Phase 3

GraphicalUserInterface.java

```
import javafx.application.Application;
import javafx.application.Platform;
import javafx.fxml.FXMLLoader;
import javafx.scene.Parent;
import javafx.scene.Scene;
import javafx.stage.Stage;

import java.io.File;
import java.io.IOException;
import java.net.URL;

public class  GraphicalUserInterface extends Application {
    private static Stage primaryStage;

    /**
     * The starting point of the Application GUI
     */
    @Override
    public void start(Stage primaryStage) throws
IOException {
        // Setting this to implicit exit means it won't
quit the program even
        // when the user clicks on the exit button.
        Platform.setImplicitExit(false);

        // creating the url path to the FXML file
        URL url = new
File("src/main/resources/view/table_view.fxml").toURL();
        Parent root = FXMLLoader.load(url);

        primaryStage.setTitle("Table View of Music
Items");
        // setting the view to the scene
        primaryStage.setScene(new Scene(root));

        primaryStage.show();
        GraphicalUserInterface.primaryStage =
primaryStage;
    }
    /**
     * To begin the Application GUI
     */
    public static void main() {
        launch();
    }

    /**
     * To display the stage
     */
    public static void displayStage() {
        primaryStage.show();
    }
}
```

TableController.java

```
package controller;

import javafx.fxml.FXML;
import javafx.fxml.Initializable;
import javafx.scene.control.*;
import javafx.scene.control.cell.PropertyValueFactory;
import javafx.scene.input.MouseEvent;
import model.*;

import java.math.BigDecimal;
import java.net.URL;
import java.time.LocalDate;
import java.util.ResourceBundle;

/**
 * controller.TableController
 * The MV "C", controller part of the program, it controls the GUI elements.
 *
 * @author Akassharjun Shanmugarajah
 */
public class TableController implements Initializable {

    @FXML
    private TableView<Vehicle> tableView;
    @FXML
    private TableColumn<Vehicle, String> plateNumber;
    @FXML
    private TableColumn<Vehicle, Make> make;
    @FXML
    private TableColumn<Vehicle, Transmission>
transmission;
    @FXML
    private TableColumn<Vehicle, BigDecimal> rate;
    @FXML
    private TableColumn<Vehicle, Integer> numberOfDoors;
    @FXML
    private TableColumn<Vehicle, Boolean> hasSunRoof;
    @FXML
    private TableColumn<Vehicle, StandType> standType;
    @FXML
    private TableColumn<Vehicle, Boolean> hasPedals;
    @FXML
    private TextField searchBox;
    @FXML
    private Button searchButton;
    @FXML
    public Button bookButton;
    @FXML
    public DatePicker pickUpDate;
    @FXML
    public DatePicker dropOffDate;


    /**
     * To initialize the table columns with the proper
cell names to map correctly
     * with the MusicItem class
     *
     * @param location  unused
     * @param resources unused
     */
    @Override
    public void initialize(URL location, ResourceBundle
resources) {
        // initializing the table columns
        plateNumber.setCellValueFactory(new
PropertyValueFactory<>("plateNumber"));
        make.setCellValueFactory(new
PropertyValueFactory<>("make"));
```

```
        transmission.setCellValueFactory(new
PropertyValueFactory<>("transmission"));
        rate.setCellValueFactory(new
