindingSource = new System.Windows.Forms.BindingSource(this.components);
            this.userTableTableAdapter = new CG4_Solution.CG4DatabaseDataSetTableAdapters.UserTableTableAdapter();
            this.dataGridView1 = new System.Windows.Forms.DataGridView();
            this.roomIDDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn();
            this.roomTypeDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn();
            this.roomDescriptionDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn();
            this.roomTableBindingSource = new System.Windows.Forms.BindingSource(this.components);
            this.roomTableTableAdapter = new CG4_Solution.CG4DatabaseDataSetTableAdapters.RoomTableTableAdapter();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.userTableBindingSource)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.dataGridView1)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.roomTableBindingSource)).BeginInit();
            this.SuspendLayout();
            //
            // label1
            //
            this.label1.AutoSize = true;
            this.label1.Font = new System.Drawing.Font("Microsoft Sans Serif", 27.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label1.Location = new System.Drawing.Point(150, 45);
            this.label1.Name = "label1";
```

```csharp
            this.label1.Size = new System.Drawing.Size(110, 42);
            this.label1.TabIndex = 1;
            this.label1.Text = "Login";
            //
            // label2
            //
            this.label2.AutoSize = true;
            this.label2.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F, System.Drawing.Fon
tStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label2.Location = new System.Drawing.Point(100, 122);
            this.label2.Name = "label2";
            this.label2.Size = new System.Drawing.Size(87, 20);
            this.label2.TabIndex = 2;
            this.label2.Text = "Username:";
            //
            // label3
            //
            this.label3.AutoSize = true;
            this.label3.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F, System.Drawing.Fon
tStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label3.Location = new System.Drawing.Point(100, 161);
            this.label3.Name = "label3";
            this.label3.Size = new System.Drawing.Size(82, 20);
            this.label3.TabIndex = 4;
            this.label3.Text = "Password:";
            //
            // usernameTBox
            //
            this.usernameTBox.Location = new System.Drawing.Point(193, 124);
            this.usernameTBox.Name = "usernameTBox";
            this.usernameTBox.Size = new System.Drawing.Size(100, 20);
            this.usernameTBox.TabIndex = 3;
            //
            // passwordTBox
            //
            this.passwordTBox.Location = new System.Drawing.Point(193, 163);
            this.passwordTBox.Name = "passwordTBox";
            this.passwordTBox.Size = new System.Drawing.Size(100, 20);
            this.passwordTBox.TabIndex = 5;
            this.passwordTBox.UseSystemPasswordChar = true;
            //
            // loginBtn
            //
            this.loginBtn.Location = new System.Drawing.Point(104, 213);
            this.loginBtn.Name = "loginBtn";
            this.loginBtn.Size = new System.Drawing.Size(75, 23);
            this.loginBtn.TabIndex = 0;
            this.loginBtn.Text = "Login";
            this.loginBtn.UseVisualStyleBackColor = true;
            this.loginBtn.Click += new System.EventHandler(this.loginBtn_Click);
            //
            // cancelBtn
            //
            this.cancelBtn.Location = new System.Drawing.Point(218, 213);
            this.cancelBtn.Name = "cancelBtn";
            this.cancelBtn.Size = new System.Drawing.Size(75, 23);
            this.cancelBtn.TabIndex = 6;
            this.cancelBtn.Text = "Cancel";
            this.cancelBtn.UseVisualStyleBackColor = true;
            this.cancelBtn.Click += new System.EventHandler(this.cancelBtn_Click);
            //
            // cG4DatabaseDataSet
            //
            this.cG4DatabaseDataSet.DataSetName = "CG4DatabaseDataSet";
            this.cG4DatabaseDataSet.SchemaSerializationMode = System.Data.SchemaSerializationMode.Incl
udeSchema;
            //
            // userTableBindingSource
            //
            this.userTableBindingSource.DataMember = "UserTable";
            this.userTableBindingSource.DataSource = this.cG4DatabaseDataSet;
```

```
//
// userTableTableAdapter
//
this.userTableTableAdapter.ClearBeforeFill = true;
//
// dataGridView1
//
this.dataGridView1.AutoGenerateColumns = false;
this.dataGridView1.ColumnHeadersHeightSizeMode = System.Windows.Forms.DataGridViewColumnHeadersHeightSizeMode.AutoSize;
this.dataGridView1.Columns.AddRange(new System.Windows.Forms.DataGridViewColumn[] {
this.roomIDDataGridViewTextBoxColumn,
this.roomTypeDataGridViewTextBoxColumn,
this.roomDescriptionDataGridViewTextBoxColumn});
this.dataGridView1.DataSource = this.roomTableBindingSource;
this.dataGridView1.Enabled = false;
this.dataGridView1.Location = new System.Drawing.Point(305, -8);
this.dataGridView1.Name = "dataGridView1";
this.dataGridView1.Size = new System.Drawing.Size(86, 71);
this.dataGridView1.TabIndex = 7;
this.dataGridView1.Visible = false;
//
// roomIDDataGridViewTextBoxColumn
//
this.roomIDDataGridViewTextBoxColumn.DataPropertyName = "Room ID";
this.roomIDDataGridViewTextBoxColumn.HeaderText = "Room ID";
this.roomIDDataGridViewTextBoxColumn.Name = "roomIDDataGridViewTextBoxColumn";
//
// roomTypeDataGridViewTextBoxColumn
//
this.roomTypeDataGridViewTextBoxColumn.DataPropertyName = "Room Type";
this.roomTypeDataGridViewTextBoxColumn.HeaderText = "Room Type";
this.roomTypeDataGridViewTextBoxColumn.Name = "roomTypeDataGridViewTextBoxColumn";
//
// roomDescriptionDataGridViewTextBoxColumn
//
this.roomDescriptionDataGridViewTextBoxColumn.DataPropertyName = "Room Description";
this.roomDescriptionDataGridViewTextBoxColumn.HeaderText = "Room Description";
this.roomDescriptionDataGridViewTextBoxColumn.Name = "roomDescriptionDataGridViewTextBoxColumn";
//
// roomTableBindingSource
//
this.roomTableBindingSource.DataMember = "RoomTable";
this.roomTableBindingSource.DataSource = this.cG4DatabaseDataSet;
//
// roomTableTableAdapter
//
this.roomTableTableAdapter.ClearBeforeFill = true;
//
// LoginForm
//
this.AcceptButton = this.loginBtn;
this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;
this.ClientSize = new System.Drawing.Size(403, 278);
this.Controls.Add(this.dataGridView1);
this.Controls.Add(this.cancelBtn);
this.Controls.Add(this.loginBtn);
this.Controls.Add(this.passwordTBox);
this.Controls.Add(this.usernameTBox);
this.Controls.Add(this.label3);
this.Controls.Add(this.label2);
this.Controls.Add(this.label1);
this.FormBorderStyle = System.Windows.Forms.FormBorderStyle.FixedDialog;
this.Name = "LoginForm";
this.StartPosition = System.Windows.Forms.FormStartPosition.CenterScreen;
this.Text = "Login";
this.Load += new System.EventHandler(this.LoginForm_Load);
((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).EndInit();
((System.ComponentModel.ISupportInitialize)(this.userTableBindingSource)).EndInit();
```

```
        ((System.ComponentModel.ISupportInitialize)(this.dataGridView1)).EndInit();
        ((System.ComponentModel.ISupportInitialize)(this.roomTableBindingSource)).EndInit();
        this.ResumeLayout(false);
        this.PerformLayout();

    }

    #endregion

    private System.Windows.Forms.Label label1;
    private System.Windows.Forms.Label label2;
    private System.Windows.Forms.Label label3;
    private System.Windows.Forms.TextBox usernameTBox;
    private System.Windows.Forms.TextBox passwordTBox;
    private System.Windows.Forms.Button loginBtn;
    private System.Windows.Forms.Button cancelBtn;
    private CG4DatabaseDataSet cG4DatabaseDataSet;
    private System.Windows.Forms.BindingSource userTableBindingSource;
    private CG4DatabaseDataSetTableAdapters.UserTableTableAdapter userTableTableAdapter;
    private System.Windows.Forms.DataGridView dataGridView1;
    private System.Windows.Forms.BindingSource roomTableBindingSource;
    private CG4DatabaseDataSetTableAdapters.RoomTableTableAdapter roomTableTableAdapter;
    private System.Windows.Forms.DataGridViewTextBoxColumn roomIDDataGridViewTextBoxColumn;
    private System.Windows.Forms.DataGridViewTextBoxColumn roomTypeDataGridViewTextBoxColumn;
    private System.Windows.Forms.DataGridViewTextBoxColumn roomDescriptionDataGridViewTextBoxColum
n;
    }
}
```

AdminMenuForm.cs

```csharp
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace CG4_Solution
{
    public partial class adminMenuForm : Form
    {
        public adminMenuForm()
        {
            InitializeComponent();
            this.MaximizeBox = false;
            this.MinimizeBox = false;
        }

        private void adminMenuForm_Load(object sender, EventArgs e)
        {
            //Set the first item in the combobox
            reportComboBox.SelectedIndex = 0;

        }

        private void buildingPlanBtn_Click(object sender, EventArgs e)
        {
            //Show the BuildingPlanForm
            Form buildingPlanForm = new BuildingPlanForm();
            this.Hide();
            buildingPlanForm.ShowDialog();
            this.Show();
        }

        private void defectTableFormBtn_Click(object sender, EventArgs e)
        {
```

```
                Form viewRoomDefectForm = new ViewRoomDefectsForm();
                this.Hide();
                viewRoomDefectForm.ShowDialog();
                this.Show();
            }

        private void userTableFormBtn_Click(object sender, EventArgs e)
        {
                Form viewUsersForm = new ViewUsersForm();
                this.Hide();
                viewUsersForm.ShowDialog();
                this.Show();
            }

        private void printFormBtn_Click(object sender, EventArgs e)
        {
                //Shows the Report selected in the combobox
                Form report = new ReportForm(reportComboBox.SelectedItem.ToString());
                this.Hide();
                report.ShowDialog();
                this.Show();
            }

    }
}
```

AdminMenuForm.Designer.cs

```
namespace CG4_Solution
{
    partial class adminMenuForm
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
            base.Dispose(disposing);
        }

        #region Windows Form Designer generated code

        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        private void InitializeComponent()
        {
            this.label1 = new System.Windows.Forms.Label();
            this.buildingPlanBtn = new System.Windows.Forms.Button();
            this.defectTableFormBtn = new System.Windows.Forms.Button();
            this.userTableFormBtn = new System.Windows.Forms.Button();
            this.printFormBtn = new System.Windows.Forms.Button();
            this.reportComboBox = new System.Windows.Forms.ComboBox();
            this.SuspendLayout();
            //
            // label1
            //
```

```csharp
            this.label1.AutoSize = true;
            this.label1.Font = new System.Drawing.Font("Microsoft Sans Serif", 24F, System.Drawing.Fon
tStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label1.Location = new System.Drawing.Point(57, 9);
            this.label1.Name = "label1";
            this.label1.Size = new System.Drawing.Size(198, 37);
            this.label1.TabIndex = 2;
            this.label1.Text = "Admin menu";
            // 
            // buildingPlanBtn
            // 
            this.buildingPlanBtn.Location = new System.Drawing.Point(91, 108);
            this.buildingPlanBtn.Name = "buildingPlanBtn";
            this.buildingPlanBtn.Size = new System.Drawing.Size(138, 23);
            this.buildingPlanBtn.TabIndex = 0;
            this.buildingPlanBtn.Text = "Building Plan Form";
            this.buildingPlanBtn.Click += new System.EventHandler(this.buildingPlanBtn_Click);
            // 
            // defectTableFormBtn
            // 
            this.defectTableFormBtn.Location = new System.Drawing.Point(70, 149);
            this.defectTableFormBtn.Name = "defectTableFormBtn";
            this.defectTableFormBtn.Size = new System.Drawing.Size(178, 23);
            this.defectTableFormBtn.TabIndex = 3;
            this.defectTableFormBtn.Text = "View Defect and Room Tables";
            this.defectTableFormBtn.UseVisualStyleBackColor = true;
            this.defectTableFormBtn.Click += new System.EventHandler(this.defectTableFormBtn_Click);
            // 
            // userTableFormBtn
            // 
            this.userTableFormBtn.Location = new System.Drawing.Point(91, 178);
            this.userTableFormBtn.Name = "userTableFormBtn";
            this.userTableFormBtn.Size = new System.Drawing.Size(138, 23);
            this.userTableFormBtn.TabIndex = 4;
            this.userTableFormBtn.Text = "View User Tables";
            this.userTableFormBtn.UseVisualStyleBackColor = true;
            this.userTableFormBtn.Click += new System.EventHandler(this.userTableFormBtn_Click);
            // 
            // printFormBtn
            // 
            this.printFormBtn.Location = new System.Drawing.Point(56, 234);
            this.printFormBtn.Name = "printFormBtn";
            this.printFormBtn.Size = new System.Drawing.Size(75, 23);
            this.printFormBtn.TabIndex = 5;
            this.printFormBtn.Text = "Print Report";
            this.printFormBtn.UseVisualStyleBackColor = true;
            this.printFormBtn.Click += new System.EventHandler(this.printFormBtn_Click);
            // 
            // reportComboBox
            // 
            this.reportComboBox.DropDownStyle = System.Windows.Forms.ComboBoxStyle.DropDownList;
            this.reportComboBox.FormattingEnabled = true;
            this.reportComboBox.Items.AddRange(new object[] {
            "All Defects",
            "Unresolved Defects",
            "Resolved Defects"});
            this.reportComboBox.Location = new System.Drawing.Point(138, 236);
            this.reportComboBox.Name = "reportComboBox";
            this.reportComboBox.Size = new System.Drawing.Size(121, 21);
            this.reportComboBox.TabIndex = 6;
            // 
            // adminMenuForm
            // 
            this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
            this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;
            this.ClientSize = new System.Drawing.Size(315, 349);
            this.Controls.Add(this.reportComboBox);
            this.Controls.Add(this.printFormBtn);
            this.Controls.Add(this.userTableFormBtn);
            this.Controls.Add(this.defectTableFormBtn);
            this.Controls.Add(this.buildingPlanBtn);
```

```csharp
        this.Controls.Add(this.label1);
        this.FormBorderStyle = System.Windows.Forms.FormBorderStyle.FixedSingle;
        this.Name = "adminMenuForm";
        this.StartPosition = System.Windows.Forms.FormStartPosition.CenterScreen;
        this.Text = "Admin Menu";
        this.Load += new System.EventHandler(this.adminMenuForm_Load);
        this.ResumeLayout(false);
        this.PerformLayout();

    }

    #endregion

    private System.Windows.Forms.Label label1;
    private System.Windows.Forms.Button buildingPlanBtn;
    private System.Windows.Forms.Button defectTableFormBtn;
    private System.Windows.Forms.Button userTableFormBtn;
    private System.Windows.Forms.Button printFormBtn;
    private System.Windows.Forms.ComboBox reportComboBox;
  }
}
```

BuildingPlanForm

```csharp
using System;
using System.IO;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using System.Web.Script.Serialization;
using Microsoft.VisualBasic.PowerPacks;
using System.Text.RegularExpressions;
using Newtonsoft.Json;
using System.Data.SqlClient;

namespace CG4_Solution
{
    public partial class BuildingPlanForm : Form
    {
        //Declare variable for determining if editing enabled
        bool editingEnabled = false;

        public BuildingPlanForm()
        {
            InitializeComponent();
            this.MaximizeBox = false;
            this.MinimizeBox = false;
        }

        //Declaring variables for use in dragging rectangles
        int mouseOffsetX;
        int mouseOffsetY;
        //Used in drawing the rectangles to the screen
        string currentRectangleName = "";


        //Declares a regular expression for checking for only numbers
        Regex numberRegex = new Regex(@"^[0-9]+$");

        private void BuildingPlanForm_Load(object sender, EventArgs e)
        {
                // TODO: This line of code loads data into the 'cG4DatabaseDataSet1.DefectTable' table
. You can move, or remove it, as needed.
            this.defectTableTableAdapter.Fill(this.cG4DatabaseDataSet1.DefectTable);
```

```csharp
        // TODO: This line of code loads data into the 'cG4DatabaseDataSet1.RoomTable' table. You
can move, or remove it, as needed.
        this.roomTableTableAdapter.Fill(this.cG4DatabaseDataSet1.RoomTable);

        //Disabling and hiding several controls if the user is not an admin
        if (MyGlobals.userlevel != "admin")
        {
            editControlsGroup.Hide();
            editBtn.Enabled = false;
            editBtn.Hide();
            addRoomBtn.Enabled = false;
            addRoomBtn.Hide();
            deleteBtn.Enabled = false;
            deleteBtn.Hide();
        }
        if (MyGlobals.userlevel == "admin")
        {
            editControlsGroup.Enabled = editingEnabled;
        }
        //Disables several buttons until a rectangle is selected
        viewDefectsBtn.Enabled = false;
        newDefectBtn.Enabled = false;
        deleteBtn.Enabled = false;

        //Waits for the picturebox buffer to be full before drawing to prevent lag and screen tear
ing
        pictureBox1.WaitOnLoad = true;


        //Declares a streamreader to read the file
        StreamReader sr = new StreamReader(MyGlobals.JSONPath);
        //reads the file into the rectangleJSON string
        string rectangleJSON = sr.ReadToEnd();

        var serializer = new JavaScriptSerializer();
        //Deserialises the string into a list of rectangles, a data construct
        MyGlobals.rectangles = serializer.Deserialize<List<rectangle>>(rectangleJSON);
        //Closes the streamreader
        sr.Close();

        reportComboBox.SelectedIndex = 0;

    }


    private void saveBtn_Click(object sender, EventArgs e)
    {
        //Runs through each rectangle and sets its pencolour to "default"
        foreach (rectangle thisRectangle in MyGlobals.rectangles)
        {
            thisRectangle.penColor = "default";
        }

        //Serialises the list of rectangles and writes it to the JSON file
        string json = JsonConvert.SerializeObject(MyGlobals.rectangles, Formatting.Indented);
        File.WriteAllText(MyGlobals.JSONPath, json);

    }

    //An event that is called every 40 milliseconds. This is used for drawing rectangles.
    private void timer1_Tick(object sender, EventArgs e)
    {
        //Create a variable for the pictureBox Graphics
        System.Drawing.Graphics pictureBoxGraphics = pictureBox1.CreateGraphics();
        //Delcares objects for use in drawing to the screen
        Pen defaultPen = new Pen(Color.Black, 3.0f);
        Pen selectedPen = new Pen(Color.HotPink, 3.0f);
        Brush brush = new SolidBrush(Color.Black);

        Font font = new Font("Ariel", 13, FontStyle.Bold);
```

```csharp
            //Creates a new bitmap with the width and height of the picturebox
            Bitmap bm = new Bitmap(pictureBox1.Width, pictureBox1.Height);
            //Create graphics from the bitmap
            Graphics offScreenGraphics = Graphics.FromImage(bm);
            offScreenGraphics.Clear(Color.White);

            using (Graphics gr = Graphics.FromImage(bm))
            {
                //Runs through each rectangle
                foreach (rectangle thisRectangle in MyGlobals.rectangles)
                {
                    //Makes sure the minimum size of rectangles is 10x10
                    if (thisRectangle.sizeX <= 10)
                    {
                        thisRectangle.sizeX = 10;
                    }
                    if (thisRectangle.sizeY <= 10)
                    {
                        thisRectangle.sizeY = 10;
                    }
                    //Draws the rectangles and text to the bitmap using one of two pens dependant on w
hether the rectangle is the selected rectangle.
                    if (thisRectangle.penColor == "default")
                    {
                        offScreenGraphics.DrawRectangle(defaultPen, thisRectangle.locationX, thisRecta
ngle.locationY, thisRectangle.sizeX, thisRectangle.sizeY);
                        offScreenGraphics.DrawString(thisRectangle.name, font, brush, thisRectangle.lo
cationX + (thisRectangle.sizeX / 2.5f) -
 (thisRectangle.name.Length * 3), thisRectangle.locationY + (thisRectangle.sizeY / 2.5f));
                    }
                    if (thisRectangle.penColor == "pink")
                    {
                        offScreenGraphics.DrawRectangle(selectedPen, thisRectangle.locationX, thisRect
angle.locationY, thisRectangle.sizeX, thisRectangle.sizeY);
                        offScreenGraphics.DrawString(thisRectangle.name, font, brush, thisRectangle.lo
cationX + (thisRectangle.sizeX / 2.5f) -
 (thisRectangle.name.Length * 3), thisRectangle.locationY + (thisRectangle.sizeY / 2.5f));
                    }
                }
            }
            //Draws the bitmap to the screen
            pictureBox1.Image = bm;
        }


        //Event for mouseclicks on the picturebox
        private void pictureBox1_MouseDown(object sender, MouseEventArgs e)
        {
            //Disables 3 buttons
            viewDefectsBtn.Enabled = false;
            newDefectBtn.Enabled = false;
            deleteBtn.Enabled = false;
            //Checks that the left mouse button was used
            if (e.Button == MouseButtons.Left)
            {
                //Runs through each rectangle
                foreach (rectangle thisRectangle in MyGlobals.rectangles)
                {
                    //Sets the pencolour of the current rectangle to "default"
                    thisRectangle.penColor = "default";
                    //Makes sure that we only check to see which rectangle was clicked on if there is
no current rectangle
                    if (currentRectangleName == "")
                    {
                        //Check to see if the mouseclick was in the area that this rectangle is
                        if (e.X >= thisRectangle.locationX && e.X <= thisRectangle.locationX + thisRec
tangle.sizeX && e.Y >= thisRectangle.locationY && e.Y <= thisRectangle.locationY + thisRectangle.sizeY
)
                        {
                            //Set the currentrectangle to this rectangle
                            currentRectangleName = thisRectangle.name;
```

```csharp
                            //Get the row from the database corresponds with the selected rectangle
                            var thisRow = cG4DatabaseDataSet1.RoomTable.FindByRoom_ID(currentRectangle
Name);
                            //Catches errors that can leave rectangles without a corresponding row in
the database
                            if (thisRow == null)
                            {
                                //Deletes such rectangles
                                MyGlobals.rectangles.RemoveAll(x => x.name == currentRectangleName);
                                string json = JsonConvert.SerializeObject(MyGlobals.rectangles, Format
ting.Indented);

                                File.WriteAllText(MyGlobals.JSONPath, json);
                                break;
                            }
                            //Displays information about the selected room
                            roomIDLabel.Text = thisRow.Room_ID;
                            roomTypeLabel.Text = thisRow.Room_Type;
                            roomDescLabel.Text = thisRow.Room_Description;
                            MyGlobals.selectedRoom = thisRectangle.name;

                            //Declares variables used in determining the number of defects
                            int defectNum = 0;
                            int i = 0;

                            //Loops for as many rows in the table
                            while (i < DataGridViewDefect.Rows.Count)
                            {
                                string s = (string)DataGridViewDefect.Rows[i].Cells[0].Value;
                                //Checks the value of the current row's RoomID against the RoomID of t
he selected room

                                if ((string)DataGridViewDefect.Rows[i].Cells[0].Value == thisRow.Room_
ID.ToString())

                                {
                                    //Increment defectNum
                                    defectNum++;
                                }
                                i++;
                            }
                            //Set the text of the label to the value of defectNum
                            numberDefectsLabel.Text = defectNum.ToString();


                            //Sets the offset of the mouse from the origin of the rectangle for use in
 calculating dragging rooms
                            mouseOffsetX = e.X - thisRectangle.locationX;
                            mouseOffsetY = e.Y - thisRectangle.locationY;
                            //Sets the pencolour of the selected room to "pink"
                            thisRectangle.penColor = "pink";
                            //Dislays the dimentions and location of the selected room
                            RectangleWidthBox.Text = thisRectangle.sizeX.ToString();
                            RectangleHeightBox.Text = thisRectangle.sizeY.ToString();
                            rectangleLocationBoxX.Text = thisRectangle.locationX.ToString();
                            rectangleLocationBoxY.Text = thisRectangle.locationY.ToString();

                            //Enables 3 buttons
                            viewDefectsBtn.Enabled = true;
                            newDefectBtn.Enabled = true;
                            deleteBtn.Enabled = true;

                    }
                    else
                    {
                        //Sets pencolour to "default"
                        thisRectangle.penColor = "default";
                    }
                }
            }
        }
    }

    //Picturebox1 Mouse Move Event
```

```csharp
        private void pictureBox1_MouseMove(object sender, MouseEventArgs e)
        {
            //Check that the left mouse button was used and that editing is enabled
            if (e.Button == MouseButtons.Left && editingEnabled != false)
            {
                //Run through each rectangle
                foreach (rectangle thisRectangle in MyGlobals.rectangles)
                {
                    //If the rectangle is the current rectangle
                    if (thisRectangle.name == currentRectangleName)
                    {
                        //Check the mouse is on the rectangle
                        if (e.X >= thisRectangle.locationX && e.X <= thisRectangle.locationX + thisRec
tangle.sizeX && e.Y >= thisRectangle.locationY && e.Y <= thisRectangle.locationY + thisRectangle.sizeY
)
                        {
                            //Move the location of the rectangle to where the mouse is whilst preservi
ng the offset
                            thisRectangle.locationX = e.X - mouseOffsetX;
                            thisRectangle.locationY = e.Y - mouseOffsetY;

                            //Update the location text boxes
                            rectangleLocationBoxX.Text = thisRectangle.locationX.ToString();
                            rectangleLocationBoxY.Text = thisRectangle.locationY.ToString();
                        }
                    }
                }
            }
        }

