Informatics Institute of Technology

Department of Computing

(B.Sc.) in Computer Science

Module: 5COSC007C.1 Object Oriented Programming

Coursework 1

Phase 3

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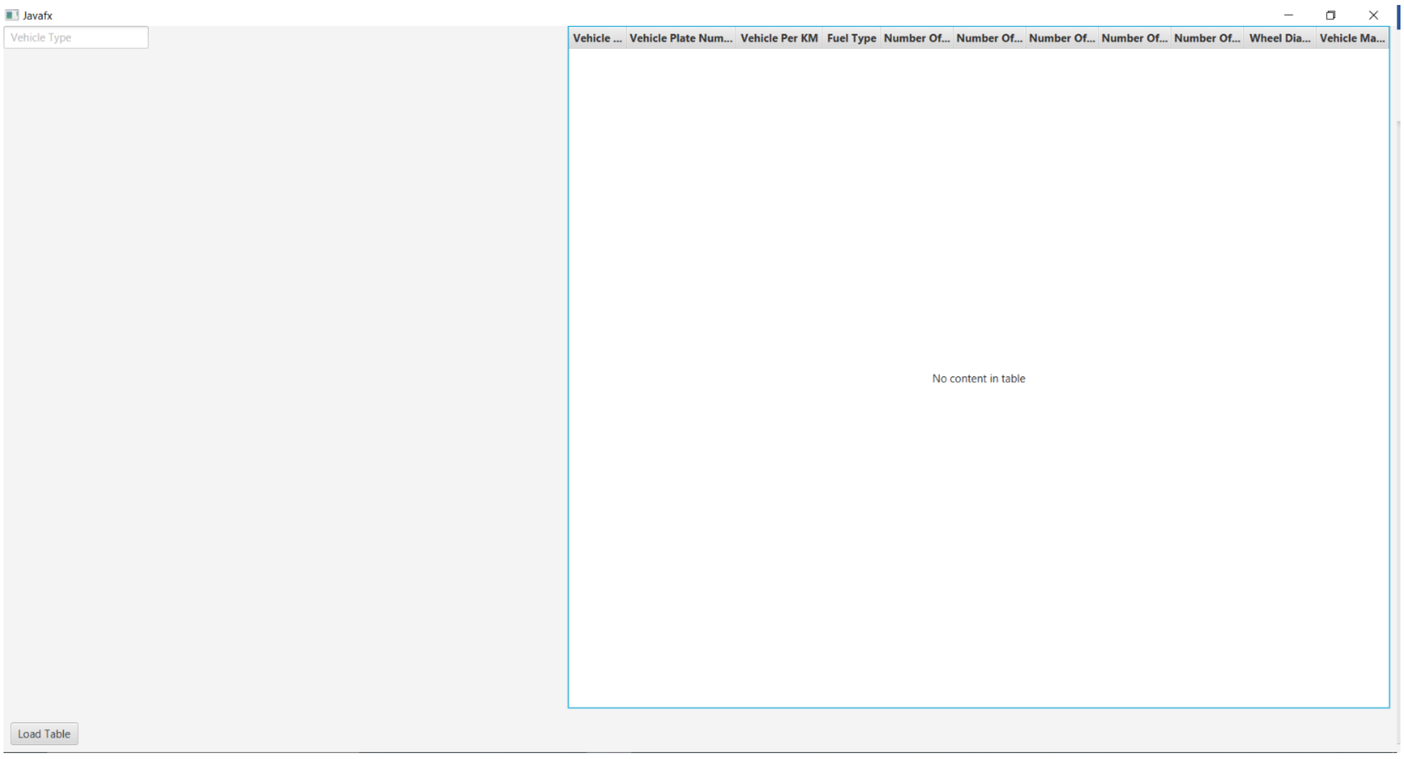
List of vehicles in WestminsterRentalManager

```java
@Override
public void start(Stage primaryStage) throws Exception {
    CheckConnection();

    primaryStage.setTitle("Javafx");
    BorderPane layout = new BorderPane();
    Scene newScene = new Scene(layout,1000,600,Color.rgb(0,0,0,0));

    TableView<User> table = new TableView<>();
    final ObservableList<User> data = FXCollections.observableArrayList();

    TableColumn column1 = new TableColumn("Vehicle Type");
    column1.setMinWidth(50);
    column1.setCellValueFactory(new PropertyValueFactory<>("vehicleType"));

    TableColumn column2 = new TableColumn("Vehicle Plate Number");
    column2.setMinWidth(150);
    column2.setCellValueFactory(new PropertyValueFactory<>("vehiclePlateNumber"));

    TableColumn column3 = new TableColumn("Vehicle Per KM");
    column3.setMinWidth(120);
    column3.setCellValueFactory(new PropertyValueFactory<>("pricePerKM"));

    TableColumn column4 = new TableColumn("Fuel Type");
    column4.setMinWidth(80);
    column4.setCellValueFactory(new PropertyValueFactory<>("fuelType"));

    TableColumn column5 = new TableColumn("Number Of Helmets");
    column5.setMinWidth(100);
    column5.setCellValueFactory(new PropertyValueFactory<>("numberOfHelmets"));

    TableColumn column6 = new TableColumn("Number Of Passengers");
    column6.setMinWidth(100);
    column6.setCellValueFactory(new PropertyValueFactory<>("numberOfPassengers"));

    TableColumn column7 = new TableColumn("Number Of Airbags");
    column7.setMinWidth(100);
    column7.setCellValueFactory(new PropertyValueFactory<>("numberOfAirbags"));

    TableColumn column8 = new TableColumn("Number Of Seats");
    column8.setMinWidth(100);
    column8.setCellValueFactory(new PropertyValueFactory<>("numberOfSeats"));

    TableColumn column9 = new TableColumn("Number Of Gears");
