North West Regional College
School of Science, Technology and Creative Industries
Foundation Degree - Software Development - Year 2 PT
Assignment Cover Sheet - 2022/2023

Module Number:	**CMP312**
Module Name:	**Programming III**
Assignment No:	**2 (60% of module marks)**
Assignment Title:	**Project Implementation & Presentation**
Lecturer(s):	**Teresa Deeney**
Verified By:	**Kevin McLaughlin**
Verification Date:	**20/03/2023**
Release Date:	**Wednesday 22th March 2023**
Submission Date:	**Wednesday 3rd May 2023**

Learning Outcomes Covered by Assignment	**Apply interface design principles, guidelines and rules to GUI development** **Design, implement and test object-oriented GUI-driven programs that make appropriate use of inheritance, polymorphism, exception handling and databases** **Work effectively as a member of a small group working on a programming task**

Definition of Plagiarism:	**Plagiarism is the act of taking or copying someone else's work, including another student's, and presenting it as if it were one's own. Plagiarism is said to occur when ideas, texts, theories, data created artistic artifacts or other material are presented without acknowledgement so that the person considering the work is given the impression that what they have before them is the student's own work when it is not. Plagiarism also occurs when a student's own work is re-presented without being properly referenced. Plagiarism is a form of cheating and is a disciplinary offence.**

Student Declaration:	**I declare that this is my own work and that any material I have referred to has been accurately and consistently referenced. I have read and understand the definition of plagiarism given above. If it is shown that material has been plagiarised, or I have otherwise attempted to obtain an unfair advantage for myself or others, I understand that I may face sanctions. A mark of zero may be awarded and the reason for that mark will be recorded on my file.**
Student Signature:	
Student Name:	Jordan McElwee

Date Submitted:	

For Internal Verification Purposes Only	**Mark**	**Sampling Date**	**Mark Agreed**		**Signature**
			Yes	**No**	

Assignment 2

Programming 3 – RoadTrip Rentals

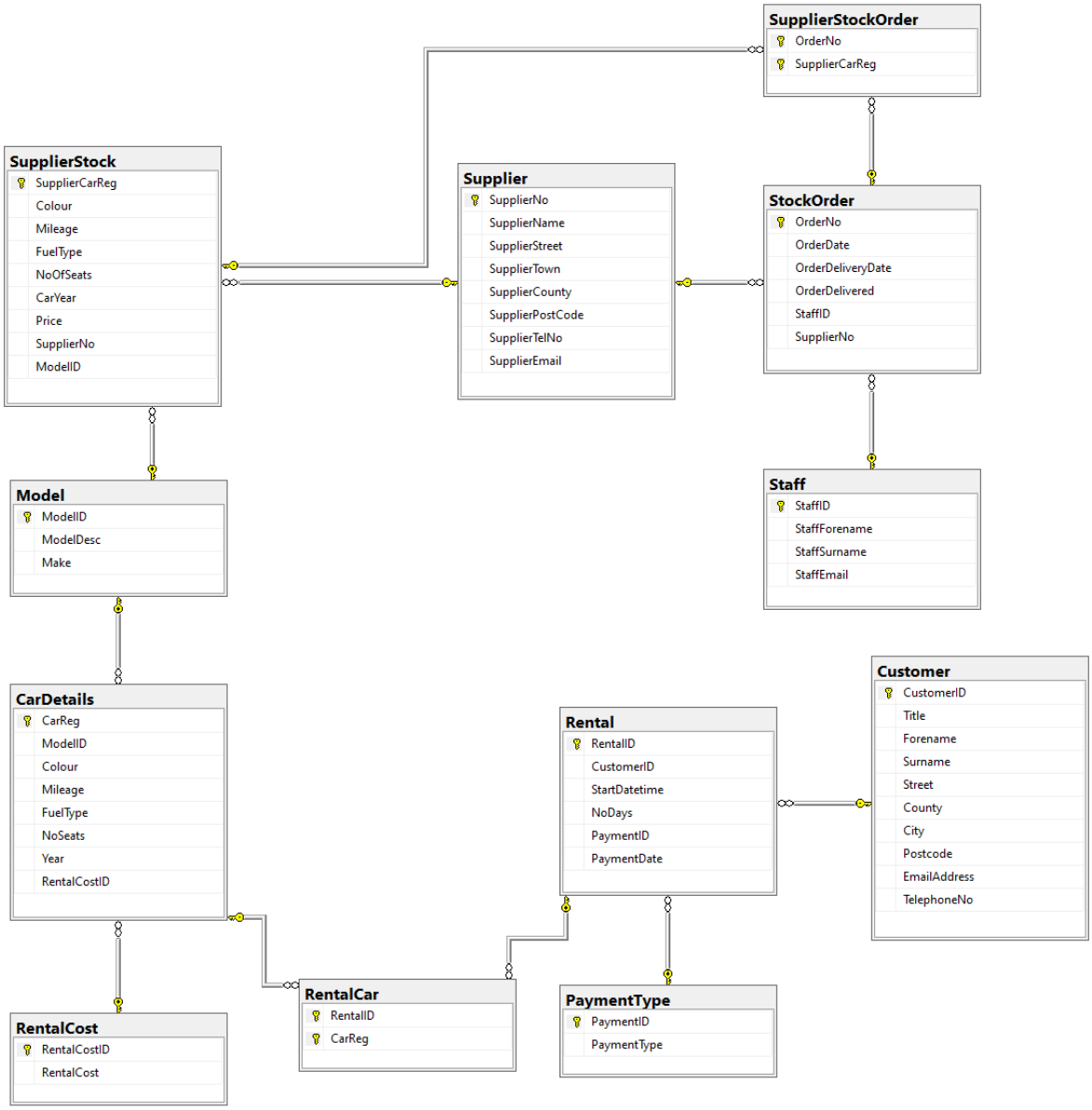
Jordan McElwee & David Green

Contents

Database Diagram 5
Jordan Forms 6
Main Menu 6
Main Customer 11
Add Customer 14
Edit Customer 19
Main Rentals 24
Add Rentals 27
Edit / Delete Rentals 39
Main Car Details 54
Add Car details 57
Edit car details 61
Main Models 65
Add Models 68
Edit Model 71
Main Rental Cost 74
Add Rental Cost 77
Edit Rental Cost 80
Main Payments 83
Add Payments 86
Edit Payments 89
David Forms 92
Suppliers Main 92
Edit Supplier 94
Delete Supplier 98
Add Supplier 100
Stock Order 104
Order Details 105
Delete Order 107
Order Delivered 108
Add Order 110
Reports 115
Customer Rental car report - Jordan 115
Customer List report - Jordan 116
Supplier List report – David 117

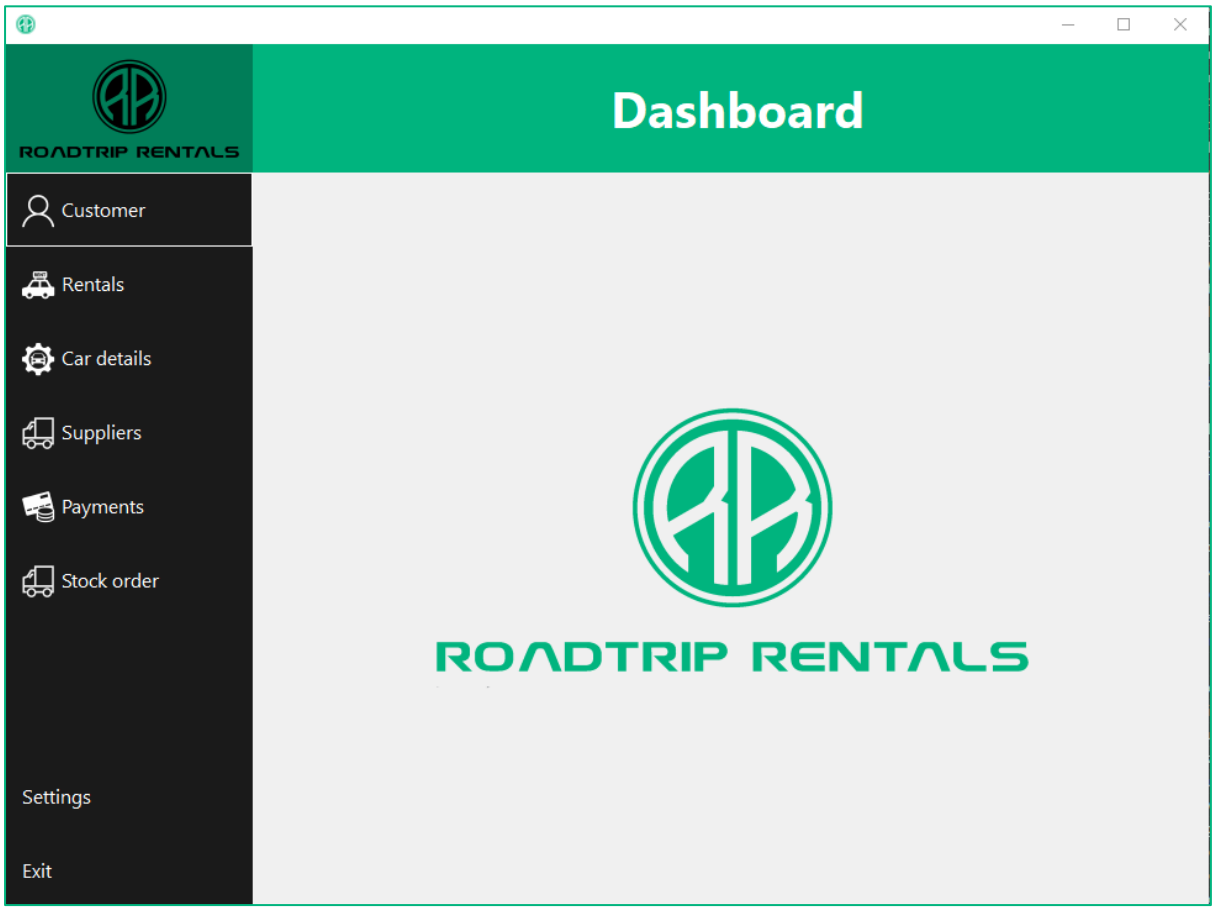
Supplier Stock order - David 118
Testing 119
Input – Jordan 119
Add/ Edit Customer 119
Add/ Edit Car details 124
Add / Edit models 128
Add / Edit Rental Cost 129
Add Rental / Edit Rental 130
Navigation – Jordan 132
Main Menu 132
Main Customer 134
Add Customer 135
Edit Customer 135
Main Rental 136
Add Rental 137
Edit rental 140
General navigation 141
Processes / Outputs - Jordan 142
Input Testing - David 143
Processes/ Outputs – David 153

Database Diagram



Jordan Forms

Main Menu



Main menu which is the first form upon loading the application. Window size is set to a minimum amount to avoid content cutoff. Everything apart from the Panel (the one containing the logo) will be changed depending on which subform button is clicked.

Main Menu

```
using RoadTripRentals.Forms.Jordan;
using RoadTripRentals.Properties;
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 RoadTripRentals
{
  public partial class MainMenu : Form
  {
    Boolean vis;
    private Button currentButton;
    private Form activeForm;

    public MainMenu()
    {
      InitializeComponent();
      this.Text = string.Empty;
```

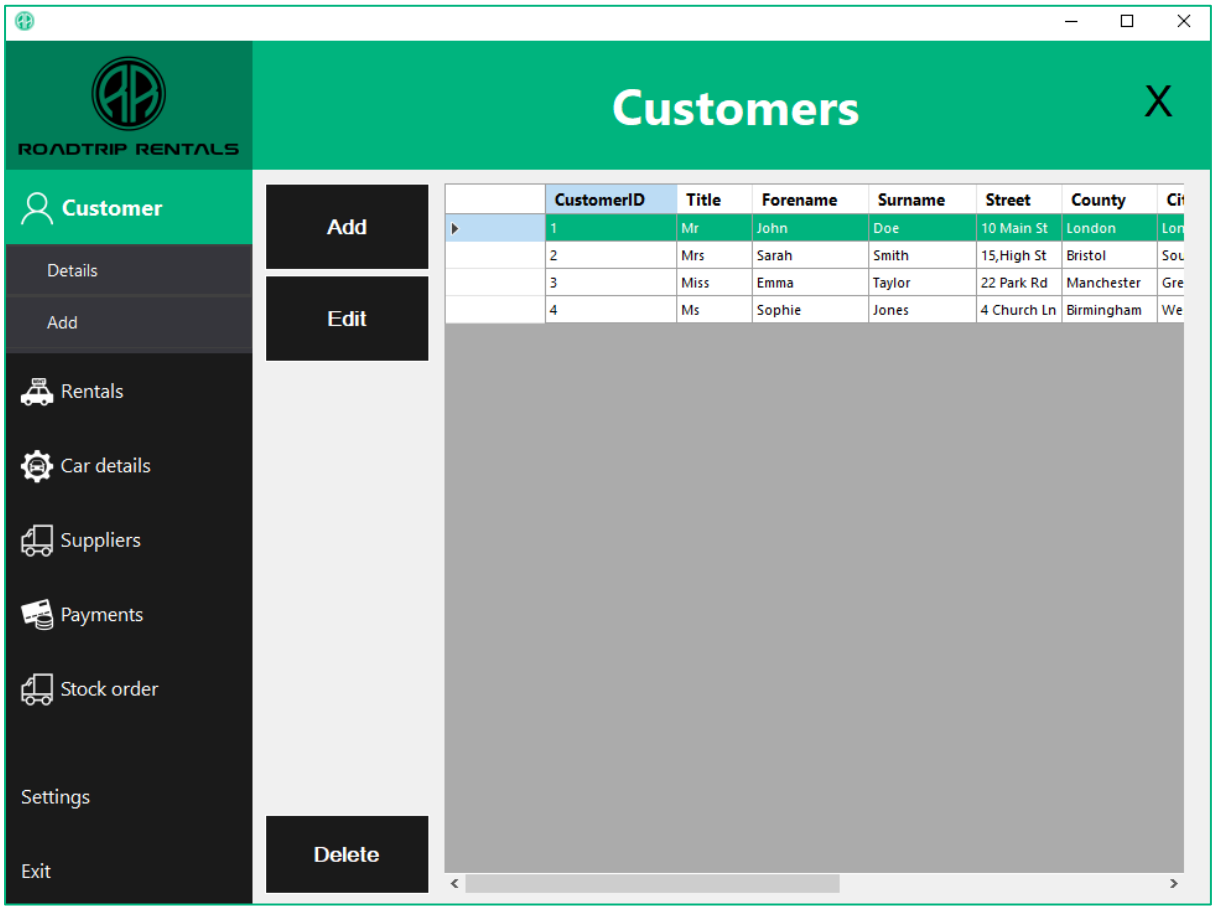
```
        startSubClosed();
        btnCloseSubForm.Visible = false;
    }


    //Submenu code start
    private void startSubClosed()
    {
        panelCustomerSubmenu.Visible = false;
        panelRentalsSubmenu.Visible = false;
        panelSupplierSubmenu.Visible = false;
        panelStockSubmenu.Visible = false;
        panelCarSubmenu.Visible = false;
        panelPaymentSubmenu.Visible = false;
    }

    private void HideAllSubmenus(params Panel[] panels)
    {
        foreach (var panel in panels)
        {
            if (panel.Visible)
            {
                panel.Visible = false;
            }
        }
    }

    private void hideSubMenu()
    {
        HideAllSubmenus(panelCustomerSubmenu, panelRentalsSubmenu, panelSupplierSubmenu, panelStockSubmenu,
panelCarSubmenu, panelPaymentSubmenu);
    }

    private void showSubMenu(Panel subMenu)
    {
        if (subMenu.Visible == false)
        {
            hideSubMenu();
            subMenu.Visible = true;
        }
        else
            subMenu.Visible = false;
    }
    //Submenu End


    private void mainMenu_Load(object sender, EventArgs e)
    {

        vis = false;

        tmrStop.Enabled = true;
    }

    private void ActivateButton(object btnSender) //Method for changeing the colour of the button to a color to highlight what has been
selected
    {
        if (btnSender != null)
        {
            if (currentButton != (Button)btnSender)
            {
                DisableButton();
                Color color = Color.FromArgb(0, 180, 126); //Setting the colour variable
                currentButton = (Button)btnSender;
                currentButton.BackColor = color;
                currentButton.Font = new System.Drawing.Font("Segoe UI", 13.0F, System.Drawing.FontStyle.Bold,
System.Drawing.GraphicsUnit.Point); //Changing font slightly to contrast the text
            }
        }
    }
```

```
    private void DisableButton() //Changes the previous button back to stock properties
    {
      foreach (Control previousBtn in panelMenu.Controls)
      {
        if (previousBtn.GetType() == typeof(Button))
        {
          previousBtn.BackColor = Color.FromArgb(26, 26, 26);
          previousBtn.ForeColor = Color.White;
          previousBtn.Font = new System.Drawing.Font("Segoe UI", 12F, System.Drawing.FontStyle.Regular,
System.Drawing.GraphicsUnit.Point);
        }
      }
    }

    private void btnCloseSubForm_Click(object sender, EventArgs e) //"X" button to close current form
    {
      if (activeForm != null)
        activeForm.Close();
      Reset();
    }

    private void Reset() //Back to home, removing x button
    {
      DisableButton();
      lblTitle.Text = "Main Menu";
      currentButton = null;
      btnCloseSubForm.Visible = false;
    }

    public void openSubForm(Form childForm, object btnSender) //Opens sub forms in panel
    {
      if (activeForm != null)
      {
        activeForm.Close();
      }

      //ActivateButton(btnSender);
      activeForm = childForm;
      childForm.TopLevel = false;
      childForm.FormBorderStyle = FormBorderStyle.None;
      childForm.Dock = DockStyle.Fill;
      this.panelForm.Controls.Add(childForm);
      this.panelForm.Tag = childForm;
      childForm.BringToFront();
      childForm.Show();
      lblTitle.Text = childForm.Text;
      btnCloseSubForm.Visible = true;
    }


    //Main Form buttons START
    private void btnCustomer_Click(object sender, EventArgs e)
    {
      ActivateButton(sender);
      showSubMenu(panelCustomerSubmenu);
    }

    private void btnSupplier_Click(object sender, EventArgs e)
    {
      ActivateButton(sender);
      showSubMenu(panelSupplierSubmenu);
    }

    private void btnRentals_Click(object sender, EventArgs e)
    {
      ActivateButton(sender);
      showSubMenu(panelRentalsSubmenu);
    }

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

```
    ActivateButton(sender);
    showSubMenu(panelCarSubmenu);
}

private void btnPayments_Click(object sender, EventArgs e)
{
    ActivateButton(sender);
    showSubMenu(panelPaymentSubmenu);
}

private void btnStock_Click(object sender, EventArgs e)
{
    ActivateButton(sender);
    showSubMenu(panelStockSubmenu);
}

private void btnMainCustomer_Click(object sender, EventArgs e)
{
    openSubForm(new RoadTripRentals.frmMainCustomer(), sender);
}

private void btnExit_Click(object sender, EventArgs e)
{
    Close();
}

private void btnSettings_Click(object sender, EventArgs e)
{
    frmSettings settingsForm = new frmSettings();
    openSubForm(settingsForm, sender);
}

//Main form buttons END

private void btnAddCustomer_Click(object sender, EventArgs e)
{
    frmAddCustomer addCustomerForm = new frmAddCustomer();
    addCustomerForm.OpenSubFormRequest += OpenSubFormRequest;
    openSubForm(addCustomerForm, sender);
}
private void OpenSubFormRequest(Form subForm)
{
    openSubForm(subForm, null);
}

private void btnMainRental_Click(object sender, EventArgs e)
{
    frmMainRentals mainRentalsForm = new frmMainRentals();
    openSubForm(mainRentalsForm, sender);
}

private void btnAddRental_Click(object sender, EventArgs e)
{
    frmAddRentals AddRentalsForm = new frmAddRentals();
    openSubForm(AddRentalsForm, sender);
}

private void btnMainCars_Click(object sender, EventArgs e)
{
    frmMainCar mainCarForm = new frmMainCar();
    openSubForm(mainCarForm, sender);
}


private void btnAddCar_Click(object sender, EventArgs e)
{
    frmAddCar addCarForm = new frmAddCar();
    openSubForm(addCarForm, sender);
}

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

```
        {
            frmMainModel mainModelForm = new frmMainModel();
            openSubForm(mainModelForm, sender);
        }

        private void btnMainRentalCost_Click(object sender, EventArgs e)
        {
            frmMainRentalCost mainRentalCostForm = new frmMainRentalCost();
            openSubForm(mainRentalCostForm, sender);
        }

        private void btnMainPayment_Click(object sender, EventArgs e)
        {
            frmMainPayments mainPaymentsForm = new frmMainPayments();
            openSubForm(mainPaymentsForm, sender);
        }

        private void btnAddPayment_Click(object sender, EventArgs e)
        {
            frmAddPayments addPaymentsForm = new frmAddPayments();
            openSubForm(addPaymentsForm, sender);
        }

        private void btnAddStock_Click(object sender, EventArgs e)
        {
            frmOrderStock addStockForm = new frmOrderStock();
            openSubForm(addStockForm, sender);
        }

        private void btnMainSupplier_Click(object sender, EventArgs e)
        {
            frmSupplierMain displayForm = new frmSupplierMain();
            openSubForm(displayForm, sender);
        }

        private void btnAddSupplier_Click(object sender, EventArgs e)
        {
            frmAddSupplier displayForm = new frmAddSupplier();
            openSubForm(displayForm, sender);
        }

        private void btnStockDetails_Click(object sender, EventArgs e)
        {
            frmOrderMain displayForm = new frmOrderMain();
            openSubForm(displayForm, sender);
        }

        private void btnEditRental_Click(object sender, EventArgs e)
        {
            frmEditRental displayForm = new frmEditRental();
            openSubForm(displayForm, sender);
        }

    }
}
```

Main Customer



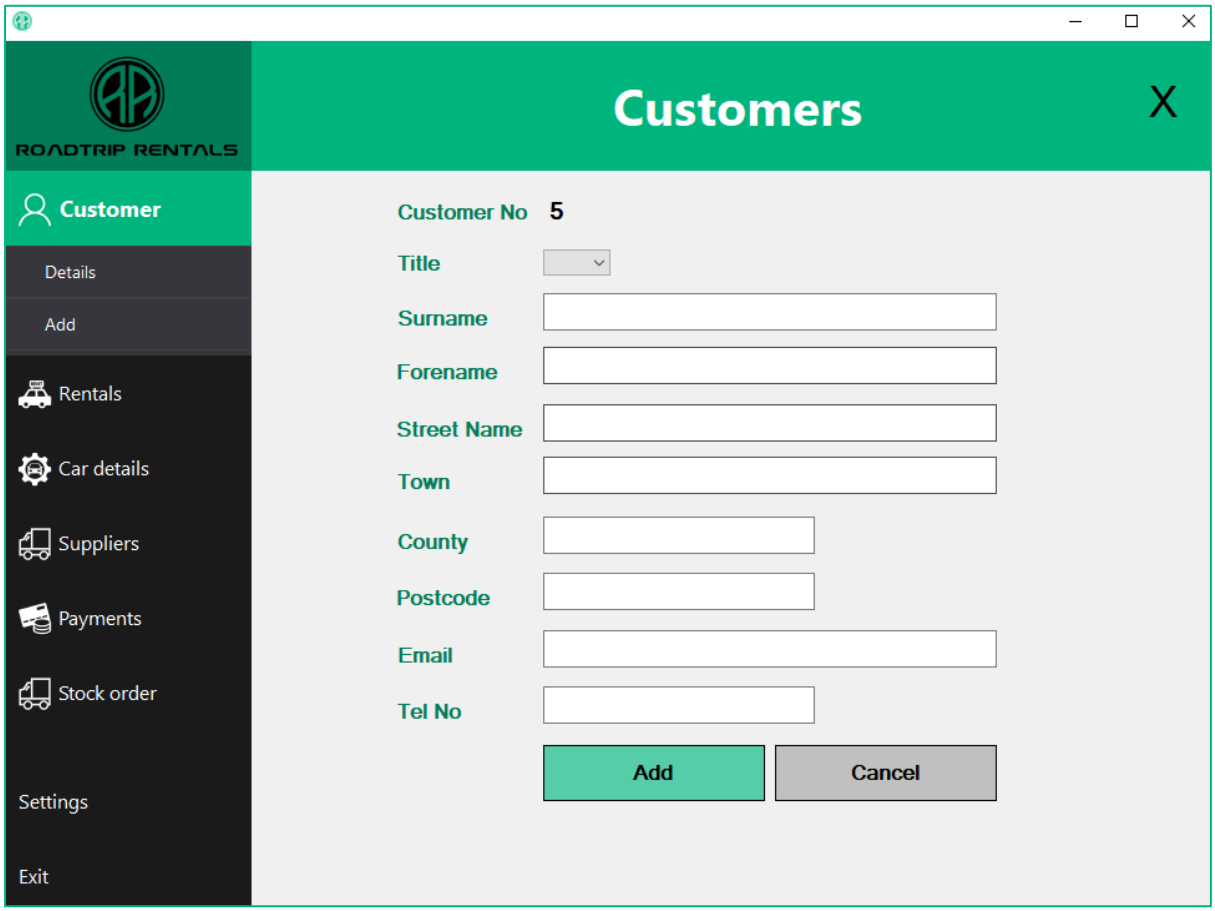
Customer menu which displays the database containing each of the customers. Can navigate to the add and edit forms from here which will replace the panel with the relevant form. Edit and Delete will only work if a row has been selected. The close sub form button also becomes visible, as an extra option to reset back to the main menu.

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

namespace RoadTripRentals
{
  public partial class frmMainCustomer : Form
  {
    SqlDataAdapter daCustomer;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBCustomer;
    String connStr, sqlCustomer;

    public delegate void OpenSubFormRequestHandler(Form subForm);

    public frmMainCustomer()
    {
      InitializeComponent();
    }
```

```
    private void frmMainCustomer_Load(object sender, EventArgs e)
    {
      // TODO: This line of code loads data into the 'roadTripRentalsDataSet.Customer' table. You can move, or remove it, as needed.
      connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

      sqlCustomer = @"select * from Customer";
      daCustomer = new SqlDataAdapter(sqlCustomer, connStr);
      cmdBCustomer = new SqlCommandBuilder(daCustomer);
      daCustomer.FillSchema(dsRoadTripRentals, SchemaType.Source, "Customer");
      daCustomer.Fill(dsRoadTripRentals, "Customer");

      dgvCustomers.DataSource = dsRoadTripRentals.Tables["Customer"];

      //Resize the DataGridView columns to fit the newly loaded content.
      dgvCustomers.AutoResizeColumns(DataGridViewAutoSizeColumnsMode.AllCells);

      btnDelCustomer.Click += btnDelCustomer_Click;

    }

    private void btnDelCustomer_Click(object sender, EventArgs e)
    {
      if (dgvCustomers.SelectedRows.Count > 0)
      {
        int customerID = Convert.ToInt32(dgvCustomers.SelectedRows[0].Cells["CustomerID"].Value);

        // Ask for confirmation before deleting the customer
        DialogResult result = MessageBox.Show("Are you sure you want to delete the selected customer?", "Confirm Delete",
MessageBoxButtons.YesNo, MessageBoxIcon.Warning);

        if (result == DialogResult.Yes)
        {
          // Delete the customer from the dataset and update the database
          DataRow customerRow = dsRoadTripRentals.Tables["Customer"].Rows.Find(customerID);
          if (customerRow != null)
          {
            customerRow.Delete();
            daCustomer.Update(dsRoadTripRentals, "Customer");

            MessageBox.Show("Customer Deleted");
          }
          else
          {
            MessageBox.Show("Customer not found.");
          }
        }
      }
    }

    private void btnAddCustomer_Click(object sender, EventArgs e)
    {
      frmAddCustomer newSubForm = new frmAddCustomer();
      OpenSubFormInPanel(newSubForm);
    }

    private void btnEditCustomer_Click(object sender, EventArgs e)
    {
      if (dgvCustomers.SelectedRows.Count > 0)
      {
        int customerID = Convert.ToInt32(dgvCustomers.SelectedRows[0].Cells["CustomerID"].Value);

        frmEditCustomer newSubForm = new frmEditCustomer(customerID);
        OpenSubFormInPanel(newSubForm);
      }
      else
      {
        MessageBox.Show("Please select a customer to edit.");
      }
```

```
        }

        private void OpenSubFormInPanel(Form subForm)
        {
            subForm.TopLevel = false;
            subForm.FormBorderStyle = FormBorderStyle.None;
            subForm.Dock = DockStyle.Fill;

            // Replace 'panel1' with the name of the Panel control in your main form.
            panelSub.Controls.Clear();
            panelSub.Controls.Add(subForm);

            subForm.Show();
        }

    }
}
```

Add Customer



Form where the a new Customer can be added to the database. Cancel will not push through the changes and returns back to the main customer menu. The customer no is auto populated reducing the input error and potential unique key conflicts.

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

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmAddCustomer : Form
  {
    SqlDataAdapter daCustomer;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBCustomer;
    DataRow drCustomer;
    SqlConnection conn;
    String connStr, sqlCustomer;


    public delegate void OpenSubFormRequestHandler(Form subForm);
    public event OpenSubFormRequestHandler OpenSubFormRequest;

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

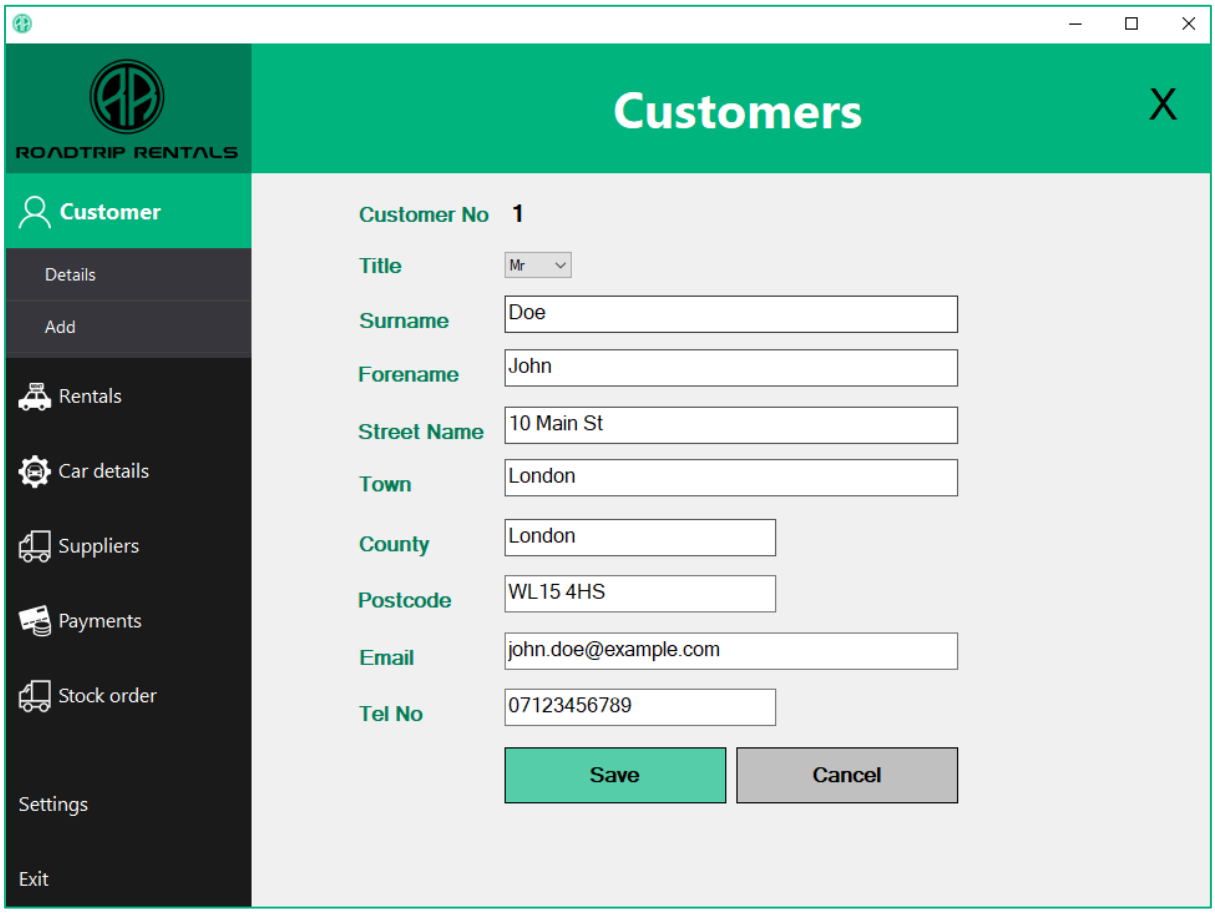
```
    // TODO: This line of code loads data into the 'roadTripRentalsDataSet.Customer' table. You can move, or remove it, as needed.
    connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

    sqlCustomer = @"select * from Customer";
    daCustomer = new SqlDataAdapter(sqlCustomer, connStr);
    cmdBCustomer = new SqlCommandBuilder(daCustomer);
    daCustomer.FillSchema(dsRoadTripRentals, SchemaType.Source, "Customer");
    daCustomer.Fill(dsRoadTripRentals, "Customer");

    //dgvCustomers.DataSource = dsRoadTripRentals.Tables["Customer"];

    //Resize the DataGridView columns to fit the newly loaded content.
    //dgvCustomers.AutoResizeColumns(DataGridViewAutoSizeColumnsMode.AllCells);
    int noRows = dsRoadTripRentals.Tables["Customer"].Rows.Count;

    if (noRows == 0)
        lblAddCustNoValue.Text = "10000";
    else
    {
        getNumber();
    }

    errP.Clear();
    clearAddForm();
}

public frmAddCustomer()
{
    InitializeComponent();
}

private void btnAddCancel_Click(object sender, EventArgs e)
{
    frmMainCustomer newSubForm = new frmMainCustomer();
    OpenSubFormInPanel(newSubForm);
}

private void btnAddAdd_Click(object sender, EventArgs e)
{
    MyCustomer myCustomer = new MyCustomer();
    bool ok = true;
    errP.Clear();

    //Exception catching

    //CUSTOMER ID
    try
    {
        myCustomer.CustomerID = Convert.ToInt32(lblAddCustNoValue.Text.Trim());  //passed to Customer class to check
    }
    catch (MyException MyEx)
    {
        ok = false;
        errP.SetError(lblAddCustomerNo, MyEx.validate());
    }

    //TITLE
    try
    {
        myCustomer.Title = cmbAddTitle.Text.Trim(); //passed to Customer class to check
    }
    catch (MyException MyEx)
    {
        ok = false;
        errP.SetError(cmbAddTitle, MyEx.validate());
    }

    //SURNAME
    try
    {
```

```
    myCustomer.Surname = txtAddSurname.Text.Trim(); //passed to Customer class to check
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtAddSurname, MyEx.validate());
}

//FORENAME
try
{
    myCustomer.Forename = txtAddForename.Text.Trim();  //passed to Customer class to check
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtAddForename, MyEx.validate());
}

//STREET NAME
try
{
    myCustomer.Street = txtAddStreet.Text.Trim();
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtAddStreet, MyEx.validate());
}

//CITY/TOWN
try
{
    myCustomer.Town = txtAddTown.Text.Trim();   //passed to Customer class to check
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtAddTown, MyEx.validate());
}

//COUNTY
try
{
    myCustomer.County = txtAddCounty.Text.Trim();   //passed to Customer class to check
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtAddCounty, MyEx.validate());
}

//POSTCODE
try
{
    myCustomer.Postcode = txtAddPostcode.Text.Trim();   //passed to Customer class to check
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtAddPostcode, MyEx.validate());
}


//EMAIL
try
{
    myCustomer.Email = txtAddEmail.Text.Trim();   //passed to Customer class to check
}
catch (MyException MyEx)
{
```

```
            ok = false;
            errP.SetError(txtAddEmail, MyEx.validate());
        }

        //TELNO
        try
        {
            myCustomer.TelNo = txtAddTelNo.Text.Trim(); //passed to Customer class to check
        }
        catch (MyException MyEx)
        {
            ok = false;
            errP.SetError(txtAddTelNo, MyEx.validate());
        }

        try
        {
            if (ok)
            {
                drCustomer = dsRoadTripRentals.Tables["Customer"].NewRow();

                drCustomer["CustomerID"] = myCustomer.CustomerID;
                drCustomer["Title"] = myCustomer.Title;
                drCustomer["Forename"] = myCustomer.Forename;
                drCustomer["Surname"] = myCustomer.Surname;
                drCustomer["Street"] = myCustomer.Street;
                drCustomer["City"] = myCustomer.Town;
                drCustomer["County"] = myCustomer.County;
                drCustomer["Postcode"] = myCustomer.Postcode;
                drCustomer["EmailAddress"] = myCustomer.Email;
                drCustomer["TelephoneNo"] = myCustomer.TelNo;

                dsRoadTripRentals.Tables["Customer"].Rows.Add(drCustomer);
                daCustomer.Update(dsRoadTripRentals, "Customer");

                MessageBox.Show("Customer Added");

                if (MessageBox.Show("Do you wish to add another customer?", "Add Customer", MessageBoxButtons.YesNo) ==
System.Windows.Forms.DialogResult.Yes)
                {
                    clearAddForm();
                    getNumber();
                }
                else
                {
                    frmMainCustomer newSubForm = new frmMainCustomer();
                    OpenSubFormInPanel(newSubForm);
                }

            }
        }
        catch (Exception ex)
        {
            MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!", MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
        }
    }

    private void getNumber()
    {
        try
        {
            using (SqlConnection conn = new SqlConnection(connStr))
            {
                conn.Open();
                SqlCommand cmd = new SqlCommand("SELECT MAX(CustomerID) FROM Customer", conn);
                int maxCustomerId = (int)cmd.ExecuteScalar();
                lblAddCustNoValue.Text = (maxCustomerId + 1).ToString();
                conn.Close();
            }
        }
        catch (Exception ex)
```

```
        {
            MessageBox.Show("Error fetching the next CustomerID: " + ex.Message);
        }
    }


    void clearAddForm()
    {
        cmbAddTitle.SelectedIndex = -1;
        txtAddForename.Clear();
        txtAddSurname.Clear();
        txtAddStreet.Clear();
        txtAddTown.Clear();
        txtAddCounty.Clear();
        txtAddPostcode.Clear();
        txtAddEmail.Clear();
        txtAddTelNo.Clear();
    }

    private void OpenSubFormInPanel(Form subForm)
    {
        subForm.TopLevel = false;
        subForm.FormBorderStyle = FormBorderStyle.None;
        subForm.Dock = DockStyle.Fill;

        // Replace 'panel1' with the name of the Panel control in your main form.
        panelSub.Controls.Clear();
        panelSub.Controls.Add(subForm);

        subForm.Show();
    }
  }



}
```

Edit Customer




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

namespace RoadTripRentals.Forms.Jordan
{

  public partial class frmEditCustomer : Form
  {

    SqlDataAdapter daCustomer, daCustomers;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBCustomer;
    SqlCommand cmdCustomerDetails;
    DataRow drCustomer;
    String connStr, sqlCustomer;

    bool custSelected = false;
    int custNoSelected = 0;

    private void frmEditCustomer_Load(object sender, EventArgs e)
    {
      // TODO: This line of code loads data into the 'roadTripRentalsDataSet.Customer' table. You can move, or remove it, as needed.
      connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

      sqlCustomer = @"select * from Customer";
```