        //PictureBox1 Mouseup event
        private void pictureBox1_MouseUp(object sender, MouseEventArgs e)
        {
            //Reset values
            currentRectangleName = "";
            mouseOffsetX = 0;
            mouseOffsetY = 0;
        }



        //The events for clicking the increment and Decrement Location Buttons
        //For X buttons
        private void rectangleIncrementX_Click(object sender, EventArgs e)
        {
            //Run through rectangles
            foreach (rectangle thisRectangle in MyGlobals.rectangles)
            {
                //Check for pencolour of "pin"
                if (thisRectangle.penColor == "pink")
                {
                    //Change value and update text box
                    thisRectangle.locationX += 1;
                    rectangleLocationBoxX.Text = thisRectangle.locationX.ToString();
                }

            }
        }

        private void rectangleDecrementX_Click(object sender, EventArgs e)
        {
            foreach (rectangle thisRectangle in MyGlobals.rectangles)
            {
                if (thisRectangle.penColor == "pink")
                {
                    thisRectangle.locationX -= 1;
                    rectangleLocationBoxX.Text = thisRectangle.locationX.ToString();
                }

            }
        }
```

```csharp
//For Y buttons
private void rectangleIncrementY_Click(object sender, EventArgs e)
{
    foreach (rectangle thisRectangle in MyGlobals.rectangles)
    {
        if (thisRectangle.penColor == "pink")
        {
            thisRectangle.locationY -= 1;
            rectangleLocationBoxY.Text = thisRectangle.locationY.ToString();
        }
    }
}

private void rectangleDecrementY_Click(object sender, EventArgs e)
{
    foreach (rectangle thisRectangle in MyGlobals.rectangles)
    {
        if (thisRectangle.penColor == "pink")
        {
            thisRectangle.locationY += 1;
            rectangleLocationBoxY.Text = thisRectangle.locationY.ToString();
        }
    }
}



//Keypress events for the rectangle location boxes
private void rectangleLocationBoxX_KeyPress(object sender, KeyPressEventArgs e)
{
    //If the key pressed was return
    if (e.KeyChar == (char)Keys.Return)
    {
        //Run through rectangles
        foreach (rectangle thisRectangle in MyGlobals.rectangles)
        {
            //Check for the pencolour of "pink"
            if (thisRectangle.penColor == "pink")
            {
                //If the entered text matches the number only regex
                if (numberRegex.IsMatch(rectangleLocationBoxX.Text))
                {
                    //Covnert to integer and change value of rectangle
                    thisRectangle.locationX = Convert.ToInt32(rectangleLocationBoxX.Text);
                }
            }
        }
    }
}

private void rectangleLocationBoxY_KeyPress(object sender, KeyPressEventArgs e)
{
    if (e.KeyChar == (char)Keys.Return)
    {
        foreach (rectangle thisRectangle in MyGlobals.rectangles)
        {
            if (thisRectangle.penColor == "pink")
            {
                if (numberRegex.IsMatch(rectangleLocationBoxY.Text))
                {
                    thisRectangle.locationY = Convert.ToInt32(rectangleLocationBoxY.Text);
                }
            }
        }
    }
}

//Keypress events for the rectangle size boxess
private void RectangleWidthBox_KeyPress(object sender, KeyPressEventArgs e)
{
```

```csharp
        if (e.KeyChar == (char)Keys.Return)
        {
            foreach (rectangle thisRectangle in MyGlobals.rectangles)
            {
                if (thisRectangle.penColor == "pink")
                {
                    if (numberRegex.IsMatch(RectangleWidthBox.Text))
                    {
                        thisRectangle.sizeX = Convert.ToInt32(RectangleWidthBox.Text);
                    }
                }
            }
        }
    }

    private void RectangleHeightBox_KeyPress(object sender, KeyPressEventArgs e)
    {
        if (e.KeyChar == (char)Keys.Return)
        {
            foreach (rectangle thisRectangle in MyGlobals.rectangles)
            {
                if (thisRectangle.penColor == "pink")
                {
                    if (numberRegex.IsMatch(RectangleHeightBox.Text))
                    {
                        thisRectangle.sizeY = Convert.ToInt32(RectangleHeightBox.Text);
                    }
                }
            }
        }
    }

    //Events for increment and decrement size buttons
    private void SizeDecrementWidth_Click(object sender, EventArgs e)
    {
        foreach (rectangle thisRectangle in MyGlobals.rectangles)
        {
            if (thisRectangle.penColor == "pink")
            {
                thisRectangle.sizeX -= 1;
                RectangleWidthBox.Text = thisRectangle.sizeX.ToString();
            }

        }
    }

    private void SizeIncrementWidth_Click(object sender, EventArgs e)
    {
        foreach (rectangle thisRectangle in MyGlobals.rectangles)
        {
            if (thisRectangle.penColor == "pink")
            {
                thisRectangle.sizeX += 1;
                RectangleWidthBox.Text = thisRectangle.sizeX.ToString();
            }

        }
    }

    private void SizeDecrementHeight_Click(object sender, EventArgs e)
    {
        foreach (rectangle thisRectangle in MyGlobals.rectangles)
        {
            if (thisRectangle.penColor == "pink")
            {
                thisRectangle.sizeY -= 1;
                RectangleHeightBox.Text = thisRectangle.sizeY.ToString();
            }

        }
    }
```

```csharp
        private void SizeIncrementHeight_Click(object sender, EventArgs e)
        {
            foreach (rectangle thisRectangle in MyGlobals.rectangles)
            {
                if (thisRectangle.penColor == "pink")
                {
                    thisRectangle.sizeY += 1;
                    RectangleHeightBox.Text = thisRectangle.sizeY.ToString();
                }

            }
        }

        private void editBtn_Click(object sender, EventArgs e)
        {
            //Check if editing is enabled
            if (editingEnabled == false)
            {
                //Enable editing, enable the controls and change the button text
                editingEnabled = true;
                editControlsGroup.Enabled = editingEnabled;
                editBtn.Text = "Disable Editing";
                return;
            }
            if (editingEnabled == true)
            {
                //Disable editing, disable the controls and change the button text
                editingEnabled = false;
                editControlsGroup.Enabled = editingEnabled;
                editBtn.Text = "Enable Editing";
                return;
            }
        }

        private void viewDefectsBtn_Click(object sender, EventArgs e)
        {
            //Show the ViewDefectsForm
            Form ViewDefectsForm = new ViewDefectsForm();
            this.Hide();
            //Disable the timer else errors occur
            timer1.Enabled = false;
            ViewDefectsForm.ShowDialog();
            this.Show();
            //Reenable the timer
            timer1.Enabled = true;
        }

        private void newDefectBtn_Click(object sender, EventArgs e)
        {
            //Show the NewDefectForm
            Form NewDefectForm = new NewDefectForm();
            this.Hide();
            timer1.Enabled = false;
            NewDefectForm.ShowDialog();
            this.Show();
            timer1.Enabled = true;
            // TODO: This line of code loads data into the 'cG4DatabaseDataSet1.DefectTable' table. You can move, or remove it, as needed.
            this.defectTableTableAdapter.Fill(this.cG4DatabaseDataSet1.DefectTable);
            // TODO: This line of code loads data into the 'cG4DatabaseDataSet1.RoomTable' table. You can move, or remove it, as needed.
            this.roomTableTableAdapter.Fill(this.cG4DatabaseDataSet1.RoomTable);
            numberDefectsLabel.Text = "-";
        }

        private void BuildingPlanForm_FormClosing(object sender, FormClosingEventArgs e)
        {
            //Disables the timer upon closing the form
            timer1.Enabled = false;
        }
```

```csharp
        private void addRoomBtn_Click(object sender, EventArgs e)
        {
            //Show the NewRoomForm
            Form newRoomForm = new NewRoomForm();
            this.Hide();
            timer1.Enabled = false;
            newRoomForm.ShowDialog();
            this.Show();
            timer1.Enabled = true;
            // TODO: This line of code loads data into the 'cG4DatabaseDataSet1.DefectTable' table. You can move, or remove it, as needed.
            this.defectTableTableAdapter.Fill(this.cG4DatabaseDataSet1.DefectTable);
            // TODO: This line of code loads data into the 'cG4DatabaseDataSet1.RoomTable' table. You can move, or remove it, as needed.
            this.roomTableTableAdapter.Fill(this.cG4DatabaseDataSet1.RoomTable);
        }

        private void deleteBtn_Click(object sender, EventArgs e)
        {
            //Show a messagebox to check the user wants to delete
            if (MessageBox.Show("WARNING:\nAre you sure you want to delete this room?\nThis will delete all defects associated with this room", "Are you sure?", MessageBoxButtons.YesNo, MessageBoxIcon.Question, MessageBoxDefaultButton.Button2) == DialogResult.Yes)
            {
                //Remove the rectangle from the rectangle list
                MyGlobals.rectangles.RemoveAll(x => x.name == roomIDLabel.Text.Trim());
                //Find the corresponding row from the RoomTable
                CG4DatabaseDataSet.RoomTableRow row = cG4DatabaseDataSet1.RoomTable.FindByRoom_ID(roomIDLabel.Text.PadRight(25));

                //Delete the row
                row.Delete();
                //Update the database
                this.roomTableTableAdapter.Update(this.cG4DatabaseDataSet1.RoomTable);
                this.roomTableTableAdapter.Fill(this.cG4DatabaseDataSet1.RoomTable);


                //Run through each row of the DefectTable and remove rows with the RoomID of the room we are deleting
                int i = 0;
                while (i < DataGridViewDefect.Rows.Count)
                {
                    if ((string)DataGridViewDefect.Rows[i].Cells[1].Value == roomIDLabel.Text.PadRight(25))
                    {
                        DataGridViewDefect.Rows.Remove(DataGridViewDefect.Rows[i]);
                    }
                    i++;
                }
                //Update the Database
                this.defectTableTableAdapter.Update(this.cG4DatabaseDataSet1.DefectTable);

                //Save changes to the rectangle list to the json file
                foreach (rectangle thisRectangle in MyGlobals.rectangles)
                {
                    thisRectangle.penColor = "default";
                }

                string json = JsonConvert.SerializeObject(MyGlobals.rectangles, Formatting.Indented);
                File.WriteAllText(MyGlobals.JSONPath, json);

                //Show a convfirmation messagebox
                MessageBox.Show("Deleted room '" + roomIDLabel.Text.Trim() + "' and all defects associated with it", "Success", MessageBoxButtons.OK, MessageBoxIcon.Information);

                //Reset the text in the information boxes
                roomIDLabel.ResetText();
                roomDescLabel.ResetText();
                roomTypeLabel.ResetText();
                numberDefectsLabel.ResetText();
```

```
            }
        }
        //Shows the Report selected in the combobox
        private void printFormBtn_Click(object sender, EventArgs e)
        {
            Form report = new ReportForm(reportComboBox.SelectedItem.ToString());
            this.Hide();
            report.ShowDialog();
            this.Show();
        }
    }
}
```

BuildingPlanForm.Designer.cs

```
namespace CG4_Solution
{
    partial class BuildingPlanForm
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</p
aram>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
            base.Dispose(disposing);
        }

        #region Windows Form Designer generated code

        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        private void InitializeComponent()
        {
            this.components = new System.ComponentModel.Container();
            this.pictureBox1 = new System.Windows.Forms.PictureBox();
            this.timer1 = new System.Windows.Forms.Timer(this.components);
            this.selectedNameLabel = new System.Windows.Forms.Label();
            this.roomIDLabel = new System.Windows.Forms.Label();
            this.label2 = new System.Windows.Forms.Label();
            this.label3 = new System.Windows.Forms.Label();
            this.label4 = new System.Windows.Forms.Label();
            this.rectangleLocationBoxX = new System.Windows.Forms.TextBox();
            this.rectangleLocationBoxY = new System.Windows.Forms.TextBox();
            this.rectangleDecrementX = new System.Windows.Forms.Button();
            this.rectangleIncrementX = new System.Windows.Forms.Button();
            this.rectangleIncrementY = new System.Windows.Forms.Button();
            this.rectangleDecrementY = new System.Windows.Forms.Button();
            this.label1 = new System.Windows.Forms.Label();
            this.label5 = new System.Windows.Forms.Label();
            this.label6 = new System.Windows.Forms.Label();
            this.RectangleWidthBox = new System.Windows.Forms.TextBox();
            this.RectangleHeightBox = new System.Windows.Forms.TextBox();
            this.SizeDecrementHeight = new System.Windows.Forms.Button();
            this.SizeIncrementHeight = new System.Windows.Forms.Button();
            this.SizeIncrementWidth = new System.Windows.Forms.Button();
            this.SizeDecrementWidth = new System.Windows.Forms.Button();
            this.saveBtn = new System.Windows.Forms.Button();
```

```csharp
            this.editControlsGroup = new System.Windows.Forms.GroupBox();
            this.editBtn = new System.Windows.Forms.Button();
            this.label7 = new System.Windows.Forms.Label();
            this.label8 = new System.Windows.Forms.Label();
            this.label9 = new System.Windows.Forms.Label();
            this.roomDescLabel = new System.Windows.Forms.RichTextBox();
            this.roomTypeLabel = new System.Windows.Forms.RichTextBox();
            this.addRoomBtn = new System.Windows.Forms.Button();
            this.viewDefectsBtn = new System.Windows.Forms.Button();
            this.label10 = new System.Windows.Forms.Label();
            this.numberDefectsLabel = new System.Windows.Forms.Label();
            this.DataGridViewDefect = new System.Windows.Forms.DataGridView();
            this.roomIDDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn(
);
            this.typeDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn();
            this.priorityDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColum
n();
            this.descriptionDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxCo
lumn();
            this.dateFoundDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColu
mn();
            this.dateResolvedDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxC
olumn();
            this.userIDDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn(
);
            this.defectTableBindingSource = new System.Windows.Forms.BindingSource(this.components);
            this.cG4DatabaseDataSet1 = new CG4_Solution.CG4DatabaseDataSet();
            this.roomTableBindingSource = new System.Windows.Forms.BindingSource(this.components);
            this.roomTableTableAdapter = new CG4_Solution.CG4DatabaseDataSetTableAdapters.RoomTableTab
leAdapter();
            this.defectTableTableAdapter = new CG4_Solution.CG4DatabaseDataSetTableAdapters.DefectTabl
eTableAdapter();
            this.newDefectBtn = new System.Windows.Forms.Button();
            this.deleteBtn = new System.Windows.Forms.Button();
            this.DataGridViewRoom = new System.Windows.Forms.DataGridView();
            this.roomIDDataGridViewTextBoxColumn1 = new System.Windows.Forms.DataGridViewTextBoxColumn
();
            this.roomTypeDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColum
n();
            this.roomDescriptionDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextB
oxColumn();
            this.reportComboBox = new System.Windows.Forms.ComboBox();
            this.printFormBtn = new System.Windows.Forms.Button();
            ((System.ComponentModel.ISupportInitialize)(this.pictureBox1)).BeginInit();
            this.editControlsGroup.SuspendLayout();
            ((System.ComponentModel.ISupportInitialize)(this.DataGridViewDefect)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.defectTableBindingSource)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet1)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.roomTableBindingSource)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.DataGridViewRoom)).BeginInit();
            this.SuspendLayout();
            //
            // pictureBox1
            //
            this.pictureBox1.BorderStyle = System.Windows.Forms.BorderStyle.FixedSingle;
            this.pictureBox1.Location = new System.Drawing.Point(260, 11);
            this.pictureBox1.Name = "pictureBox1";
            this.pictureBox1.Size = new System.Drawing.Size(860, 575);
            this.pictureBox1.TabIndex = 1;
            this.pictureBox1.TabStop = false;
            this.pictureBox1.WaitOnLoad = true;
            this.pictureBox1.MouseDown += new System.Windows.Forms.MouseEventHandler(this.pictureBox1_
MouseDown);
            this.pictureBox1.MouseMove += new System.Windows.Forms.MouseEventHandler(this.pictureBox1_
MouseMove);
            this.pictureBox1.MouseUp += new System.Windows.Forms.MouseEventHandler(this.pictureBox1_Mo
useUp);
            //
            // timer1
            //
            this.timer1.Enabled = true;
```

```csharp
            this.timer1.Interval = 40;
            this.timer1.Tick += new System.EventHandler(this.timer1_Tick);
            //
            // selectedNameLabel
            //
            this.selectedNameLabel.AutoSize = true;
            this.selectedNameLabel.Font = new System.Drawing.Font("Microsoft Sans Serif", 11.25F, Syst
em.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.selectedNameLabel.Location = new System.Drawing.Point(9, 4);
            this.selectedNameLabel.Name = "selectedNameLabel";
            this.selectedNameLabel.Size = new System.Drawing.Size(129, 18);
            this.selectedNameLabel.TabIndex = 2;
            this.selectedNameLabel.Text = "Selected Room:";
            //
            // roomIDLabel
            //
            this.roomIDLabel.AutoEllipsis = true;
            this.roomIDLabel.AutoSize = true;
            this.roomIDLabel.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Draw
ing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.roomIDLabel.Location = new System.Drawing.Point(126, 23);
            this.roomIDLabel.MaximumSize = new System.Drawing.Size(136, 0);
            this.roomIDLabel.Name = "roomIDLabel";
            this.roomIDLabel.Size = new System.Drawing.Size(12, 16);
            this.roomIDLabel.TabIndex = 3;
            this.roomIDLabel.Text = "-";
            //
            // label2
            //
            this.label2.AutoSize = true;
            this.label2.Font = new System.Drawing.Font("Microsoft Sans Serif", 11.25F, System.Drawing.
FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label2.Location = new System.Drawing.Point(19, 25);
            this.label2.Name = "label2";
            this.label2.Size = new System.Drawing.Size(78, 18);
            this.label2.TabIndex = 4;
            this.label2.Text = "Location:";
            //
            // label3
            //
            this.label3.AutoSize = true;
            this.label3.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.F
ontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label3.Location = new System.Drawing.Point(20, 47);
            this.label3.Name = "label3";
            this.label3.Size = new System.Drawing.Size(19, 16);
            this.label3.TabIndex = 5;
            this.label3.Text = "X:";
            //
            // label4
            //
            this.label4.AutoSize = true;
            this.label4.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.F
ontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label4.Location = new System.Drawing.Point(20, 73);
            this.label4.Name = "label4";
            this.label4.Size = new System.Drawing.Size(20, 16);
            this.label4.TabIndex = 6;
            this.label4.Text = "Y:";
            //
            // rectangleLocationBoxX
            //
            this.rectangleLocationBoxX.Location = new System.Drawing.Point(46, 47);
            this.rectangleLocationBoxX.Name = "rectangleLocationBoxX";
            this.rectangleLocationBoxX.Size = new System.Drawing.Size(100, 20);
            this.rectangleLocationBoxX.TabIndex = 7;
            this.rectangleLocationBoxX.KeyPress += new System.Windows.Forms.KeyPressEventHandler(this.
rectangleLocationBoxX_KeyPress);
            //
            // rectangleLocationBoxY
            //
```

```csharp
            this.rectangleLocationBoxY.Location = new System.Drawing.Point(46, 73);
            this.rectangleLocationBoxY.Name = "rectangleLocationBoxY";
            this.rectangleLocationBoxY.Size = new System.Drawing.Size(100, 20);
            this.rectangleLocationBoxY.TabIndex = 8;
            this.rectangleLocationBoxY.KeyPress += new System.Windows.Forms.KeyPressEventHandler(this.
rectangleLocationBoxY_KeyPress);
            //
            // rectangleDecrementX
            //
            this.rectangleDecrementX.Location = new System.Drawing.Point(152, 45);
            this.rectangleDecrementX.Name = "rectangleDecrementX";
            this.rectangleDecrementX.Size = new System.Drawing.Size(27, 23);
            this.rectangleDecrementX.TabIndex = 9;
            this.rectangleDecrementX.Text = "-1";
            this.rectangleDecrementX.UseVisualStyleBackColor = true;
            this.rectangleDecrementX.Click += new System.EventHandler(this.rectangleDecrementX_Click);
            //
            // rectangleIncrementX
            //
            this.rectangleIncrementX.Location = new System.Drawing.Point(185, 45);
            this.rectangleIncrementX.Name = "rectangleIncrementX";
            this.rectangleIncrementX.Size = new System.Drawing.Size(27, 23);
            this.rectangleIncrementX.TabIndex = 10;
            this.rectangleIncrementX.Text = "+1";
            this.rectangleIncrementX.UseVisualStyleBackColor = true;
            this.rectangleIncrementX.Click += new System.EventHandler(this.rectangleIncrementX_Click);
            //
            // rectangleIncrementY
            //
            this.rectangleIncrementY.Location = new System.Drawing.Point(185, 70);
            this.rectangleIncrementY.Name = "rectangleIncrementY";
            this.rectangleIncrementY.Size = new System.Drawing.Size(27, 23);
            this.rectangleIncrementY.TabIndex = 11;
            this.rectangleIncrementY.Text = "+1";
            this.rectangleIncrementY.UseVisualStyleBackColor = true;
            this.rectangleIncrementY.Click += new System.EventHandler(this.rectangleIncrementY_Click);
            //
            // rectangleDecrementY
            //
            this.rectangleDecrementY.Location = new System.Drawing.Point(152, 70);
            this.rectangleDecrementY.Name = "rectangleDecrementY";
            this.rectangleDecrementY.Size = new System.Drawing.Size(27, 23);
            this.rectangleDecrementY.TabIndex = 12;
            this.rectangleDecrementY.Text = "-1";
            this.rectangleDecrementY.UseVisualStyleBackColor = true;
            this.rectangleDecrementY.Click += new System.EventHandler(this.rectangleDecrementY_Click);
            //
            // label1
            //
            this.label1.AutoSize = true;
            this.label1.Font = new System.Drawing.Font("Microsoft Sans Serif", 11.25F, System.Drawing.
FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label1.Location = new System.Drawing.Point(13, 105);
            this.label1.Name = "label1";
            this.label1.Size = new System.Drawing.Size(46, 18);
            this.label1.TabIndex = 13;
            this.label1.Text = "Size:";
            //
            // label5
            //
            this.label5.AutoSize = true;
            this.label5.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.F
ontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label5.Location = new System.Drawing.Point(14, 125);
            this.label5.Name = "label5";
            this.label5.Size = new System.Drawing.Size(45, 16);
            this.label5.TabIndex = 14;
            this.label5.Text = "Width:";
            //
            // label6
            //
```

```csharp
            this.label6.AutoSize = true;
            this.label6.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label6.Location = new System.Drawing.Point(14, 151);
            this.label6.Name = "label6";
            this.label6.Size = new System.Drawing.Size(50, 16);
            this.label6.TabIndex = 15;
            this.label6.Text = "Height:";
            //
            // RectangleWidthBox
            //
            this.RectangleWidthBox.Location = new System.Drawing.Point(64, 120);
            this.RectangleWidthBox.Name = "RectangleWidthBox";
            this.RectangleWidthBox.Size = new System.Drawing.Size(100, 20);
            this.RectangleWidthBox.TabIndex = 16;
            this.RectangleWidthBox.KeyPress += new System.Windows.Forms.KeyPressEventHandler(this.RectangleWidthBox_KeyPress);
            //
            // RectangleHeightBox
            //
            this.RectangleHeightBox.Location = new System.Drawing.Point(64, 151);
            this.RectangleHeightBox.Name = "RectangleHeightBox";
            this.RectangleHeightBox.Size = new System.Drawing.Size(100, 20);
            this.RectangleHeightBox.TabIndex = 17;
            this.RectangleHeightBox.KeyPress += new System.Windows.Forms.KeyPressEventHandler(this.RectangleHeightBox_KeyPress);
            //
            // SizeDecrementHeight
            //
            this.SizeDecrementHeight.Location = new System.Drawing.Point(170, 149);
            this.SizeDecrementHeight.Name = "SizeDecrementHeight";
            this.SizeDecrementHeight.Size = new System.Drawing.Size(27, 23);
            this.SizeDecrementHeight.TabIndex = 21;
            this.SizeDecrementHeight.Text = "-1";
            this.SizeDecrementHeight.UseVisualStyleBackColor = true;
            this.SizeDecrementHeight.Click += new System.EventHandler(this.SizeDecrementHeight_Click);
            //
            // SizeIncrementHeight
            //
            this.SizeIncrementHeight.Location = new System.Drawing.Point(203, 149);
            this.SizeIncrementHeight.Name = "SizeIncrementHeight";
            this.SizeIncrementHeight.Size = new System.Drawing.Size(27, 23);
            this.SizeIncrementHeight.TabIndex = 20;
            this.SizeIncrementHeight.Text = "+1";
            this.SizeIncrementHeight.UseVisualStyleBackColor = true;
            this.SizeIncrementHeight.Click += new System.EventHandler(this.SizeIncrementHeight_Click);
            //
            // SizeIncrementWidth
            //
            this.SizeIncrementWidth.Location = new System.Drawing.Point(203, 117);
            this.SizeIncrementWidth.Name = "SizeIncrementWidth";
            this.SizeIncrementWidth.Size = new System.Drawing.Size(27, 23);
            this.SizeIncrementWidth.TabIndex = 19;
            this.SizeIncrementWidth.Text = "+1";
            this.SizeIncrementWidth.UseVisualStyleBackColor = true;
            this.SizeIncrementWidth.Click += new System.EventHandler(this.SizeIncrementWidth_Click);
            //
            // SizeDecrementWidth
            //
            this.SizeDecrementWidth.Location = new System.Drawing.Point(170, 116);
            this.SizeDecrementWidth.Name = "SizeDecrementWidth";
            this.SizeDecrementWidth.Size = new System.Drawing.Size(27, 23);
            this.SizeDecrementWidth.TabIndex = 18;
            this.SizeDecrementWidth.Text = "-1";
            this.SizeDecrementWidth.UseVisualStyleBackColor = true;
            this.SizeDecrementWidth.Click += new System.EventHandler(this.SizeDecrementWidth_Click);
            //
            // saveBtn
            //
            this.saveBtn.Location = new System.Drawing.Point(7, 184);
            this.saveBtn.Name = "saveBtn";
```