    column9.setMinWidth(100);
    column9.setCellValueFactory(new PropertyValueFactory<>("numberOfGears"));

    TableColumn column10 = new TableColumn("Wheel Diameter");
    column10.setMinWidth(100);
    column10.setCellValueFactory(new PropertyValueFactory<>("wheelDiameter"));

    TableColumn column11 = new TableColumn("Vehicle Make");
    column11.setMinWidth(100);
    column11.setCellValueFactory(new PropertyValueFactory<>("vehicleMake"));
table.getColumns().addAll(column1,column2,column3,column4,column5,column6,column7,column8,
column9,column10,column11);
    layout.setRight(table);
    BorderPane.setMargin(table,new Insets(0,10,10,0));

    Button load = new Button("Load Table");
    load.setFont(Font.font("SanSerif",15));
    load.setOnAction(e->{
        try{
            String query = "select * from vehicles";
            preparedStatement = conn.prepareStatement(query);
            resultSet = preparedStatement.executeQuery();

            while (resultSet.next()){
                data.add(new User(
                        resultSet.getString("VehicleType"),
                        resultSet.getString("VehiclePlateNumber"),
                        resultSet.getDouble("PricePerKM"),
                        resultSet.getInt("FuelType"),
                        resultSet.getInt("NumberOfHelmets"),
                        resultSet.getInt("NumberOfPassengers"),
                        resultSet.getInt("NumberOfAirbags"),
                        resultSet.getInt("NumberOfSeats"),
                        resultSet.getInt("NumberOfGears"),
                        resultSet.getInt("WheelDiameter"),
                        resultSet.getString("VehicleMake")
                ));
                table.setItems(data);

            }
            preparedStatement.close();
            resultSet.close();
        }catch (Exception e2){
            System.err.println(e2);
        }
    });

    HBox hBox = new HBox(5);
    hBox.getChildren().add(load);
    layout.setBottom(hBox);
    BorderPane.setMargin(hBox, new Insets(10,0,10,10));


    primaryStage.setScene(newScene);
    primaryStage.show();

}
```