PropertyValueFactory<>("rate"));
        numberOfDoors.setCellValueFactory(new
PropertyValueFactory<>("numberOfDoors"));
        hasSunRoof.setCellValueFactory(new
PropertyValueFactory<>("hasSunRoof"));
        standType.setCellValueFactory(new
PropertyValueFactory<>("standType"));
        hasPedals.setCellValueFactory(new
PropertyValueFactory<>("hasPedals"));

        this.addMusicItems();
    }

    /**
     * To add the music items to the table view.
     */
    private void addMusicItems() {

System.out.println(WestminsterRentalVehicleManager.vehicle
List);

WestminsterRentalVehicleManager.vehicleList.forEach((vehic
le -> {
//            tableView.getItems().add(vehicle);

            if (vehicle instanceof Car) {
                Car car = (Car) vehicle;
                tableView.getItems().add(car);
            } else {
                Motorbike motorbike = (Motorbike) vehicle;
                tableView.getItems().add(motorbike);
            }
        }));
    }

    /**
     * To filter the contents of the table when the user
searches for a title.
     */
    @FXML
    public void onSearchButtonClick(MouseEvent event) {
        String text = searchBox.getText();
        // clearing all the previous entries
        tableView.getItems().clear();

WestminsterRentalVehicleManager.vehicleList.forEach((vehic
le -> {
            // checking if what the user entered is in the
title and
            // adding it to the table
            if
(vehicle.getPlateNumber().toLowerCase().contains(text.toLo
werCase())) {
                if (vehicle instanceof Car) {
                    Car car = (Car) vehicle;
                    tableView.getItems().add(car);
                } else {
                    Motorbike motorbike = (Motorbike)
vehicle;
                    tableView.getItems().add(motorbike);
                }
            }
        }));
    }

    @FXML
    public void onBookButtonPressed(MouseEvent event) {
        Vehicle vehicle =
tableView.getSelectionModel().getSelectedItem();
        Alert a = new Alert(Alert.AlertType.NONE);


        if (vehicle == null) {
            // set alert type
            a.setContentText("You haven't selected a
vehicle to book!");
            a.setAlertType(Alert.AlertType.ERROR);

            // show the dialog
            a.show();
            return;
        }

        LocalDate pickUpDateValue = pickUpDate.getValue();
        if (pickUpDateValue == null) {
            // set alert type
            a.setContentText("You haven't entered a pick
up date!");
            a.setAlertType(Alert.AlertType.ERROR);

            // show the dialog
            a.show();
            return;
        }

        LocalDate dropOffDate = pickUpDate.getValue();


        if (dropOffDate == null) {
            // set alert type
            a.setContentText("You haven't entered a drop
off date!");
            a.setAlertType(Alert.AlertType.ERROR);

            // show the dialog
            a.show();
            return;
        }

        Schedule schedule = new Schedule(new
Date(pickUpDateValue.getDayOfMonth(),
pickUpDateValue.getMonthValue(),
pickUpDateValue.getYear()), new
Date(dropOffDate.getDayOfMonth(),
dropOffDate.getMonthValue(), dropOffDate.getYear()));


WestminsterRentalVehicleManager.bookVehicle(schedule,
vehicle);
    }

}
```