```csharp
            this.saveBtn.Size = new System.Drawing.Size(75, 23);
            this.saveBtn.TabIndex = 22;
            this.saveBtn.Text = "Save";
            this.saveBtn.UseVisualStyleBackColor = true;
            this.saveBtn.Click += new System.EventHandler(this.saveBtn_Click);
            //
            // editControlsGroup
            //
            this.editControlsGroup.Controls.Add(this.rectangleLocationBoxX);
            this.editControlsGroup.Controls.Add(this.label2);
            this.editControlsGroup.Controls.Add(this.saveBtn);
            this.editControlsGroup.Controls.Add(this.SizeDecrementHeight);
            this.editControlsGroup.Controls.Add(this.label3);
            this.editControlsGroup.Controls.Add(this.SizeIncrementHeight);
            this.editControlsGroup.Controls.Add(this.label4);
            this.editControlsGroup.Controls.Add(this.SizeIncrementWidth);
            this.editControlsGroup.Controls.Add(this.rectangleLocationBoxY);
            this.editControlsGroup.Controls.Add(this.SizeDecrementWidth);
            this.editControlsGroup.Controls.Add(this.rectangleDecrementX);
            this.editControlsGroup.Controls.Add(this.RectangleHeightBox);
            this.editControlsGroup.Controls.Add(this.rectangleIncrementX);
            this.editControlsGroup.Controls.Add(this.RectangleWidthBox);
            this.editControlsGroup.Controls.Add(this.rectangleIncrementY);
            this.editControlsGroup.Controls.Add(this.label6);
            this.editControlsGroup.Controls.Add(this.rectangleDecrementY);
            this.editControlsGroup.Controls.Add(this.label5);
            this.editControlsGroup.Controls.Add(this.label1);
            this.editControlsGroup.Location = new System.Drawing.Point(13, 351);
            this.editControlsGroup.Name = "editControlsGroup";
            this.editControlsGroup.Size = new System.Drawing.Size(238, 213);
            this.editControlsGroup.TabIndex = 23;
            this.editControlsGroup.TabStop = false;
            this.editControlsGroup.Text = "Edit Controls";
            //
            // editBtn
            //
            this.editBtn.Location = new System.Drawing.Point(13, 570);
            this.editBtn.Name = "editBtn";
            this.editBtn.Size = new System.Drawing.Size(97, 23);
            this.editBtn.TabIndex = 24;
            this.editBtn.Text = "Enable Editing";
            this.editBtn.UseVisualStyleBackColor = true;
            this.editBtn.Click += new System.EventHandler(this.editBtn_Click);
            //
            // label7
            //
            this.label7.AutoSize = true;
            this.label7.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label7.Location = new System.Drawing.Point(9, 23);
            this.label7.Name = "label7";
            this.label7.Size = new System.Drawing.Size(64, 16);
            this.label7.TabIndex = 25;
            this.label7.Text = "Room ID:";
            //
            // label8
            //
            this.label8.AutoSize = true;
            this.label8.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label8.Location = new System.Drawing.Point(9, 83);
            this.label8.Name = "label8";
            this.label8.Size = new System.Drawing.Size(83, 16);
            this.label8.TabIndex = 26;
            this.label8.Text = "Room Type:";
            //
            // label9
            //
            this.label9.AutoSize = true;
            this.label9.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
```

```csharp
            this.label9.Location = new System.Drawing.Point(9, 128);
            this.label9.Name = "label9";
            this.label9.Size = new System.Drawing.Size(119, 16);
            this.label9.TabIndex = 27;
            this.label9.Text = "Room Description:";
            //
            // roomDescLabel
            //
            this.roomDescLabel.BorderStyle = System.Windows.Forms.BorderStyle.FixedSingle;
            this.roomDescLabel.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Dr
awing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.roomDescLabel.Location = new System.Drawing.Point(129, 128);
            this.roomDescLabel.Name = "roomDescLabel";
            this.roomDescLabel.ReadOnly = true;
            this.roomDescLabel.Size = new System.Drawing.Size(121, 101);
            this.roomDescLabel.TabIndex = 29;
            this.roomDescLabel.Text = "";
            //
            // roomTypeLabel
            //
            this.roomTypeLabel.BorderStyle = System.Windows.Forms.BorderStyle.FixedSingle;
            this.roomTypeLabel.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Dr
awing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.roomTypeLabel.Location = new System.Drawing.Point(129, 83);
            this.roomTypeLabel.Name = "roomTypeLabel";
            this.roomTypeLabel.ReadOnly = true;
            this.roomTypeLabel.Size = new System.Drawing.Size(121, 41);
            this.roomTypeLabel.TabIndex = 30;
            this.roomTypeLabel.Text = "";
            //
            // addRoomBtn
            //
            this.addRoomBtn.Location = new System.Drawing.Point(12, 276);
            this.addRoomBtn.Name = "addRoomBtn";
            this.addRoomBtn.Size = new System.Drawing.Size(97, 23);
            this.addRoomBtn.TabIndex = 31;
            this.addRoomBtn.Text = "Add Room";
            this.addRoomBtn.UseVisualStyleBackColor = true;
            this.addRoomBtn.Click += new System.EventHandler(this.addRoomBtn_Click);
            //
            // viewDefectsBtn
            //
            this.viewDefectsBtn.Location = new System.Drawing.Point(140, 237);
            this.viewDefectsBtn.Name = "viewDefectsBtn";
            this.viewDefectsBtn.Size = new System.Drawing.Size(97, 23);
            this.viewDefectsBtn.TabIndex = 32;
            this.viewDefectsBtn.Text = "View Defects";
            this.viewDefectsBtn.UseVisualStyleBackColor = true;
            this.viewDefectsBtn.Click += new System.EventHandler(this.viewDefectsBtn_Click);
            //
            // label10
            //
            this.label10.AutoSize = true;
            this.label10.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.
FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label10.Location = new System.Drawing.Point(10, 58);
            this.label10.Name = "label10";
            this.label10.Size = new System.Drawing.Size(122, 16);
            this.label10.TabIndex = 33;
            this.label10.Text = "Number of Defects:";
            //
            // numberDefectsLabel
            //
            this.numberDefectsLabel.AutoSize = true;
            this.numberDefectsLabel.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, Syst
em.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.numberDefectsLabel.Location = new System.Drawing.Point(126, 57);
            this.numberDefectsLabel.Name = "numberDefectsLabel";
            this.numberDefectsLabel.Size = new System.Drawing.Size(12, 16);
            this.numberDefectsLabel.TabIndex = 34;
            this.numberDefectsLabel.Text = "-";
```

```
            //
            // DataGridViewDefect
            //
            this.DataGridViewDefect.AutoGenerateColumns = false;
            this.DataGridViewDefect.ColumnHeadersHeightSizeMode = System.Windows.Forms.DataGridViewCol
umnHeadersHeightSizeMode.AutoSize;
            this.DataGridViewDefect.Columns.AddRange(new System.Windows.Forms.DataGridViewColumn[] {
            this.roomIDDataGridViewTextBoxColumn,
            this.typeDataGridViewTextBoxColumn,
            this.priorityDataGridViewTextBoxColumn,
            this.descriptionDataGridViewTextBoxColumn,
            this.dateFoundDataGridViewTextBoxColumn,
            this.dateResolvedDataGridViewTextBoxColumn,
            this.userIDDataGridViewTextBoxColumn});
            this.DataGridViewDefect.DataSource = this.defectTableBindingSource;
            this.DataGridViewDefect.Enabled = false;
            this.DataGridViewDefect.Location = new System.Drawing.Point(256, 2);
            this.DataGridViewDefect.Name = "DataGridViewDefect";
            this.DataGridViewDefect.Size = new System.Drawing.Size(138, 92);
            this.DataGridViewDefect.TabIndex = 35;
            this.DataGridViewDefect.Visible = false;
            //
            // roomIDDataGridViewTextBoxColumn
            //
            this.roomIDDataGridViewTextBoxColumn.DataPropertyName = "RoomID";
            this.roomIDDataGridViewTextBoxColumn.HeaderText = "RoomID";
            this.roomIDDataGridViewTextBoxColumn.Name = "roomIDDataGridViewTextBoxColumn";
            //
            // typeDataGridViewTextBoxColumn
            //
            this.typeDataGridViewTextBoxColumn.DataPropertyName = "Type";
            this.typeDataGridViewTextBoxColumn.HeaderText = "Type";
            this.typeDataGridViewTextBoxColumn.Name = "typeDataGridViewTextBoxColumn";
            //
            // priorityDataGridViewTextBoxColumn
            //
            this.priorityDataGridViewTextBoxColumn.DataPropertyName = "Priority";
            this.priorityDataGridViewTextBoxColumn.HeaderText = "Priority";
            this.priorityDataGridViewTextBoxColumn.Name = "priorityDataGridViewTextBoxColumn";
            //
            // descriptionDataGridViewTextBoxColumn
            //
            this.descriptionDataGridViewTextBoxColumn.DataPropertyName = "Description";
            this.descriptionDataGridViewTextBoxColumn.HeaderText = "Description";
            this.descriptionDataGridViewTextBoxColumn.Name = "descriptionDataGridViewTextBoxColumn";
            //
            // dateFoundDataGridViewTextBoxColumn
            //
            this.dateFoundDataGridViewTextBoxColumn.DataPropertyName = "DateFound";
            this.dateFoundDataGridViewTextBoxColumn.HeaderText = "DateFound";
            this.dateFoundDataGridViewTextBoxColumn.Name = "dateFoundDataGridViewTextBoxColumn";
            //
            // dateResolvedDataGridViewTextBoxColumn
            //
            this.dateResolvedDataGridViewTextBoxColumn.DataPropertyName = "DateResolved";
            this.dateResolvedDataGridViewTextBoxColumn.HeaderText = "DateResolved";
            this.dateResolvedDataGridViewTextBoxColumn.Name = "dateResolvedDataGridViewTextBoxColumn";
            //
            // userIDDataGridViewTextBoxColumn
            //
            this.userIDDataGridViewTextBoxColumn.DataPropertyName = "UserID";
            this.userIDDataGridViewTextBoxColumn.HeaderText = "UserID";
            this.userIDDataGridViewTextBoxColumn.Name = "userIDDataGridViewTextBoxColumn";
            //
            // defectTableBindingSource
            //
            this.defectTableBindingSource.DataMember = "DefectTable";
            this.defectTableBindingSource.DataSource = this.cG4DatabaseDataSet1;
            //
            // cG4DatabaseDataSet1
            //
```

```csharp
            this.cG4DatabaseDataSet1.DataSetName = "CG4DatabaseDataSet";
            this.cG4DatabaseDataSet1.SchemaSerializationMode = System.Data.SchemaSerializationMode.Inc
ludeSchema;
            //
            // roomTableBindingSource
            //
            this.roomTableBindingSource.DataMember = "RoomTable";
            this.roomTableBindingSource.DataSource = this.cG4DatabaseDataSet1;
            //
            // roomTableTableAdapter
            //
            this.roomTableTableAdapter.ClearBeforeFill = true;
            //
            // defectTableTableAdapter
            //
            this.defectTableTableAdapter.ClearBeforeFill = true;
            //
            // newDefectBtn
            //
            this.newDefectBtn.Location = new System.Drawing.Point(12, 237);
            this.newDefectBtn.Name = "newDefectBtn";
            this.newDefectBtn.Size = new System.Drawing.Size(97, 23);
            this.newDefectBtn.TabIndex = 36;
            this.newDefectBtn.Text = "Add New Defect";
            this.newDefectBtn.UseVisualStyleBackColor = true;
            this.newDefectBtn.Click += new System.EventHandler(this.newDefectBtn_Click);
            //
            // deleteBtn
            //
            this.deleteBtn.Location = new System.Drawing.Point(140, 276);
            this.deleteBtn.Name = "deleteBtn";
            this.deleteBtn.Size = new System.Drawing.Size(97, 23);
            this.deleteBtn.TabIndex = 37;
            this.deleteBtn.Text = "Delete Room";
            this.deleteBtn.UseVisualStyleBackColor = true;
            this.deleteBtn.Click += new System.EventHandler(this.deleteBtn_Click);
            //
            // DataGridViewRoom
            //
            this.DataGridViewRoom.AutoGenerateColumns = false;
            this.DataGridViewRoom.ColumnHeadersHeightSizeMode = System.Windows.Forms.DataGridViewColum
nHeadersHeightSizeMode.AutoSize;
            this.DataGridViewRoom.Columns.AddRange(new System.Windows.Forms.DataGridViewColumn[] {
            this.roomIDDataGridViewTextBoxColumn1,
            this.roomTypeDataGridViewTextBoxColumn,
            this.roomDescriptionDataGridViewTextBoxColumn});
            this.DataGridViewRoom.DataSource = this.roomTableBindingSource;
            this.DataGridViewRoom.Enabled = false;
            this.DataGridViewRoom.Location = new System.Drawing.Point(400, 2);
            this.DataGridViewRoom.Name = "DataGridViewRoom";
            this.DataGridViewRoom.Size = new System.Drawing.Size(144, 92);
            this.DataGridViewRoom.TabIndex = 38;
            this.DataGridViewRoom.Visible = false;
            //
            // roomIDDataGridViewTextBoxColumn1
            //
            this.roomIDDataGridViewTextBoxColumn1.DataPropertyName = "Room ID";
            this.roomIDDataGridViewTextBoxColumn1.HeaderText = "Room ID";
            this.roomIDDataGridViewTextBoxColumn1.Name = "roomIDDataGridViewTextBoxColumn1";
            //
            // roomTypeDataGridViewTextBoxColumn
            //
            this.roomTypeDataGridViewTextBoxColumn.DataPropertyName = "Room Type";
            this.roomTypeDataGridViewTextBoxColumn.HeaderText = "Room Type";
            this.roomTypeDataGridViewTextBoxColumn.Name = "roomTypeDataGridViewTextBoxColumn";
            //
            // roomDescriptionDataGridViewTextBoxColumn
            //
            this.roomDescriptionDataGridViewTextBoxColumn.DataPropertyName = "Room Description";
            this.roomDescriptionDataGridViewTextBoxColumn.HeaderText = "Room Description";
```

```csharp
            this.roomDescriptionDataGridViewTextBoxColumn.Name = "roomDescriptionDataGridViewTextBoxCo
lumn";
            //
            // reportComboBox
            //
            this.reportComboBox.DropDownStyle = System.Windows.Forms.ComboBoxStyle.DropDownList;
            this.reportComboBox.FormattingEnabled = true;
            this.reportComboBox.Items.AddRange(new object[] {
            "All Defects",
            "Unresolved Defects",
            "Resolved Defects"});
            this.reportComboBox.Location = new System.Drawing.Point(115, 315);
            this.reportComboBox.Name = "reportComboBox";
            this.reportComboBox.Size = new System.Drawing.Size(121, 21);
            this.reportComboBox.TabIndex = 40;
            //
            // printFormBtn
            //
            this.printFormBtn.Location = new System.Drawing.Point(33, 313);
            this.printFormBtn.Name = "printFormBtn";
            this.printFormBtn.Size = new System.Drawing.Size(75, 23);
            this.printFormBtn.TabIndex = 39;
            this.printFormBtn.Text = "Print Report";
            this.printFormBtn.UseVisualStyleBackColor = true;
            this.printFormBtn.Click += new System.EventHandler(this.printFormBtn_Click);
            //
            // BuildingPlanForm
            //
            this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
            this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;
            this.ClientSize = new System.Drawing.Size(1135, 598);
            this.Controls.Add(this.reportComboBox);
            this.Controls.Add(this.printFormBtn);
            this.Controls.Add(this.DataGridViewRoom);
            this.Controls.Add(this.deleteBtn);
            this.Controls.Add(this.newDefectBtn);
            this.Controls.Add(this.DataGridViewDefect);
            this.Controls.Add(this.numberDefectsLabel);
            this.Controls.Add(this.label10);
            this.Controls.Add(this.viewDefectsBtn);
            this.Controls.Add(this.addRoomBtn);
            this.Controls.Add(this.roomTypeLabel);
            this.Controls.Add(this.roomDescLabel);
            this.Controls.Add(this.label9);
            this.Controls.Add(this.label8);
            this.Controls.Add(this.label7);
            this.Controls.Add(this.editBtn);
            this.Controls.Add(this.editControlsGroup);
            this.Controls.Add(this.roomIDLabel);
            this.Controls.Add(this.selectedNameLabel);
            this.Controls.Add(this.pictureBox1);
            this.FormBorderStyle = System.Windows.Forms.FormBorderStyle.FixedSingle;
            this.Name = "BuildingPlanForm";
            this.StartPosition = System.Windows.Forms.FormStartPosition.CenterScreen;
            this.Text = "Building Plan";
            this.FormClosing += new System.Windows.Forms.FormClosingEventHandler(this.BuildingPlanForm
_FormClosing);
            this.Load += new System.EventHandler(this.BuildingPlanForm_Load);
            ((System.ComponentModel.ISupportInitialize)(this.pictureBox1)).EndInit();
            this.editControlsGroup.ResumeLayout(false);
            this.editControlsGroup.PerformLayout();
            ((System.ComponentModel.ISupportInitialize)(this.DataGridViewDefect)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.defectTableBindingSource)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet1)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.roomTableBindingSource)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.DataGridViewRoom)).EndInit();
            this.ResumeLayout(false);
            this.PerformLayout();

        }
```

```csharp
        #endregion

        private System.Windows.Forms.PictureBox pictureBox1;
        private System.Windows.Forms.Label selectedNameLabel;
        private System.Windows.Forms.Label roomIDLabel;
        private System.Windows.Forms.Label label2;
        private System.Windows.Forms.Label label3;
        private System.Windows.Forms.Label label4;
        private System.Windows.Forms.TextBox rectangleLocationBoxX;
        private System.Windows.Forms.TextBox rectangleLocationBoxY;
        private System.Windows.Forms.Button rectangleDecrementX;
        private System.Windows.Forms.Button rectangleIncrementX;
        private System.Windows.Forms.Button rectangleIncrementY;
        private System.Windows.Forms.Button rectangleDecrementY;
        private System.Windows.Forms.Label label1;
        private System.Windows.Forms.Label label5;
        private System.Windows.Forms.Label label6;
        private System.Windows.Forms.TextBox RectangleWidthBox;
        private System.Windows.Forms.TextBox RectangleHeightBox;
        private System.Windows.Forms.Button SizeDecrementHeight;
        private System.Windows.Forms.Button SizeIncrementHeight;
        private System.Windows.Forms.Button SizeIncrementWidth;
        private System.Windows.Forms.Button SizeDecrementWidth;
        private System.Windows.Forms.Button saveBtn;
        private System.Windows.Forms.GroupBox editControlsGroup;
        private System.Windows.Forms.Button editBtn;
        private System.Windows.Forms.Label label7;
        private System.Windows.Forms.Label label8;
        private System.Windows.Forms.Label label9;
        private System.Windows.Forms.RichTextBox roomDescLabel;
        private CG4DatabaseDataSet cG4DatabaseDataSet1;
        private System.Windows.Forms.BindingSource roomTableBindingSource;
        private CG4DatabaseDataSetTableAdapters.RoomTableTableAdapter roomTableTableAdapter;
        private System.Windows.Forms.RichTextBox roomTypeLabel;
        private System.Windows.Forms.Button addRoomBtn;
        private System.Windows.Forms.Button viewDefectsBtn;
        private System.Windows.Forms.Label label10;
        private System.Windows.Forms.Label numberDefectsLabel;
        private System.Windows.Forms.BindingSource defectTableBindingSource;
        private CG4DatabaseDataSetTableAdapters.DefectTableTableAdapter defectTableTableAdapter;
        private System.Windows.Forms.DataGridViewTextBoxColumn userIDDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn dateResolvedDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn dateFoundDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn descriptionDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn priorityDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn typeDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn roomIDDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridView DataGridViewDefect;
        private System.Windows.Forms.Button newDefectBtn;
        public System.Windows.Forms.Timer timer1;
        private System.Windows.Forms.Button deleteBtn;
        private System.Windows.Forms.DataGridView DataGridViewRoom;
        private System.Windows.Forms.DataGridViewTextBoxColumn roomIDDataGridViewTextBoxColumn1;
        private System.Windows.Forms.DataGridViewTextBoxColumn roomTypeDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn roomDescriptionDataGridViewTextBoxColum
n;
        private System.Windows.Forms.ComboBox reportComboBox;
        private System.Windows.Forms.Button printFormBtn;
    }
}
```

NewDefectForm.cs

```csharp
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
```

Huw Talliss

```csharp
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace CG4_Solution
{
    public partial class NewDefectForm : Form
    {
        public NewDefectForm()
        {
            InitializeComponent();
            this.MaximizeBox = false;
            this.MinimizeBox = false;
        }

        private void NewDefectForm_Load(object sender, EventArgs e)
        {
            // TODO: This line of code loads data into the 'cG4DatabaseDataSet.DefectTable' table. You
 can move, or remove it, as needed.
            this.defectTableTableAdapter.Fill(this.cG4DatabaseDataSet.DefectTable);
            RoomIDLabel.Text = MyGlobals.selectedRoom;
            DefectTypeBox.SelectedIndex = 0;
            PriorityBox.SelectedIndex = 1;
            DateFoundPicker.MaxDate = DateTime.Now;
        }

        //Providing user feedback for the 100 character limit
        private void DescriptionTBox_TextChanged(object sender, EventArgs e)
        {
            DescriptionTBox.BackColor = SystemColors.Window;
            if (DescriptionTBox.TextLength >= 90)
            {
                DescriptionTBox.BackColor = Color.Coral;
            }
            if (DescriptionTBox.TextLength == 100)
            {
                DescriptionTBox.BackColor = Color.OrangeRed;
            }
        }

        private void DescriptionTBox_Enter(object sender, EventArgs e)
        {
            //Create a tooltip at the textbox
            ToolTip TT = new ToolTip();
            TT.RemoveAll();
            TT.Show("Character Limit is 100", (RichTextBox)sender);
        }

        private void DescriptionTBox_MouseClick(object sender, MouseEventArgs e)
        {
            ToolTip TT = new ToolTip();
            TT.RemoveAll();
            TT.Show("Character Limit is 100", (RichTextBox)sender);
        }

        private void DescriptionTBox_Leave(object sender, EventArgs e)
        {
            DescriptionTBox.BackColor = SystemColors.Window;
        }


        private void cancelBtn_Click(object sender, EventArgs e)
        {
            if (MessageBox.Show("Are you sure you want to cancel?", "Cancel?", MessageBoxButtons.YesNo
,MessageBoxIcon.Question,MessageBoxDefaultButton.Button2) == DialogResult.Yes)
            {
                this.Close();
            }
        }

        private void addBtn_Click(object sender, EventArgs e)
```

```csharp
        {
            //Insert new row into DefectTabke using entered values and update the table
            defectTableTableAdapter.Insert(MyGlobals.selectedRoom, (string)DefectTypeBox.SelectedItem,
 (string)PriorityBox.SelectedItem, DescriptionTBox.Text, DateFoundPicker.Value.Date, null, MyGlobals.u
serName);
            defectTableTableAdapter.Update(cG4DatabaseDataSet.DefectTable);
            MessageBox.Show("New defect has been added", "Success",MessageBoxButtons.OK,MessageBoxIcon
.Information);
            this.Close();
        }
    }
}
```

NewDefectForm.Designer.cs

```csharp
namespace CG4_Solution
{
    partial class NewDefectForm
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</p
aram>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
            base.Dispose(disposing);
        }

        #region Windows Form Designer generated code

        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        private void InitializeComponent()
        {
            this.components = new System.ComponentModel.Container();
            this.label1 = new System.Windows.Forms.Label();
            this.label7 = new System.Windows.Forms.Label();
            this.tableLayoutPanel1 = new System.Windows.Forms.TableLayoutPanel();
            this.descLabel = new System.Windows.Forms.Label();
            this.PriorityBox = new System.Windows.Forms.ComboBox();
            this.label2 = new System.Windows.Forms.Label();
            this.RoomIDLabel = new System.Windows.Forms.Label();
            this.label3 = new System.Windows.Forms.Label();
            this.DefectTypeBox = new System.Windows.Forms.ComboBox();
            this.label5 = new System.Windows.Forms.Label();
            this.DateFoundPicker = new System.Windows.Forms.DateTimePicker();
            this.DescriptionTBox = new System.Windows.Forms.RichTextBox();
            this.addBtn = new System.Windows.Forms.Button();
            this.cancelBtn = new System.Windows.Forms.Button();
            this.cG4DatabaseDataSet = new CG4_Solution.CG4DatabaseDataSet();
            this.defectTableBindingSource = new System.Windows.Forms.BindingSource(this.components);
            this.defectTableTableAdapter = new CG4_Solution.CG4DatabaseDataSetTableAdapters.DefectTabl
eTableAdapter();
            this.tableLayoutPanel1.SuspendLayout();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.defectTableBindingSource)).BeginInit();
            this.SuspendLayout();
```