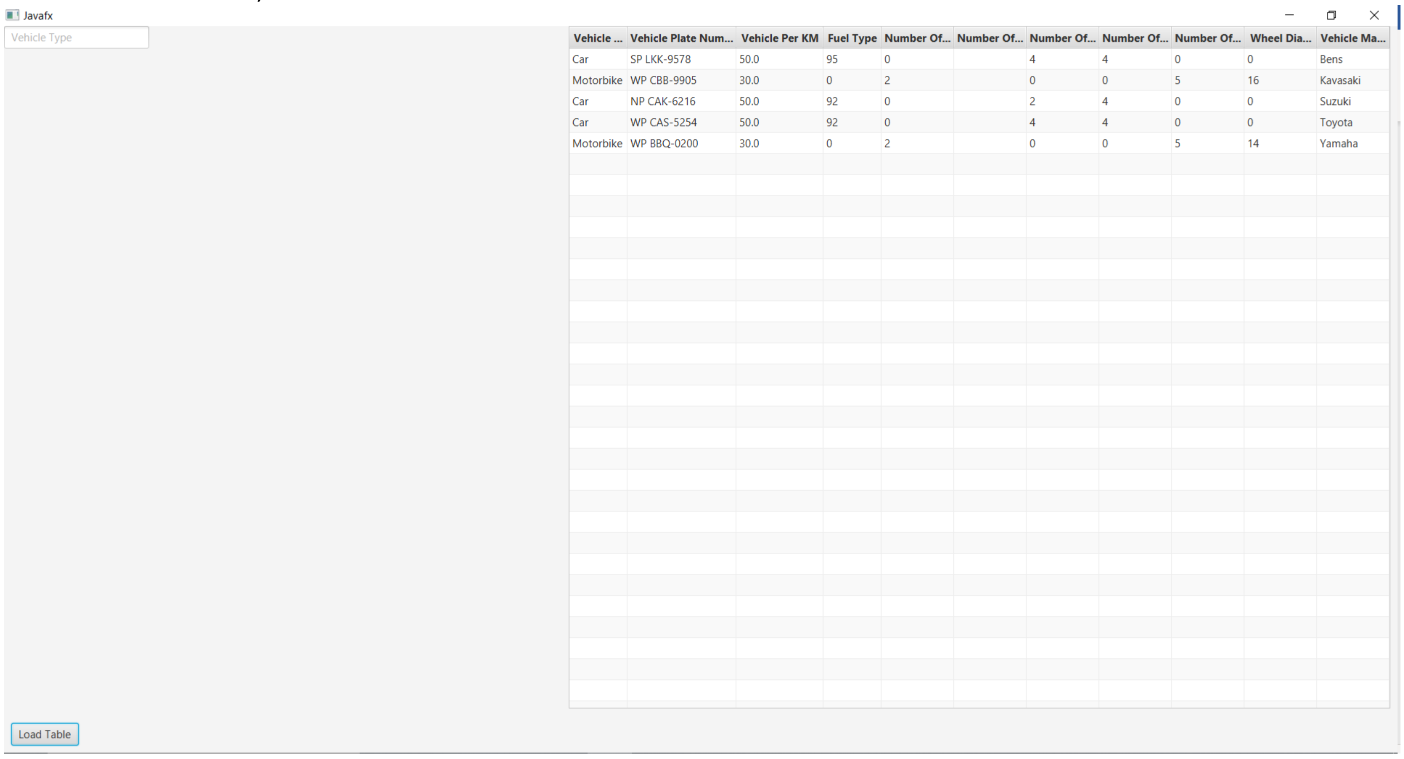
Screenshots



Vehicle ...	Vehicle Plate Num...	Vehicle Per KM	Fuel Type	Number Of...	Number Of...	Number Of...	Number Of...	Number Of...	Wheel Dia...	Vehicle Ma...

No content in table

- This is the first page. We should load it to get the data from the data base. When we click on load table, it shows the data.



Vehicle ...	Vehicle Plate Num...	Vehicle Per KM	Fuel Type	Number Of...	Number Of...	Number Of...	Number Of...	Number Of...	Wheel Dia...	Vehicle Ma...
Car	SP LKK-9578	50.0	95	0		4	4	0	0	Bens
Motorbike	WP CBB-9905	30.0	0	2		0	0	5	16	Kavasaki
Car	NP CAK-6216	50.0	92	0		2	4	0	0	Suzuki
Car	WP CAS-5254	50.0	92	0		4	4	0	0	Toyota
Motorbike	WP BBQ-0200	30.0	0	2		0	0	5	14	Yamaha

