

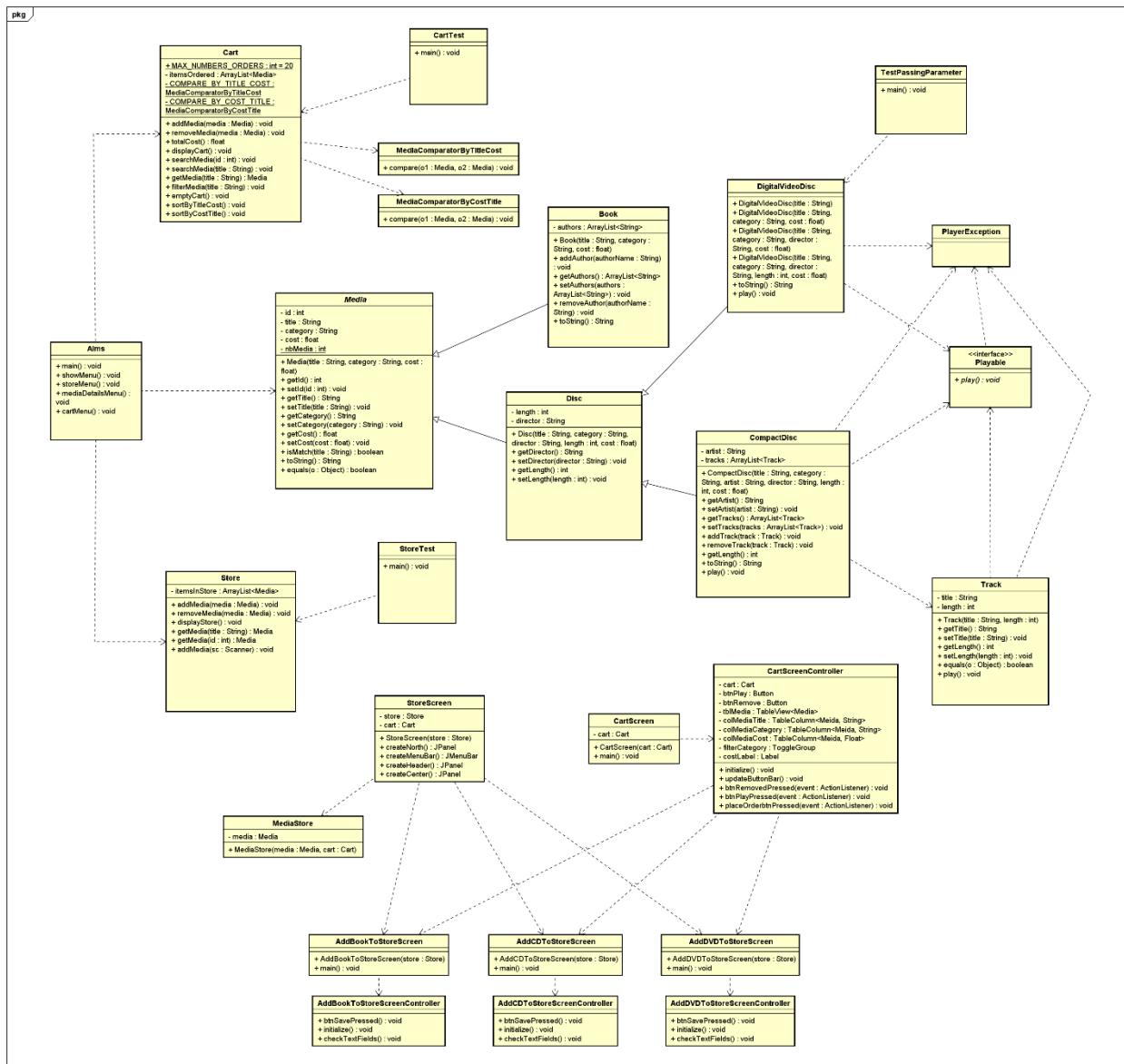
Lab05 Report

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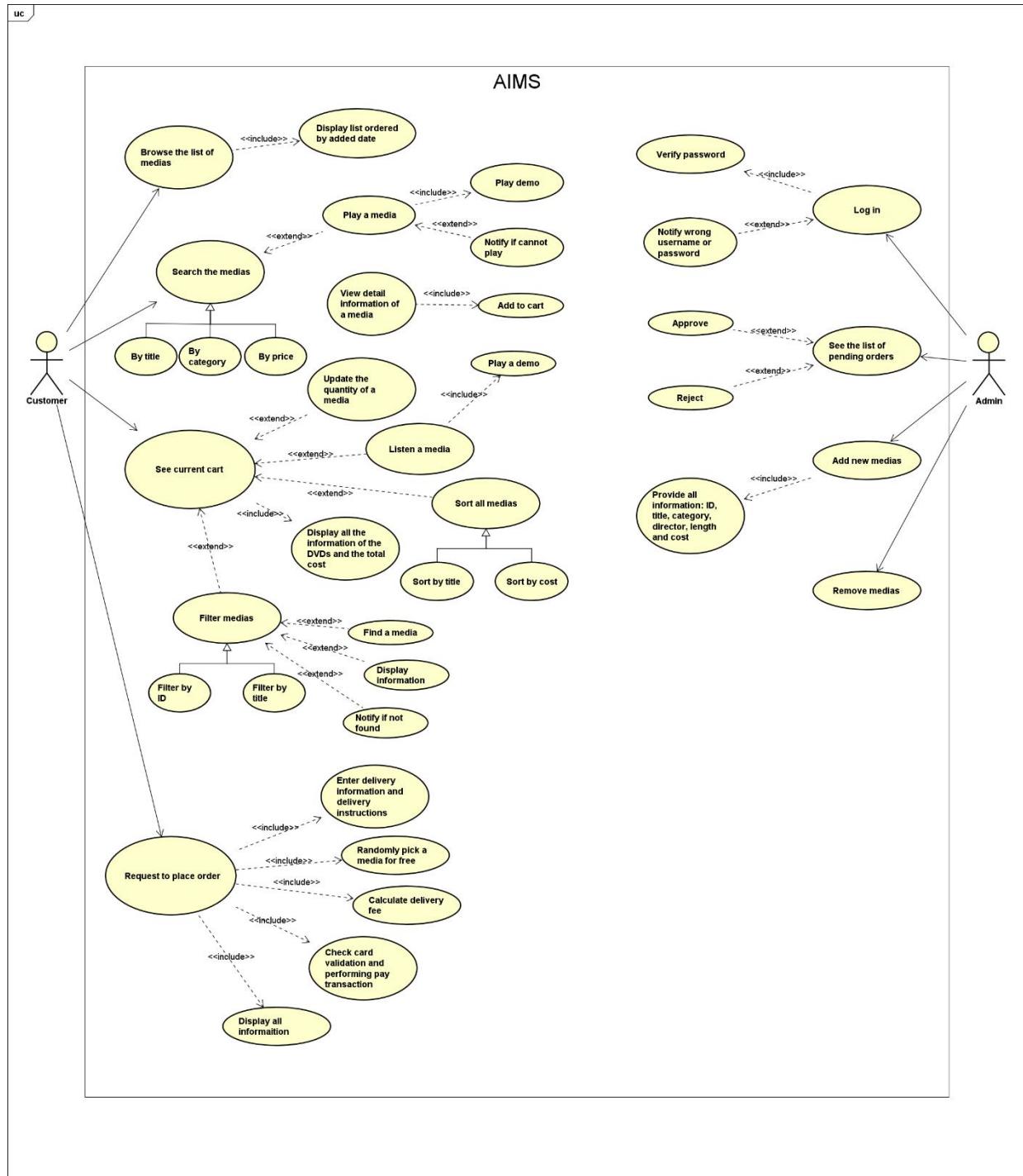
ID: 20230083

I. Diagram

1. Class



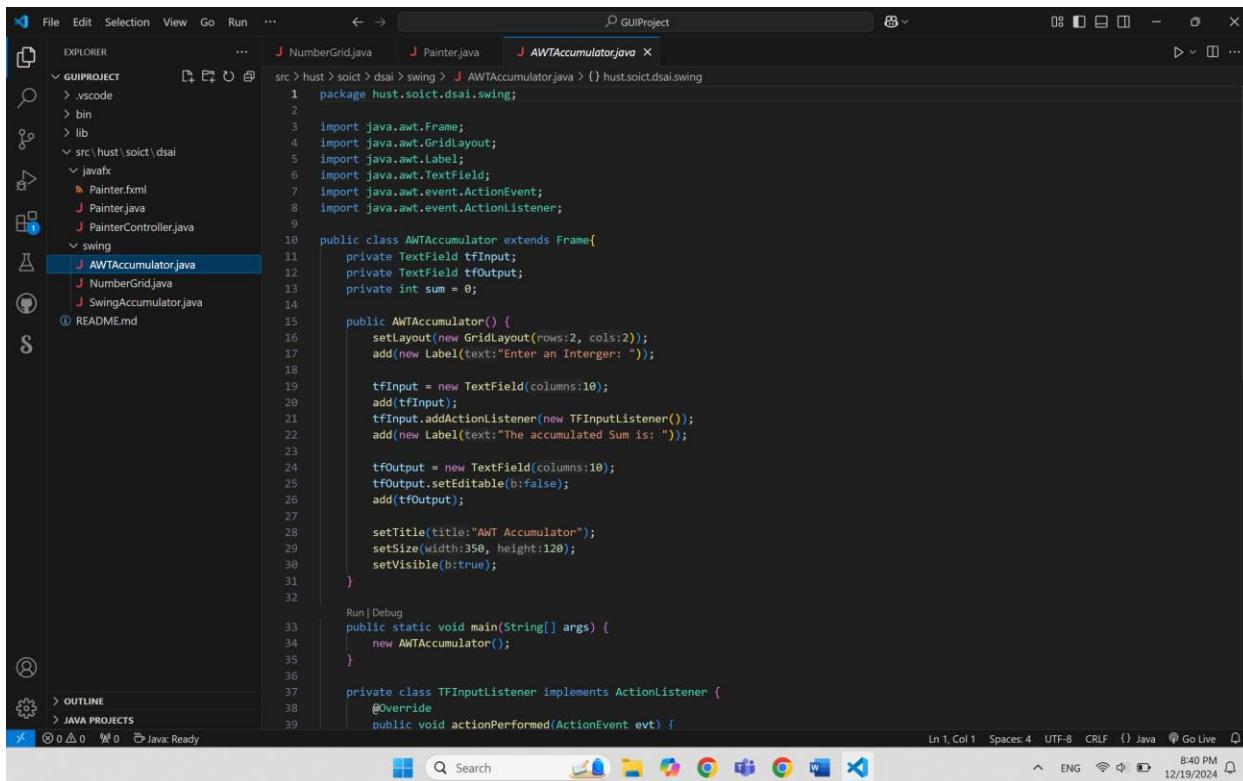
2. Use case



II, Source code

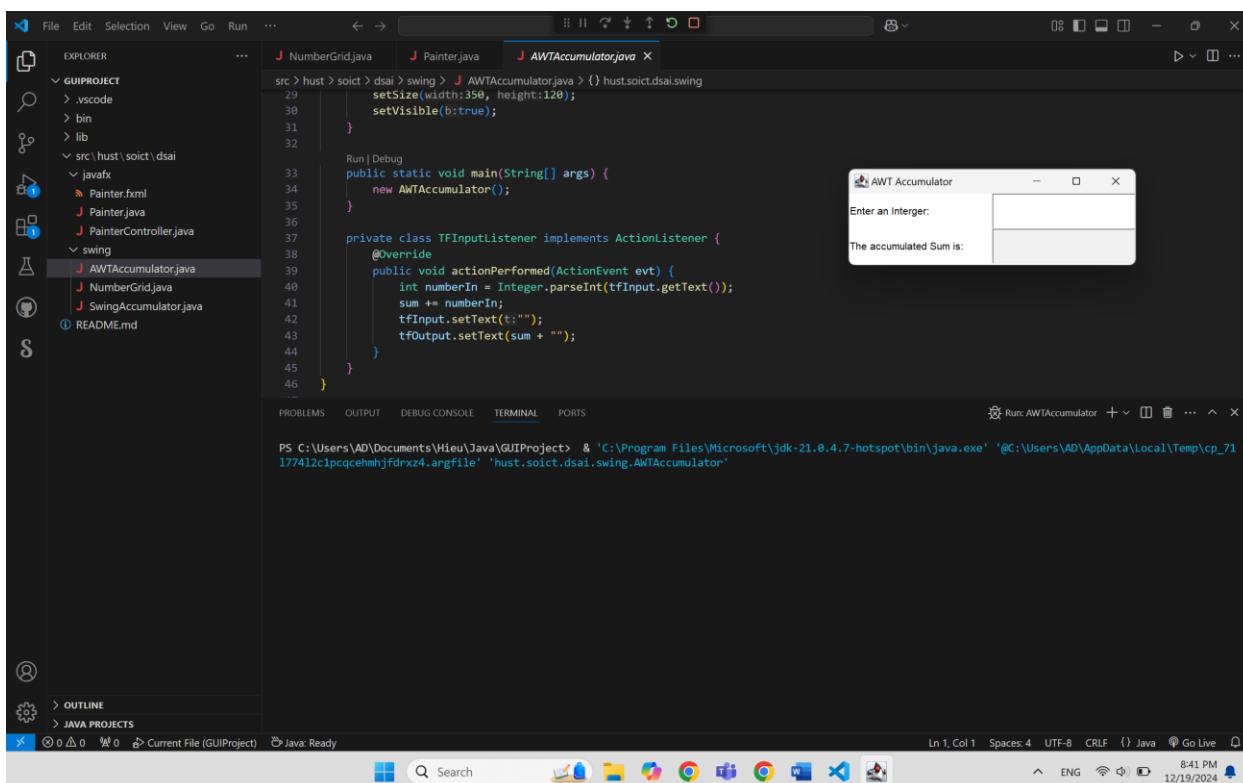
1. Swing components

a, AWT Accumulator



The screenshot shows the Visual Studio Code interface with the following details:

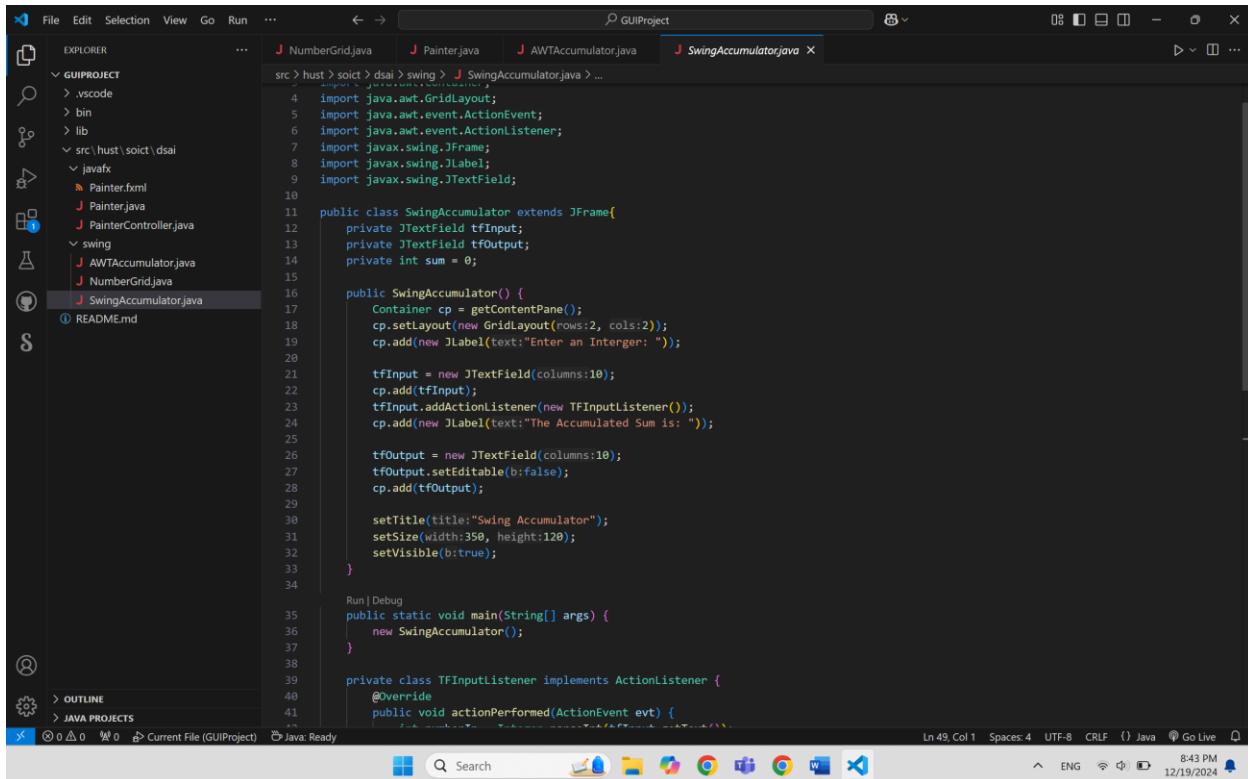
- File Explorer:** Shows the project structure under "GUIPROJECT".
- Code Editor:** Displays the AWTAccumulator.java file. The code implements a Swing application with two text fields for input and output, and a label to show the accumulated sum.
- Bottom Status Bar:** Shows "Ln 1, Col 1" and "Java".
- Bottom Icons:** Includes icons for Run, Debug, Save, and others.
- Bottom Right:** Shows the date and time: "12/19/2024 8:40 PM".



The screenshot shows the Visual Studio Code interface with the following details:

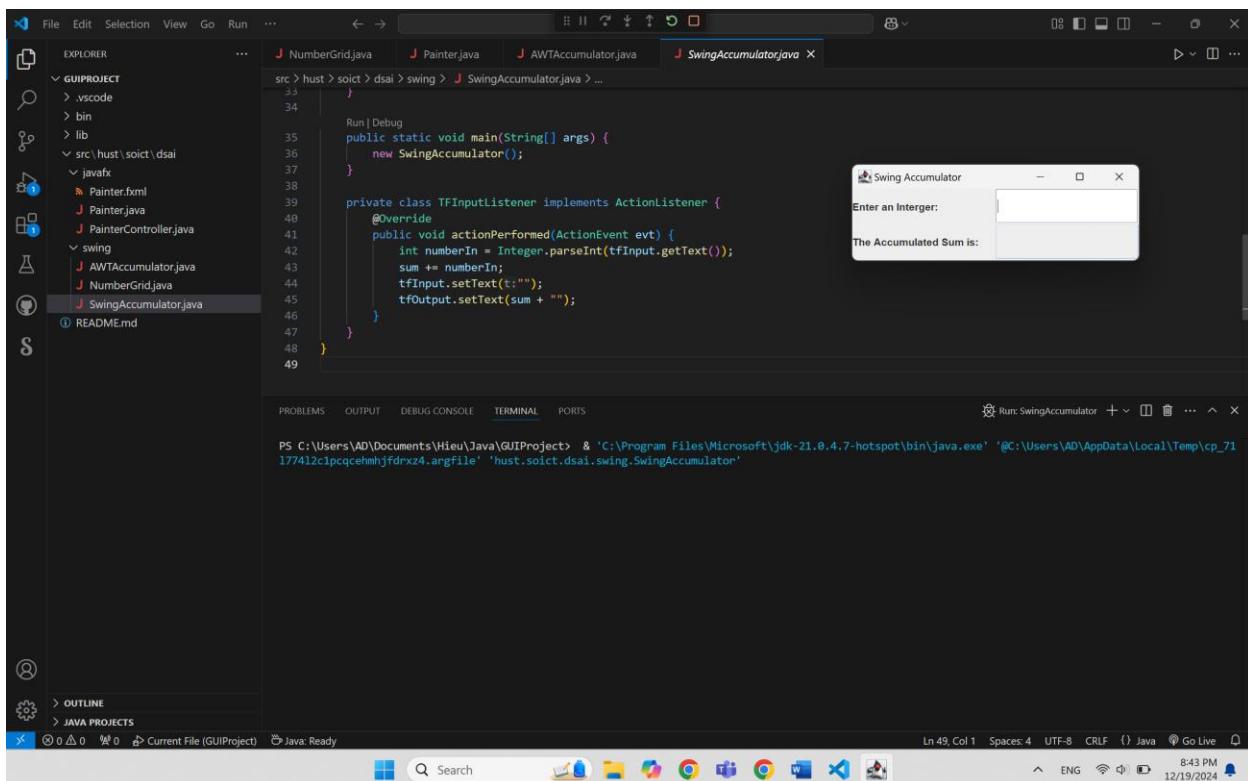
- File Explorer:** Shows the project structure under "GUIPROJECT".
- Code Editor:** Displays the AWTAccumulator.java file. The code has been modified to include the logic for accumulating numbers from the input field.
- Output Window:** Shows the command line output of the Java application running.
- Java Application Window:** A window titled "AWT Accumulator" is displayed, showing an input field labeled "Enter an Integer:" and an output field labeled "The accumulated Sum is:". The application is waiting for user input.
- Bottom Status Bar:** Shows "Ln 1, Col 1" and "Java".
- Bottom Icons:** Includes icons for Run, Debug, Save, and others.
- Bottom Right:** Shows the date and time: "12/19/2024 8:41 PM".

b, Swing Accumulator



The screenshot shows the VS Code interface with the file `SwingAccumulator.java` open in the editor. The code implements a Swing application with two text fields for input and output, and a label to display the accumulated sum.

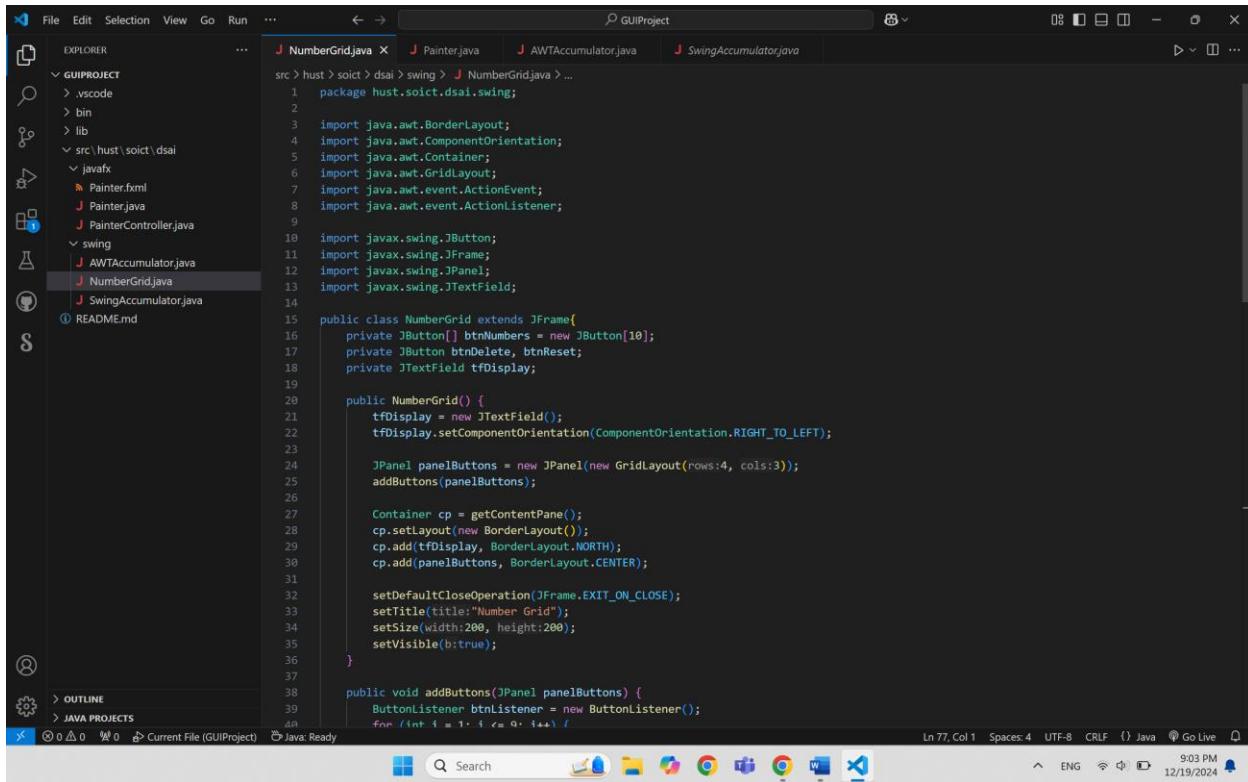
```
File Edit Selection View Go Run ... ⏪ ⏩ GUIProject J NumberGrid.java J Painter.java J AWTAccumulator.java J SwingAccumulator.java ... EXPLORER < .vscode > bin > lib < src > hust > soict > dsai < swing > J SwingAccumulator.java ... J Painter.fxml J Painter.java J PainterController.java J NumberGrid.java J SwingAccumulator.java README.md OUTLINE JAVA PROJECTS Current File (GUIProject) Java: Ready Run | Debug public static void main(String[] args) { new SwingAccumulator(); } private class TFInputListener implements ActionListener { @Override public void actionPerformed(ActionEvent evt) { int numberIn = Integer.parseInt(tfInput.getText()); sum += numberIn; tfInput.setText(""); tfOutput.setText(sum + ""); } }
```



The screenshot shows the VS Code interface with the file `SwingAccumulator.java` open in the editor. A floating window displays the application's UI, which consists of a text input field and a text output field. The output field shows the accumulated sum.

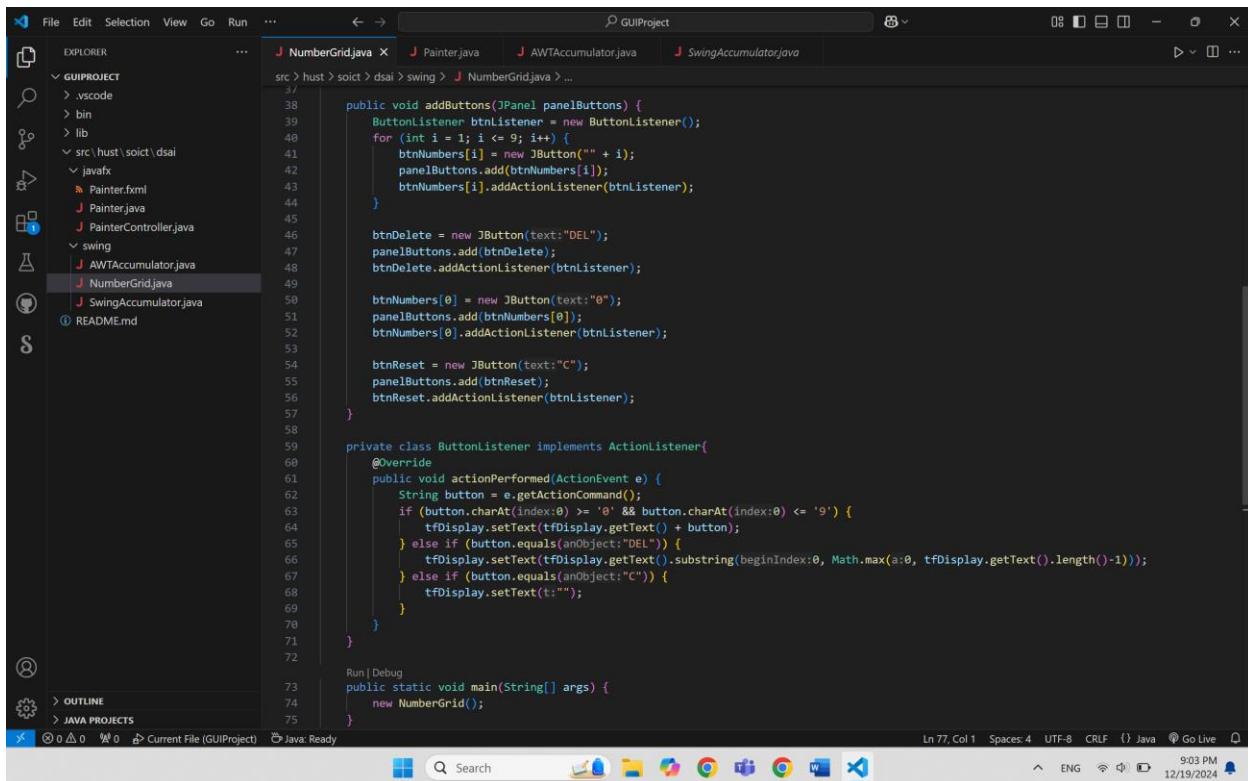
```
File Edit Selection View Go Run ... ⏪ ⏩ GUIProject J NumberGrid.java J Painter.java J AWTAccumulator.java J SwingAccumulator.java ... J Painter.fxml J Painter.java J PainterController.java J NumberGrid.java J SwingAccumulator.java README.md OUTLINE JAVA PROJECTS Current File (GUIProject) Java: Ready Run | Debug public static void main(String[] args) { new SwingAccumulator(); } private class TFInputListener implements ActionListener { @Override public void actionPerformed(ActionEvent evt) { int numberIn = Integer.parseInt(tfInput.getText()); sum += numberIn; tfInput.setText(""); tfOutput.setText(sum + ""); } }
```