```csharp
            // 
            // label1
            // 
            this.label1.AutoSize = true;
            this.label1.Font = new System.Drawing.Font("Microsoft Sans Serif", 21.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label1.Location = new System.Drawing.Point(44, 9);
            this.label1.Name = "label1";
            this.label1.Size = new System.Drawing.Size(224, 33);
            this.label1.TabIndex = 2;
            this.label1.Text = "Add New Defect";
            // 
            // label7
            // 
            this.label7.AutoSize = true;
            this.label7.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label7.Location = new System.Drawing.Point(4, 1);
            this.label7.Name = "label7";
            this.label7.Size = new System.Drawing.Size(64, 16);
            this.label7.TabIndex = 26;
            this.label7.Text = "Room ID:";
            // 
            // tableLayoutPanel1
            // 
            this.tableLayoutPanel1.CellBorderStyle = System.Windows.Forms.TableLayoutPanelCellBorderStyle.Single;
            this.tableLayoutPanel1.ColumnCount = 2;
            this.tableLayoutPanel1.ColumnStyles.Add(new System.Windows.Forms.ColumnStyle());
            this.tableLayoutPanel1.ColumnStyles.Add(new System.Windows.Forms.ColumnStyle());
            this.tableLayoutPanel1.Controls.Add(this.descLabel, 0, 3);
            this.tableLayoutPanel1.Controls.Add(this.PriorityBox, 1, 2);
            this.tableLayoutPanel1.Controls.Add(this.label2, 0, 1);
            this.tableLayoutPanel1.Controls.Add(this.label7, 0, 0);
            this.tableLayoutPanel1.Controls.Add(this.RoomIDLabel, 1, 0);
            this.tableLayoutPanel1.Controls.Add(this.label3, 0, 2);
            this.tableLayoutPanel1.Controls.Add(this.DefectTypeBox, 1, 1);
            this.tableLayoutPanel1.Controls.Add(this.label5, 0, 4);
            this.tableLayoutPanel1.Controls.Add(this.DateFoundPicker, 1, 4);
            this.tableLayoutPanel1.Controls.Add(this.DescriptionTBox, 1, 3);
            this.tableLayoutPanel1.Location = new System.Drawing.Point(26, 75);
            this.tableLayoutPanel1.Name = "tableLayoutPanel1";
            this.tableLayoutPanel1.RowCount = 5;
            this.tableLayoutPanel1.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Percent, 14.24501F));
            this.tableLayoutPanel1.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Percent, 14.24502F));
            this.tableLayoutPanel1.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Percent, 14.24502F));
            this.tableLayoutPanel1.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Percent, 35.89744F));
            this.tableLayoutPanel1.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Percent, 21.36753F));
            this.tableLayoutPanel1.Size = new System.Drawing.Size(258, 237);
            this.tableLayoutPanel1.TabIndex = 27;
            // 
            // descLabel
            // 
            this.descLabel.AutoSize = true;
            this.descLabel.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.descLabel.Location = new System.Drawing.Point(4, 100);
            this.descLabel.Name = "descLabel";
            this.descLabel.Size = new System.Drawing.Size(79, 16);
            this.descLabel.TabIndex = 32;
            this.descLabel.Text = "Description:";
            // 
            // PriorityBox
            // 
            this.PriorityBox.DropDownStyle = System.Windows.Forms.ComboBoxStyle.DropDownList;
            this.PriorityBox.FormattingEnabled = true;
```

```csharp
            this.PriorityBox.Items.AddRange(new object[] {
            "Low",
            "Normal",
            "High",
            "Urgent",
            "Critical"});
            this.PriorityBox.Location = new System.Drawing.Point(96, 70);
            this.PriorityBox.Name = "PriorityBox";
            this.PriorityBox.Size = new System.Drawing.Size(115, 21);
            this.PriorityBox.TabIndex = 31;
            //
            // label2
            //
            this.label2.AutoSize = true;
            this.label2.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label2.Location = new System.Drawing.Point(4, 34);
            this.label2.Name = "label2";
            this.label2.Size = new System.Drawing.Size(85, 16);
            this.label2.TabIndex = 28;
            this.label2.Text = "Defect Type:";
            //
            // RoomIDLabel
            //
            this.RoomIDLabel.AutoSize = true;
            this.RoomIDLabel.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.RoomIDLabel.Location = new System.Drawing.Point(96, 1);
            this.RoomIDLabel.Name = "RoomIDLabel";
            this.RoomIDLabel.Size = new System.Drawing.Size(12, 16);
            this.RoomIDLabel.TabIndex = 27;
            this.RoomIDLabel.Text = "-";
            //
            // label3
            //
            this.label3.AutoSize = true;
            this.label3.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label3.Location = new System.Drawing.Point(4, 67);
            this.label3.Name = "label3";
            this.label3.Size = new System.Drawing.Size(52, 16);
            this.label3.TabIndex = 29;
            this.label3.Text = "Priority:";
            //
            // DefectTypeBox
            //
            this.DefectTypeBox.DropDownStyle = System.Windows.Forms.ComboBoxStyle.DropDownList;
            this.DefectTypeBox.FormattingEnabled = true;
            this.DefectTypeBox.Items.AddRange(new object[] {
            "Building Works",
            "FFE",
            "M and E"});
            this.DefectTypeBox.Location = new System.Drawing.Point(96, 37);
            this.DefectTypeBox.Name = "DefectTypeBox";
            this.DefectTypeBox.Size = new System.Drawing.Size(121, 21);
            this.DefectTypeBox.TabIndex = 30;
            //
            // label5
            //
            this.label5.AutoSize = true;
            this.label5.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label5.Location = new System.Drawing.Point(4, 183);
            this.label5.Name = "label5";
            this.label5.Size = new System.Drawing.Size(81, 16);
            this.label5.TabIndex = 33;
            this.label5.Text = "Date Found:";
            //
            // DateFoundPicker
            //
            this.DateFoundPicker.Location = new System.Drawing.Point(96, 186);
```

```csharp
            this.DateFoundPicker.Name = "DateFoundPicker";
            this.DateFoundPicker.Size = new System.Drawing.Size(162, 20);
            this.DateFoundPicker.TabIndex = 34;
            //
            // DescriptionTBox
            //
            this.DescriptionTBox.Location = new System.Drawing.Point(96, 103);
            this.DescriptionTBox.MaxLength = 100;
            this.DescriptionTBox.Name = "DescriptionTBox";
            this.DescriptionTBox.Size = new System.Drawing.Size(158, 76);
            this.DescriptionTBox.TabIndex = 35;
            this.DescriptionTBox.Text = "";
            this.DescriptionTBox.MouseClick += new System.Windows.Forms.MouseEventHandler(this.DescriptionTBox_MouseClick);
            this.DescriptionTBox.TextChanged += new System.EventHandler(this.DescriptionTBox_TextChanged);
            this.DescriptionTBox.Enter += new System.EventHandler(this.DescriptionTBox_Enter);
            this.DescriptionTBox.Leave += new System.EventHandler(this.DescriptionTBox_Leave);
            //
            // addBtn
            //
            this.addBtn.Location = new System.Drawing.Point(26, 318);
            this.addBtn.Name = "addBtn";
            this.addBtn.Size = new System.Drawing.Size(75, 23);
            this.addBtn.TabIndex = 28;
            this.addBtn.Text = "Add Defect";
            this.addBtn.UseVisualStyleBackColor = true;
            this.addBtn.Click += new System.EventHandler(this.addBtn_Click);
            //
            // cancelBtn
            //
            this.cancelBtn.Location = new System.Drawing.Point(209, 318);
            this.cancelBtn.Name = "cancelBtn";
            this.cancelBtn.Size = new System.Drawing.Size(75, 23);
            this.cancelBtn.TabIndex = 29;
            this.cancelBtn.Text = "Cancel";
            this.cancelBtn.UseVisualStyleBackColor = true;
            this.cancelBtn.Click += new System.EventHandler(this.cancelBtn_Click);
            //
            // cG4DatabaseDataSet
            //
            this.cG4DatabaseDataSet.DataSetName = "CG4DatabaseDataSet";
            this.cG4DatabaseDataSet.SchemaSerializationMode = System.Data.SchemaSerializationMode.IncludeSchema;
            //
            // defectTableBindingSource
            //
            this.defectTableBindingSource.DataMember = "DefectTable";
            this.defectTableBindingSource.DataSource = this.cG4DatabaseDataSet;
            //
            // defectTableTableAdapter
            //
            this.defectTableTableAdapter.ClearBeforeFill = true;
            //
            // NewDefectForm
            //
            this.AcceptButton = this.addBtn;
            this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
            this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;
            this.ClientSize = new System.Drawing.Size(315, 356);
            this.Controls.Add(this.cancelBtn);
            this.Controls.Add(this.addBtn);
            this.Controls.Add(this.tableLayoutPanel1);
            this.Controls.Add(this.label1);
            this.FormBorderStyle = System.Windows.Forms.FormBorderStyle.FixedSingle;
            this.Name = "NewDefectForm";
            this.StartPosition = System.Windows.Forms.FormStartPosition.CenterScreen;
            this.Text = "New Defect";
            this.Load += new System.EventHandler(this.NewDefectForm_Load);
            this.tableLayoutPanel1.ResumeLayout(false);
            this.tableLayoutPanel1.PerformLayout();
```

```
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.defectTableBindingSource)).EndInit();
            this.ResumeLayout(false);
            this.PerformLayout();

        }

        #endregion

        private System.Windows.Forms.Label label1;
        private System.Windows.Forms.Label label7;
        private System.Windows.Forms.TableLayoutPanel tableLayoutPanel1;
        private System.Windows.Forms.Label RoomIDLabel;
        private System.Windows.Forms.Label descLabel;
        private System.Windows.Forms.ComboBox PriorityBox;
        private System.Windows.Forms.Label label2;
        private System.Windows.Forms.Label label3;
        private System.Windows.Forms.ComboBox DefectTypeBox;
        private System.Windows.Forms.Label label5;
        private System.Windows.Forms.DateTimePicker DateFoundPicker;
        private System.Windows.Forms.RichTextBox DescriptionTBox;
        private System.Windows.Forms.Button addBtn;
        private System.Windows.Forms.Button cancelBtn;
        private CG4DatabaseDataSet cG4DatabaseDataSet;
        private System.Windows.Forms.BindingSource defectTableBindingSource;
        private CG4DatabaseDataSetTableAdapters.DefectTableTableAdapter defectTableTableAdapter;
    }
}
```

NewRoomForm.cs

```csharp
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.IO;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using System.Text.RegularExpressions;
using Newtonsoft.Json;
using System.Web.Script.Serialization;

namespace CG4_Solution
{
    public partial class NewRoomForm : Form
    {

        Regex whiteSpaceRegex = new Regex(@"/^$|\s/");

        public NewRoomForm()
        {
            InitializeComponent();
            this.MaximizeBox = false;
            this.MinimizeBox = false;
        }

        private void NewRoomForm_Load(object sender, EventArgs e)
        {
            // TODO: This line of code loads data into the 'cG4DatabaseDataSet.RoomTable' table. You c
an move, or remove it, as needed.
            this.roomTableTableAdapter.Fill(this.cG4DatabaseDataSet.RoomTable);

        }

        private void button1_Click(object sender, EventArgs e)
        {
```

```
            //Checks that a room with the same ID does not already exist and checks that data has been
 entered in the ID textbox
            if (cG4DatabaseDataSet.RoomTable.FindByRoom_ID(roomIDBox.Text) == null & roomIDBox.Text.Tr
im() != "")
            {
                //Check the text boxes are not empty or only whitespace
                if (roomIDBox.Text.Trim() != "" & roomTypeBox.Text.Trim() != "" & roomDescripBox.Text.
Trim() != "")
                {
                    //Create a new row in the roomtable with data from the textboxes
                    roomTableTableAdapter.Insert(roomIDBox.Text, roomTypeBox.Text, roomDescripBox.Text
);

                    //Create a new rectangle for the room in the rectangles list
                    rectangle newRoom = new rectangle();
                    newRoom.name = roomIDBox.Text;
                    newRoom.locationX = 0;
                    newRoom.locationY = 0;
                    newRoom.sizeX = 100;
                    newRoom.sizeY = 100;
                    newRoom.penColor = "default";

                    MyGlobals.rectangles.Add(newRoom);

                    //Begin the process to write the rectangle list to the JSON file
                    foreach (rectangle thisRectangle in MyGlobals.rectangles)
                    {
                        thisRectangle.penColor = "default";
                    }
                    //Serialise and write the rectangle list
                    string json = JsonConvert.SerializeObject(MyGlobals.rectangles, Formatting.Indente
d);

                    File.WriteAllText(MyGlobals.JSONPath, json);

                    MessageBox.Show("New room was successfully added.", "Success", MessageBoxButtons.O
K, MessageBoxIcon.Information);
                    this.Close();

                }
                else
                    //Show an error message
                    MessageBox.Show("Could not add new room.\nPlease check there is data entered in al
l boxes.", "Error", MessageBoxButtons.OK, MessageBoxIcon.Error);
            }
            else
            {
                MessageBox.Show("Could not add new room.\nPlease check there is not already a room wit
h the same ID and the Room ID field is not empty.", "Error", MessageBoxButtons.OK, MessageBoxIcon.Erro
r);
            }
        }

        private void cancelBtn_Click(object sender, EventArgs e)
        {
            if (MessageBox.Show("Are you sure you want to cancel?", "Cancel?", MessageBoxButtons.YesNo
,MessageBoxIcon.Question,MessageBoxDefaultButton.Button2) == DialogResult.Yes)
            {
                this.Close();
            }
        }
    }
}
```

NewRoomForm.Designer.cs

```csharp
namespace CG4_Solution
{
    partial class NewRoomForm
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
            base.Dispose(disposing);
        }

        #region Windows Form Designer generated code

        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        private void InitializeComponent()
        {
            this.components = new System.ComponentModel.Container();
            this.label1 = new System.Windows.Forms.Label();
            this.label2 = new System.Windows.Forms.Label();
            this.roomIDBox = new System.Windows.Forms.TextBox();
            this.label3 = new System.Windows.Forms.Label();
            this.label4 = new System.Windows.Forms.Label();
            this.roomTypeBox = new System.Windows.Forms.TextBox();
            this.roomDescripBox = new System.Windows.Forms.RichTextBox();
            this.button1 = new System.Windows.Forms.Button();
            this.cancelBtn = new System.Windows.Forms.Button();
            this.cG4DatabaseDataSet = new CG4_Solution.CG4DatabaseDataSet();
            this.roomTableBindingSource = new System.Windows.Forms.BindingSource(this.components);
            this.roomTableTableAdapter = new CG4_Solution.CG4DatabaseDataSetTableAdapters.RoomTableTableAdapter();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.roomTableBindingSource)).BeginInit();
            this.SuspendLayout();
            //
            // label1
            //
            this.label1.AutoSize = true;
            this.label1.Font = new System.Drawing.Font("Microsoft Sans Serif", 18F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label1.Location = new System.Drawing.Point(67, 9);
            this.label1.Name = "label1";
            this.label1.Size = new System.Drawing.Size(183, 29);
            this.label1.TabIndex = 0;
            this.label1.Text = "Add New Room";
            //
            // label2
            //
            this.label2.AutoSize = true;
            this.label2.Font = new System.Drawing.Font("Microsoft Sans Serif", 11.25F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label2.Location = new System.Drawing.Point(72, 68);
            this.label2.Name = "label2";
            this.label2.Size = new System.Drawing.Size(72, 18);
            this.label2.TabIndex = 1;
```

```csharp
            this.label2.Text = "Room ID:";
            //
            // roomIDBox
            //
            this.roomIDBox.Location = new System.Drawing.Point(150, 69);
            this.roomIDBox.MaxLength = 25;
            this.roomIDBox.Name = "roomIDBox";
            this.roomIDBox.Size = new System.Drawing.Size(111, 20);
            this.roomIDBox.TabIndex = 2;
            //
            // label3
            //
            this.label3.AutoSize = true;
            this.label3.Font = new System.Drawing.Font("Microsoft Sans Serif", 11.25F, System.Drawing.
FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label3.Location = new System.Drawing.Point(11, 150);
            this.label3.Name = "label3";
            this.label3.Size = new System.Drawing.Size(133, 18);
            this.label3.TabIndex = 3;
            this.label3.Text = "Room Description:";
            //
            // label4
            //
            this.label4.AutoSize = true;
            this.label4.Font = new System.Drawing.Font("Microsoft Sans Serif", 11.25F, System.Drawing.
FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label4.Location = new System.Drawing.Point(54, 109);
            this.label4.Name = "label4";
            this.label4.Size = new System.Drawing.Size(90, 18);
            this.label4.TabIndex = 4;
            this.label4.Text = "Room Type:";
            //
            // roomTypeBox
            //
            this.roomTypeBox.Location = new System.Drawing.Point(150, 110);
            this.roomTypeBox.MaxLength = 30;
            this.roomTypeBox.Name = "roomTypeBox";
            this.roomTypeBox.Size = new System.Drawing.Size(111, 20);
            this.roomTypeBox.TabIndex = 5;
            //
            // roomDescripBox
            //
            this.roomDescripBox.Location = new System.Drawing.Point(150, 151);
            this.roomDescripBox.MaxLength = 150;
            this.roomDescripBox.Name = "roomDescripBox";
            this.roomDescripBox.Size = new System.Drawing.Size(111, 96);
            this.roomDescripBox.TabIndex = 6;
            this.roomDescripBox.Text = "";
            //
            // button1
            //
            this.button1.Location = new System.Drawing.Point(47, 280);
            this.button1.Name = "button1";
            this.button1.Size = new System.Drawing.Size(79, 23);
            this.button1.TabIndex = 7;
            this.button1.Text = "Add Room";
            this.button1.UseVisualStyleBackColor = true;
            this.button1.Click += new System.EventHandler(this.button1_Click);
            //
            // cancelBtn
            //
            this.cancelBtn.Location = new System.Drawing.Point(203, 280);
            this.cancelBtn.Name = "cancelBtn";
            this.cancelBtn.Size = new System.Drawing.Size(79, 23);
            this.cancelBtn.TabIndex = 8;
            this.cancelBtn.Text = "Cancel";
            this.cancelBtn.UseVisualStyleBackColor = true;
            this.cancelBtn.Click += new System.EventHandler(this.cancelBtn_Click);
            //
            // cG4DatabaseDataSet
            //
```

```csharp
            this.cG4DatabaseDataSet.DataSetName = "CG4DatabaseDataSet";
            this.cG4DatabaseDataSet.SchemaSerializationMode = System.Data.SchemaSerializationMode.Incl
udeSchema;
            //
            // roomTableBindingSource
            //
            this.roomTableBindingSource.DataMember = "RoomTable";
            this.roomTableBindingSource.DataSource = this.cG4DatabaseDataSet;
            //
            // roomTableTableAdapter
            //
            this.roomTableTableAdapter.ClearBeforeFill = true;
            //
            // NewRoomForm
            //
            this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
            this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;
            this.ClientSize = new System.Drawing.Size(326, 347);
            this.Controls.Add(this.cancelBtn);
            this.Controls.Add(this.button1);
            this.Controls.Add(this.roomDescripBox);
            this.Controls.Add(this.roomTypeBox);
            this.Controls.Add(this.label4);
            this.Controls.Add(this.label3);
            this.Controls.Add(this.roomIDBox);
            this.Controls.Add(this.label2);
            this.Controls.Add(this.label1);
            this.FormBorderStyle = System.Windows.Forms.FormBorderStyle.FixedSingle;
            this.Name = "NewRoomForm";
            this.StartPosition = System.Windows.Forms.FormStartPosition.CenterScreen;
            this.Text = "New Room";
            this.Load += new System.EventHandler(this.NewRoomForm_Load);
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.roomTableBindingSource)).EndInit();
            this.ResumeLayout(false);
            this.PerformLayout();

        }

        #endregion

        private System.Windows.Forms.Label label1;
        private System.Windows.Forms.Label label2;
        private System.Windows.Forms.TextBox roomIDBox;
        private System.Windows.Forms.Label label3;
        private System.Windows.Forms.Label label4;
        private System.Windows.Forms.TextBox roomTypeBox;
        private System.Windows.Forms.RichTextBox roomDescripBox;
        private System.Windows.Forms.Button button1;
        private System.Windows.Forms.Button cancelBtn;
        private CG4DatabaseDataSet cG4DatabaseDataSet;
        private System.Windows.Forms.BindingSource roomTableBindingSource;
        private CG4DatabaseDataSetTableAdapters.RoomTableTableAdapter roomTableTableAdapter;
    }
}
```

NewUserForm.cs

```csharp
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using System.Text.RegularExpressions;
```

Huw Talliss

```csharp
namespace CG4_Solution
{
    public partial class NewUserForm : Form
    {
        private Regex EmailRegex = new Regex(@"^[A-Za-z0-9._%-]+@[A-Za-z0-9.-]+\.[A-Za-z]{2,4}$");
        private Regex TelRegex = new Regex(@"^((\(?0\d{4}\)?\s?\d{3}\s?\d{3})|(\(?0\d{3}\)?\s?\d{3}\s?\d{4})|(\(?0\d{2}\)?\s?\d{4}\s?\d{4}))(\s?\#(\d{4}|\d{3}))?$");

        public NewUserForm()
        {
            InitializeComponent();
            this.MaximizeBox = false;
            this.MinimizeBox = false;
        }

        private void NewUserForm_Load(object sender, EventArgs e)
        {
            // TODO: This line of code loads data into the 'cG4DatabaseDataSet.UserTable' table. You can move, or remove it, as needed.
            this.userTableTableAdapter.Fill(this.cG4DatabaseDataSet.UserTable);
            newUserBtn.Enabled = false;
            userLevelBox.SelectedIndex = 0;
        }

        private void BookBtnEnable()
        {
            //Matches each field to its Regular expression regex
            if (userIDBox.TextLength != 0 && password1Box.Text == password2Box.Text && password1Box.TextLength != 0)
            {
                if (emailBox.TextLength == 0 && telBox.TextLength == 0 || EmailRegex.IsMatch(emailBox.Text) && telBox.TextLength == 0 || emailBox.TextLength == 0 && TelRegex.IsMatch(telBox.Text) || EmailRegex.IsMatch(emailBox.Text) && TelRegex.IsMatch(telBox.Text))
                {
                    //Enables the Book Button
                    newUserBtn.Enabled = true;
                    ValidationErrorLabel.Text = "";
                }
                else
                {
                    //Disables the book button
                    newUserBtn.Enabled = false;
                    ValidationErrorLabel.Text = "One or more fields \ncontain incorrect information";
                }
            }
            else
            {
                //Disables the book button
                newUserBtn.Enabled = false;
                ValidationErrorLabel.Text = "One or more fields \ncontain incorrect information";
            }
        }

        private void ValidatableTextBox_Leave(object sender, EventArgs e)
        {
            //Checks if the textbox that lost focus is white or green or empty and, if it is, its colour is set to white. If it is not, the text box's colour is set to OrangeRed
            ((TextBox)sender).BackColor = (((TextBox)sender).BackColor == Color.White || ((TextBox)sender).BackColor == Color.GreenYellow || ((TextBox)sender).Text.Length == 0) ? Color.White : Color.OrangeRed;
            //The BookBtnEnable function is called
            BookBtnEnable();
        }

        private void userIDBox_TextChanged(object sender, EventArgs e)
        {
            ((TextBox)sender).BackColor = ((TextBox)sender).TextLength != 0 ? Color.GreenYellow : Color.OrangeRed;
            BookBtnEnable();
        }
```

```csharp
        private void password1Box_TextChanged(object sender, EventArgs e)
        {
            ((TextBox)sender).BackColor = ((TextBox)sender).Text == password2Box.Text ? Color.GreenYellow : Color.OrangeRed;
            password2Box.BackColor = password2Box.Text == password1Box.Text ? Color.GreenYellow : Color.OrangeRed;
            BookBtnEnable();
        }

        private void password2Box_TextChanged(object sender, EventArgs e)
        {
            ((TextBox)sender).BackColor = ((TextBox)sender).Text == password1Box.Text ? Color.GreenYellow : Color.OrangeRed;
            password1Box.BackColor = password1Box.Text == password2Box.Text ? Color.GreenYellow : Color.OrangeRed;
            BookBtnEnable();
        }

        private void emailBox_TextChanged(object sender, EventArgs e)
        {
            ((TextBox)sender).BackColor = EmailRegex.IsMatch(((TextBox)sender).Text) ? Color.GreenYellow : Color.OrangeRed;
            BookBtnEnable();
        }

        private void telBox_TextChanged(object sender, EventArgs e)
        {
            ((TextBox)sender).BackColor = TelRegex.IsMatch(((TextBox)sender).Text) ? Color.GreenYellow : Color.OrangeRed;
            BookBtnEnable();
        }

        private void cancelBtn_Click(object sender, EventArgs e)
        {
            if (MessageBox.Show("Are you sure you want to cancel?", "Cancel?", MessageBoxButtons.YesNo, MessageBoxIcon.Question, MessageBoxDefaultButton.Button2) == DialogResult.Yes)
            {
                this.Close();
            }
        }

        private void newUserBtn_Click(object sender, EventArgs e)
        {
            userTableTableAdapter.Insert(userIDBox.Text, password1Box.Text, emailBox.Text, telBox.Text, (string)userLevelBox.SelectedItem);
            userTableTableAdapter.Update(cG4DatabaseDataSet.UserTable);
            MessageBox.Show("New user has been added", "Success", MessageBoxButtons.OK, MessageBoxIcon.Information);
            this.Close();
        }

    }
}
```

NewUserForm.Designer.cs

```csharp
namespace CG4_Solution
{
    partial class NewUserForm
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
```

```csharp
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</p
aram>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
            base.Dispose(disposing);
        }