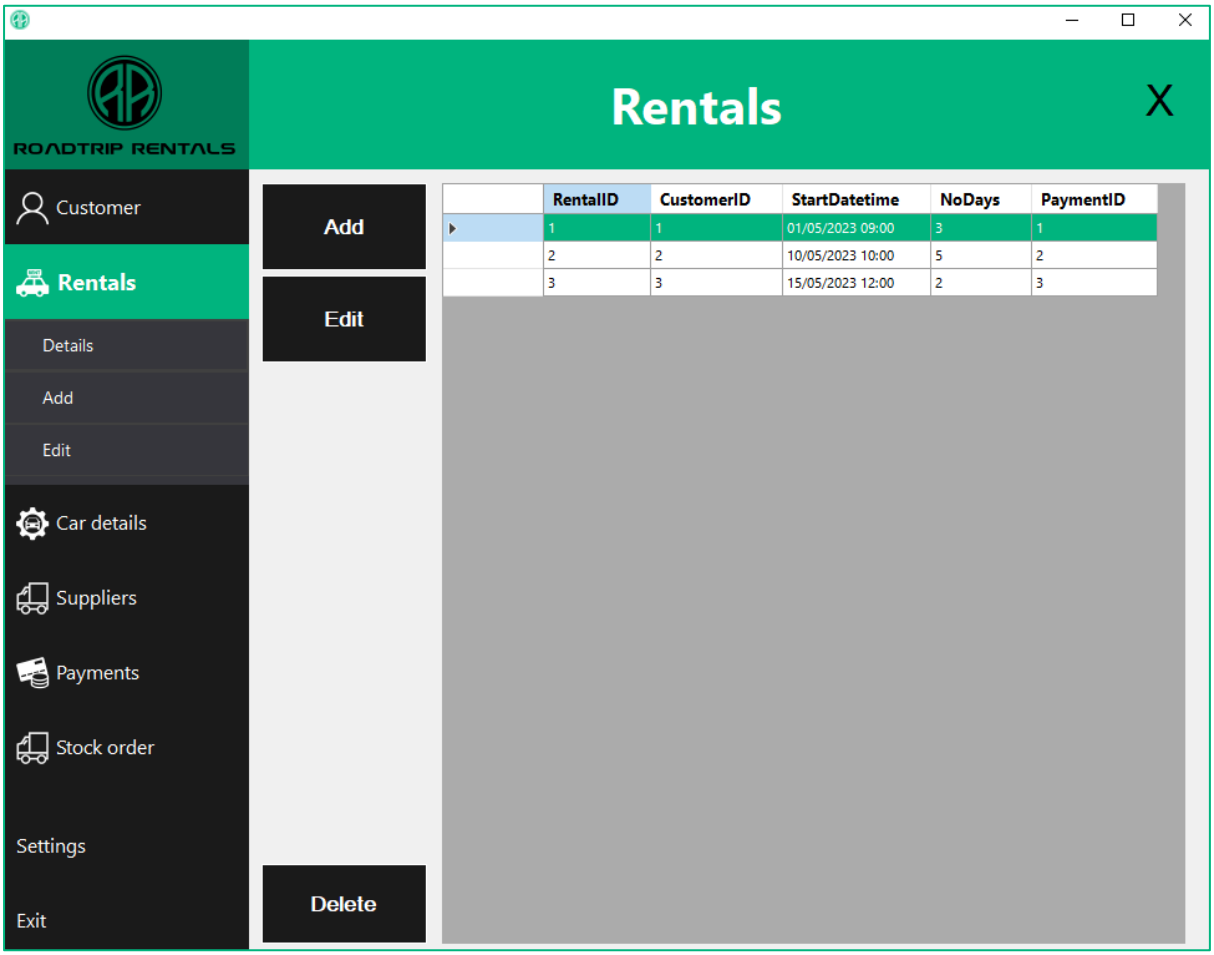
```
    daCustomer = new SqlDataAdapter(sqlCustomer, connStr);
    cmdBCustomer = new SqlCommandBuilder(daCustomer);
    daCustomer.FillSchema(dsRoadTripRentals, SchemaType.Source, "Customer");
    daCustomer.Fill(dsRoadTripRentals, "Customer");

    //dgvCustomers.DataSource = dsRoadTripRentals.Tables["Customer"];

    //Resize the DataGridView columns to fit the newly loaded content.
    //dgvCustomers.AutoResizeColumns(DataGridViewAutoSizeColumnsMode.AllCells);
    int noRows = dsRoadTripRentals.Tables["Customer"].Rows.Count;

    LoadCustomerData(custNoSelected);

  }

  public frmEditCustomer(int customerID)
  {
    InitializeComponent();
    custNoSelected = customerID;
  }



  private void LoadCustomerData(int customerID)
  {
    DataRow customerRow = dsRoadTripRentals.Tables["Customer"].Rows.Find(customerID);

    if (customerRow != null)
    {
      lblEditCustNoValue.Text = customerRow["CustomerID"].ToString();
      cmbEditTitle.Text = customerRow["Title"].ToString();
      txtEditForename.Text = customerRow["Forename"].ToString();
      txtEditSurname.Text = customerRow["Surname"].ToString();
      txtEditStreet.Text = customerRow["Street"].ToString();
      txtEditTown.Text = customerRow["City"].ToString();
      txtEditCounty.Text = customerRow["County"].ToString();
      txtEditPostcode.Text = customerRow["Postcode"].ToString();
      txtEditEmail.Text = customerRow["EmailAddress"].ToString();
      txtEditTelNo.Text = customerRow["TelephoneNo"].ToString();
    }
    else
    {
      MessageBox.Show("Customer not found.");
    }
  }


  private void btnEditCancel_Click(object sender, EventArgs e)
  {
    frmMainCustomer newSubForm = new frmMainCustomer();
    OpenSubFormInPanel(newSubForm);
  }

  private void btnEditAdd_Click(object sender, EventArgs e)
  {
    MyCustomer myCustomer = new MyCustomer();
    bool ok = true;
    errP.Clear();

    //Exception catching

    //CUSTOMER ID
    try
    {
      myCustomer.CustomerID = Convert.ToInt32(lblEditCustNoValue.Text.Trim());  //passed to Customer class to check
    }
    catch (MyException MyEx)
    {
      ok = false;
      errP.SetError(lblEditCustomerNo, MyEx.validate());
    }
```

```
//TITLE
try
{
   myCustomer.Title = cmbEditTitle.Text.Trim(); //passed to Customer class to check
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(cmbEditTitle, MyEx.validate());
}

//SURNAME
try
{
   myCustomer.Surname = txtEditSurname.Text.Trim(); //passed to Customer class to check
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(txtEditSurname, MyEx.validate());
}

//FORENAME
try
{
   myCustomer.Forename = txtEditForename.Text.Trim();  //passed to Customer class to check
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(txtEditForename, MyEx.validate());
}

//STREET NAME
try
{
   myCustomer.Street = txtEditStreet.Text.Trim();
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(txtEditStreet, MyEx.validate());
}

//CITY/TOWN
try
{
   myCustomer.Town = txtEditTown.Text.Trim();   //passed to Customer class to check
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(txtEditTown, MyEx.validate());
}

//COUNTY
try
{
   myCustomer.County = txtEditCounty.Text.Trim();   //passed to Customer class to check
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(txtEditCounty, MyEx.validate());
}

//POSTCODE
try
{
   myCustomer.Postcode = txtEditPostcode.Text.Trim();   //passed to Customer class to check
```

```
        }
        catch (MyException MyEx)
        {
            ok = false;
            errP.SetError(txtEditPostcode, MyEx.validate());
        }


        //EMAIL
        try
        {
            myCustomer.Email = txtEditEmail.Text.Trim();   //passed to Customer class to check
        }
        catch (MyException MyEx)
        {
            ok = false;
            errP.SetError(txtEditEmail, MyEx.validate());
        }

        //TELNO
        try
        {
            myCustomer.TelNo = txtEditTelNo.Text.Trim(); //passed to Customer class to check
        }
        catch (MyException MyEx)
        {
            ok = false;
            errP.SetError(txtEditTelNo, MyEx.validate());
        }

        try
        {
            if (ok)
            {
                int customerID = Convert.ToInt32(lblEditCustNoValue.Text);
                DataRow customerRow = dsRoadTripRentals.Tables["Customer"].Rows.Find(customerID);

                if (customerRow != null)
                {
                    customerRow["Title"] = myCustomer.Title;
                    customerRow["Forename"] = myCustomer.Forename;
                    customerRow["Surname"] = myCustomer.Surname;
                    customerRow["Street"] = myCustomer.Street;
                    customerRow["City"] = myCustomer.Town;
                    customerRow["County"] = myCustomer.County;
                    customerRow["Postcode"] = myCustomer.Postcode;
                    customerRow["EmailAddress"] = myCustomer.Email;
                    customerRow["TelephoneNo"] = myCustomer.TelNo;

                    daCustomer.Update(dsRoadTripRentals, "Customer");

                    MessageBox.Show("Customer Updated");
                }
                else
                {
                    MessageBox.Show("Customer not found.");
                }
            }
        }
        catch (Exception ex)
        {
            MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!", MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
        }

    }

void clearAddForm()
    {
        cmbEditTitle.SelectedIndex = -1;
        txtEditForename.Clear();
        txtEditSurname.Clear();
```

```
        txtEditStreet.Clear();
        txtEditTown.Clear();
        txtEditCounty.Clear();
        txtEditPostcode.Clear();
        txtEditEmail.Clear();
        txtEditTelNo.Clear();
    }

    private void OpenSubFormInPanel(Form subForm)
    {
        subForm.TopLevel = false;
        subForm.FormBorderStyle = FormBorderStyle.None;
        subForm.Dock = DockStyle.Fill;

        // Replace 'panelSub' with the name of the Panel control in your main form.
        panelSub.Controls.Clear();
        panelSub.Controls.Add(subForm);

        subForm.Show();
    }

  }


}
```

Main Rentals



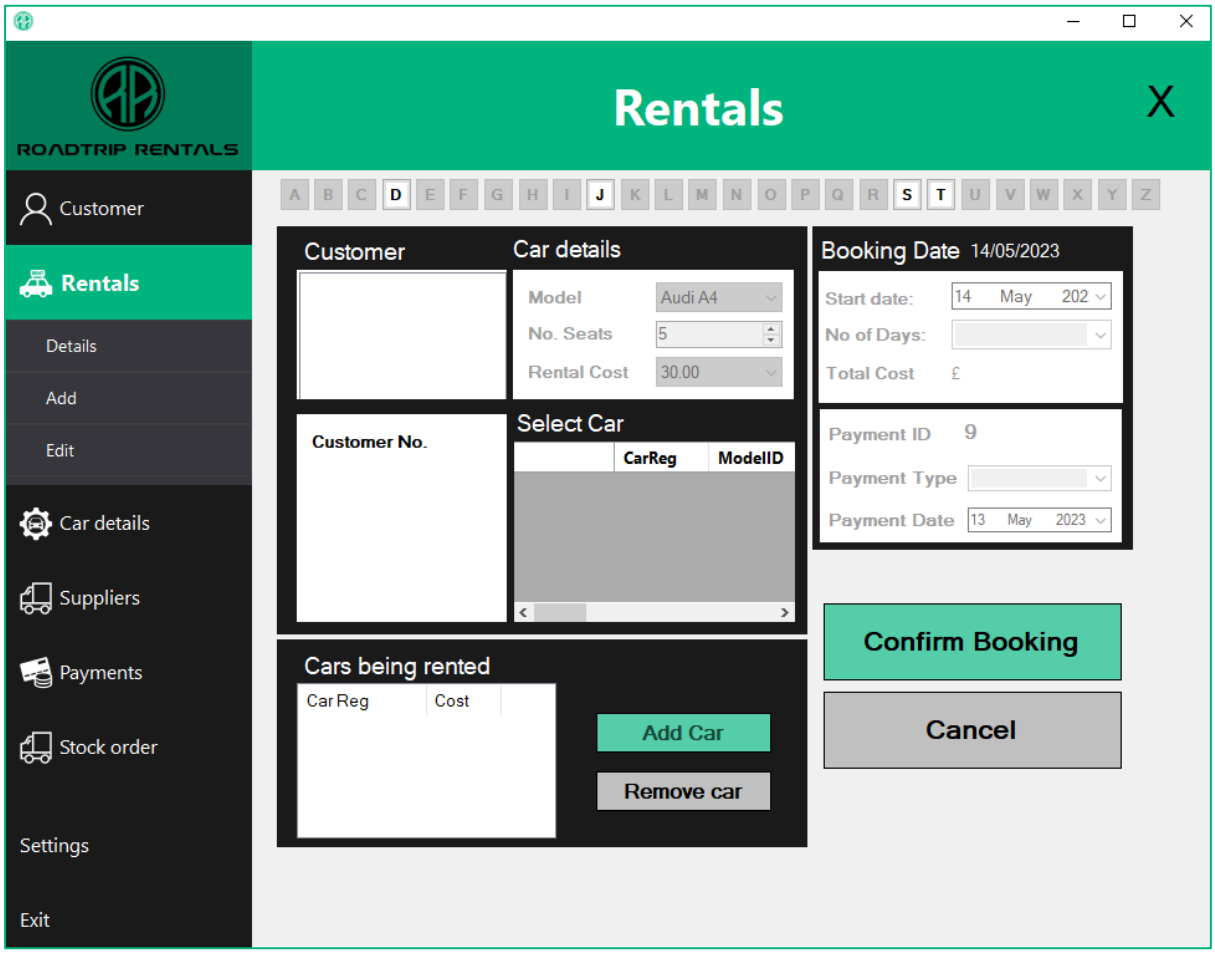
Rentals menu which displays the database containing each of the rentals. Can navigate to the add and edit forms from here which will replace the panel with the relevant form. Edit and Delete will only work if a row has been selected. The close sub form button also becomes visible, as an extra option to reset back to the main menu.

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

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmMainRentals : Form
  {
    SqlDataAdapter daRental, daRentals;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBRental;
    SqlCommand cmdRentalDetails;
    DataRow drRental;
    SqlConnection conn;
    String connStr, sqlRental, sqlRentalDetails;
    int selectedTab = 0;
    bool custSelected = false;
    int custNoSelected = 0;
```

```
    private void frmMainRentals_Load(object sender, EventArgs e)
    {
      // TODO: This line of code loads data into the 'roadTripRentalsDataSet.Rental' table. You can move, or remove it, as needed.
      connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

      sqlRental = @"select * from Rental";
      daRental = new SqlDataAdapter(sqlRental, connStr);
      cmdBRental = new SqlCommandBuilder(daRental);
      daRental.FillSchema(dsRoadTripRentals, SchemaType.Source, "Rental");
      daRental.Fill(dsRoadTripRentals, "Rental");

      dgvRentals.DataSource = dsRoadTripRentals.Tables["Rental"];

      //Resize the DataGridView columns to fit the newly loaded content.
      dgvRentals.AutoResizeColumns(DataGridViewAutoSizeColumnsMode.AllCells);

      //btnDelRental.Click += btnDelRental_Click;
    }

    public delegate void OpenSubFormRequestHandler(Form subForm);
    public event OpenSubFormRequestHandler OpenSubFormRequest;


    private void btnEditRental_Click(object sender, EventArgs e)
    {
      frmEditRental newSubForm = new frmEditRental();
      OpenSubFormInPanel(newSubForm);
    }

    private void btnDelRental_Click(object sender, EventArgs e)
    {
      if (dgvRentals.SelectedRows.Count > 0)
      {
        int RentalID = Convert.ToInt32(dgvRentals.SelectedRows[0].Cells["RentalID"].Value);

        // Ask for confirmation before deleting the Rental
        DialogResult result = MessageBox.Show("Are you sure you want to delete the selected Rental type?", "Confirm Delete",
MessageBoxButtons.YesNo, MessageBoxIcon.Warning);

        if (result == DialogResult.Yes)
        {
          // Find the Rental in the dataset using LINQ
          DataRow RentalRow = dsRoadTripRentals.Tables["Rental"].AsEnumerable().SingleOrDefault(row => row.Field<int>("RentalID")
== RentalID);

          if (RentalRow != null)
          {
            // Delete the Rental from the dataset and update the database
            RentalRow.Delete();
            daRental.Update(dsRoadTripRentals, "Rental");

            MessageBox.Show("Rental Deleted");
          }
          else
          {
            MessageBox.Show("Rental not found.");
          }
        }
      }
      else
      {
        MessageBox.Show("Please select a Rental to delete.");
      }
    }

    public frmMainRentals()
    {
      InitializeComponent();
    }
```

```
        private void btnAddRental_Click(object sender, EventArgs e)
        {
            frmAddRentals addRentalForm = new frmAddRentals();
            OpenSubFormInPanel(addRentalForm);
        }


        private void OpenSubFormInPanel(Form subForm)
        {
            subForm.TopLevel = false;
            subForm.FormBorderStyle = FormBorderStyle.None;
            subForm.Dock = DockStyle.Fill;

            // Replace 'panel1' with the name of the Panel control in your main form.
            panelSub.Controls.Clear();
            panelSub.Controls.Add(subForm);

            subForm.Show();
        }


    }


}
```

Add Rentals



The add rentals form brings in all of the tables Jordan has created.The buttons at the top are used to sort the lstCustomer list by surname. Once the customer is clicked the search parameter panel and Cars table becomes enabled. The user can either narrow their search down by model or cost (these fields are populated only with cars that actually have these traits. The no seats further reduces the details in the table. The user has to then click on the row for the car they want, and then hit the confirm check box to enable the booking date. Total cost is calculated by NoDays * Rental cost. Once these fields are populated the Payment panel becomes available. This is the same as the Add Payment form (except it is requiring a payment date, which is tied to the Rental table). The add car becomes enabled and populates the lvwRental with the relevant info. The confirm booking button then becomes enabled, and allows the user to add a rental with an associated customer, car and payment type. If there are multiple cars added for one rental, the details are still populated in the RentalCar table aswell.

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

```
namespace RoadTripRentals.Forms.Jordan
{
   public partial class frmAddRentals : Form
   {
      Button[] btns = new Button[26];

      SqlDataAdapter daNames, daCustomers, daRental, daRentalCost, daRentalCar;
      DataSet dsRoadTripRentals = new DataSet();
      SqlConnection conn;
      SqlCommand cmdCustomerDetails;


      DataRow drCustomer;

      String sqlNames, sqlCustomerDetails, sqlRental;

      String connStr;

      SqlDataAdapter daCarDetails, daCarDetailss;
      SqlCommandBuilder cmdBCarDetails, cmdBRentalCar;
      SqlCommand cmdCarDetails;
      DataRow drCarDetails;
      String sqlCarDetails, sqlCarDetailsDetails;


      SqlDataAdapter daPayment, daPaymentss;
      SqlCommandBuilder cmdBPayment, cmdBRental, cmdBRentalCost;
      SqlCommand cmdPaymentsDetails;
      DataRow drPayment;
      String sqlRentalCar, sqlRentalCost, sqlPayment, sqlPaymentsDetails;


      private int previousSelectedCustomer = -1;
      private bool isMessageBoxShown = false;



      public frmAddRentals()
      {
         InitializeComponent();
         Load += frmAddRentals_Load;
      }

      private void frmAddRentals_Load(object sender, EventArgs e)
      {
         btnAdd.Enabled = false;
         ClearCustomer();
         btnAddItem.Enabled = false;

         int no;

         lblBookingDate.Text = DateTime.Now.ToShortDateString();
         dtpStartDate.MinDate = DateTime.Now;
         dtpPaymentDate.MinDate = DateTime.Now;

         for (int i = 0; i < 26; i++)
         {
            var btn = (Button)pnlButtons.Controls["btn" + (char)(65 + i)];  // access buttons by name
            btn.Text = "" + (char)(65 + i);
            btn.Enabled = false;
            btn.Click += new EventHandler(button1_Click);
            btns[i] = btn;
         }

         connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";
         //connStr = Properties.Resources.connectionStr;

         //get surnames for alphabet buttons

         sqlNames = @"Select surname from customer order by surname";
         daNames = new SqlDataAdapter(sqlNames, connStr);

         daNames.Fill(dsRoadTripRentals, "Names");

         //enable relevant alpha buttons
```

```
foreach (DataRow dr in dsRoadTripRentals.Tables["Names"].Rows)
{
   no = (int)dr["Surname"].ToString()[0] - 65;
   btns[no].Enabled = true;
   btns[no].BackColor = Color.Black;
   btns[no].BackColor = Color.White;

}

// setup dataAdapter for customer details for the listbox
sqlCustomerDetails = @"Select customerID, title, surname, forename, surname +', ' + Forename as name, street, city, county, postcode, postcode,
telephoneno from customer where surname LIKE @Letter order by surname, forename ";
conn = new SqlConnection(connStr);
cmdCustomerDetails = new SqlCommand(sqlCustomerDetails, conn);
cmdCustomerDetails.Parameters.Add("@Letter", SqlDbType.VarChar);
daCustomers = new SqlDataAdapter(cmdCustomerDetails);
daCustomers.FillSchema(dsRoadTripRentals, SchemaType.Source, "Customer");

//CarDetails DGV
sqlCarDetails = @"select * from CarDetails";
daCarDetails = new SqlDataAdapter(sqlCarDetails, connStr);
cmdBCarDetails = new SqlCommandBuilder(daCarDetails);
daCarDetails.FillSchema(dsRoadTripRentals, SchemaType.Source, "CarDetails");
daCarDetails.Fill(dsRoadTripRentals, "CarDetails");

dgvCars.DataSource = dsRoadTripRentals.Tables["CarDetails"];

//Resize the DataGridView columns to fit the newly loaded content.
dgvCars.AutoResizeColumns(DataGridViewAutoSizeColumnsMode.AllCells);

//Rental Cost
sqlRentalCost = @"select * from RentalCost";
daRentalCost = new SqlDataAdapter(sqlRentalCost, connStr);
cmdBRentalCost = new SqlCommandBuilder(daRentalCost);
daRentalCost.FillSchema(dsRoadTripRentals, SchemaType.Source, "RentalCost");
daRentalCost.Fill(dsRoadTripRentals, "RentalCost");


// Rental table
sqlRental = @"select * from Rental";
daRental = new SqlDataAdapter(sqlRental, connStr);
cmdBRental = new SqlCommandBuilder(daRental);
daRental.FillSchema(dsRoadTripRentals, SchemaType.Source, "Rental");
daRental.Fill(dsRoadTripRentals, "Rental");

// RentalCar table
sqlRentalCar = @"select * from RentalCar";
daRentalCar = new SqlDataAdapter(sqlRentalCar, connStr);
cmdBRentalCar = new SqlCommandBuilder(daRentalCar);
daRentalCar.FillSchema(dsRoadTripRentals, SchemaType.Source, "RentalCar");
daRentalCar.Fill(dsRoadTripRentals, "RentalCar");


// Payment table
sqlPayment = @"select * from PaymentType";
daPayment = new SqlDataAdapter(sqlPayment, connStr);
cmdBPayment = new SqlCommandBuilder(daPayment);
daPayment.FillSchema(dsRoadTripRentals, SchemaType.Source, "PaymentType");
daPayment.Fill(dsRoadTripRentals, "Payment");

int noRows = dsRoadTripRentals.Tables["PaymentType"].Rows.Count;

getNumber();



using (SqlConnection conn = new SqlConnection(connStr))
{
   conn.Open();
   using (SqlDataAdapter da = new SqlDataAdapter("SELECT DISTINCT Model.ModelID, Model.ModelDesc FROM Model INNER JOIN CarDetails ON
Model.ModelID = CarDetails.ModelID", conn))
   {
      DataTable dt = new DataTable();
      da.Fill(dt);
      cmbAddModelID.DataSource = dt;
```

```
            cmbAddModelID.DisplayMember = "ModelDesc";
            cmbAddModelID.ValueMember = "ModelID";
          }

          using (SqlDataAdapter da = new SqlDataAdapter(@"
    SELECT RentalCostID, RentalCost
    FROM RentalCost
    WHERE RentalCostID IN (
      SELECT DISTINCT RentalCostID
      FROM CarDetails
    )
  ", conn))
          {
            DataTable dt = new DataTable();
            da.Fill(dt);
            cmbAddRentalCostID.DataSource = dt;
            cmbAddRentalCostID.DisplayMember = "RentalCost";
            cmbAddRentalCostID.ValueMember = "RentalCostID";
          }
        }

        // Clear the car details labels
        lblCarReg.Text = "";
        lblModelID.Text = "";
        lblColour.Text = "";
        lblMileage.Text = "";
        lblFuelType.Text = "";
        lblNoSeats.Text = "";
        lblYear.Text = "";
        lblRentalCostID.Text = "";

        v.Enabled = false;
        v.Visible = false;
        pnlBooking.Enabled = false;
        pnlPayment.Enabled = false;
        btnResetFilters.Visible = false;
    }

    private void button1_Click(object sender, EventArgs e)
    {
        panelCarDetails.Enabled = false;
        Button b = (Button)sender;
        // get customer details for listbox - use selected button layer for parameter
        String str = b.Text;

        //empty dataset table customer
        dsRoadTripRentals.Tables["Customer"].Clear();

        fillListBoxCustomers(str);

        ClearCustomer();

        pnlBooking.Enabled = false;

    }

    private void fillListBoxCustomers(String str)
    {
        // get all customer details for listbox - use wildcard for parameter
        cmdCustomerDetails.Parameters["@Letter"].Value = str + "%";
        daCustomers.Fill(dsRoadTripRentals, "Customer");

        //fill listbox

        lstCustomer.DataSource = dsRoadTripRentals.Tables["Customer"];
        lstCustomer.DisplayMember = "name";
        lstCustomer.ValueMember = "CustomerID";
    }

    private void cmbModelID_SelectedIndexChanged(object sender, EventArgs e)
    {
        btnResetFilters.Visible = true;
        if (cmbAddModelID.SelectedItem != null)
        {
          string modelID = cmbAddModelID.SelectedValue.ToString();
```

```
            int noSeats = (int)txtAddNoSeats.Value;

            string rentalCostID = cmbAddRentalCostID.SelectedValue != null ? cmbAddRentalCostID.SelectedValue.ToString() : null;

            sqlCarDetails = "SELECT * FROM CarDetails WHERE ModelID = @ModelID AND NoSeats = @NoSeats" + (rentalCostID != null ? " AND RentalCostID =
@RentalCostID" : "");
            daCarDetails = new SqlDataAdapter(sqlCarDetails, conn);
            daCarDetails.SelectCommand.Parameters.AddWithValue("@ModelID", modelID);
            daCarDetails.SelectCommand.Parameters.AddWithValue("@NoSeats", noSeats);
            if (rentalCostID != null)
            {
                daCarDetails.SelectCommand.Parameters.AddWithValue("@RentalCostID", rentalCostID);
            }

            // Ensure the DataSet and DataTable are not null before trying to clear it.
            if (dsRoadTripRentals != null && dsRoadTripRentals.Tables.Contains("CarDetails"))
            {
                dsRoadTripRentals.Tables["CarDetails"].Clear();
                daCarDetails.Fill(dsRoadTripRentals, "CarDetails");
                dgvCars.DataSource = dsRoadTripRentals.Tables["CarDetails"];
            }
            else
            {
                // Log an error message or throw an exception.
                Console.WriteLine("DataSet or DataTable is null.");
            }
        }
    }



    private void cmbAddRentalCostID_SelectedIndexChanged(object sender, EventArgs e)
    {
        btnResetFilters.Visible = true;
        if (cmbAddRentalCostID.SelectedItem != null)
        {
            if (cmbAddRentalCostID.SelectedValue is DataRowView) return;

            string rentalCostID = cmbAddRentalCostID.SelectedValue.ToString();
            string modelID = cmbAddModelID.SelectedValue.ToString();
            int noSeats = (int)txtAddNoSeats.Value;

            sqlCarDetails = @"
        SELECT *
        FROM CarDetails
        WHERE RentalCostID = @RentalCostID AND ModelID = @ModelID AND NoSeats = @NoSeats";
            daCarDetails = new SqlDataAdapter(sqlCarDetails, conn);
            daCarDetails.SelectCommand.Parameters.AddWithValue("@RentalCostID", rentalCostID);
            daCarDetails.SelectCommand.Parameters.AddWithValue("@ModelID", modelID);
            daCarDetails.SelectCommand.Parameters.AddWithValue("@NoSeats", noSeats);

            // Ensure the DataSet and DataTable are not null before trying to clear it.
            if (dsRoadTripRentals != null && dsRoadTripRentals.Tables.Contains("CarDetails"))
            {
                dsRoadTripRentals.Tables["CarDetails"].Clear();
                daCarDetails.Fill(dsRoadTripRentals, "CarDetails");
                dgvCars.DataSource = dsRoadTripRentals.Tables["CarDetails"];
            }
            else
            {
                // Log an error message or throw an exception.
                Console.WriteLine("DataSet or DataTable is null.");
            }
        }
    }




    private void txtAddNoSeats_ValueChanged(object sender, EventArgs e)
    {
        btnResetFilters.Visible = true;
        cmbModelID_SelectedIndexChanged(sender, e);
    }
```

```
    private void lstCustomer_Click(object sender, EventArgs e)
    {
        String title = "";

        drCustomer = dsRoadTripRentals.Tables["Customer"].Rows.Find(lstCustomer.SelectedValue);

        if (drCustomer["Title"].ToString() == "Mr")
            title = "Mr";
        if (drCustomer["Title"].ToString() == "Mrs")
            title = "Mrs";
        if (drCustomer["Title"].ToString() == "Miss")
            title = "Miss";
        if (drCustomer["Title"].ToString() == "Ms")
            title = "Ms";


        lblCust0.Text = drCustomer["CustomerID"].ToString();
        lblCust1.Text = title + " " + drCustomer["Forename"].ToString() + " " + drCustomer["Surname"].ToString();
        lblCust2.Text = drCustomer["Street"].ToString();
        lblCust3.Text = drCustomer["City"].ToString();
        lblCust4.Text = drCustomer["County"].ToString();
        lblCust5.Text = drCustomer["Postcode"].ToString();

        panelCarDetails.Enabled = true;
        dgvCars.ClearSelection();

        v.Enabled = false;
        v.Visible = false;
        pnlBooking.Enabled = false;

        // Populate dgvCars and display the Confirm Selection checkbox only after a customer is selected
        if (lstCustomer.SelectedItems.Count > 0)
        {
            ResetCarDetails();  // Make sure this method populates dgvCars with all cars and doesn't clear it

            // Enable the Confirm Selection checkbox
            v.Enabled = true;
        }
    }

    private void dgvCars_SelectionChanged(object sender, EventArgs e)
    {
        if (dgvCars.SelectedRows.Count > 0) // Make sure there is a selected row
        {
            DataGridViewRow row = dgvCars.SelectedRows[0];
            // Assume you have labels or other controls to display the selected car details
            lblCarReg.Text = row.Cells["CarReg"].Value.ToString();
            lblModelID.Text = row.Cells["ModelID"].Value.ToString();
            lblColour.Text = row.Cells["Colour"].Value.ToString();
            lblMileage.Text = Convert.ToDecimal(row.Cells["Mileage"].Value).ToString();
            lblFuelType.Text = row.Cells["FuelType"].Value.ToString();
            lblNoSeats.Text = Convert.ToDecimal(row.Cells["NoSeats"].Value).ToString();
            lblYear.Text = Convert.ToDecimal(row.Cells["Year"].Value).ToString();
            lblRentalCostID.Text = row.Cells["RentalCostID"].Value.ToString();

            // Enable the confirm selection checkbox
            v.Enabled = true;
            v.Visible = true;
            CalculateTotalCost();
        }
    }

    private void lstCustomer_SelectedIndexChanged(object sender, EventArgs e)
    {
        if (isMessageBoxShown)
        {
            isMessageBoxShown = false; // Reset the flag
            return; // Skip the event handler
        }

        if (lvwRental.Items.Count > 0 && MessageBox.Show("If you proceed with a new customer, the bookings will be cleared. Do you want to proceed?",
"Clear bookings", MessageBoxButtons.YesNo) == DialogResult.No)
```

```
    {
        isMessageBoxShown = true; // Set the flag
        if (previousSelectedCustomer != -1)
        {
            lstCustomer.SelectedIndex = previousSelectedCustomer;
        }
        else
        {
            lstCustomer.ClearSelected();
        }
    }
    else
    {
        btnAdd.Enabled = false;
        lvwRental.Items.Clear();
        previousSelectedCustomer = lstCustomer.SelectedIndex;
    }
}

private void ResetCarDetails()
{
    // If the DataSet and DataTable are not null, fill the DataGridView with all cars
    if (dsRoadTripRentals != null && dsRoadTripRentals.Tables.Contains("CarDetails"))
    {
        dsRoadTripRentals.Tables["CarDetails"].Clear();
        daCarDetails.SelectCommand.CommandText = "SELECT * FROM CarDetails";
        daCarDetails.Fill(dsRoadTripRentals, "CarDetails");
        dgvCars.DataSource = dsRoadTripRentals.Tables["CarDetails"];
        btnResetFilters.Visible = false;
    }
    else
    {
        // Log an error message or throw an exception.
        Console.WriteLine("DataSet or DataTable is null.");
    }
}

private void btnAddCancel_Click(object sender, EventArgs e)
{
    frmMainRentals newSubForm = new frmMainRentals();
    OpenSubFormInPanel(newSubForm);
}

private void chkConfirmCarSelection_CheckedChanged(object sender, EventArgs e)
{
    if (v.Checked)
    {
        // If the selection is confirmed, enable the date booked DateTimePicker
        pnlBooking.Enabled = true;
        dgvCars.Enabled = false;
        dgvCars.Visible = false;
        panelCarDetails.Enabled = false;
        pnlPayment.Enabled = false;
        btnResetFilters.Visible = false;
        UpdateAddItemButtonState();
        lblSelectCar.Text = "Selected Car";

    }
    else
    {
        // If the selection is not confirmed, disable the date booked DateTimePicker
        pnlBooking.Enabled = false;
        dgvCars.Enabled = true;
        dgvCars.Visible = true;
        panelCarDetails.Enabled = true;
       ResetCarDetails();
        lblSelectCar.Text = "Select Car";
    }
}

private void btnResetFilters_Click(object sender, EventArgs e)
{
    ResetCarDetails();
}
```

```
private void cmbNoOfDays_SelectedIndexChanged(object sender, EventArgs e)
{
   CalculateTotalCost();
   pnlPayment.Enabled = true;
   UpdateAddItemButtonState();
}

private void btnRemoveItem_Click(object sender, EventArgs e)
{
   if (lvwRental.SelectedItems.Count != 0)
   {
      var item = lvwRental.SelectedItems[0];
      lvwRental.Items.Remove(item);
   }
}

public class MyPayments
{
   public int PaymentID { get; set; }
   public string PaymentType { get; set; }
}

private void btnAdd_Click(object sender, EventArgs e)
{
   MyPayments myPayments = new MyPayments();

   // Generate a new PaymentID by finding a unique value not already present in the PaymentType table
   int paymentId = GenerateUniquePaymentId();

   if (paymentId == -1)
   {
      // Unable to generate a unique paymentId
      MessageBox.Show("Failed to generate a unique PaymentID. Please try again.");
      return;
   }

   DataRow drPayments = dsRoadTripRentals.Tables["PaymentType"].NewRow();
   drPayments["PaymentID"] = paymentId;
   drPayments["PaymentType"] = cmbPaymentType.Text.Trim();
   dsRoadTripRentals.Tables["PaymentType"].Rows.Add(drPayments);
   daPayment.Update(dsRoadTripRentals, "PaymentType");


   DataRow drRental;
   int rentalId;

   // Get the next RentalID
   int noRows = dsRoadTripRentals.Tables["Rental"].Rows.Count;
   drRental = dsRoadTripRentals.Tables["Rental"].Rows[noRows - 1];
   rentalId = (int.Parse(drRental["RentalID"].ToString()) + 1);

   // Create new Rental row
   drRental = dsRoadTripRentals.Tables["Rental"].NewRow();
   drRental["RentalID"] = rentalId;
   drRental["CustomerID"] = int.Parse(lblCust0.Text);
   drRental["StartDatetime"] = DateTime.Now;
   drRental["NoDays"] = int.Parse(cmbNoOfDays.Text);
   drRental["PaymentID"] = paymentId; // Assign the generated paymentId
   drRental["PaymentDate"] = DateTime.Now; // Set the PaymentDate column to the current date and time

   // Get the customer ID, car registration, and start date you're about to insert
   int customerID = int.Parse(lblCust0.Text);
   string carReg = dgvCars.SelectedRows[0].Cells["CarReg"].Value.ToString();
   DateTime startDate = DateTime.Now; // If you're using another date, use that instead

   foreach (ListViewItem item in lvwRental.Items)
   {
      carReg = item.Text;
      int noDays = int.Parse(cmbNoOfDays.Text);

      var existingRentals = dsRoadTripRentals.Tables["Rental"].AsEnumerable()
         .Where(r => r.Field<int>("CustomerID") == customerID)
         .Join(dsRoadTripRentals.Tables["RentalCar"].AsEnumerable(),
            rental => rental.Field<int>("RentalID"),
            rentalCar => rentalCar.Field<int>("RentalID"),
```

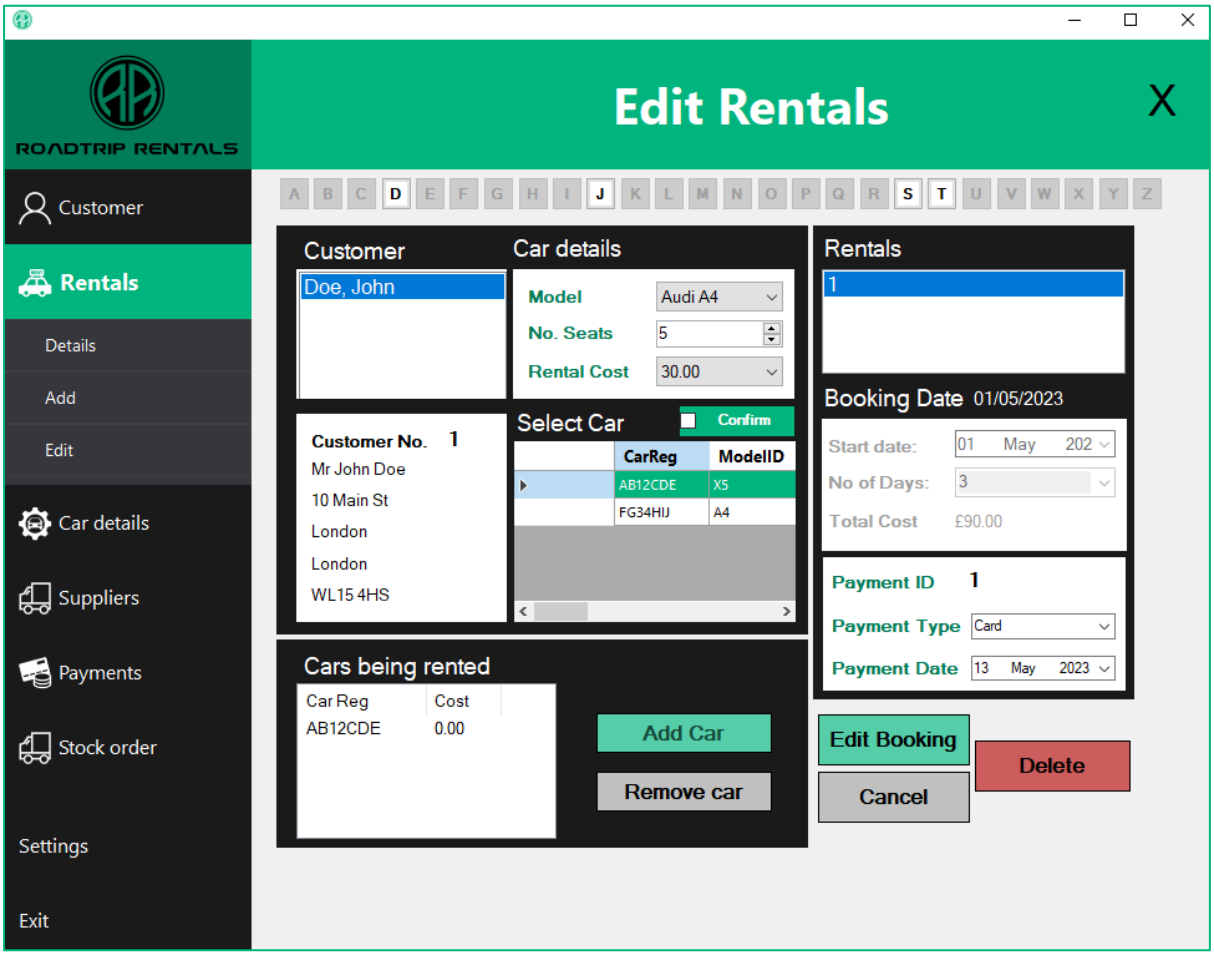
```
            (rental, rentalCar) => new { Rental = rental, RentalCar = rentalCar })
        .Where(joined => joined.RentalCar.Field<string>("CarReg") == carReg);

    foreach (var existingRental in existingRentals)
    {
        DateTime existingStartDate = existingRental.Rental.Field<DateTime>("StartDatetime");
        int existingNoDays = existingRental.Rental.Field<int>("NoDays");
        DateTime existingEndDate = existingStartDate.AddDays(existingNoDays);

        // Check if the new rental date overlaps with the existing rental period
        if ((startDate >= existingStartDate && startDate <= existingEndDate) ||
            (startDate.AddDays(noDays) >= existingStartDate && startDate.AddDays(noDays) <= existingEndDate))
        {
            MessageBox.Show("You cannot book the same car on overlapping dates.");
            return;
        }
    }
}




dsRoadTripRentals.Tables["Rental"].Rows.Add(drRental);
daRental.Update(dsRoadTripRentals, "Rental");
// Create new RentalCar row for each car in the lvwRental ListView


foreach (ListViewItem item in lvwRental.Items)
{
    DataRow drRentalCar = dsRoadTripRentals.Tables["RentalCar"].NewRow();
    drRentalCar["RentalID"] = drRental["RentalID"];
    drRentalCar["CarReg"] = item.Text;

    //// Code to assign TotalCost
    //string costText = item.SubItems[1].Text.Replace("£", string.Empty).Trim();
    //drRentalCar["TotalCost"] = decimal.Parse(costText);

    dsRoadTripRentals.Tables["RentalCar"].Rows.Add(drRentalCar);
    daRentalCar.Update(dsRoadTripRentals, "RentalCar");
}



MessageBox.Show("Rental ID:  " + drRental["RentalID"].ToString() + " added to the system");

DialogResult result = MessageBox.Show("Do you want to add another rental?", "Add Another Rental", MessageBoxButtons.YesNo);

if (result == DialogResult.Yes)
{
    // Reset the form to its initial state
    ResetForm();
    btnAdd.Enabled = false;
}
else
{
    frmMainRentals subForm = new frmMainRentals();
    OpenSubFormInPanel(subForm);
}


}

private void ResetForm()
{
    // Reset all the controls
    cmbNoOfDays.SelectedIndex = -1;
    cmbPaymentType.SelectedIndex = -1;
    lblCust0.Text = "";
    dgvCars.ClearSelection();
    lvwRental.Items.Clear();
    lblTotalCost.Text = "";
    // ... etc for all other controls that need resetting
}
```

```
private void OpenSubFormInPanel(Form subForm)
{
    subForm.TopLevel = false;
    subForm.FormBorderStyle = FormBorderStyle.None;
    subForm.Dock = DockStyle.Fill;

    // Replace 'panel1' with the name of the Panel control in your main form.
    panelSub.Controls.Clear();
    panelSub.Controls.Add(subForm);

    subForm.Show();
}

private int GenerateUniquePaymentId()
{
    try
    {
        using (SqlConnection conn = new SqlConnection(connStr))
        {
            conn.Open();
            SqlCommand cmd = new SqlCommand("SELECT MAX(PaymentID) FROM PaymentType", conn);
            int maxPaymentID = (int)cmd.ExecuteScalar();
            int paymentId = maxPaymentID + 1;

            // Check if the generated paymentId already exists in the PaymentType table
            while (CheckPaymentIdExists(paymentId))
            {
                paymentId++;
            }

            return paymentId;
        }
    }
    catch (Exception ex)
    {
        MessageBox.Show("Error generating unique PaymentID: " + ex.Message);
        return -1;
    }
}

private bool CheckPaymentIdExists(int paymentId)
{
    return dsRoadTripRentals.Tables["PaymentType"]
        .AsEnumerable()
        .Any(row => row.Field<int>("PaymentID") == paymentId);
}



private void getNumber()
{
    try
    {
        using (SqlConnection conn = new SqlConnection(connStr))
        {
            conn.Open();
            SqlCommand cmd = new SqlCommand("SELECT MAX(PaymentID) FROM PaymentType", conn);
            int maxPaymentID = (int)cmd.ExecuteScalar();
            txtPaymentID.Text = (maxPaymentID + 1).ToString();
            conn.Close();
        }
    }
    catch (Exception ex)
    {
        MessageBox.Show("Error fetching the next PaymentID: " + ex.Message);
    }
}

private void CalculateTotalCost()
{
    if (cmbNoOfDays.SelectedItem != null && dgvCars.SelectedRows.Count > 0)
    {
        decimal duration = Convert.ToDecimal(cmbNoOfDays.SelectedItem);

        // Obtain the RentalCostID from the selected row in dgvCars
```

```
            int rentalCostID = Convert.ToInt32(dgvCars.SelectedRows[0].Cells["RentalCostID"].Value);

            // Lookup the corresponding RentalCost in the RentalCost
            DataRow[] foundRows = dsRoadTripRentals.Tables["RentalCost"].Select("RentalCostID = " + rentalCostID);
            if (foundRows.Length > 0)
            {
                decimal dailyRentalCost = Convert.ToDecimal(foundRows[0]["RentalCost"]);

                decimal totalCost = duration * dailyRentalCost;
                lblTotalCost.Text = totalCost.ToString("C");
            }
            else
            {
                // Handle the case where no corresponding RentalCost is found for the given RentalCostID
                MessageBox.Show("No corresponding Rental Cost found for the selected car.");
            }
        }
    }



    private void btnAddItem_Click(object sender, EventArgs e)
    {
        // Make sure all necessary data is selected
        if (dgvCars.SelectedRows.Count > 0 && cmbNoOfDays.SelectedItem != null && cmbPaymentType.SelectedItem != null)
        {
            // Get the selected car's registration number
            string carReg = dgvCars.SelectedRows[0].Cells["CarReg"].Value.ToString();

            // Check if this car is already added to the ListView
            foreach (ListViewItem item in lvwRental.Items)
            {
                if (item.SubItems[0].Text == carReg)
                {
                    MessageBox.Show("This car is already added.", "Booking");
                    return; // Exit the method here
                }
            }

            // Calculate the total cost
            decimal duration = Convert.ToDecimal(cmbNoOfDays.SelectedItem);

            DataRow[] carDetails = dsRoadTripRentals.Tables["CarDetails"].Select($"CarReg = '{carReg}'");
            int rentalCostID = (int)carDetails[0]["RentalCostID"];

            DataRow[] rentalCosts = dsRoadTripRentals.Tables["RentalCost"].Select($"RentalCostID = {rentalCostID}");
            decimal dailyRentalCost = (decimal)rentalCosts[0]["RentalCost"];

            decimal totalCost = duration * dailyRentalCost;


            // Get the selected payment type
            string paymentType = cmbPaymentType.SelectedItem.ToString();

            // Get the selected booking date
            DateTime bookingDate = dtpStartDate.Value;

            // Calculate the end date of the booking with a 1-day grace period
            DateTime endDate = bookingDate.AddDays((double)duration + 1);

            DateTime paymentDate = dtpPaymentDate.Value;

            // Create a new ListViewItem with these details
            ListViewItem listItem = new ListViewItem(new[] { carReg, totalCost.ToString("C"), paymentType, bookingDate.ToString("d"), duration.ToString(),
paymentDate.ToString("d") });