c, Number Grid



The screenshot shows the Visual Studio Code interface with the file `NumberGrid.java` open in the editor. The code implements a numeric keypad using a `JFrame` and `JPanel`. It includes methods for adding buttons to the panel and handling button click events.

```
1 package hust.soict.dsai.swing;
2
3 import java.awt.BorderLayout;
4 import java.awt.ComponentOrientation;
5 import java.awt.Container;
6 import java.awt.GridLayout;
7 import java.awt.event.ActionEvent;
8 import java.awt.event.ActionListener;
9
10 import javax.swing.JButton;
11 import javax.swing.JFrame;
12 import javax.swing.JPanel;
13 import javax.swing.JTextField;
14
15 public class NumberGrid extends JFrame{
16     private JButton[] btnNumbers = new JButton[10];
17     private JButton btnDelete, btnReset;
18     private JTextField tfDisplay;
19
20     public NumberGrid() {
21         tfDisplay = new JTextField();
22         tfDisplay.setComponentOrientation(ComponentOrientation.RIGHT_TO_LEFT);
23
24         JPanel panelButtons = new JPanel(new GridLayout(4, 3));
25         addButtons(panelButtons);
26
27         Container cp = getContentPane();
28         cp.setLayout(new BorderLayout());
29         cp.add(tfDisplay, BorderLayout.NORTH);
30         cp.add(panelButtons, BorderLayout.CENTER);
31
32         setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
33         setTitle("Number Grid");
34         setSize(200, height:200);
35         setVisible(true);
36     }
37
38     public void addButtons(JPanel panelButtons) {
39         ButtonListener btnListener = new ButtonListener();
40         for (int i = 1; i <= 9; i++) {
41             JButton btnNumbers[i] = new JButton(" " + i);
42             panelButtons.add(btnNumbers[i]);
43             btnNumbers[i].addActionListener(btnListener);
44         }
45
46         JButton btnDelete = new JButton(text:"DEL");
47         panelButtons.add(btnDelete);
48         btnDelete.addActionListener(btnListener);
49
50         JButton btnNumbers[0] = new JButton(text:"0");
51         panelButtons.add(btnNumbers[0]);
52         btnNumbers[0].addActionListener(btnListener);
53
54         JButton btnReset = new JButton(text:"C");
55         panelButtons.add(btnReset);
56         btnReset.addActionListener(btnListener);
57     }
58
59     private class ButtonListener implements ActionListener{
60         @Override
61         public void actionPerformed(ActionEvent e) {
62             String button = e.getActionCommand();
63             if (button.charAt(index:0) >='0' && button.charAt(index:0) <='9') {
64                 tfDisplay.setText(tfDisplay.getText() + button);
65             } else if (button.equals(anObject:"DEL")) {
66                 tfDisplay.setText(tfDisplay.getText().substring(beginIndex:0, Math.max(a:0, tfDisplay.getText().length()-1)));
67             } else if (button.equals(anObject:"C")) {
68                 tfDisplay.setText(t:"");
69             }
70         }
71     }
72
73     Run|Debug
74     public static void main(String[] args) {
75         new NumberGrid();
76     }
77 }
```



The screenshot continues the code from the previous editor window. It defines a `ButtonListener` inner class that implements `ActionListener` and handles button click events by updating the `JTextField` `tfDisplay`.

```
1 package hust.soict.dsai.swing;
2
3 import java.awt.BorderLayout;
4 import java.awt.ComponentOrientation;
5 import java.awt.Container;
6 import java.awt.GridLayout;
7 import java.awt.event.ActionEvent;
8 import java.awt.event.ActionListener;
9
10 import javax.swing.JButton;
11 import javax.swing.JFrame;
12 import javax.swing.JPanel;
13 import javax.swing.JTextField;
14
15 public class NumberGrid extends JFrame{
16     private JButton[] btnNumbers = new JButton[10];
17     private JButton btnDelete, btnReset;
18     private JTextField tfDisplay;
19
20     public NumberGrid() {
21         tfDisplay = new JTextField();
22         tfDisplay.setComponentOrientation(ComponentOrientation.RIGHT_TO_LEFT);
23
24         JPanel panelButtons = new JPanel(new GridLayout(4, 3));
25         addButtons(panelButtons);
26
27         Container cp = getContentPane();
28         cp.setLayout(new BorderLayout());
29         cp.add(tfDisplay, BorderLayout.NORTH);
30         cp.add(panelButtons, BorderLayout.CENTER);
31
32         setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
33         setTitle("Number Grid");
34         setSize(200, height:200);
35         setVisible(true);
36     }
37
38     public void addButtons(JPanel panelButtons) {
39         ButtonListener btnListener = new ButtonListener();
40         for (int i = 1; i <= 9; i++) {
41             JButton btnNumbers[i] = new JButton(" " + i);
42             panelButtons.add(btnNumbers[i]);
43             btnNumbers[i].addActionListener(btnListener);
44         }
45
46         JButton btnDelete = new JButton(text:"DEL");
47         panelButtons.add(btnDelete);
48         btnDelete.addActionListener(btnListener);
49
50         JButton btnNumbers[0] = new JButton(text:"0");
51         panelButtons.add(btnNumbers[0]);
52         btnNumbers[0].addActionListener(btnListener);
53
54         JButton btnReset = new JButton(text:"C");
55         panelButtons.add(btnReset);
56         btnReset.addActionListener(btnListener);
57     }
58
59     private class ButtonListener implements ActionListener{
60         @Override
61         public void actionPerformed(ActionEvent e) {
62             String button = e.getActionCommand();
63             if (button.charAt(index:0) >='0' && button.charAt(index:0) <='9') {
64                 tfDisplay.setText(tfDisplay.getText() + button);
65             } else if (button.equals(anObject:"DEL")) {
66                 tfDisplay.setText(tfDisplay.getText().substring(beginIndex:0, Math.max(a:0, tfDisplay.getText().length()-1)));
67             } else if (button.equals(anObject:"C")) {
68                 tfDisplay.setText(t:"");
69             }
70         }
71     }
72
73     Run|Debug
74     public static void main(String[] args) {
75         new NumberGrid();
76     }
77 }
```

The screenshot shows a Java IDE interface with the following details:

- Project Explorer:** Shows the project structure under "GUIPROJECT".
- Code Editor:** Displays the `NumberGrid.java` file. The code implements a numeric keypad functionality using a `JTextField` and a `String` variable to store the current value.
- Output:** Shows the command line output of the Java application running.
- Grid Visualization:** A 3x3 grid is displayed in the top right corner of the IDE, showing values 1 through 9 and a DEL key.
- Bottom Bar:** Includes tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and PORTS, along with system status icons.

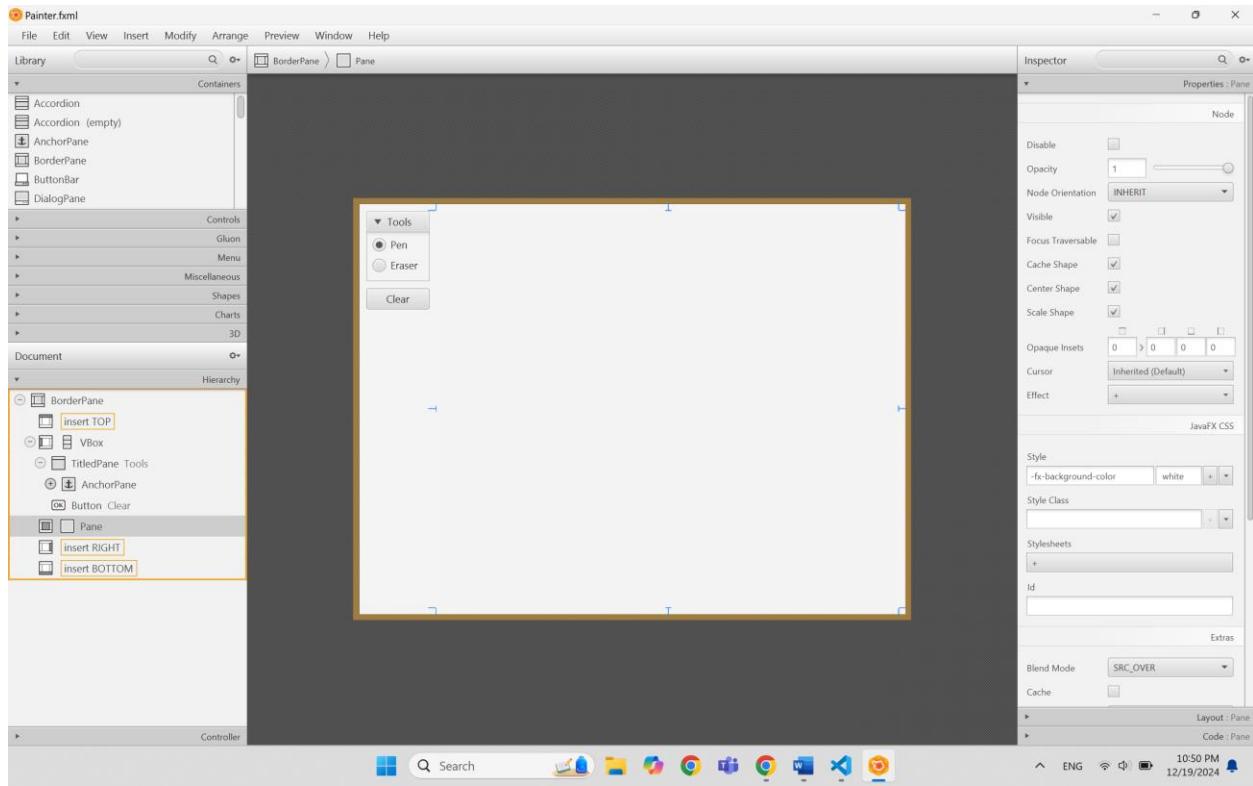
2. JavaFX API

a, Painter.fxml

The screenshot shows a Java IDE interface with the following details:

- Project Explorer:** Shows the project structure under "GUIPROJECT".
- Code Editor:** Displays the `Painter.fxml` file, which defines a JavaFX user interface. It includes imports for `javafx.scene.control.TitledPane`, `javafx.scene.layout.BorderPane`, and `javafx.scene.layout.VBox`. The FXML code creates a main `VBox` with padding and children including a `TitledPane` and a `BorderPane`.
- Bottom Bar:** Includes tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and PORTS, along with system status icons.

b, Scene Builder



c, Painter Controller

```
src > hust > soict > dsai > javafx > J PainterController.java > ...
1 package hust.soict.dsai.javafx;
2
3 import javafx.event.ActionEvent;
4 import javafx.fxml.FXML;
5 import javafx.scene.control.ToggleGroup;
6 import javafx.scene.input.MouseEvent;
7 import javafx.scene.layout.Pane;
8 import javafx.scene.paint.Color;
9 import javafx.scene.shape.Circle;
10
11 public class PainterController {
12
13     private boolean isEraserMode = false;
14
15     @FXML
16     private ToggleGroup Tools;
17
18     @FXML
19     private Pane drawingAreaPane;
20
21     @FXML
22     void clearButtonPressed(ActionEvent event) {
23         drawingAreaPane.getChildren().clear();
24     }
25
26     @FXML
27     void drawingAreaMouseDragged(MouseEvent event) {
28         if (event.getTarget() == drawingAreaPane) {
29             if (isEraserMode) {
30                 Circle eraser = new Circle(event.getX(), event.getY(), 4, Color.WHITE);
31                 drawingAreaPane.getChildren().add(eraser);
32             } else {
33                 Circle pen = new Circle(event.getX(), event.getY(), 4, Color.BLACK);
34                 drawingAreaPane.getChildren().add(pen);
35             }
36         }
37     }
38
39     @FXML
40     void eraserMode(ActionEvent event) {
41         isEraserMode = true;
42     }
43
44     @FXML
45     void penMode(ActionEvent event) {
46         isEraserMode = false;
47     }
48
49 }
```

```
src > hust > soict > dsai > javafx > J PainterController.java > ...
27     void drawingAreaMouseDragged(MouseEvent event) {
28         if (event.getTarget() == drawingAreaPane) {
29             if (isEraserMode) {
30                 Circle eraser = new Circle(event.getX(), event.getY(), 4, Color.WHITE);
31                 drawingAreaPane.getChildren().add(eraser);
32             } else {
33                 Circle pen = new Circle(event.getX(), event.getY(), 4, Color.BLACK);
34                 drawingAreaPane.getChildren().add(pen);
35             }
36         }
37     }
38
39     @FXML
40     void eraserMode(ActionEvent event) {
41         isEraserMode = true;
42     }
43
44     @FXML
45     void penMode(ActionEvent event) {
46         isEraserMode = false;
47     }
48
49 }
```

d, Painter

The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer:** Shows the project structure under "GUIPROJECT".
- Editor:** The "Painter.java" file is the active tab, displaying Java code for a JavaFX application.
- Bottom Status Bar:** Shows "Ln 24, Col 1" and "Java: Ready".

```
1 package hust.soict.dsai.javafx;
2
3 import javafx.application.Application;
4 import javafx.fxml.FXMLLoader;
5 import javafx.scene.Parent;
6 import javafx.scene.Scene;
7 import javafx.stage.Stage;
8
9 public class Painter extends Application{
10     @Override
11     public void start(Stage stage) throws Exception {
12         Parent root = FXMLLoader.load(getClass().getResource(name:"/hust/soict/dsai/javafx/Painter.fxml"));
13
14         Scene scene = new Scene(root);
15         stage.setTitle("Painter");
16         stage.setScene(scene);
17         stage.show();
18     }
19
20     public static void main(String[] args) {
21         launch(args);
22     }
23 }
```