        #region Windows Form Designer generated code

        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        private void InitializeComponent()
        {
            this.components = new System.ComponentModel.Container();
            this.label1 = new System.Windows.Forms.Label();
            this.userIDBox = new System.Windows.Forms.TextBox();
            this.password1Box = new System.Windows.Forms.TextBox();
            this.password2Box = new System.Windows.Forms.TextBox();
            this.emailBox = new System.Windows.Forms.TextBox();
            this.telBox = new System.Windows.Forms.TextBox();
            this.label2 = new System.Windows.Forms.Label();
            this.label3 = new System.Windows.Forms.Label();
            this.label4 = new System.Windows.Forms.Label();
            this.label5 = new System.Windows.Forms.Label();
            this.label6 = new System.Windows.Forms.Label();
            this.label7 = new System.Windows.Forms.Label();
            this.userLevelBox = new System.Windows.Forms.ComboBox();
            this.label8 = new System.Windows.Forms.Label();
            this.newUserBtn = new System.Windows.Forms.Button();
            this.cancelBtn = new System.Windows.Forms.Button();
            this.ValidationErrorLabel = new System.Windows.Forms.Label();
            this.cG4DatabaseDataSet = new CG4_Solution.CG4DatabaseDataSet();
            this.userTableBindingSource = new System.Windows.Forms.BindingSource(this.components);
            this.userTableTableAdapter = new CG4_Solution.CG4DatabaseDataSetTableAdapters.UserTableTab
leAdapter();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.userTableBindingSource)).BeginInit();
            this.SuspendLayout();
            //
            // label1
            //
            this.label1.AutoSize = true;
            this.label1.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F, System.Drawing.
FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label1.Location = new System.Drawing.Point(83, 19);
            this.label1.Name = "label1";
            this.label1.Size = new System.Drawing.Size(133, 24);
            this.label1.TabIndex = 0;
            this.label1.Text = "Add New User";
            //
            // userIDBox
            //
            this.userIDBox.Location = new System.Drawing.Point(127, 61);
            this.userIDBox.MaxLength = 20;
            this.userIDBox.Name = "userIDBox";
            this.userIDBox.Size = new System.Drawing.Size(100, 20);
            this.userIDBox.TabIndex = 1;
            this.userIDBox.TextChanged += new System.EventHandler(this.userIDBox_TextChanged);
            this.userIDBox.Leave += new System.EventHandler(this.ValidatableTextBox_Leave);
            //
            // password1Box
            //
            this.password1Box.Location = new System.Drawing.Point(127, 98);
            this.password1Box.MaxLength = 25;
            this.password1Box.Name = "password1Box";
```

```csharp
            this.password1Box.Size = new System.Drawing.Size(100, 20);
            this.password1Box.TabIndex = 2;
            this.password1Box.TextChanged += new System.EventHandler(this.password1Box_TextChanged);
            this.password1Box.Leave += new System.EventHandler(this.ValidatableTextBox_Leave);
            //
            // password2Box
            //
            this.password2Box.Location = new System.Drawing.Point(127, 140);
            this.password2Box.MaxLength = 25;
            this.password2Box.Name = "password2Box";
            this.password2Box.Size = new System.Drawing.Size(100, 20);
            this.password2Box.TabIndex = 3;
            this.password2Box.TextChanged += new System.EventHandler(this.password2Box_TextChanged);
            this.password2Box.Leave += new System.EventHandler(this.ValidatableTextBox_Leave);
            //
            // emailBox
            //
            this.emailBox.Location = new System.Drawing.Point(127, 180);
            this.emailBox.MaxLength = 40;
            this.emailBox.Name = "emailBox";
            this.emailBox.Size = new System.Drawing.Size(100, 20);
            this.emailBox.TabIndex = 4;
            this.emailBox.TextChanged += new System.EventHandler(this.emailBox_TextChanged);
            this.emailBox.Leave += new System.EventHandler(this.ValidatableTextBox_Leave);
            //
            // telBox
            //
            this.telBox.Location = new System.Drawing.Point(127, 229);
            this.telBox.MaxLength = 11;
            this.telBox.Name = "telBox";
            this.telBox.Size = new System.Drawing.Size(100, 20);
            this.telBox.TabIndex = 5;
            this.telBox.TextChanged += new System.EventHandler(this.telBox_TextChanged);
            this.telBox.Leave += new System.EventHandler(this.ValidatableTextBox_Leave);
            //
            // label2
            //
            this.label2.AutoSize = true;
            this.label2.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label2.Location = new System.Drawing.Point(51, 62);
            this.label2.Name = "label2";
            this.label2.Size = new System.Drawing.Size(58, 16);
            this.label2.TabIndex = 6;
            this.label2.Text = "UserID*:";
            //
            // label3
            //
            this.label3.AutoSize = true;
            this.label3.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label3.Location = new System.Drawing.Point(33, 98);
            this.label3.Name = "label3";
            this.label3.Size = new System.Drawing.Size(76, 16);
            this.label3.TabIndex = 7;
            this.label3.Text = "Password*:";
            //
            // label4
            //
            this.label4.AutoSize = true;
            this.label4.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label4.Location = new System.Drawing.Point(33, 128);
            this.label4.Name = "label4";
            this.label4.Size = new System.Drawing.Size(76, 32);
            this.label4.TabIndex = 8;
            this.label4.Text = "Re Enter\r\nPassword*:";
            //
            // label5
            //
            this.label5.AutoSize = true;
```

```csharp
            this.label5.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.F
ontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label5.Location = new System.Drawing.Point(64, 180);
            this.label5.Name = "label5";
            this.label5.Size = new System.Drawing.Size(45, 16);
            this.label5.TabIndex = 9;
            this.label5.Text = "Email:";
            //
            // label6
            //
            this.label6.AutoSize = true;
            this.label6.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.F
ontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label6.Location = new System.Drawing.Point(35, 217);
            this.label6.Name = "label6";
            this.label6.Size = new System.Drawing.Size(74, 32);
            this.label6.TabIndex = 10;
            this.label6.Text = "Telephone\r\nNumber:";
            //
            // label7
            //
            this.label7.AutoSize = true;
            this.label7.Location = new System.Drawing.Point(13, 373);
            this.label7.Name = "label7";
            this.label7.Size = new System.Drawing.Size(88, 13);
            this.label7.TabIndex = 11;
            this.label7.Text = "* - Required Field";
            //
            // userLevelBox
            //
            this.userLevelBox.DropDownStyle = System.Windows.Forms.ComboBoxStyle.DropDownList;
            this.userLevelBox.FormattingEnabled = true;
            this.userLevelBox.Items.AddRange(new object[] {
            "user",
            "admin"});
            this.userLevelBox.Location = new System.Drawing.Point(127, 272);
            this.userLevelBox.Name = "userLevelBox";
            this.userLevelBox.Size = new System.Drawing.Size(100, 21);
            this.userLevelBox.TabIndex = 12;
            //
            // label8
            //
            this.label8.AutoSize = true;
            this.label8.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.F
ontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label8.Location = new System.Drawing.Point(28, 274);
            this.label8.Name = "label8";
            this.label8.Size = new System.Drawing.Size(81, 16);
            this.label8.TabIndex = 13;
            this.label8.Text = "User Level*:";
            //
            // newUserBtn
            //
            this.newUserBtn.Location = new System.Drawing.Point(38, 341);
            this.newUserBtn.Name = "newUserBtn";
            this.newUserBtn.Size = new System.Drawing.Size(79, 23);
            this.newUserBtn.TabIndex = 14;
            this.newUserBtn.Text = "Add User";
            this.newUserBtn.UseVisualStyleBackColor = true;
            this.newUserBtn.Click += new System.EventHandler(this.newUserBtn_Click);
            //
            // cancelBtn
            //
            this.cancelBtn.Location = new System.Drawing.Point(200, 341);
            this.cancelBtn.Name = "cancelBtn";
            this.cancelBtn.Size = new System.Drawing.Size(75, 23);
            this.cancelBtn.TabIndex = 15;
            this.cancelBtn.Text = "Cancel";
            this.cancelBtn.UseVisualStyleBackColor = true;
            this.cancelBtn.Click += new System.EventHandler(this.cancelBtn_Click);
            //
```

```csharp
            // ValidationErrorLabel
            //
            this.ValidationErrorLabel.AutoSize = true;
            this.ValidationErrorLabel.Location = new System.Drawing.Point(65, 307);
            this.ValidationErrorLabel.Name = "ValidationErrorLabel";
            this.ValidationErrorLabel.Size = new System.Drawing.Size(0, 13);
            this.ValidationErrorLabel.TabIndex = 16;
            //
            // cG4DatabaseDataSet
            //
            this.cG4DatabaseDataSet.DataSetName = "CG4DatabaseDataSet";
            this.cG4DatabaseDataSet.SchemaSerializationMode = System.Data.SchemaSerializationMode.Incl
udeSchema;
            //
            // userTableBindingSource
            //
            this.userTableBindingSource.DataMember = "UserTable";
            this.userTableBindingSource.DataSource = this.cG4DatabaseDataSet;
            //
            // userTableTableAdapter
            //
            this.userTableTableAdapter.ClearBeforeFill = true;
            //
            // NewUserForm
            //
            this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
            this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;
            this.ClientSize = new System.Drawing.Size(314, 394);
            this.Controls.Add(this.ValidationErrorLabel);
            this.Controls.Add(this.cancelBtn);
            this.Controls.Add(this.newUserBtn);
            this.Controls.Add(this.label8);
            this.Controls.Add(this.userLevelBox);
            this.Controls.Add(this.label7);
            this.Controls.Add(this.label6);
            this.Controls.Add(this.label5);
            this.Controls.Add(this.label4);
            this.Controls.Add(this.label3);
            this.Controls.Add(this.label2);
            this.Controls.Add(this.telBox);
            this.Controls.Add(this.emailBox);
            this.Controls.Add(this.password2Box);
            this.Controls.Add(this.password1Box);
            this.Controls.Add(this.userIDBox);
            this.Controls.Add(this.label1);
            this.FormBorderStyle = System.Windows.Forms.FormBorderStyle.FixedSingle;
            this.Name = "NewUserForm";
            this.StartPosition = System.Windows.Forms.FormStartPosition.CenterScreen;
            this.Text = "New User";
            this.Load += new System.EventHandler(this.NewUserForm_Load);
            this.Leave += new System.EventHandler(this.ValidatableTextBox_Leave);
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.userTableBindingSource)).EndInit();
            this.ResumeLayout(false);
            this.PerformLayout();

        }

        #endregion

        private System.Windows.Forms.Label label1;
        private System.Windows.Forms.TextBox userIDBox;
        private System.Windows.Forms.TextBox password1Box;
        private System.Windows.Forms.TextBox password2Box;
        private System.Windows.Forms.TextBox emailBox;
        private System.Windows.Forms.TextBox telBox;
        private System.Windows.Forms.Label label2;
        private System.Windows.Forms.Label label3;
        private System.Windows.Forms.Label label4;
        private System.Windows.Forms.Label label5;
        private System.Windows.Forms.Label label6;
```

```
        private System.Windows.Forms.Label label7;
        private System.Windows.Forms.ComboBox userLevelBox;
        private System.Windows.Forms.Label label8;
        private System.Windows.Forms.Button newUserBtn;
        private System.Windows.Forms.Button cancelBtn;
        private System.Windows.Forms.Label ValidationErrorLabel;
        private CG4DatabaseDataSet cG4DatabaseDataSet;
        private System.Windows.Forms.BindingSource userTableBindingSource;
        private CG4DatabaseDataSetTableAdapters.UserTableTableAdapter userTableTableAdapter;
    }
}
```

ReportForm.cs

```csharp
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using Microsoft.Reporting.WinForms;

namespace CG4_Solution
{
    public partial class ReportForm : Form
    {
        //Declares a string variable that is used to store the string passed to the form when it is
called
        string report;
        public ReportForm(string passedReport)
        {
         //Sets the report variable to the string passed to the form when it is called
            report = passedReport;
            InitializeComponent();
            this.MaximizeBox = false;
            this.MinimizeBox = false;
        }

        private void ReportForm_Load(object sender, EventArgs e)
        {
            // TODO: This line of code loads data into the 'CG4DatabaseDataSet.DefectTable' table. You
 can move, or remove it, as needed.
            this.DefectTableTableAdapter.Fill(this.CG4DatabaseDataSet.DefectTable);


            this.reportViewer1.Reset();
            //create new report data source using the DefectTable
            ReportDataSource reportDataSource = new ReportDataSource("reportDataSet", DefectTableBindi
ngSource);

            //Add the datasource to the reportViewer
            reportViewer1.LocalReport.DataSources.Add(reportDataSource);

            //change the shown report dependant on the string that was passed to the form when it was
called
        //if the string is "All Defects" then show the allDefectsReport
            if (report == "All Defects")
            {
                reportViewer1.LocalReport.ReportEmbeddedResource = "CG4_Solution.allDefectsReport.rdlc
";
            }
            if (report == "Unresolved Defects")
            {
                reportViewer1.LocalReport.ReportEmbeddedResource = "CG4_Solution.unsolvedDefectsReport
.rdlc";
            }
            if (report == "Resolved Defects")
            {
```

```csharp
                reportViewer1.LocalReport.ReportEmbeddedResource = "CG4_Solution.resolvedDefectsReport
.rdlc";
            }
            //Change the margins of the report
            System.Drawing.Printing.PageSettings pg = new System.Drawing.Printing.PageSettings();
            pg.Margins.Left = 20;
            pg.Margins.Right = 5;
            pg.Margins.Top = 15;
         //Apply these pagesettings
            this.reportViewer1.SetPageSettings(pg);
            //Refresh the reportViewer
            this.reportViewer1.RefreshReport();
        }

        private void closeBtn_Click(object sender, EventArgs e)
        {
            this.Close();
        }

        private void printBtn_Click(object sender, EventArgs e)
        {
            //Call the printer Dialog Box
            reportViewer1.PrintDialog();
        }
    }
}
```

ReportForm.Designer.cs

```csharp
namespace CG4_Solution
{
    partial class ReportForm
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</p
aram>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
            base.Dispose(disposing);
        }

        #region Windows Form Designer generated code

        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        private void InitializeComponent()
        {
            this.components = new System.ComponentModel.Container();
            Microsoft.Reporting.WinForms.ReportDataSource reportDataSource1 = new Microsoft.Reporting.
WinForms.ReportDataSource();
            this.DefectTableBindingSource = new System.Windows.Forms.BindingSource(this.components);
            this.CG4DatabaseDataSet = new CG4_Solution.CG4DatabaseDataSet();
            this.reportViewer1 = new Microsoft.Reporting.WinForms.ReportViewer();
            this.DefectTableTableAdapter = new CG4_Solution.CG4DatabaseDataSetTableAdapters.DefectTabl
eTableAdapter();
            this.DefectTableReportDataSet1 = new CG4_Solution.DefectTableReportDataSet1();
```

```csharp
            this.printBtn = new System.Windows.Forms.Button();
            this.closeBtn = new System.Windows.Forms.Button();
            ((System.ComponentModel.ISupportInitialize)(this.DefectTableBindingSource)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.CG4DatabaseDataSet)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.DefectTableReportDataSet1)).BeginInit();
            this.SuspendLayout();
            //
            // DefectTableBindingSource
            //
            this.DefectTableBindingSource.DataMember = "DefectTable";
            this.DefectTableBindingSource.DataSource = this.CG4DatabaseDataSet;
            //
            // CG4DatabaseDataSet
            //
            this.CG4DatabaseDataSet.DataSetName = "CG4DatabaseDataSet";
            this.CG4DatabaseDataSet.SchemaSerializationMode = System.Data.SchemaSerializationMode.Incl
udeSchema;
            //
            // reportViewer1
            //
            reportDataSource1.Name = "reportDataSet";
            reportDataSource1.Value = this.DefectTableBindingSource;
            this.reportViewer1.LocalReport.DataSources.Add(reportDataSource1);
            this.reportViewer1.LocalReport.ReportEmbeddedResource = "CG4_Solution.resolvedDefectsRepor
t.rdlc";
            this.reportViewer1.Location = new System.Drawing.Point(31, 13);
            this.reportViewer1.Name = "reportViewer1";
            this.reportViewer1.Size = new System.Drawing.Size(866, 511);
            this.reportViewer1.TabIndex = 0;
            //
            // DefectTableTableAdapter
            //
            this.DefectTableTableAdapter.ClearBeforeFill = true;
            //
            // DefectTableReportDataSet1
            //
            this.DefectTableReportDataSet1.DataSetName = "DefectTableReportDataSet1";
            this.DefectTableReportDataSet1.SchemaSerializationMode = System.Data.SchemaSerializationMo
de.IncludeSchema;
            //
            // printBtn
            //
            this.printBtn.Location = new System.Drawing.Point(31, 530);
            this.printBtn.Name = "printBtn";
            this.printBtn.Size = new System.Drawing.Size(75, 23);
            this.printBtn.TabIndex = 1;
            this.printBtn.Text = "Print";
            this.printBtn.UseVisualStyleBackColor = true;
            this.printBtn.Click += new System.EventHandler(this.printBtn_Click);
            //
            // closeBtn
            //
            this.closeBtn.Location = new System.Drawing.Point(822, 530);
            this.closeBtn.Name = "closeBtn";
            this.closeBtn.Size = new System.Drawing.Size(75, 23);
            this.closeBtn.TabIndex = 2;
            this.closeBtn.Text = "Close";
            this.closeBtn.UseVisualStyleBackColor = true;
            this.closeBtn.Click += new System.EventHandler(this.closeBtn_Click);
            //
            // ReportForm
            //
            this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
            this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;
            this.ClientSize = new System.Drawing.Size(928, 564);
            this.Controls.Add(this.closeBtn);
            this.Controls.Add(this.printBtn);
            this.Controls.Add(this.reportViewer1);
            this.FormBorderStyle = System.Windows.Forms.FormBorderStyle.FixedSingle;
            this.Name = "ReportForm";
            this.StartPosition = System.Windows.Forms.FormStartPosition.CenterScreen;
```

```
            this.Text = "Print Report";
            this.Load += new System.EventHandler(this.ReportForm_Load);
            ((System.ComponentModel.ISupportInitialize)(this.DefectTableBindingSource)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.CG4DatabaseDataSet)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.DefectTableReportDataSet1)).EndInit();
            this.ResumeLayout(false);

        }

        #endregion

        private Microsoft.Reporting.WinForms.ReportViewer reportViewer1;
        private System.Windows.Forms.BindingSource DefectTableBindingSource;
        private CG4DatabaseDataSet CG4DatabaseDataSet;
        private CG4DatabaseDataSetTableAdapters.DefectTableTableAdapter DefectTableTableAdapter;
        private DefectTableReportDataSet1 DefectTableReportDataSet1;
        private System.Windows.Forms.Button printBtn;
        private System.Windows.Forms.Button closeBtn;


    }
}
```

ResolveForm.cs

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace CG4_Solution
{
    public partial class ResolveForm : Form
    {
        public ResolveForm()
        {
            InitializeComponent();
            this.MaximizeBox = false;
            this.MinimizeBox = false;
            //Set the maxdate of the time picker to the current system date
            dateTimePicker1.MaxDate = DateTime.Now;
        }

        private void ResolveForm_Load(object sender, EventArgs e)
        {

        }

        private void resolveBtn_Click(object sender, EventArgs e)
        {
            //Set the resolveDate global variable to the selected date of the picker
            MyGlobals.resolveDate = dateTimePicker1.Value;
            this.Close();
        }
    }
}
```

ResolveForm.Designer.cs

```
namespace CG4_Solution
{
    partial class ResolveForm
    {
```

```csharp
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
            base.Dispose(disposing);
        }

        #region Windows Form Designer generated code

        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        private void InitializeComponent()
        {
            this.dateTimePicker1 = new System.Windows.Forms.DateTimePicker();
            this.resolveBtn = new System.Windows.Forms.Button();
            this.label1 = new System.Windows.Forms.Label();
            this.SuspendLayout();
            // 
            // dateTimePicker1
            // 
            this.dateTimePicker1.Location = new System.Drawing.Point(29, 54);
            this.dateTimePicker1.Name = "dateTimePicker1";
            this.dateTimePicker1.Size = new System.Drawing.Size(200, 20);
            this.dateTimePicker1.TabIndex = 0;
            // 
            // resolveBtn
            // 
            this.resolveBtn.Location = new System.Drawing.Point(83, 96);
            this.resolveBtn.Name = "resolveBtn";
            this.resolveBtn.Size = new System.Drawing.Size(75, 23);
            this.resolveBtn.TabIndex = 1;
            this.resolveBtn.Text = "Resolve Defect";
            this.resolveBtn.UseVisualStyleBackColor = true;
            this.resolveBtn.Click += new System.EventHandler(this.resolveBtn_Click);
            // 
            // label1
            // 
            this.label1.AutoSize = true;
            this.label1.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label1.Location = new System.Drawing.Point(37, 9);
            this.label1.Name = "label1";
            this.label1.Size = new System.Drawing.Size(175, 32);
            this.label1.TabIndex = 2;
            this.label1.Text = "Select the date on which the \r\ndefect was resolved";
            this.label1.TextAlign = System.Drawing.ContentAlignment.MiddleCenter;
            // 
            // ResolveForm
            // 
            this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
            this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;
            this.ClientSize = new System.Drawing.Size(253, 148);
            this.Controls.Add(this.label1);
            this.Controls.Add(this.resolveBtn);
            this.Controls.Add(this.dateTimePicker1);
            this.FormBorderStyle = System.Windows.Forms.FormBorderStyle.FixedSingle;
            this.Name = "ResolveForm";
```

```
            this.StartPosition = System.Windows.Forms.FormStartPosition.CenterParent;
            this.Text = "Resolve Defect";
            this.Load += new System.EventHandler(this.ResolveForm_Load);
            this.ResumeLayout(false);
            this.PerformLayout();

        }

        #endregion

        private System.Windows.Forms.DateTimePicker dateTimePicker1;
        private System.Windows.Forms.Button resolveBtn;
        private System.Windows.Forms.Label label1;
    }
}
```

ViewDefectsForm.cs

```csharp
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using System.Text.RegularExpressions;

namespace CG4_Solution
{
    public partial class ViewDefectsForm : Form
    {
        //Declare two variables, one for storing the index of the selected row and the other is for
storing a regular expression that matches with ineger numbers only
        int selectedRowIndex;
        Regex DefectIDSearchRegex = new Regex(@"^[0-9]+$");

        public ViewDefectsForm()
        {
            InitializeComponent();
            this.MaximizeBox = false;
            this.MinimizeBox = false;
                //Set the selected item of the combobox to the first item
            SearchComboBox.SelectedIndex = 0;
        }

        private void ViewDefectsForm_Load(object sender, EventArgs e)
        {
            // TODO: This line of code loads data into the 'cG4DatabaseDataSet1.DefectTable' table. Yo
u can move, or remove it, as needed.
            this.defectTableTableAdapter.Fill(this.cG4DatabaseDataSet1.DefectTable);
            // TODO: This line of code loads data into the 'cG4DatabaseDataSet.DefectTable' table. You
 can move, or remove it, as needed.
            this.defectTableTableAdapter.Fill(this.cG4DatabaseDataSet.DefectTable);
            //Disable the resolveBtn
            resolveBtn.Enabled = false;
            //Create a filter for only showing rows whose RoomID is the selectedRoom
            string filter;
            string token = MyGlobals.selectedRoom;
            filter = token == "" ? "" : "(" + "RoomID" + " LIKE '%" + token + "%')";
            //Apply the filter
            defectTableBindingSource.Filter = filter;

        }

        private void closeBtn_Click(object sender, EventArgs e)
        {
            this.Close();
```

```csharp
        }

        private void resolveBtn_Click(object sender, EventArgs e)
        {
            //This value is used to find the index of the row that we want
            int i = 0;

            //Go through each row in the DefectTable and if its RoomID matches the selectedRoom then break the foreach
            foreach (CG4DatabaseDataSet.DefectTableRow thisRow in cG4DatabaseDataSet1.DefectTable.Rows)
            {
                if (thisRow.RoomID == MyGlobals.selectedRoom.PadRight(25))
                {
                    break;
                }
                i++;
            }
            //Get the row data of the row at index i
            CG4DatabaseDataSet.DefectTableRow row = (CG4DatabaseDataSet.DefectTableRow)cG4DatabaseDataSet1.DefectTable.Rows[selectedRowIndex + i];
            //Check that the row has no data entered in it currently
            if (row.IsDateResolvedNull())
            {
                //Used to see if the defect was resolved
                DateTime previousDate = MyGlobals.resolveDate;
                //Show the resolveForm
                Form resolveForm = new ResolveForm();
                resolveForm.ShowDialog();

                //If a new resovlveDate was enterd, apply it to the row in the table and update the table
                if (MyGlobals.resolveDate != previousDate)
                {
                    row.DateResolved = MyGlobals.resolveDate;
                    defectTableTableAdapter.Update(row);
                    this.defectTableTableAdapter.Fill(this.cG4DatabaseDataSet1.DefectTable);
                }
            }
            else
            {
                //Shows an error if the defect has already been resolved
                MessageBox.Show("This defect has already been marked as resolved", "Error", MessageBoxButtons.OK, MessageBoxIcon.Error);
            }
        }

        private void dataGridView1_CellClick(object sender, DataGridViewCellEventArgs e)
        {
            //Enable the resolveBtn and set the selectedRowIndex to the index of the row that was clicked on
            resolveBtn.Enabled = true;
            selectedRowIndex = e.RowIndex;
        }

        private void SearchBox_TextChanged(object sender, EventArgs e)
        {
            //When the text in the SearchBox changes, the search filter is applied to the table if the entered text is valid
            //Creating variables to be used to contain the field that the filter will be applied to, the filter that should be used
            //and the entered text
            string field = SearchComboBox.SelectedItem.ToString();
            string filter = "";
            string token = ((TextBox)sender).Text;

            //As the DefectID field is an integer type, a seperate filter needs to be used otherwise it would throw an error
            //so the currently selected field is determined and if it is the CustomerID field, the regex earlier defined is used
            //so that the filter will only be applied if the entered text contains numbers only
```

```csharp
            filter = token == "" ? "" : "(" + "RoomID" + " LIKE '%" + MyGlobals.selectedRoom + "%' )";

            if (field == "DefectID")
            {
                //Checks the entered text against the Regular Expression
                if (DefectIDSearchRegex.IsMatch(token))
                {
                    //Declares the filter
                    filter = token == "" ? "" : "(" + field + " = " + token + ")" + "AND" + "(" + "Roo
mID" + " LIKE '%" + MyGlobals.selectedRoom + "%' )";
                }
            }
            if (field != "DefectID" && filter != "")
            {
                filter = token == "" ? "" : "(" + field + " LIKE '%" + token + "%')" + "AND" + "(" + "
RoomID" + " LIKE '%" + MyGlobals.selectedRoom + "%' )";
            }
            if (filter == "")
            {
                filter = "(" + "RoomID" + " LIKE '%" + MyGlobals.selectedRoom + "%' )";
            }

            //Applies the filter to the table
            defectTableBindingSource.Filter = filter;
        }

        //Sorts the table based on which radio button is checked
        private void defectIDRadioBtn_CheckedChanged(object sender, EventArgs e)
        {
            dataGridView1.Sort(dataGridViewTextBoxColumn1, ListSortDirection.Ascending);
        }

        private void priorityRadioBtn_CheckedChanged(object sender, EventArgs e)
        {
            dataGridView1.Sort(priorityDataGridViewTextBoxColumn, ListSortDirection.Ascending);
        }

        private void RoomIDRadioBtn_CheckedChanged(object sender, EventArgs e)
        {
            dataGridView1.Sort(roomIDDataGridViewTextBoxColumn, ListSortDirection.Ascending);
        }

        private void typeRadioBtn_CheckedChanged(object sender, EventArgs e)
        {
            dataGridView1.Sort(typeDataGridViewTextBoxColumn, ListSortDirection.Ascending);
        }
    }
}
```