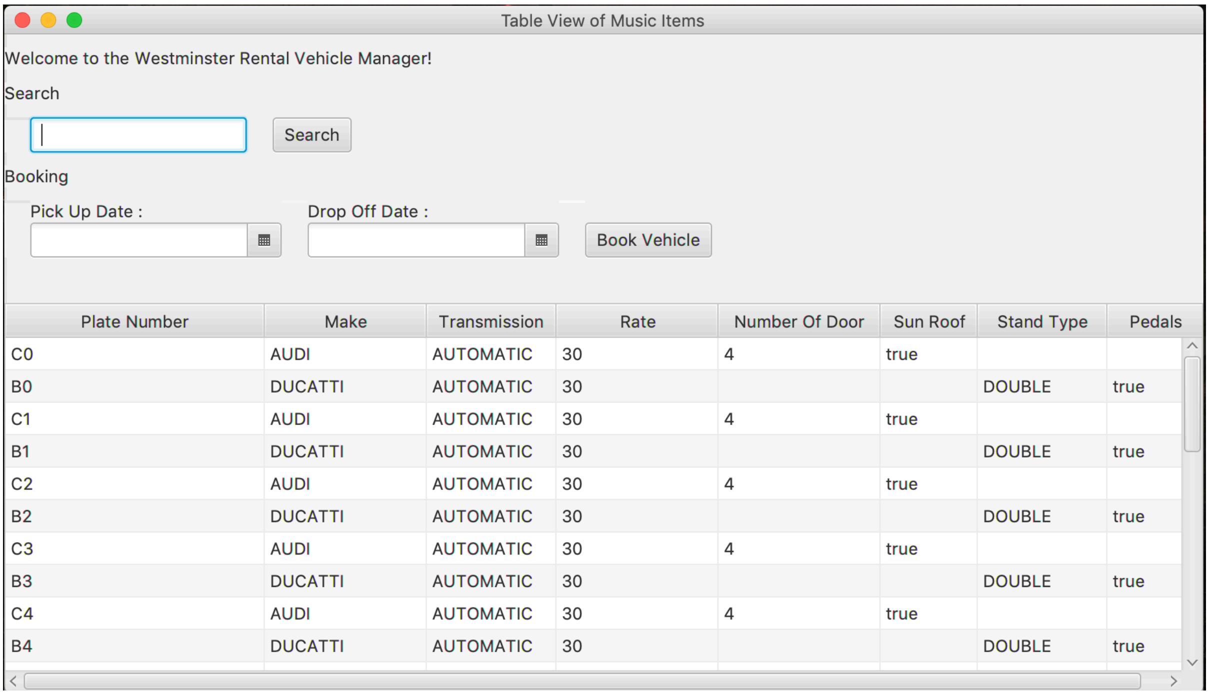
table_view.fxml

```
<?xml version="1.0" encoding="UTF-8"?>

<?import javafx.scene.control.TableColumn?>
<?import javafx.scene.control.TableView?>
<?import javafx.scene.layout.AnchorPane?>
<?import javafx.scene.control.TextField?>
<?import javafx.scene.layout.VBox?>
<?import javafx.scene.layout.HBox?>
<?import javafx.scene.control.Label?>
<?import javafx.scene.control.Button?>
<?import javafx.scene.shape.Box?>

<?import javafx.scene.control.DatePicker?>
<AnchorPane fx:controller="controller.TableController"
id="AnchorPane" maxHeight="-Infinity" maxWidth="-Infinity"
            minHeight="-Infinity" minWidth="-Infinity"
xmlns="http://javafx.com/javafx/8.0.172-ea"
            xmlns:fx="http://javafx.com/fxml/1">
    <VBox>
        <Box height="10"/>
        <Label>Welcome to the Westminster Rental Vehicle
Manager!</Label>
        <Box height="10"/>
        <Label>Search</Label>
        <Box height="10"/>
        <HBox>
            <Box width="20"/>
            <TextField fx:id="searchBox" promptText="Enter
title here"/>
            <Box width="20"/>
            <Button fx:id="searchButton"
onMouseClicked="#onSearchButtonClick">Search</Button>
        </HBox>
        <Box height="10"/>
        <Label>Booking</Label>
        <Box height="10"/>
        <HBox>
            <Box width="20"/>
            <VBox>
                <Label>Pick Up Date :</Label>
                <DatePicker fx:id="pickUpDate"/>
            </VBox>
            <Box width="20"/>
            <VBox>
                <Label>Drop Off Date :</Label>
                <DatePicker fx:id="dropOffDate"/>
            </VBox>
            <Box width="20"/>
            <VBox>
                <Label></Label>
                <Button fx:id="bookButton"
onMouseClicked="#onBookButtonPressed">Book
Vehicle</Button>
            </VBox>
        </HBox>
        <Box height="10"/>
        <Box height="25"/>
        <TableView fx:id="tableView" prefHeight="300.0"
prefWidth="925.0">
            <columns>
                <!-- Total Width : 885 -->
                <TableColumn fx:id="plateNumber"
prefWidth="200.0" text="Plate Number"/>
                <TableColumn fx:id="make"
prefWidth="125.0" text="Make"/>
                <TableColumn fx:id="transmission"
prefWidth="100.0" text="Transmission"/>
                <TableColumn fx:id="rate"
prefWidth="125.0" text="Rate"/>
                <TableColumn fx:id="numberOfDoors"
prefWidth="125.0" text="Number Of Door"/>
                <TableColumn fx:id="hasSunRoof"
prefWidth="75.0" text="Sun Roof"/>
                <TableColumn fx:id="standType"
prefWidth="100.0" text="Stand Type"/>
                <TableColumn fx:id="hasPedals"
prefWidth="75.0" text="Pedals"/>
            </columns>
        </TableView>
    </VBox>
</AnchorPane>
```

