

Assignment3-JavaFX

Arleen Kaur | Sukhwinder Kaur | Hardeep Singh

The main (entry point) file to load the FXML file and run the stage.

```
1 package com.example.assignment3javafx;
2 import javafx.application.Application;
3 import javafx.fxml.FXMLLoader;
4 import javafx.scene.Scene;
5 import javafx.stage.Stage;
6
7 import java.io.IOException;
8
9 public class MainFile extends Application {
10     @Override
11     public void start(Stage stage) throws IOException {
12
13         FXMLLoader fxmlLoader = new FXMLLoader(MainFile.class.getResource("hello-view.fxml"));
14         Scene scene = new Scene(fxmlLoader.load());
15         stage.setTitle("Assignment 3 JavaFX FX"); //CUSTOM TITLE FOR THE STAGE WINDOW
16         stage.setScene(scene);
17         stage.show();
18     }
19
20
21     public static void main(String[] args) {
22         launch();
23     }
24 }
```

FXML file have Stackpane and 2 Anchorpanes for different scenes.

```
1 <?xml version="1.0" encoding="UTF-8"?>
2
3 <?import javafx.scene.control.Button?>
4 <?import javafx.scene.control.Label?>
5 <?import javafx.scene.control.TextField?>
6 <?import javafx.scene.layout.AnchorPane?>
7 <?import javafx.scene.layout.StackPane?>
8 <?import javafx.scene.text.Text?>
9
10 <StackPane xmlns="http://javafx.com/javafx/21" xmlns:fx="http://javafx.com/fxml/1" fx:controller="com.example.assignment3javafx.MainController">
11     <children>
12         <AnchorPane fx:id="mainPage" prefHeight="252.0" prefWidth="586.0">
13             <children>
14                 <Text layoutX="211.0" layoutY="74.0" strokeType="OUTSIDE" strokeWidth="0.0" text="WELCOME TO CALCULATOR APP " />
15                 <Label fx:id="currentDate" layoutX="446.0" layoutY="24.0" prefHeight="18.0" prefWidth="116.0" text="Label" />
16                 <Button fx:id="simpleCalculator" layoutX="124.0" layoutY="113.0" mnemonicParsing="false" onAction="#simpleCalculatorButton" text="Simple Calculator" />
17                 <Button fx:id="temperatureCalculator" layoutX="328.0" layoutY="113.0" mnemonicParsing="false" onAction="#tempButton" text="Temperature Calculator" />
18             </children>
19         </AnchorPane>
20         <AnchorPane fx:id="mainPage1" prefHeight="252.0" prefWidth="586.0" visible="false">
21             <children>
22                 <Text layoutX="204.0" layoutY="46.0" strokeType="OUTSIDE" strokeWidth="0.0" text="WELCOME TO CALCULATOR APP " />
23                 <TextField fx:id="input1" layoutX="219.0" layoutY="80.0" />
24                 <TextField fx:id="input2" layoutX="220.0" layoutY="126.0" />
25                 <Button fx:id="addition" layoutX="179.0" layoutY="170.0" mnemonicParsing="false" onAction="#addition" text="+ (Addition)" />
26                 <Button fx:id="subtraction" layoutX="62.0" layoutY="170.0" mnemonicParsing="false" onAction="#subtraction" text="- (Subtraction)" />
27                 <Button fx:id="multiply" layoutX="288.0" layoutY="170.0" mnemonicParsing="false" onAction="#multiply" text="* (Multiply)" />
28                 <Button fx:id="division" layoutX="404.0" layoutY="170.0" mnemonicParsing="false" onAction="#division" text="/" (Division)" />
29                 <Button fx:id="mainMenu1" layoutX="50.0" layoutY="254.0" layoutZ="1.0" mnemonicParsing="false" onAction="#mainMenu" text="Back" />
30                 <Label fx:id="result" layoutX="254.0" layoutY="209.0" text="RESULT HERE: " />
31                 <Text layoutX="138.0" layoutY="97.0" strokeType="OUTSIDE" strokeWidth="0.0" text=" INPUT 1 :" />
32                 <Text layoutX="139.0" layoutY="143.0" strokeType="OUTSIDE" strokeWidth="0.0" text=" INPUT 2 :" />
33             </children>
34         </AnchorPane>
35     </children>
36 
```

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MainController.java

```
1 package com.example.assignment3javafx;
2
3 import javafx.event.ActionEvent;
4 import javafx.fxml.FXML;
5 import javafx.scene.control.Label;
6 import javafx.scene.control.TextField;
7 import javafx.scene.layout.AnchorPane;
8
9 import java.text.SimpleDateFormat;
10 import java.util.Date;
11
12 /**
13 * Controller class for handling user interactions.
14 */
15 public class MainController {
16     @FXML
17     private AnchorPane mainPage;
18
19     @FXML
20     private AnchorPane mainPage1;
21
22     @FXML
23     private AnchorPane mainPage2;
24
25     @FXML
26     private Label currentDate;
27
28     @FXML
29     private TextField tempInput;
30
31     @FXML
32     private Label result;
33
34     @FXML
```

Controller file to handle events and all the contents of scenes.