ViewDefectForm.Designer.cs

```csharp
namespace CG4_Solution
{
    partial class ViewDefectsForm
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</p
aram>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
```

```csharp
                components.Dispose();
            }
            base.Dispose(disposing);
        }

        #region Windows Form Designer generated code

        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        private void InitializeComponent()
        {
            this.components = new System.ComponentModel.Container();
            this.dataGridView1 = new System.Windows.Forms.DataGridView();
            this.dataGridViewTextBoxColumn1 = new System.Windows.Forms.DataGridViewTextBoxColumn();
            this.roomIDDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn(
);
            this.typeDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn();
            this.priorityDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColum
n();
            this.descriptionDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxCo
lumn();
            this.dateFoundDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColu
mn();
            this.dateResolvedDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxC
olumn();
            this.userIDDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn(
);
            this.defectTableBindingSource = new System.Windows.Forms.BindingSource(this.components);
            this.cG4DatabaseDataSet1 = new CG4_Solution.CG4DatabaseDataSet();
            this.cG4DatabaseDataSet = new CG4_Solution.CG4DatabaseDataSet();
            this.defectTableTableAdapter = new CG4_Solution.CG4DatabaseDataSetTableAdapters.DefectTabl
eTableAdapter();
            this.closeBtn = new System.Windows.Forms.Button();
            this.resolveBtn = new System.Windows.Forms.Button();
            this.groupBox2 = new System.Windows.Forms.GroupBox();
            this.priorityRadioBtn = new System.Windows.Forms.RadioButton();
            this.typeRadioBtn = new System.Windows.Forms.RadioButton();
            this.defectIDRadioBtn = new System.Windows.Forms.RadioButton();
            this.RoomIDRadioBtn = new System.Windows.Forms.RadioButton();
            this.SearchComboBox = new System.Windows.Forms.ComboBox();
            this.label4 = new System.Windows.Forms.Label();
            this.SearchBox = new System.Windows.Forms.TextBox();
            ((System.ComponentModel.ISupportInitialize)(this.dataGridView1)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.defectTableBindingSource)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet1)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).BeginInit();
            this.groupBox2.SuspendLayout();
            this.SuspendLayout();
            //
            // dataGridView1
            //
            this.dataGridView1.AllowUserToAddRows = false;
            this.dataGridView1.AllowUserToDeleteRows = false;
            this.dataGridView1.AutoGenerateColumns = false;
            this.dataGridView1.ColumnHeadersHeightSizeMode = System.Windows.Forms.DataGridViewColumnHe
adersHeightSizeMode.AutoSize;
            this.dataGridView1.Columns.AddRange(new System.Windows.Forms.DataGridViewColumn[] {
            this.dataGridViewTextBoxColumn1,
            this.roomIDDataGridViewTextBoxColumn,
            this.typeDataGridViewTextBoxColumn,
            this.priorityDataGridViewTextBoxColumn,
            this.descriptionDataGridViewTextBoxColumn,
            this.dateFoundDataGridViewTextBoxColumn,
            this.dateResolvedDataGridViewTextBoxColumn,
            this.userIDDataGridViewTextBoxColumn});
            this.dataGridView1.DataSource = this.defectTableBindingSource;
            this.dataGridView1.Location = new System.Drawing.Point(13, 13);
            this.dataGridView1.Name = "dataGridView1";
            this.dataGridView1.ReadOnly = true;
```

```csharp
            this.dataGridView1.Size = new System.Drawing.Size(858, 285);
            this.dataGridView1.TabIndex = 0;
            this.dataGridView1.CellClick += new System.Windows.Forms.DataGridViewCellEventHandler(this
.dataGridView1_CellClick);
            //
            // dataGridViewTextBoxColumn1
            //
            this.dataGridViewTextBoxColumn1.DataPropertyName = "DefectID";
            this.dataGridViewTextBoxColumn1.HeaderText = "DefectID";
            this.dataGridViewTextBoxColumn1.Name = "dataGridViewTextBoxColumn1";
            this.dataGridViewTextBoxColumn1.ReadOnly = true;
            //
            // roomIDDataGridViewTextBoxColumn
            //
            this.roomIDDataGridViewTextBoxColumn.DataPropertyName = "RoomID";
            this.roomIDDataGridViewTextBoxColumn.HeaderText = "RoomID";
            this.roomIDDataGridViewTextBoxColumn.Name = "roomIDDataGridViewTextBoxColumn";
            this.roomIDDataGridViewTextBoxColumn.ReadOnly = true;
            //
            // typeDataGridViewTextBoxColumn
            //
            this.typeDataGridViewTextBoxColumn.DataPropertyName = "Type";
            this.typeDataGridViewTextBoxColumn.HeaderText = "Type";
            this.typeDataGridViewTextBoxColumn.Name = "typeDataGridViewTextBoxColumn";
            this.typeDataGridViewTextBoxColumn.ReadOnly = true;
            //
            // priorityDataGridViewTextBoxColumn
            //
            this.priorityDataGridViewTextBoxColumn.DataPropertyName = "Priority";
            this.priorityDataGridViewTextBoxColumn.HeaderText = "Priority";
            this.priorityDataGridViewTextBoxColumn.Name = "priorityDataGridViewTextBoxColumn";
            this.priorityDataGridViewTextBoxColumn.ReadOnly = true;
            //
            // descriptionDataGridViewTextBoxColumn
            //
            this.descriptionDataGridViewTextBoxColumn.DataPropertyName = "Description";
            this.descriptionDataGridViewTextBoxColumn.HeaderText = "Description";
            this.descriptionDataGridViewTextBoxColumn.Name = "descriptionDataGridViewTextBoxColumn";
            this.descriptionDataGridViewTextBoxColumn.ReadOnly = true;
            //
            // dateFoundDataGridViewTextBoxColumn
            //
            this.dateFoundDataGridViewTextBoxColumn.DataPropertyName = "DateFound";
            this.dateFoundDataGridViewTextBoxColumn.HeaderText = "DateFound";
            this.dateFoundDataGridViewTextBoxColumn.Name = "dateFoundDataGridViewTextBoxColumn";
            this.dateFoundDataGridViewTextBoxColumn.ReadOnly = true;
            //
            // dateResolvedDataGridViewTextBoxColumn
            //
            this.dateResolvedDataGridViewTextBoxColumn.DataPropertyName = "DateResolved";
            this.dateResolvedDataGridViewTextBoxColumn.HeaderText = "DateResolved";
            this.dateResolvedDataGridViewTextBoxColumn.Name = "dateResolvedDataGridViewTextBoxColumn";
            this.dateResolvedDataGridViewTextBoxColumn.ReadOnly = true;
            //
            // userIDDataGridViewTextBoxColumn
            //
            this.userIDDataGridViewTextBoxColumn.DataPropertyName = "UserID";
            this.userIDDataGridViewTextBoxColumn.HeaderText = "UserID";
            this.userIDDataGridViewTextBoxColumn.Name = "userIDDataGridViewTextBoxColumn";
            this.userIDDataGridViewTextBoxColumn.ReadOnly = true;
            //
            // defectTableBindingSource
            //
            this.defectTableBindingSource.DataMember = "DefectTable";
            this.defectTableBindingSource.DataSource = this.cG4DatabaseDataSet1;
            //
            // cG4DatabaseDataSet1
            //
            this.cG4DatabaseDataSet1.DataSetName = "CG4DatabaseDataSet";
            this.cG4DatabaseDataSet1.SchemaSerializationMode = System.Data.SchemaSerializationMode.Inc
ludeSchema;
```

```csharp
            //
            // cG4DatabaseDataSet
            //
            this.cG4DatabaseDataSet.DataSetName = "CG4DatabaseDataSet";
            this.cG4DatabaseDataSet.SchemaSerializationMode = System.Data.SchemaSerializationMode.Incl
udeSchema;
            //
            // defectTableTableAdapter
            //
            this.defectTableTableAdapter.ClearBeforeFill = true;
            //
            // closeBtn
            //
            this.closeBtn.Location = new System.Drawing.Point(796, 410);
            this.closeBtn.Name = "closeBtn";
            this.closeBtn.Size = new System.Drawing.Size(75, 23);
            this.closeBtn.TabIndex = 1;
            this.closeBtn.Text = "Close";
            this.closeBtn.UseVisualStyleBackColor = true;
            this.closeBtn.Click += new System.EventHandler(this.closeBtn_Click);
            //
            // resolveBtn
            //
            this.resolveBtn.Location = new System.Drawing.Point(358, 318);
            this.resolveBtn.Name = "resolveBtn";
            this.resolveBtn.Size = new System.Drawing.Size(117, 52);
            this.resolveBtn.TabIndex = 2;
            this.resolveBtn.Text = "Mark Defect as Resolved";
            this.resolveBtn.UseVisualStyleBackColor = true;
            this.resolveBtn.Click += new System.EventHandler(this.resolveBtn_Click);
            //
            // groupBox2
            //
            this.groupBox2.Controls.Add(this.priorityRadioBtn);
            this.groupBox2.Controls.Add(this.typeRadioBtn);
            this.groupBox2.Controls.Add(this.defectIDRadioBtn);
            this.groupBox2.Controls.Add(this.RoomIDRadioBtn);
            this.groupBox2.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawin
g.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.groupBox2.Location = new System.Drawing.Point(13, 318);
            this.groupBox2.Name = "groupBox2";
            this.groupBox2.Size = new System.Drawing.Size(179, 115);
            this.groupBox2.TabIndex = 12;
            this.groupBox2.TabStop = false;
            this.groupBox2.Text = "Sorting";
            //
            // priorityRadioBtn
            //
            this.priorityRadioBtn.AutoSize = true;
            this.priorityRadioBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 8.25F, System
.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.priorityRadioBtn.Location = new System.Drawing.Point(6, 88);
            this.priorityRadioBtn.Name = "priorityRadioBtn";
            this.priorityRadioBtn.Size = new System.Drawing.Size(56, 17);
            this.priorityRadioBtn.TabIndex = 10;
            this.priorityRadioBtn.Text = "Priority";
            this.priorityRadioBtn.UseVisualStyleBackColor = true;
            this.priorityRadioBtn.CheckedChanged += new System.EventHandler(this.priorityRadioBtn_Chec
kedChanged);
            //
            // typeRadioBtn
            //
            this.typeRadioBtn.AutoSize = true;
            this.typeRadioBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 8.25F, System.Dra
wing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.typeRadioBtn.Location = new System.Drawing.Point(6, 65);
            this.typeRadioBtn.Name = "typeRadioBtn";
            this.typeRadioBtn.Size = new System.Drawing.Size(49, 17);
            this.typeRadioBtn.TabIndex = 9;
            this.typeRadioBtn.Text = "Type";
            this.typeRadioBtn.UseVisualStyleBackColor = true;
```

```csharp
            this.typeRadioBtn.CheckedChanged += new System.EventHandler(this.typeRadioBtn_CheckedChanged);
            //
            // defectIDRadioBtn
            //
            this.defectIDRadioBtn.AutoSize = true;
            this.defectIDRadioBtn.Checked = true;
            this.defectIDRadioBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 8.25F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.defectIDRadioBtn.Location = new System.Drawing.Point(6, 19);
            this.defectIDRadioBtn.Name = "defectIDRadioBtn";
            this.defectIDRadioBtn.Size = new System.Drawing.Size(71, 17);
            this.defectIDRadioBtn.TabIndex = 7;
            this.defectIDRadioBtn.TabStop = true;
            this.defectIDRadioBtn.Text = "Defect ID";
            this.defectIDRadioBtn.UseVisualStyleBackColor = true;
            this.defectIDRadioBtn.CheckedChanged += new System.EventHandler(this.defectIDRadioBtn_CheckedChanged);
            //
            // RoomIDRadioBtn
            //
            this.RoomIDRadioBtn.AutoSize = true;
            this.RoomIDRadioBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 8.25F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.RoomIDRadioBtn.Location = new System.Drawing.Point(6, 42);
            this.RoomIDRadioBtn.Name = "RoomIDRadioBtn";
            this.RoomIDRadioBtn.Size = new System.Drawing.Size(67, 17);
            this.RoomIDRadioBtn.TabIndex = 8;
            this.RoomIDRadioBtn.Text = "Room ID";
            this.RoomIDRadioBtn.UseVisualStyleBackColor = true;
            this.RoomIDRadioBtn.CheckedChanged += new System.EventHandler(this.RoomIDRadioBtn_CheckedChanged);
            //
            // SearchComboBox
            //
            this.SearchComboBox.DropDownStyle = System.Windows.Forms.ComboBoxStyle.DropDownList;
            this.SearchComboBox.FormattingEnabled = true;
            this.SearchComboBox.Items.AddRange(new object[] {
            "DefectID",
            "RoomID",
            "Type",
            "Priority",
            "UserID"});
            this.SearchComboBox.Location = new System.Drawing.Point(296, 384);
            this.SearchComboBox.Name = "SearchComboBox";
            this.SearchComboBox.Size = new System.Drawing.Size(121, 21);
            this.SearchComboBox.TabIndex = 20;
            //
            // label4
            //
            this.label4.AutoSize = true;
            this.label4.Location = new System.Drawing.Point(219, 387);
            this.label4.Name = "label4";
            this.label4.Size = new System.Drawing.Size(71, 13);
            this.label4.TabIndex = 19;
            this.label4.Text = "Search/Filter:";
            //
            // SearchBox
            //
            this.SearchBox.Location = new System.Drawing.Point(423, 384);
            this.SearchBox.Name = "SearchBox";
            this.SearchBox.Size = new System.Drawing.Size(125, 20);
            this.SearchBox.TabIndex = 18;
            this.SearchBox.TextChanged += new System.EventHandler(this.SearchBox_TextChanged);
            //
            // ViewDefectsForm
            //
            this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
            this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;
            this.ClientSize = new System.Drawing.Size(883, 445);
            this.Controls.Add(this.SearchComboBox);
```

```csharp
            this.Controls.Add(this.label4);
            this.Controls.Add(this.SearchBox);
            this.Controls.Add(this.groupBox2);
            this.Controls.Add(this.resolveBtn);
            this.Controls.Add(this.closeBtn);
            this.Controls.Add(this.dataGridView1);
            this.FormBorderStyle = System.Windows.Forms.FormBorderStyle.FixedSingle;
            this.Name = "ViewDefectsForm";
            this.StartPosition = System.Windows.Forms.FormStartPosition.CenterScreen;
            this.Text = "View Defects";
            this.Load += new System.EventHandler(this.ViewDefectsForm_Load);
            ((System.ComponentModel.ISupportInitialize)(this.dataGridView1)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.defectTableBindingSource)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet1)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).EndInit();
            this.groupBox2.ResumeLayout(false);
            this.groupBox2.PerformLayout();
            this.ResumeLayout(false);
            this.PerformLayout();

        }

        #endregion

        private System.Windows.Forms.DataGridView dataGridView1;
        private CG4DatabaseDataSet cG4DatabaseDataSet;
        private CG4DatabaseDataSetTableAdapters.DefectTableTableAdapter defectTableTableAdapter;
        private System.Windows.Forms.Button closeBtn;
        private System.Windows.Forms.Button resolveBtn;
        private CG4DatabaseDataSet cG4DatabaseDataSet1;
        private System.Windows.Forms.BindingSource defectTableBindingSource;
        private System.Windows.Forms.DataGridViewTextBoxColumn dataGridViewTextBoxColumn1;
        private System.Windows.Forms.DataGridViewTextBoxColumn roomIDDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn typeDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn priorityDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn descriptionDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn dateFoundDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn dateResolvedDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn userIDDataGridViewTextBoxColumn;
        private System.Windows.Forms.GroupBox groupBox2;
        private System.Windows.Forms.RadioButton priorityRadioBtn;
        private System.Windows.Forms.RadioButton typeRadioBtn;
        private System.Windows.Forms.RadioButton defectIDRadioBtn;
        private System.Windows.Forms.RadioButton RoomIDRadioBtn;
        private System.Windows.Forms.ComboBox SearchComboBox;
        private System.Windows.Forms.Label label4;
        private System.Windows.Forms.TextBox SearchBox;
    }
}
```

ViewRoomDefectsForm.cs

```csharp
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using System.Text.RegularExpressions;

namespace CG4_Solution
{
    public partial class ViewRoomDefectsForm : Form
    {
        //Declares a regular expression which matches with integers only
        Regex DefectIDSearchRegex = new Regex(@"^[0-9]+$");
```

```csharp
        public ViewRoomDefectsForm()
        {
            InitializeComponent();
            this.MaximizeBox = false;
            this.MinimizeBox = false;
            SearchComboBox.SelectedIndex = 0;
        }

        private void ViewRoomDefectsForm_Load(object sender, EventArgs e)
        {
            // TODO: This line of code loads data into the 'cG4DatabaseDataSet.DefectTable' table. You
 can move, or remove it, as needed.
            this.defectTableTableAdapter.Fill(this.cG4DatabaseDataSet.DefectTable);
            // TODO: This line of code loads data into the 'cG4DatabaseDataSet.RoomTable' table. You c
an move, or remove it, as needed.
            this.roomTableTableAdapter.Fill(this.cG4DatabaseDataSet.RoomTable);


        }
         //Saves the changes to the database
        private void saveBtn_Click(object sender, EventArgs e)
        {
            defectTableTableAdapter.Update(cG4DatabaseDataSet.DefectTable);
        }

        //To check the user really wants to delete the row
        private void bindingNavigatorDeleteItem_Click(object sender, EventArgs e)
        {
            if (MessageBox.Show("Are you sure you want to delete this defect?", "Are you sure?", Messa
geBoxButtons.YesNo, MessageBoxIcon.Warning, MessageBoxDefaultButton.Button2) == DialogResult.No)
            {
                //Refills the table from the database to undo the deletion
                this.defectTableTableAdapter.Fill(this.cG4DatabaseDataSet.DefectTable);
            }
        }

        //Sorts the table based on which radio button is checked
        private void defectIDRadioBtn_CheckedChanged(object sender, EventArgs e)
        {
            dataGridView2.Sort(dataGridViewTextBoxColumn1, ListSortDirection.Ascending);
        }

        private void priorityRadioBtn_CheckedChanged(object sender, EventArgs e)
        {
            dataGridView2.Sort(priorityDataGridViewTextBoxColumn, ListSortDirection.Ascending);
        }

        private void RoomIDRadioBtn_CheckedChanged(object sender, EventArgs e)
        {
            dataGridView2.Sort(roomIDDataGridViewTextBoxColumn1, ListSortDirection.Ascending);
        }

        private void typeRadioBtn_CheckedChanged(object sender, EventArgs e)
        {
            dataGridView2.Sort(typeDataGridViewTextBoxColumn, ListSortDirection.Ascending);
        }

        //Sorts the table based on which radio button is checked
        private void roomIDRadioBtnAcc_CheckedChanged(object sender, EventArgs e)
        {
            dataGridView1.Sort(roomIDDataGridViewTextBoxColumn, ListSortDirection.Ascending);
        }

        private void roomIDRadioBtnDec_CheckedChanged(object sender, EventArgs e)
        {
            dataGridView1.Sort(roomIDDataGridViewTextBoxColumn, ListSortDirection.Descending);
        }

        private void SearchBox_TextChanged(object sender, EventArgs e)
        {
```

```csharp
        //When the text in the SearchBox changes, the search filter is applied to the table if the
 entered text is valid
        //Creating variables to be used to contain the field that the filter will be applied to, t
he filter that should be used
        //and the entered text
        string field = SearchComboBox.SelectedItem.ToString();
        string filter = "";
        string token = ((TextBox)sender).Text;

        //As the DefectID field is an integer type, a seperate filter needs to be used otherwise i
t would throw an error
        //so the currently selected field is determined and if it is the CustomerID field, the reg
ex earlier defined is used
        //so that the filter will only be applied if the entered text contains numbers only
        if (field == "DefectID")
        {
            //Checks the entered text against the Regular Expression
            if (DefectIDSearchRegex.IsMatch(token))
            {
                //Declares the filter
                filter = token == "" ? "" : "(" + field + " = " + token + ")";
            }
        }
        else
        {
            filter = token == "" ? "" : "(" + field + " LIKE '%" + token + "%')";
        }
        //Applies the filter to the table
        roomTableDefectTableBindingSource.Filter = filter;

        }
    }
}
```