Screenshots

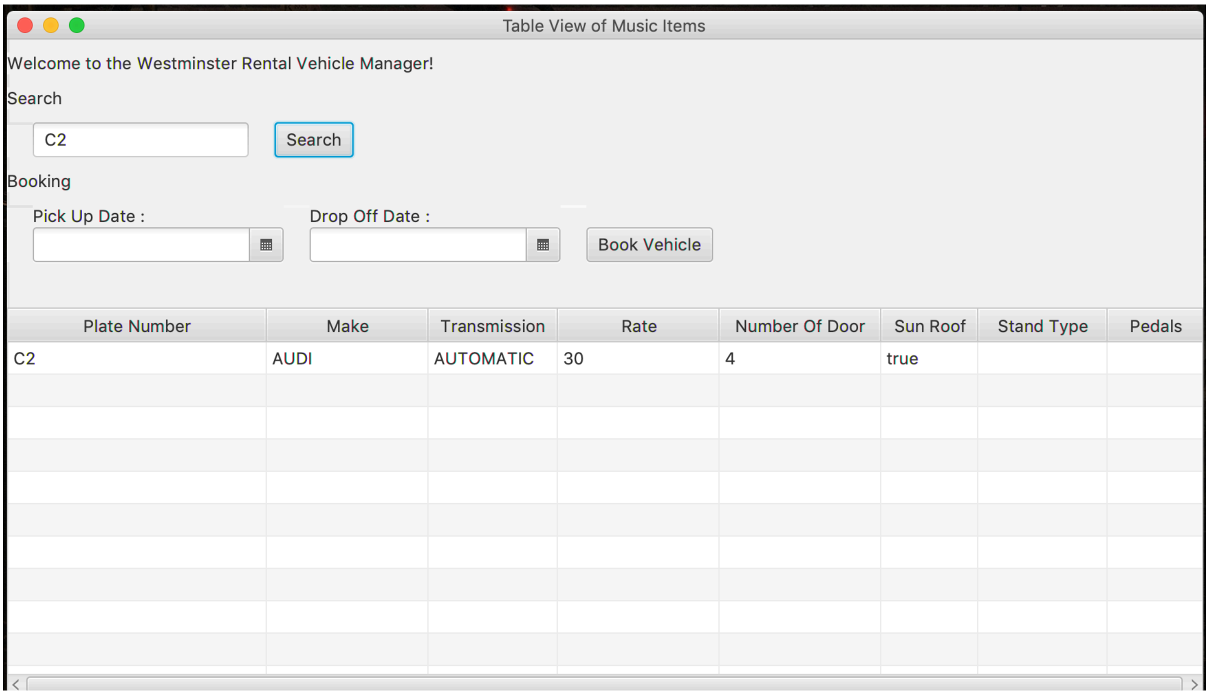


Welcome to the Westminster Rental Vehicle Manager!

Plate Number	Make	Transmission	Rate	Number Of Door	Sun Roof	Stand Type	Pedals
C0	AUDI	AUTOMATIC	30	4	true		
B0	DUCATTI	AUTOMATIC	30			DOUBLE	true
C1	AUDI	AUTOMATIC	30	4	true		
B1	DUCATTI	AUTOMATIC	30			DOUBLE	true
C2	AUDI	AUTOMATIC	30	4	true		
B2	DUCATTI	AUTOMATIC	30			DOUBLE	true
C3	AUDI	AUTOMATIC	30	4	true		
B3	DUCATTI	AUTOMATIC	30			DOUBLE	true
C4	AUDI	AUTOMATIC	30	4	true		
B4	DUCATTI	AUTOMATIC	30			DOUBLE	true

