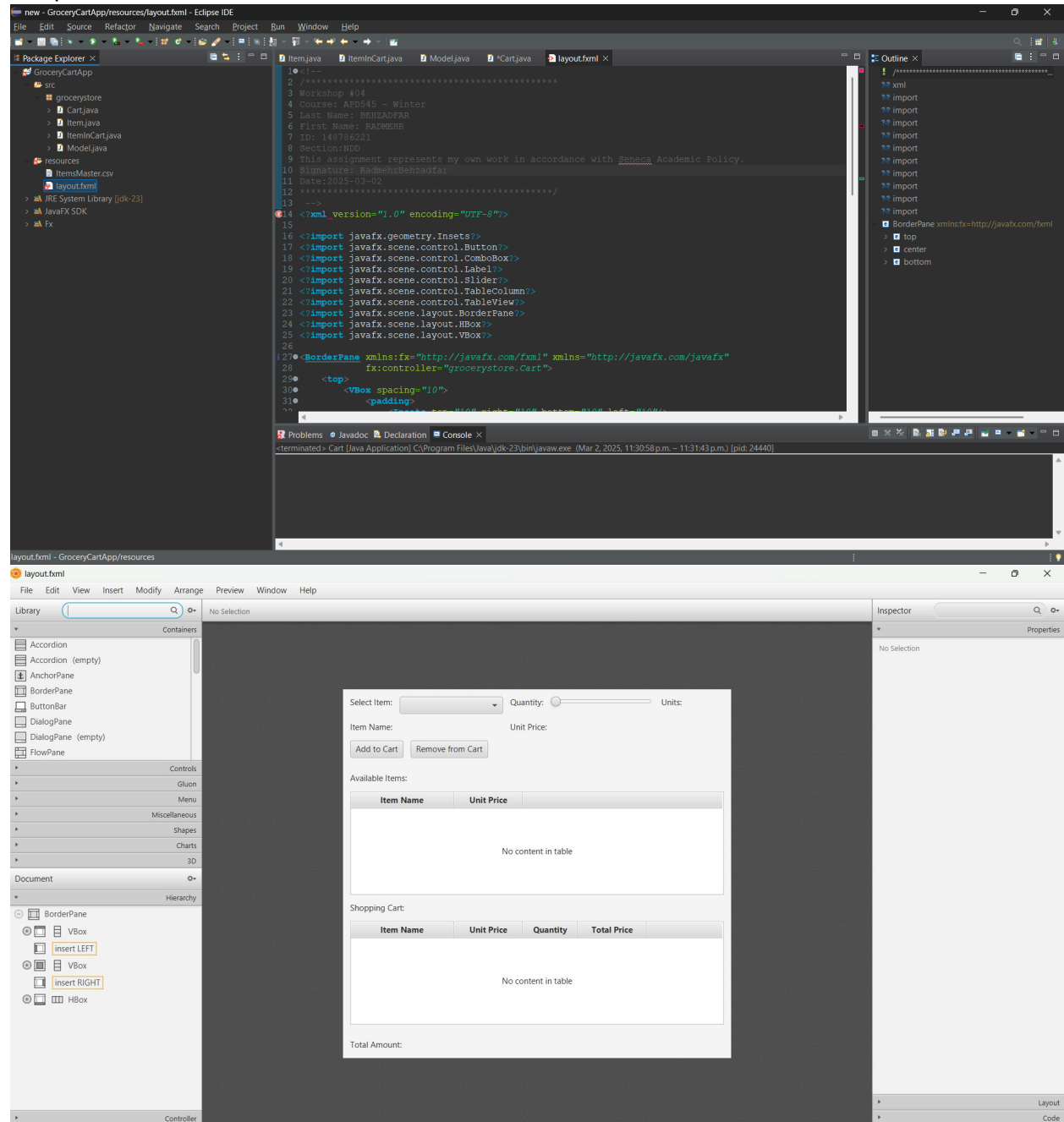Application Development(APD545NDD.12037.2251)

Full Name: Radmehr Behzadfar
Id: 148786221
Seneca email: rbehzadfar@myseneca.ca

Output:

codes :

Cart.java

```
/*********************************************

Workshop #04

Course: APD545 - Winter

Last Name: BEHZADFAR
```

First Name: RADMEHR

ID: 148786221

Section:NDD

This assignment represents my own work in accordance with Seneca Academic Policy.