ViewRoomDefectsForm.Designer.cs

```csharp
 namespace CG4_Solution
{
    partial class ViewRoomDefectsForm
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</p
aram>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
            base.Dispose(disposing);
        }

        #region Windows Form Designer generated code

        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        private void InitializeComponent()
        {
            this.components = new System.ComponentModel.Container();
            System.ComponentModel.ComponentResourceManager resources = new System.ComponentModel.Compo
nentResourceManager(typeof(ViewRoomDefectsForm));
            this.dataGridView1 = new System.Windows.Forms.DataGridView();
```

```csharp
            this.roomIDDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn(
);
            this.roomTypeDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColum
n();
            this.roomDescriptionDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextB
oxColumn();
            this.roomTableBindingSource = new System.Windows.Forms.BindingSource(this.components);
            this.cG4DatabaseDataSet = new CG4_Solution.CG4DatabaseDataSet();
            this.roomTableTableAdapter = new CG4_Solution.CG4DatabaseDataSetTableAdapters.RoomTableTab
leAdapter();
            this.dataGridView2 = new System.Windows.Forms.DataGridView();
            this.dataGridViewTextBoxColumn1 = new System.Windows.Forms.DataGridViewTextBoxColumn();
            this.roomIDDataGridViewTextBoxColumn1 = new System.Windows.Forms.DataGridViewTextBoxColumn
();
            this.typeDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn();
            this.priorityDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColum
n();
            this.descriptionDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxCo
lumn();
            this.dateFoundDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColu
mn();
            this.dateResolvedDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxC
olumn();
            this.userIDDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn(
);
            this.roomTableDefectTableBindingSource = new System.Windows.Forms.BindingSource(this.compo
nents);
            this.defectTableTableAdapter = new CG4_Solution.CG4DatabaseDataSetTableAdapters.DefectTabl
eTableAdapter();
            this.label1 = new System.Windows.Forms.Label();
            this.label2 = new System.Windows.Forms.Label();
            this.bindingNavigator1 = new System.Windows.Forms.BindingNavigator(this.components);
            this.bindingNavigatorCountItem = new System.Windows.Forms.ToolStripLabel();
            this.bindingNavigatorDeleteItem = new System.Windows.Forms.ToolStripButton();
            this.bindingNavigatorMoveFirstItem = new System.Windows.Forms.ToolStripButton();
            this.bindingNavigatorMovePreviousItem = new System.Windows.Forms.ToolStripButton();
            this.bindingNavigatorSeparator = new System.Windows.Forms.ToolStripSeparator();
            this.bindingNavigatorPositionItem = new System.Windows.Forms.ToolStripTextBox();
            this.bindingNavigatorSeparator1 = new System.Windows.Forms.ToolStripSeparator();
            this.bindingNavigatorMoveNextItem = new System.Windows.Forms.ToolStripButton();
            this.bindingNavigatorMoveLastItem = new System.Windows.Forms.ToolStripButton();
            this.bindingNavigatorSeparator2 = new System.Windows.Forms.ToolStripSeparator();
            this.saveBtn = new System.Windows.Forms.Button();
            this.roomIDRadioBtnAcc = new System.Windows.Forms.RadioButton();
            this.roomIDRadioBtnDec = new System.Windows.Forms.RadioButton();
            this.label3 = new System.Windows.Forms.Label();
            this.groupBox1 = new System.Windows.Forms.GroupBox();
            this.groupBox2 = new System.Windows.Forms.GroupBox();
            this.defectIDRadioBtn = new System.Windows.Forms.RadioButton();
            this.RoomIDRadioBtn = new System.Windows.Forms.RadioButton();
            this.typeRadioBtn = new System.Windows.Forms.RadioButton();
            this.priorityRadioBtn = new System.Windows.Forms.RadioButton();
            this.SearchComboBox = new System.Windows.Forms.ComboBox();
            this.label4 = new System.Windows.Forms.Label();
            this.SearchBox = new System.Windows.Forms.TextBox();
            ((System.ComponentModel.ISupportInitialize)(this.dataGridView1)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.roomTableBindingSource)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.dataGridView2)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.roomTableDefectTableBindingSource)).Begin
Init();
            ((System.ComponentModel.ISupportInitialize)(this.bindingNavigator1)).BeginInit();
            this.bindingNavigator1.SuspendLayout();
            this.groupBox1.SuspendLayout();
            this.groupBox2.SuspendLayout();
            this.SuspendLayout();
            //
            // dataGridView1
            //
            this.dataGridView1.AutoGenerateColumns = false;
```

```csharp
            this.dataGridView1.ColumnHeadersHeightSizeMode = System.Windows.Forms.DataGridViewColumnHe
adersHeightSizeMode.AutoSize;
            this.dataGridView1.Columns.AddRange(new System.Windows.Forms.DataGridViewColumn[] {
            this.roomIDDataGridViewTextBoxColumn,
            this.roomTypeDataGridViewTextBoxColumn,
            this.roomDescriptionDataGridViewTextBoxColumn});
            this.dataGridView1.DataSource = this.roomTableBindingSource;
            this.dataGridView1.Location = new System.Drawing.Point(12, 66);
            this.dataGridView1.Name = "dataGridView1";
            this.dataGridView1.Size = new System.Drawing.Size(453, 293);
            this.dataGridView1.TabIndex = 0;
            //
            // roomIDDataGridViewTextBoxColumn
            //
            this.roomIDDataGridViewTextBoxColumn.DataPropertyName = "Room ID";
            this.roomIDDataGridViewTextBoxColumn.HeaderText = "Room ID";
            this.roomIDDataGridViewTextBoxColumn.Name = "roomIDDataGridViewTextBoxColumn";
            this.roomIDDataGridViewTextBoxColumn.ReadOnly = true;
            //
            // roomTypeDataGridViewTextBoxColumn
            //
            this.roomTypeDataGridViewTextBoxColumn.DataPropertyName = "Room Type";
            this.roomTypeDataGridViewTextBoxColumn.HeaderText = "Room Type";
            this.roomTypeDataGridViewTextBoxColumn.Name = "roomTypeDataGridViewTextBoxColumn";
            //
            // roomDescriptionDataGridViewTextBoxColumn
            //
            this.roomDescriptionDataGridViewTextBoxColumn.AutoSizeMode = System.Windows.Forms.DataGrid
ViewAutoSizeColumnMode.DisplayedCells;
            this.roomDescriptionDataGridViewTextBoxColumn.DataPropertyName = "Room Description";
            this.roomDescriptionDataGridViewTextBoxColumn.HeaderText = "Room Description";
            this.roomDescriptionDataGridViewTextBoxColumn.Name = "roomDescriptionDataGridViewTextBoxCo
lumn";
            this.roomDescriptionDataGridViewTextBoxColumn.Width = 106;
            //
            // roomTableBindingSource
            //
            this.roomTableBindingSource.DataMember = "RoomTable";
            this.roomTableBindingSource.DataSource = this.cG4DatabaseDataSet;
            //
            // cG4DatabaseDataSet
            //
            this.cG4DatabaseDataSet.DataSetName = "CG4DatabaseDataSet";
            this.cG4DatabaseDataSet.SchemaSerializationMode = System.Data.SchemaSerializationMode.Incl
udeSchema;
            //
            // roomTableTableAdapter
            //
            this.roomTableTableAdapter.ClearBeforeFill = true;
            //
            // dataGridView2
            //
            this.dataGridView2.AutoGenerateColumns = false;
            this.dataGridView2.ColumnHeadersHeightSizeMode = System.Windows.Forms.DataGridViewColumnHe
adersHeightSizeMode.AutoSize;
            this.dataGridView2.Columns.AddRange(new System.Windows.Forms.DataGridViewColumn[] {
            this.dataGridViewTextBoxColumn1,
            this.roomIDDataGridViewTextBoxColumn1,
            this.typeDataGridViewTextBoxColumn,
            this.priorityDataGridViewTextBoxColumn,
            this.descriptionDataGridViewTextBoxColumn,
            this.dateFoundDataGridViewTextBoxColumn,
            this.dateResolvedDataGridViewTextBoxColumn,
            this.userIDDataGridViewTextBoxColumn});
            this.dataGridView2.DataSource = this.roomTableDefectTableBindingSource;
            this.dataGridView2.Location = new System.Drawing.Point(490, 66);
            this.dataGridView2.Name = "dataGridView2";
            this.dataGridView2.Size = new System.Drawing.Size(767, 293);
            this.dataGridView2.TabIndex = 1;
            this.dataGridView2.Columns[5].DefaultCellStyle.Format = "dd/MM/yyyy";
            this.dataGridView2.Columns[6].DefaultCellStyle.Format = "dd/MM/yyyy";
```

```csharp
//
// dataGridViewTextBoxColumn1
//
this.dataGridViewTextBoxColumn1.DataPropertyName = "DefectID";
this.dataGridViewTextBoxColumn1.HeaderText = "DefectID";
this.dataGridViewTextBoxColumn1.Name = "dataGridViewTextBoxColumn1";
this.dataGridViewTextBoxColumn1.ReadOnly = true;
//
// roomIDDataGridViewTextBoxColumn1
//
this.roomIDDataGridViewTextBoxColumn1.DataPropertyName = "RoomID";
this.roomIDDataGridViewTextBoxColumn1.HeaderText = "RoomID";
this.roomIDDataGridViewTextBoxColumn1.Name = "roomIDDataGridViewTextBoxColumn1";
//
// typeDataGridViewTextBoxColumn
//
this.typeDataGridViewTextBoxColumn.DataPropertyName = "Type";
this.typeDataGridViewTextBoxColumn.HeaderText = "Type";
this.typeDataGridViewTextBoxColumn.Name = "typeDataGridViewTextBoxColumn";
//
// priorityDataGridViewTextBoxColumn
//
this.priorityDataGridViewTextBoxColumn.DataPropertyName = "Priority";
this.priorityDataGridViewTextBoxColumn.HeaderText = "Priority";
this.priorityDataGridViewTextBoxColumn.Name = "priorityDataGridViewTextBoxColumn";
//
// descriptionDataGridViewTextBoxColumn
//
this.descriptionDataGridViewTextBoxColumn.DataPropertyName = "Description";
this.descriptionDataGridViewTextBoxColumn.HeaderText = "Description";
this.descriptionDataGridViewTextBoxColumn.Name = "descriptionDataGridViewTextBoxColumn";
//
// dateFoundDataGridViewTextBoxColumn
//
this.dateFoundDataGridViewTextBoxColumn.DataPropertyName = "DateFound";
this.dateFoundDataGridViewTextBoxColumn.HeaderText = "DateFound";
this.dateFoundDataGridViewTextBoxColumn.Name = "dateFoundDataGridViewTextBoxColumn";
//
// dateResolvedDataGridViewTextBoxColumn
//
this.dateResolvedDataGridViewTextBoxColumn.DataPropertyName = "DateResolved";
this.dateResolvedDataGridViewTextBoxColumn.HeaderText = "DateResolved";
this.dateResolvedDataGridViewTextBoxColumn.Name = "dateResolvedDataGridViewTextBoxColumn";
//
// userIDDataGridViewTextBoxColumn
//
this.userIDDataGridViewTextBoxColumn.DataPropertyName = "UserID";
this.userIDDataGridViewTextBoxColumn.HeaderText = "UserID";
this.userIDDataGridViewTextBoxColumn.Name = "userIDDataGridViewTextBoxColumn";
//
// roomTableDefectTableBindingSource
//
this.roomTableDefectTableBindingSource.DataMember = "RoomTable_DefectTable";
this.roomTableDefectTableBindingSource.DataSource = this.roomTableBindingSource;
//
// defectTableTableAdapter
//
this.defectTableTableAdapter.ClearBeforeFill = true;
//
// label1
//
this.label1.AutoSize = true;
this.label1.Font = new System.Drawing.Font("Microsoft Sans Serif", 18F, System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
this.label1.Location = new System.Drawing.Point(169, 34);
this.label1.Name = "label1";
this.label1.Size = new System.Drawing.Size(90, 29);
this.label1.TabIndex = 2;
this.label1.Text = "Rooms";
//
// label2
```

```
            //
            this.label2.AutoSize = true;
            this.label2.Font = new System.Drawing.Font("Microsoft Sans Serif", 18F, System.Drawing.Fon
tStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label2.Location = new System.Drawing.Point(805, 34);
            this.label2.Name = "label2";
            this.label2.Size = new System.Drawing.Size(94, 29);
            this.label2.TabIndex = 3;
            this.label2.Text = "Defects";
            //
            // bindingNavigator1
            //
            this.bindingNavigator1.AddNewItem = null;
            this.bindingNavigator1.BindingSource = this.roomTableDefectTableBindingSource;
            this.bindingNavigator1.CountItem = this.bindingNavigatorCountItem;
            this.bindingNavigator1.DeleteItem = this.bindingNavigatorDeleteItem;
            this.bindingNavigator1.Dock = System.Windows.Forms.DockStyle.None;
            this.bindingNavigator1.Items.AddRange(new System.Windows.Forms.ToolStripItem[] {
            this.bindingNavigatorMoveFirstItem,
            this.bindingNavigatorMovePreviousItem,
            this.bindingNavigatorSeparator,
            this.bindingNavigatorPositionItem,
            this.bindingNavigatorCountItem,
            this.bindingNavigatorSeparator1,
            this.bindingNavigatorMoveNextItem,
            this.bindingNavigatorMoveLastItem,
            this.bindingNavigatorSeparator2,
            this.bindingNavigatorDeleteItem});
            this.bindingNavigator1.Location = new System.Drawing.Point(490, 38);
            this.bindingNavigator1.MoveFirstItem = this.bindingNavigatorMoveFirstItem;
            this.bindingNavigator1.MoveLastItem = this.bindingNavigatorMoveLastItem;
            this.bindingNavigator1.MoveNextItem = this.bindingNavigatorMoveNextItem;
            this.bindingNavigator1.MovePreviousItem = this.bindingNavigatorMovePreviousItem;
            this.bindingNavigator1.Name = "bindingNavigator1";
            this.bindingNavigator1.PositionItem = this.bindingNavigatorPositionItem;
            this.bindingNavigator1.RenderMode = System.Windows.Forms.ToolStripRenderMode.System;
            this.bindingNavigator1.Size = new System.Drawing.Size(232, 25);
            this.bindingNavigator1.TabIndex = 4;
            this.bindingNavigator1.Text = "bindingNavigator1";
            //
            // bindingNavigatorCountItem
            //
            this.bindingNavigatorCountItem.Name = "bindingNavigatorCountItem";
            this.bindingNavigatorCountItem.Size = new System.Drawing.Size(35, 22);
            this.bindingNavigatorCountItem.Text = "of {0}";
            this.bindingNavigatorCountItem.ToolTipText = "Total number of items";
            //
            // bindingNavigatorDeleteItem
            //
            this.bindingNavigatorDeleteItem.DisplayStyle = System.Windows.Forms.ToolStripItemDisplaySt
yle.Image;
            this.bindingNavigatorDeleteItem.Image = ((System.Drawing.Image)(resources.GetObject("bindi
ngNavigatorDeleteItem.Image")));
            this.bindingNavigatorDeleteItem.Name = "bindingNavigatorDeleteItem";
            this.bindingNavigatorDeleteItem.RightToLeftAutoMirrorImage = true;
            this.bindingNavigatorDeleteItem.Size = new System.Drawing.Size(23, 22);
            this.bindingNavigatorDeleteItem.Text = "Delete";
            this.bindingNavigatorDeleteItem.Click += new System.EventHandler(this.bindingNavigatorDele
teItem_Click);
            //
            // bindingNavigatorMoveFirstItem
            //
            this.bindingNavigatorMoveFirstItem.DisplayStyle = System.Windows.Forms.ToolStripItemDispla
yStyle.Image;
            this.bindingNavigatorMoveFirstItem.Image = ((System.Drawing.Image)(resources.GetObject("bi
ndingNavigatorMoveFirstItem.Image")));
            this.bindingNavigatorMoveFirstItem.Name = "bindingNavigatorMoveFirstItem";
            this.bindingNavigatorMoveFirstItem.RightToLeftAutoMirrorImage = true;
            this.bindingNavigatorMoveFirstItem.Size = new System.Drawing.Size(23, 22);
            this.bindingNavigatorMoveFirstItem.Text = "Move first";
            //
```

```csharp
            // bindingNavigatorMovePreviousItem
            // 
            this.bindingNavigatorMovePreviousItem.DisplayStyle = System.Windows.Forms.ToolStripItemDisplayStyle.Image;
            this.bindingNavigatorMovePreviousItem.Image = ((System.Drawing.Image)(resources.GetObject(
"bindingNavigatorMovePreviousItem.Image")));
            this.bindingNavigatorMovePreviousItem.Name = "bindingNavigatorMovePreviousItem";
            this.bindingNavigatorMovePreviousItem.RightToLeftAutoMirrorImage = true;
            this.bindingNavigatorMovePreviousItem.Size = new System.Drawing.Size(23, 22);
            this.bindingNavigatorMovePreviousItem.Text = "Move previous";
            // 
            // bindingNavigatorSeparator
            // 
            this.bindingNavigatorSeparator.Name = "bindingNavigatorSeparator";
            this.bindingNavigatorSeparator.Size = new System.Drawing.Size(6, 25);
            // 
            // bindingNavigatorPositionItem
            // 
            this.bindingNavigatorPositionItem.AccessibleName = "Position";
            this.bindingNavigatorPositionItem.AutoSize = false;
            this.bindingNavigatorPositionItem.Name = "bindingNavigatorPositionItem";
            this.bindingNavigatorPositionItem.Size = new System.Drawing.Size(50, 23);
            this.bindingNavigatorPositionItem.Text = "0";
            this.bindingNavigatorPositionItem.ToolTipText = "Current position";
            // 
            // bindingNavigatorSeparator1
            // 
            this.bindingNavigatorSeparator1.Name = "bindingNavigatorSeparator1";
            this.bindingNavigatorSeparator1.Size = new System.Drawing.Size(6, 25);
            // 
            // bindingNavigatorMoveNextItem
            // 
            this.bindingNavigatorMoveNextItem.DisplayStyle = System.Windows.Forms.ToolStripItemDisplayStyle.Image;
            this.bindingNavigatorMoveNextItem.Image = ((System.Drawing.Image)(resources.GetObject("bindingNavigatorMoveNextItem.Image")));
            this.bindingNavigatorMoveNextItem.Name = "bindingNavigatorMoveNextItem";
            this.bindingNavigatorMoveNextItem.RightToLeftAutoMirrorImage = true;
            this.bindingNavigatorMoveNextItem.Size = new System.Drawing.Size(23, 22);
            this.bindingNavigatorMoveNextItem.Text = "Move next";
            // 
            // bindingNavigatorMoveLastItem
            // 
            this.bindingNavigatorMoveLastItem.DisplayStyle = System.Windows.Forms.ToolStripItemDisplayStyle.Image;
            this.bindingNavigatorMoveLastItem.Image = ((System.Drawing.Image)(resources.GetObject("bindingNavigatorMoveLastItem.Image")));
            this.bindingNavigatorMoveLastItem.Name = "bindingNavigatorMoveLastItem";
            this.bindingNavigatorMoveLastItem.RightToLeftAutoMirrorImage = true;
            this.bindingNavigatorMoveLastItem.Size = new System.Drawing.Size(23, 22);
            this.bindingNavigatorMoveLastItem.Text = "Move last";
            // 
            // bindingNavigatorSeparator2
            // 
            this.bindingNavigatorSeparator2.Name = "bindingNavigatorSeparator2";
            this.bindingNavigatorSeparator2.Size = new System.Drawing.Size(6, 25);
            // 
            // saveBtn
            // 
            this.saveBtn.Location = new System.Drawing.Point(1144, 445);
            this.saveBtn.Name = "saveBtn";
            this.saveBtn.Size = new System.Drawing.Size(75, 23);
            this.saveBtn.TabIndex = 5;
            this.saveBtn.Text = "Save";
            this.saveBtn.UseVisualStyleBackColor = true;
            this.saveBtn.Click += new System.EventHandler(this.saveBtn_Click);
            // 
            // roomIDRadioBtnAcc
            // 
            this.roomIDRadioBtnAcc.AutoSize = true;
            this.roomIDRadioBtnAcc.Checked = true;
```

```csharp
            this.roomIDRadioBtnAcc.Location = new System.Drawing.Point(92, 19);
            this.roomIDRadioBtnAcc.Name = "roomIDRadioBtnAcc";
            this.roomIDRadioBtnAcc.Size = new System.Drawing.Size(70, 17);
            this.roomIDRadioBtnAcc.TabIndex = 7;
            this.roomIDRadioBtnAcc.Text = "Acending";
            this.roomIDRadioBtnAcc.UseVisualStyleBackColor = true;
            this.roomIDRadioBtnAcc.CheckedChanged += new System.EventHandler(this.roomIDRadioBtnAcc_Ch
eckedChanged);
            //
            // roomIDRadioBtnDec
            //
            this.roomIDRadioBtnDec.AutoSize = true;
            this.roomIDRadioBtnDec.Location = new System.Drawing.Point(92, 42);
            this.roomIDRadioBtnDec.Name = "roomIDRadioBtnDec";
            this.roomIDRadioBtnDec.Size = new System.Drawing.Size(77, 17);
            this.roomIDRadioBtnDec.TabIndex = 8;
            this.roomIDRadioBtnDec.Text = "Decending";
            this.roomIDRadioBtnDec.UseVisualStyleBackColor = true;
            this.roomIDRadioBtnDec.CheckedChanged += new System.EventHandler(this.roomIDRadioBtnDec_Ch
eckedChanged);
            //
            // label3
            //
            this.label3.AutoSize = true;
            this.label3.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawing.F
ontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.label3.Location = new System.Drawing.Point(6, 32);
            this.label3.Name = "label3";
            this.label3.Size = new System.Drawing.Size(64, 16);
            this.label3.TabIndex = 9;
            this.label3.Text = "Room ID:";
            //
            // groupBox1
            //
            this.groupBox1.Controls.Add(this.roomIDRadioBtnAcc);
            this.groupBox1.Controls.Add(this.label3);
            this.groupBox1.Controls.Add(this.roomIDRadioBtnDec);
            this.groupBox1.Location = new System.Drawing.Point(80, 383);
            this.groupBox1.Name = "groupBox1";
            this.groupBox1.Size = new System.Drawing.Size(179, 72);
            this.groupBox1.TabIndex = 10;
            this.groupBox1.TabStop = false;
            //
            // groupBox2
            //
            this.groupBox2.Controls.Add(this.priorityRadioBtn);
            this.groupBox2.Controls.Add(this.typeRadioBtn);
            this.groupBox2.Controls.Add(this.defectIDRadioBtn);
            this.groupBox2.Controls.Add(this.RoomIDRadioBtn);
            this.groupBox2.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawin
g.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.groupBox2.Location = new System.Drawing.Point(504, 383);
            this.groupBox2.Name = "groupBox2";
            this.groupBox2.Size = new System.Drawing.Size(179, 115);
            this.groupBox2.TabIndex = 11;
            this.groupBox2.TabStop = false;
            this.groupBox2.Text = "Sorting";
            //
            // defectIDRadioBtn
            //
            this.defectIDRadioBtn.AutoSize = true;
            this.defectIDRadioBtn.Checked = true;
            this.defectIDRadioBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 8.25F, System
.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.defectIDRadioBtn.Location = new System.Drawing.Point(6, 19);
            this.defectIDRadioBtn.Name = "defectIDRadioBtn";
            this.defectIDRadioBtn.Size = new System.Drawing.Size(71, 17);
            this.defectIDRadioBtn.TabIndex = 7;
            this.defectIDRadioBtn.Text = "Defect ID";
            this.defectIDRadioBtn.UseVisualStyleBackColor = true;
```

```csharp
            this.defectIDRadioBtn.CheckedChanged += new System.EventHandler(this.defectIDRadioBtn_Chec
kedChanged);
            //
            // RoomIDRadioBtn
            //
            this.RoomIDRadioBtn.AutoSize = true;
            this.RoomIDRadioBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 8.25F, System.D
rawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.RoomIDRadioBtn.Location = new System.Drawing.Point(6, 42);
            this.RoomIDRadioBtn.Name = "RoomIDRadioBtn";
            this.RoomIDRadioBtn.Size = new System.Drawing.Size(67, 17);
            this.RoomIDRadioBtn.TabIndex = 8;
            this.RoomIDRadioBtn.Text = "Room ID";
            this.RoomIDRadioBtn.UseVisualStyleBackColor = true;
            this.RoomIDRadioBtn.CheckedChanged += new System.EventHandler(this.RoomIDRadioBtn_CheckedC
hanged);
            //
            // typeRadioBtn
            //
            this.typeRadioBtn.AutoSize = true;
            this.typeRadioBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 8.25F, System.Dra
wing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.typeRadioBtn.Location = new System.Drawing.Point(6, 65);
            this.typeRadioBtn.Name = "typeRadioBtn";
            this.typeRadioBtn.Size = new System.Drawing.Size(49, 17);
            this.typeRadioBtn.TabIndex = 9;
            this.typeRadioBtn.Text = "Type";
            this.typeRadioBtn.UseVisualStyleBackColor = true;
            this.typeRadioBtn.CheckedChanged += new System.EventHandler(this.typeRadioBtn_CheckedChang
ed);
            //
            // priorityRadioBtn
            //
            this.priorityRadioBtn.AutoSize = true;
            this.priorityRadioBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 8.25F, System
.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.priorityRadioBtn.Location = new System.Drawing.Point(6, 88);
            this.priorityRadioBtn.Name = "priorityRadioBtn";
            this.priorityRadioBtn.Size = new System.Drawing.Size(56, 17);
            this.priorityRadioBtn.TabIndex = 10;
            this.priorityRadioBtn.Text = "Priority";
            this.priorityRadioBtn.UseVisualStyleBackColor = true;
            this.priorityRadioBtn.CheckedChanged += new System.EventHandler(this.priorityRadioBtn_Chec
kedChanged);
            //
            // SearchComboBox
            //
            this.SearchComboBox.DropDownStyle = System.Windows.Forms.ComboBoxStyle.DropDownList;
            this.SearchComboBox.FormattingEnabled = true;
            this.SearchComboBox.Items.AddRange(new object[] {
            "DefectID",
            "RoomID",
            "Type",
            "Priority",
            "UserID"});
            this.SearchComboBox.Location = new System.Drawing.Point(778, 434);
            this.SearchComboBox.Name = "SearchComboBox";
            this.SearchComboBox.Size = new System.Drawing.Size(121, 21);
            this.SearchComboBox.TabIndex = 17;
            //
            // label4
            //
            this.label4.AutoSize = true;
            this.label4.Location = new System.Drawing.Point(701, 437);
            this.label4.Name = "label4";
            this.label4.Size = new System.Drawing.Size(71, 13);
            this.label4.TabIndex = 16;
            this.label4.Text = "Search/Filter:";
            //
            // SearchBox
            //
```

```csharp
            this.SearchBox.Location = new System.Drawing.Point(905, 434);
            this.SearchBox.Name = "SearchBox";
            this.SearchBox.Size = new System.Drawing.Size(125, 20);
            this.SearchBox.TabIndex = 15;
            this.SearchBox.TextChanged += new System.EventHandler(this.SearchBox_TextChanged);
            //
            // ViewRoomDefectsForm
            //
            this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
            this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;
            this.ClientSize = new System.Drawing.Size(1269, 535);
            this.Controls.Add(this.SearchComboBox);
            this.Controls.Add(this.label4);
            this.Controls.Add(this.SearchBox);
            this.Controls.Add(this.groupBox2);
            this.Controls.Add(this.groupBox1);
            this.Controls.Add(this.saveBtn);
            this.Controls.Add(this.bindingNavigator1);
            this.Controls.Add(this.label2);
            this.Controls.Add(this.label1);
            this.Controls.Add(this.dataGridView2);
            this.Controls.Add(this.dataGridView1);
            this.FormBorderStyle = System.Windows.Forms.FormBorderStyle.FixedSingle;
            this.Name = "ViewRoomDefectsForm";
            this.StartPosition = System.Windows.Forms.FormStartPosition.CenterScreen;
            this.Text = "View Rooms & Defects";
            this.Load += new System.EventHandler(this.ViewRoomDefectsForm_Load);
            ((System.ComponentModel.ISupportInitialize)(this.dataGridView1)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.roomTableBindingSource)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.dataGridView2)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.roomTableDefectTableBindingSource)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.bindingNavigator1)).EndInit();
            this.bindingNavigator1.ResumeLayout(false);
            this.bindingNavigator1.PerformLayout();
            this.groupBox1.ResumeLayout(false);
            this.groupBox1.PerformLayout();
            this.groupBox2.ResumeLayout(false);
            this.groupBox2.PerformLayout();
            this.ResumeLayout(false);
            this.PerformLayout();

        }

        #endregion

        private System.Windows.Forms.DataGridView dataGridView1;
        private CG4DatabaseDataSet cG4DatabaseDataSet;
        private System.Windows.Forms.BindingSource roomTableBindingSource;
        private CG4DatabaseDataSetTableAdapters.RoomTableTableAdapter roomTableTableAdapter;
        private System.Windows.Forms.DataGridView dataGridView2;
        private CG4DatabaseDataSetTableAdapters.DefectTableTableAdapter defectTableTableAdapter;
        private System.Windows.Forms.Label label1;
        private System.Windows.Forms.Label label2;
        private System.Windows.Forms.DataGridViewTextBoxColumn roomIDDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn roomTypeDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn roomDescriptionDataGridViewTextBoxColumn;
        private System.Windows.Forms.BindingNavigator bindingNavigator1;
        private System.Windows.Forms.ToolStripLabel bindingNavigatorCountItem;
        private System.Windows.Forms.ToolStripButton bindingNavigatorDeleteItem;
        private System.Windows.Forms.ToolStripButton bindingNavigatorMoveFirstItem;
        private System.Windows.Forms.ToolStripButton bindingNavigatorMovePreviousItem;
        private System.Windows.Forms.ToolStripSeparator bindingNavigatorSeparator;
        private System.Windows.Forms.ToolStripTextBox bindingNavigatorPositionItem;
        private System.Windows.Forms.ToolStripSeparator bindingNavigatorSeparator1;
        private System.Windows.Forms.ToolStripButton bindingNavigatorMoveNextItem;
        private System.Windows.Forms.ToolStripButton bindingNavigatorMoveLastItem;
        private System.Windows.Forms.ToolStripSeparator bindingNavigatorSeparator2;
        private System.Windows.Forms.Button saveBtn;
```

```csharp
        private System.Windows.Forms.DataGridViewTextBoxColumn dataGridViewTextBoxColumn1;
        private System.Windows.Forms.DataGridViewTextBoxColumn roomIDDataGridViewTextBoxColumn1;
        private System.Windows.Forms.DataGridViewTextBoxColumn typeDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn priorityDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn descriptionDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn dateFoundDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn dateResolvedDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn userIDDataGridViewTextBoxColumn;
        private System.Windows.Forms.BindingSource roomTableDefectTableBindingSource;
        private System.Windows.Forms.RadioButton roomIDRadioBtnAcc;
        private System.Windows.Forms.RadioButton roomIDRadioBtnDec;
        private System.Windows.Forms.Label label3;
        private System.Windows.Forms.GroupBox groupBox1;
        private System.Windows.Forms.GroupBox groupBox2;
        private System.Windows.Forms.RadioButton defectIDRadioBtn;
        private System.Windows.Forms.RadioButton RoomIDRadioBtn;
        private System.Windows.Forms.RadioButton typeRadioBtn;
        private System.Windows.Forms.RadioButton priorityRadioBtn;
        private System.Windows.Forms.ComboBox SearchComboBox;
        private System.Windows.Forms.Label label4;
        private System.Windows.Forms.TextBox SearchBox;
    }
}
```