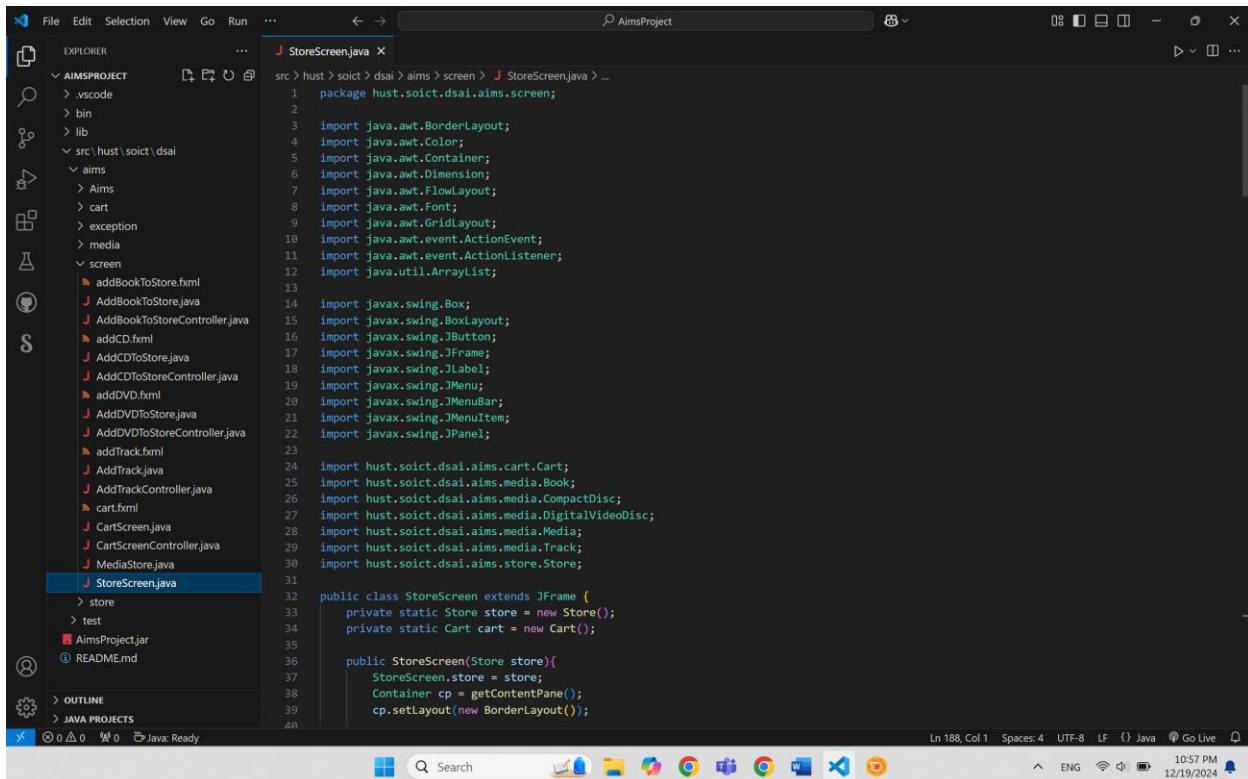
The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer:** Shows the project structure under "GUIPROJECT".
- Editor:** The "Painter.java" file is the active tab, with a floating "Paint" tool overlayed on it. The tool has a toolbar with "Pen" and "Eraser" buttons, and a "Clear" button.
- Bottom Status Bar:** Shows "Ln 24, Col 1" and "Java: Ready".

```
1 package hust.soict.dsai.javafx;
2
3 import ...
4 import ...
5 import ...
6 import ...
7 import ...
8
9 public class Painter extends Application{
10     @Override
11     public void start(Stage stage) throws Exception {
12         Parent root = FXMLLoader.load(getClass().getResource(name:"/hust/soict/dsai/javafx/Painter.fxml"));
13
14         Scene scene = new Scene(root);
15         stage.setTitle("Painter");
16         stage.setScene(scene);
17         stage.show();
18     }
19
20     public static void main(String[] args) {
21         launch(args);
22     }
23 }
```