            // Add the item to the ListView
            lvwRental.Items.Add(listItem);
            pnlPayment.Enabled = false;
            pnlBooking.Enabled = false;

            // Reset car details after adding a new item
            ResetCarDetails();
            btnResetFilters.Visible = false;
```

```
            // Clear selected car in dgvCars
            dgvCars.ClearSelection();

            // Reset labels
            lblCarReg.Text = "";
            lblModelID.Text = "";
            lblColour.Text = "";
            lblMileage.Text = "";
            lblFuelType.Text = "";
            lblNoSeats.Text = "";
            lblYear.Text = "";
            lblRentalCostID.Text = "";

            // Disable the confirm selection checkbox
            v.Checked = false;
            v.Enabled = false;
            v.Visible = false;

            // Enable the cars DataGridView
            dgvCars.Enabled = true;
            dgvCars.Visible = true;
            panelCarDetails.Enabled = true;

            //Rental button confirmation enabled
            btnAdd.Enabled = true;
        }
        else
        {
            MessageBox.Show("Please select a car, rental duration, payment type, and booking date.");
        }
    }


    private void UpdateAddItemButtonState()
    {
        // Enable the Add Item button only if both panelBooking and pnlPayment are enabled
        btnAddItem.Enabled = pnlBooking.Enabled && pnlPayment.Enabled;
    }

    private void ClearCustomer()
    {
        lstCustomer.SelectedIndex = -1;

        lblCust0.Text = "";
        lblCust1.Text = "";
        lblCust2.Text = "";
        lblCust3.Text = "";
        lblCust4.Text = "";
        lblCust5.Text = "";
    }

  }



}
```

Edit / Delete Rentals



The edit / delete rentals form brings in all of the tables Jordan has created. This form is used to grab the existing rentals associated with a customer (and if the selected customer doesn't have a rental, error message boxes appear, redirecting the user and resetting the form). The buttons at the top are used to sort the lstCustomer list by surname. The rentals box then becomes available for the user to select a desired rental which populates each of the fields which are grabbed from Rental and RentalCar respectively. The user can still choose a new car to add or remove, and includes all the functionality of the add form. A selected rental can also be deleted, which removes data from the Rentals, RentalCar, and payments tables as that info is no longer need.

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

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmEditRental : Form
  {
```

```
Button[] btns = new Button[26];

SqlDataAdapter daNames, daCustomers, daRental, daRentalCost, daRentalCar;
DataSet dsRoadTripRentals = new DataSet();
SqlConnection conn;
SqlCommand cmdCustomerDetails;


DataRow drCustomer;

String sqlNames, sqlCustomerDetails, sqlRental;

String connStr;

SqlDataAdapter daCarDetails, daCarDetailss;
SqlCommandBuilder cmdBCarDetails, cmdBRentalCar;
SqlCommand cmdCarDetail, cmdRental, cmdRentalCar, cmdRentalCars;
DataRow drCarDetails;
String sqlCarDetails, sqlCarDetailsDetails;


SqlDataAdapter daPayment, daPaymentType, daPaymentss;
SqlCommandBuilder cmdBPayment, cmdBRental, cmdBRentalCost;
SqlCommand cmdPaymentType;
DataRow drPayment, drRental;
String sqlRentalCar, sqlRentalCost, sqlPayment, sqlPaymentsDetails;


private int previousSelectedCustomer = -1;
private bool isMessageBoxShown = false;


public frmEditRental()
{
   InitializeComponent();
   Load += frmEditRental_Load;

}

private void frmEditRental_Load(object sender, EventArgs e)
{
   btnAdd.Enabled = false;
   btnDelete.Enabled = false;
   cmdRentalCar = new SqlCommand(sqlRentalCar, conn);
   cmdRentalCar.Parameters.Add("@RentalID", SqlDbType.Int);


   ClearCustomer();
   btnAddItem.Enabled = false;

   int no;

   for (int i = 0; i < 26; i++)
   {
      var btn = (Button)pnlButtons.Controls["btn" + (char)(65 + i)];  // access buttons by name
      btn.Text = "" + (char)(65 + i);
      btn.Enabled = false;
      btn.Click += new EventHandler(button1_Click);
      btns[i] = btn;
   }

   connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";
   //connStr = Properties.Resources.connectionStr;

   //get surnames for alphabet buttons

   sqlNames = @"Select surname from customer order by surname";
   daNames = new SqlDataAdapter(sqlNames, connStr);

   daNames.Fill(dsRoadTripRentals, "Names");

   //enable relevant alpha buttons
   foreach (DataRow dr in dsRoadTripRentals.Tables["Names"].Rows)
   {
      no = (int)dr["Surname"].ToString()[0] - 65;
```

```
            btns[no].Enabled = true;
            btns[no].BackColor = Color.Black;
            btns[no].BackColor = Color.White;

        }

        // setup dataAdapter for customer details for the listbox
        sqlCustomerDetails = @"Select customerID, title, surname, forename, surname +', ' + Forename as name, street, city, county, postcode, postcode,
telephoneno from customer where surname LIKE @Letter order by surname, forename ";
        conn = new SqlConnection(connStr);
        cmdCustomerDetails = new SqlCommand(sqlCustomerDetails, conn);
        cmdCustomerDetails.Parameters.Add("@Letter", SqlDbType.VarChar);
        daCustomers = new SqlDataAdapter(cmdCustomerDetails);
        daCustomers.FillSchema(dsRoadTripRentals, SchemaType.Source, "Customer");

        //CarDetails DGV
        sqlCarDetails = @"select * from CarDetails";
        daCarDetails = new SqlDataAdapter(sqlCarDetails, connStr);
        cmdBCarDetails = new SqlCommandBuilder(daCarDetails);
        daCarDetails.FillSchema(dsRoadTripRentals, SchemaType.Source, "CarDetails");
        daCarDetails.Fill(dsRoadTripRentals, "CarDetails");

        dgvCars.DataSource = dsRoadTripRentals.Tables["CarDetails"];

        //Resize the DataGridView columns to fit the newly loaded content.
        dgvCars.AutoResizeColumns(DataGridViewAutoSizeColumnsMode.AllCells);

        //Rental Cost
        sqlRentalCost = @"select * from RentalCost";
        daRentalCost = new SqlDataAdapter(sqlRentalCost, connStr);
        cmdBRentalCost = new SqlCommandBuilder(daRentalCost);
        daRentalCost.FillSchema(dsRoadTripRentals, SchemaType.Source, "RentalCost");
        daRentalCost.Fill(dsRoadTripRentals, "RentalCost");


        // Rental table
        sqlRental = @"select * from Rental";
        daRental = new SqlDataAdapter(sqlRental, connStr);
        cmdBRental = new SqlCommandBuilder(daRental);
        daRental.FillSchema(dsRoadTripRentals, SchemaType.Source, "Rental");
        daRental.Fill(dsRoadTripRentals, "Rental");

        // RentalCar table
        sqlRentalCar = @"select * from RentalCar";
        daRentalCar = new SqlDataAdapter(sqlRentalCar, connStr);
        cmdBRentalCar = new SqlCommandBuilder(daRentalCar);
        daRentalCar.FillSchema(dsRoadTripRentals, SchemaType.Source, "RentalCar");
        daRentalCar.Fill(dsRoadTripRentals, "RentalCar");


        // Payment table
        sqlPayment = @"select * from PaymentType";
        daPayment = new SqlDataAdapter(sqlPayment, connStr);
        cmdBPayment = new SqlCommandBuilder(daPayment);
        daPayment.FillSchema(dsRoadTripRentals, SchemaType.Source, "PaymentType");
        daPayment.Fill(dsRoadTripRentals, "Payment");

        int noRows = dsRoadTripRentals.Tables["PaymentType"].Rows.Count;

        getNumber();



        using (SqlConnection conn = new SqlConnection(connStr))
        {
            conn.Open();
            using (SqlDataAdapter da = new SqlDataAdapter("SELECT DISTINCT Model.ModelID, Model.ModelDesc FROM Model INNER JOIN CarDetails ON
Model.ModelID = CarDetails.ModelID", conn))
            {
                DataTable dt = new DataTable();
                da.Fill(dt);
                cmbAddModelID.DataSource = dt;
                cmbAddModelID.DisplayMember = "ModelDesc";
                cmbAddModelID.ValueMember = "ModelID";
            }
```

```
        using (SqlDataAdapter da = new SqlDataAdapter(@"
    SELECT RentalCostID, RentalCost
    FROM RentalCost
    WHERE RentalCostID IN (
      SELECT DISTINCT RentalCostID
      FROM CarDetails
    )
", conn))
        {
          DataTable dt = new DataTable();
          da.Fill(dt);
          cmbAddRentalCostID.DataSource = dt;
          cmbAddRentalCostID.DisplayMember = "RentalCost";
          cmbAddRentalCostID.ValueMember = "RentalCostID";
        }
      }

      // Clear the car details labels
      lblCarReg.Text = "";
      lblModelID.Text = "";
      lblColour.Text = "";
      lblMileage.Text = "";
      lblFuelType.Text = "";
      lblNoSeats.Text = "";
      lblYear.Text = "";
      lblRentalCostID.Text = "";

      chkConfirmCarSelection.Enabled = false;
      chkConfirmCarSelection.Visible = false;
      pnlBooking.Enabled = false;
      pnlPayment.Enabled = false;
      btnResetFilters.Visible = false;

      sqlRental = @"select * from Rental where CustomerID = @CustomerID";
      cmdRental = new SqlCommand(sqlRental, conn);
      cmdRental.Parameters.Add("@CustomerID", SqlDbType.Int); // Assuming CustomerID is of type Int
      daRental = new SqlDataAdapter(cmdRental);
      daRental.FillSchema(dsRoadTripRentals, SchemaType.Source, "Rental");

      // After initializing cmdRentalCar and cmdRental
      cmdPaymentType = new SqlCommand("SELECT * FROM PaymentType WHERE PaymentID = @PaymentID", conn);
      cmdPaymentType.Parameters.Add("@PaymentID", SqlDbType.Int); // Assuming PaymentID is of type Int

      daPaymentType = new SqlDataAdapter(cmdPaymentType);
      daPaymentType.FillSchema(dsRoadTripRentals, SchemaType.Source, "PaymentType");



    }

    private void button1_Click(object sender, EventArgs e)
    {
      btnAdd.Enabled = false;
      btnDelete.Enabled = false;

      panelCarDetails.Enabled = false;
      Button b = (Button)sender;
      // get customer details for listbox - use selected button layer for parameter
      String str = b.Text;

      //empty dataset table customer
      dsRoadTripRentals.Tables["Customer"].Clear();

      fillListBoxCustomers(str);

      //clear any previously selected dogs/kennels by emptying the dataset tables
      //dsRoadTripRentals.Tables["Dog"].Clear();
      //dsRoadTripRentals.Tables["Kennel"].Clear();

      ClearCustomer();

      panel3.Enabled = true;
      pnlBooking.Enabled = false;
    }
```

```
    private void PopulateRentalListbox()
    {
        cmdRental.Parameters.Clear();
        cmdRental.Parameters.AddWithValue("@CustomerID", lstCustomer.SelectedValue);

        daRental.SelectCommand = cmdRental;

        dsRoadTripRentals.Tables["Rental"].Clear();

        daRental.Fill(dsRoadTripRentals, "Rental");

        lstRental.DataSource = dsRoadTripRentals.Tables["Rental"];
        lstRental.DisplayMember = "RentalID";
        lstRental.ValueMember = "RentalID";

        lstRental.SelectedIndex = -1;
    }




    private void fillListBoxCustomers(String str)
    {
        // get all customer details for listbox - use wildcard for parameter
        cmdCustomerDetails.Parameters["@Letter"].Value = str + "%";
        daCustomers.Fill(dsRoadTripRentals, "Customer");

        //fill listbox

        lstCustomer.DataSource = dsRoadTripRentals.Tables["Customer"];
        lstCustomer.DisplayMember = "name";
        lstCustomer.ValueMember = "CustomerID";
    }

    private void cmbModelID_SelectedIndexChanged(object sender, EventArgs e)
    {
        btnResetFilters.Visible = true;
        if (cmbAddModelID.SelectedItem != null)
        {
            string modelID = cmbAddModelID.SelectedValue.ToString();
            int noSeats = (int)txtAddNoSeats.Value;

            string rentalCostID = cmbAddRentalCostID.SelectedValue != null ? cmbAddRentalCostID.SelectedValue.ToString() : null;

            sqlCarDetails = "SELECT * FROM CarDetails WHERE ModelID = @ModelID AND NoSeats = @NoSeats" + (rentalCostID != null ? " AND RentalCostID =
@RentalCostID" : "");
            daCarDetails = new SqlDataAdapter(sqlCarDetails, conn);
            daCarDetails.SelectCommand.Parameters.AddWithValue("@ModelID", modelID);
            daCarDetails.SelectCommand.Parameters.AddWithValue("@NoSeats", noSeats);
            if (rentalCostID != null)
            {
                daCarDetails.SelectCommand.Parameters.AddWithValue("@RentalCostID", rentalCostID);
            }

            // Ensure the DataSet and DataTable are not null before trying to clear it.
            if (dsRoadTripRentals != null && dsRoadTripRentals.Tables.Contains("CarDetails"))
            {
                dsRoadTripRentals.Tables["CarDetails"].Clear();
                daCarDetails.Fill(dsRoadTripRentals, "CarDetails");
                dgvCars.DataSource = dsRoadTripRentals.Tables["CarDetails"];
            }
            else
            {
                // Log an error message or throw an exception.
                Console.WriteLine("DataSet or DataTable is null.");
            }
        }
    }



    private void cmbAddRentalCostID_SelectedIndexChanged(object sender, EventArgs e)
    {
        btnResetFilters.Visible = true;
```

```
    if (cmbAddRentalCostID.SelectedItem != null)
    {
        if (cmbAddRentalCostID.SelectedValue is DataRowView) return;

        string rentalCostID = cmbAddRentalCostID.SelectedValue.ToString();
        string modelID = cmbAddModelID.SelectedValue.ToString();
        int noSeats = (int)txtAddNoSeats.Value;

        sqlCarDetails = @"
    SELECT *
    FROM CarDetails
    WHERE RentalCostID = @RentalCostID AND ModelID = @ModelID AND NoSeats = @NoSeats";
        daCarDetails = new SqlDataAdapter(sqlCarDetails, conn);
        daCarDetails.SelectCommand.Parameters.AddWithValue("@RentalCostID", rentalCostID);
        daCarDetails.SelectCommand.Parameters.AddWithValue("@ModelID", modelID);
        daCarDetails.SelectCommand.Parameters.AddWithValue("@NoSeats", noSeats);

        // Ensure the DataSet and DataTable are not null before trying to clear it.
        if (dsRoadTripRentals != null && dsRoadTripRentals.Tables.Contains("CarDetails"))
        {
            dsRoadTripRentals.Tables["CarDetails"].Clear();
            daCarDetails.Fill(dsRoadTripRentals, "CarDetails");
            dgvCars.DataSource = dsRoadTripRentals.Tables["CarDetails"];
        }
        else
        {
            // Log an error message or throw an exception.
            Console.WriteLine("DataSet or DataTable is null.");
        }
    }
}




private void txtAddNoSeats_ValueChanged(object sender, EventArgs e)
{
    btnResetFilters.Visible = true;
    cmbModelID_SelectedIndexChanged(sender, e);
}



private void lstCustomer_Click(object sender, EventArgs e)
{
    btnAdd.Enabled = false;
    btnDelete.Enabled = false;

    String title = "";

    drCustomer = dsRoadTripRentals.Tables["Customer"].Rows.Find(lstCustomer.SelectedValue);

    if (drCustomer["Title"].ToString() == "Mr")
        title = "Mr";
    if (drCustomer["Title"].ToString() == "Mrs")
        title = "Mrs";
    if (drCustomer["Title"].ToString() == "Miss")
        title = "Miss";
    if (drCustomer["Title"].ToString() == "Ms")
        title = "Ms";


    lblCust0.Text = drCustomer["CustomerID"].ToString();
    lblCust1.Text = title + " " + drCustomer["Forename"].ToString() + " " + drCustomer["Surname"].ToString();
    lblCust2.Text = drCustomer["Street"].ToString();
    lblCust3.Text = drCustomer["City"].ToString();
    lblCust4.Text = drCustomer["County"].ToString();
    lblCust5.Text = drCustomer["Postcode"].ToString();

    panelCarDetails.Enabled = true;
    dgvCars.ClearSelection();

    chkConfirmCarSelection.Enabled = false;
    chkConfirmCarSelection.Visible = false;
```

```
            pnlBooking.Enabled = false;

            // Populate dgvCars and display the Confirm Selection checkbox only after a customer is selected
            if (lstCustomer.SelectedItems.Count > 0)
            {
                ResetCarDetails();  // Make sure this method populates dgvCars with all cars and doesn't clear it

                // Enable the Confirm Selection checkbox
                chkConfirmCarSelection.Enabled = true;

                // Call the method to populate rentals for the selected customer
                PopulateRentalListbox();

                // Hide the customer if there are no bookings
                if (lstRental.Items.Count == 0)
                {
                    MessageBox.Show("No bookings found for this customer.", "Error");
                    lstCustomer.ClearSelected();
                    panel3.Enabled = false;
                    panelMajor.Enabled = false;

                    return;
                }

            }
        }

        private void dgvCars_SelectionChanged(object sender, EventArgs e)
        {
            if (dgvCars.SelectedRows.Count > 0) // Make sure there is a selected row
            {
                DataGridViewRow row = dgvCars.SelectedRows[0];
                // Assume you have labels or other controls to display the selected car details
                lblCarReg.Text = row.Cells["CarReg"].Value.ToString();
                lblModelID.Text = row.Cells["ModelID"].Value.ToString();
                lblColour.Text = row.Cells["Colour"].Value.ToString();
                lblMileage.Text = Convert.ToDecimal(row.Cells["Mileage"].Value).ToString();
                lblFuelType.Text = row.Cells["FuelType"].Value.ToString();
                lblNoSeats.Text = Convert.ToDecimal(row.Cells["NoSeats"].Value).ToString();
                lblYear.Text = Convert.ToDecimal(row.Cells["Year"].Value).ToString();
                lblRentalCostID.Text = row.Cells["RentalCostID"].Value.ToString();

                // Enable the confirm selection checkbox
                chkConfirmCarSelection.Enabled = true;
                chkConfirmCarSelection.Visible = true;
                CalculateTotalCost();
            }
        }

        private void lstCustomer_SelectedIndexChanged(object sender, EventArgs e)
        {
            if (isMessageBoxShown)
            {
                isMessageBoxShown = false;
                return; // Skip the event handler
            }

            if (lvwRental.Items.Count > 0 && MessageBox.Show("If you proceed with a new customer, the bookings will be cleared. Do you want to proceed?",
"Clear bookings", MessageBoxButtons.YesNo) == DialogResult.No)
            {
                isMessageBoxShown = true;
                if (previousSelectedCustomer != -1)
                {
                    lstCustomer.SelectedIndex = previousSelectedCustomer;
                }
                else
                {
                    lstCustomer.ClearSelected();
                    btnAdd.Enabled = false;
                    btnDelete.Enabled = false;
                }
            }
            else
            {
                lvwRental.Items.Clear();
```

```
        previousSelectedCustomer = lstCustomer.SelectedIndex;
    }
}



private void ResetCarDetails()
{
    // If the DataSet and DataTable are not null, fill the DataGridView with all cars
    if (dsRoadTripRentals != null && dsRoadTripRentals.Tables.Contains("CarDetails"))
    {
        dsRoadTripRentals.Tables["CarDetails"].Clear();
        daCarDetails.SelectCommand.CommandText = "SELECT * FROM CarDetails";
        daCarDetails.Fill(dsRoadTripRentals, "CarDetails");
        dgvCars.DataSource = dsRoadTripRentals.Tables["CarDetails"];
        btnResetFilters.Visible = false;
    }
    else
    {
        // Log an error message or throw an exception.
        Console.WriteLine("DataSet or DataTable is null.");
    }
}

private void btnDelete_Click(object sender, EventArgs e)
{
    int rentalId = Convert.ToInt32(lstRental.SelectedValue);

    // Delete RentalCar rows for the specified RentalID
    DataRow[] rentalCarRows = dsRoadTripRentals.Tables["RentalCar"].Select($"RentalID = {rentalId}");
    foreach (DataRow rentalCarRow in rentalCarRows)
    {
        rentalCarRow.Delete();
    }

    // Delete Rental row for the specified RentalID
    DataRow rentalRow = dsRoadTripRentals.Tables["Rental"].Rows.Find(rentalId);
    if (rentalRow != null)
    {
        rentalRow.Delete();
    }

    // Delete PaymentType rows for the specified PaymentID
    int paymentId = Convert.ToInt32(txtPaymentID.Text);
    DataRow[] paymentRows = dsRoadTripRentals.Tables["PaymentType"].Select($"PaymentID = {paymentId}");
    foreach (DataRow paymentRow in paymentRows)
    {
        paymentRow.Delete();
    }

    // Create the delete commands for the data adapter
    SqlCommand deleteRentalCarCommand = new SqlCommand("DELETE FROM RentalCar WHERE RentalID = @RentalID");
    deleteRentalCarCommand.Parameters.AddWithValue("@RentalID", rentalId);

    SqlCommand deleteRentalCommand = new SqlCommand("DELETE FROM Rental WHERE RentalID = @RentalID");
    deleteRentalCommand.Parameters.AddWithValue("@RentalID", rentalId);

    SqlCommand deletePaymentCommand = new SqlCommand("DELETE FROM PaymentType WHERE PaymentID = @PaymentID");
    deletePaymentCommand.Parameters.AddWithValue("@PaymentID", paymentId);

    // Assign the delete commands to the data adapter
    daRentalCar.DeleteCommand = deleteRentalCarCommand;
    daRental.DeleteCommand = deleteRentalCommand;
    daPayment.DeleteCommand = deletePaymentCommand;

    // Assign the connection object to the delete commands
    daRentalCar.DeleteCommand.Connection = conn;
    daRental.DeleteCommand.Connection = conn;
    daPayment.DeleteCommand.Connection = conn;

    // Perform the updates on the dataset
    daRentalCar.Update(dsRoadTripRentals, "RentalCar");
    daRental.Update(dsRoadTripRentals, "Rental");
    daPayment.Update(dsRoadTripRentals, "PaymentType");
```

```
    using (SqlConnection conn = new SqlConnection(connStr))
    {
        // Assign the connection object to the UpdateCommand if it is not null
        if (daRentalCar.UpdateCommand != null)
        {
            daRentalCar.UpdateCommand.Connection = conn;
        }

        // Open the connection
        conn.Open();

        // Update the dataset with the changes
        daRental.Update(dsRoadTripRentals, "Rental");
        daRentalCar.Update(dsRoadTripRentals, "RentalCar");
        daPayment.Update(dsRoadTripRentals, "PaymentType");

        // Clear the dataset and refill it with fresh data
        dsRoadTripRentals.Clear();
        daRental.Fill(dsRoadTripRentals, "Rental");
        daRentalCar.Fill(dsRoadTripRentals, "RentalCar");
        daPayment.Fill(dsRoadTripRentals, "PaymentType");

        // Show a message indicating successful deletion
        MessageBox.Show("Rental has been deleted successfully.");
    }
}



    private void btnAddCancel_Click(object sender, EventArgs e)
{
    frmMainRentals newSubForm = new frmMainRentals();
    OpenSubFormInPanel(newSubForm);
}

private void lstRental_Click(object sender, EventArgs e)
{
    panelMajor.Enabled = true;
    dtpStartDate.Enabled = true;
    cmbNoOfDays.Enabled = true;
    lvwRental.Enabled = true;

    lvwRental.Items.Clear();

    if (lstRental.Items.Count != 0)
    {
        DataRow drRental = dsRoadTripRentals.Tables["Rental"].Rows.Find(lstRental.SelectedValue);

        txtPaymentID.Text = drRental["PaymentID"].ToString();
        cmbNoOfDays.Text = drRental["NoDays"].ToString();
        cmbNoOfDays.Text = drRental["NoDays"].ToString();

        // Set the PaymentDate from the selected rental
        if (drRental.Table.Columns.Contains("PaymentDate")) // Check if the PaymentDate column exists
        {
            if (!DBNull.Value.Equals(drRental["PaymentDate"])) // Check if the PaymentDate value is not null
            {
                dtpPaymentDate.Value = Convert.ToDateTime(drRental["PaymentDate"]);
            }
            else
            {
                dtpPaymentDate.Value = DateTime.Now;
            }
        }
        // Get the paymentID from the selected rental
        int paymentID = Convert.ToInt32(drRental["PaymentID"]);

        // Retrieve PaymentType from the database based on PaymentID
        string paymentQuery = "SELECT * FROM PaymentType WHERE PaymentID = @PaymentID";
        using (SqlConnection connection = new SqlConnection(connStr))
        {
            connection.Open();
            using (SqlCommand command = new SqlCommand(paymentQuery, connection))
            {
```

```
            command.Parameters.AddWithValue("@PaymentID", paymentID);
            using (SqlDataReader reader = command.ExecuteReader())
            {
                if (reader.Read())
                {
                    cmbPaymentType.Text = reader["PaymentType"].ToString();
                }
            }
        }
    }

    lblBookingDate.Text = (Convert.ToDateTime(drRental["StartDatetime"].ToString())).ToShortDateString();

    dtpStartDate.MinDate = DateTime.MinValue;  // Set MinDate to the earliest possible date
    dtpStartDate.Value = Convert.ToDateTime(drRental["StartDatetime"].ToString());

    dsRoadTripRentals.Tables["RentalCar"].Clear();

    cmdRentalCar.Parameters["@RentalID"].Value = lstRental.SelectedValue;

    daRentalCar.Fill(dsRoadTripRentals, "RentalCar");

    foreach (DataRow dr in dsRoadTripRentals.Tables["RentalCar"].Rows)
    {
        if (dr["RentalID"].ToString() == lstRental.Text)
        {
            // Get car registration
            string carReg = dr["CarReg"].ToString();

            // Get rental duration
            decimal duration = Convert.ToDecimal(cmbNoOfDays.Text);

            // Get RentalCostID and daily rental cost for this car
            DataRow[] carDetails = dsRoadTripRentals.Tables["CarDetails"].Select($"CarReg = '{carReg}'");
            int rentalCostID = (int)carDetails[0]["RentalCostID"];
            DataRow[] rentalCosts = dsRoadTripRentals.Tables["RentalCost"].Select($"RentalCostID = {rentalCostID}");
            decimal dailyRentalCost = (decimal)rentalCosts[0]["RentalCost"];

            // Calculate total cost
            decimal totalCost = duration * dailyRentalCost;

            // Create a ListViewItem with the car registration and total cost
            ListViewItem item = new ListViewItem(new[] { carReg, totalCost.ToString("C") });

            lvwRental.Items.Add(item);
        }
    }


    btnAdd.Enabled = true;
    btnDelete.Enabled = true;

  }
}



private void chkConfirmCarSelection_CheckedChanged(object sender, EventArgs e)
{
  if (chkConfirmCarSelection.Checked)
  {
    // If the selection is confirmed, enable the date booked DateTimePicker
    pnlBooking.Enabled = true;
    dgvCars.Enabled = false;
    dgvCars.Visible = false;
    panelCarDetails.Enabled = false;
    pnlPayment.Enabled = false;
    btnResetFilters.Visible = false;
    UpdateAddItemButtonState();
    lblSelectCar.Text = "Selected Car";

  }
  else
  {
```

```
        // If the selection is not confirmed, disable the date booked DateTimePicker
        pnlBooking.Enabled = false;
        dgvCars.Enabled = true;
        dgvCars.Visible = true;
        panelCarDetails.Enabled = true;
        ResetCarDetails();
        lblSelectCar.Text = "Select Car";
    }
}

private void btnResetFilters_Click(object sender, EventArgs e)
{
    ResetCarDetails();
}

private void cmbNoOfDays_SelectedIndexChanged(object sender, EventArgs e)
{
    CalculateTotalCost();
    pnlPayment.Enabled = true;
    UpdateAddItemButtonState();
}

private void btnRemoveItem_Click(object sender, EventArgs e)
{
    if (lvwRental.SelectedItems.Count != 0)
    {
        var item = lvwRental.SelectedItems[0];
        lvwRental.Items.Remove(item);
    }
}

public class MyPayments
{
    public int PaymentID { get; set; }
    public string PaymentType { get; set; }
}

private void btnAdd_Click(object sender, EventArgs e)
{
    int rentalId = Convert.ToInt32(lstRental.SelectedValue);

    DataRow drRental = dsRoadTripRentals.Tables["Rental"].Rows.Find(rentalId);

    // Update the Rental details
    drRental["NoDays"] = int.Parse(cmbNoOfDays.Text);

    // Get the customer ID, car registration, and start date
    int customerId = int.Parse(lblCust0.Text);
    DateTime startDate = DateTime.Now;

    // Remove rental cars that are not in the updated lvwRental list
    var existingRentalCars = dsRoadTripRentals.Tables["RentalCar"].Select($"RentalID = {rentalId}");
    foreach (DataRow existingRentalCar in existingRentalCars)
    {
        string carReg = existingRentalCar["CarReg"].ToString();
        bool found = false;
        foreach (ListViewItem item in lvwRental.Items)
        {
            if (item.Text == carReg)
            {
                found = true;
                break;
            }
        }
        if (!found)
        {
            existingRentalCar.Delete();
        }
    }

    // Update the RentalCar table based on the items in lvwRental
    foreach (ListViewItem item in lvwRental.Items)
    {
        string carReg = item.Text;
```

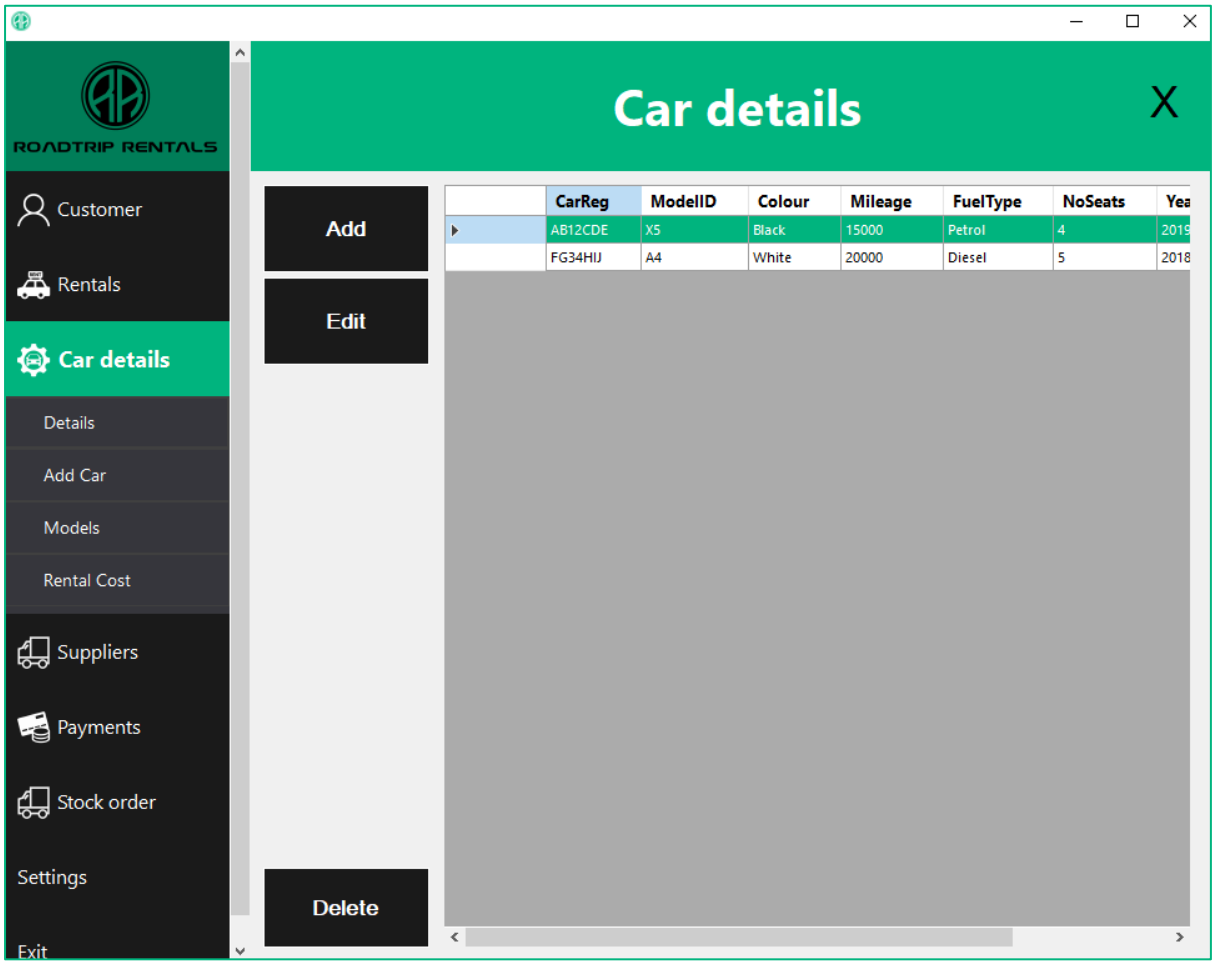
```
        var existingRentalCar = dsRoadTripRentals.Tables["RentalCar"].AsEnumerable()
            .FirstOrDefault(row => row.Field<int>("RentalID") == rentalId && row.Field<string>("CarReg") == carReg);

        if (existingRentalCar == null)
        {
            // If the rental car doesn't exist, create a new DataRow and add it to the DataTable
            DataRow newRentalCar = dsRoadTripRentals.Tables["RentalCar"].NewRow();
            newRentalCar["RentalID"] = rentalId;
            newRentalCar["CarReg"] = carReg;
            dsRoadTripRentals.Tables["RentalCar"].Rows.Add(newRentalCar);
        }
    }



    // Create the update command for the Rental table
    var updateRentalCommand = new SqlCommand("UPDATE Rental SET NoDays = @NoDays WHERE RentalID = @RentalID");
    updateRentalCommand.Parameters.Add("@NoDays", SqlDbType.Int, 4, "NoDays");
    updateRentalCommand.Parameters.Add("@RentalID", SqlDbType.Int, 4, "RentalID");

    // Assign the update command to the data adapter
    daRental.UpdateCommand = updateRentalCommand;

    // Create a SqlConnection object and assign it to the UpdateCommand
    using (SqlConnection conn = new SqlConnection(connStr))
    {
        daRental.UpdateCommand.Connection = conn;

        // Open the connection
        conn.Open();

        // Update the dataset with the changes
        daRental.Update(dsRoadTripRentals, "Rental");
        daRentalCar.Update(dsRoadTripRentals, "RentalCar");

        // Show a message indicating successful update
        MessageBox.Show("Rental details have been updated successfully.");

    }

}


private void ResetForm()
{
    // Reset all the controls
    cmbNoOfDays.SelectedIndex = -1;
    cmbPaymentType.SelectedIndex = -1;
    lblCust0.Text = "";
    dgvCars.ClearSelection();
    lvwRental.Items.Clear();
    lblTotalCost.Text = "";
}


private void OpenSubFormInPanel(Form subForm)
{
    subForm.TopLevel = false;
    subForm.FormBorderStyle = FormBorderStyle.None;
    subForm.Dock = DockStyle.Fill;

    // Replace 'panel1' with the name of the Panel control in your main form.
    panelSub.Controls.Clear();
    panelSub.Controls.Add(subForm);

    subForm.Show();
}




private void getNumber()
{
    try
```

```
    {
        using (SqlConnection conn = new SqlConnection(connStr))
        {
            conn.Open();
            SqlCommand cmd = new SqlCommand("SELECT MAX(PaymentID) FROM PaymentType", conn);
            int maxPaymentID = (int)cmd.ExecuteScalar();
            txtPaymentID.Text = (maxPaymentID + 1).ToString();
            conn.Close();
        }
    }
    catch (Exception ex)
    {
        MessageBox.Show("Error fetching the next PaymentID: " + ex.Message);
    }
}

private void CalculateTotalCost()
{
    if (cmbNoOfDays.SelectedItem != null && dgvCars.SelectedRows.Count > 0)
    {
        decimal duration = Convert.ToDecimal(cmbNoOfDays.SelectedItem);

        // Obtain the RentalCostID from the selected row in dgvCars
        int rentalCostID = Convert.ToInt32(dgvCars.SelectedRows[0].Cells["RentalCostID"].Value);

        // Lookup the corresponding RentalCost in the RentalCost
        DataRow[] foundRows = dsRoadTripRentals.Tables["RentalCost"].Select("RentalCostID = " + rentalCostID);
        if (foundRows.Length > 0)
        {
            decimal dailyRentalCost = Convert.ToDecimal(foundRows[0]["RentalCost"]);

            decimal totalCost = duration * dailyRentalCost;
            lblTotalCost.Text = totalCost.ToString("C");
        }
        else
        {
            // Handle the case where no corresponding RentalCost is found for the given RentalCostID
            MessageBox.Show("No corresponding RentalCost found for the selected car.");
        }
    }
}



private void btnAddItem_Click(object sender, EventArgs e)
{
    // Make sure all necessary data is selected
    if (dgvCars.SelectedRows.Count > 0 && cmbNoOfDays.SelectedItem != null && cmbPaymentType.SelectedItem != null)
    {
        // Get the selected car's registration number
        string carReg = dgvCars.SelectedRows[0].Cells["CarReg"].Value.ToString();

        // Check if this car is already added to the ListView
        foreach (ListViewItem item in lvwRental.Items)
        {
            if (item.SubItems[0].Text == carReg)
            {
                MessageBox.Show("This car is already added.", "Booking");
                return; // Exit the method here
            }
        }

        // Get the selected rental ID
        int rentalId = Convert.ToInt32(lstRental.SelectedValue);

        // Find the corresponding rental car row based on the car registration and rental ID
        DataRow rentalCarRow = dsRoadTripRentals.Tables["RentalCar"].AsEnumerable()
            .FirstOrDefault(row => row.Field<int>("RentalID") == rentalId && row.Field<string>("CarReg") == carReg);

        // Find the corresponding car details row based on the car registration
        DataRow carDetailsRow = dsRoadTripRentals.Tables["CarDetails"].AsEnumerable()
            .FirstOrDefault(row => row.Field<string>("CarReg") == carReg);

        // Retrieve the rental cost ID from the car details row
        int rentalCostId = Convert.ToInt32(carDetailsRow["RentalCostID"]);
```

```
            // Find the corresponding rental cost row based on the rental cost ID
            DataRow rentalCostRow = dsRoadTripRentals.Tables["RentalCost"].AsEnumerable()
                .FirstOrDefault(row => row.Field<int>("RentalCostID") == rentalCostId);

            // Retrieve the rental cost from the rental cost row
            decimal dailyRentalCost = Convert.ToDecimal(rentalCostRow["RentalCost"]);

            // Calculate the total cost
            decimal duration = Convert.ToDecimal(cmbNoOfDays.SelectedItem);
            decimal totalCost = duration * dailyRentalCost;

            // Get the selected payment type
            string paymentType = cmbPaymentType.SelectedItem.ToString();

            // Get the selected booking date
            DateTime bookingDate = dtpStartDate.Value;

            // Calculate the end date of the booking with a 1-day grace period
            DateTime endDate = bookingDate.AddDays((double)duration + 1);

            DateTime paymentDate = dtpPaymentDate.Value;

            // Create a new ListViewItem with these details
            ListViewItem listItem = new ListViewItem(new[] { carReg, totalCost.ToString("C"), paymentType, bookingDate.ToString("d"), duration.ToString(),
paymentDate.ToString("d") });

            // Add the item to the ListView
            lvwRental.Items.Add(listItem);
            pnlPayment.Enabled = false;
            pnlBooking.Enabled = false;

            // Reset car details after adding a new item
            ResetCarDetails();
            btnResetFilters.Visible = false;


            // Clear selected car in dgvCars
            dgvCars.ClearSelection();

            // Reset labels
            lblCarReg.Text = "";
            lblModelID.Text = "";
            lblColour.Text = "";
            lblMileage.Text = "";
            lblFuelType.Text = "";
            lblNoSeats.Text = "";
            lblYear.Text = "";
            lblRentalCostID.Text = "";

            // Disable the confirm selection checkbox
            chkConfirmCarSelection.Checked = false;
            chkConfirmCarSelection.Enabled = false;
            chkConfirmCarSelection.Visible = false;

            // Enable the cars DataGridView
            dgvCars.Enabled = true;
            dgvCars.Visible = true;
            panelCarDetails.Enabled = true;
        }
        else
        {
            MessageBox.Show("Please select a car, rental duration, payment type, and booking date.");
        }
    }



    private void UpdateAddItemButtonState()
    {
        // Enable the Add Item button only if both panelBooking and pnlPayment are enabled
        btnAddItem.Enabled = pnlBooking.Enabled && pnlPayment.Enabled;
    }
```

```
        private void ClearCustomer()
        {
            lstCustomer.SelectedIndex = -1;

            lblCust0.Text = "";
            lblCust1.Text = "";
            lblCust2.Text = "";
            lblCust3.Text = "";
            lblCust4.Text = "";
            lblCust5.Text = "";
        }

    }



}
```

Main Car Details



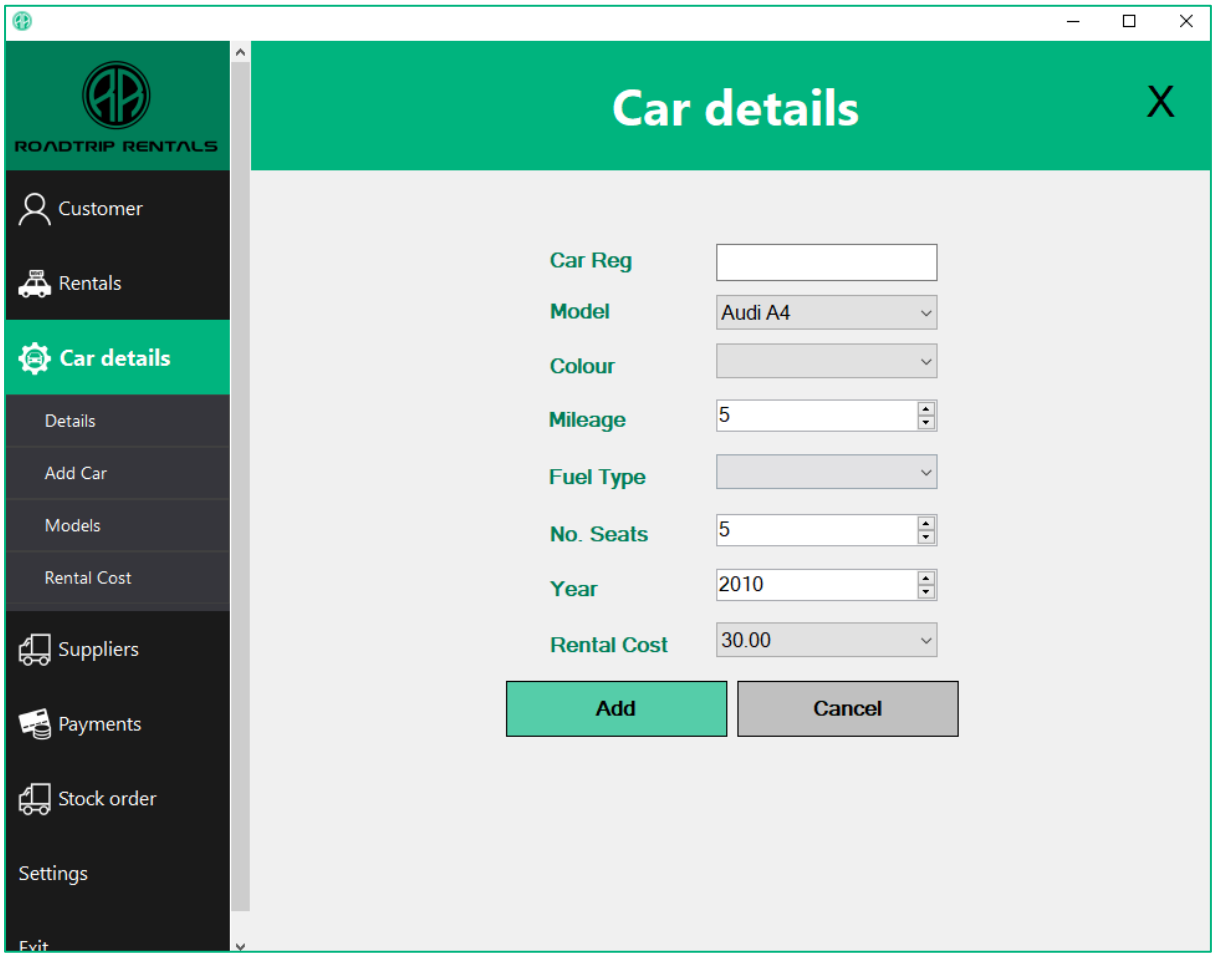
Car details menu which displays the database containing each of the cars. Can navigate to the add and edit forms from here which will replace the panel with the relevant form. Edit and Delete will only work if a row has been selected. The close sub form button also becomes visible, as an extra option to reset back to the main menu.