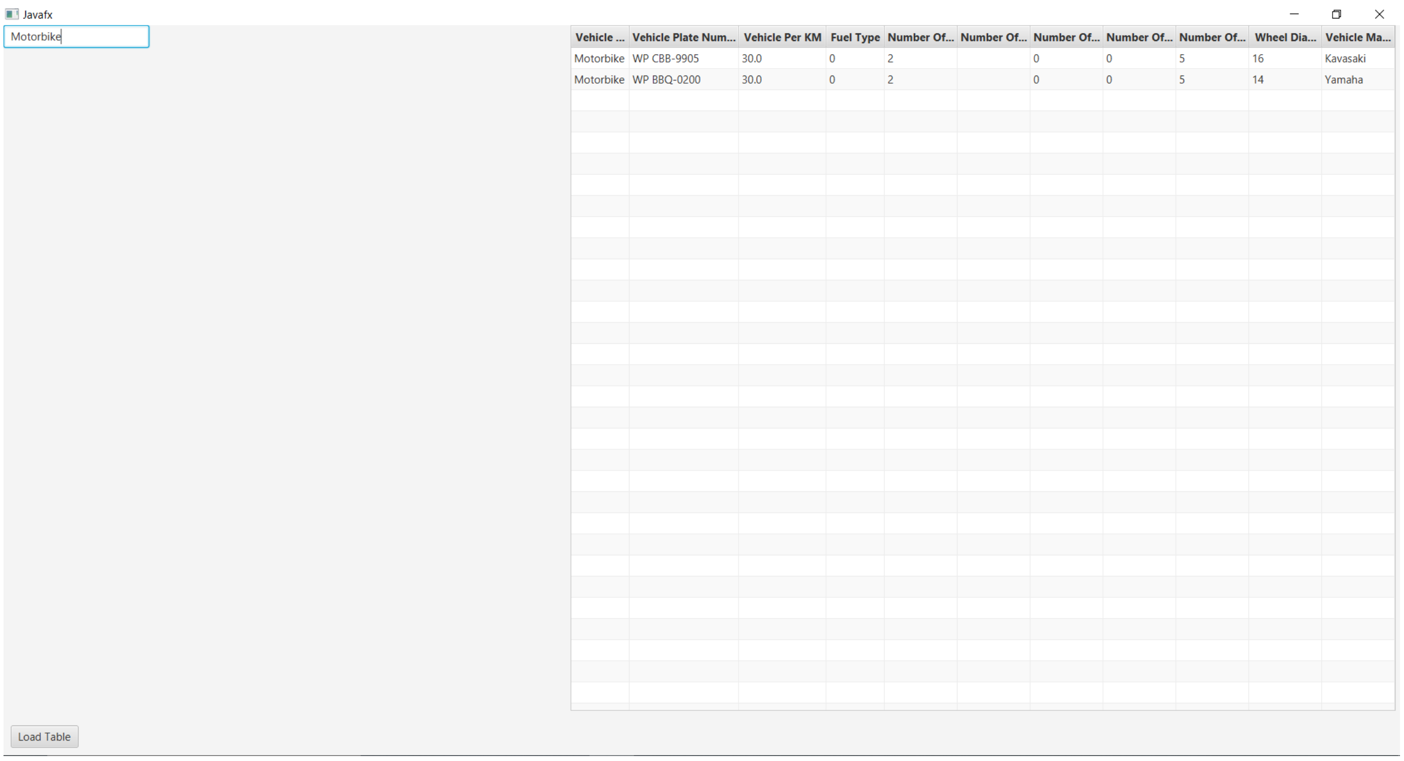
- Above table shows the list of vehicles in the Westminster rental manager. It has taken from the data base.