ViewUsersForm.cs

```csharp
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace CG4_Solution
{
    public partial class ViewUsersForm : Form
    {
        public ViewUsersForm()
        {
            InitializeComponent();
            this.MaximizeBox = false;
            this.MinimizeBox = false;
            SearchComboBox.SelectedIndex = 0;
        }

        private void ViewUsersForm_Load(object sender, EventArgs e)
        {
            // TODO: This line of code loads data into the 'cG4DatabaseDataSet.UserTable' table. You c
an move, or remove it, as needed.
            this.userTableTableAdapter.Fill(this.cG4DatabaseDataSet.UserTable);

        }

        private void newUserBtn_Click(object sender, EventArgs e)
        {
            //Show the newUserForm
            Form newUserForm = new NewUserForm();
            this.Hide();
            newUserForm.ShowDialog();
            this.Show();
            //Update the TableAdapter
            this.userTableTableAdapter.Fill(this.cG4DatabaseDataSet.UserTable);
        }
 //Sorts the table based on which radio button is checked
        private void userLevelRadioBtn_CheckedChanged(object sender, EventArgs e)
        {
```

```csharp
            dataGridView1.Sort(userLevelDataGridViewTextBoxColumn, ListSortDirection.Ascending);
        }

        private void userIDRadioBtn_CheckedChanged(object sender, EventArgs e)
        {
            dataGridView1.Sort(userIdDataGridViewTextBoxColumn, ListSortDirection.Ascending);
        }

        private void SearchBox_TextChanged(object sender, EventArgs e)
        {
            //When the text in the SearchBox changes, the search filter is applied to the table if the
 entered text is valid
            //Creating variables to be used to contain the field that the filter will be applied to, t
he filter that should be used
            //and the entered text
            string field = SearchComboBox.SelectedItem.ToString();
            string filter = "";
            string token = ((TextBox)sender).Text;


            filter = token == "" ? "" : "(" + field + " LIKE '%" + token + "%')";

            //Applies the filter to the table
            userTableBindingSource.Filter = filter;
        }
    }
}
```

ViewUsersForm.Designer.cs

```csharp
namespace CG4_Solution
{
    partial class ViewUsersForm
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</p
aram>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
            base.Dispose(disposing);
        }

        #region Windows Form Designer generated code

        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        private void InitializeComponent()
        {
            this.components = new System.ComponentModel.Container();
            System.ComponentModel.ComponentResourceManager resources = new System.ComponentModel.Compo
nentResourceManager(typeof(ViewUsersForm));
            this.dataGridView1 = new System.Windows.Forms.DataGridView();
            this.userIdDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn(
);
            this.passwordDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColum
n();
            this.emailDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColumn()
;
```

```csharp
            this.telNumberDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColu
mn();
            this.userLevelDataGridViewTextBoxColumn = new System.Windows.Forms.DataGridViewTextBoxColu
mn();
            this.userTableBindingSource = new System.Windows.Forms.BindingSource(this.components);
            this.cG4DatabaseDataSet = new CG4_Solution.CG4DatabaseDataSet();
            this.userTableTableAdapter = new CG4_Solution.CG4DatabaseDataSetTableAdapters.UserTableTab
leAdapter();
            this.bindingNavigator1 = new System.Windows.Forms.BindingNavigator(this.components);
            this.bindingNavigatorCountItem = new System.Windows.Forms.ToolStripLabel();
            this.bindingNavigatorDeleteItem = new System.Windows.Forms.ToolStripButton();
            this.bindingNavigatorMoveFirstItem = new System.Windows.Forms.ToolStripButton();
            this.bindingNavigatorMovePreviousItem = new System.Windows.Forms.ToolStripButton();
            this.bindingNavigatorSeparator = new System.Windows.Forms.ToolStripSeparator();
            this.bindingNavigatorPositionItem = new System.Windows.Forms.ToolStripTextBox();
            this.bindingNavigatorSeparator1 = new System.Windows.Forms.ToolStripSeparator();
            this.bindingNavigatorMoveNextItem = new System.Windows.Forms.ToolStripButton();
            this.bindingNavigatorMoveLastItem = new System.Windows.Forms.ToolStripButton();
            this.bindingNavigatorSeparator2 = new System.Windows.Forms.ToolStripSeparator();
            this.newUserBtn = new System.Windows.Forms.Button();
            this.groupBox2 = new System.Windows.Forms.GroupBox();
            this.userIDRadioBtn = new System.Windows.Forms.RadioButton();
            this.userLevelRadioBtn = new System.Windows.Forms.RadioButton();
            this.SearchComboBox = new System.Windows.Forms.ComboBox();
            this.label4 = new System.Windows.Forms.Label();
            this.SearchBox = new System.Windows.Forms.TextBox();
            ((System.ComponentModel.ISupportInitialize)(this.dataGridView1)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.userTableBindingSource)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).BeginInit();
            ((System.ComponentModel.ISupportInitialize)(this.bindingNavigator1)).BeginInit();
            this.bindingNavigator1.SuspendLayout();
            this.groupBox2.SuspendLayout();
            this.SuspendLayout();
            //
            // dataGridView1
            //
            this.dataGridView1.AllowUserToAddRows = false;
            this.dataGridView1.AutoGenerateColumns = false;
            this.dataGridView1.ColumnHeadersHeightSizeMode = System.Windows.Forms.DataGridViewColumnHe
adersHeightSizeMode.AutoSize;
            this.dataGridView1.Columns.AddRange(new System.Windows.Forms.DataGridViewColumn[] {
            this.userIdDataGridViewTextBoxColumn,
            this.passwordDataGridViewTextBoxColumn,
            this.emailDataGridViewTextBoxColumn,
            this.telNumberDataGridViewTextBoxColumn,
            this.userLevelDataGridViewTextBoxColumn});
            this.dataGridView1.DataSource = this.userTableBindingSource;
            this.dataGridView1.Location = new System.Drawing.Point(12, 28);
            this.dataGridView1.Name = "dataGridView1";
            this.dataGridView1.Size = new System.Drawing.Size(561, 191);
            this.dataGridView1.TabIndex = 0;
            //
            // userIdDataGridViewTextBoxColumn
            //
            this.userIdDataGridViewTextBoxColumn.DataPropertyName = "UserId";
            this.userIdDataGridViewTextBoxColumn.HeaderText = "UserId";
            this.userIdDataGridViewTextBoxColumn.Name = "userIdDataGridViewTextBoxColumn";
            //
            // passwordDataGridViewTextBoxColumn
            //
            this.passwordDataGridViewTextBoxColumn.DataPropertyName = "Password";
            this.passwordDataGridViewTextBoxColumn.HeaderText = "Password";
            this.passwordDataGridViewTextBoxColumn.Name = "passwordDataGridViewTextBoxColumn";
            //
            // emailDataGridViewTextBoxColumn
            //
            this.emailDataGridViewTextBoxColumn.DataPropertyName = "Email";
            this.emailDataGridViewTextBoxColumn.HeaderText = "Email";
            this.emailDataGridViewTextBoxColumn.Name = "emailDataGridViewTextBoxColumn";
            //
            // telNumberDataGridViewTextBoxColumn
```

```csharp
            //
            this.telNumberDataGridViewTextBoxColumn.DataPropertyName = "Tel_Number";
            this.telNumberDataGridViewTextBoxColumn.HeaderText = "Tel_Number";
            this.telNumberDataGridViewTextBoxColumn.Name = "telNumberDataGridViewTextBoxColumn";
            //
            // userLevelDataGridViewTextBoxColumn
            //
            this.userLevelDataGridViewTextBoxColumn.DataPropertyName = "User_Level";
            this.userLevelDataGridViewTextBoxColumn.HeaderText = "User_Level";
            this.userLevelDataGridViewTextBoxColumn.Name = "userLevelDataGridViewTextBoxColumn";
            //
            // userTableBindingSource
            //
            this.userTableBindingSource.DataMember = "UserTable";
            this.userTableBindingSource.DataSource = this.cG4DatabaseDataSet;
            //
            // cG4DatabaseDataSet
            //
            this.cG4DatabaseDataSet.DataSetName = "CG4DatabaseDataSet";
            this.cG4DatabaseDataSet.SchemaSerializationMode = System.Data.SchemaSerializationMode.Incl
udeSchema;
            //
            // userTableTableAdapter
            //
            this.userTableTableAdapter.ClearBeforeFill = true;
            //
            // bindingNavigator1
            //
            this.bindingNavigator1.AddNewItem = null;
            this.bindingNavigator1.BindingSource = this.userTableBindingSource;
            this.bindingNavigator1.CountItem = this.bindingNavigatorCountItem;
            this.bindingNavigator1.DeleteItem = this.bindingNavigatorDeleteItem;
            this.bindingNavigator1.Dock = System.Windows.Forms.DockStyle.None;
            this.bindingNavigator1.Items.AddRange(new System.Windows.Forms.ToolStripItem[] {
            this.bindingNavigatorMoveFirstItem,
            this.bindingNavigatorMovePreviousItem,
            this.bindingNavigatorSeparator,
            this.bindingNavigatorPositionItem,
            this.bindingNavigatorCountItem,
            this.bindingNavigatorSeparator1,
            this.bindingNavigatorMoveNextItem,
            this.bindingNavigatorMoveLastItem,
            this.bindingNavigatorSeparator2,
            this.bindingNavigatorDeleteItem});
            this.bindingNavigator1.Location = new System.Drawing.Point(12, 0);
            this.bindingNavigator1.MoveFirstItem = this.bindingNavigatorMoveFirstItem;
            this.bindingNavigator1.MoveLastItem = this.bindingNavigatorMoveLastItem;
            this.bindingNavigator1.MoveNextItem = this.bindingNavigatorMoveNextItem;
            this.bindingNavigator1.MovePreviousItem = this.bindingNavigatorMovePreviousItem;
            this.bindingNavigator1.Name = "bindingNavigator1";
            this.bindingNavigator1.PositionItem = this.bindingNavigatorPositionItem;
            this.bindingNavigator1.Size = new System.Drawing.Size(232, 25);
            this.bindingNavigator1.TabIndex = 1;
            this.bindingNavigator1.Text = "bindingNavigator1";
            //
            // bindingNavigatorCountItem
            //
            this.bindingNavigatorCountItem.Name = "bindingNavigatorCountItem";
            this.bindingNavigatorCountItem.Size = new System.Drawing.Size(35, 22);
            this.bindingNavigatorCountItem.Text = "of {0}";
            this.bindingNavigatorCountItem.ToolTipText = "Total number of items";
            //
            // bindingNavigatorDeleteItem
            //
            this.bindingNavigatorDeleteItem.DisplayStyle = System.Windows.Forms.ToolStripItemDisplaySt
yle.Image;
            this.bindingNavigatorDeleteItem.Image = ((System.Drawing.Image)(resources.GetObject("bindi
ngNavigatorDeleteItem.Image")));
            this.bindingNavigatorDeleteItem.Name = "bindingNavigatorDeleteItem";
            this.bindingNavigatorDeleteItem.RightToLeftAutoMirrorImage = true;
            this.bindingNavigatorDeleteItem.Size = new System.Drawing.Size(23, 22);
```

```csharp
            this.bindingNavigatorDeleteItem.Text = "Delete";
            //
            // bindingNavigatorMoveFirstItem
            //
            this.bindingNavigatorMoveFirstItem.DisplayStyle = System.Windows.Forms.ToolStripItemDispla
yStyle.Image;
            this.bindingNavigatorMoveFirstItem.Image = ((System.Drawing.Image)(resources.GetObject("bi
ndingNavigatorMoveFirstItem.Image")));
            this.bindingNavigatorMoveFirstItem.Name = "bindingNavigatorMoveFirstItem";
            this.bindingNavigatorMoveFirstItem.RightToLeftAutoMirrorImage = true;
            this.bindingNavigatorMoveFirstItem.Size = new System.Drawing.Size(23, 22);
            this.bindingNavigatorMoveFirstItem.Text = "Move first";
            //
            // bindingNavigatorMovePreviousItem
            //
            this.bindingNavigatorMovePreviousItem.DisplayStyle = System.Windows.Forms.ToolStripItemDis
playStyle.Image;
            this.bindingNavigatorMovePreviousItem.Image = ((System.Drawing.Image)(resources.GetObject(
"bindingNavigatorMovePreviousItem.Image")));
            this.bindingNavigatorMovePreviousItem.Name = "bindingNavigatorMovePreviousItem";
            this.bindingNavigatorMovePreviousItem.RightToLeftAutoMirrorImage = true;
            this.bindingNavigatorMovePreviousItem.Size = new System.Drawing.Size(23, 22);
            this.bindingNavigatorMovePreviousItem.Text = "Move previous";
            //
            // bindingNavigatorSeparator
            //
            this.bindingNavigatorSeparator.Name = "bindingNavigatorSeparator";
            this.bindingNavigatorSeparator.Size = new System.Drawing.Size(6, 25);
            //
            // bindingNavigatorPositionItem
            //
            this.bindingNavigatorPositionItem.AccessibleName = "Position";
            this.bindingNavigatorPositionItem.AutoSize = false;
            this.bindingNavigatorPositionItem.Name = "bindingNavigatorPositionItem";
            this.bindingNavigatorPositionItem.Size = new System.Drawing.Size(50, 23);
            this.bindingNavigatorPositionItem.Text = "0";
            this.bindingNavigatorPositionItem.ToolTipText = "Current position";
            //
            // bindingNavigatorSeparator1
            //
            this.bindingNavigatorSeparator1.Name = "bindingNavigatorSeparator1";
            this.bindingNavigatorSeparator1.Size = new System.Drawing.Size(6, 25);
            //
            // bindingNavigatorMoveNextItem
            //
            this.bindingNavigatorMoveNextItem.DisplayStyle = System.Windows.Forms.ToolStripItemDisplay
Style.Image;
            this.bindingNavigatorMoveNextItem.Image = ((System.Drawing.Image)(resources.GetObject("bin
dingNavigatorMoveNextItem.Image")));
            this.bindingNavigatorMoveNextItem.Name = "bindingNavigatorMoveNextItem";
            this.bindingNavigatorMoveNextItem.RightToLeftAutoMirrorImage = true;
            this.bindingNavigatorMoveNextItem.Size = new System.Drawing.Size(23, 22);
            this.bindingNavigatorMoveNextItem.Text = "Move next";
            //
            // bindingNavigatorMoveLastItem
            //
            this.bindingNavigatorMoveLastItem.DisplayStyle = System.Windows.Forms.ToolStripItemDisplay
Style.Image;
            this.bindingNavigatorMoveLastItem.Image = ((System.Drawing.Image)(resources.GetObject("bin
dingNavigatorMoveLastItem.Image")));
            this.bindingNavigatorMoveLastItem.Name = "bindingNavigatorMoveLastItem";
            this.bindingNavigatorMoveLastItem.RightToLeftAutoMirrorImage = true;
            this.bindingNavigatorMoveLastItem.Size = new System.Drawing.Size(23, 22);
            this.bindingNavigatorMoveLastItem.Text = "Move last";
            //
            // bindingNavigatorSeparator2
            //
            this.bindingNavigatorSeparator2.Name = "bindingNavigatorSeparator2";
            this.bindingNavigatorSeparator2.Size = new System.Drawing.Size(6, 25);
            //
            // newUserBtn
```

```csharp
            // 
            this.newUserBtn.Location = new System.Drawing.Point(13, 235);
            this.newUserBtn.Name = "newUserBtn";
            this.newUserBtn.Size = new System.Drawing.Size(96, 23);
            this.newUserBtn.TabIndex = 2;
            this.newUserBtn.Text = "Add New User";
            this.newUserBtn.UseVisualStyleBackColor = true;
            this.newUserBtn.Click += new System.EventHandler(this.newUserBtn_Click);
            // 
            // groupBox2
            // 
            this.groupBox2.Controls.Add(this.userIDRadioBtn);
            this.groupBox2.Controls.Add(this.userLevelRadioBtn);
            this.groupBox2.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F, System.Drawin
g.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.groupBox2.Location = new System.Drawing.Point(13, 276);
            this.groupBox2.Name = "groupBox2";
            this.groupBox2.Size = new System.Drawing.Size(179, 76);
            this.groupBox2.TabIndex = 12;
            this.groupBox2.TabStop = false;
            this.groupBox2.Text = "Sorting";
            // 
            // userIDRadioBtn
            // 
            this.userIDRadioBtn.AutoSize = true;
            this.userIDRadioBtn.Checked = true;
            this.userIDRadioBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 8.25F, System.D
rawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.userIDRadioBtn.Location = new System.Drawing.Point(6, 19);
            this.userIDRadioBtn.Name = "userIDRadioBtn";
            this.userIDRadioBtn.Size = new System.Drawing.Size(61, 17);
            this.userIDRadioBtn.TabIndex = 7;
            this.userIDRadioBtn.Text = "User ID";
            this.userIDRadioBtn.UseVisualStyleBackColor = true;
            this.userIDRadioBtn.CheckedChanged += new System.EventHandler(this.userIDRadioBtn_CheckedC
hanged);
            // 
            // userLevelRadioBtn
            // 
            this.userLevelRadioBtn.AutoSize = true;
            this.userLevelRadioBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 8.25F, Syste
m.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.userLevelRadioBtn.Location = new System.Drawing.Point(6, 42);
            this.userLevelRadioBtn.Name = "userLevelRadioBtn";
            this.userLevelRadioBtn.Size = new System.Drawing.Size(76, 17);
            this.userLevelRadioBtn.TabIndex = 8;
            this.userLevelRadioBtn.Text = "User Level";
            this.userLevelRadioBtn.UseVisualStyleBackColor = true;
            this.userLevelRadioBtn.CheckedChanged += new System.EventHandler(this.userLevelRadioBtn_Ch
eckedChanged);
            // 
            // SearchComboBox
            // 
            this.SearchComboBox.DropDownStyle = System.Windows.Forms.ComboBoxStyle.DropDownList;
            this.SearchComboBox.FormattingEnabled = true;
            this.SearchComboBox.Items.AddRange(new object[] {
            "UserId",
            "Email",
            "User_Level"});
            this.SearchComboBox.Location = new System.Drawing.Point(275, 296);
            this.SearchComboBox.Name = "SearchComboBox";
            this.SearchComboBox.Size = new System.Drawing.Size(121, 21);
            this.SearchComboBox.TabIndex = 20;
            // 
            // label4
            // 
            this.label4.AutoSize = true;
            this.label4.Location = new System.Drawing.Point(198, 299);
            this.label4.Name = "label4";
            this.label4.Size = new System.Drawing.Size(71, 13);
            this.label4.TabIndex = 19;
```

```csharp
            this.label4.Text = "Search/Filter:";
            //
            // SearchBox
            //
            this.SearchBox.Location = new System.Drawing.Point(402, 296);
            this.SearchBox.Name = "SearchBox";
            this.SearchBox.Size = new System.Drawing.Size(125, 20);
            this.SearchBox.TabIndex = 18;
            this.SearchBox.TextChanged += new System.EventHandler(this.SearchBox_TextChanged);
            //
            // ViewUsersForm
            //
            this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
            this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;
            this.ClientSize = new System.Drawing.Size(583, 385);
            this.Controls.Add(this.SearchComboBox);
            this.Controls.Add(this.label4);
            this.Controls.Add(this.SearchBox);
            this.Controls.Add(this.groupBox2);
            this.Controls.Add(this.newUserBtn);
            this.Controls.Add(this.bindingNavigator1);
            this.Controls.Add(this.dataGridView1);
            this.FormBorderStyle = System.Windows.Forms.FormBorderStyle.FixedSingle;
            this.Name = "ViewUsersForm";
            this.StartPosition = System.Windows.Forms.FormStartPosition.CenterScreen;
            this.Text = "View Users";
            this.Load += new System.EventHandler(this.ViewUsersForm_Load);
            ((System.ComponentModel.ISupportInitialize)(this.dataGridView1)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.userTableBindingSource)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.cG4DatabaseDataSet)).EndInit();
            ((System.ComponentModel.ISupportInitialize)(this.bindingNavigator1)).EndInit();
            this.bindingNavigator1.ResumeLayout(false);
            this.bindingNavigator1.PerformLayout();
            this.groupBox2.ResumeLayout(false);
            this.groupBox2.PerformLayout();
            this.ResumeLayout(false);
            this.PerformLayout();

        }

        #endregion

        private System.Windows.Forms.DataGridView dataGridView1;
        private CG4DatabaseDataSet cG4DatabaseDataSet;
        private System.Windows.Forms.BindingSource userTableBindingSource;
        private CG4DatabaseDataSetTableAdapters.UserTableTableAdapter userTableTableAdapter;
        private System.Windows.Forms.DataGridViewTextBoxColumn userIdDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn passwordDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn emailDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn telNumberDataGridViewTextBoxColumn;
        private System.Windows.Forms.DataGridViewTextBoxColumn userLevelDataGridViewTextBoxColumn;
        private System.Windows.Forms.BindingNavigator bindingNavigator1;
        private System.Windows.Forms.ToolStripLabel bindingNavigatorCountItem;
        private System.Windows.Forms.ToolStripButton bindingNavigatorDeleteItem;
        private System.Windows.Forms.ToolStripButton bindingNavigatorMoveFirstItem;
        private System.Windows.Forms.ToolStripButton bindingNavigatorMovePreviousItem;
        private System.Windows.Forms.ToolStripSeparator bindingNavigatorSeparator;
        private System.Windows.Forms.ToolStripTextBox bindingNavigatorPositionItem;
        private System.Windows.Forms.ToolStripSeparator bindingNavigatorSeparator1;
        private System.Windows.Forms.ToolStripButton bindingNavigatorMoveNextItem;
        private System.Windows.Forms.ToolStripButton bindingNavigatorMoveLastItem;
        private System.Windows.Forms.ToolStripSeparator bindingNavigatorSeparator2;
        private System.Windows.Forms.Button newUserBtn;
        private System.Windows.Forms.GroupBox groupBox2;
        private System.Windows.Forms.RadioButton userIDRadioBtn;
        private System.Windows.Forms.RadioButton userLevelRadioBtn;
        private System.Windows.Forms.ComboBox SearchComboBox;
        private System.Windows.Forms.Label label4;
        private System.Windows.Forms.TextBox SearchBox;
    }
}
```

Huw Talliss

Reports (Custom VB code)

```vb
//Changes the contents of a string based on the value of the priority string
Public Shared Function SetColor(ByVal priority as String) as String
SetColor = "No Color"
//Asterisks are used in the Like comparison so extra spaces after the required text is allowed
in the match. The data the priority string is taken from is stored with a fixed field length
and so will have spaces appending it to fufill the field length requirements
IF priority Like "Low*" Then
SetColor = "LightGreen"
End If
If priority Like "Normal*" Then
SetColor= "No Color"
End If
IF priority Like "High*" Then
SetColor = "Yellow"
End If
IF priority Like "Urgent*" Then
SetColor = "Orange"
End If
IF priority Like "Critical*" Then
SetColor = "Red"
End If
Return SetColor
End Function
```