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

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmMainCar : Form
  {
    SqlDataAdapter daCarDetails, daCarDetailss;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBCarDetails;
    SqlCommand cmdCarDetailsDetails;
    DataRow drCarDetails;
    SqlConnection conn;
    String connStr, sqlCarDetails, sqlCarDetailsDetails;
    int selectedTab = 0;
    bool custSelected = false;
    int custNoSelected = 0;
```

```
    private void frmMainCar_Load(object sender, EventArgs e)
    {
      // TODO: This line of code loads data into the 'roadTripRentalsDataSet.Car' table. You can move, or remove it, as needed.
      connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

      sqlCarDetails = @"select * from CarDetails";
      daCarDetails = new SqlDataAdapter(sqlCarDetails, connStr);
      cmdBCarDetails = new SqlCommandBuilder(daCarDetails);
      daCarDetails.FillSchema(dsRoadTripRentals, SchemaType.Source, "CarDetails");
      daCarDetails.Fill(dsRoadTripRentals, "CarDetails");

      dgvCars.DataSource = dsRoadTripRentals.Tables["CarDetails"];

      //Resize the DataGridView columns to fit the newly loaded content.
      dgvCars.AutoResizeColumns(DataGridViewAutoSizeColumnsMode.AllCells);

      //btnDelCar.Click += btnDelCar_Click;
    }

    public delegate void OpenSubFormRequestHandler(Form subForm);
    public event OpenSubFormRequestHandler OpenSubFormRequest;

    private void btnDelCar_Click(object sender, EventArgs e)
    {
      if (dgvCars.SelectedRows.Count > 0)
      {
        string carReg = Convert.ToString(dgvCars.SelectedRows[0].Cells["CarReg"].Value);

        // Ask for confirmation before deleting the car
        DialogResult result = MessageBox.Show("Are you sure you want to delete the selected car?", "Confirm Delete", MessageBoxButtons.YesNo,
MessageBoxIcon.Warning);

        if (result == DialogResult.Yes)
        {
          // Find the car in the dataset using LINQ
          DataRow carRow = dsRoadTripRentals.Tables["CarDetails"].AsEnumerable().SingleOrDefault(row => row.Field<string>("CarReg") == carReg);

          if (carRow != null)
          {
            // Delete the car from the dataset and update the database
            carRow.Delete();
            daCarDetails.Update(dsRoadTripRentals, "CarDetails");

            MessageBox.Show("Car Deleted");
          }
          else
          {
            MessageBox.Show("Car not found.");
          }
        }
      }
      else
      {
        MessageBox.Show("Please select a car to delete.");
      }
    }


    private void btnEditCar_Click(object sender, EventArgs e)
    {
      if (dgvCars.SelectedRows.Count > 0)
      {
        string carReg = Convert.ToString(dgvCars.SelectedRows[0].Cells["CarReg"].Value);

        frmEditCar newSubForm = new frmEditCar(carReg);
        OpenSubFormInPanel(newSubForm);
      }
      else
      {
        MessageBox.Show("Please select a car to edit.");
      }
    }


    public frmMainCar()
    {
      InitializeComponent();
    }

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

```
        frmAddCar addCarForm = new frmAddCar();
        OpenSubFormInPanel(addCarForm);
    }


    private void OpenSubFormInPanel(Form subForm)
    {
        subForm.TopLevel = false;
        subForm.FormBorderStyle = FormBorderStyle.None;
        subForm.Dock = DockStyle.Fill;

        // Replace 'panel1' with the name of the Panel control in your main form.
        panelSub.Controls.Clear();
        panelSub.Controls.Add(subForm);

        subForm.Show();
    }


  }


}
```

Add Car details



Form where a new Car can be added to the database. Cancel will not push through the changes and returns back to the main car menu. The car reg text box will remove any spaces which is used to avoid ABC1234 and ABC 1234 being technically different Car regs. A lot of Boxes are using combo boxes with pre populating data to avoid user input error. Model combo box grabs from Models, and the same with the rental cost

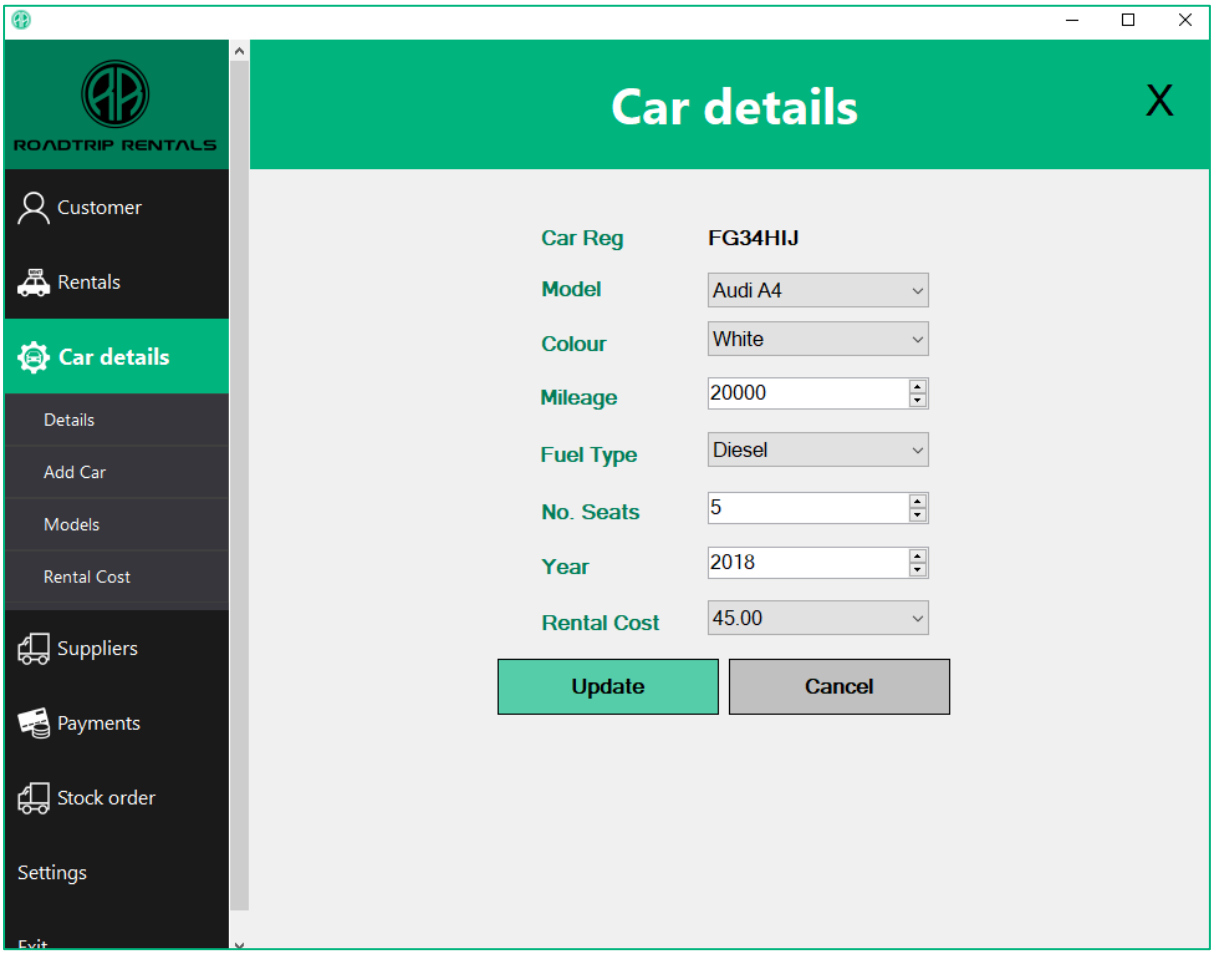
```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Data.SqlClient;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmAddCar : Form
  {
    SqlDataAdapter daCarDetails, daCarDetailss;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBCarDetails;
    SqlCommand cmdCarDetailsDetails;
    DataRow drCarDetails;
    SqlConnection conn;
    String sqlCarDetails, sqlCarDetailsDetails;
    int selectedTab = 0;
    bool custSelected = false;
    int custNoSelected = 0;

    private string connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";
```

```
public frmAddCar()
{
   InitializeComponent();
}

private void btnAddCancel_Click(object sender, EventArgs e)
{
   frmMainCar newSubForm = new frmMainCar();
   OpenSubFormInPanel(newSubForm);
}



private void frmAddCar_Load(object sender, EventArgs e)
{
   sqlCarDetails = @"select * from CarDetails";
   daCarDetails = new SqlDataAdapter(sqlCarDetails, connStr);
   cmdBCarDetails = new SqlCommandBuilder(daCarDetails);
   daCarDetails.FillSchema(dsRoadTripRentals, SchemaType.Source, "CarDetails");
   daCarDetails.Fill(dsRoadTripRentals, "CarDetails");

   cmbAddColour.Items.Add("Red");
   cmbAddColour.Items.Add("Blue");
   cmbAddColour.Items.Add("Green");

   using (SqlConnection conn = new SqlConnection(connStr))
   {
      conn.Open();
      using (SqlDataAdapter da = new SqlDataAdapter("SELECT ModelID, ModelDesc FROM Model", conn))
      {
         DataTable dt = new DataTable();
         da.Fill(dt);
         cmbAddModelID.DataSource = dt;
         cmbAddModelID.DisplayMember = "ModelDesc";
         cmbAddModelID.ValueMember = "ModelID";
      }

      using (SqlDataAdapter da = new SqlDataAdapter("SELECT RentalCostID, RentalCost FROM RentalCost", conn))
      {
         DataTable dt = new DataTable();
         da.Fill(dt);
         cmbAddRentalCostID.DataSource = dt;
         cmbAddRentalCostID.DisplayMember = "RentalCost";
         cmbAddRentalCostID.ValueMember = "RentalCostID";
      }

   }
}

private void btnAddAdd_Click(object sender, EventArgs e)
{
   MyCar myCar = new MyCar();
   bool ok = true;
   errP.Clear();

   //CAR REG
   try
   {
      myCar.CarReg = txtAddCarReg.Text.Trim().Replace(" ", "");
   }
   catch (MyException MyEx)
   {
      ok = false;
      errP.SetError(txtAddCarReg, MyEx.validate());
   }

   try
   {
      myCar.ModelID = cmbAddModelID.SelectedValue.ToString();
   }
   catch (MyException MyEx)
   {
      ok = false;
      errP.SetError(cmbAddModelID, MyEx.validate());
   }

   //COLOUR
   try
```

```
{
   myCar.Colour = cmbAddColour.Text.Trim();
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(cmbAddColour, MyEx.validate());
}

//MILEAGE
try
{
   myCar.Mileage = (int)txtAddMileage.Value;
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(txtAddMileage, MyEx.validate());
}

//FUEL TYPE
try
{
   myCar.FuelType = cmbAddFuelType.Text.Trim();
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(cmbAddFuelType, MyEx.validate());
}

//NO SEATS
try
{
   myCar.NoSeats = (int)txtAddNoSeats.Value;
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(txtAddNoSeats, MyEx.validate());
}

//YEAR
try
{
   myCar.Year = (int)txtAddYear.Value;
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(txtAddYear, MyEx.validate());
}

//RENTAL COST ID
try
{
   myCar.RentalCostID = (int)cmbAddRentalCostID.SelectedValue;
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(cmbAddRentalCostID, MyEx.validate());
}


try
{
   if (ok)
   {
      DataRow drCar = dsRoadTripRentals.Tables["CarDetails"].NewRow();

      drCar["CarReg"] = myCar.CarReg;
      drCar["ModelID"] = myCar.ModelID;
      drCar["Colour"] = myCar.Colour;
      drCar["Mileage"] = myCar.Mileage;
      drCar["FuelType"] = myCar.FuelType;
      drCar["NoSeats"] = myCar.NoSeats;
      drCar["Year"] = myCar.Year;
      drCar["RentalCostID"] = myCar.RentalCostID;

      try
```

```
            {
                dsRoadTripRentals.Tables["CarDetails"].Rows.Add(drCar);
                daCarDetails.Update(dsRoadTripRentals, "CarDetails");

                // If no exceptions are thrown, show the "Car Added" message
                MessageBox.Show("Car Added");

                if (MessageBox.Show("Do you wish to add another car?", "Add Car", MessageBoxButtons.YesNo) == System.Windows.Forms.DialogResult.Yes)
                {
                    clearAddForm();
                }
                else
                {
                    frmMainCar newSubForm = new frmMainCar();
                    OpenSubFormInPanel(newSubForm);
                }
            }
            catch (ConstraintException)
            {
                MessageBox.Show("The car registration number '" + myCar.CarReg + "' already exists. Please enter a unique registration number.", "Duplicate
Car Registration", MessageBoxButtons.OK, MessageBoxIcon.Warning);
            }
            catch (Exception ex)
            {
                MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!", MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
            }
        }
    }

    catch (Exception ex)
    {
        MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!", MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
    }
}


void clearAddForm()
{
    txtAddCarReg.Clear();
    cmbAddModelID.SelectedIndex = -1;
    cmbAddColour.SelectedIndex = -1;
    txtAddMileage.Value = 1;
    cmbAddFuelType.SelectedIndex = -1;
    txtAddNoSeats.Value = 2;
    txtAddYear.Value = 1950;
    cmbAddRentalCostID.SelectedIndex = -1;
}



private void OpenSubFormInPanel(Form subForm)
{
    subForm.TopLevel = false;
    subForm.FormBorderStyle = FormBorderStyle.None;
    subForm.Dock = DockStyle.Fill;

    // Replace 'panel1' with the name of the Panel control in your main form.
    panelSub.Controls.Clear();
    panelSub.Controls.Add(subForm);

    subForm.Show();
}
}
}
```

Edit car details



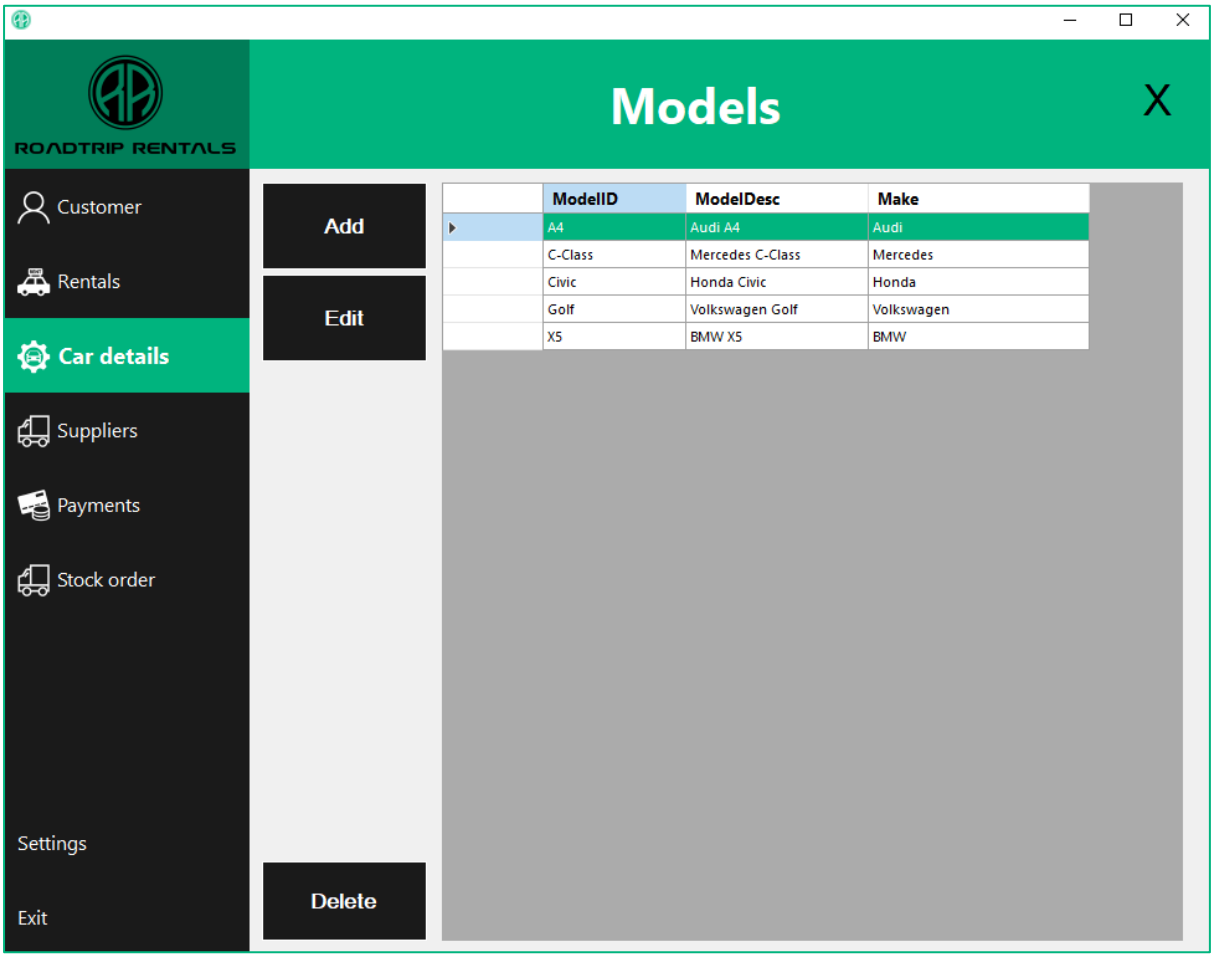

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Data.SqlClient;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmEditCar : Form
  {

    SqlDataAdapter daCarDetails, daCarDetailss;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBCarDetails;
    SqlCommand cmdCarDetailsDetails;
    DataRow drCarDetails;
    SqlConnection conn;
    String sqlCarDetails, sqlCarDetailsDetails;
    int selectedTab = 0;
    bool custSelected = false;
    int custNoSelected = 0;

    private string connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

    private string carReg;

    public frmEditCar(string carReg)
    {
      InitializeComponent();

      this.carReg = carReg;
    }
```

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

    // TODO: This line of code loads data into the 'roadTripRentalsDataSet.Car' table. You can move, or remove it, as needed.
    connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

    sqlCarDetails = @"select * from CarDetails";
    daCarDetails = new SqlDataAdapter(sqlCarDetails, connStr);
    cmdBCarDetails = new SqlCommandBuilder(daCarDetails);
    daCarDetails.FillSchema(dsRoadTripRentals, SchemaType.Source, "CarDetails");
    daCarDetails.Fill(dsRoadTripRentals, "CarDetails");

    // Load data into ModelID ComboBox
    using (SqlConnection conn = new SqlConnection(connStr))
    {
        conn.Open();
        using (SqlDataAdapter da = new SqlDataAdapter("SELECT ModelID, ModelDesc FROM Model", conn))
        {
            DataTable dt = new DataTable();
            da.Fill(dt);
            cmbEditModelID.DataSource = dt;
            cmbEditModelID.DisplayMember = "ModelDesc";
            cmbEditModelID.ValueMember = "ModelID";
        }
    }

    // Load data into RentalCostID ComboBox
    using (SqlConnection conn = new SqlConnection(connStr))
    {
        conn.Open();
        using (SqlDataAdapter da = new SqlDataAdapter("SELECT RentalCostID, RentalCost FROM RentalCost", conn))
        {
            DataTable dt = new DataTable();
            da.Fill(dt);
            cmbEditRentalCostID.DataSource = dt;
            cmbEditRentalCostID.DisplayMember = "RentalCost";
            cmbEditRentalCostID.ValueMember = "RentalCostID";
        }
    }

    PopulateColourComboBox(cmbEditColour);  // in frmEditCar_Load


    // Load the car details.
    DataRow carRow = dsRoadTripRentals.Tables["CarDetails"].Rows.Find(carReg);

    if (carRow != null)
    {
        lblEditCarReg.Text = carRow["CarReg"].ToString();
        cmbEditModelID.SelectedValue = carRow["ModelID"];
        cmbEditColour.SelectedItem = carRow["Colour"].ToString();
        txtEditMileage.Value = Convert.ToDecimal(carRow["Mileage"]);
        cmbEditFuelType.Text = carRow["FuelType"].ToString();
        txtEditNoSeats.Value = Convert.ToDecimal(carRow["NoSeats"]);
        txtEditYear.Value = Convert.ToDecimal(carRow["Year"]);
        cmbEditRentalCostID.SelectedValue = carRow["RentalCostID"];
    }
    else
    {
        MessageBox.Show("Car not found.");
    }

    // Now you can set the SelectedValue
    cmbEditModelID.SelectedValue = carRow["ModelID"];
    cmbEditRentalCostID.SelectedValue = carRow["RentalCostID"];
}

private void btnEditCancel_Click(object sender, EventArgs e)
{
    frmMainCar newSubForm = new frmMainCar();
    OpenSubFormInPanel(newSubForm);
}

private void btnEditUpdate_Click(object sender, EventArgs e)
{
    MyCar myCar = new MyCar();
    bool ok = true;
    errP.Clear();

    try
```

```
{
   myCar.ModelID = cmbEditModelID.SelectedValue.ToString();
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(cmbEditModelID, MyEx.validate());
}

//COLOUR
try
{
   myCar.Colour = cmbEditColour.Text.Trim();
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(cmbEditColour, MyEx.validate());
}

//MILEAGE
try
{
   myCar.Mileage = (int)txtEditMileage.Value;
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(txtEditMileage, MyEx.validate());
}

//FUEL TYPE
try
{
   myCar.FuelType = cmbEditFuelType.Text.Trim();
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(cmbEditFuelType, MyEx.validate());
}

//NO SEATS
try
{
   myCar.NoSeats = (int)txtEditNoSeats.Value;
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(txtEditNoSeats, MyEx.validate());
}

//YEAR
try
{
   myCar.Year = (int)txtEditYear.Value;
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(txtEditYear, MyEx.validate());
}

//RENTAL COST ID
try
{
   myCar.RentalCostID = (int)cmbEditRentalCostID.SelectedValue;
}
catch (MyException MyEx)
{
   ok = false;
   errP.SetError(cmbEditRentalCostID, MyEx.validate());
}

if (ok)
{
   DataRow drCar = dsRoadTripRentals.Tables["CarDetails"].Rows.Find(myCar.CarReg);

   if (drCar != null)
   {
```

```
            drCar["ModelID"] = myCar.ModelID;
            drCar["Colour"] = myCar.Colour;
            drCar["Mileage"] = myCar.Mileage;
            drCar["FuelType"] = myCar.FuelType;
            drCar["NoSeats"] = myCar.NoSeats;
            drCar["Year"] = myCar.Year;
            drCar["RentalCostID"] = myCar.RentalCostID;

            daCarDetails.Update(dsRoadTripRentals, "CarDetails");

            MessageBox.Show("Car Updated");
          }
          else
          {
            MessageBox.Show("Car not found.");
          }
        }
      }

      private void PopulateColourComboBox(ComboBox comboBox)
      {
        string[] colours = new string[]
        {
      "Red",
      "Blue",
      "Green",
      "Yellow",
      "Black",
      "White",
      "Gray",
      "Silver",
      "Purple",
      "Orange",
      "Brown",
      "Pink"
          // Add more colours as needed
        };

        foreach (string colour in colours)
        {
          comboBox.Items.Add(colour);
        }
      }

      private void OpenSubFormInPanel(Form subForm)
      {
        subForm.TopLevel = false;
        subForm.FormBorderStyle = FormBorderStyle.None;
        subForm.Dock = DockStyle.Fill;

        // Replace 'panel1' with the name of the Panel control in your main form.
        panelSub.Controls.Clear();
        panelSub.Controls.Add(subForm);

        subForm.Show();
      }

    }
  }
```

Main Models



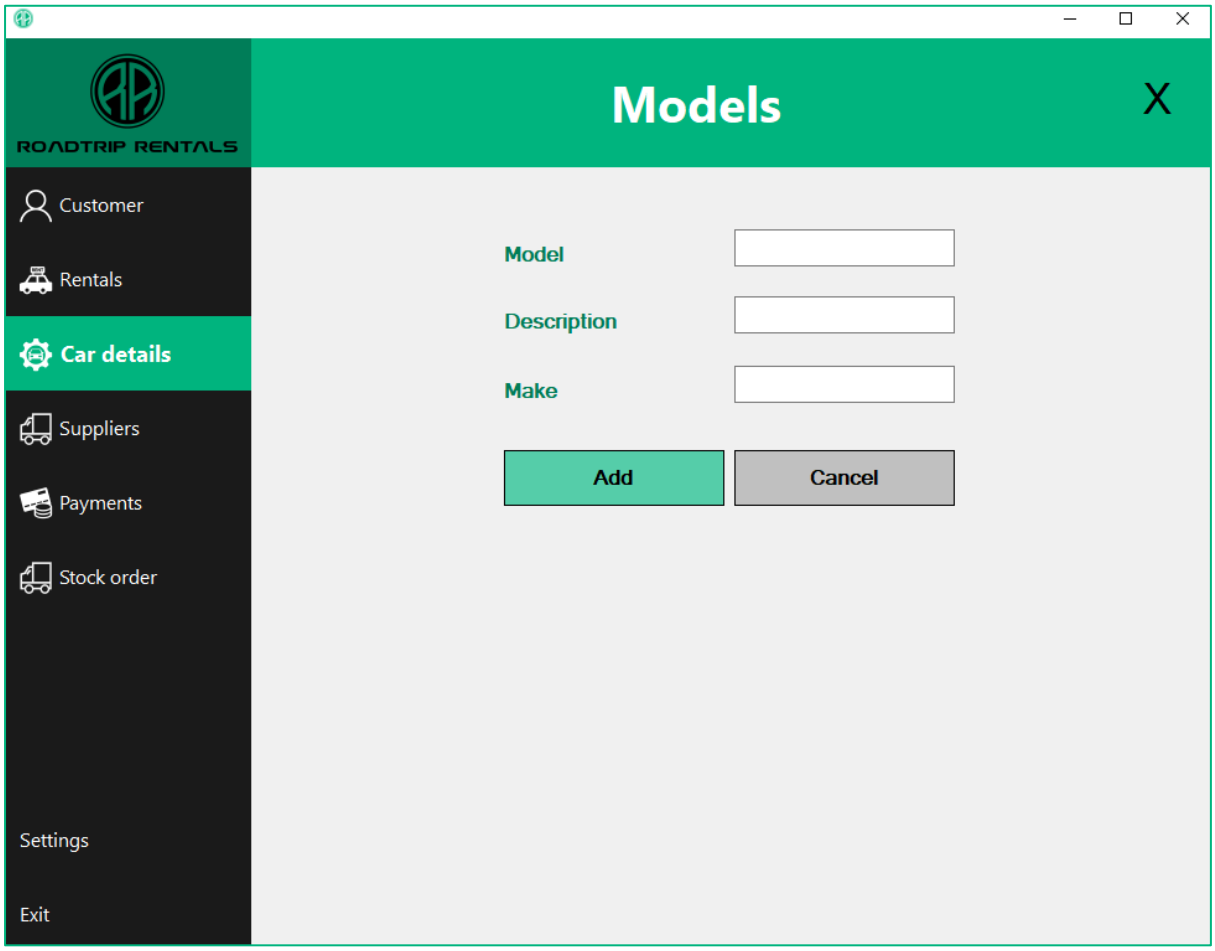
Models menu which displays the database containing each of the models. Can navigate to the add and edit forms from here which will replace the panel with the relevant form. Edit and Delete will only work if a row has been selected. The close sub form button also becomes visible, as an extra option to reset back to the main menu.

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

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmMainModel : Form
  {
    SqlDataAdapter daModel, daModels;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBModel;
    SqlCommand cmdModelDetails;
    DataRow drModel;
    SqlConnection conn;
    String connStr, sqlModel, sqlModelDetails;
    int selectedTab = 0;
    bool custSelected = false;
    int custNoSelected = 0;
```

```
    private void frmMainModel_Load(object sender, EventArgs e)
    {
      // TODO: This line of code loads data into the 'roadTripRentalsDataSet.Model' table. You can move, or remove it, as needed.
      connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

      sqlModel = @"select * from Model";
      daModel = new SqlDataAdapter(sqlModel, connStr);
      cmdBModel = new SqlCommandBuilder(daModel);
      daModel.FillSchema(dsRoadTripRentals, SchemaType.Source, "Model");
      daModel.Fill(dsRoadTripRentals, "Model");

      dgvModels.DataSource = dsRoadTripRentals.Tables["Model"];

      //Resize the DataGridView columns to fit the newly loaded content.
      dgvModels.AutoResizeColumns(DataGridViewAutoSizeColumnsMode.AllCells);

      //btnDelModel.Click += btnDelModel_Click;
    }

    public delegate void OpenSubFormRequestHandler(Form subForm);
    public event OpenSubFormRequestHandler OpenSubFormRequest;

    private void btnDelModel_Click(object sender, EventArgs e)
    {
      if (dgvModels.SelectedRows.Count > 0)
      {
        string ModelID = Convert.ToString(dgvModels.SelectedRows[0].Cells["ModelID"].Value);

        // Check if any car is associated with this model.
        string sqlCheck = "SELECT COUNT(*) FROM CarDetails WHERE ModelID = @ModelID";

        // Open the SQL connection
        conn = new SqlConnection(connStr);
        conn.Open();

        SqlCommand cmdCheck = new SqlCommand(sqlCheck, conn);
        cmdCheck.Parameters.AddWithValue("@ModelID", ModelID);

        int count = (int)cmdCheck.ExecuteScalar();

        // Close the SQL connection
        conn.Close();

        if (count > 0)
        {
          MessageBox.Show("This model is assigned to one or more cars and cannot be deleted.", "Cannot Delete");
          return;
        }

        // Ask for confirmation before deleting the Model
        DialogResult result = MessageBox.Show("Are you sure you want to delete the selected Model?", "Confirm Delete", MessageBoxButtons.YesNo,
MessageBoxIcon.Warning);

        if (result == DialogResult.Yes)
        {
          // Find the Model in the dataset using LINQ
          DataRow ModelRow = dsRoadTripRentals.Tables["Model"].AsEnumerable().SingleOrDefault(row => row.Field<string>("ModelID") == ModelID);

          if (ModelRow != null)
          {
            // Delete the Model from the dataset and update the database
            ModelRow.Delete();
            daModel.Update(dsRoadTripRentals, "Model");

            MessageBox.Show("Model Deleted");
          }
          else
          {
            MessageBox.Show("Model not found.");
          }
        }
      }
      else
      {
        MessageBox.Show("Please select a Model to delete.");
      }
    }


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

```
        {
            if (dgvModels.SelectedRows.Count > 0)
            {
                string ModelID = Convert.ToString(dgvModels.SelectedRows[0].Cells["ModelID"].Value);

                frmEditModel newSubForm = new frmEditModel(ModelID);
                OpenSubFormInPanel(newSubForm);
            }
            else
            {
                MessageBox.Show("Please select a Model to edit.");
            }
        }


        public frmMainModel()
        {
            InitializeComponent();
        }

        private void btnAddModel_Click(object sender, EventArgs e)
        {
            frmAddModel addModelForm = new frmAddModel();
            OpenSubFormInPanel(addModelForm);
        }

        private void OpenSubFormInPanel(Form subForm)
        {
            subForm.TopLevel = false;
            subForm.FormBorderStyle = FormBorderStyle.None;
            subForm.Dock = DockStyle.Fill;

            // Replace 'panel1' with the name of the Panel control in your main form.
            panelSub.Controls.Clear();
            panelSub.Controls.Add(subForm);

            subForm.Show();
        }


    }


}
```

Add Models



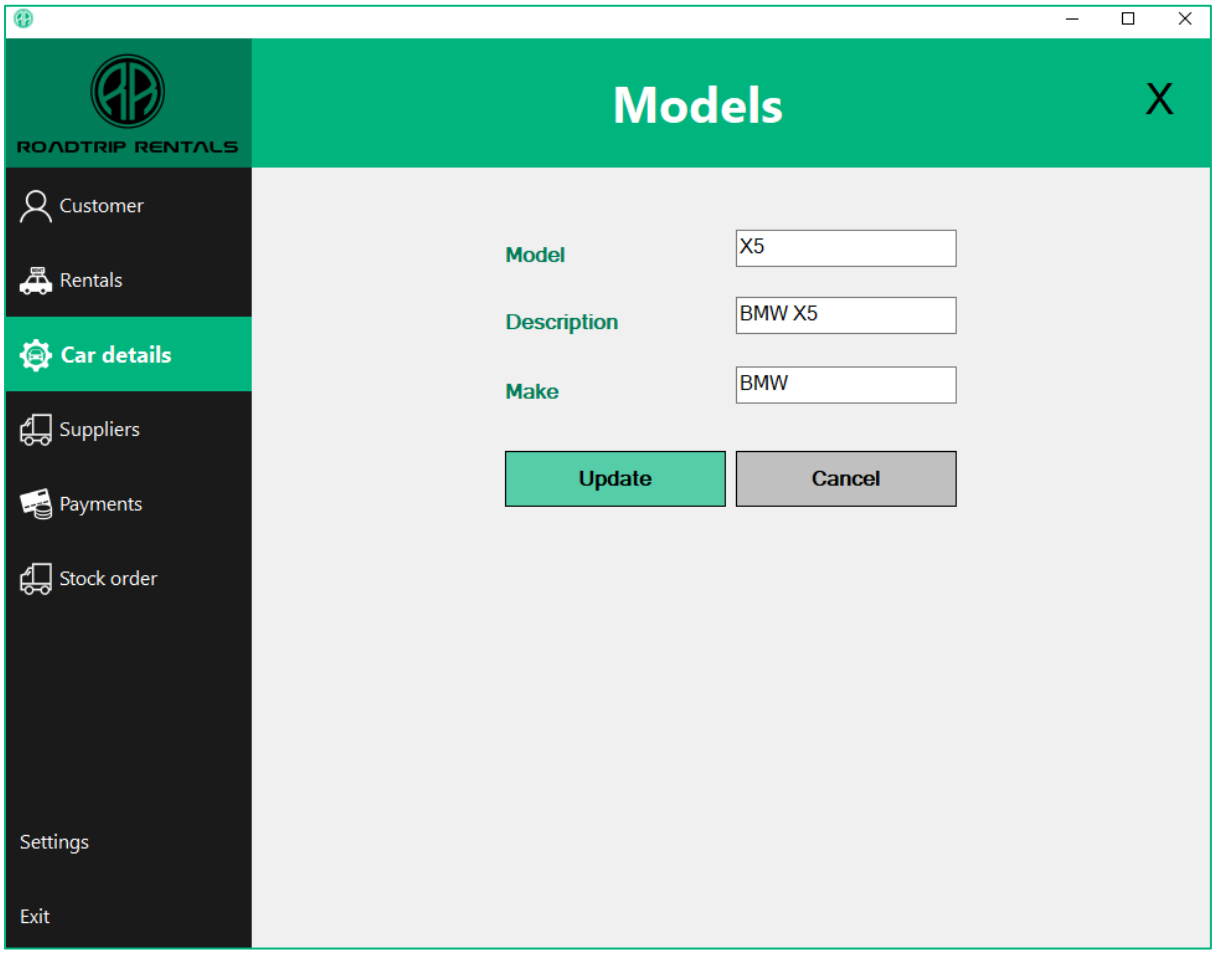
Form where a new model for a car can be added to the database. Cancel will not push through the changes and returns back to the main car menu.

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

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmAddModel : Form
  {
    SqlDataAdapter daModel, daModels;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBModel;
    SqlCommand cmdModelDetails;
    DataRow drModel;
    SqlConnection conn;
    String connStr, sqlModel, sqlModelDetails;
    int selectedTab = 0;
    bool custSelected = false;
    int custNoSelected = 0;

    public frmAddModel()
    {
      InitializeComponent();
    }
```

```
    private void frmAddModel_Load(object sender, EventArgs e)
    {
      // TODO: This line of code loads data into the 'roadTripRentalsDataSet.Model' table. You can move, or remove it, as needed.
      connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

      sqlModel = @"select * from Model";
      daModel = new SqlDataAdapter(sqlModel, connStr);
      cmdBModel = new SqlCommandBuilder(daModel);
      daModel.FillSchema(dsRoadTripRentals, SchemaType.Source, "Model");
      daModel.Fill(dsRoadTripRentals, "Model");

      //dgvModels.DataSource = dsRoadTripRentals.Tables["Model"];

      //Resize the DataGridView columns to fit the newly loaded content.
     // dgvModels.AutoResizeColumns(DataGridViewAutoSizeColumnsMode.AllCells);

      //btnDelModel.Click += btnDelModel_Click;
    }


    private void btnAddAdd_Click(object sender, EventArgs e)
    {
      MyModel myModel = new MyModel();
      bool ok = true;
      errP.Clear();

      // ModelID
      try
      {
        myModel.ModelID = txtModel.Text.Trim();
      }
      catch (Exception ex)
      {
        ok = false;
        errP.SetError(txtModel, ex.Message);
      }

      // Make
      try
      {
        myModel.Make = txtMake.Text.Trim();
      }
      catch (Exception ex)
      {
        ok = false;
        errP.SetError(txtMake, ex.Message);
      }

      // Description
      try
      {
        myModel.Description = txtDesc.Text.Trim();
      }
      catch (Exception ex)
      {
        ok = false;
        errP.SetError(txtDesc, ex.Message);
      }


      try
      {
        if (ok)
        {
          DataRow drModel = dsRoadTripRentals.Tables["Model"].NewRow();

          drModel["ModelID"] = myModel.ModelID;
          drModel["ModelDesc"] = myModel.Description;
          drModel["Make"] = myModel.Make;

          try
          {
            dsRoadTripRentals.Tables["Model"].Rows.Add(drModel);
            daModel.Update(dsRoadTripRentals, "Model");

            // If no exceptions are thrown, show the "Model Added" message
            MessageBox.Show("Model Added");

            if (MessageBox.Show("Do you wish to add another model?", "Add Model", MessageBoxButtons.YesNo) ==
System.Windows.Forms.DialogResult.Yes)
```

```
                {
                    clearAddForm();
                }
                else
                {
                    frmMainModel newSubForm = new frmMainModel();
                    OpenSubFormInPanel(newSubForm);
                }
            }
            catch (ConstraintException)
            {
                MessageBox.Show("The model ID '" + myModel.ModelID + "' already exists. Please enter a unique model ID.", "Duplicate Model ID",
MessageBoxButtons.OK, MessageBoxIcon.Warning);
            }
            catch (Exception ex)
            {
                MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!", MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
            }
        }
    }

    catch (Exception ex)
    {
        MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!", MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
    }
}

private void btnAddCancel_Click(object sender, EventArgs e)
{
    frmMainModel newSubForm = new frmMainModel();
    OpenSubFormInPanel(newSubForm);
}


void clearAddForm()
{
    txtModel.Clear();
    txtDesc.Clear();
    txtMake.Clear();
}



private void OpenSubFormInPanel(Form subForm)
{
    subForm.TopLevel = false;
    subForm.FormBorderStyle = FormBorderStyle.None;
    subForm.Dock = DockStyle.Fill;

    // Replace 'panel1' with the name of the Panel control in your main form.
    panelSub.Controls.Clear();
    panelSub.Controls.Add(subForm);

    subForm.Show();
}
}
}
```

Edit Model

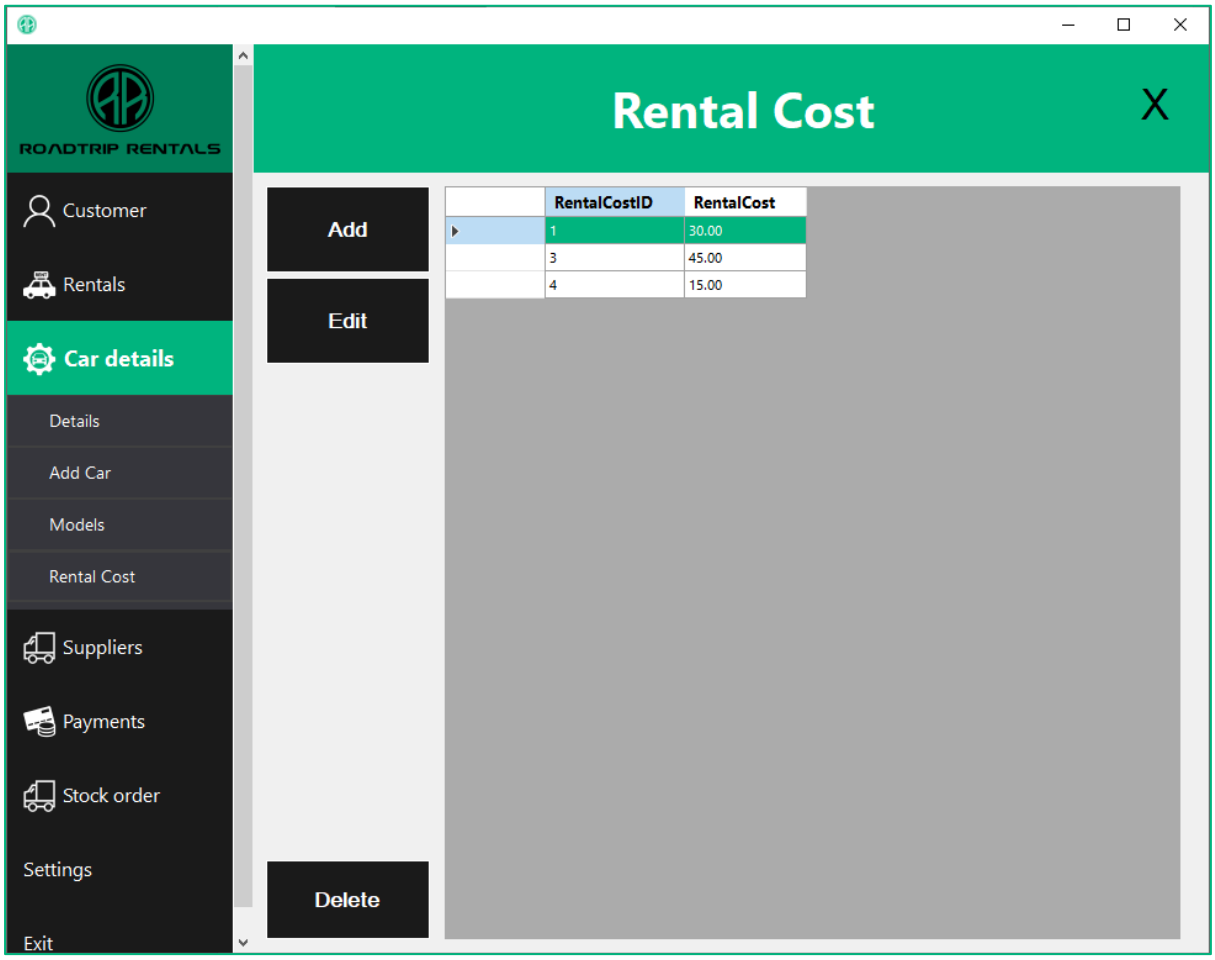



```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Data.SqlClient;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmEditModel : Form
  {
    SqlDataAdapter daModel, daModels;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBModel;
    SqlCommand cmdModelDetails;
    DataRow drModel;
    SqlConnection conn;
    String connStr, sqlModel, sqlModelDetails;
    int selectedTab = 0;
    bool custSelected = false;
    int custNoSelected = 0;

    private string ModelID;

    public frmEditModel(string ModelID)
    {
      InitializeComponent();
      this.ModelID = ModelID;
    }

    private void frmEditModel_Load(object sender, EventArgs e)
    {
      // TODO: This line of code loads data into the 'roadTripRentalsDataSet.Model' table. You can move, or remove it, as needed.
```