Filter the vehicles

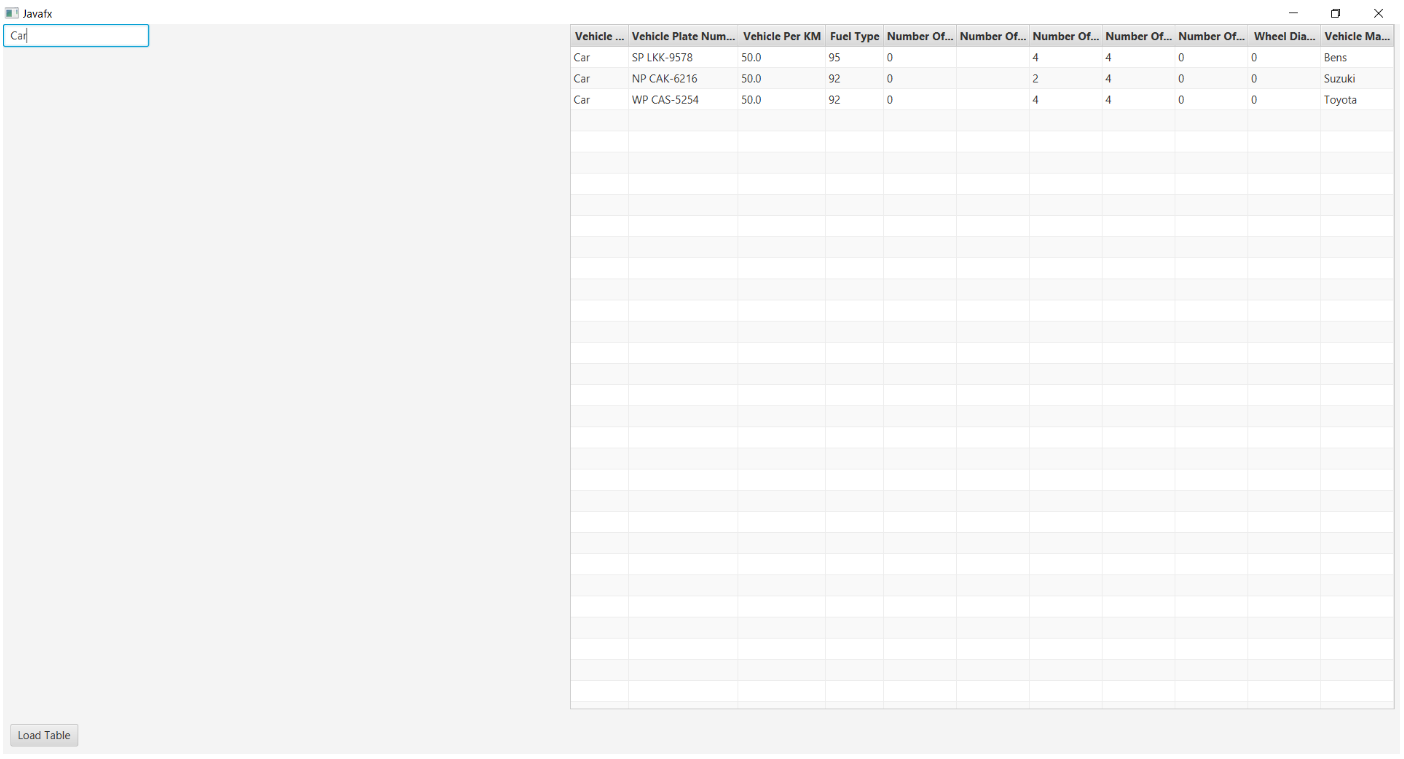
```java
@Override
public void start(Stage primaryStage) throws Exception {
    CheckConnection();

    primaryStage.setTitle("Javafx");
    BorderPane layout = new BorderPane();
    Scene newScene = new Scene(layout,1000,600,Color.rgb(0,0,0,0));

    TableView<User> table = new TableView<>();
    final ObservableList<User> data = FXCollections.observableArrayList();


    VBox fields = new VBox(5);
    searchField = new TextField();
    searchField.setFont(Font.font("SanSerif",15));
    searchField.setPromptText("Vehicle Type");
    searchField.setMaxWidth(200);

    fields.getChildren().addAll(searchField);
    layout.setCenter(fields);
    FilteredList<User> filteredList = new FilteredList<>(data, e-> true);
    searchField.setOnKeyReleased(e->{
        searchField.textProperty().addListener((observable, oldValue, newValue) ->{
            filteredList.setPredicate((Predicate <? super  User>) user->{
                if (newValue == null || newValue.isEmpty()){
                    return true;
                }
                String lowerCaseFilter = newValue;
                if (user.getVehicleType().contains(newValue)){
                    return true;
                }else if(user.getVehicleType().contains(lowerCaseFilter)){
                    return true;
                }
                return false;
            });
        });

        SortedList<User> sortedData = new SortedList<>(filteredList);
        sortedData.comparatorProperty().bind(table.comparatorProperty());
        table.setItems(sortedData);
    });
    primaryStage.setScene(newScene);
    primaryStage.show();

}
```

Screenshots

- I filter the vehicles according to the type of the vehicle, car or motorbike.