3. AIMS Project

a, Store Screen



The screenshot shows the Visual Studio Code interface with the 'AimsProject' workspace open. The left sidebar displays the project structure under 'EXPLORER'. The 'StoreScreen.java' file is selected in the center editor pane. The code implements a Java Swing application for a store screen.

```
File Edit Selection View Go Run ... ← → AimsProject
EXPLORER
AIMSPROJECT .vscode bin lib src\hust\soict\dsai aims cart exception media screen addBookToStore.fxml AddBookToStore.java AddBookToStoreController.java addCD.fxml AddCDToStore.java AddCDToStoreController.java addDVD.fxml AddDVDToStore.java AddDVDToStoreController.java addTrack.fxml AddTrack.java AddTrackController.java cart.xml CartScreen.java CartScreenController.java MediaStore.java StoreScreen.java
store test AimsProject.jar README.md
OUTLINE JAVA PROJECTS
File Edit Selection View Go Run ... ← → AimsProject
EXPLORER
src > hust > soict > dsai > aims > screen > J StoreScreen.java ...
1 package hust.soict.dsai.aims.screen;
2
3 import java.awt.BorderLayout;
4 import java.awt.Color;
5 import java.awt.Container;
6 import java.awt.Dimension;
7 import java.awt.FlowLayout;
8 import java.awt.Font;
9 import java.awt.GridLayout;
10 import java.awt.event.ActionEvent;
11 import java.awt.event.ActionListener;
12 import java.util.ArrayList;
13
14 import javax.swing.Box;
15 import javax.swing.BoxLayout;
16 import javax.swing.JButton;
17 import javax.swing.JFrame;
18 import javax.swing.JLabel;
19 import javax.swing.JMenuBar;
20 import javax.swing.JMenuBar;
21 import javax.swing.JMenuItem;
22 import javax.swing.JPanel;
23
24 import hust.soict.dsai.aims.cart.Cart;
25 import hust.soict.dsai.aims.media.Book;
26 import hust.soict.dsai.aims.media.CompactDisc;
27 import hust.soict.dsai.aims.media.DigitalVideoDisc;
28 import hust.soict.dsai.aims.media.Media;
29 import hust.soict.dsai.aims.media.Track;
30 import hust.soict.dsai.aims.store.Store;
31
32 public class StoreScreen extends JFrame {
33     private static Store store = new Store();
34     private static Cart cart = new Cart();
35
36     public StoreScreen(Store store){
37         StoreScreen.store = store;
38         Container cp = getContentPane();
39         cp.setLayout(new BorderLayout());
40
41         cp.add(createNorth(), BorderLayout.NORTH);
42         cp.add(createCenter(), BorderLayout.CENTER);
43
44         setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
45         setVisible(true);
46         setTitle("Store");
47         setSize(width:1024, height:768);
48     }
49
50     JPanel createNorth() {
51         JPanel north = new JPanel();
52         north.setLayout(new BoxLayout(north, BoxLayout.Y_AXIS));
53         north.add(createMenuBar());
54         north.add(createHeader());
55         return north;
56     }
57
58     JMenuBar createMenuBar() {
59         JMenu menu = new JMenu("Options");
60
61         JMenuItem smUpdateStore = new JMenuItem("Update Store");
62
63         JMenuItem smAddBook = new JMenuItem(text:"Add Book");
64         smAddBook.addActionListener(new btnMenuItemListener());
65         smUpdateStore.add(smAddBook);
66
67         JMenuItem smAddCD = new JMenuItem(text:"Add CD");
68         smUpdateStore.add(smAddCD);
69         smAddCD.addActionListener(new btnMenuItemListener());
70
71         JMenuItem smAddDVD = new JMenuItem(text:"Add DVD");
72         smUpdateStore.add(smAddDVD);
73         smAddDVD.addActionListener(new btnMenuItemListener());
74
75     }
76
77     JButton btnMenuItemListener() {
78         JButton button = new JButton("Click Me!");
79         button.addActionListener(new ActionListener() {
80             public void actionPerformed(ActionEvent e) {
81                 System.out.println("Button Clicked!");
82             }
83         });
84         return button;
85     }
86
87     void createHeader() {
88         JLabel headerLabel = new JLabel("Welcome to the Store!");
89         headerLabel.setFont(new Font("Times New Roman", Font.BOLD, 16));
90         headerLabel.setHorizontalAlignment(JLabel.CENTER);
91         headerLabel.setForeground(Color.BLUE);
92         return headerLabel;
93     }
94
95     void createMenuBar() {
96         JMenuBar menuBar = new JMenuBar();
97         JMenu fileMenu = new JMenu("File");
98         JMenu editMenu = new JMenu("Edit");
99         JMenu helpMenu = new JMenu("Help");
100
101         JMenuItem fileExitItem = new JMenuItem("Exit");
102         fileExitItem.addActionListener(new ActionListener() {
103             public void actionPerformed(ActionEvent e) {
104                 System.exit(0);
105             }
106         });
107         fileMenu.add(fileExitItem);
108
109         JMenuItem editUndoItem = new JMenuItem("Undo");
110         editUndoItem.addActionListener(new ActionListener() {
111             public void actionPerformed(ActionEvent e) {
112                 System.out.println("Undo Clicked!");
113             }
114         });
115         editMenu.add(editUndoItem);
116
117         JMenuItem helpAboutItem = new JMenuItem("About");
118         helpAboutItem.addActionListener(new ActionListener() {
119             public void actionPerformed(ActionEvent e) {
120                 System.out.println("About Clicked!");
121             }
122         });
123         helpMenu.add(helpAboutItem);
124
125         menuBar.add(fileMenu);
126         menuBar.add(editMenu);
127         menuBar.add(helpMenu);
128         setJMenuBar(menuBar);
129     }
130
131     void createCenter() {
132         JPanel centerPanel = new JPanel();
133         centerPanel.setLayout(new GridLayout(2, 2));
134
135         JButton bookButton = new JButton("Add Book");
136         JButton cdButton = new JButton("Add CD");
137         JButton dvdButton = new JButton("Add DVD");
138         JButton exitButton = new JButton("Exit");
139
140         centerPanel.add(bookButton, "0, 0");
141         centerPanel.add(cdButton, "0, 1");
142         centerPanel.add(dvdButton, "1, 0");
143         centerPanel.add(exitButton, "1, 1");
144
145         bookButton.addActionListener(new ActionListener() {
146             public void actionPerformed(ActionEvent e) {
147                 System.out.println("Book Clicked!");
148             }
149         });
150         cdButton.addActionListener(new ActionListener() {
151             public void actionPerformed(ActionEvent e) {
152                 System.out.println("CD Clicked!");
153             }
154         });
155         dvdButton.addActionListener(new ActionListener() {
156             public void actionPerformed(ActionEvent e) {
157                 System.out.println("DVD Clicked!");
158             }
159         });
160         exitButton.addActionListener(new ActionListener() {
161             public void actionPerformed(ActionEvent e) {
162                 System.out.println("Exit Clicked!");
163                 System.exit(0);
164             }
165         });
166     }
167
168     void createNorth() {
169         JPanel northPanel = new JPanel();
170         northPanel.setLayout(new BorderLayout());
171
172         JLabel titleLabel = new JLabel("HUST SOICT DSAI AIMS STORE");
173         titleLabel.setFont(new Font("Times New Roman", Font.BOLD, 16));
174         titleLabel.setHorizontalAlignment(JLabel.CENTER);
175         titleLabel.setForeground(Color.BLUE);
176
177         JButton titleButton = new JButton("Title");
178         titleButton.addActionListener(new ActionListener() {
179             public void actionPerformed(ActionEvent e) {
180                 System.out.println("Title Clicked!");
181             }
182         });
183
184         northPanel.add(titleLabel, "Center");
185         northPanel.add(titleButton, "South");
186
187         return northPanel;
188     }
189
190     void createHeader() {
191         JPanel headerPanel = new JPanel();
192         headerPanel.setLayout(new BorderLayout());
193
194         JLabel headerLabel = new JLabel("Welcome to the Store!");
195         headerLabel.setFont(new Font("Times New Roman", Font.BOLD, 16));
196         headerLabel.setHorizontalAlignment(JLabel.CENTER);
197         headerLabel.setForeground(Color.BLUE);
198
199         JButton headerButton = new JButton("Header");
200         headerButton.addActionListener(new ActionListener() {
201             public void actionPerformed(ActionEvent e) {
202                 System.out.println("Header Clicked!");
203             }
204         });
205
206         headerPanel.add(headerLabel, "Center");
207         headerPanel.add(headerButton, "South");
208
209         return headerPanel;
210     }
211
212     void createMenuBar() {
213         JMenuBar menuBar = new JMenuBar();
214         JMenu fileMenu = new JMenu("File");
215         JMenu editMenu = new JMenu("Edit");
216         JMenu helpMenu = new JMenu("Help");
217
218         JMenuItem fileExitItem = new JMenuItem("Exit");
219         fileExitItem.addActionListener(new ActionListener() {
220             public void actionPerformed(ActionEvent e) {
221                 System.exit(0);
222             }
223         });
224         fileMenu.add(fileExitItem);
225
226         JMenuItem editUndoItem = new JMenuItem("Undo");
227         editUndoItem.addActionListener(new ActionListener() {
228             public void actionPerformed(ActionEvent e) {
229                 System.out.println("Undo Clicked!");
230             }
231         });
232         editMenu.add(editUndoItem);
233
234         JMenuItem helpAboutItem = new JMenuItem("About");
235         helpAboutItem.addActionListener(new ActionListener() {
236             public void actionPerformed(ActionEvent e) {
237                 System.out.println("About Clicked!");
238             }
239         });
240         helpMenu.add(helpAboutItem);
241
242         menuBar.add(fileMenu);
243         menuBar.add(editMenu);
244         menuBar.add(helpMenu);
245         setJMenuBar(menuBar);
246     }
247
248     void createCenter() {
249         JPanel centerPanel = new JPanel();
250         centerPanel.setLayout(new GridLayout(2, 2));
251
252         JButton bookButton = new JButton("Add Book");
253         JButton cdButton = new JButton("Add CD");
254         JButton dvdButton = new JButton("Add DVD");
255         JButton exitButton = new JButton("Exit");
256
257         centerPanel.add(bookButton, "0, 0");
258         centerPanel.add(cdButton, "0, 1");
259         centerPanel.add(dvdButton, "1, 0");
260         centerPanel.add(exitButton, "1, 1");
261
262         bookButton.addActionListener(new ActionListener() {
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285     void createNorth() {
286         JPanel northPanel = new JPanel();
287         northPanel.setLayout(new BorderLayout());
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289         JLabel titleLabel = new JLabel("HUST SOICT DSAI AIMS STORE");
290         titleLabel.setFont(new Font("Times New Roman", Font.BOLD, 16));
291         titleLabel.setHorizontalAlignment(JLabel.CENTER);
292         titleLabel.setForeground(Color.BLUE);
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294         JButton titleButton = new JButton("Title");
295         titleButton.addActionListener(new ActionListener() {
296             public void actionPerformed(ActionEvent e) {
297                 System.out.println("Title Clicked!");
298             }
299         });
300
301         northPanel.add(titleLabel, "Center");
302         northPanel.add(titleButton, "South");
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304         return northPanel;
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941         });
942         helpMenu.add(helpAboutItem);
943
944         menuBar.add(fileMenu);
945         menuBar.add(editMenu);
946         menuBar.add(helpMenu);
947         setJMenuBar(menuBar);
948     }
949
950     void createCenter() {
951         JPanel centerPanel = new JPanel();
952         centerPanel.setLayout(new GridLayout(2, 2));
953
954         JButton bookButton = new JButton("Add Book");
955         JButton cdButton = new JButton("Add CD");
956         JButton dvdButton = new JButton("Add DVD");
957         JButton exitButton = new JButton("Exit");
958
959         centerPanel.add(bookButton, "0, 0");
960         centerPanel.add(cdButton, "0, 1");
961         centerPanel.add(dvdButton, "1, 0");
962         centerPanel.add(exitButton, "1, 1");
963
964         bookButton.addActionListener(new ActionListener() {
965             public void actionPerformed(ActionEvent e) {
966                 System.out.println("Book Clicked!");
967             }
968         });
969         cdButton.addActionListener(new ActionListener() {
970             public void actionPerformed(ActionEvent e) {
971                 System.out.println("CD Clicked!");
972             }
973         });
974         dvdButton.addActionListener(new ActionListener() {
975             public void actionPerformed(ActionEvent e) {
976                 System.out.println("DVD Clicked!");
977             }
978         });
979         exitButton.addActionListener(new ActionListener() {
980             public void actionPerformed(ActionEvent e) {
981                 System.out.println("Exit Clicked!");
982                 System.exit(0);
983             }
984         });
985     }
986
987     void createNorth() {
988         JPanel northPanel = new JPanel();
989         northPanel.setLayout(new BorderLayout());
990
991         JLabel titleLabel = new JLabel("HUST SOICT DSAI AIMS STORE");
992         titleLabel.setFont(new Font("Times New Roman", Font.BOLD, 16));
993         titleLabel.setHorizontalAlignment(JLabel.CENTER);
994         titleLabel.setForeground(Color.BLUE);
995
996         JButton titleButton = new JButton("Title");
997         titleButton.addActionListener(new ActionListener() {
998             public void actionPerformed(ActionEvent e) {
999                 System.out.println("Title Clicked!");
1000            }
1001        });
1002
1003        northPanel.add(titleLabel, "Center");
1004        northPanel.add(titleButton, "South");
1005
1006        return northPanel;
1007    }
1008
1009    void createHeader() {
1010        JPanel headerPanel = new JPanel();
1011        headerPanel.setLayout(new BorderLayout());
1012
1013        JLabel headerLabel = new JLabel("Welcome to the Store!");
1014        headerLabel.setFont(new Font("Times New Roman", Font.BOLD, 16));
1015        headerLabel.setHorizontalAlignment(JLabel.CENTER);
1016        headerLabel.setForeground(Color.BLUE);
1017
1018        JButton headerButton = new JButton("Header");
1019        headerButton.addActionListener(new ActionListener() {
1020            public void actionPerformed(ActionEvent e) {
1021                System.out.println("Header Clicked!");
1022            }
1023        });
1024
1025        headerPanel.add(headerLabel, "Center");
1026        headerPanel.add(headerButton, "South");
1027
1028        return headerPanel;
1029    }
1030
1031    void createMenuBar() {
1032        JMenuBar menuBar = new JMenuBar();
1033        JMenu fileMenu = new JMenu("File");
1034        JMenu editMenu = new JMenu("Edit");
1035        JMenu helpMenu = new JMenu("Help");
1036
1037        JMenuItem fileExitItem = new JMenuItem("Exit");
1038        fileExitItem.addActionListener(new ActionListener() {
1039            public void actionPerformed(ActionEvent e) {
1040                System.exit(0);
1041            }
1042        });
1043        fileMenu.add(fileExitItem);
1044
1045        JMenuItem editUndoItem = new JMenuItem("Undo");
1046        editUndoItem.addActionListener(new ActionListener() {
1047            public void actionPerformed(ActionEvent e) {
1048                System.out.println("Undo Clicked!");
1049            }
1050        });
1051        editMenu.add(editUndoItem);
1052
1053        JMenuItem helpAboutItem = new JMenuItem("About");
1054        helpAboutItem.addActionListener(new ActionListener() {
1055            public void actionPerformed(ActionEvent e) {
1056                System.out.println("About Clicked!");
1057            }
1058        });
1059        helpMenu.add(helpAboutItem);
1060
1061        menuBar.add(fileMenu);
1062        menuBar.add(editMenu);
1063        menuBar.add(helpMenu);
1064        setJMenuBar(menuBar);
1065    }
1066
1067    void createCenter() {
1068        JPanel centerPanel = new JPanel();
1069        centerPanel.setLayout(new GridLayout(2, 2));
1070
1071        JButton bookButton = new JButton("Add Book");
1072        JButton cdButton = new JButton("Add CD");
1073        JButton dvdButton = new JButton("Add DVD");
1074        JButton exitButton = new JButton("Exit");
1075
1076        centerPanel.add(bookButton, "0, 0");
1077        centerPanel.add(cdButton, "0, 1");
1078        centerPanel.add(dvdButton, "1, 0");
1079        centerPanel.add(exitButton, "1, 1");
1080
1081        bookButton.addActionListener(new ActionListener() {
1082            public void actionPerformed(ActionEvent e) {
1083                System.out.println("Book Clicked!");
1084            }
1085        });
1086        cdButton.addActionListener(new ActionListener() {
1087            public void actionPerformed(ActionEvent e) {
1088                System.out.println("CD Clicked!");
1089            }
1090        });
1091        dvdButton.addActionListener(new ActionListener() {
1092            public void actionPerformed(ActionEvent e) {
1093                System.out.println("DVD Clicked!");
1094            }
1095        });
1096        exitButton.addActionListener(new ActionListener() {
1097            public void actionPerformed(ActionEvent e) {
1098                System.out.println("Exit Clicked!");
1099                System.exit(0);
1100            }
1101        });
1102    }
1103
1104    void createNorth() {
1105        JPanel northPanel = new JPanel();
1106        northPanel.setLayout(new BorderLayout());
1107
1108        JLabel titleLabel = new JLabel("HUST SOICT DSAI AIMS STORE");
1109        titleLabel.setFont(new Font("Times New Roman", Font.BOLD, 16));
1110        titleLabel.setHorizontalAlignment(JLabel.CENTER);
1111        titleLabel.setForeground(Color.BLUE);
1112
1113        JButton titleButton = new JButton("Title");
1114        titleButton.addActionListener(new ActionListener() {
1115            public void actionPerformed(ActionEvent e) {
1116                System.out.println("Title Clicked!");
1117            }
1118        });
1119
1120        northPanel.add(titleLabel, "Center");
1121        northPanel.add(titleButton, "South");
1122
1123        return northPanel;
1124    }
1125
1126    void createHeader() {
1127        JPanel headerPanel = new JPanel();
1128        headerPanel.setLayout(new BorderLayout());
1129
1130        JLabel headerLabel = new JLabel("Welcome to the Store!");
1131        headerLabel.setFont(new Font("Times New Roman", Font.BOLD, 16));
1132        headerLabel.setHorizontalAlignment(JLabel.CENTER);
1133        headerLabel.setForeground(Color.BLUE);
1134
1135        JButton headerButton = new JButton("Header");
1136        headerButton.addActionListener(new ActionListener() {
1137            public void actionPerformed(ActionEvent e) {
1138                System.out.println("Header Clicked!");
1139            }
1140        });
1141
1142        headerPanel.add(headerLabel, "Center");
1143        headerPanel.add(headerButton, "South");
1144
1145        return headerPanel;
1146    }
1147
1148    void createMenuBar() {
1149        JMenuBar menuBar = new JMenuBar();
1150        JMenu fileMenu = new JMenu("File");
1151        JMenu editMenu = new JMenu("Edit");
1152        JMenu helpMenu = new JMenu("Help");

```

A screenshot of the Visual Studio Code interface. The title bar says "AimsProject". The left sidebar shows a file tree with a project named "AIMSPROJECT" containing various Java files like AddBookToStore.java, AddCDToStore.java, etc., and XML files like addBookToStore.fxml. The main editor area displays the "StoreScreen.java" code. The code defines a menu bar with items for adding DVD, updating store, viewing store, and viewing cart. It also defines a button listener for the menu items. The status bar at the bottom shows "Ln 188, Col 1" and "10:58 PM 12/19/2024".

```
src > hust > soict > dsai > aims > screen > J StoreScreen.java > ...  
70  
71 JMenuItem smAddDVD = new JMenuItem(text:"Add DVD");  
72 smUpdateStore.add(smAddDVD);  
73 smAddDVD.addActionListener(new btnMenuListener());  
74  
menu.add(smUpdateStore);  
// View store in MenuBar  
75 JMenuItem viewStoreMenu = new JMenuItem(text:"View store");  
viewStoreMenu.addActionListener(new ActionListener() {  
    @Override  
    public void actionPerformed(ActionEvent e){  
        new StoreScreen(store);  
    }  
});  
menu.add(viewStoreMenu);  
// View Cart in MenuBar  
76 JMenuItem viewCartMenu = new JMenuItem(text:"View cart");  
viewCartMenu.addActionListener(new ActionListener() {  
    @Override  
    public void actionPerformed(ActionEvent e){  
        new CartScreen(cart);  
    }  
});  
menu.add(viewCartMenu);  
77 JMenuBar menuBar = new JMenuBar();  
menuBar.setLayout(new FlowLayout(FlowLayout.LEFT));  
menuBar.add(menu);  
78  
return menuBar;  
}  
private class btnMenuListener implements ActionListener{  
    @Override  
    public void actionPerformed(ActionEvent e){  
        String menuItemText = e.getActionCommand();  
        if (menuItemText.equals(anObject:"Add Book")){  
            new AddBookToStore(store);  
        }  
    }  
}
```

A screenshot of the Visual Studio Code interface, identical to the first one but with some code changes. The main editor area now contains a header creation section. The code defines a JPanel "header" with a title label and a JButton "cartBtn" for viewing the cart. The status bar at the bottom shows "Ln 188, Col 1" and "10:59 PM 12/19/2024".

```
src > hust > soict > dsai > aims > screen > J StoreScreen.java > ...  
104     @Override  
105     public void actionPerformed(ActionEvent e){  
106         String menuItemText = e.getActionCommand();  
107         if (menuItemText.equals(anObject:"Add Book")){  
108             new AddBookToStore(store);  
109         } else if (menuItemText.equals(anObject:"Add CD")){  
110             new AddCDToStore(store);  
111         } else if (menuItemText.equals(anObject:"Add DVD")){  
112             new AddDVDToStore(store);  
113         }  
114     }  
115  
116     JPanel createHeader() {  
117         JPanel header = new JPanel();  
118         header.setLayout(new BoxLayout(header, BoxLayout.X_AXIS));  
119  
120         JLabel title = new JLabel(text:"AIMS");  
121         title.setFont(new Font(title.getFont().getName(), Font.PLAIN, size:50));  
122         title.setForeground(Color.CYAN);  
123  
124         JButton cartBtn = new JButton(text:"View cart");  
125         cartBtn.addActionListener(new ActionListener() {  
126             @Override  
127             public void actionPerformed (ActionEvent e){  
128                 new CartScreen(cart);  
129             }  
130         });  
131         cartBtn.setPreferredSize(new Dimension(width:100, height:50));  
132         cartBtn.setMaximumSize(new Dimension(width:100, height:50));  
133  
134         header.add(Box.createRigidArea(new Dimension(width:10, height:10)));  
135         header.add(title);  
136         header.add(Box.createHorizontalGlue());  
137         header.add(cartBtn);  
138         header.add(Box.createRigidArea(new Dimension(width:10, height:10)));  
139  
140         return header;  
141     }  
142 }
```