```
    connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

    sqlModel = @"select * from Model";
    daModel = new SqlDataAdapter(sqlModel, connStr);
    cmdBModel = new SqlCommandBuilder(daModel);
    daModel.FillSchema(dsRoadTripRentals, SchemaType.Source, "Model");
    daModel.Fill(dsRoadTripRentals, "Model");

    DataRow drModel = dsRoadTripRentals.Tables["Model"].Rows.Find(ModelID);

    if (drModel != null)
    {
        txtModel.Text = drModel["ModelID"].ToString();
        txtMake.Text = drModel["Make"].ToString();
        txtDesc.Text = drModel["ModelDesc"].ToString();
    }
}


private void btnEditAdd_Click(object sender, EventArgs e)
{
    MyModel myModel = new MyModel();
    bool ok = true;
    errP.Clear();

    // ModelID
    try
    {
        myModel.ModelID = txtModel.Text.Trim();
    }
    catch (Exception ex)
    {
        ok = false;
        errP.SetError(txtModel, ex.Message);
    }

    // Make
    try
    {
        myModel.Make = txtMake.Text.Trim();
    }
    catch (Exception ex)
    {
        ok = false;
        errP.SetError(txtMake, ex.Message);
    }

    // Description
    try
    {
        myModel.Description = txtDesc.Text.Trim();
    }
    catch (Exception ex)
    {
        ok = false;
        errP.SetError(txtDesc, ex.Message);
    }


    try
    {
        if (ok)
        {
            DataRow drModel = dsRoadTripRentals.Tables["Model"].Rows.Find(myModel.ModelID);

            if (drModel != null)
            {
                drModel["ModelDesc"] = myModel.Description;
                drModel["Make"] = myModel.Make;

                try
                {
                    daModel.Update(dsRoadTripRentals, "Model");

                    // If no exceptions are thrown, show the "Model Updated" message
                    MessageBox.Show("Model Updated");

                    frmMainModel newSubForm = new frmMainModel();
                    OpenSubFormInPanel(newSubForm);
                }
                catch (Exception ex)
```

```
                {
                    MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!", MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
                }
            }
            else
            {
                MessageBox.Show("Model not found", "Error!", MessageBoxButtons.OK, MessageBoxIcon.Error);
            }
        }
    }
    catch (Exception ex)
    {
        MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!", MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
    }
}


private void btnAddCancel_Click(object sender, EventArgs e)
{
    frmMainModel newSubForm = new frmMainModel();
    OpenSubFormInPanel(newSubForm);
}


void clearAddForm()
{
    txtModel.Clear();
    txtDesc.Clear();
    txtMake.Clear();
}



private void OpenSubFormInPanel(Form subForm)
{
    subForm.TopLevel = false;
    subForm.FormBorderStyle = FormBorderStyle.None;
    subForm.Dock = DockStyle.Fill;

    // Replace 'panel1' with the name of the Panel control in your main form.
    panelSub.Controls.Clear();
    panelSub.Controls.Add(subForm);

    subForm.Show();
}
}
}
```

Main Rental Cost



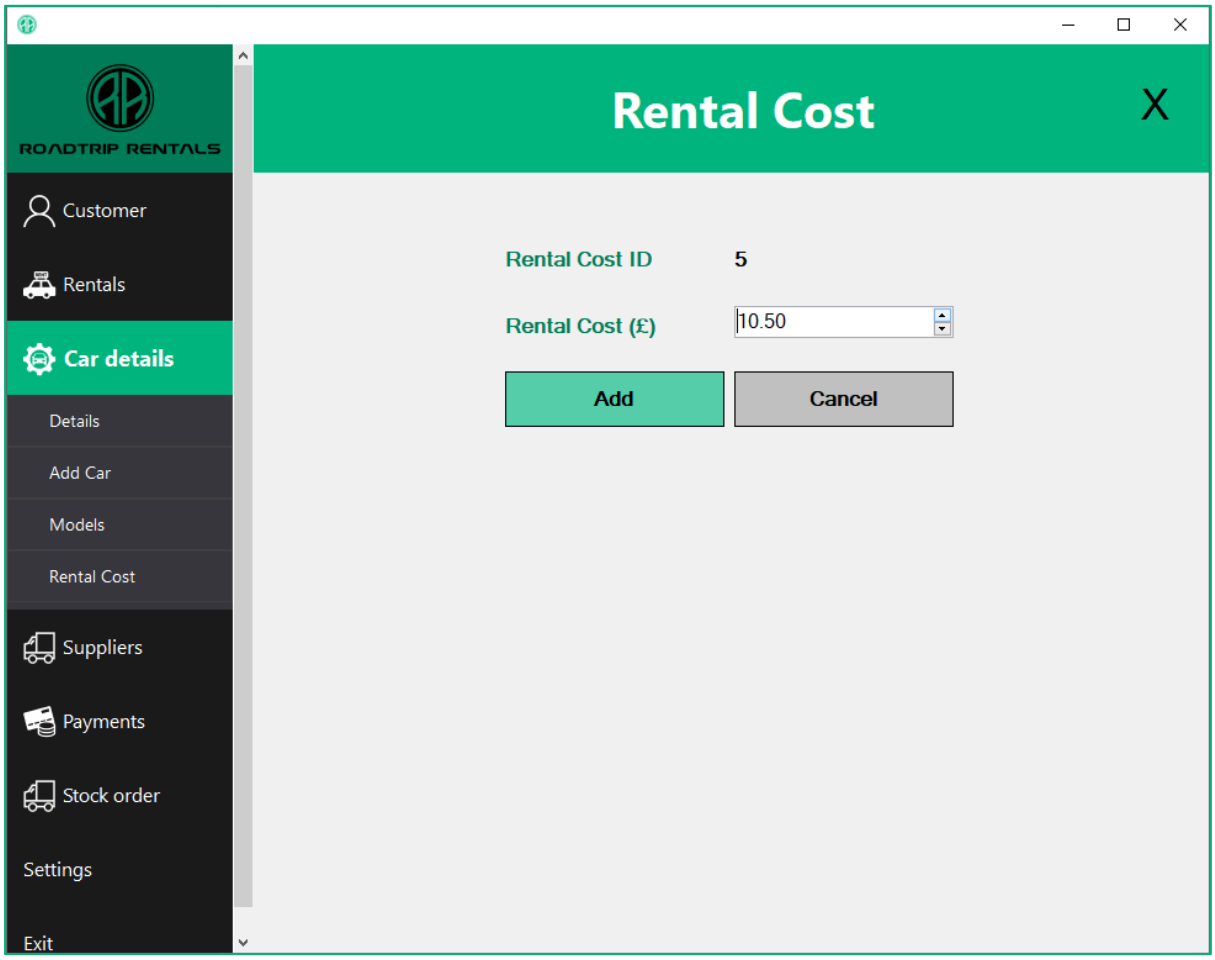
Rental cost menu which displays the database containing each of the rental costs . Can navigate to the add and edit forms from here which will replace the panel with the relevant form. Edit and Delete will only work if a row has been selected. The close sub form button also becomes visible, as an extra option to reset back to the main menu.

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

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmMainRentalCost : Form
  {
    SqlDataAdapter daRentalCost, daRentalCosts;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBRentalCost;
    SqlCommand cmdRentalCostDetails;
    DataRow drRentalCost;
    SqlConnection conn;
    String connStr, sqlRentalCost, sqlRentalCostDetails;
    int selectedTab = 0;
    bool custSelected = false;
    int custNoSelected = 0;
```

```
    private void frmMainRentalCost_Load(object sender, EventArgs e)
    {
        // TODO: This line of code loads data into the 'roadTripRentalsDataSet.RentalCost' table. You can move, or remove it, as needed.
        connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

        sqlRentalCost = @"select * from RentalCost";
        daRentalCost = new SqlDataAdapter(sqlRentalCost, connStr);
        cmdBRentalCost = new SqlCommandBuilder(daRentalCost);
        daRentalCost.FillSchema(dsRoadTripRentals, SchemaType.Source, "RentalCost");
        daRentalCost.Fill(dsRoadTripRentals, "RentalCost");

        dgvRentalCosts.DataSource = dsRoadTripRentals.Tables["RentalCost"];

        //Resize the DataGridView columns to fit the newly loaded content.
        dgvRentalCosts.AutoResizeColumns(DataGridViewAutoSizeColumnsMode.AllCells);

        //btnDelRentalCost.Click += btnDelRentalCost_Click;
    }

    public delegate void OpenSubFormRequestHandler(Form subForm);
    public event OpenSubFormRequestHandler OpenSubFormRequest;

    private void btnDelRentalCost_Click(object sender, EventArgs e)
    {
        if (dgvRentalCosts.SelectedRows.Count > 0)
        {
            string RentalCostID = Convert.ToString(dgvRentalCosts.SelectedRows[0].Cells["RentalCostID"].Value);

            // Check if any car is associated with this RentalCost.
            string sqlCheck = "SELECT COUNT(*) FROM CarDetails WHERE RentalCostID = @RentalCostID";

            // Open the SQL connection
            conn = new SqlConnection(connStr);
            conn.Open();

            SqlCommand cmdCheck = new SqlCommand(sqlCheck, conn);
            cmdCheck.Parameters.AddWithValue("@RentalCostID", RentalCostID);

            int count = (int)cmdCheck.ExecuteScalar();

            // Close the SQL connection
            conn.Close();

            if (count > 0)
            {
                MessageBox.Show("This Rental Cost is assigned to one or more cars and cannot be deleted. Please reassign or this remove this Rental Cost from
the Car(s) assocaitd with it.", "Cannot Delete");
                return;
            }

            // Ask for confirmation before deleting the RentalCost
            DialogResult result = MessageBox.Show("Are you sure you want to delete the selected Rental Cost?", "Confirm Delete", MessageBoxButtons.YesNo,
MessageBoxIcon.Warning);

            if (result == DialogResult.Yes)
            {
                int rentalCostIdInt = Convert.ToInt32(RentalCostID);
                DataRow RentalCostRow = dsRoadTripRentals.Tables["RentalCost"].AsEnumerable().SingleOrDefault(row => row.Field<int>("RentalCostID") ==
rentalCostIdInt);

                if (RentalCostRow != null)
                {
                    // Delete the RentalCost from the dataset and update the database
                    RentalCostRow.Delete();
                    daRentalCost.Update(dsRoadTripRentals, "RentalCost");

                    MessageBox.Show("Rental Cost Deleted");
                }
                else
                {
                    MessageBox.Show("Rental Cost not found.");
                }
            }
        }
        else
        {
            MessageBox.Show("Please select a RentalCost to delete.");
        }
    }
```

```
    private void btnEditRentalCost_Click(object sender, EventArgs e)
    {
      if (dgvRentalCosts.SelectedRows.Count > 0)
      {
        int RentalCostID = Convert.ToInt32(dgvRentalCosts.SelectedRows[0].Cells["RentalCostID"].Value);

        frmEditRentalCost newSubForm = new frmEditRentalCost(RentalCostID);
        OpenSubFormInPanel(newSubForm);
      }
      else
      {
        MessageBox.Show("Please select a RentalCost to edit.");
      }
    }

    public frmMainRentalCost()
    {
      InitializeComponent();
      //frmSettings.ApplyColorScheme(this);
    }

    private void btnAddRentalCost_Click(object sender, EventArgs e)
    {
      frmAddRentalCost addRentalCostForm = new frmAddRentalCost();
      OpenSubFormInPanel(addRentalCostForm);
    }

    private void OpenSubFormInPanel(Form subForm)
    {
      subForm.TopLevel = false;
      subForm.FormBorderStyle = FormBorderStyle.None;
      subForm.Dock = DockStyle.Fill;

      // Replace 'panel1' with the name of the Panel control in your main form.
      panelSub.Controls.Clear();
      panelSub.Controls.Add(subForm);

      subForm.Show();
    }


  }


}
```

Add Rental Cost



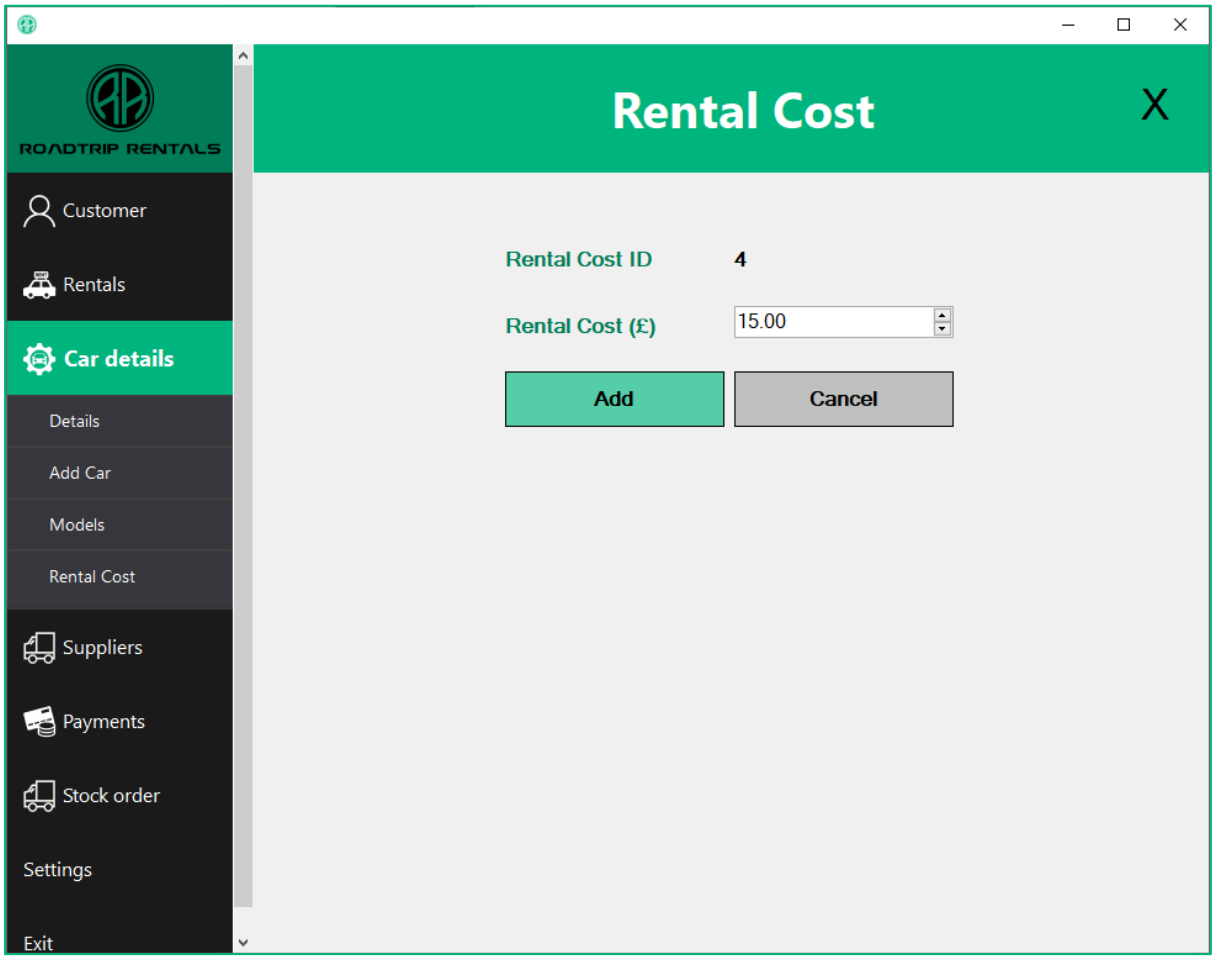
Form where a new cost can be added to the database which is then used to assigned a cost to car. Cancel will not push through the changes and returns back to the main car menu. The rental cost box is a numericupdown box which increments in 0.5, this is also marked as read only so the custonmer cannot input anything they want, or even have the field blank.

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

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmAddRentalCost : Form
  {
    SqlDataAdapter daRentalCost, daRentalCosts;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBRentalCost;
    SqlCommand cmdRentalCostDetails;
    DataRow drRentalCost;
    SqlConnection conn;
    String connStr, sqlRentalCost, sqlRentalCostDetails;
    int selectedTab = 0;
    bool custSelected = false;
    int custNoSelected = 0;
```

```
public frmAddRentalCost()
{
   InitializeComponent();
}


private void frmAddRentalCost_Load(object sender, EventArgs e)
{
   // TODO: This line of code loads data into the 'roadTripRentalsDataSet.RentalCost' table. You can move, or remove it, as needed.
   connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

   sqlRentalCost = @"select * from RentalCost";
   daRentalCost = new SqlDataAdapter(sqlRentalCost, connStr);
   cmdBRentalCost = new SqlCommandBuilder(daRentalCost);
   daRentalCost.FillSchema(dsRoadTripRentals, SchemaType.Source, "RentalCost");
   daRentalCost.Fill(dsRoadTripRentals, "RentalCost");

   int noRows = dsRoadTripRentals.Tables["RentalCost"].Rows.Count;

   if (noRows == 0)
      txtRentalCostID.Text = "10000";
   else
   {
      getNumber();
   }
}

public class MyRentalCost
{
   public int RentalCostID { get; set; }
   public decimal RentalCost { get; set; }
}

private void btnAddAdd_Click(object sender, EventArgs e)
{
   MyRentalCost myRentalCost = new MyRentalCost();
   bool ok = true;
   errP.Clear();

   // RentalCostID
   try
   {
      myRentalCost.RentalCostID = Convert.ToInt32(txtRentalCostID.Text.Trim());
      // drRentalCost["RentalCostID"] = myRentalCost.RentalCostID; // Remove this line
   }
   catch (Exception ex)
   {
      ok = false;
      errP.SetError(txtRentalCostID, ex.Message);
   }

   // RentalCost
   try
   {
      myRentalCost.RentalCost = txtRentalCost.Value; // NumericUpDown.Value returns a decimal
   }
   catch (Exception ex)
   {
      ok = false;
      errP.SetError(txtRentalCost, ex.Message);
   }


   if (ok)
   {
      DataRow drRentalCost = dsRoadTripRentals.Tables["RentalCost"].NewRow();

      drRentalCost["RentalCostID"] = myRentalCost.RentalCostID;

      drRentalCost["RentalCost"] = myRentalCost.RentalCost;

      // RentalCostID is auto-incremented in the database, so no need to set it here

      try
      {
         dsRoadTripRentals.Tables["RentalCost"].Rows.Add(drRentalCost);
         daRentalCost.Update(dsRoadTripRentals, "RentalCost");


         // If no exceptions are thrown, show the "Rental Cost Added" message
```

```
            MessageBox.Show("Rental Cost Added");


            if (MessageBox.Show("Do you wish to add another rental cost?", "Add Rental Cost", MessageBoxButtons.YesNo) ==
System.Windows.Forms.DialogResult.Yes)
            {
                clearAddForm();
                getNumber();
            }
            else
            {
                frmMainRentalCost newSubForm = new frmMainRentalCost();
                OpenSubFormInPanel(newSubForm);
            }
        }
        catch (Exception ex)
        {
            MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!", MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
        }
    }
}


private void btnAddCancel_Click(object sender, EventArgs e)
{
    frmMainRentalCost newSubForm = new frmMainRentalCost();
    OpenSubFormInPanel(newSubForm);
}


void clearAddForm()
{
    txtRentalCost.Value = txtRentalCost.Minimum;
}


private void getNumber()
{
    try
    {
        using (SqlConnection conn = new SqlConnection(connStr))
        {
            conn.Open();
            SqlCommand cmd = new SqlCommand("SELECT MAX(RentalCostID) FROM RentalCost", conn);
            int maxRentalCostId = (int)cmd.ExecuteScalar();
            txtRentalCostID.Text = (maxRentalCostId + 1).ToString();
            conn.Close();
        }
    }
    catch (Exception ex)
    {
        MessageBox.Show("Error fetching the next RentalCostID: " + ex.Message);
    }
}



private void OpenSubFormInPanel(Form subForm)
{
    subForm.TopLevel = false;
    subForm.FormBorderStyle = FormBorderStyle.None;
    subForm.Dock = DockStyle.Fill;

    // Replace 'panel1' with the name of the Panel control in your main form.
    panelSub.Controls.Clear();
    panelSub.Controls.Add(subForm);

    subForm.Show();
}
}
}
```

Edit Rental Cost

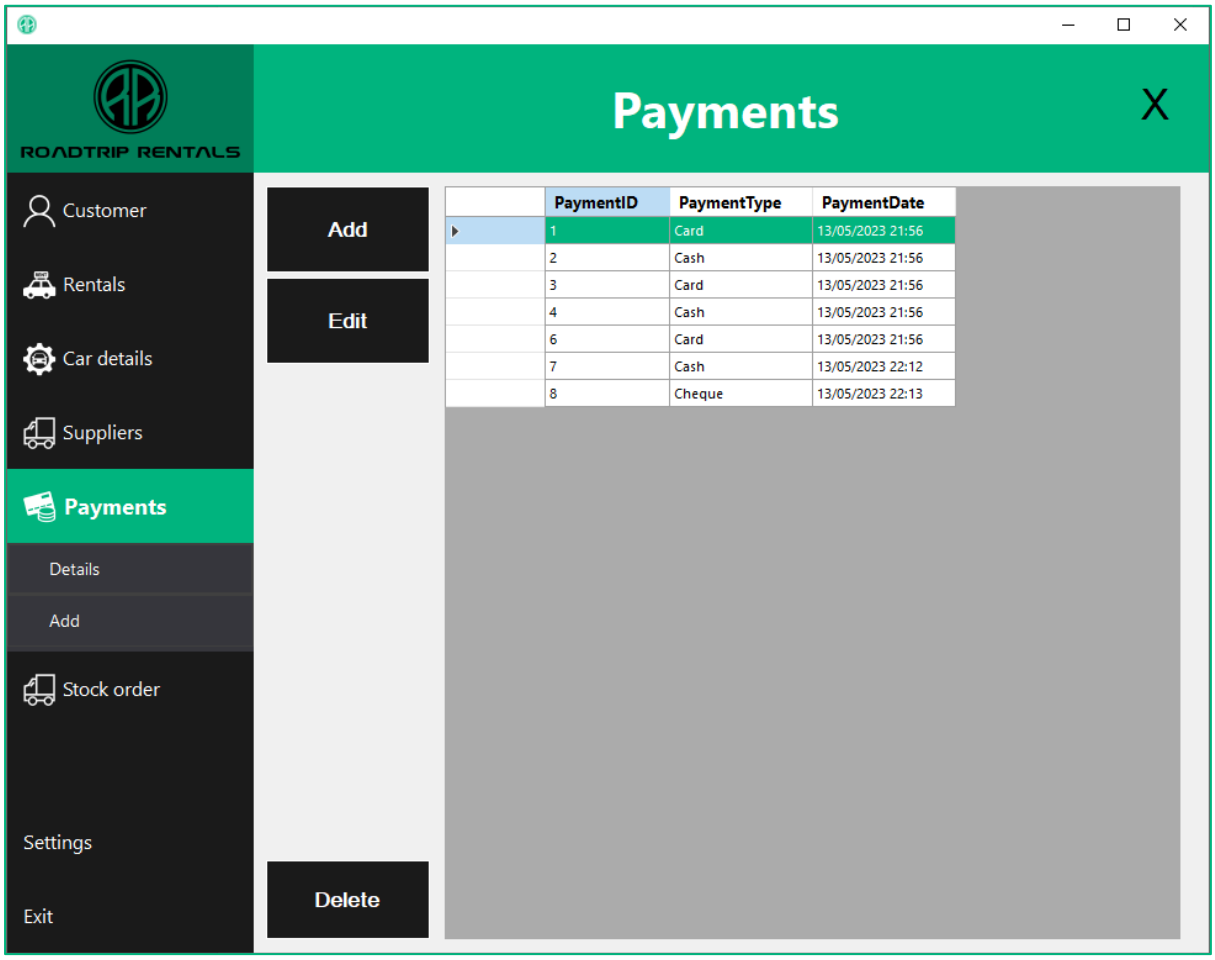



```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Data.SqlClient;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmEditRentalCost : Form
  {
    SqlDataAdapter daRentalCost, daRentalCosts;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBRentalCost;
    SqlCommand cmdRentalCostDetails;
    DataRow drRentalCost;
    SqlConnection conn;
    String connStr, sqlRentalCost, sqlRentalCostDetails;
    int selectedTab = 0;
    bool custSelected = false;
    int custNoSelected = 0;

    public int RentalCostIdToEdit { get; set; }

    public frmEditRentalCost(int rentalCostID)
    {
      InitializeComponent();
      RentalCostIdToEdit = rentalCostID;
    }


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

```
{
   // TODO: This line of code loads data into the 'roadTripRentalsDataSet.RentalCost' table. You can move, or remove it, as needed.
   connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

   sqlRentalCost = @"select * from RentalCost";
   daRentalCost = new SqlDataAdapter(sqlRentalCost, connStr);
   cmdBRentalCost = new SqlCommandBuilder(daRentalCost);
   daRentalCost.FillSchema(dsRoadTripRentals, SchemaType.Source, "RentalCost");
   daRentalCost.Fill(dsRoadTripRentals, "RentalCost");

   LoadRentalCost(RentalCostIdToEdit);
}

public class MyRentalCost
{
   public int RentalCostID { get; set; }
   public decimal RentalCost { get; set; }
}

private void btnEditAdd_Click(object sender, EventArgs e)
{
   MyRentalCost myRentalCost = new MyRentalCost();
   bool ok = true;
   errP.Clear();

   // RentalCost
   try
   {
      myRentalCost.RentalCost = txtRentalCost.Value; // NumericUpDown.Value returns a decimal
   }
   catch (Exception ex)
   {
      ok = false;
      errP.SetError(txtRentalCost, ex.Message);
   }

   if (ok)
   {
      DataRow drRentalCost = dsRoadTripRentals.Tables["RentalCost"].Rows.Find(RentalCostIdToEdit);

      drRentalCost["RentalCost"] = myRentalCost.RentalCost;

      try
      {
         daRentalCost.Update(dsRoadTripRentals, "RentalCost");

         // If no exceptions are thrown, show the "Rental Cost Updated" message
         MessageBox.Show("Rental Cost Updated");

         // Go directly to the MainRentalCost form after editing
         frmMainRentalCost newSubForm = new frmMainRentalCost();
         OpenSubFormInPanel(newSubForm);
      }
      catch (Exception ex)
      {
         MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!", MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
      }
   }
}


private void LoadRentalCost(int rentalCostId)
{
   DataRow drRentalCost = dsRoadTripRentals.Tables["RentalCost"].Rows.Find(rentalCostId);
   if (drRentalCost != null)
   {
      txtRentalCostID.Text = drRentalCost["RentalCostID"].ToString();
      txtRentalCost.Value = Convert.ToDecimal(drRentalCost["RentalCost"]);
   }
}

private void btnAddCancel_Click(object sender, EventArgs e)
{
   frmMainRentalCost newSubForm = new frmMainRentalCost();
   OpenSubFormInPanel(newSubForm);
}


void clearEditForm()
{
   txtRentalCost.Value = txtRentalCost.Minimum;
```

```
        }


        private void OpenSubFormInPanel(Form subForm)
        {
            subForm.TopLevel = false;
            subForm.FormBorderStyle = FormBorderStyle.None;
            subForm.Dock = DockStyle.Fill;

            // Replace 'panel1' with the name of the Panel control in your main form.
            panelSub.Controls.Clear();
            panelSub.Controls.Add(subForm);

            subForm.Show();
        }
    }
}
```

Main Payments



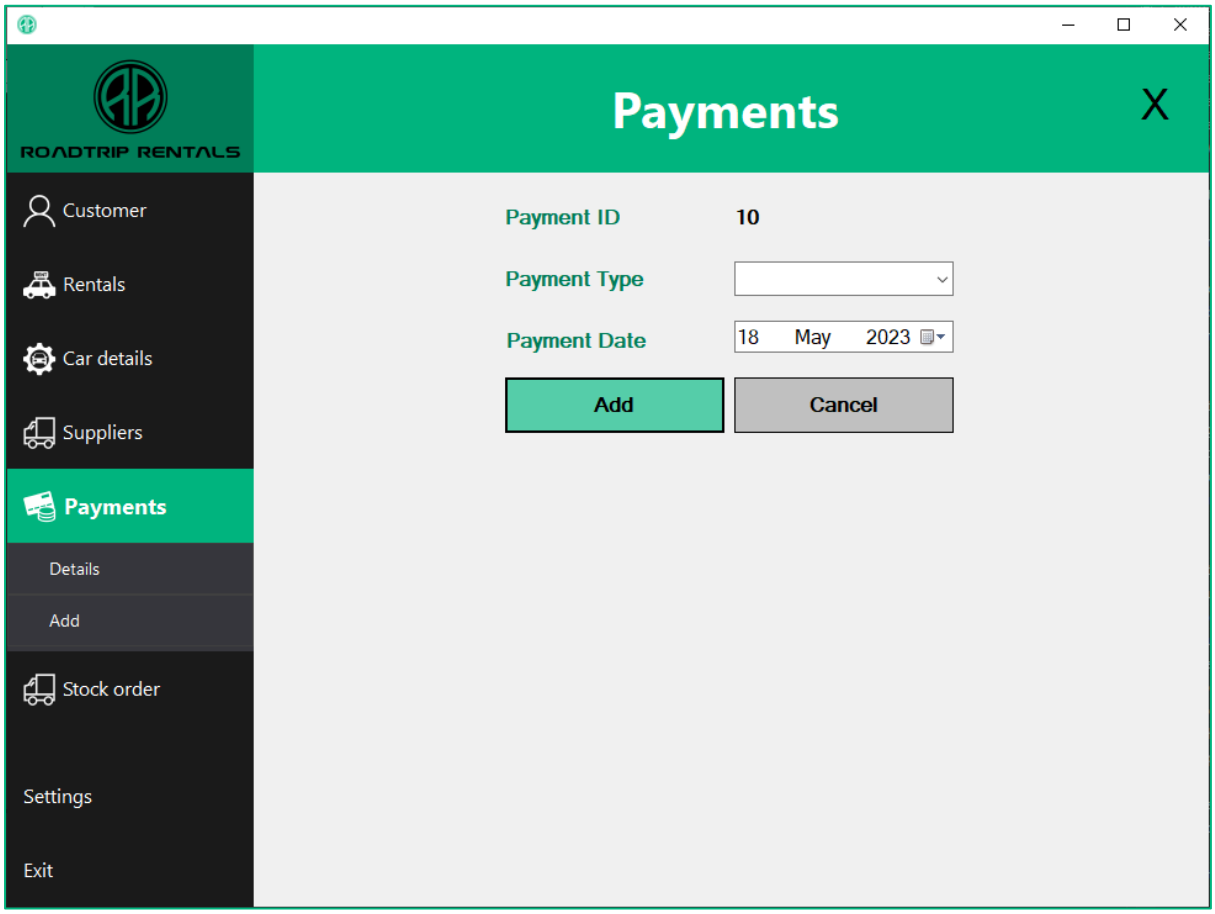
Payments menu which displays the database containing each of the payments. Can navigate to the add and edit forms from here which will replace the panel with the relevant form. Edit and Delete will only work if a row has been selected. The close sub form button also becomes visible, as an extra option to reset back to the main menu.

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

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmMainPayments : Form
  {
    SqlDataAdapter daPayments, daPaymentss;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBPayments;
    SqlCommand cmdPaymentsDetails;
    DataRow drPayments;
    SqlConnection conn;
    String connStr, sqlPayments, sqlPaymentsDetails;
    int selectedTab = 0;
    bool custSelected = false;
    int custNoSelected = 0;
```

```
    private void frmMainPayments_Load(object sender, EventArgs e)
    {
      // TODO: This line of code loads data into the 'roadTripRentalsDataSet.PaymentType' table. You can move, or remove it, as needed.
      connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

      sqlPayments = @"select * from PaymentType";
      daPayments = new SqlDataAdapter(sqlPayments, connStr);
      cmdBPayments = new SqlCommandBuilder(daPayments);
      daPayments.FillSchema(dsRoadTripRentals, SchemaType.Source, "PaymentType");
      daPayments.Fill(dsRoadTripRentals, "PaymentType");

      dgvPayments.DataSource = dsRoadTripRentals.Tables["PaymentType"];

      //Resize the DataGridView columns to fit the newly loaded content.
      dgvPayments.AutoResizeColumns(DataGridViewAutoSizeColumnsMode.AllCells);

      //btnDelPayments.Click += btnDelPayments_Click;
    }

    public delegate void OpenSubFormRequestHandler(Form subForm);
    public event OpenSubFormRequestHandler OpenSubFormRequest;

    private void btnDelPayments_Click(object sender, EventArgs e)
    {
      if (dgvPayments.SelectedRows.Count > 0)
      {
        int PaymentID = Convert.ToInt32(dgvPayments.SelectedRows[0].Cells["PaymentID"].Value);

        // Ask for confirmation before deleting the Payment
        DialogResult result = MessageBox.Show("Are you sure you want to delete the selected Payment type?", "Confirm Delete",
MessageBoxButtons.YesNo, MessageBoxIcon.Warning);

        if (result == DialogResult.Yes)
        {
          // Find the Payment in the dataset using LINQ
          DataRow PaymentRow = dsRoadTripRentals.Tables["PaymentType"].AsEnumerable().SingleOrDefault(row => row.Field<int>("PaymentID") ==
PaymentID);

          if (PaymentRow != null)
          {
            // Delete the Payment from the dataset and update the database
            PaymentRow.Delete();
            daPayments.Update(dsRoadTripRentals, "PaymentType");

            MessageBox.Show("Payment type Deleted");
          }
          else
          {
            MessageBox.Show("Payment type not found.");
          }
        }
      }
      else
      {
        MessageBox.Show("Please select a Payment type to delete.");
      }
    }



    private void btnEditPayments_Click(object sender, EventArgs e)
    {
      if (dgvPayments.SelectedRows.Count > 0)
      {
        int PaymentID = Convert.ToInt32(dgvPayments.SelectedRows[0].Cells["PaymentID"].Value);

        // Assuming dsRoadTripRentals is accessible from this method
        DataRow[] rows = dsRoadTripRentals.Tables["PaymentType"].Select($"PaymentID = {PaymentID}");

        if (rows.Length > 0)
        {
          frmEditPayments newSubForm = new frmEditPayments(rows[0]);
          OpenSubFormInPanel(newSubForm);
        }
        else
        {
          MessageBox.Show("No corresponding data found.");
        }
      }
      else
```

```
        {
            MessageBox.Show("Please select a Payment type to edit.");
        }
    }



    public frmMainPayments()
    {
        InitializeComponent();
    }

    private void btnAddPayments_Click(object sender, EventArgs e)
    {
        frmAddPayments addPaymentsForm = new frmAddPayments();
        OpenSubFormInPanel(addPaymentsForm);
    }

    private void OpenSubFormInPanel(Form subForm)
    {
        subForm.TopLevel = false;
        subForm.FormBorderStyle = FormBorderStyle.None;
        subForm.Dock = DockStyle.Fill;

        // Replace 'panel1' with the name of the Panel control in your main form.
        panelSub.Controls.Clear();
        panelSub.Controls.Add(subForm);

        subForm.Show();
    }


  }


}
```

Add Payments

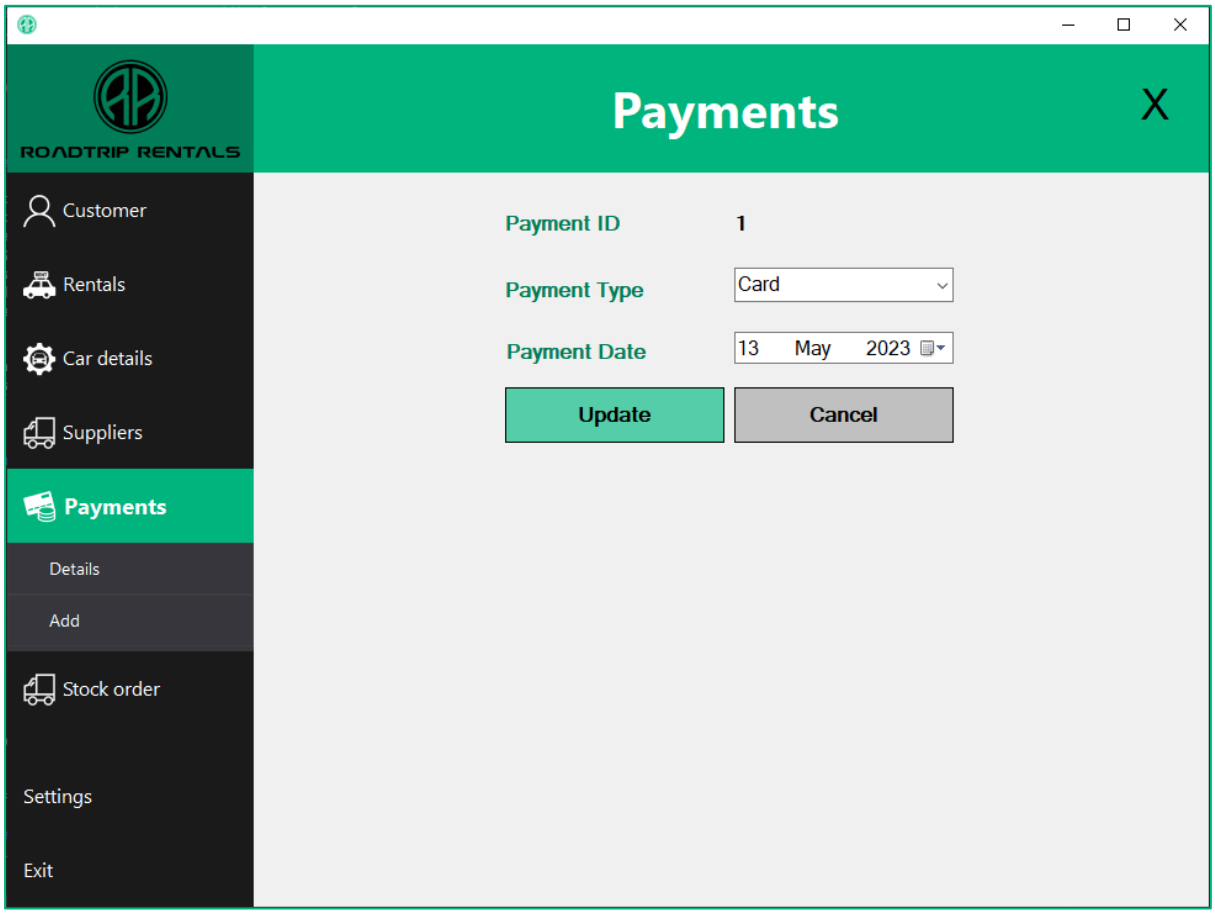



```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Data.SqlClient;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmAddPayments : Form
  {
    SqlDataAdapter daPayments, daRental, daPaymentss;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBPayments, cmdBRental;
    SqlCommand cmdPaymentsDetails ;
    DataRow drPayments;
    SqlConnection conn;
    String connStr, sqlPayments, sqlRental, sqlPaymentsDetails;
    int selectedTab = 0;
    bool custSelected = false;
    int custNoSelected = 0;


    public frmAddPayments()
    {
      InitializeComponent();
    }


    private void frmAddPayments_Load(object sender, EventArgs e)
    {
      // TODO: This line of code loads data into the 'roadTripRentalsDataSet.Payments' table. You can move, or remove it, as needed.
      connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";
```

```
    sqlPayments = @"select * from PaymentType";
    daPayments = new SqlDataAdapter(sqlPayments, connStr);
    cmdBPayments = new SqlCommandBuilder(daPayments);
    daPayments.FillSchema(dsRoadTripRentals, SchemaType.Source, "PaymentType");
    daPayments.Fill(dsRoadTripRentals, "PaymentType");

    int noRows = dsRoadTripRentals.Tables["PaymentType"].Rows.Count;

    // Rental table
    sqlRental = @"select * from Rental";
    daRental = new SqlDataAdapter(sqlRental, connStr);
    cmdBRental = new SqlCommandBuilder(daRental);
    daRental.FillSchema(dsRoadTripRentals, SchemaType.Source, "Rental");
    daRental.Fill(dsRoadTripRentals, "Rental");


    if (noRows == 0)
        txtPaymentID.Text = "10000";
    else
    {
        getNumber();
    }
}

public class MyPayments
{
    public int PaymentID { get; set; }
    public string PaymentType { get; set; }

    public DateTime PaymentDate { get; set; }
}

private void btnAddAdd_Click(object sender, EventArgs e)
{
    MyPayments myPayments = new MyPayments();
    bool ok = true;
    errP.Clear();

    // PaymentID
    try
    {
        myPayments.PaymentID = Convert.ToInt32(txtPaymentID.Text.Trim());
        // drPayments["PaymentID"] = myPayments.PaymentID; // Remove this line
    }
    catch (Exception ex)
    {
        ok = false;
        errP.SetError(txtPaymentID, ex.Message);
    }

    // PaymentType
    try
    {
        myPayments.PaymentType = cmbPaymentType.Text.Trim(); // NumericUpDown.Value returns a decimal
    }
    catch (Exception ex)
    {
        ok = false;
        errP.SetError(cmbPaymentType, ex.Message);
    }



    if (ok)
    {
        DataRow drPayments = dsRoadTripRentals.Tables["PaymentType"].NewRow();

        drPayments["PaymentID"] = myPayments.PaymentID;
        drPayments["PaymentType"] = myPayments.PaymentType;


        // PaymentID is auto-incremented in the database, so no need to set it here

        try
        {
            dsRoadTripRentals.Tables["PaymentType"].Rows.Add(drPayments);
            daPayments.Update(dsRoadTripRentals, "PaymentType");

            // If no exceptions are thrown, show the "Rental Cost Added" message
            MessageBox.Show("Rental Cost Added");
```