Signature: RadmehrBehzadfar

Date:2025-03-02

***/

```java
package grocerystore;


import javafx.application.Application;

import javafx.beans.binding.Bindings;

import javafx.beans.binding.DoubleBinding;

import javafx.collections.FXCollections;

import javafx.collections.ObservableList;

import javafx.fxml.FXML;

import javafx.fxml.FXMLLoader;

import javafx.scene.Scene;
```

```java
import javafx.scene.control.*;

import javafx.stage.Stage;

import java.io.IOException;


public class Cart extends Application {


    @FXML private ComboBox<Item> itemsComboBox;

    @FXML private Slider quantitySlider;

    @FXML private Label purchaseUnitsLabel;

    @FXML private Label unitValueLabel;

    @FXML private Label unitPriceValueLabel;


    @FXML private TableView<Item> itemsTableView;

    @FXML private TableColumn<Item, String> itemNameColumn;

    @FXML private TableColumn<Item, Number> unitPriceColumn;


    @FXML private TableView<ItemInCart> cartTableView;
```

```java
@FXML private TableColumn<ItemInCart, String> cartItemNameColumn;

@FXML private TableColumn<ItemInCart, Number> cartUnitPriceColumn;

@FXML private TableColumn<ItemInCart, Number> cartQuantityColumn;

@FXML private TableColumn<ItemInCart, Number> cartTotalPriceColumn;


@FXML private Button addButton;

@FXML private Button removeButton;

@FXML private Label totalValueLabel;


private Model model;

private ObservableList<ItemInCart> cartObservableList =
FXCollections.observableArrayList();


@Override

public void start(Stage primaryStage) throws IOException {

    FXMLLoader loader = new FXMLLoader(getClass().getResource("/layout.fxml"));

    primaryStage.setTitle("Grocery Cart Application");

    primaryStage.setScene(new Scene(loader.load()));
```

```java
        primaryStage.show();

    }


    @FXML

    private void initialize() {


        model = new Model();

        String csvPath = getClass().getResource("/ItemsMaster.csv").getPath();

        model.loadData(csvPath);


        setupAction();

    }


    public void setupAction() {


        itemsComboBox.setItems(model.getItemsObservableList());

        itemsComboBox.getSelectionModel().clearSelection();
```

```java
        purchaseUnitsLabel.textProperty().bind(Bindings.format("%.0f",
quantitySlider.valueProperty()));


        unitValueLabel.textProperty().bind(Bindings.createStringBinding(() -> {

            Item selectedItem = itemsComboBox.getValue();

            return (selectedItem != null) ? selectedItem.getName() : "";

        }, itemsComboBox.valueProperty()));


        unitPriceValueLabel.textProperty().bind(Bindings.createStringBinding(() -> {

            Item selectedItem = itemsComboBox.getValue();

            return (selectedItem != null) ? String.format("%.2f", selectedItem.getUnitPrice()) : "";

        }, itemsComboBox.valueProperty()));


        itemNameColumn.setCellValueFactory(cellData ->
cellData.getValue().nameProperty());

        unitPriceColumn.setCellValueFactory(cellData ->
cellData.getValue().unitPriceProperty());
```

```java
        itemsTableView.setItems(model.getItemsObservableList());


        cartTableView.setItems(cartObservableList);

        cartItemNameColumn.setCellValueFactory(data ->
data.getValue().itemNameProperty());

        cartUnitPriceColumn.setCellValueFactory(data -> data.getValue().unitPriceProperty());

        cartQuantityColumn.setCellValueFactory(data -> data.getValue().quantityProperty());

        cartTotalPriceColumn.setCellValueFactory(data ->
data.getValue().totalPriceProperty());


        addButton.setOnAction(event -> {

            Item selectedItem = itemsComboBox.getSelectionModel().getSelectedItem();

            if (selectedItem != null) {

                int quantity = (int) quantitySlider.getValue();

                ItemInCart itemInCart = new ItemInCart(selectedItem.getName(),
selectedItem.getUnitPrice(), quantity);

                cartObservableList.add(itemInCart);

            }

        });
```

```java
DoubleBinding totalBinding = Bindings.createDoubleBinding(() ->

    cartObservableList.stream().mapToDouble(ItemInCart::getTotalPrice).sum(),

    cartObservableList

);

totalValueLabel.textProperty().bind(Bindings.format("%.2f", totalBinding));



cartTableView.getSelectionModel().selectedItemProperty().addListener((obs,
oldSelection, newSelection) -> {

    if (newSelection != null) {

        for (int i = 0; i < model.getItemsObservableList().size(); i++) {

            if
(model.getItemsObservableList().get(i).getName().equals(newSelection.getItemName())) {

                itemsComboBox.getSelectionModel().select(i);

                quantitySlider.setValue(newSelection.getQuantity());

                break;

            }

        }
```

```
            }

        });



        removeButton.setOnAction(event -> {

            int selectedIndex = cartTableView.getSelectionModel().getSelectedIndex();

            if (selectedIndex >= 0) {

                cartObservableList.remove(selectedIndex);

            }

        });

    }



    public static void main(String[] args) {

        launch(args);

    }

}
```