This window loads when the launch Customer GUI is selected. The customer is allowed to search for a Vehicle and book a vehicle

Search Funtionality

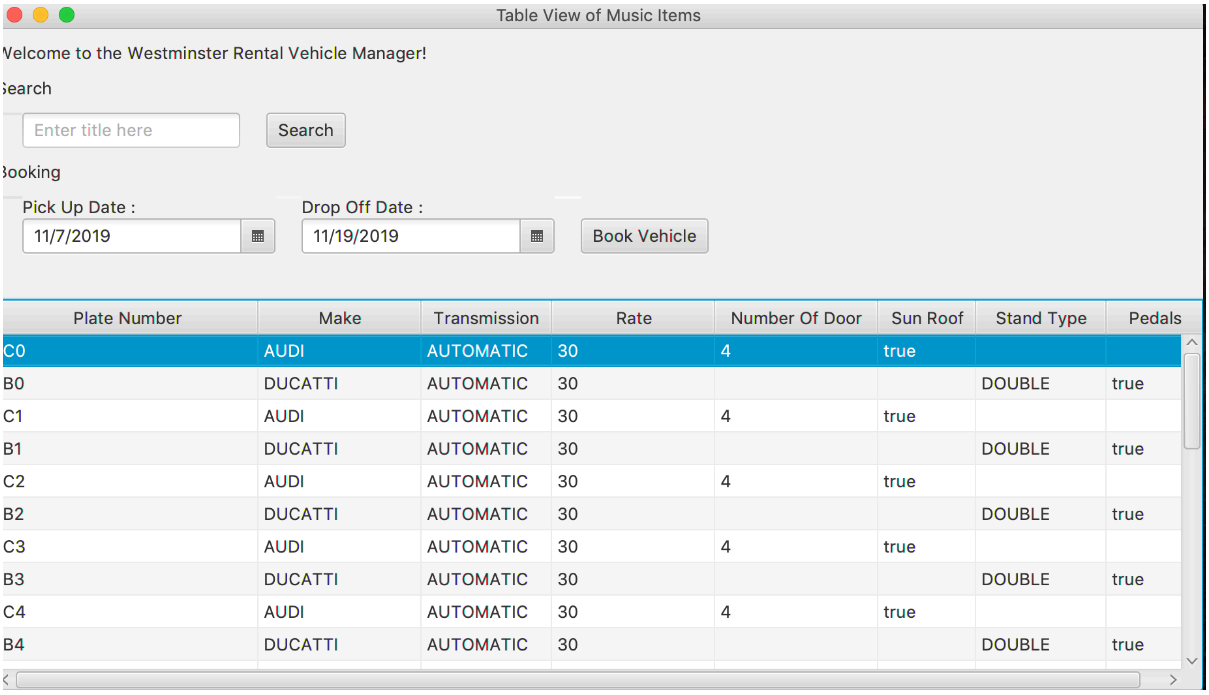


Welcome to the Westminster Rental Vehicle Manager!

Search: C2

Plate Number	Make	Transmission	Rate	Number Of Door	Sun Roof	Stand Type	Pedals
C2	AUDI	AUTOMATIC	30	4	true		

Booking Functionality



Welcome to the Westminster Rental Vehicle Manager!