```
            if (MessageBox.Show("Do you wish to add another payment?", "Add Rental Cost", MessageBoxButtons.YesNo) ==
System.Windows.Forms.DialogResult.Yes)
            {
              clearAddForm();
              getNumber();
            }
            else
            {
              frmMainPayments newSubForm = new frmMainPayments();
              OpenSubFormInPanel(newSubForm);
            }
          }
          catch (Exception ex)
          {
            MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!", MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
          }
        }
      }


        private void btnAddCancel_Click(object sender, EventArgs e)
      {
        frmMainPayments newSubForm = new frmMainPayments();
        OpenSubFormInPanel(newSubForm);
      }


      void clearAddForm()
      {
        cmbPaymentType.SelectedIndex = -1;
      }


      private void getNumber()
      {
        try
        {
          using (SqlConnection conn = new SqlConnection(connStr))
          {
            conn.Open();
            SqlCommand cmd = new SqlCommand("SELECT MAX(PaymentID) FROM PaymentType", conn);
            int maxPaymentID = (int)cmd.ExecuteScalar();
            txtPaymentID.Text = (maxPaymentID + 1).ToString();
            conn.Close();
          }
        }
        catch (Exception ex)
        {
          MessageBox.Show("Error fetching the next PaymentID: " + ex.Message);
        }
      }



      private void OpenSubFormInPanel(Form subForm)
      {
        subForm.TopLevel = false;
        subForm.FormBorderStyle = FormBorderStyle.None;
        subForm.Dock = DockStyle.Fill;

        // Replace 'panel1' with the name of the Panel control in your main form.
        panelSub.Controls.Clear();
        panelSub.Controls.Add(subForm);

        subForm.Show();
      }
    }
  }
```

Edit Payments



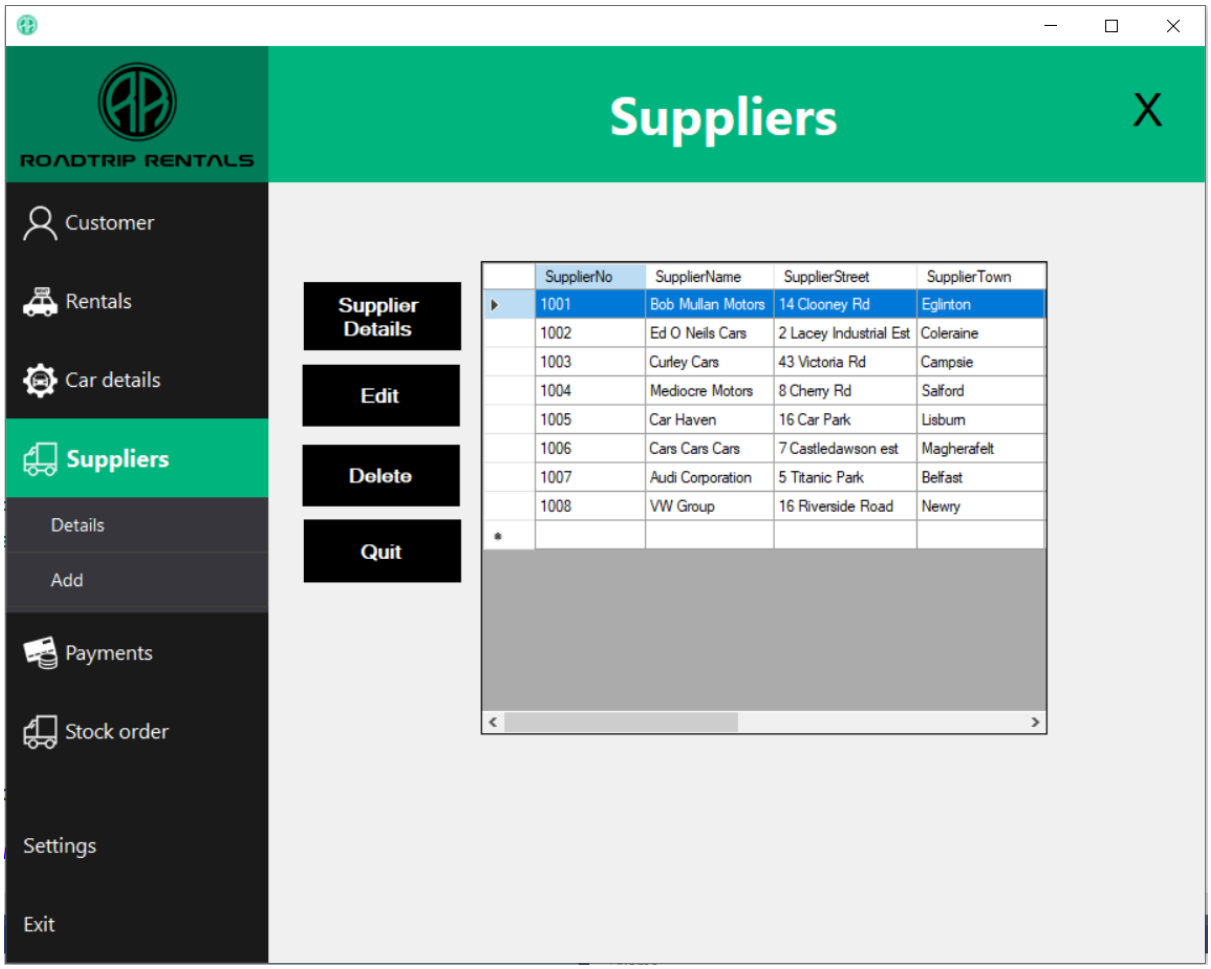

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Data.SqlClient;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace RoadTripRentals.Forms.Jordan
{
  public partial class frmEditPayments : Form
  {
    SqlDataAdapter daPayments, daPaymentss;
    DataSet dsRoadTripRentals = new DataSet();
    SqlCommandBuilder cmdBPayments;
    SqlCommand cmdPaymentsDetails;
    DataRow drPayments;
    SqlConnection conn;
    String connStr, sqlPayments, sqlPaymentsDetails;
    int selectedTab = 0;
    bool custSelected = false;
    int custNoSelected = 0;

    DataRow selectedRow;


    public frmEditPayments(DataRow row)
    {
      InitializeComponent();
      selectedRow = row;
    }


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

```
    // TODO: This line of code loads data into the 'roadTripRentalsDataSet.Payments' table. You can move, or remove it, as needed.
    connStr = @"Data Source = DESKTOP-ASEMACC\INTHEDOGHOUSE; Initial Catalog = RoadTripRentals; Integrated Security = true";

    sqlPayments = @"select * from PaymentType";
    daPayments = new SqlDataAdapter(sqlPayments, connStr);
    cmdBPayments = new SqlCommandBuilder(daPayments);
    daPayments.FillSchema(dsRoadTripRentals, SchemaType.Source, "PaymentType");
    daPayments.Fill(dsRoadTripRentals, "PaymentType");

    int noRows = dsRoadTripRentals.Tables["PaymentType"].Rows.Count;

    if (noRows == 0)
        txtPaymentID.Text = "10000";
    else
    {
        getNumber();
    }

    if (selectedRow != null)
    {
        txtPaymentID.Text = selectedRow["PaymentID"].ToString();
        cmbPaymentType.Text = selectedRow["PaymentType"].ToString();
    }



}

public class MyPayments
{
    public int PaymentID { get; set; }
    public string PaymentType { get; set; }
    public DateTime PaymentDate { get; set; }
}

private void btnEditUpdate_Click(object sender, EventArgs e)
{
    MyPayments myPayments = new MyPayments();
    bool ok = true;
    errP.Clear();

    // PaymentID
    try
    {
        myPayments.PaymentID = Convert.ToInt32(txtPaymentID.Text.Trim());
    }
    catch (Exception ex)
    {
        ok = false;
        errP.SetError(txtPaymentID, ex.Message);
    }

    // PaymentType
    try
    {
        myPayments.PaymentType = cmbPaymentType.Text.Trim();
    }
    catch (Exception ex)
    {
        ok = false;
        errP.SetError(cmbPaymentType, ex.Message);
    }


    if (ok)
    {
        // First, find the row in the datatable
        DataRow[] foundRows = dsRoadTripRentals.Tables["PaymentType"].Select("PaymentID = " + myPayments.PaymentID);

        // If the row was found, update it
        if (foundRows.Length > 0)
        {
            foundRows[0]["PaymentType"] = myPayments.PaymentType;

            try
            {
                daPayments.Update(dsRoadTripRentals, "PaymentType");

                // If no exceptions are thrown, show the "Payment Updated" message
                MessageBox.Show("Payment Updated");
```

```
                frmMainPayments newSubForm = new frmMainPayments();
                OpenSubFormInPanel(newSubForm);
            }
            catch (Exception ex)
            {
                MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!", MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
            }
        }
    }
}


    private void btnAddCancel_Click(object sender, EventArgs e)
    {
        frmMainPayments newSubForm = new frmMainPayments();
        OpenSubFormInPanel(newSubForm);
    }


    void clearAddForm()
    {
        cmbPaymentType.SelectedIndex = -1;
    }


    private void getNumber()
    {
        try
        {
            using (SqlConnection conn = new SqlConnection(connStr))
            {
                conn.Open();
                SqlCommand cmd = new SqlCommand("SELECT MAX(PaymentID) FROM PaymentType", conn);
                int maxPaymentID = (int)cmd.ExecuteScalar();
                txtPaymentID.Text = (maxPaymentID + 1).ToString();
                conn.Close();
            }
        }
        catch (Exception ex)
        {
            MessageBox.Show("Error fetching the next PaymentID: " + ex.Message);
        }
    }


    private void OpenSubFormInPanel(Form subForm)
    {
        subForm.TopLevel = false;
        subForm.FormBorderStyle = FormBorderStyle.None;
        subForm.Dock = DockStyle.Fill;

        // Replace 'panel1' with the name of the Panel control in your main form.
        panelSub.Controls.Clear();
        panelSub.Controls.Add(subForm);

        subForm.Show();
    }
  }
}
```

David Forms

Suppliers Main



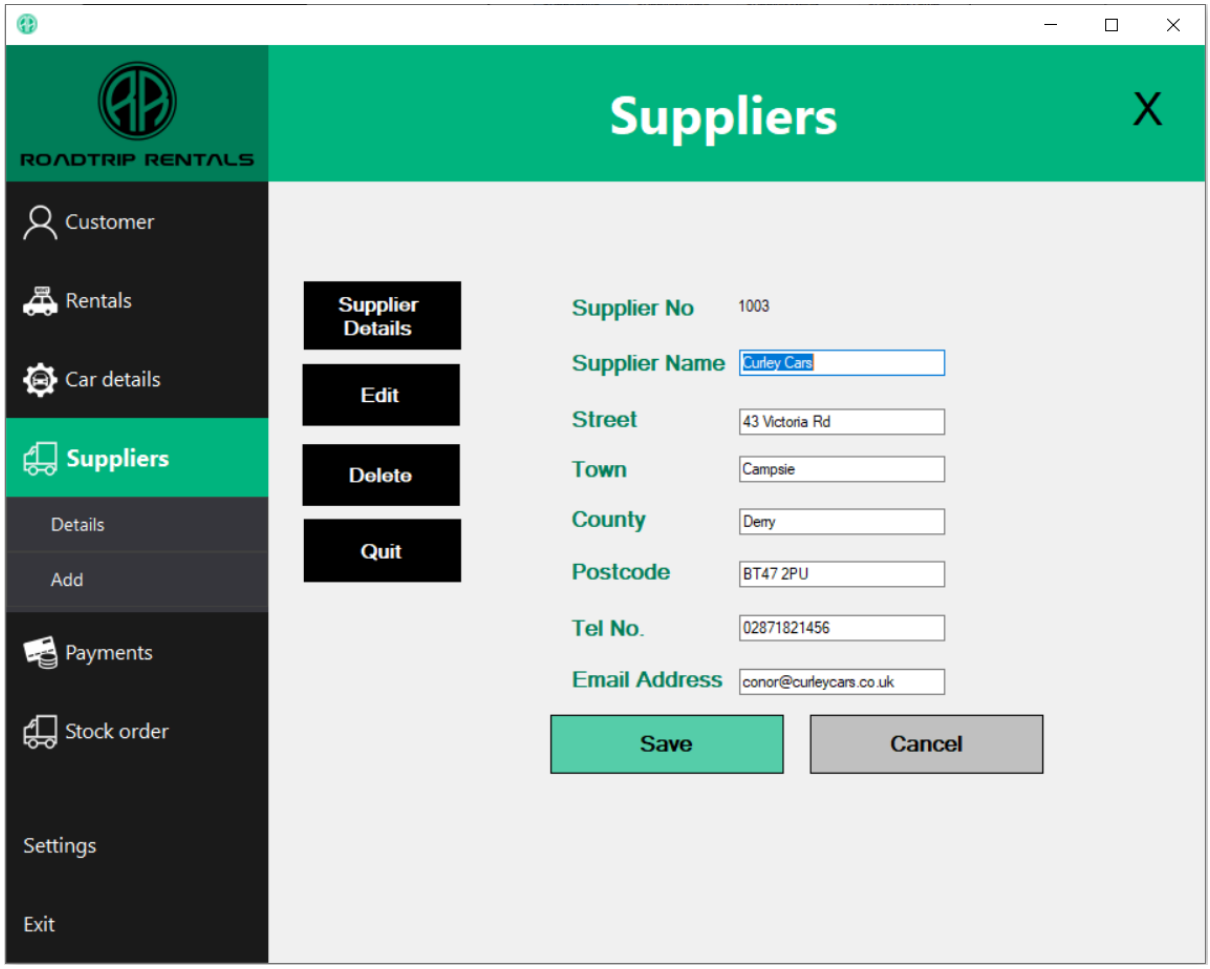
Click on the Suppliers button on the side panel will display 2 options – Details and Add. when clicking on the Details option the above screen will appear on the main panel, Supplier Details button will display the list of suppliers in a data grid view, the edit button will display the details of the current highlighted supplier in the data grid view in a new form to amend and save. The Delete button will display a data grid view and allow the user to select a supplier and click delete to remove from the database. The quit will close the form and return the user to the main menu, the 'X' in the top right will also do the same.

```
public partial class frmSupplierMain : Form
    {
        int noMenuItems = 0;
        Label[] menuItems;

        public delegate void OpenSubFormRequestHandler(Form subForm);
        public event OpenSubFormRequestHandler OpenSubFormRequest;

        public frmSupplierMain()
        {
            InitializeComponent();
        }
```

```
private void frmSupplierMain_Load(object sender, EventArgs e)
{
    frmDisplaySupplier frm1 = new frmDisplaySupplier();
    frm1.TopLevel = false;
    frm1.FormBorderStyle = FormBorderStyle.None;
    frm1.WindowState = FormWindowState.Maximized;
    pnlMain.Controls.Add(frm1);
    frm1.Show();
}

private void lblDisplaySupplierDet_Click(object sender, EventArgs e)
{
    int startIndex = 0;
    Label lbl = (Label)sender;

    MyGlobals.frmClosing = false;
    MyGlobals.frmEditForm = false;

    startIndex = Convert.ToInt32(lbl.Tag.ToString().Substring(1, 1));

        switch (startIndex)
        {
            case 1:
                frmDisplaySupplier frm1 = new frmDisplaySupplier();
                frm1.TopLevel = false;
                frm1.FormBorderStyle = FormBorderStyle.None;
                frm1.WindowState = FormWindowState.Maximized;
                pnlMain.Controls.Add(frm1);
                frm1.Show();
                break;
            case 2:
                frmAddSupplier frm2 = new frmAddSupplier();
                frm2.TopLevel = false;
                frm2.FormBorderStyle = FormBorderStyle.None;
                frm2.WindowState = FormWindowState.Maximized;
                pnlMain.Controls.Add(frm2);
                frm2.Show();
                break;
            case 3:
                break;
            case 4:
                frmDeleteSupplier frm4 = new frmDeleteSupplier();
                frm4.TopLevel = false;
                frm4.FormBorderStyle = FormBorderStyle.None;
                frm4.WindowState = FormWindowState.Maximized;
                pnlMain.Controls.Add(frm4);
                frm4.Show();
                break;
            case 5:
                this.Close();
                break;
        }

}


private void lblSupplierQuit_Click(object sender, EventArgs e)
{
    Close();
}

private void lblSupplierEdit_Click(object sender, EventArgs e)
{
    if (MyGlobals.selectedSupplierNo != 0)
    {
```

```
                frmEditSupplier frm3 = new frmEditSupplier();
                frm3.TopLevel = false;
                frm3.FormBorderStyle = FormBorderStyle.None;
                frm3.WindowState = FormWindowState.Maximized;
                pnlMain.Controls.Add(frm3);
                frm3.Show();
            }
            else
                MessageBox.Show("No Supplier selected for edit!", "Select a
Supplier");
        }
    }
```

Edit Supplier



Edit supplier allows user to update existing supplier details, text boxes were used for each field with validation behind each as shown in the code below.

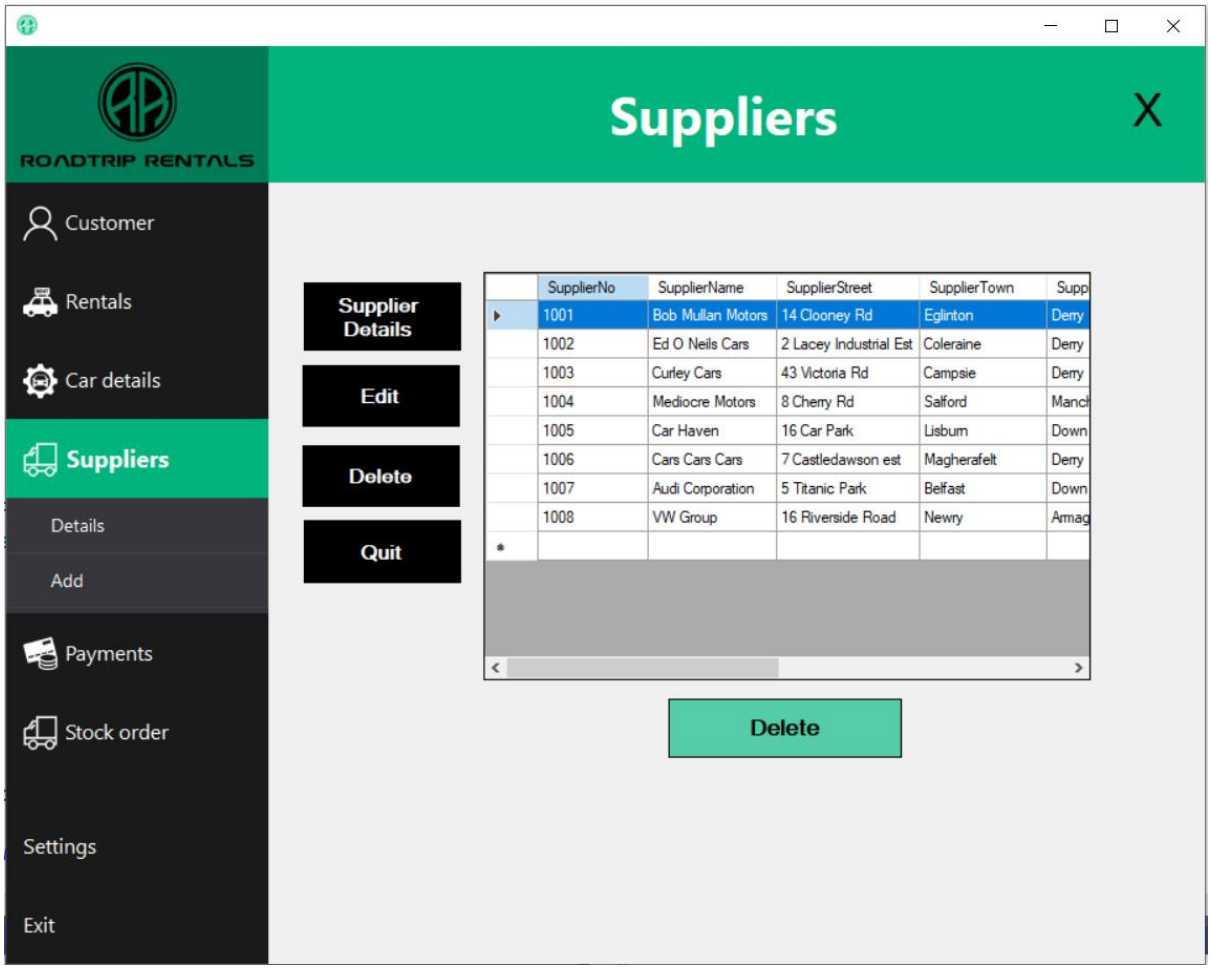
```
public partial class frmEditSupplier : Form
    {
```

```
        SqlDataAdapter daSupplier;
        DataSet dsRoadTripRentals = new DataSet();
        SqlCommandBuilder cmdBSupplier;
        DataRow drSupplier;
        String connStr, sqlSupplier;

        public frmEditSupplier()
        {
            InitializeComponent();
        }

        private void frmEditSupplier_FormClosing(object sender, FormClosingEventArgs
e)
        {
            MyGlobals.frmClosing = true;
        }

        private void btnEditEdit_Click(object sender, EventArgs e)
        {
            if (btnEditSupplier.Text == "Edit")
            {
                txtSupplierName.Enabled = true;
                txtStreet.Enabled = true;
                txtTown.Enabled = true;
                txtCounty.Enabled = true;
                txtPostcode.Enabled = true;
                txtTelNo.Enabled = true;
                txtEmail.Enabled = true;

                btnEditSupplier.Text = "Save";
            }
            else
            {
                MySupplier mySupplier = new MySupplier();
                bool ok = true;
                errP.Clear();

                try
                {
                    mySupplier.SupplierNo =
Convert.ToInt32(lblSupplierNoValue.Text.Trim());
                }
                catch (MyException MyEx)
                {
                    ok = false;
                    errP.SetError(lblSupplierNoValue, MyEx.validate());
                }

                try
                {
                    mySupplier.SupplierName = txtSupplierName.Text.Trim();
                }
                catch (MyException MyEx)
                {
                    ok = false;

                    errP.SetError(txtSupplierName, MyEx.validate());
                }

                try
                {
                    mySupplier.Street = txtStreet.Text.Trim();
                }
                catch (MyException MyEx)
                {
                    ok = false;
```

```
    errP.SetError(txtStreet, MyEx.validate());
}


try
{
    mySupplier.Town = txtTown.Text.Trim();
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtTown, MyEx.validate());
}

try
{
    mySupplier.County = txtCounty.Text.Trim();
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtCounty, MyEx.validate());
}


try
{
    mySupplier.Postcode = txtPostcode.Text.Trim();
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtPostcode, MyEx.validate());
}

try
{
    mySupplier.SupplierTelNo = txtTelNo.Text.Trim();
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtTelNo, MyEx.validate());
}

try
{
    mySupplier.SupplierEmail = txtEmail.Text.Trim();
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtEmail, MyEx.validate());
}


try
{
    if (ok)
    {
        drSupplier.BeginEdit();

        drSupplier["SupplierNo"] = mySupplier.SupplierNo;
        drSupplier["SupplierName"] = mySupplier.SupplierName;
        drSupplier["SupplierStreet"] = mySupplier.Street;
        drSupplier["SupplierTown"] = mySupplier.Town;
```

```
                        drSupplier["SupplierCounty"] = mySupplier.County;
                        drSupplier["SupplierPostCode"] = mySupplier.Postcode;
                        drSupplier["SupplierTelNo"] = mySupplier.SupplierTelNo;
                        drSupplier["SupplierEmail"] = mySupplier.SupplierEmail;

                        drSupplier.EndEdit();
                        daSupplier.Update(dsRoadTripRentals, "Supplier");

                        MessageBox.Show("Supplier Details Updated", "Supplier");

                        txtSupplierName.Enabled = false;
                        txtStreet.Enabled = false;
                        txtTown.Enabled = false;
                        txtCounty.Enabled = false;
                        txtPostcode.Enabled = false;
                        txtTelNo.Enabled = false;
                        txtEmail.Enabled = false;

                        btnEditSupplier.Text = "Edit";
                    }
                }
                catch (Exception ex)
                {
                    MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!",
MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
                }
            }
        }

        private void btnEditCancel_Click(object sender, EventArgs e)
        {
            if (MessageBox.Show("Cancel the edit of Supplier No: " +
lblSupplierNoValue.Text + "?", "Edit Supplier", MessageBoxButtons.YesNo) ==
System.Windows.Forms.DialogResult.Yes)
                Close();
        }

        private void frmEditSupplier_Load(object sender, EventArgs e)
        {
            connStr = @"Data Source = .\sqlExpress; Initial Catalog =
RoadTripRentals; Integrated Security = true";

            sqlSupplier = @"select * from Supplier";
            daSupplier = new SqlDataAdapter(sqlSupplier, connStr);
            cmdBSupplier = new SqlCommandBuilder(daSupplier);
            daSupplier.FillSchema(dsRoadTripRentals, SchemaType.Source, "Supplier");
            daSupplier.Fill(dsRoadTripRentals, "Supplier");

            lblSupplierNoValue.Text = MyGlobals.selectedSupplierNo.ToString();

            drSupplier =
dsRoadTripRentals.Tables["Supplier"].Rows.Find(lblSupplierNoValue.Text);

            txtSupplierName.Text = drSupplier["SupplierName"].ToString();
            txtStreet.Text = drSupplier["SupplierStreet"].ToString();
            txtTown.Text = drSupplier["SupplierTown"].ToString();
            txtCounty.Text = drSupplier["SupplierCounty"].ToString();
            txtPostcode.Text = drSupplier["SupplierPostCode"].ToString();
            txtTelNo.Text = drSupplier["SupplierTelNo"].ToString();
            txtEmail.Text = drSupplier["SupplierEmail"].ToString();
        }
    }
```

Delete Supplier

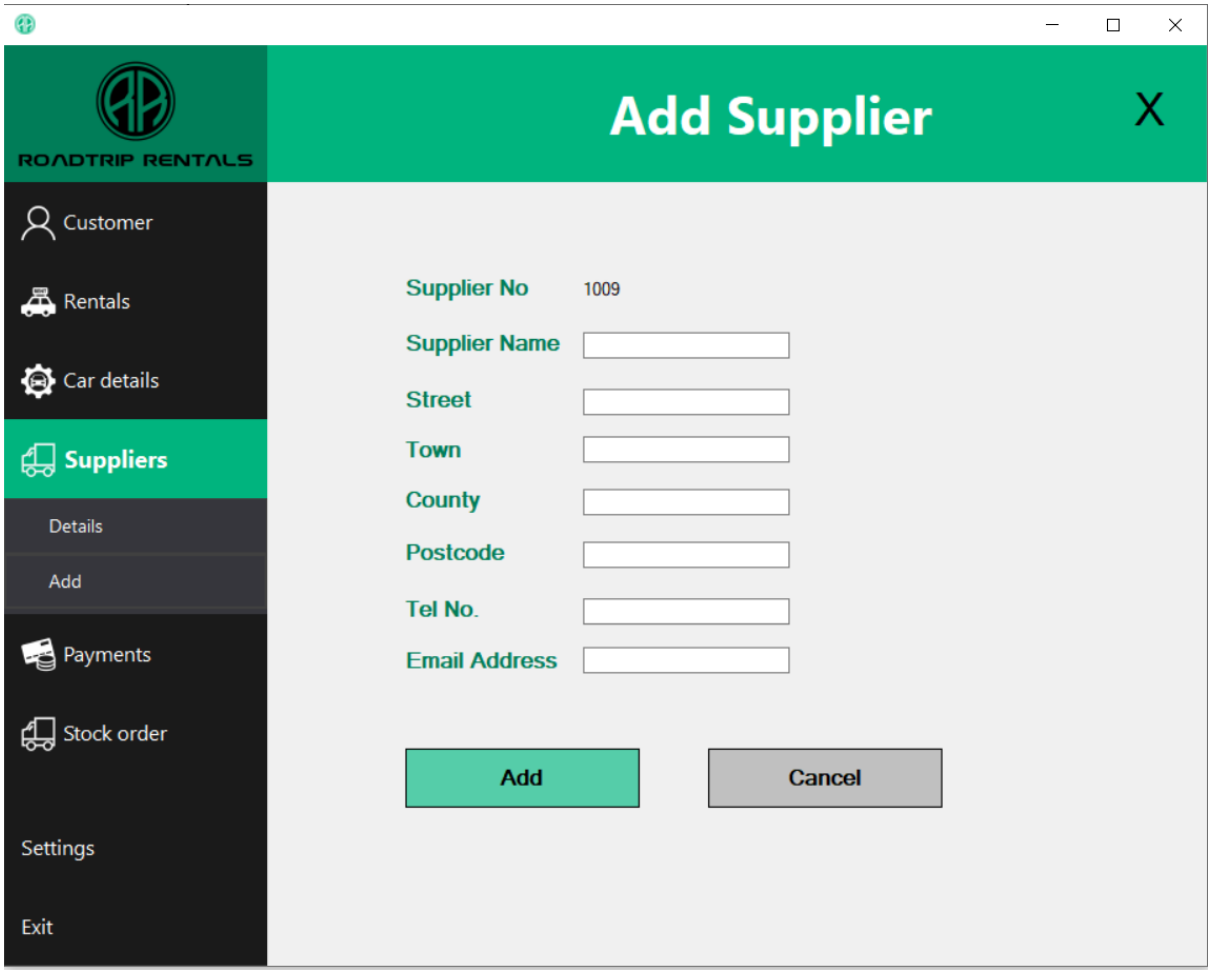


Delete supplier will load a separate data grid view and allow the user to select a supplier and press the delete button with a confirmation message appearing to confirm the deletion.

```
public partial class frmDeleteSupplier : Form
    {
        SqlDataAdapter daSupplier;
        DataSet dsRoadTripRentals = new DataSet();
        SqlCommandBuilder cmdBSupplier;
        DataRow drSupplier;
        String connStr, sqlSupplier;

        public frmDeleteSupplier()
        {
            InitializeComponent();
        }



        private void btnDelete_Click(object sender, EventArgs e)
        {
            if (dgvSupplier.SelectedRows.Count == 0)
            {
                MessageBox.Show("Please select a supplier from the list.", "Select
Supplier");
            }
            else
            {
```

```
                drSupplier =
dsRoadTripRentals.Tables["Supplier"].Rows.Find(dgvSupplier.SelectedRows[0].Cells[0].V
alue);

                string tempName = drSupplier["SupplierName"].ToString();

                if (MessageBox.Show("Are you sure you want to delete supplier " +
tempName + "?", "Delete Supplier", MessageBoxButtons.YesNo) ==
System.Windows.Forms.DialogResult.Yes)
                {
                    drSupplier.Delete();
                    daSupplier.Update(dsRoadTripRentals, "Supplier");
                }
            }
        }

        private void frmDeleteSupplier_FormClosing(object sender,
FormClosingEventArgs e)
        {
            MyGlobals.frmClosing = true;

        }

        private void frmDeleteSupplier_Load(object sender, EventArgs e)
        {
            connStr = @"Data Source = .\sqlExpress; Initial Catalog =
RoadTripRentals; Integrated Security = true";

            sqlSupplier = @"select * from Supplier";
            daSupplier = new SqlDataAdapter(sqlSupplier, connStr);
            cmdBSupplier = new SqlCommandBuilder(daSupplier);
            daSupplier.FillSchema(dsRoadTripRentals, SchemaType.Source, "Supplier");
            daSupplier.Fill(dsRoadTripRentals, "Supplier");

            dgvSupplier.DataSource = dsRoadTripRentals.Tables["Supplier"];

            dgvSupplier.AutoResizeColumns(DataGridViewAutoSizeColumnsMode.AllCells);
        }
    }
}
```

Add Supplier



Clicking on the Add button on the side panel in the Suppliers sub menu will display the Add Supplier form, it has identical validation to the Edit Supplier form only it will add a new row to the database instead of editing an existing row. The cancel button will close the form once the pop-up message is confirmed

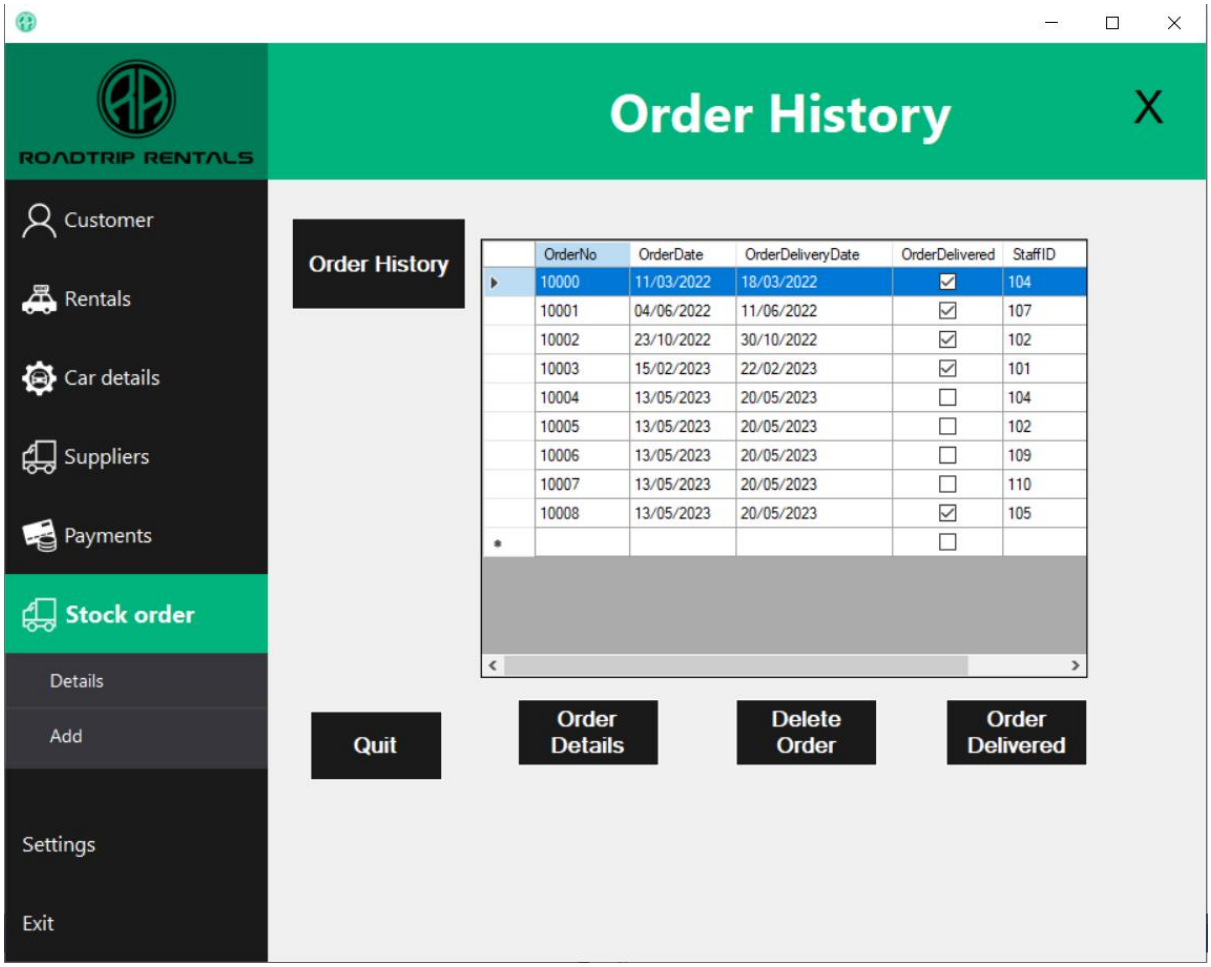
```
        private void frmAddSupplier_Load(object sender, EventArgs e)
        {
            connStr = @"Data Source = .\sqlExpress; Initial Catalog =
RoadTripRentals; Integrated Security = true";

            sqlSupplier = @"select * from Supplier";
            daSupplier = new SqlDataAdapter(sqlSupplier, connStr);
            cmdBSupplier = new SqlCommandBuilder(daSupplier);
            daSupplier.FillSchema(dsRoadTripRentals, SchemaType.Source, "Supplier");
            daSupplier.Fill(dsRoadTripRentals, "Supplier");

            int noRows = dsRoadTripRentals.Tables["Supplier"].Rows.Count;

            if (noRows == 0)
                lblSupplierNoValue.Text = "1001";
            else
            {
                getNumber(noRows);
            }
```

```
            errP.Clear();
            clearAddForm();
        }

        private void getNumber(int noRows)
        {
            drSupplier = dsRoadTripRentals.Tables["Supplier"].Rows[noRows - 1];
            lblSupplierNoValue.Text = (int.Parse(drSupplier["SupplierNo"].ToString())
+ 1).ToString();
        }

        void clearAddForm()
        {
            txtSupplierName.Clear();
            txtStreet.Clear();
            txtTown.Clear();
            txtCounty.Clear();
            txtPostcode.Clear();
            txtTelNo.Clear();
            txtEmail.Clear();
        }

        private void btnAddAdd_Click(object sender, EventArgs e)
        {
            MySupplier mySupplier = new MySupplier();
            bool ok = true;
            errP.Clear();

            try
            {
                mySupplier.SupplierNo =
Convert.ToInt32(lblSupplierNoValue.Text.Trim());
            }
            catch (MyException MyEx)
            {
                ok = false;
                errP.SetError(lblSupplierNoValue, MyEx.validate());
            }

            try
            {
                mySupplier.SupplierName = txtSupplierName.Text.Trim();
            }
            catch (MyException MyEx)
            {
                ok = false;
                errP.SetError(txtSupplierName, MyEx.validate());
            }


            try
            {
                mySupplier.Street = txtStreet.Text.Trim();
            }
            catch (MyException MyEx)
            {
                ok = false;
                errP.SetError(txtStreet, MyEx.validate());
            }


            try
            {
                mySupplier.Town = txtTown.Text.Trim();
            }
            catch (MyException MyEx)
```

```
{
    ok = false;
    errP.SetError(txtTown, MyEx.validate());
}


try
{
    mySupplier.County = txtCounty.Text.Trim();
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtCounty, MyEx.validate());
}


try
{
    mySupplier.Postcode = txtPostcode.Text.Trim();
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtPostcode, MyEx.validate());
}

try
{
    mySupplier.SupplierTelNo = txtTelNo.Text.Trim();
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtTelNo, MyEx.validate());
}

try
{
    mySupplier.SupplierEmail = txtEmail.Text.Trim();
}
catch (MyException MyEx)
{
    ok = false;
    errP.SetError(txtEmail, MyEx.validate());
}

try
{
    if (ok)
    {
        drSupplier = dsRoadTripRentals.Tables["Supplier"].NewRow();

        drSupplier["SupplierNo"] = mySupplier.SupplierNo;
        drSupplier["SupplierName"] = mySupplier.SupplierName;
        drSupplier["SupplierStreet"] = mySupplier.Street;
        drSupplier["SupplierTown"] = mySupplier.Town;
        drSupplier["SupplierCounty"] = mySupplier.County;
        drSupplier["SupplierPostCode"] = mySupplier.Postcode;
        drSupplier["SupplierTelNo"] = mySupplier.SupplierTelNo;
        drSupplier["SupplierEmail"] = mySupplier.SupplierEmail;

        dsRoadTripRentals.Tables["Supplier"].Rows.Add(drSupplier);
        daSupplier.Update(dsRoadTripRentals, "Supplier");

        MessageBox.Show("Supplier Added");
```

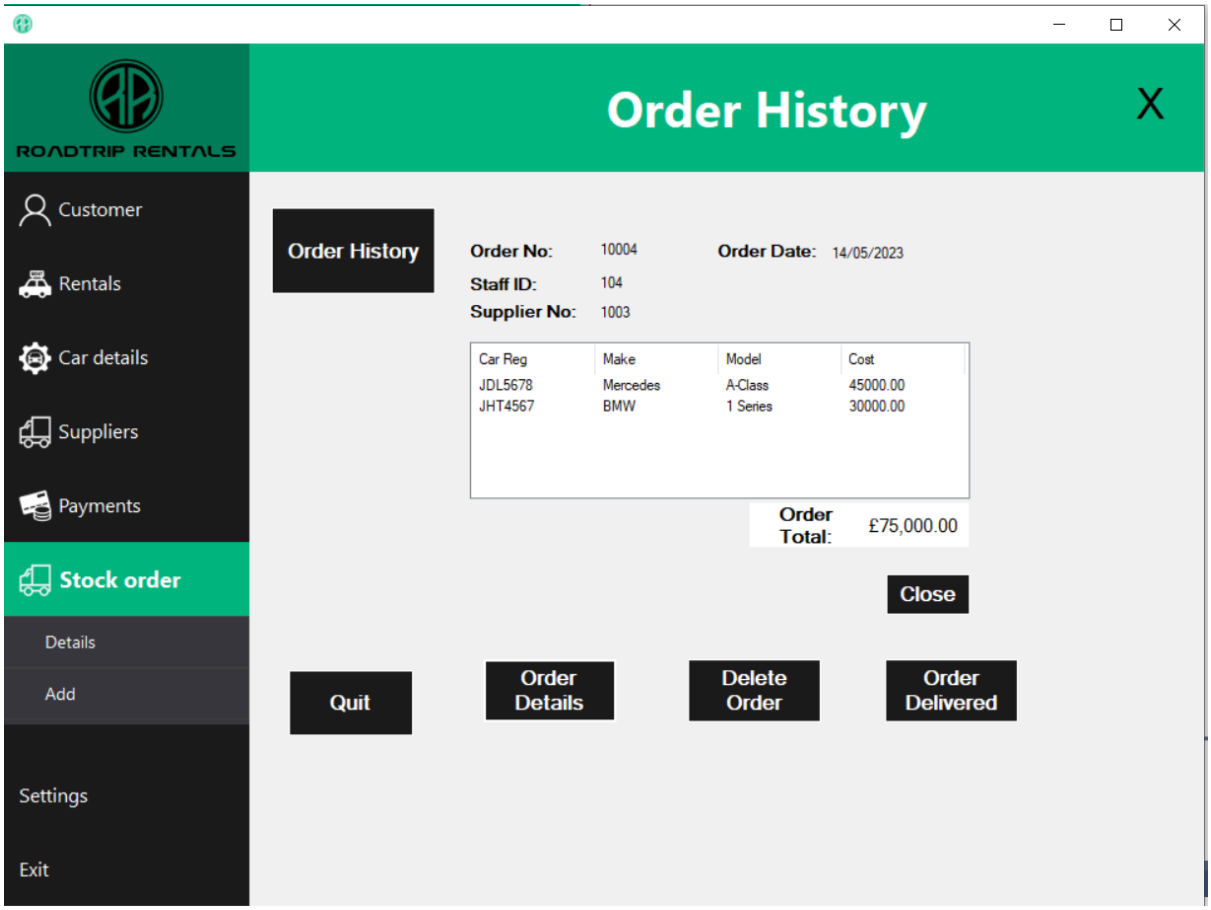
```
                    if (MessageBox.Show("Do you want to add another supplier?", "Add
Supplier", MessageBoxButtons.YesNo) == System.Windows.Forms.DialogResult.Yes)
                    {
                        clearAddForm();
                        getNumber(dsRoadTripRentals.Tables["Supplier"].Rows.Count);
                    }
                    else
                        Close();
                }
            }
            catch (Exception ex)
            {
                MessageBox.Show("" + ex.TargetSite + "" + ex.Message, "Error!",
MessageBoxButtons.AbortRetryIgnore, MessageBoxIcon.Error);
            }
        }

        private void frmAddSupplier_FormClosing(object sender, FormClosingEventArgs
e)
        {
            MyGlobals.frmClosing = true;
        }


        private void btnAddCancel_Click(object sender, EventArgs e)
        {
            if (MessageBox.Show("Cancel the addition of Supplier No: " +
lblSupplierNoValue.Text + "?", "Add Supplier", MessageBoxButtons.YesNo) ==
System.Windows.Forms.DialogResult.Yes)
                Close();
        }
    }
```

Stock Order



Clicking on the Stock order button will open the sub menu and display 2 options - Details and Add. Details will load up a data grid view with the order history, 3 buttons below the data grid view, Order Details will display the details of the selected order, Delete Order will delete the selected order from the database along with associated details. Order Delivered will confirm the cars have been received and update the Details into the Car Details table to be used for Rentals.

Order Details

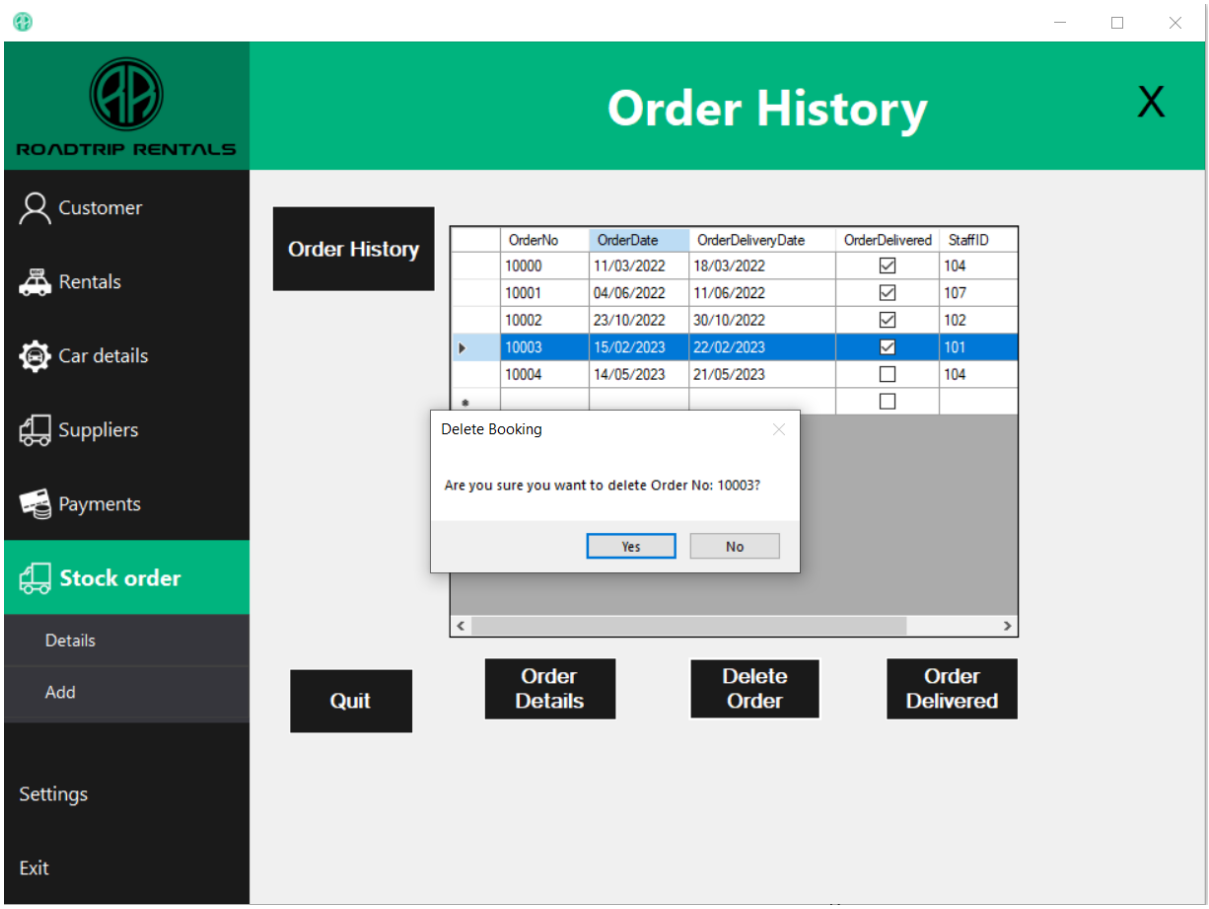


When the Order Details button is clicked on a selected row of the Order History, the data grid view is hidden and the order details information is made visible with labels showing all the details and a list view showing all the cars in the order with the overall cost. The close button will hide the order details and make the data grid view visible again.