Item.java

```java
/*********************************************

Workshop #04

Course: APD545 - Winter

Last Name: BEHZADFAR

First Name: RADMEHR

ID: 148786221

Section:NDD

This assignment represents my own work in accordance with Seneca Academic Policy.

Signature: RadmehrBehzadfar

Date:2025-03-02

*********************************************/

package grocerystore;


import javafx.beans.property.SimpleDoubleProperty;

import javafx.beans.property.SimpleStringProperty;
```

```java
public class Item {

    private SimpleStringProperty name;

    private SimpleDoubleProperty unitPrice;



    public Item(String name, double unitPrice) {

        this.name = new SimpleStringProperty(name);

        this.unitPrice = new SimpleDoubleProperty(unitPrice);

    }



    public String getName() {

        return name.get();

    }



    public void setName(String name) {

        this.name.set(name);

    }
```

```java
public double getUnitPrice() {

    return unitPrice.get();

}


public void setUnitPrice(double unitPrice) {

    this.unitPrice.set(unitPrice);

}


public SimpleStringProperty nameProperty() {

    return name;

}


public SimpleDoubleProperty unitPriceProperty() {

    return unitPrice;

}


@Override
```

```java
    public String toString() {

        return getName();

    }

}
```

ItemInCart.java

```java
/*********************************************

Workshop #04

Course: APD545 - Winter

Last Name: BEHZADFAR

First Name: RADMEHR

ID: 148786221

Section:NDD

This assignment represents my own work in accordance with Seneca Academic Policy.

Signature: RadmehrBehzadfar

Date:2025-03-02

*********************************************/
```

```java
package grocerystore;

import javafx.beans.property.SimpleDoubleProperty;

import javafx.beans.property.SimpleIntegerProperty;

import javafx.beans.property.SimpleStringProperty;


public class ItemInCart {

    private SimpleStringProperty itemName;

    private SimpleDoubleProperty unitPrice;

    private SimpleIntegerProperty quantity;

    private SimpleDoubleProperty totalPrice;


    public ItemInCart(String itemName, double unitPrice, int quantity) {

        this.itemName = new SimpleStringProperty(itemName);

        this.unitPrice = new SimpleDoubleProperty(unitPrice);

        this.quantity = new SimpleIntegerProperty(quantity);

        this.totalPrice = new SimpleDoubleProperty(unitPrice * quantity);
```

```java
    }


    public String getItemName() {

        return itemName.get();

    }



    public void setItemName(String itemName) {

        this.itemName.set(itemName);

        updateTotalPrice();

    }



    public double getUnitPrice() {

        return unitPrice.get();

    }



    public void setUnitPrice(double unitPrice) {

        this.unitPrice.set(unitPrice);
```

```java
        updateTotalPrice();

    }


    public int getQuantity() {

        return quantity.get();

    }



    public void setQuantity(int quantity) {

        this.quantity.set(quantity);

        updateTotalPrice();

    }



    public double getTotalPrice() {

        return totalPrice.get();

    }



    private void updateTotalPrice() {
```

```java
        this.totalPrice.set(getUnitPrice() * getQuantity());

    }


    public SimpleStringProperty itemNameProperty() {

        return itemName;

    }



    public SimpleDoubleProperty unitPriceProperty() {

        return unitPrice;

    }



    public SimpleIntegerProperty quantityProperty() {

        return quantity;

    }



    public SimpleDoubleProperty totalPriceProperty() {

        return totalPrice;
```

```
    }

}
```