Search

Enter title here | Search

Booking

Pick Up Date : 11/7/2019

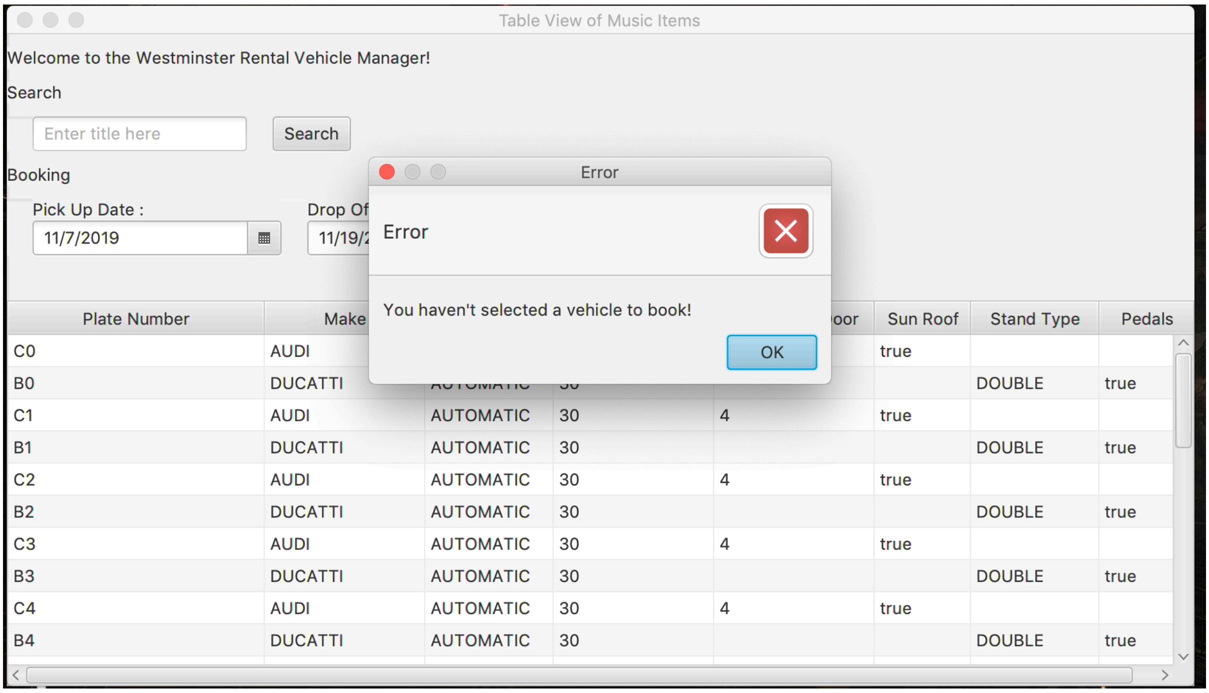
Drop Off Date : 11/19/2019

Book Vehicle

Plate Number	Make	Transmission	Rate	Number Of Door	Sun Roof	Stand Type	Pedals
C0	AUDI	AUTOMATIC	30	4	true		
B0	DUCATTI	AUTOMATIC	30			DOUBLE	true
C1	AUDI	AUTOMATIC	30	4	true		
B1	DUCATTI	AUTOMATIC	30			DOUBLE	true
C2	AUDI	AUTOMATIC	30	4	true		
B2	DUCATTI	AUTOMATIC	30			DOUBLE	true
C3	AUDI	AUTOMATIC	30	4	true		
B3	DUCATTI	AUTOMATIC	30			DOUBLE	true
C4	AUDI	AUTOMATIC	30	4	true		
B4	DUCATTI	AUTOMATIC	30			DOUBLE	true

The Customer has to select a vehicle, enter a pick up date and a drop off date to book the vehicle. There's some validation done to make sure the customer has selected a vehicle and the dates.

Ex:



Welcome to the Westminster Rental Vehicle Manager!

Search

Enter title here | Search

Booking

Pick Up Date : 11/7/2019

Drop Of

11/19/2

Error

Error

You haven't selected a vehicle to book!

OK

Plate Number	Make			oor	Sun Roof	Stand Type	Pedals
C0	AUDI				true		
B0	DUCATTI					DOUBLE	true
C1	AUDI	AUTOMATIC	30	4	true		
B1	DUCATTI	AUTOMATIC	30			DOUBLE	true
C2	AUDI	AUTOMATIC	30	4	true		
B2	DUCATTI	AUTOMATIC	30			DOUBLE	true
C3	AUDI	AUTOMATIC	30	4	true		
B3	DUCATTI	AUTOMATIC	30			DOUBLE	true
C4	AUDI	AUTOMATIC	30	4	true		
B4	DUCATTI	AUTOMATIC	30			DOUBLE	true