```
private void btnOrderDetails_Click(object sender, EventArgs e)
        {
            //Hide data grid view
            dgvOrderHistory.Visible = false;

            //display order details
            lblOrderNo.Visible = true;
            lblOrderNoValue.Visible = true;
            lblOrderDate.Visible = true;
            lblOrderDateValue.Visible = true;
            lblStaffName.Visible = true;
            lblStaffNameValue.Visible = true;
            lblSupplier.Visible = true;
            lblSupplierValue.Visible = true;
            lvwOrderDetails.Visible = true;
            lblOrderTotal.Visible = true;
            lblOrderTotalValue.Visible = true;
            btnClose.Visible = true;

            //set up dataAdapter for Order Details in listview
            sqlOrderDetails = @"SELECT sso.OrderNo, sso.SupplierCarReg, ss.Price,
m.ModelDesc, m.Make
            FROM SupplierStockOrder sso
```

```
            INNER JOIN SupplierStock ss ON sso.SupplierCarReg = ss.SupplierCarReg
            INNER JOIN Model m ON ss.ModelID = m.ModelID
            WHERE sso.OrderNo = @OrderNo";

            cmdOrderDetails = new SqlCommand(sqlOrderDetails, conn);
            cmdOrderDetails.Parameters.AddWithValue("@OrderNo",
dgvOrderHistory.SelectedRows[0].Cells[0].Value.ToString());
            daOrderDetails = new SqlDataAdapter(cmdOrderDetails);
            DataTable orderDetails = new DataTable();
            daOrderDetails.Fill(orderDetails);


            if (dgvOrderHistory.SelectedRows.Count == 0)
                MessageBox.Show("Please select an order to view", "Order
Details");
            else
            {
                DataGridViewRow selectedRow = dgvOrderHistory.SelectedRows[0];

                //Get the orderNo from the row that is selected
                int orderNo = Convert.ToInt32(selectedRow.Cells[0].Value);
                drStockOrder =
dsRoadTripRentals.Tables["StockOrder"].Rows.Find(orderNo);

                lblOrderNoValue.Text = drStockOrder["OrderNo"].ToString();
                DateTime orderDate = (DateTime)drStockOrder["OrderDate"];
                lblOrderDateValue.Text = orderDate.ToString("d");
                lblStaffNameValue.Text = drStockOrder["StaffID"].ToString();
                lblSupplierValue.Text = drStockOrder["SupplierNo"].ToString();


                foreach (DataRow dr in orderDetails.Rows)
                {
                    ListViewItem item = new
ListViewItem(dr["SupplierCarReg"].ToString());
                    item.SubItems.Add(dr["Make"].ToString());
                    item.SubItems.Add(dr["ModelDesc"].ToString());

item.SubItems.Add(Convert.ToDecimal(dr["Price"]).ToString("0.00"));
                    lvwOrderDetails.Items.Add(item);

                    decimal carPrice = decimal.Parse(dr["Price"].ToString());
                    orderTotal += carPrice;

                }

                lblOrderTotalValue.Text = orderTotal.ToString("c");


            }
        }
```

Delete Order

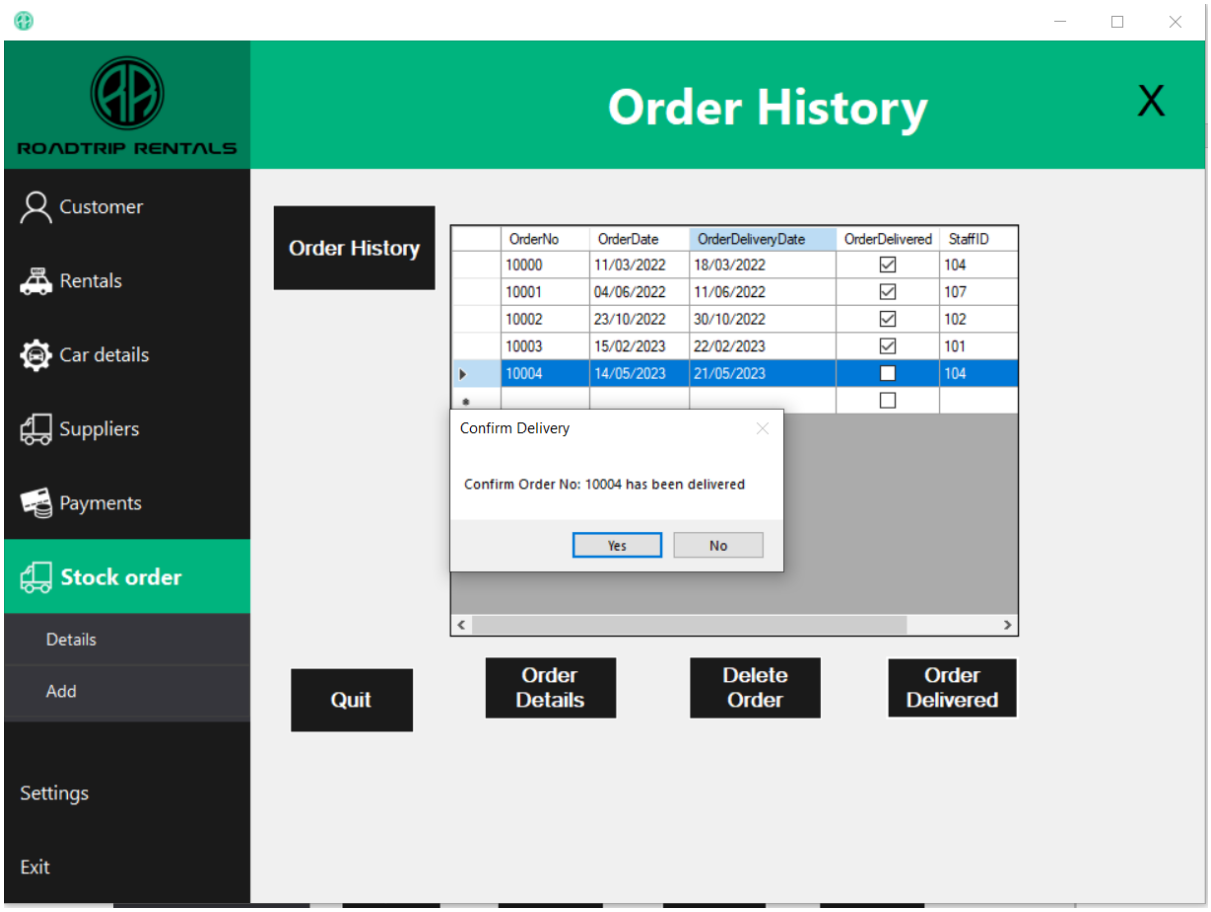


The Delete Order button will ask the user to confirm the deletion and then delete the selected row. The data in the SupplierStockOrder and StockOrder tables will then be deleted respectively.

```
private void btnDeleteOrder_Click(object sender, EventArgs e)
        {
            if (dgvOrderHistory.SelectedRows.Count != 0)
            {
                DataGridViewRow selectedRow = dgvOrderHistory.SelectedRows[0];

                int orderNo = Convert.ToInt32(selectedRow.Cells["OrderNo"].Value);

                if (MessageBox.Show("Are you sure you want to delete Order No: " +
orderNo + "?", "Delete Booking", MessageBoxButtons.YesNo) ==
System.Windows.Forms.DialogResult.Yes)
                {
                    foreach (DataRow row in
dsRoadTripRentals.Tables["SupplierStockOrder"].Rows)
                    {
                        int orderNoValue = Convert.ToInt32(row["OrderNo"]);

                        if (orderNoValue == orderNo)
                        {
                            row.Delete();
                        }
                    }

                    daOrderDetails.Update(dsRoadTripRentals, "SupplierStockOrder");
```

```
                    DataRow drStockOrder =
dsRoadTripRentals.Tables["StockOrder"].Rows.Find(orderNo);
                    drStockOrder.Delete();
                    daStockOrder.Update(dsRoadTripRentals, "StockOrder");

                }
            }
            else
                MessageBox.Show("Please select an order from the list to delete.",
"Delete Order");
        }
```

Order Delivered

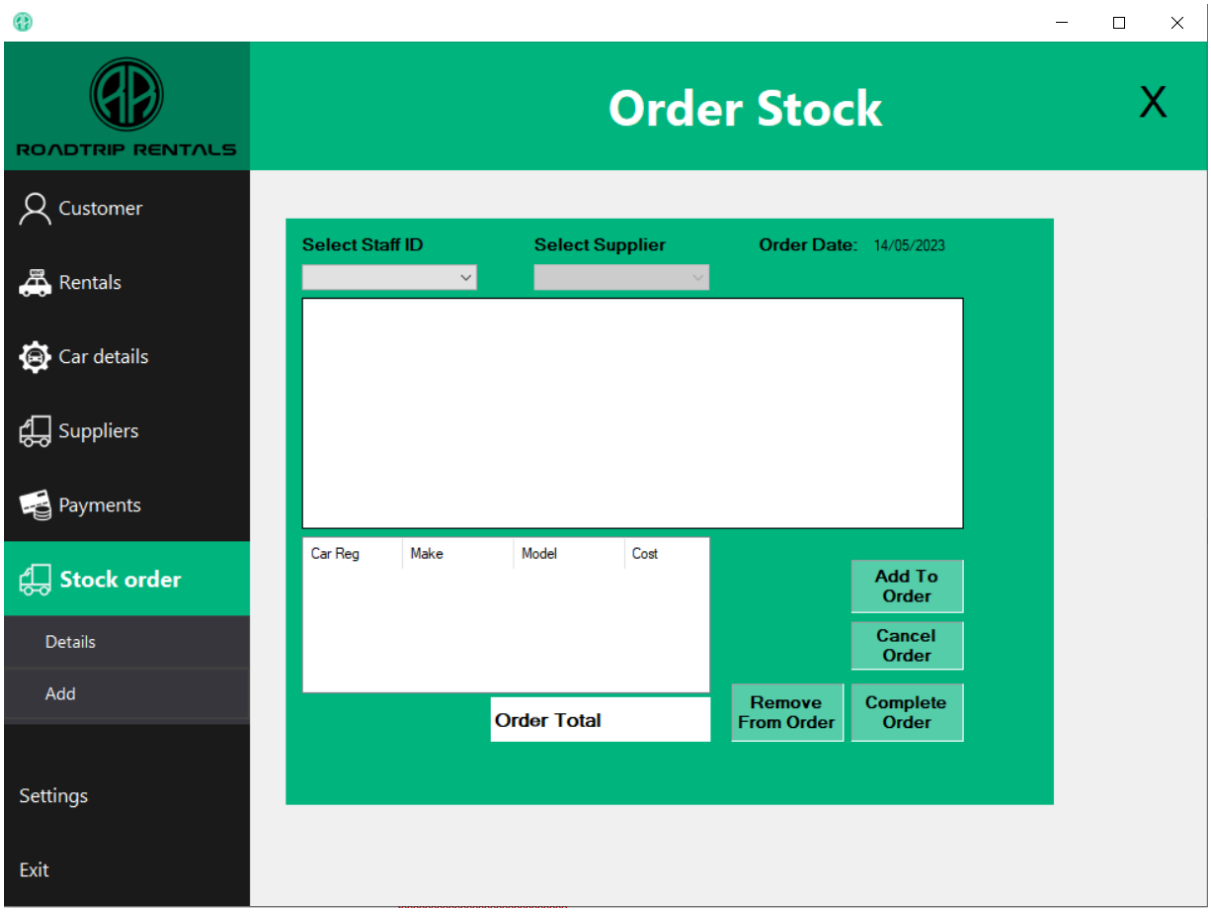


The Order Delivered button checks if the order has already been delivered, if it has then it will give a message advising it has already been delivered. If the order has not been delivered, it will update the Car Details table with the car information so it can be used for Rentals, it then changes the OrderDelivered status to true in the StockOrder table.

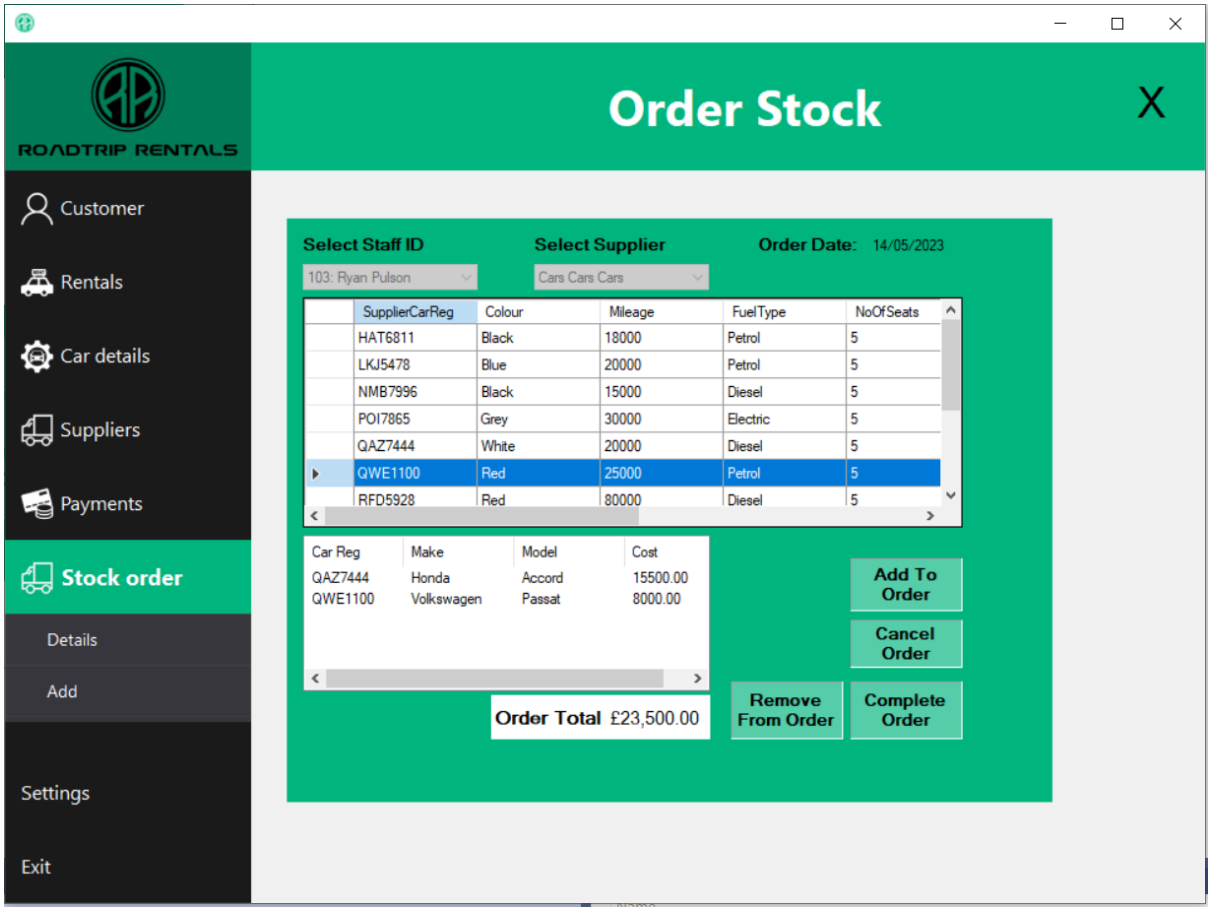
```
private void btnOrderDelivered_Click(object sender, EventArgs e)
        {
            if (dgvOrderHistory.SelectedRows.Count != 0)
            {
                DataGridViewRow selectedRow = dgvOrderHistory.SelectedRows[0];

                int orderNo = Convert.ToInt32(selectedRow.Cells["OrderNo"].Value);
```

```
                Boolean orderDelivered =
Convert.ToBoolean(selectedRow.Cells["OrderDelivered"].Value);

                if (!orderDelivered)
                {
                    if (MessageBox.Show("Confirm Order No: " + orderNo + " has been
delivered", "Confirm Delivery", MessageBoxButtons.YesNo) ==
System.Windows.Forms.DialogResult.Yes)
                    {
                        foreach (DataRow row in
dsRoadTripRentals.Tables["SupplierStockOrder"].Rows)
                        {
                            sqlUpdateCars = @"INSERT INTO CarDetails(CarReg, ModelID,
Colour, Mileage, FuelType, NoSeats, [Year], RentalCostID)
                                              SELECT DISTINCT s.SupplierCarReg, s.ModelID,
s.Colour, s.Mileage, s.FuelType, s.NoOfSeats, s.CarYear, RentalCostID = 1
                                              FROM SupplierStock s INNER JOIN
SupplierStockOrder so ON s.SupplierCarReg = so.SupplierCarReg
                                                                  INNER JOIN StockOrder o
ON so.OrderNo = o.OrderNo
                                                                  WHERE o.OrderNo =
@OrderNo
                                                                  AND NOT EXISTS(SELECT 1
FROM CarDetails cd WHERE cd.CarReg = s.SupplierCarReg); ";


                            using (SqlConnection conn = new SqlConnection(connStr))
                            {
                                SqlCommand cmdCarDetails = new
SqlCommand(sqlUpdateCars, conn);
                                cmdCarDetails.Parameters.AddWithValue("@OrderNo",
orderNo);
                                conn.Open();
                                cmdCarDetails.ExecuteNonQuery();
                            }


                        }

                        sqlUpdateOrderDelivered = @"UPDATE StockOrder SET
OrderDelivered = 1 WHERE OrderNo = @OrderNo;";
                        using (SqlConnection conn = new SqlConnection(connStr))
                        {
                            SqlCommand cmdOrderDelivered = new
SqlCommand(sqlUpdateOrderDelivered, conn);
                            cmdOrderDelivered.Parameters.AddWithValue("@OrderNo",
orderNo);
                            conn.Open();
                            cmdOrderDelivered.ExecuteNonQuery();
                        }
                        daCarDetails.Update(dsRoadTripRentals, "CarDetails");
                        MessageBox.Show("Order Delivery Confirmed");
                    }
                }
                else
                    MessageBox.Show("Order has already been delivered", "Order
Delivered");
            }
            else
                MessageBox.Show("Please select an order from the list", "Order
Delivered");

        }

    }
```

Add Order



The Add button in the sub menu of Stock Order opens the order form used to order cars from the SupplierStock table. The user must select a staff ID to enable the Supplier dropdown, then they must select a supplier to load the cars into the table from that supplier, this then activates the Add to Order to allow users to add cars to the order in the list view box as shown below.



The user can select a car in the list view and click Remove From Order to take the car out and the Order Total will update to reflect the cars added or removed from the order. The user can click Cancel Order to return to the home screen or if they click Complete Order the details will transfer to the Order History section.

```
private void cmbStaff_SelectedIndexChanged(object sender, EventArgs e)
        {
            if (cmbStaff.SelectedIndex != -1)
            {
                cmbSupplier.Enabled = true;
            }
        }

        private void cmbSupplier_SelectedIndexChanged(object sender, EventArgs e)
        {

            if (cmbSupplier.SelectedIndex != -1)
            {
                dgvSupplierStock.Enabled = true;
                lblAddToOrder.Enabled = true;

                if (!formLoading)
                {
                    int supplierNo = (int)cmbSupplier.SelectedValue;
                    sqlSupplierStock = "SELECT * FROM SupplierStock WHERE SupplierNo
= @SupplierNo";
                    daSupplierStock = new SqlDataAdapter(sqlSupplierStock, conn);

daSupplierStock.SelectCommand.Parameters.AddWithValue("@SupplierNo", supplierNo);
```

```
                    dsRoadTripRentals.Tables["SupplierStock"].Clear();
                    daSupplierStock.Fill(dsRoadTripRentals, "SupplierStock");

                    dgvSupplierStock.DataSource =
dsRoadTripRentals.Tables["SupplierStock"];
                }
            }
        }

        private void lblAddToOrder_Click(object sender, EventArgs e)
        {
            //disable combo boxes so different staff or supplier cannot be added to
order
            cmbStaff.Enabled = false;
            cmbSupplier.Enabled = false;

            //set up dataAdapter for car details in listview
            sqlCarDetails = @"SELECT s.SupplierCarReg, s.Price, m.ModelDesc, m.Make
FROM SupplierStock s INNER JOIN Model m ON s.ModelID = m.ModelID WHERE
s.SupplierCarReg = @SupplierCarReg";
            cmdCarDetails = new SqlCommand(sqlCarDetails, conn);
            cmdCarDetails.Parameters.AddWithValue("@SupplierCarReg",
dgvSupplierStock.SelectedRows[0].Cells[0].Value.ToString());
            daCarDetails = new SqlDataAdapter(cmdCarDetails);
            DataTable carDetails = new DataTable();
            daCarDetails.Fill(carDetails);

            bool exits = false;

            if (dgvSupplierStock.SelectedRows.Count == 0)
                MessageBox.Show("Please select a Car", "Car");
            else
            {
                foreach (ListViewItem item in lvwOrderDetails.Items)
                {
                    string selectedCar = item.SubItems[0].Text;
                    foreach (DataGridViewRow row in dgvSupplierStock.SelectedRows)
                    {
                        string supplierCar = row.Cells[0].Value.ToString();
                        if (selectedCar == supplierCar)
                        {
                            MessageBox.Show("Car already added to the order.",
"Order");
                            exits = true;
                            break;
                        }
                    }
                }
                if (!exits)
                {
                    foreach (DataRow dr in carDetails.Rows)
                    {
                        if (dr["SupplierCarReg"].ToString() ==
dgvSupplierStock.SelectedRows[0].Cells[0].Value.ToString())
                        {
                            ListViewItem item = new
ListViewItem(dr["SupplierCarReg"].ToString());
                            item.SubItems.Add(dr["Make"].ToString());
                            item.SubItems.Add(dr["ModelDesc"].ToString());

item.SubItems.Add(Convert.ToDecimal(dr["Price"]).ToString("0.00"));
                            lvwOrderDetails.Items.Add(item);


                            decimal carPrice = decimal.Parse(dr["Price"].ToString());
```

```
                        orderTotal += carPrice;
                        lblOrderTotalValue.Text = orderTotal.ToString("c");
                        break;
                    }

                }

            }
        }
    }

    private void lblRemoveFromOrder_Click(object sender, EventArgs e)
    {
        if (lvwOrderDetails.SelectedItems.Count != 0)
        {
            var item = lvwOrderDetails.SelectedItems[0];
            decimal carPrice = Decimal.Parse(item.SubItems[3].Text);
            orderTotal -= carPrice;
            lblOrderTotalValue.Text = orderTotal.ToString("c");
            lvwOrderDetails.Items.Remove(item);

            if (lvwOrderDetails.Items.Count == 0)
            {
                cmbStaff.Enabled = true;
                cmbSupplier.Enabled = true;
            }
        }

    }


    private void lblCompleteOrder_Click(object sender, EventArgs e)
    {
        DataRow drStockOrder, drStockOrderDetails;
        int OrderNo;
        int noRows = dsRoadTripRentals.Tables["StockOrder"].Rows.Count;

        DateTime orderDeliveryDate = DateTime.Parse(lblOrderDate.Text.Trim());


            drStockOrder = dsRoadTripRentals.Tables["StockOrder"].Rows[noRows -
1];
            OrderNo = (int.Parse(drStockOrder["OrderNo"].ToString()) + 1);

        if (lvwOrderDetails.Items.Count == 0)
            MessageBox.Show("Please add a car to the order", "Order Details");
        else
        {
            drStockOrder = dsRoadTripRentals.Tables["StockOrder"].NewRow();

            drStockOrder["OrderNo"] = OrderNo;
            drStockOrder["OrderDate"] = DateTime.Parse(lblOrderDate.Text.Trim());
            drStockOrder["OrderDeliveryDate"] = orderDeliveryDate.AddDays(7);
            drStockOrder["OrderDelivered"] = false;
            drStockOrder["StaffID"] = cmbStaff.SelectedValue;
            drStockOrder["SupplierNo"] = cmbSupplier.SelectedValue;

            dsRoadTripRentals.Tables["StockOrder"].Rows.Add(drStockOrder);
            daStockOrder.Update(dsRoadTripRentals, "StockOrder");

            foreach (ListViewItem item in lvwOrderDetails.Items)
            {
                drStockOrderDetails =
dsRoadTripRentals.Tables["SupplierStockOrder"].NewRow();
                drStockOrderDetails["OrderNo"] = drStockOrder["OrderNo"];
                drStockOrderDetails["SupplierCarReg"] = item.SubItems[0].Text;
```

```
dsRoadTripRentals.Tables["SupplierStockOrder"].Rows.Add(drStockOrderDetails);
                    daStockOrderDetails.Update(dsRoadTripRentals,
"SupplierStockOrder");
                }

                MessageBox.Show("Order No: " + drStockOrder["OrderNo"].ToString() + "
complete");

                ClearOrder();
            }
        }

        private void ClearOrder()
        {
            lvwOrderDetails.Items.Clear();
            lblOrderTotalValue.Text = "";
            cmbStaff.SelectedIndex = -1;
            cmbSupplier.SelectedIndex = -1;
            orderTotal = 0;
            cmbStaff.Enabled = true;
            cmbSupplier.Enabled = true;
            dgvSupplierStock.DataSource = null;
            dgvSupplierStock.Rows.Clear();
            lblAddToOrder.Enabled = false;
        }