Model.java

```
package grocerystore;
```

```java
import javafx.collections.FXCollections;

import javafx.collections.ObservableList;

import java.io.BufferedReader;

import java.io.FileReader;

import java.io.IOException;



public class Model {

    private ObservableList<Item> itemsObservableList;



    public Model() {

        itemsObservableList = FXCollections.observableArrayList();

    }



    public ObservableList<Item> getItemsObservableList() {

        return itemsObservableList;

    }
```

```java
public void loadData(String csvFilePath) {

    try (BufferedReader br = new BufferedReader(new FileReader(csvFilePath))) {

        String line;

        while ((line = br.readLine()) != null) {

            String[] values = line.split(",");

            if (values.length > 0) {

                String name = values[0].trim();

                double unitPrice = 10.0; // default price

                if (values.length > 1) {

                    try {

                        unitPrice = Double.parseDouble(values[1].trim());

                    } catch (NumberFormatException e) {

                        // Use default price if parsing fails

                    }

                }

                itemsObservableList.add(new Item(name, unitPrice));

            }
```

```
        }

    } catch (IOException e) {

        e.printStackTrace();

    }

  }

}
```

layout.fxml:

```
<!--

/*********************************************

Workshop #04

Course: APD545 - Winter

Last Name: BEHZADFAR

First Name: RADMEHR

ID: 148786221

Section:NDD

This assignment represents my own work in accordance with Seneca Academic Policy.
```

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



<?import javafx.geometry.Insets?>

<?import javafx.scene.control.Button?>

<?import javafx.scene.control.ComboBox?>

<?import javafx.scene.control.Label?>

<?import javafx.scene.control.Slider?>

<?import javafx.scene.control.TableColumn?>

<?import javafx.scene.control.TableView?>

<?import javafx.scene.layout.BorderPane?>

<?import javafx.scene.layout.HBox?>

<?import javafx.scene.layout.VBox?>
```

```xml
<BorderPane xmlns:fx="http://javafx.com/fxml" xmlns="http://javafx.com/javafx"
            fx:controller="grocerystore.Cart">
    <top>
        <VBox spacing="10">
            <padding>
                <Insets top="10" right="10" bottom="10" left="10"/>
            </padding>
            <HBox spacing="10">
                <Label text="Select Item:"/>
                <ComboBox fx:id="itemsComboBox" prefWidth="150"/>
                <Label text="Quantity:"/>
                <Slider fx:id="quantitySlider" min="1" max="10" value="1" prefWidth="150"/>
                <Label text="Units:"/>
                <Label fx:id="purchaseUnitsLabel" prefWidth="50"/>
            </HBox>
            <HBox spacing="10">
                <Label text="Item Name:"/>
```

```xml
        <Label fx:id="unitValueLabel" prefWidth="150"/>

        <Label text="Unit Price:"/>

        <Label fx:id="unitPriceValueLabel" prefWidth="100"/>

    </HBox>

    <HBox spacing="10">

        <Button fx:id="addButton" text="Add to Cart"/>

        <Button fx:id="removeButton" text="Remove from Cart"/>

    </HBox>

  </VBox>

</top>

<center>

  <VBox spacing="10">

    <padding>

        <Insets top="10" right="10" bottom="10" left="10"/>

    </padding>

    <Label text="Available Items:"/>

    <TableView fx:id="itemsTableView" prefHeight="150">
```

```xml
         <columns>

            <TableColumn fx:id="itemNameColumn" text="Item Name" prefWidth="150"/>

            <TableColumn fx:id="unitPriceColumn" text="Unit Price" prefWidth="100"/>

         </columns>

      </TableView>

      <Label text="Shopping Cart:"/>

      <TableView fx:id="cartTableView" prefHeight="150">

         <columns>

            <TableColumn fx:id="cartItemNameColumn" text="Item Name"
prefWidth="150"/>

            <TableColumn fx:id="cartUnitPriceColumn" text="Unit Price" prefWidth="100"/>

            <TableColumn fx:id="cartQuantityColumn" text="Quantity" prefWidth="80"/>

            <TableColumn fx:id="cartTotalPriceColumn" text="Total Price"
prefWidth="100"/>

         </columns>

      </TableView>

   </VBox>

  </center>
```

```xml
    <bottom>

        <HBox spacing="10">

            <padding>

                <Insets top="10" right="10" bottom="10" left="10"/>

            </padding>

            <Label text="Total Amount:"/>

            <Label fx:id="totalValueLabel" prefWidth="100"/>

        </HBox>

    </bottom>

</BorderPane>
```