Screenshot of Visual Studio Code (Light Theme) showing StoreScreen.java:

```

File Edit Selection View Go Run ...
src > hust > soict > dsai > aims > screen > J StoreScreen.java ...
144
145
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164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
}
}

public static void initMedia() {
    Book book1 = new Book(title:"The Lean Startup", category:"Business/Entrepreneurship", cost:14.99f);
    store.addMedia(book1);
    Book book2 = new Book(title:"1984", category:"Fiction/Dystopian", cost:10.99f);
    store.addMedia(book2);
    Book book3 = new Book(title:"The Da Vinci Code", category:"Fiction/Thriller", cost:9.99f);
    store.addMedia(book3);

    DigitalVideoDisc dvd1 = new DigitalVideoDisc(title:"The God Father", category:"Crime/Drama", director:"Francis Ford Coppola", length:142);
    store.addMedia(dvd1);
    DigitalVideoDisc dvd2 = new DigitalVideoDisc(title:"The Dark Knight", category:"Action/Crime/Drama", director:"Christopher Nolan", length:142);
    store.addMedia(dvd2);
    DigitalVideoDisc dvd3 = new DigitalVideoDisc(title:"The ShawShank Redemption", category:"Drama", director:"Frank Darabont", length:142);
    store.addMedia(dvd3);

    CompactDisc cd1 = new CompactDisc(title:"Thriller", category:"Pop", cost:10.99f, artist:"Michael Jackson");
    Track track1 = new Track(title:"Wanna Be Startin' Somethin'", length:7);
    Track track2 = new Track(title:"Baby Be Mine", length:5);
    Track track3 = new Track(title:"Beat It", length:5);

    cd1.addTrack(track1);
    cd1.addTrack(track2);
    cd1.addTrack(track3);
    store.addMedia(cd1);
}

Run | Debug
public static void main(String[] args) {
    initMedia();
    new StoreScreen(store);
}
}

```

Ln 188, Col 1 Spaces: 4 UTF-8 LF {} Java Go Live 10:59 PM 12/19/2024

Screenshot of Visual Studio Code (Dark Theme) showing StoreScreen.java:

```

File Edit Selection View Go Run ...
src > hust > soict > dsai > aims > screen > J StoreScreen.java ...
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
}
}

DigitalVideoDisc dvd1 = new DigitalVideoDisc(title:"The God Father", category:"Crime/Drama", director:"Francis Ford Coppola", length:142);
store.addMedia(dvd1);
DigitalVideoDisc dvd2 = new DigitalVideoDisc(title:"The Dark Knight", category:"Action/Crime/Drama", director:"Christopher Nolan", length:142);
store.addMedia(dvd2);
DigitalVideoDisc dvd3 = new DigitalVideoDisc(title:"The ShawShank Redemption", category:"Drama", director:"Frank Darabont", length:142);
store.addMedia(dvd3);

CompactDisc cd1 = new CompactDisc(title:"Thriller", category:"Pop", cost:10.99f, artist:"Michael Jackson");
Track track1 = new Track(title:"Wanna Be Startin' Somethin'", length:7);
Track track2 = new Track(title:"Baby Be Mine", length:5);
Track track3 = new Track(title:"Beat It", length:5);

cd1.addTrack(track1);
cd1.addTrack(track2);
cd1.addTrack(track3);
store.addMedia(cd1);

Run | Debug
public static void main(String[] args) {
    initMedia();
    new StoreScreen(store);
}
}

```

Ln 160, Col 68 Spaces: 4 UTF-8 LF {} Java Go Live 10:59 PM 12/19/2024

b, Media Store

AimsProject

```

File Edit Selection View Go Run ...
src > hust > soict > dsai > aims > screen > MediaStore.java hust.soict.dsai.aims.screen
EXPLORER ... J StoreScreen.java J MediaStore.java
src > hust > soict > dsai > aims > screen > MediaStore.java hust.soict.dsai.aims.screen
22 public class MediaStore extends JPanel {
23     public MediaStore(Media media, Cart cart){
24         this.setLayout(new BoxLayout(this, BoxLayout.Y_AXIS));
25
26         JLabel title = new JLabel(media.getTitle());
27         title.setFont(new Font(title.getFont().getName(), Font.PLAIN, size:20));
28         title.setAlignmentX(CENTER_ALIGNMENT);
29
30         JLabel cost = new JLabel(""+media.getCost()+" $");
31         cost.setAlignmentX(CENTER_ALIGNMENT);
32
33         JPanel container = new JPanel();
34         container.setLayout(new FlowLayout(FlowLayout.CENTER));
35
36         // Add to cart button
37         JButton addCartButton = new JButton(text:"Add to cart");
38         addCartButton.addActionListener(new ActionListener() {
39             public void actionPerformed(ActionEvent e){
40                 try {
41                     cart.addMedia(media);
42                 } catch (LimitExceedededException e1) {
43                     e1.printStackTrace();
44                 }
45                 // cart.print();
46             }
47         });
48         container.add(addCartButton);
49
50         // Play Button
51         if (media instanceof Playable){
52             JButton playButton = new JButton(text:"Play");
53
54             playButton.addActionListener(new ActionListener() {
55                 public void actionPerformed(ActionEvent e){
56                     Dialog dialog = new Dialog();
57                     dialog.setTitle(title:"Play Media");
58                     dialog.setSize(width:200, height:100);
59                     dialog.setModal(modal:true);
60
61                 }
62             });
63             container.add(playButton);
64
65             this.add(Box.createVerticalGlue());
66             this.add(title);
67             this.add(cost);
68             this.add(Box.createVerticalGlue());
69             this.add(container);
70
71             this.setBorder(BorderFactory.createLineBorder(Color.BLACK));
72
73         }
74     }
75
76     public void actionPerformed(ActionEvent e){
77         Dialog dialog = new Dialog();
78         dialog.setTitle(title:"Play Media");
79         dialog.setSize(width:200, height:100);
80         dialog.setModal(modal:true);
81
82         Playable playableMedia = (Playable) media;
83         String mediaInfo = "";
84         try {
85             mediaInfo = <html> + playableMedia.playGUI().replace(target:"\n", replacement:"<br>") + </html>;
86         } catch (PlayerException e1) {
87             e1.printStackTrace();
88         }
89         JLabel medialabel = new JLabel(mediaInfo);
90         medialabel.setVerticalAlignment(JLabel.CENTER);
91         medialabel.setHorizontalTextPosition(JLabel.CENTER);
92
93         dialog.add(medialabel);
94         dialog.setVisible(b:true);
95         dialog.dispose();
96
97     }
98
99 }

```

Ln 1, Col 1 Spaces: 4 UTF-8 LF {} Java Go Live

11:00 PM 12/19/2024

AimsProject

```

File Edit Selection View Go Run ...
src > hust > soict > dsai > aims > screen > MediaStore.java hust.soict.dsai.aims.screen
EXPLORER ... J StoreScreen.java J MediaStore.java
src > hust > soict > dsai > aims > screen > MediaStore.java hust.soict.dsai.aims.screen
58     Dialog dialog = new Dialog();
59     dialog.setTitle(title:"Play Media");
60     dialog.setSize(width:200, height:100);
61     dialog.setModal(modal:true);
62
63     Playable playableMedia = (Playable) media;
64     String mediaInfo = "";
65     try {
66         mediaInfo = <html> + playableMedia.playGUI().replace(target:"\n", replacement:"<br>") + </html>;
67     } catch (PlayerException e1) {
68         e1.printStackTrace();
69     }
70     JLabel medialabel = new JLabel(mediaInfo);
71     medialabel.setVerticalAlignment(JLabel.CENTER);
72     medialabel.setHorizontalTextPosition(JLabel.CENTER);
73
74     dialog.add(medialabel);
75     dialog.setVisible(b:true);
76     dialog.dispose();
77
78     container.add(playButton);
79
80     this.add(Box.createVerticalGlue());
81     this.add(title);
82     this.add(cost);
83     this.add(Box.createVerticalGlue());
84     this.add(container);
85
86     this.setBorder(BorderFactory.createLineBorder(Color.BLACK));
87
88 }

```

Ln 92, Col 1 Spaces: 4 UTF-8 LF {} Java Go Live

11:00 PM 12/19/2024

c, Cart Screen

The screenshot shows a Java code editor with the file `CartScreen.java` open. The code implements a `JFrame` for a shopping cart screen. It includes methods for setting up the window title, size, and visibility, as well as loading an FXML file for the content panel. The code uses JavaFX components like `JFXPanel` and `FXMLLoader`. The editor interface includes a left sidebar for navigating through the project structure, a top bar with tabs for other files like `StoreScreen.java`, and a bottom toolbar with various icons.

```
src > hust > soict > dsai > aims > screen > CartScreen.java > ...
12 import javafx.scene.Scene;
13
14 public class CartScreen extends JFrame {
15     private static Cart cart;
16
17     public CartScreen(Cart cart){
18         super();
19
20         CartScreen.cart = cart;
21
22         JFXPanel fxPanel = new JFXPanel();
23         this.add(fxPanel);
24
25         this.setTitle(title:"Cart");
26         this.setSize(width:1024, height:768);
27         this.setVisible(b:true);
28         // setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
29         Platform.runLater(new Runnable() {
30             @Override
31             public void run() {
32                 try {
33                     FXMLLoader loader = new FXMLLoader(getClass().getResource(name:"/hust/soict/dsai/aims/screen/cart.fxml"));
34                     CartScreenController controller = new CartScreenController(cart);
35                     loader.setController(controller);
36                     Parent root = loader.load();
37                     fxPanel.setScene(new Scene(root));
38                 } catch (IOException e) {
39                     e.printStackTrace();
40                 }
41             }
42         });
43     }
44
45     public static void main(String[] args) {
46         new CartScreen(cart);
47     }
48 }
```

d. Cart Screen Controller

The screenshot shows a JavaFX application window titled "AimsProject". The left sidebar displays the project structure under "EXPLORER". The main area shows the code for "CartScreenController.java". The code defines a controller for a screen that displays a cart. It includes imports for javafx.scene.control.ToggleGroup, javafx.scene.control.cell.PropertyValueFactory, and javafx.scene.control.TableColumn. The class contains fields for a Cart, a Button for playing, a Button for removing items, and a TableView for media. It also includes columns for media title, category, and cost, and a filter for categories. The constructor initializes the controller with a Cart, and the initialize method sets up the PropertyValueFactories for the table columns.

```
File Edit Selection View Go Run ... AimsProject 0% 11:01 PM 12/19/2024 ENG Java Ready Explorer ... J StoreScreen.java J CartScreen.java J CartScreenController.java src / hust / soict / dsai / aims / screen > J CartScreenController.java > updateButtonBar(Media) 17 import javafx.scene.control.ToggleGroup; 18 import javafx.scene.control.cell.PropertyValueFactory; 19 20 public class CartScreenController { 21     private Cart cart; 22 23     @FXML 24     private Button btnPlay; 25 26     @FXML 27     private Button btnRemove; 28 29     @FXML 30     private TableView<Media> tblMedia; 31 32     @FXML 33     private TableColumn<Media, String> colMediaTitle; 34 35     @FXML 36     private TableColumn<Media, String> colMediaCategory; 37 38     @FXML 39     private TableColumn<Media, Float> colMediaCost; 40 41     @FXML 42     private ToggleGroup filterCategory; 43 44     @FXML 45     private Label costLabel; 46 47     public CartScreenController(Cart cart){ 48         super(); 49         this.cart = cart; 50     } 51 52     @FXML 53     private void initialize() { 54         colMediaTitle.setCellValueFactory(new PropertyValueFactory<Media, String>(property:"title")); 55         colMediaCategory.setCellValueFactory(new PropertyValueFactory<Media, String>(property:"category")); 56         colMediaCost.setCellValueFactory(new PropertyValueFactory<Media, Float>(property:"cost")); 57     } 58 } 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 99
```

File Edit Selection View Go Run ... AimsProject

EXPLORER AIMS PROJECT .vscode bin aims cart exception media screen addBookToStore.fxml AddBookToStore.java AddBookToStoreController.java addCD.fxml AddCDToStore.java AddCDToStoreController.java addDVD.fxml AddDVDToStore.java AddDVDToStoreController.java addTrack.fxml AddTrack.java AddTrackController.java cart.xml CartScreen.java CartScreenController.java MediaStore.java StoreScreen.java store test AimsProject.jar README.md

```

src > hust > soict > dsai > aims > screen > CartScreenController.java > CartScreenController > updateButtonBar(Media)

51
52
53 @FXML
54 private void initialize() {
55     colMediaTitle.setCellValueFactory(new PropertyValueFactory<Media, String>(property:"title"));
56     colMediaCategory.setCellValueFactory(new PropertyValueFactory<Media, String>(property:"category"));
57     colMediaCost.setCellValueFactory(new PropertyValueFactory<Media, Float>(property:"cost"));
58     tblMedia.setItems(this.cart.getItemsOrdered());
59     costLabel.setText(cart.totalCost() + " $");
60
61     btnPlay.setVisible(false);
62     btnRemove.setVisible(false);
63
64     tblMedia.getSelectionModel().selectedItemProperty().addListener(new ChangeListener<Media>() {
65         @Override
66         public void changed(ObservableValue<? extends Media> observable, Media oldValue, Media newValue) {
67             if (newValue != null){
68                 updateButtonBar(newValue);
69             }
70         }
71     });
72
73     void updateButtonBar(Media media){
74         btnRemove.setVisible(true);
75         if (media instanceof Playable){
76             btnPlay.setVisible(true);
77         } else {
78             btnPlay.setVisible(false);
79         }
80
81     }
82
83     @FXML
84     void btnRemovedPressed(ActionEvent event) {
85         Media media = tblMedia.getSelectionModel().getSelectedItem();
86         cart.removeMedia(media);
87         costLabel.setText(cart.totalCost() + " $");
88     }
89
90     @FXML
91     void placeOrderbtnPressed(ActionEvent event) {
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
}