        private void lblCancelOrder_Click(object sender, EventArgs e)
        {
            if (MessageBox.Show("Do you want to cancel the order?", "Cancel Order",
MessageBoxButtons.YesNo) == System.Windows.Forms.DialogResult.Yes)
            {
                Close();
            }
        }
```

Reports

Customer Rental car report - Jordan

Customer Rental Report

15/05/2023

ROADTRIP RENTALS

Customer ID 1	John	Doe			
RentalID	CarReg	Start Date	No Days	Rental Cost	Total Rental Cost
1	AB12CDE	01/05/2023	3	30.00	90.00
6	AB12CDE	14/05/2023	10	30.00	300.00
5	FG34HIJ	14/05/2023	2	45.00	90.00
				Total	480.00

Customer ID 2	Sarah	Smith			
RentalID	CarReg	Start Date	No Days	Rental Cost	Total Rental Cost
2	FG34HIJ	25/05/2023	5	45.00	225.00
				Total	225.00

Customer ID 3	Emma	Taylor			
RentalID	CarReg	Start Date	No Days	Rental Cost	Total Rental Cost
8	AB12CDE	30/05/2023	1	30.00	30.00
8	FG34HIJ	30/05/2023	1	45.00	45.00
				Total	75.00

Customer ID 4	Sophie	Jones			
RentalID	CarReg	Start Date	No Days	Rental Cost	Total Rental Cost
7	AB12CDE	14/05/2023	10	30.00	300.00
7	FG34HIJ	14/05/2023	10	45.00	450.00
				Total	750.00

GRAND TOTAL	1,530.00

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Customer List report - Jordan

Customer List Report

15/05/2023

ROADTRIP RENTALS

ID	Title	Forename	Surname	Street	County	City	Postcode	Email	Phone No
1	Mr	John	Doe	10 Main St	London	London	WL15 4HS	john.doe@example.com	07123456789
2	Mrs	Sarah	Smith	15 High St	Bristol	South West	BS11 6EE	sarah.smith@example.com	07876543210
3	Miss	Emma	Taylor	22 Park Rd	Manchester	Manchester	MP14 5TB	emma.taylor@example.com	07987654321
4	Ms	Sophie	Jones	4 Church Ln	Birmingham	West Midlands	Bt22 5TG	sophie.jones@example.com	07321098765
5	Mr	James	Williams	100 Birch St	Liverpool	Merseyside	LY81 8JQ	james.williams@example.com	07222333444
6	Mrs	Olivia	Brown	200 Oak Rd	Leeds	West Yorkshire	LS28 9JT	olivia.brown@example.com	07111222333
7	Miss	Isabella	Johnson	300 Pine Ln	Sheffield	South Yorkshire	SD11 2AB	isabella.johnson@example.com	07233445566
8	Ms	Emily	Miller	400 Maple Dr	Bradford	West Yorkshire	BD14 5QT	emily.miller@example.com	07888990011
9	Mr	Jacob	Davis	500 Cedar Ave	Manchester	Manchester	MV43 7GH	jacob.davis@example.com	07777111222
10	Mrs	Ava	Wilson	600 Spruce Pl	Birmingham	West Midlands	BM56 2NJ	ava.wilson@example.com	07999223344

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Supplier List report – David

Suppliers List Report

15/05/2023

ROADTRIP RENTALS

Supplier No	Name	Street	PostCode	Telephone No	Email
1001	Bob Mullan Motors	14 Clooney Rd	BT47 3DN	02812345679	sales@bmmmotors.com
1002	Ed O Neils Cars	2 Lacey Industrial Est	BT49 5GH	02873546874	ed@eoncars.com
1003	Curley Cars	43 Victoria Rd	BT47 2PU	02871821456	conor@curleycars.co.uk
1004	Mediocre Motors	8 Cherry Rd	MA14 1BL	02045133784	enquiries@mediocremotors.c
1005	Car Haven	16 Car Park	BT12 3HP	02174856475	sales@carhaven.com
1006	Cars Cars Cars	7 Castledawson est	BT46 5SW	01465231785	info@carsx3.com
1007	Audi Corporation	5 Titanic Park	BT11 6RE	08006998888	enquiries@audi.com
1008	VW Group	16 Riverside Road	BT23 5LK	09054136541	enquiries@vwgroup.com

Supplier Stock order - David

Supplier Stock order

15/05/2023

ROADTRIP RENTALS

Supplier No	1,002	Ed O Neils Cars			
Order No	10,001	**Order Date**	04/06/2022	**Delivery Date**	11/06/2022
				Supplier Car Reg	***Price***
				HMF1298	£19,000.00
				KSA8576	£18,000.00
				TYU3695	£9,000.00
				Total	£46,000.00

Supplier No	1,003	Curley Cars			
Order No	10,000	**Order Date**	11/03/2022	**Delivery Date**	18/03/2022
				Supplier Car Reg	***Price***
				JDL5678	£45,000.00
				KTR3087	£25,000.00
				Total	£70,000.00

Supplier No	1,005	Car Haven			
Order No	10,003	**Order Date**	15/02/2023	**Delivery Date**	22/02/2023
				Supplier Car Reg	***Price***
				GNH7785	£20,000.00
				VFF6730	£24,000.00
				Total	£44,000.00

Supplier No	1,006	Cars Cars Cars			
Order No	10,002	**Order Date**	23/10/2022	**Delivery Date**	30/10/2022
				Supplier Car Reg	***Price***
				HAT6811	£12,500.00
				Total	£12,500.00

GRAND TOTAL £172,500.00

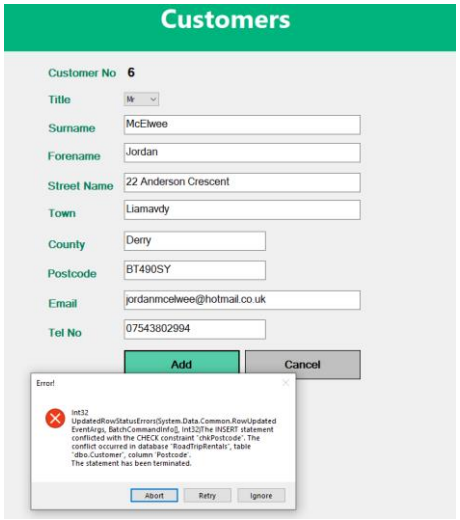
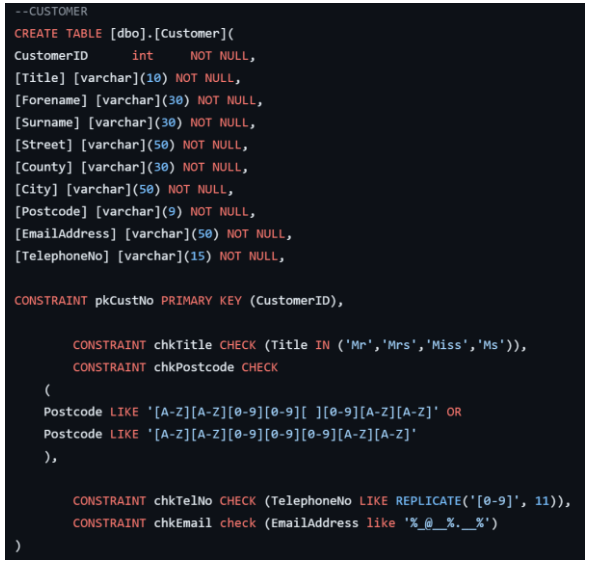
Testing

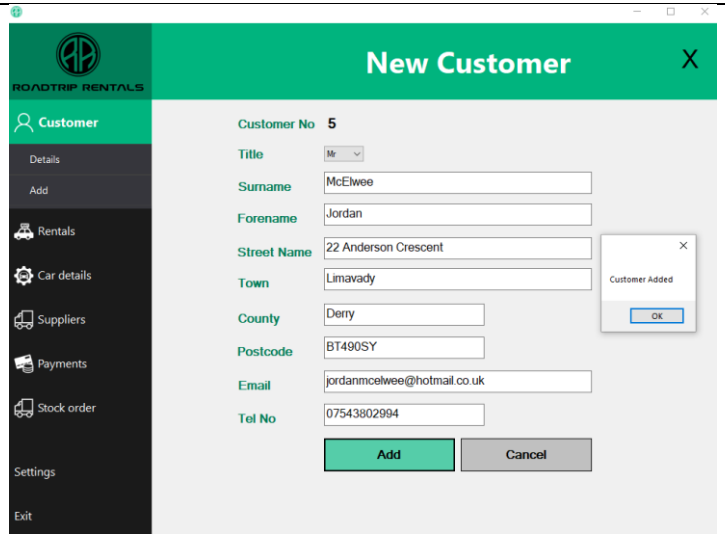
Input – Jordan

Add/ Edit Customer

Area Tested	Test No.	Test value	Expected outcome	Actual outcome
Customer Title	1	"Mr" (Selected from Combo)	Accepted	As expected
	2	"123" (User attempts to input text)	Rejected (Input not allowed in combo box)	As expected
	3	"Random" (User attempts to input text)	Rejected (Input not allowed in combo box)	As expected
	4	“” (no value selected)	Rejected (not allowed a blank value)	As expected
Customer Forename	1	"John"	Accepted	As expected
	2	"J"	Rejected (Too short)	As expected
	3	"JohnathanJamesonWilliamsWonderlandJimmyJoo"	Rejected (Too long)	As expected
	4	“”	Rejected (not allowed a blank value)	As expected
	5	Special characters @”-+”£	Rejected	
Customer Surname	1	"Doe"	Accepted	As expected
	2	"D"	Rejected (Too short)	As expected
	3	"DoeDoeJohnsonSmithwilliamwonderapplepear"	Rejected (Too long)	As expected

	4	“”	Rejected (not allowed a blank value)	As expected
	5	Special characters @”-+”£	Rejected	As expected
Street Name	1	22 Anderson Crescent	Accepted	As expected
	2	22	Rejected (Too short)	As expected
	3	22 Anderson Crescent 22 Anderson Crescent	Rejected (Too long)	As expected
	4	“”	Rejected (not allowed a blank value)	As expected
	5	@”-+”£	Rejected	As expected
Town	1	Limavady	Accepted	As expected
	2	L	Rejected (Too short)	As expected
	3	Limavadyuwhejfiehiuerhgoi	Rejected (Too long)	As expected
	4	“”	Rejected (not allowed a blank value)	As expected
	5	@”-+”£	Rejected	As expected
County	1	Derry	Accepted	As expected

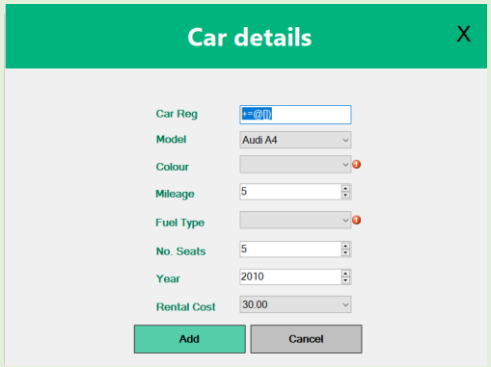
	2	D		Rejected (Too short)	As expected
	3	DerryDerryDerry		Rejected (Too long)	As expected
	4	“”		Rejected (not allowed a blank value)	As expected
	5	@”-+”£@”-+”		Rejected	As expected
Postcode	1	BT490SY	Accepted	Not as expected, CONSTRAINT within database stops no spaced postcodes from being entered, ideally want both spaces and no spaces working.  	**FIX** **Database schema updated to accept both spaces and no spaces.**  --CUSTOMER CREATE TABLE [dbo].[Customer](CustomerID int NOT NULL, [Title] [varchar](10) NOT NULL, [Forename] [varchar](30) NOT NULL, [Surname] [varchar](30) NOT NULL, [Street] [varchar](50) NOT NULL, [County] [varchar](30) NOT NULL, [City] [varchar](50) NOT NULL, [Postcode] [varchar](9) NOT NULL, [EmailAddress] [varchar](50) NOT NULL, [TelephoneNo] [varchar](15) NOT NULL, CONSTRAINT pkCustNo PRIMARY KEY (CustomerID), CONSTRAINT chkTitle CHECK (Title IN ('Mr','Mrs','Miss','Ms')), CONSTRAINT chkPostcode CHECK (Postcode LIKE '[A-Z][A-Z][0-9][0-9][ ][0-9][A-Z][A-Z]' OR Postcode LIKE '[A-Z][A-Z][0-9][0-9][0-9][A-Z][A-Z]'), CONSTRAINT chkTelNo CHECK (TelephoneNo LIKE REPLICATE('[0-9]', 11)), CONSTRAINT chkEmail check (EmailAddress like '%_@__%.__%'))

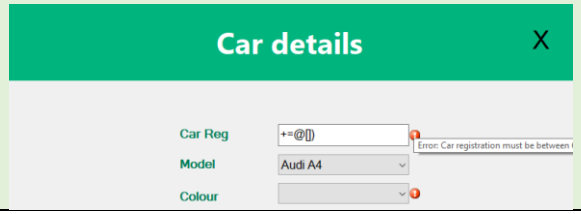
					
	1.1	BT49 0SY	Accepted	As expected	
	2	BT3697	Rejected (Too short)	As expected	
	3	BT490SY12	Rejected (Too long)	As expected	
	4	“”	Rejected (not allowed a blank value)	As expected	
	5	@”-+”£*	Rejected	As expected	

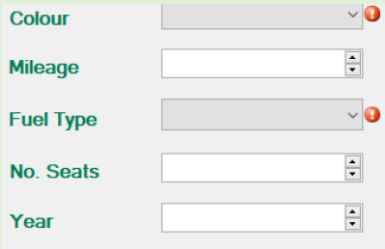
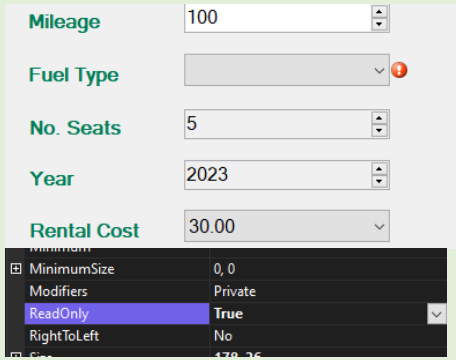
TelNo	1	07543802994	Accepted	As expected
	2	07543702	Rejected (Too short)	As expected
	3	0754380299456721	Rejected (Too long)	As expected
	4	“”	Rejected (not allowed a blank value)	As expected
	5	@”-+”£@”-+”£	Rejected	As expected
	6	ABCDEFGHIJKL	Rejected (only numbers allowed)	As expected
Email	1	jordanmcelwee@hotmail.co.uk	Accepted	As expected
	2	jordanmcelwee@hotmail.com	Accepted	As expected
	3	jordanmcelweehotmail.co.uk	Rejected (Missing '@' character)	As expected
	4	jordanmcelwee@	Rejected (Invalid email format)	As expected
	5	“”	Rejected (not allowed a blank value)	As expected
	6	@”-+”£*	Rejected	As expected
	7	@hotmail.com	Rejected	As expected

Add/ Edit Car details

Area Tested	Test No.	Test value	Expected outcome	Actual outcome	FIX (If applicable)
Car Reg	1	HFZ2711	Accepted	As expected	
	2	HFZ27	Rejected (Too short)	As expected	
	3	HFZ27111234	Rejected (Too long)	As expected	
	4	“”	Rejected (not allowed a blank value)	As expected	

	5	+=@[])	Rejected	Not as expected, its excepting special characters
				 
				
					MyValidation for validCarReg updated
					
					OLD
					`public static bool validCarReg(string carReg)`
					`{`
					`return carReg.Length >= 6 && carReg.Length <= 10;`
					`}`
					FIX
					`public static bool validCarReg(string carReg)`
					`{`
					`// Use regular expression pattern to match alphanumeric characters only`
					`string pattern = @"^[a-zA-Z0-9]+$";`
					
					`// Check if the carReg matches the pattern and the length is within the specified range`
					`return Regex.IsMatch(carReg, pattern) && carReg.Length >= 6 && carReg.Length <= 10;`
					`}`
					
					Now only accepting letters

					
Combo boxes (Model, Colour, Fuel Type, RentalCost**)**	1	Any input	Rejected (no inputs can be made, list is pre populated)	As expected	
	2	“”	Rejected, a value needs selected	As expected	
Mileage	1	0	Rejected and auto changes to 1 (the min value allowed)	As expected	
	2	9999999999	Rejected and auto changes to 500000 (the max value allowed)	As expected	
	3	500001	Rejected and auto changes to 500000 (the max value allowed)	As expected	
	4	Up increment +500 onto value	Accepted, and doesn’t go above max value	As expected	

	5	Down increment – 500 value	Accepted, and doesn't go above min value	As expected	
	6	"" (delete value that's populated)	Rejected	Not as expected, deleting the value doesn't flag as an error. Upon further testing, this is the same case with all other numeric boxes  	Mileage doesn't have a perfect fix. Didn't want to mark as read only as it takes away accuracy (temporary workaround is that the last value entered is saved, even if it was removed)  No.Seats and year have been marked as read only and only allowing the up down arrows to be used, which is ok since the ranges are less extreme. Fixed in both Add and Edit forms
No.Seats	1	0	Rejected input not allowed	As expected	
	2	99	Rejected input not allowed	As expected	
	3	9	Rejected input not allowed	As expected	

	4	Up increment +1 onto value	Accepted, and doesn't go above max value	As expected	
	5	Down increment – 1 value	Accepted, and doesn't go above min value	As expected	
	6	"" (delete value that's populated)	Rejected (read only)	As expected	
Year	1	Any Input	Rejected input not allowed	As expected	
	2	Up increment +1 onto value	Accepted, and doesn't go above max value	As expected	
	3	Down increment – 1 value	Accepted, and doesn't go above min value	As expected	
	4	"" (delete value that's populated)	Rejected (read only)	As expected	
	5	2050	Rejected as system doesn't accept years higher than 2023	As expected, the max value is 2050 which is used for future proofing the system if the current year we live in does go to 2050	

Add / Edit models

Area Tested	Test No.	Test value	Expected outcome	Actual outcome	Fix (if applicable)
Model ID	1	A	Accepted	As expected	
	2	A4	Accepted	As expected	
	3	A123456789	Rejected (too long)	As expected	
	4	“”	Rejected (needs an input)	As expected	
	5	A (again)	Rejected on add click (unique key should not be duplicated)	As expected	
Description	1	A	Accepted	As expected	
	2	A4 Audi	Accepted	As expected	
	3	Audi Description that is too big	Rejected (too long)	As expected	
	4	“”	Rejected (needs an input)		
Make	1	A	Accepted	As expected	
	2	Audi	Accepted	As expected	
	3	Audi make that is too big	Rejected (too long)	As expected	
	4	“”	Rejected (needs an input)	As expected	

Add / Edit Rental Cost

Area Tested	Test No.	Test value	Expected outcome	Actual outcome	Fix (if applicable)
Rental Cost	1	Any input	Rejected (marked as read only)	As expected	
	2	Up increment +0.50 onto value	Accepted, and doesn't go above max value (1000)	As expected	
	3	Down increment – 0.50 value	Accepted, and doesn't go above min value (10)	As expected	
	4	“”	Rejected (needs an input and impossible to be blank)	As expected	

Add Rental / Edit Rental

Area Tested	Test No.	Test Value	Expected Outcome	Actual Outcome
Rental Cost	1	**str** value is "A"	ListBox should display all customers whose names start with "A"	As Expected
	2	**str** value is ""	ListBox should display all customers as "" is a wildcard	As Expected
	3	**str** value is "Z"	ListBox should display all customers whose names start with "Z"	As Expected
Populate Rental ListBox	1	**lstCustomer.SelectedValue** is a valid CustomerID	ListBox should display all rentals associated with the given CustomerID	As Expected
	2	**lstCustomer.SelectedValue** is a non-existing CustomerID	ListBox should be empty	As Expected
Filter Car Details	1	**cmbAddModelID.SelectedValue**, **txtAddNoSeats.Value** and **cmbAddRentalCostID.SelectedValue** are valid and match some cars	DataGridView should display all cars matching the selected ModelID, NoSeats, and RentalCostID	As Expected
	2	**cmbAddModelID.SelectedValue**, **txtAddNoSeats.Value** and **cmbAddRentalCostID.SelectedValue** do not match any cars	DataGridView should be empty	As Expected
	3	One of **cmbAddModelID.SelectedValue**, **txtAddNoSeats.Value** or **cmbAddRentalCostID.SelectedValue** is null or invalid	DataGridView should be empty or show an error message	As Expected
Confirm Car Selection Checkbox	1	Checkbox checked	pnlBooking should be enabled, dgvCars, panelCarDetails, pnlPayment should be disabled,	As Expected

			btnResetFilters should not be visible, lblSelectCar text should be "Selected Car"	
	2	Checkbox unchecked	pnlBooking should be disabled, dgvCars, panelCarDetails should be enabled, lblSelectCar text should be "Select Car"	As Expected
Reset filters button	**1**	Button clicked	The car details should be reset	As Expected
Number of days combo box	**1**	Value selected	Total cost should be calculated, pnlPayment should be enabled	As Expected
Remove Item Button	**1**	Item selected in lvwRental	Selected item should be removed	As Expected
	2	No item selected in lvwRental	Nothing should happen	As Expected
Add Button	**1**	Button clicked with valid rental ID, number of days, customer ID, and updated lvwRental items	Rental details should be updated successfully in the database and in lvwRental	As Expected
ResetForm	**1**	Method called	All controls should be reset to their initial states	As Expected

Navigation – Jordan

Main Menu

Area Tested	Test No.	Test value	Expected outcome	Actual outcome
Main Menu Navigation	1	Click on btnCustomer	**panelCustomerSubmenu** should become visible, other submenus should hide	As expected
	2	Click on btnRentals	**panelRentalsSubmenu** should become visible, other submenus should hide	As expected
	3	Click on btnCar	**panelCarSubmenu** should become visible, other submenus should hide	As expected
	4	Click on btnPayments	**panelPaymentSubmenu** should become visible, other submenus should hide	As expected
	5	Click on btnExit	Application should close	As expected
	6	panelMenu scrollable	Menu panel content should become scrollable if content become cut off	As expected
	7	Main menu button colour change	All above main menu buttons should change colour upon click. Colour change is only in effect on active Submenu	As expected
Submenu Navigation	8	Click on btnMainCustomer	**frmMainCustomer** form should open within panelForm	As expected
	9	Click on btnAddCustomer	**frmAddCustomer** form should open within panelForm	As expected
	10	Click on btnMainRental	**frmMainRentals** form should open within panelForm	As expected
	11	Click on btnAddRental	**frmAddRentals** form should open within panelForm	As expected
	12	Click on btnMainCars	**frmMainCar** form should open within panelForm	As expected
	13	Click on btnAddCar	**frmAddCar** form should open within panelForm	As expected

	14	Click on btnMainModels	**frmMainModel** form should open within panelForm	As expected
	15	Click on btnMainRentalCost	**frmMainRentalCost** form should open within panelForm	As expected
	16	Click on btnMainPayment	**frmMainPayments** form should open within panelForm	As expected
	17	Click on btnAddPayment	**frmAddPayments** form should open within panelForm	As expected
	18	Click on btnEditRental	**frmEditRental** form should open within panelForm	As expected
Close Subforms	19	"X" icon button (named btnCloseSubForm) is disabled	**btnCloseSubForm** is not visible on the main menu of the application, therefore not enabled.	As expected
		"X" icon button (named btnCloseSubForm) is enabled	**btnCloseSubForm** is visible on any of the subforms of the application, allowing immediate redirect to the main menu.	As expected
Home button	20	Company logo on click	**pictureBox2** on click redirects back to main menu	As expected

Main Customer

Area Tested	Test No.	Test value	Expected outcome	Actual outcome
Main Customer	1	**Click on btnAddCustomer**	**frmAddCustomer** form should open within the **panelSub**	As expected
	2	**btnEditCustomer** with a selected customer	**frmEditCustomer** form should open within the **panelSub** for the selected customer	As expected
	3	**btnEditCustomer** with no selected customer	A MessageBox should appear with the message "Please select a customer to edit."	As expected
	4	**btnDelCustomer** with a selected customer and confirm delete	Selected customer should be deleted from the database and DataGridView should be updated	As expected
	5	**btnDelCustomer** with a selected customer and cancel delete	No change should occur in the database or DataGridView	As expected
	6	**btnDelCustomer** with no selected customer	No action should occur as there is no customer to delete	As expected

Add Customer

Area Tested	Test No.	Test value	Expected outcome	Actual outcome
Add Customer	**1**	Click on **btnAddCancel**	frmMainCustomer form should open within the panelSub	As expected
	2	**Click btnAddAdd** with valid inputs and user chooses to add another customer	The form should clear and be ready for the next customer addition (with a prompt advising “Do you want to add another customer” in YesNo msgBox.	As expected
	3	**Click btnAddAdd** with valid inputs and user chooses not to add another customer	frmMainCustomer form should open within the panelSub	As expected
	4	**btnAddAdd** with invalid inputs	Error prompts should be displayed, and the form should not navigate further	As expected

Edit Customer

Area Tested	Test No.	Test Value	Expected Outcome	Actual Outcome
Edit Customer	1	Click on **btnEditCancel**	**frmMainCustomer** form should open within the **panelSub**	As expected
	2	Click on **btnEditAdd** with valid inputs	Customer data should be updated, and a confirmation message should appear	As expected
	3	Click on **btnEditAdd** with invalid inputs (e.g., empty fields, incorrect data types, data that doesn't satisfy the constraints in the database)	Appropriate error prompts should be displayed	As expected
	4	Click on **btnEditAdd** with non-existing customer ID	"Customer not found" error message should be displayed	As expected

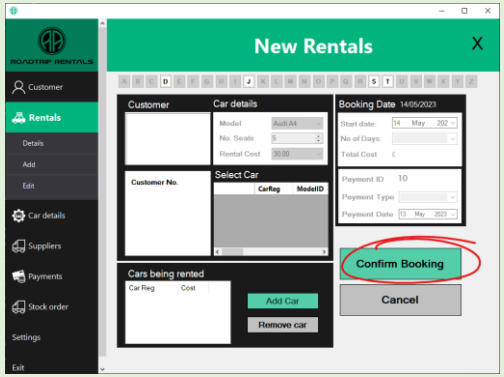
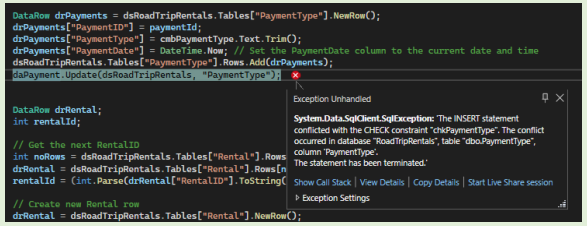
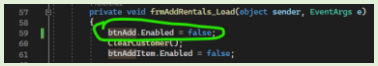
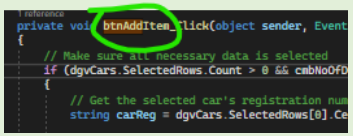
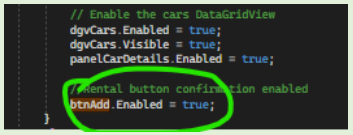
Main Rental

Area Tested	Test No.	Test Value	Expected Outcome	Actual Outcome
Rental Navigation	1	Click on **btnAddRental**	**frmAddRentals** form should open within the **panelSub**	As expected
	2	Click on **btnEditRental**	**frmEditRental** form should open within the **panelSub**	As expected
	3	Click on **btnDelRental** with a rental selected in **dgvRentals**	Confirmation message should appear, upon confirmation rental should be deleted from the grid and database	As expected
	4	Click on **btnDelRental** without a rental selected in **dgvRentals**	"Please select a Rental to delete." message should appear	As expected

Add Rental

Area Tested	Test No.	Test Value	Expected Outcome	Actual Outcome
Alphabet Buttons	2	Click on Alphabet button (e.g., **btnA**, **btnB**, **btnC**, etc.)	Retrieve customer details (based on surname) starting with the selected alphabet letter and populate the customer listbox with the retrieved data	As expected
Customer Selection	3	Customer from the listbox **lstCustomer**	Enable the "Confirm Selection" checkbox, populate the car details in the data grid view, clear car selection, disable the "Confirm Selection" checkbox, and disable the booking and payment panels	As expected
Car Selection	4	Car from the data grid view **dgvCars**	Display the selected car details in the respective labels, enable the "Confirm Selection" checkbox, and calculate the total cost	As expected
Reset Filters Button Click	5	N/A	Clear the selected model, rental cost, and number of seats filters and display all cars in the data grid view	Somewhat as expected, while search parameters reset, the values in the boxes stay the same
Confirm Selection Checkbox	7	**chkConfirmCarSelection** state (checked/unchecked)	Enable/disable the booking and payment panels based on the state of the checkbox	As expected
Model ID Selection	8	Model ID from the **cmbAddModelID** list	Filter the cars in the data grid view based on the selected model ID	As expected
Rental Cost ID Selection	9	Rental Cost ID from the **cmbAddRentalCostID** list	Filter the cars in the data grid view based on the selected rental cost ID. Displays rental cost assigned with the id.	As expected

Number of Seats Value Change	10	Number of seats value in the **txtAddNoSeats** numeric up down	Filter the cars in the data grid view based on the selected number of seats	As expected
lstCustomer Click	11	Customer from the listbox	Display the selected customer details in the respective labels, enable the car details panel, and enable the "Confirm Selection" checkbox	As expected
dgvCars SelectionChanged	12	Car from the data grid view	Display the selected car details in the respective labels, enable the "Confirm Selection" checkbox, and calculate the total cost	As expected
Customer Selection Change	13	Customer selection in the listbox **lstCustomer changed midway**	If there are existing items in list view, display a confirmation message asking if the user wants to proceed with a new customer. If the user selects "No," restore the previous selected customer. If the user selects "Yes," clear the existing bookings, update the previous selected customer, and allow the selection of a new customer.	As expected
Confirm Car Selection Check	15	Checkbox state (checked/unchecked)	Enable/disable the booking and payment panels and the "Reset Filters" button based on the state of the checkbox	As expected
No of Days Selection Change	17	No of days selection in the dropdown list	Recalculate the total cost and enable the payment panel	As expected
Remove Item Button Click	18	N/A	Remove the selected item from the rental list view	As expected #

Add Button Click	19	Click on **btnAdd**	Generate a unique payment ID, add the payment details to the PaymentType table, create a new Rental row with the customer and payment details, create new RentalCar rows for each selected car, display a success message, and prompt for adding another rental or returning to the main rentals form. Button disabled until an item has been added.	Not as expected, button is enabled and available right from the start of the sub form, causing a break and an uncaught exception very early, since there is no data   	**FIX** Add button is disabled until an item has been populated in lvwRental, button disables again if customer selection is changed.   //other code// 
Add Item Button Click	26	Click on **btnAddItem**	Validate the selected car, number of days, and payment type, calculate the total cost, create a new lvwRentals with the car reg details and total cost, add the item to the rental list view.		As expected

Edit rental

Area Tested	Test No.	Test Value	Expected Outcome	Actual Outcome
Hide Customer	27	No bookings for the customer	Display an error message indicating no bookings are found for the customer, clear the selected customer, disable the "panel3" and "panelButtons" panels, and return to the initial state	As expected
Rental Selection Change	28	Rental selection in the "**lstRental**" ListBox	Enable the "panelButtons" panel, enable the "dtpStartDate" DateTimePicker, enable the "cmbNoOfDays" ComboBox, enable the "lvwRental" ListView, clear the "lvwRental" ListView, populate the selected rental's details (payment ID, number of days, payment type, payment date, booking date), and load the corresponding rental cars into the "lvwRental" ListView	As expected
Update Rental Car Details	30	Edited rental car details **PROCESS?**	Update the selected rental car's details (total cost) in the dataset and database	As expected
Remove Rental Car	31	Rental car selected for removal	Remove the selected rental car from the "**lvwRental**" ListView	As expected
Cancel Edit	32	Click on **btnAddCancel**	Discard any changes made in the edit form and return to the main rentals form ("frmMainRentals")	As expected
Save Edit	33	Click on **btnAdd**	Save the edited rental and rental car details to the dataset and database, display a success message, and return to the main rentals form ("frmMainRentals")	As expected
Delete Rental	36	**btnDelete** clicked	Delete the selected rental, including associated rental car and payment records, from the dataset and database. Update the database with the delete commands assigned to the data adapters. Show a message indicating successful deletion. Clear and refill the dataset with fresh data.	As expected

Get Payment Details	35	Rental's payment ID and details **PROCESS TESTING**	Retrieve the payment type and payment date from the database based on the rental's payment ID and populate the corresponding controls	As expected

General navigation

Forms for each section ("Customer, Rental, Car Details etc") – Same code to process, with slight altercations

Area Tested	Test No.	Test value	Expected outcome	Actual outcome
Main	1	**Click on btnAdd**	**frmAdd** form should open within the **panelSub**	As expected
	2	**btnEdit** with a selected value from the dgv	**frmEdit** form should open within the **panelSub** for the selected value	As expected
	3	**btnEdit** with no selected value	A MessageBox should appear with the message "Please select a -------- to edit."	As expected
	4	**btnDel** with a selected customer and confirm delete	Selected customer should be deleted from the database and DataGridView should be updated	As expected
	5	**btnDel** with a selected customer and cancel delete	No change should occur in the database or DataGridView	As expected
	6	**btnDel** with no selected value	No action should occur as there is no value to delete	As expected
Add / Edit	7	**btnAddCancel** click	Returns back to the main form of the category chosen, in edit forms no changes will be processes if entered.	As expected
	8	**btnAddAdd** click	Should add the content entered to the relevant database (details of input are outlined in input testing) and pop up message should show asking if another row of data would like to be started	As expected

	9	**btnEditAdd** click	Should edit the content selected from the database, and re-entered to the relevant database (details of input are outlined in input testing) and pop up message should show asking if another row of data would like to be started	As expected

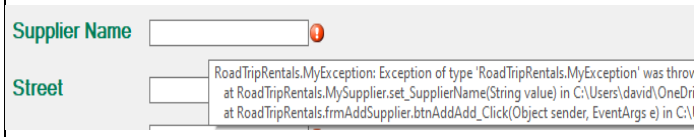
Processes / Outputs - Jordan

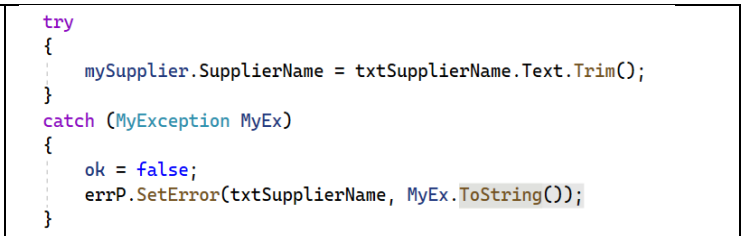
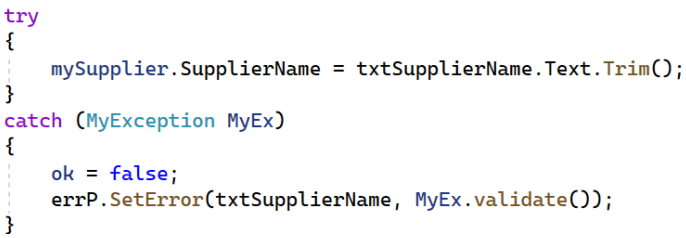
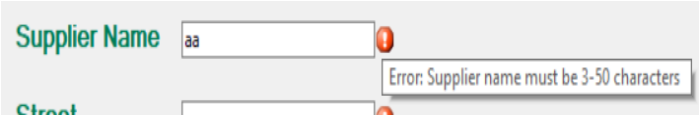
Area Tested	Test No.	Test value	Expected outcome	Actual outcome
Total Cost Calculation	1	Rental Duration: 2 days, Daily Rate: £50	Rental cost calculated as 2 x £50 = £100	**As expected**
Car Mileage Update	2	Previous Mileage: 5000, New Mileage: 6000	Mileage updated to 6000	**As expected**
Car Availability	3	Rental Start Date: 2023-04-01, Rental End Date: 2023-04-03	Car availability status updated as unavailable for the specified duration	**As expected, the same car cannot be chosen on the same date, even by a different user**
Generate Unique Payment ID	4	**PaymentID = Max paymentID of PaymentType + 1**	Query the PaymentType table to retrieve the maximum payment ID, generate a new unique payment ID, and ensure it does not already exist in the PaymentType table	As expected
Get Number	6	**Gets max paymentID**	Fetch the next available Payment ID and display it in the appropriate control	As expected

Calculate Total Cost of Rentals	7	**PROCESS TESTING**	Calculate the total cost based on the selected number of days and the corresponding rental cost, and display the calculated total cost	As expected

Input Testing - David

Add/Edit Supplier

Area Tested	Test Number	Value/s Tested	Expected Outcome	Actual Outcome
Supplier Name	1	Abcd ef123	System should accept value	As Expected
	2	aaa	System should accept value	As Expected
	3	aaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaa	System should accept value (50 characters exactly)	As Expected
	4	aa	System should reject value and display "Supplier name must be 3 - 50 characters"	Not as Expected – Wrong error message displayed  Wrong ToString() method used

				 Changed the method name to validate()  Correct error message now showing for each field 
	5	aaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaa	System should reject value and display “Supplier name must be 3 - 50 characters” (51 characters)	As Expected

	6	Leave blank	System should reject value and display "Supplier name must be 3 - 50 characters"	As Expected
	7	6 spaces	System should reject value and display "Supplier name must be 3 - 50 characters"	As Expected
	8	!"£$%^%^	System should reject value and display "Supplier name must be 3 - 50 characters"	As Expected
Street	1	Abcd ef123	System should accept value	As Expected
	2	aaaaa	System should accept value	As Expected
	3	aaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaa aaaa	System should accept value (50 characters exactly)	As Expected
	4	aaaa	System should reject value and display "Street must be 5 - 40 letters"	As Expected
	5	aaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaa	System should reject value and display "Street must be 5 - 40 letters" (41 Characters)	As Expected
	6	Leave blank	System should reject value and display "Street must be 5 - 40 letters"	As Expected
	7	6 spaces	System should reject value and display "Street must be 5 - 40 letters"	As Expected
	8	!"£$%^%^	System should reject value and display "Street must be 5 - 40 letters"	As Expected
Town	1	Abcd ef123	System should accept value	As Expected
	2	aa	System should accept value	As Expected
	3	aaaaaaaaaaaaaaaaaa aa	System should accept value (20 characters exactly)	As Expected

	4	a	System should reject value and display “Town must be 2 - 20 letters”	As Expected
	5	aaaaaaaaaaaaaaaaaaaaa	System should reject value and display “Town must be 2 - 20 letters” (21 Characters)	As Expected
	6	Leave blank	System should reject value and display “Town must be 2 - 20 letters”	As Expected
	7	6 spaces	System should reject value and display “Town must be 2 - 20 letters”	As Expected
	8	!”£$%^%^	System should reject value and display “Town must be 2 - 20 letters”	As Expected
County	1	Abcd ef123	System should accept value	As Expected
	2	aa	System should accept value	As Expected
	3	aaaaaaaaaaaaaaaaaaaa	System should accept value (20 characters exactly)	As Expected
	4	a	System should reject value and display “County must be 2 - 20 letters”	As Expected
	5	aaaaaaaaaaaaaaaaaaaaa	System should reject value and display “County must be 2 - 20 letters” (21 Characters)	As Expected
	6	Leave blank	System should reject value and display “County must be 2 - 20 letters”	As Expected
	7	6 spaces	System should reject value and display “County must be 2 - 20 letters”	As Expected
	8	!”£$%^%^	System should reject value and display “County must be 2 - 20 letters”	As Expected
Postcode	1	BT489PQ	System should accept value	As Expected
	2	BT48 9PQ	System should accept value with space	As Expected

	3	B T 4 8 9 P Q	System should reject value and display “Error: postcode must be 7-8 letters and alphanumeric only”	As Expected
	4	BT489P	System should reject as too short	As Expected
	5	1111111	System should reject as needs to be [A-Z][A-Z][0-9][0-9] [0-9][A-Z][A-Z]	As Expected
	6	AAAAAA	System should reject as needs to be [A-Z][A-Z][0-9][0-9] [0-9][A-Z][A-Z]	As Expected
	7	Leave blank	System should reject value and display “Error: postcode must be 7-8 letters and alphanumeric only”	As Expected
	8	6 spaces	System should reject value and display “Error: postcode must be 7-8 letters and alphanumeric only”	As Expected
		!"£$%^&	System should reject value and display “Error: postcode must be 7-8 letters and alphanumeric only”	As Expected
Tel No	1	12345678910	System should accept value	As Expected
	2	123456789101234	System should accept value	As Expected
	3	1234567891 (10 digits)	System should reject value and display “Telephone number must be 11 – 15 digits.”.	As Expected
	4	1234567891013245 (16 digits)	System should reject value and display “Telephone number must be 11 – 15 digits.”.	As Expected
	5	AAAAAAAAAAA	System should reject value and display “Telephone number must be 11 – 15 digits.”.	As Expected

	6	!”£$%^&	System should reject value and display “Telephone number must be 11 – 15 digits.”.	As Expected
	7	Leave blank	System should reject value and display “Telephone number must be 11 – 15 digits.”.	As Expected
	8	6 spaces	System should reject value and display “Telephone number must be 11 – 15 digits.”.	As Expected
Email Address	1	John.doe@ter.com	System should accept value	As Expected
	2	Johndoe@ter.com	System should accept value	As Expected
	3	Abcd ef123	System should reject value and display “Error: Email Address is invalid”	As Expected
	4	123145646	System should reject value and display “Error: Email Address is invalid”	As Expected
	5	Leave blank	System should reject value and display “Error: Email Address is invalid”	As Expected
	6	6 spaces	System should reject value and display “Error: Email Address is invalid”	As Expected
	7	!”£$%^%^	System should reject value and display “Error: Email Address is invalid”	As Expected
	8	asdasdd@	System should reject value and display “Error: Email Address is invalid”	As Expected

Navigation – David

Area Tested	Test Number	Value/s Tested	Expected Outcome	Actual Outcome
Main Menu	1	Click Suppliers button	Sub menu opens with 2 buttons – Details and Add	As Expected
	2	Click Suppliers button twice	Sub menu closes	As Expected
	3	Click Details button in Supplier sub menu	Supplier Menu displays	As Expected
	4	Click Add button in Supplier sub menu	Add Supplier form displays	As Expected
	5	Click Stock order button	Sub menu opens with 2 buttons – Details and Add	As Expected
	6	Click Stock order button twice	Sub menu closes	As Expected
	7	Click Details button in Stock order sub menu	Order History menu appears	As Expected
	8	Click Add button in Stock order sub menu	Order Stock menu appears	As Expected
Suppliers Details Menu	1	Click Supplier Details button	Data grid view loads with all supplier details	As Expected
	2	Click Edit button	Edit form loads with selected Supplier's details displayed	As Expected
	3	Click Edit button	Edit form loads of highlighted supplier from Data grid view on Display Supplier details form	As Expected
	4	Click Delete button	Delete form opens with list of Suppliers details to choose to delete	As Expected
	5	Click Delete Yes button	Confirms deletion of supplier	As Expected

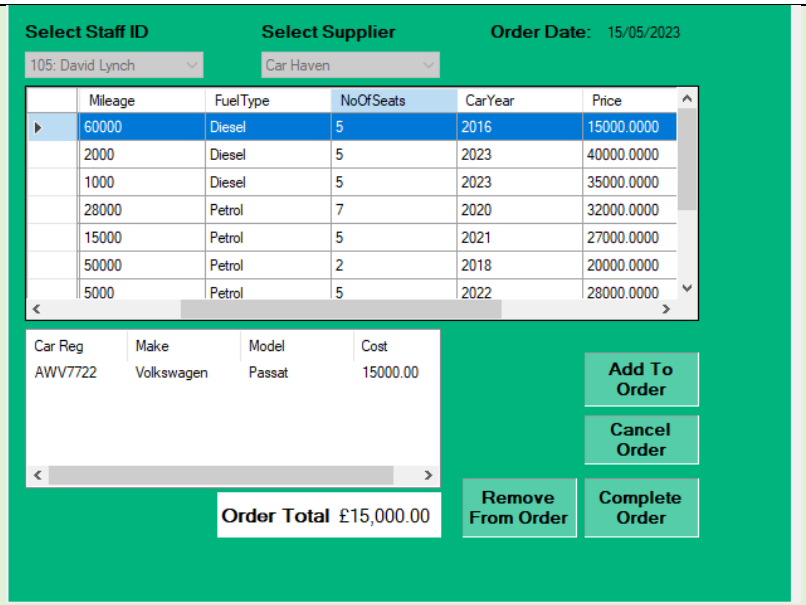
	6	Click Delete No button	Cancels deletion of supplier	As Expected
	7	Click Quit button	Exits Supplier form and returns to the Main Menu	As Expected
Add Supplier Menu	1	Click Add button once new supplier details have been entered	Supplier Added confirmation message displays	As Expected
	2	Click OK on confirmation message after supplier added	Message Box displays “Do you want to add another supplier?”	As Expected
	3	Click Yes on Message Box “Do you want to add another supplier?”	A blank Add Supplier form appears and the Supplier No increments by 1	As Expected
	4	Click No on Message Box “Do you want to add another supplier?”	User returned to the Main Menu	As Expected
	5	Click Cancel button on the Add Supplier form	Message Box displays “Cancel addition of Supplier No: <num>?”	As expected
	6	Click Yes on Message Box “Cancel addition of Supplier No: <num>?”	User returned to the Main Menu	As Expected
	7	Click No on Message Box “Cancel addition of Supplier No: <num>?”	User remains on the Add Supplier form	As Expected
Order History Menu	1	Click Order History button	Data grid view loads with all Stock Orders logged	As Expected
	2	Click Order Details button	Data grid view is hidden and the selected order details is displayed	As Expected
	3	Click Close button	Order details are hidden and the data grid view is displayed	As Expected

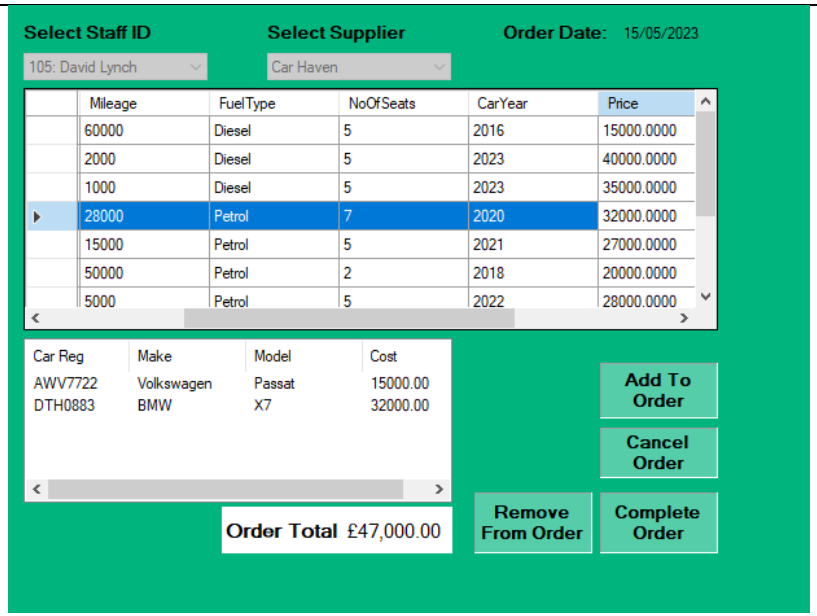
	4	Click Delete Order button	Message Box displays with “Are you sure you want to delete Order No: <num>?”	As Expected
	5	Click Yes on Message Box “Are you sure you want to delete Order No: <num>?”	Order No and associated details are deleted from list	As Expected
	6	Click No on Message Box “Are you sure you want to delete Order No: <num>?”	User is returned to Order History screen	As Expected
	7	Click Order Delivered button on an order that is already delivered	Message Box displays “Order has already been delivered”	As Expected
	8	Click Order Delivered button on an order that has not been delivered	Message Box displays “Confirm Order No: <num> has been delivered”	As Expected
	9	Click Yes on Message Box “Confirm Order No: <num> has been delivered”	Message Box displays “Order Delivery Confirmed” and OrderDelivered column is true in Order History	As Expected
	10	Click No on Message Box “Confirm Order No: <num> has been delivered”	User is returned to Order History screen	As Expected
	11	Click Quit button	User is returned to Main Menu	As Expected
Order Stock Menu	1	Click Staff ID combo box	List of Staff is displayed	As Expected
	2	Select staff name from list in Staff ID combo box	Staff name is displayed in Staff ID combo box and Supplier combo box becomes active	As Expected
	3	Click Supplier combo box	List of suppliers is displayed	As Expected
	4	Select supplier name from list in Supplier combo box	Supplier name is displayed in combo box and a list of cars from selected supplier	As Expected

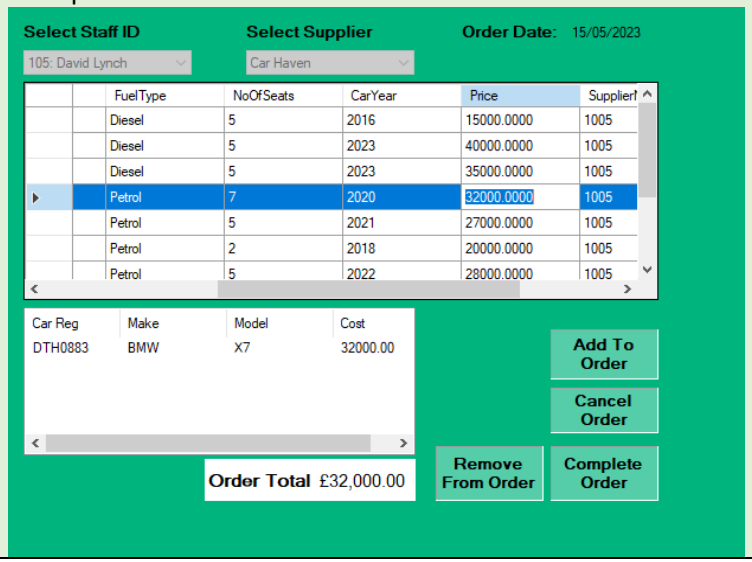
			is displayed in data grid view. Add to Order button becomes active	
	5	Click Add to Order button	Selected car in data grid view is added to the order details list view, displaying the Car Reg, Make, Model and Cost with the Order Total updating at the bottom.	As Expected
	6	Click Remove From Order	The selected car in the list view is removed from the order and the Order Total is adjusted accordingly	As Expected
	7	Click Cancel Order button	Message Box displays “Do you want to cancel the order?”	As Expected
	8	Click Yes on Message Box “Do you want to cancel the order?”	User is returned to the home screen	As Expected
	9	Click No on Message Box “Do you want to cancel the order?”	User remains on the Order Stock form with their current selection	As Expected
	10	Click Complete Order with no cars added to order	Message Box displays “Please add a car to the order”.	As Expected
		Click Complete Order with one or more cars added to order	Message Box displays “Order No: <num> complete”.	As Expected

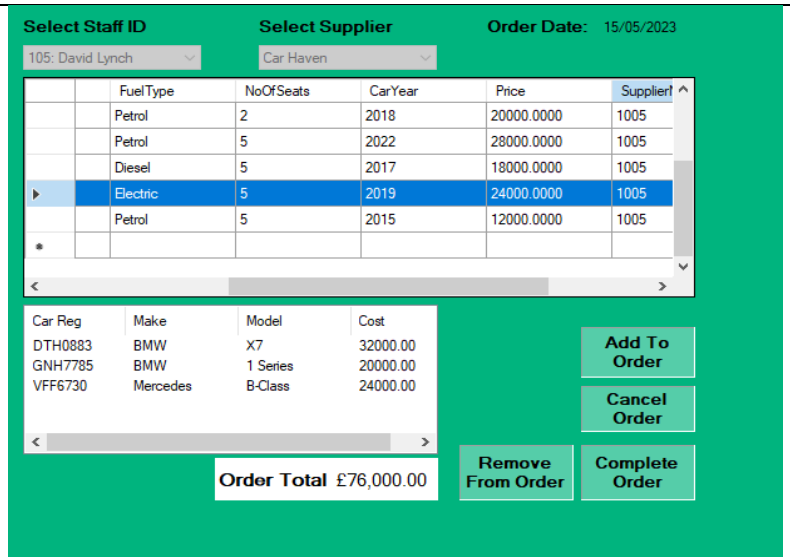
Processes/ Outputs – David

Area Tested	Test Number	Value/s Tested	Expected Outcome	Actual Outcome
Order Total	1	Car at £15,000 added to order	Order Total should display £15,000	As Expected

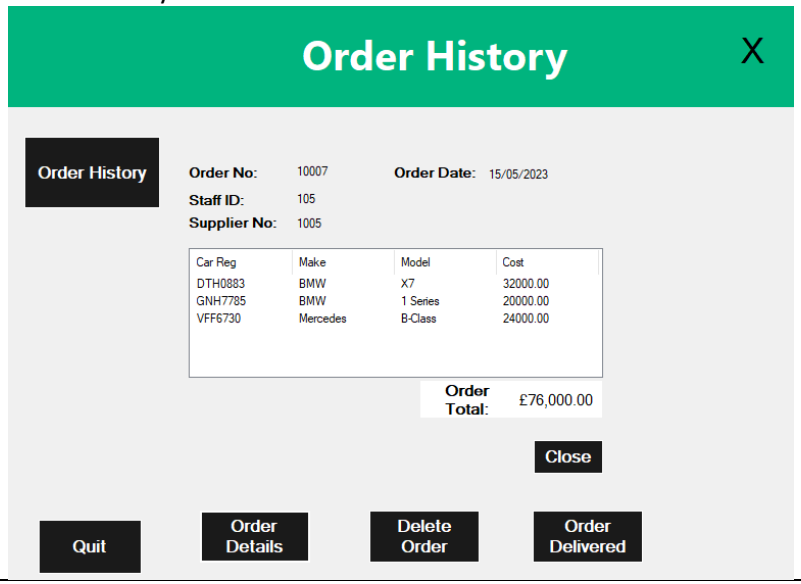
				
	2	Car at £15,000 and car at £32,000 added to order	Order Total should display £47,000	As Expected

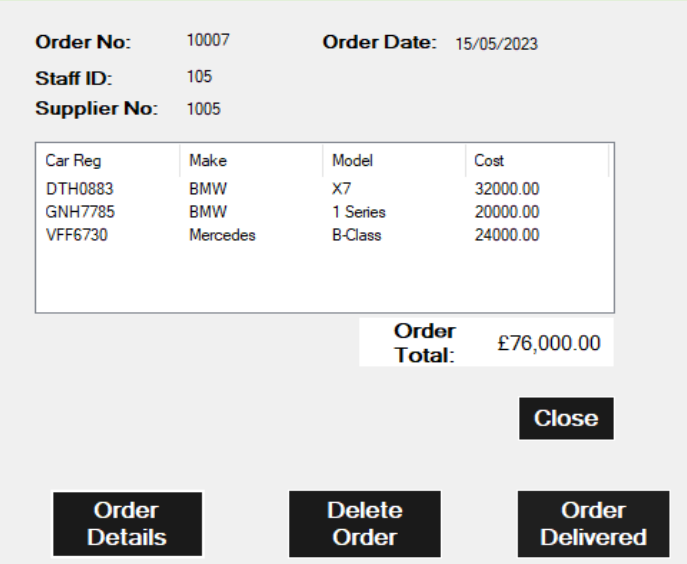
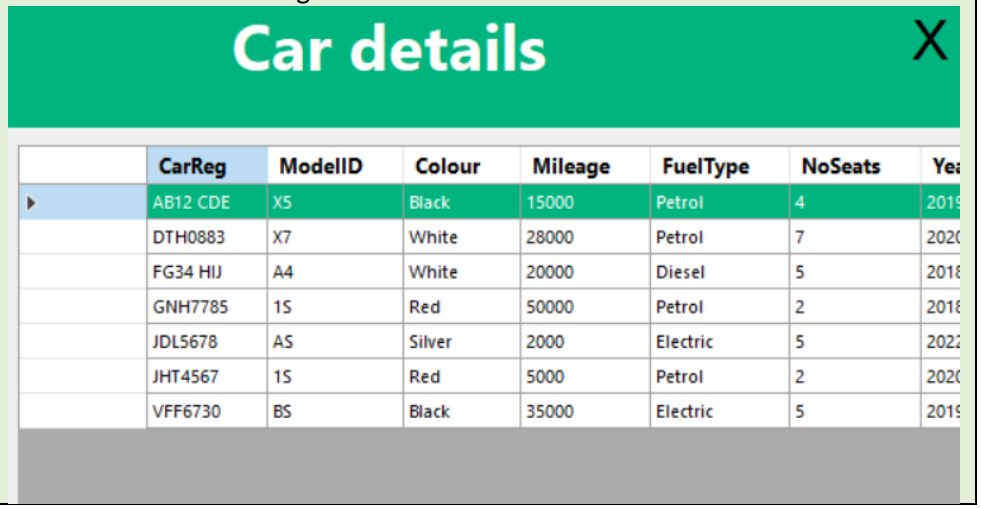

Select Staff ID
Select Supplier
Order Date: 15/05/2023
105: David Lynch
Car Haven
Mileage FuelType NoOfSeats CarYear Price
60000 Diesel 5 2016 15000.0000
2000 Diesel 5 2023 40000.0000
1000 Diesel 5 2023 35000.0000
28000 Petrol 7 2020 32000.0000
15000 Petrol 5 2021 27000.0000
50000 Petrol 2 2018 20000.0000
5000 Petrol 5 2022 28000.0000
Car Reg Make Model Cost
AWV7722 Volkswagen Passat 15000.00
DTH0883 BMW X7 32000.00
Add To Order
Cancel Order
Remove From Order
Complete Order
Order Total £47,000.00

	3	Car at £15,000 removed from order with car at £32,000	Order Total should display £32,000	As Expected 
Complete Order	1	Order completed with 3 cars totalling £76,000 –	Details should appear in order history table	As Expected – See screenshots below



Order History Table



Order Delivered	1	Order Delivered button clicked on selected Order No	Cars in order updated on Car Details table	As Expected  Car Details table showing cars added