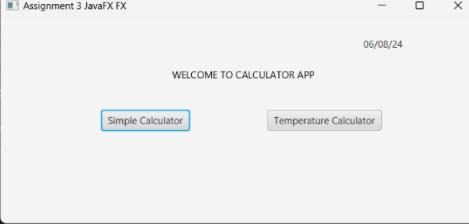
mathOperation.java

```
1 package com.example.assignment3javafx;
2
3 /**
4 * Abstract base class for mathematical operations.
5 */
6 abstract class MathOperation { 5 usages 4 inheritors
7     abstract double operate(double a, double b); 1 usage 4 implementations
8 }
9
10 /**
11 * Performs addition operation.
12 */
13 class Addition extends MathOperation { 1 usage
14     @Override 1 usage
15     double operate(double a, double b) {
16         return a + b;
17     }
18 }
19
20 /**
21 * Performs subtraction operation.
22 */
23 class Subtraction extends MathOperation { 1 usage
24     @Override 1 usage
25     double operate(double a, double b) {
26         return a - b;
27     }
28 }
29
30 /**
31 * Performs multiplication operation.
32 */
33 class Multiply extends MathOperation { 1 usage
34     @Override 1 usage
```

Contains all the formulae to be processed in background following all the OOPs concepts.

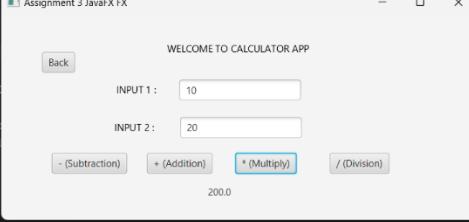
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This is the First scene showing the Main page which will redirect to other pages. Simple Calculator for basic tasks such as Addition and temperature calc for converting temps.

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3 import javafx.fxml.FXMLLoader;
4 import javafx.scene.Scene;
5 import javafx.stage.Stage;
6 import java.io.IOException;
7
8 public class MainFile extends Application {
9     @Override
10    public void start(Stage stage) throws IOException {
11        FXMLLoader fxmlLoader = new FXMLLoader();
12        Scene scene = new Scene(fxmlLoader.load(), 300, 200);
13        stage.setTitle("Assignment 3 JavaFX");
14        stage.setScene(scene);
15        stage.show();
16    }
17
18
19
20
21    public static void main(String[] args) {
```

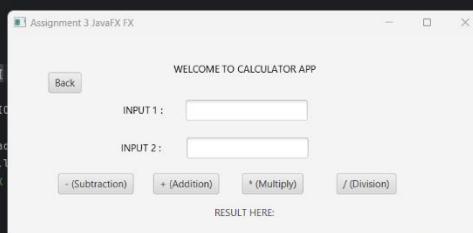


This page shows the multiplication , where 2 input text fields takes in the input and pressing any button would perform the assigned task.

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12        Scene scene = new Scene(fxmlLoader.load(), 300, 200);
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14        stage.setScene(scene);
15        stage.show();
16    }
17
18
19
20
21    public static void main(String[] args) {
```

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The screenshot shows the JavaFX application running in a dark-themed IDE. The application window title is "Assignment 3 JavaFX FX". Inside, it says "WELCOME TO CALCULATOR APP". There are two input fields labeled "INPUT 1:" and "INPUT 2:". Below them are four buttons: "- (Subtraction)", "+ (Addition)", "* (Multiply)", and "/ (Division)". At the bottom right is a button labeled "RESULT HERE:". A "Back" button is at the top left of the window.



The screenshot shows the JavaFX application running in the same IDE. The application window title is "Assignment 3 JavaFX FX". Inside, it says "INPUT:". There is one input field containing the value "20". Below it are two buttons: "convertCelsiusToFahrenheit" and "convertFahrenheitToCelsius". The "convertFahrenheitToCelsius" button is highlighted with a blue border. To its right, the output "-6.666666666666667" is displayed.

Both screenshots show the code for MainFile.java and MainController.java, which handle the logic for the calculator and temperature conversion respectively.

THANKYOU 😊 .