```

Ln 80, Col 6 Spaces: 4 UTF-8 LF {} Java Go Live 11:01 PM 12/19/2024

File Edit Selection View Go Run ... AimsProject

EXPLORER AIMS PROJECT .vscode bin aims cart exception media screen addBookToStore.fxml AddBookToStore.java AddBookToStoreController.java addCD.fxml AddCDToStore.java AddCDToStoreController.java addDVD.fxml AddDVDToStore.java AddDVDToStoreController.java addTrack.fxml AddTrack.java AddTrackController.java cart.xml CartScreen.java CartScreenController.java MediaStore.java StoreScreen.java store test AimsProject.jar README.md

```

src > hust > soict > dsai > aims > screen > CartScreenController.java > ...
costLabel.setText(cart.totalCost() + " $");

@FXML
void placeOrderbtnPressed(ActionEvent event) {
    if (cart.getItemsOrdered().size() == 0){
        Alert alert = new Alert(Alert.AlertType.INFORMATION, contentText:"Your cart is empty.");
        alert.setTitle(title:"Order created");
        alert.setHeaderText(headerText:null);
        alert.showAndWait();
    } else {
        cart.placeOrder();
        costLabel.setText(cart.totalCost() + " $");
        Alert alert = new Alert(Alert.AlertType.INFORMATION, contentText:"Successfully Ordered.");
        alert.setTitle(title:"Order created");
        alert.setHeaderText(headerText:null);
        alert.showAndWait();
    }
}

@FXML
void btnPlayPressed(ActionEvent event) throws PlayerException {
    Media media = tblMedia.getSelectionModel().getSelectedItem();
    Playable playableMedia = (Playable) media;
    Alert alert;

    alert = new Alert(Alert.AlertType.NONE, playableMedia.playGUI());
    alert.setTitle(title:"Playing");
    alert.setHeaderText(headerText:null);
    alert.getDialogPane().getButtonTypes().add(ButtonType.OK);
    alert.showAndWait();
}

```

Ln 119, Col 1 Spaces: 4 UTF-8 LF {} Java Go Live 11:02 PM 12/19/2024

e, AddBookToStoreScreen

The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer (Left):** Shows the project structure under "AIMSPROJECT". The "AddBookToStore.java" file is selected.
- Code Editor (Center):** Displays the code for "AddBookToStore.java". The code initializes a JFrame, sets its title and size, adds a JFXPanel, and loads an FXML file for the store screen.
- Bottom Status Bar:** Shows "Ln 47, Col 1" and "11:03 PM 12/19/2024".

```
File Edit Selection View Go Run ... ⏪ ⏩ AimsProject
EXPLORER ... J StoreScreen.java J CartScreen.java J AddBookToStore.java ...
src > hust > soict > dsai > aims > screen > J AddBookToStore.java ...
10 import javafx.scene.Scene;
11
12 public class AddBookToStore extends JFrame{
13     private static Store store;
14
15     Run|Debug
16     public static void main(String[] args) {
17         new AddBookToStore(store);
18     }
19
20     public AddBookToStore(Store store){
21         super();
22
23         AddBookToStore.store = store;
24
25         JFXPanel fxPanel = new JFXPanel();
26         this.add(fxPanel);
27
28         this.setTitle(title:"Add Book To Store");
29         this.setSize(width:1024, height:768);
30         this.setVisible(b:true);
31         // setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
32         Platform.runLater(new Runnable() {
33             @Override
34             public void run() {
35                 try {
36                     FXMLLoader loader = new FXMLLoader(getClass().getResource(name:"/hust/soict/dsai/aims/screen/addBookToStore.fxml"));
37                     AddBookToStoreController controller = new AddBookToStoreController(store);
38                     loader.setController(controller);
39                     Parent root = loader.load();
40                     fxPanel.setScene(new Scene(root));
41                 } catch (Exception e) {
42                     e.printStackTrace();
43                 }
44             }
45         });
46     }
47 }
```

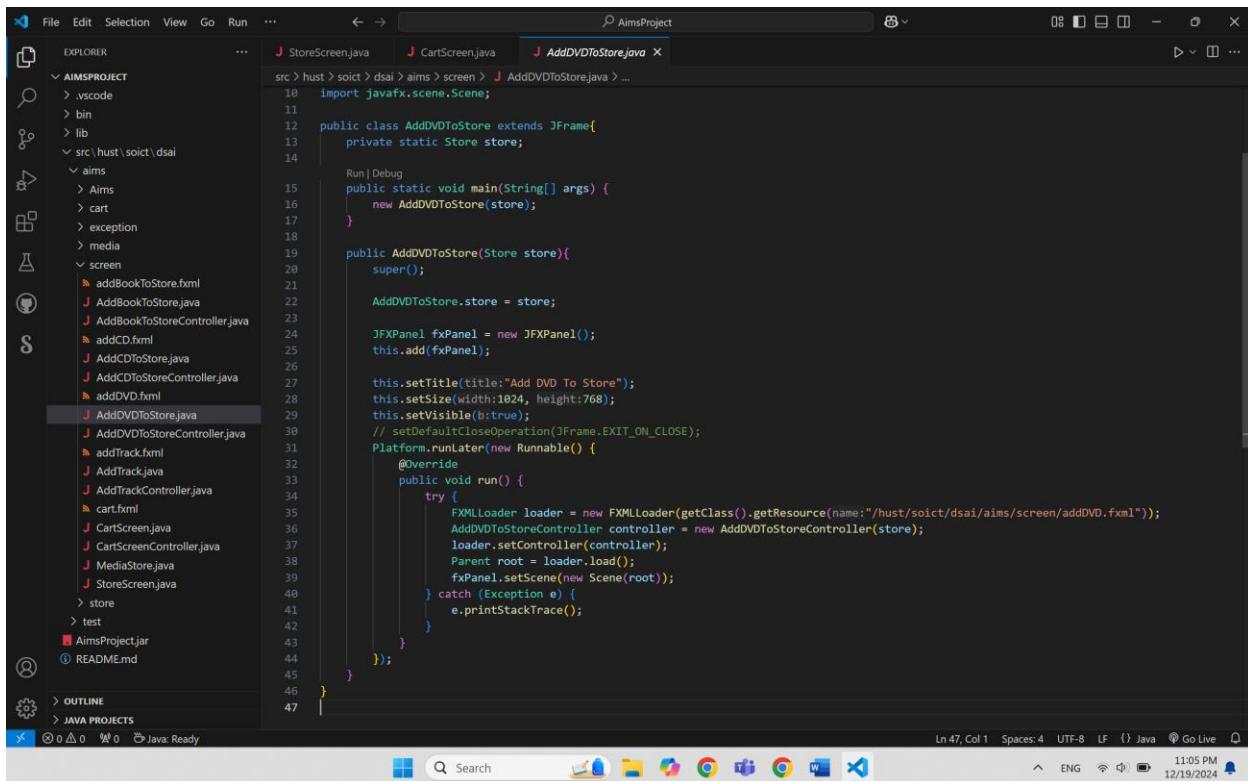
f, AddCDToStoreScreen

The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer (Left):** Shows the project structure under "AIMSPROJECT". The "AddCDToStore.java" file is selected.
- Code Editor (Center):** Displays the code for "AddCDToStore.java". The code is identical to "AddBookToStore.java" but uses "addCDToStore.fxml" instead of "addBookToStore.fxml".
- Bottom Status Bar:** Shows "Ln 47, Col 1" and "11:05 PM 12/19/2024".

```
File Edit Selection View Go Run ... ⏪ ⏩ AimsProject
EXPLORER ... J StoreScreen.java J CartScreen.java J AddCDToStore.java ...
src > hust > soict > dsai > aims > screen > J AddCDToStore.java ...
10 import javafx.scene.Scene;
11
12 public class AddCDToStore extends JFrame{
13     private static Store store;
14
15     Run|Debug
16     public static void main(String[] args) {
17         new AddCDToStore(store);
18     }
19
20     public AddCDToStore(Store store){
21         super();
22
23         AddCDToStore.store = store;
24
25         JFXPanel fxPanel = new JFXPanel();
26         this.add(fxPanel);
27
28         this.setTitle(title:"Add CD To Store");
29         this.setSize(width:1024, height:768);
30         this.setVisible(b:true);
31         // setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
32         Platform.runLater(new Runnable() {
33             @Override
34             public void run() {
35                 try {
36                     FXMLLoader loader = new FXMLLoader(getClass().getResource(name:"/hust/soict/dsai/aims/screen/addCD.fxml"));
37                     AddCDToStoreController controller = new AddCDToStoreController(store);
38                     loader.setController(controller);
39                     Parent root = loader.load();
40                     fxPanel.setScene(new Scene(root));
41                 } catch (Exception e) {
42                     e.printStackTrace();
43                 }
44             }
45         });
46     }
47 }
```

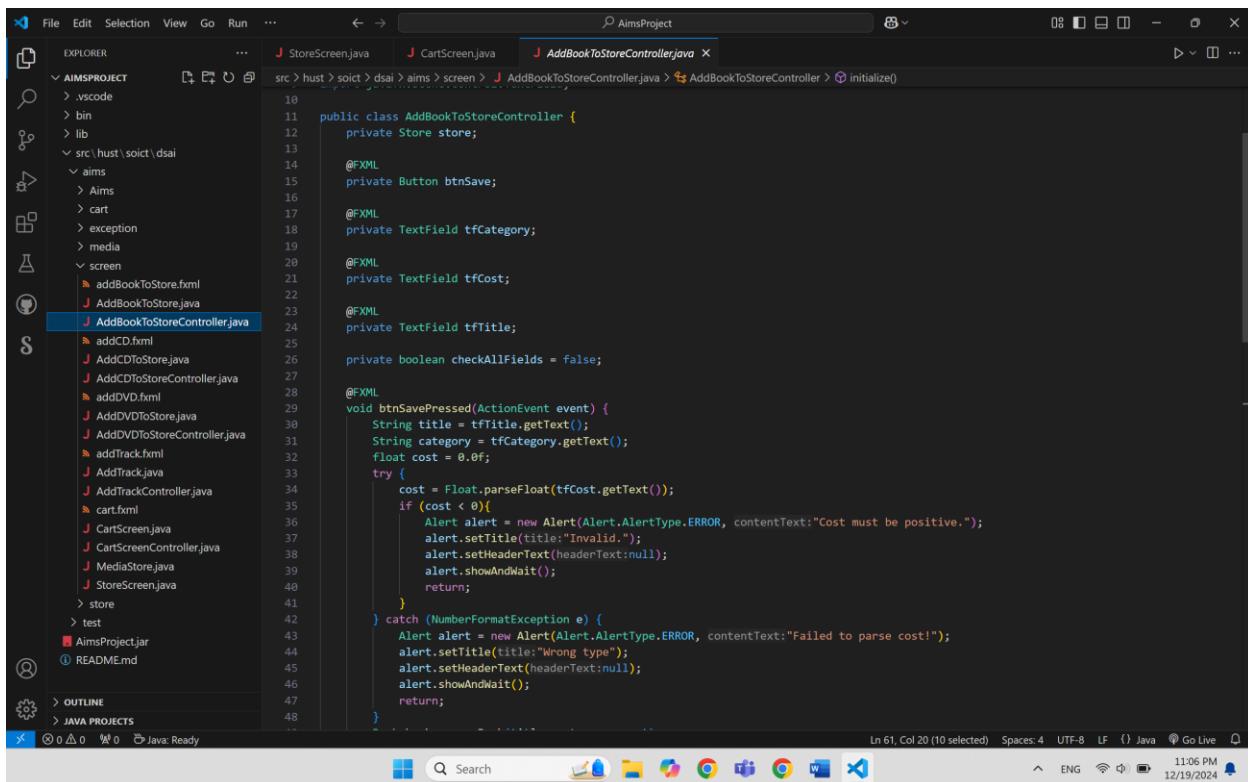
g, AddDVDToStoreScreen



The screenshot shows the Visual Studio Code interface with the project 'AimsProject' open. The Explorer sidebar on the left lists files and folders, including 'src', 'Aims', 'cart', 'exception', 'media', 'screen', and 'store'. The 'screen' folder contains several Java and FXML files. The 'AddDVDToStore.java' file is currently selected and displayed in the main editor area. The code implements a JavaFX application for adding a DVD to a store.

```
File Edit Selection View Go Run ... AimsProject
EXPLORER
AIMSPROJECT
> .vscode
> bin
> lib
src > hust > soict > dsai > aims > screen > J AddDVDToStore.java ...
10 import javafx.scene.Scene;
11
12 public class AddDVDToStore extends JFrame{
13     private static Store store;
14
15     Run | Debug
16     public static void main(String[] args) {
17         new AddDVDToStore(store);
18     }
19
20     public AddDVDToStore(Store store){
21         super();
22
23         AddDVDToStore.store = store;
24
25         JFXPanel fxPanel = new JFXPanel();
26         this.add(fxPanel);
27
28         this.setTitle(title:"Add DVD To Store");
29         this.setSize(width:1024, height:768);
30         this.setVisible(b:true);
31         // setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
32         Platform.runLater(new Runnable() {
33             @Override
34             public void run() {
35                 try {
36                     FXMLLoader loader = new FXMLLoader(getClass().getResource(name:"/hust/soict/dsai/aims/screen/addDVD.fxml"));
37                     AddDVDToStoreController controller = new AddDVDToStoreController(store);
38                     loader.setController(controller);
39                     Parent root = loader.load();
40                     fxPanel.setScene(new Scene(root));
41                 } catch (Exception e) {
42                     e.printStackTrace();
43                 }
44             }
45         });
46     }
47 }
```