Vehicle ...	Vehicle Plate Num...	Vehicle Per KM	Fuel Type	Number Of...	Number Of...	Number Of...	Number Of...	Number Of...	Wheel Dia...	Vehicle Ma...
Motorbike	WP CBB-9905	30.0	0	2		0	0	5	16	Kavasaki
Motorbike	WP BBQ-0200	30.0	0	2		0	0	5	14	Yamaha



Vehicle ...	Vehicle Plate Num...	Vehicle Per KM	Fuel Type	Number Of...	Number Of...	Number Of...	Number Of...	Number Of...	Wheel Dia...	Vehicle Ma...
Car	SP LKK-9578	50.0	95	0		4	4	0	0	Bens
Car	NP CAK-6216	50.0	92	0		2	4	0	0	Suzuki
Car	WP CAS-5254	50.0	92	0		4	4	0	0	Toyota

Full Code

```
package lk.oopCoursework1;
import javafx.application.Application;
import javafx.collections.FXCollections;
import javafx.collections.ObservableList;
import javafx.collections.transformation.FilteredList;
import javafx.collections.transformation.SortedList;
import javafx.geometry.Insets;
import javafx.scene.Scene;
import javafx.scene.control.*;
import javafx.scene.control.cell.PropertyValueFactory;
import javafx.scene.layout.BorderPane;
import javafx.scene.layout.HBox;
import javafx.scene.layout.VBox;
import javafx.scene.paint.Color;
import javafx.scene.text.Font;
import javafx.stage.Stage;
import java.sql.Connection;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.util.function.Predicate;

public class Gui extends Application {
    Connection conn;
    PreparedStatement preparedStatement = null;
    ResultSet resultSet = null;
    TextField searchField;


    public static void main(String[] args) {
        launch(args);
    }

    public void CheckConnection(){
        conn = SqlConnection.DbConnector();
        if(conn == null){
            System.out.println("Connection is not successful.");
            System.exit(1);
        }else {
            System.out.println("Connection is successful.");
        }
    }



    @Override
    public void start(Stage primaryStage) throws Exception {
        CheckConnection();

        primaryStage.setTitle("Javafx");
        BorderPane layout = new BorderPane();
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        TableColumn column3 = new TableColumn("Vehicle Per KM");
        column3.setMinWidth(120);
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        TableColumn column4 = new TableColumn("Fuel Type");
        column4.setMinWidth(80);
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        column5.setMinWidth(100);
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                preparedStatement = conn.prepareStatement(query);
                resultSet = preparedStatement.executeQuery();

                while (resultSet.next()){
                    data.add(new User(
                            resultSet.getString("VehicleType"),
                            resultSet.getString("VehiclePlateNumber"),
                            resultSet.getDouble("PricePerKM"),
                            resultSet.getInt("FuelType"),
                            resultSet.getInt("NumberOfHelmets"),
                            resultSet.getInt("NumberOfPassengers"),
                            resultSet.getInt("NumberOfAirbags"),
                            resultSet.getInt("NumberOfSeats"),
                            resultSet.getInt("NumberOfGears"),
                            resultSet.getInt("WheelDiameter"),
                            resultSet.getString("VehicleMake")
                    ));
                    table.setItems(data);

                }
                preparedStatement.close();
                resultSet.close();
            }catch (Exception e2){
                System.err.println(e2);
            }
        });

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            searchField.textProperty().addListener((observable, oldValue, newValue) ->{
                filteredList.setPredicate((Predicate <? super  User>) user->{
                    if (newValue == null || newValue.isEmpty()){
                        return true;
                    }
                    String lowerCaseFilter = newValue;
                    if (user.getVehicleType().contains(newValue)){
                        return true;
                    }else if(user.getVehicleType().contains(lowerCaseFilter)){
                        return true;
                    }
                    return false;
                });
            });

            SortedList<User> sortedData = new SortedList<>(filteredList);
            sortedData.comparatorProperty().bind(table.comparatorProperty());
            table.setItems(sortedData);
        });
        primaryStage.setScene(newScene);
        primaryStage.show();

    }
}
```