h, AddBookToStoreScreenController



The screenshot shows the Visual Studio Code interface with the project 'AimsProject' open. The Explorer sidebar on the left lists files and folders, including 'src', 'Aims', 'cart', 'exception', 'media', 'screen', and 'store'. The 'screen' folder contains several Java and FXML files. The 'AddBookToStoreController.java' file is currently selected and displayed in the main editor area. The code implements a JavaFX controller for adding a book to a store, handling user input and validation.

```
File Edit Selection View Go Run ... AimsProject
EXPLORER
AIMSPROJECT
> .vscode
> bin
> lib
src > hust > soict > dsai > aims > screen > J AddBookToStoreController.java ...
10
11 public class AddBookToStoreController {
12     private Store store;
13
14     @FXML
15     private Button btnSave;
16
17     @FXML
18     private TextField tfCategory;
19
20     @FXML
21     private TextField tfCost;
22
23     @FXML
24     private TextField tfTitle;
25
26     private boolean checkAllFields = false;
27
28     @FXML
29     void btnSavePressed(ActionEvent event) {
30         String title = tfTitle.getText();
31         String category = tfCategory.getText();
32         float cost = 0.0f;
33         try {
34             cost = Float.parseFloat(tfCost.getText());
35             if (cost < 0){
36                 Alert alert = new Alert(Alert.AlertType.ERROR, contentText:"Cost must be positive.");
37                 alert.setTitle(title:"Invalid.");
38                 alert.setHeaderText(headerText:null);
39                 alert.showAndWait();
40             }
41         } catch (NumberFormatException e) {
42             Alert alert = new Alert(Alert.AlertType.ERROR, contentText:"Failed to parse cost!");
43             alert.setTitle(title:"Wrong type");
44             alert.setHeaderText(headerText:null);
45             alert.showAndWait();
46         }
47     }
48 }
```

AimsProject

```

File Edit Selection View Go Run ...
J StoreScreen.java J CartScreen.java J AddBookToStoreController.java
src > hust > soict > dsai > aims > screen > J AddBookToStoreController.java > J AddBookToStoreController > initialize()
45     alert.setHeaderText(headerText:null);
46     alert.showAndWait();
47     return;
48 }
49 Book book = new Book(title, category, cost);
50 store.addMedia(book);
51 tfTitle.clear();
52 tfCategory.clear();
53 tfCost.clear();
54 Alert alert = new Alert(Alert.AlertType.INFORMATION, contentText:"Book has been added to the store!");
55 alert.setTitle(title:"Success");
56 alert.setHeaderText(headerText:null);
57 alert.showAndWait();
58 }

@FXML
void initialize() {
    btnSave.setDisable(true);

    tfTitle.textProperty().addListener((observable, oldValue, newValue) -> checkTextFields());
    tfCategory.textProperty().addListener((observable, oldValue, newValue) -> checkTextFields());
    tfCost.textProperty().addListener((observable, oldValue, newValue) -> checkTextFields());
}

private void checkTextFields(){
    if (!tfTitle.getText().isEmpty() && !tfCategory.getText().isEmpty() && !tfCost.getText().isEmpty()){
        checkAllFields = true;
    } else {
        checkAllFields = false;
    }
    btnSave.setDisable(!checkAllFields);
}

public AddBookToStoreController(Store store){
    super();
    this.store = store;
}

```

Ln 61, Col 20 (10 selected) Spaces: 4 UTF-8 LF {} Java Go Live

11:06 PM 12/19/2024

i, AddCDToStoreScreenController

AimsProject

```

File Edit Selection View Go Run ...
J StoreScreen.java J CartScreen.java J AddCDToStoreController.java
src > hust > soict > dsai > aims > screen > J AddCDToStoreController.java > J AddCDToStoreController > () hust.soict.dsai.aims.screen
10
11 public class AddCDToStoreController {
12     private Store store;
13
14     private CompactDisc CD;
15
16     @FXML
17     private Button btnAddTrack;
18
19     @FXML
20     private Button btnSave;
21
22     @FXML
23     private TextField tfArtist;
24
25     @FXML
26     private TextField tfCategory;
27
28     @FXML
29     private TextField tfCost;
29
30     @FXML
31     private TextField tfTitle;
32
33     private boolean checkAllFields = false;
34
35     @FXML
36     void btnAddTrackPressed(ActionEvent event) {
37         new addTrack(CD);
38     }
39
40     @FXML
41     void btnSavePressed(ActionEvent event) {
42         String title = tfTitle.getText();
43         String category = tfCategory.getText();
44         String artist = tfArtist.getText();
45         float cost = 0.0f;
46         try {
47             cost = Float.parseFloat(tfCost.getText());
48             if (cost < 0){
49

```

Ln 1, Col 1 Spaces: 4 UTF-8 LF {} Java Go Live

11:07 PM 12/19/2024

The screenshot shows a Java IDE interface with the project 'AimsProject' open. The code editor displays the `AddCDToStoreController.java` file. The code handles the addition of a CD to a store, validating input fields and displaying alerts for errors or success. It uses JavaFX annotations (@FXML) and JavaFX Alert objects.

```
try {
    cost = Float.parseFloat(tfCost.getText());
    if (cost < 0){
        Alert alert = new Alert(Alert.AlertType.ERROR, contentText:"Cost must be positive!");
        alert.setTitle(title:"Invalid");
        alert.setHeaderText(headerText:null);
        alert.showAndWait();
        return;
    }
} catch (NumberFormatException e) {
    Alert alert = new Alert(Alert.AlertType.ERROR, contentText:"Failed to parse cost!");
    alert.setTitle(title:"Wrong type");
    alert.setHeaderText(headerText:null);
    alert.showAndWait();
}
CompactDisc CD = new CompactDisc(title, category, cost, artist);
store.addMedia(CD);
tfTitle.clear();
tfCategory.clear();
tfCost.clear();
tfArtist.clear();
Alert alert = new Alert(Alert.AlertType.INFORMATION, contentText:"CD has been added to the store!");
alert.setTitle(title:"Success");
alert.setHeaderText(headerText:null);
alert.showAndWait();
```

The screenshot shows a Java IDE interface with the project 'AimsProject' open. The code editor displays the `AddDVDToStoreController.java` file. The code handles the addition of a DVD to a store, validating input fields and displaying alerts for errors or success. It uses JavaFX annotations (@FXML) and JavaFX Alert objects.

```
tfCost.clear();
tfArtist.clear();
Alert alert = new Alert(Alert.AlertType.INFORMATION, contentText:"CD has been added to the store!");
alert.setTitle(title:"Success");
alert.setHeaderText(headerText:null);
alert.showAndWait();
```

j, AddDVDToStoreScreenController

The screenshot shows a Java IDE interface with the following details:

- Project Explorer:** Shows the project structure under "AIMSPROJECT".
- Code Editor:** Displays the `AddDVDToStoreController.java` file.
- Code Content:**

```
10  public class AddDVDToStoreController {  
11      private Store store;  
12  
13      @FXML  
14      private Button btnSave;  
15  
16      @FXML  
17      private TextField tfCategory;  
18  
19      @FXML  
20      private TextField tfCost;  
21  
22      @FXML  
23      private TextField tfDirector;  
24  
25      @FXML  
26      private TextField tfLength;  
27  
28      @FXML  
29      private TextField tfTitle;  
30  
31      private boolean checkAllFields = false;  
32  
33      @FXML  
34      void btnSavePressed(ActionEvent event) {  
35          String title = tfTitle.getText();  
36          String category = tfCategory.getText();  
37          String director = tfDirector.getText();  
38          float cost = 0.0f;  
39          int length = 0;  
40  
41          try {  
42              cost = Float.parseFloat(tfCost.getText());  
43              length = Integer.parseInt(tfLength.getText());  
44  
45              if (cost < 0){  
46                  Alert alert = new Alert(Alert.AlertType.ERROR, contentText:"Cost must be positive!");  
47                  alert.setTitle("Invalid Cost");  
48                  alert.setHeaderText(headerText:null);  
49                  alert.showAndWait();  
50                  return;  
51              } else if (length < 0){  
52                  Alert alert = new Alert(Alert.AlertType.ERROR, contentText:"Length must be positive!");  
53                  alert.setTitle("Invalid Length");  
54                  alert.setHeaderText(headerText:null);  
55                  alert.showAndWait();  
56                  return;  
57              }  
58              } catch (NumberFormatException e) {  
59                  Alert alert = new Alert(Alert.AlertType.ERROR, contentText:"Failed to parse number!");  
60                  alert.setTitle("Wrong type");  
61                  alert.setHeaderText(headerText:null);  
62                  alert.showAndWait();  
63                  return;  
64              }  
65              DigitalVideoDisc dvd = new DigitalVideoDisc(title, category, director, length, cost);  
66              store.addMedia(dvd);  
67              tfTitle.clear();  
68              tfCategory.clear();  
69              tfCost.clear();  
70              tfDirector.clear();  
71              tfLength.clear();  
72              Alert alert = new Alert(Alert.AlertType.INFORMATION, contentText:"DVD has been added to the store!");  
73              alert.setTitle("Success");  
74              alert.setHeaderText(headerText:null);  
75              alert.showAndWait();  
76          }  
77  
78          @FXML  
79          void initialize() {  
80              btnSave.setDisable(true);  
81  
82              tfTitle.textProperty().addListener((observable, oldValue, newValue) -> checkTextFields());  
83              tfCategory.textProperty().addListener((observable, oldValue, newValue) -> checkTextFields());  
84          }  
85      }  
86  }
```

- Toolbars and Status Bar:** Standard Java IDE toolbars and status bar showing "Java: Ready".

The screenshot shows the continuation of the `AddDVDToStoreController.java` file from the previous screen.

- Code Content:**

```
85      }  
86  }
```

The code continues from line 85, showing the `initialize()` method and its logic for enabling/disabling the save button based on text field changes.

- Toolbars and Status Bar:** Standard Java IDE toolbars and status bar showing "Java: Ready".

The screenshot shows a Java application window titled "AimsProject". The menu bar includes File, Edit, Selection, View, Go, Run, and Help. The title bar also displays "AimsProject". The main area contains three tabs: "StoreScreen.java", "CartScreen.java", and "AddDVDToStoreController.java". The "AddDVDToStoreController.java" tab is active, showing Java code for a controller class. The code handles button click events, specifically for saving a DVD to a store. It uses JavaFX's ObservableList and Listener interfaces to check if all required fields are filled. If all fields are valid, it creates an alert message indicating success. The code also includes a constructor for the controller class. The code editor interface includes a left sidebar with project navigation, a bottom status bar with file counts and Java status, and a bottom toolbar with various icons.

```
src > hust > soict > dsai > aims > screen > AddDVDToStoreController.java > ...
71     tfLength.clear();
72     Alert.alert = new Alert(Alert.AlertType.INFORMATION, contentText:"DVD has been added to the store!");
73     alert.setTitle(title:"Success");
74     alert.setHeaderText(headerText:null);
75     alert.showAndWait();
76 }
77
78 @FXML
79 void initialize() {
80     btnSave.setDisable(true);
81
82     tfTitle.textProperty().addListener((observable, oldValue, newValue) -> checkTextFields());
83     tfCategory.textProperty().addListener((observable, oldValue, newValue) -> checkTextFields());
84     tfCost.textProperty().addListener((observable, oldValue, newValue) -> checkTextFields());
85     tfLength.textProperty().addListener((observable, oldValue, newValue) -> checkTextFields());
86     tfDirector.textProperty().addListener((observable, oldValue, newValue) -> checkTextFields());
87 }
88
89 private void checkTextFields(){
90     if (!tfTitle.getText().isEmpty() && !tfCategory.getText().isEmpty() && !tfCost.getText().isEmpty() && !tfDirector.getText().isEmpty())
91         checkAllFields = true;
92     else {
93         checkAllFields = false;
94     }
95     btnSave.setDisable(!checkAllFields);
96 }
97
98 public AddDVDToStoreController(Store store){
99     super();
100    this.store = store;
101 }
```

k, Player Exception

The screenshot shows a Java development environment with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, ...
- Title Bar:** AimsProject
- Toolbar:** Includes icons for file operations like Open, Save, and Close, as well as other standard IDE tools.
- Left Sidebar (EXPLORER):**
 - AIMS PROJECT
 - .vscode
 - bin
 - lib
 - src\hust\soict\dsai
 - aims
 - cart
 - exception
 - PlayerException.java
 - media
 - screen
 - addBookToStore.fxml
 - AddBookToStore.java
 - AddBookToStoreController.java
 - addCD.fxml
 - AddCDStore.java
 - AddCDStoreController.java
 - addDVD.fxml
 - AddDVDToStore.java
 - AddDVDToStoreController.java
 - addTrack.fxml
 - AddTrack.java
 - AddTrackController.java
 - cart.fxml
 - CartScreen.java
 - CartScreenController.java
 - MediaStore.java
 - StoreScreen.java
 - store
 - test
 - AimsProject.jar
 - README.md
 - Central Area:** Code editor showing `PlayerException.java`.

```
1 package hust.soict.dsai.aims.exception;
2
3 public class PlayerException extends Exception {
4     public PlayerException(String message){
5         super(message);
6     }
7 }
```
 - Bottom Status Bar:** Ln 1, Col 1 | Spaces: 4 | UTF-8 | CRLF | {} Java | Go Live | 11:09 PM | 12/19/2024
 - Bottom Icons:** Includes icons for file operations, search, and various tools.