User Class

```
package lk.oopCoursework1;

import javafx.beans.property.SimpleDoubleProperty;
import javafx.beans.property.SimpleIntegerProperty;
import javafx.beans.property.SimpleStringProperty;




public class User {
    private final SimpleStringProperty vehicleType;
    private final SimpleStringProperty vehiclePlateNumber;
    private final SimpleDoubleProperty pricePerKm;
    private final SimpleIntegerProperty fuelType;
    private final SimpleIntegerProperty numberOfHelmets;
    private final SimpleIntegerProperty numberOfPassengers;
    private final SimpleIntegerProperty numberOfAirbags;
    private final SimpleIntegerProperty numberOfSeats;
    private final SimpleIntegerProperty numberOfGears;
    private final SimpleIntegerProperty wheelDiameter;
    private final SimpleStringProperty vehicleMake;

    public User(String type, String plateNumber, double price, int fuel, int helmets, int
passengers, int airbags, int seats, int gears, int diameter, String make) {
        this.vehicleType = new SimpleStringProperty(type);
        this.vehiclePlateNumber = new SimpleStringProperty(plateNumber);
        this.pricePerKm = new SimpleDoubleProperty(price);
        this.fuelType = new SimpleIntegerProperty(fuel);
        this.numberOfHelmets = new SimpleIntegerProperty(helmets);
        this.numberOfPassengers = new SimpleIntegerProperty(passengers);
        this.numberOfAirbags = new SimpleIntegerProperty(airbags);
        this.numberOfSeats = new SimpleIntegerProperty(seats);
        this.numberOfGears = new SimpleIntegerProperty(gears);
        this.wheelDiameter = new SimpleIntegerProperty(diameter);
        this.vehicleMake = new SimpleStringProperty(make);
    }

    public String getVehicleType(){
        return vehicleType.get();
    }

    public String getVehiclePlateNumber(){
        return vehiclePlateNumber.get();
    }

    public double getPricePerKM(){
        return pricePerKm.get();
    }

    public int getFuelType() {
        return fuelType.get();
    }

    public int getNumberOfHelmets() {
        return numberOfHelmets.get();
    }

    public int getNumberPfPassengers() {
        return numberOfPassengers.get();
    }

    public int getNumberOfAirbags() {
        return numberOfAirbags.get();
    }

    public int getNumberOfSeats() {
        return numberOfSeats.get();
    }

    public int getNumberOfGears() {
        return numberOfGears.get();
    }

    public int getWheelDiameter() {
        return wheelDiameter.get();
    }

    public String getVehicleMake() {
        return vehicleMake.get();
    }

    public void setVehicleType(String type){
        vehicleType.set(type);
    }

    public void setVehiclePlateNumber(String plateNumber){
        vehiclePlateNumber.set(plateNumber);
    }

    public void setPricePerKm(double price){
        pricePerKm.set(price);
    }

    public void setFuelType(int fuel){
        fuelType.set(fuel);
    }

    public void setNumberOfHelmets(int helmets){
        numberOfHelmets.set(helmets);
    }

    public void setNumberPfPassengers(int passengers){
        numberOfPassengers.set(passengers);
    }

    public void setNumberOfAirbags(int airbags){
        numberOfPassengers.set(airbags);
    }

    public void setNumberOfSeats(int seats){
        numberOfSeats.set(seats);
    }

    public void setNumberOfGears(int gears){
        numberOfGears.set(gears);
    }
    public void setWheelDiameter(int diameter){
        wheelDiameter.set(diameter);
    }

    public void setVehicleMake(String make){
        vehicleMake.set(make);
    }
}
```

Connection

```
package lk.oopCoursework1;

import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;

public class SqlConnection {


    public static Connection DbConnector(){
        String dbName = "vehiclerental";
        String userName = "root";
        String password = "";
        try{
            Connection conn = null;
            Class.forName("com.mysql.jdbc.Driver");
            conn =
DriverManager.getConnection("jdbc:mysql://localhost/"+dbName,userName,password);
            return conn;
        }catch (ClassNotFoundException | SQLException e){
            System.out.println(e);
        }
        return null;
    }
}
```