write a java program that import and use the user defined packages

1. Create the Package and Class:

Java

```java
// mymath/operations/Calculator.java
package mymath.operations;

public class Calculator {
    public int add(int a, int b) {
        return a + b;
    }

    public int subtract(int a, int b) {
        return a - b;
    }
}
```

2. Compile the Package Class:

Code

```
javac -d . mymath/operations/Calculator.java
```

3. Create the Main Application:

Java

```java
// MainApp.java
import mymath.operations.Calculator; // Import the specific class

public class MainApp {
    public static void main(String[] args) {
        Calculator calc = new Calculator();
        int sum = calc.add(10, 5);
        int difference = calc.subtract(10, 5);

        System.out.println("Sum: " + sum);
        System.out.println("Difference: " + difference);
    }
}
```

4. Compile and Run the Main Application:

Code

```
javac MainApp.java
java MainApp
```

5. Output:

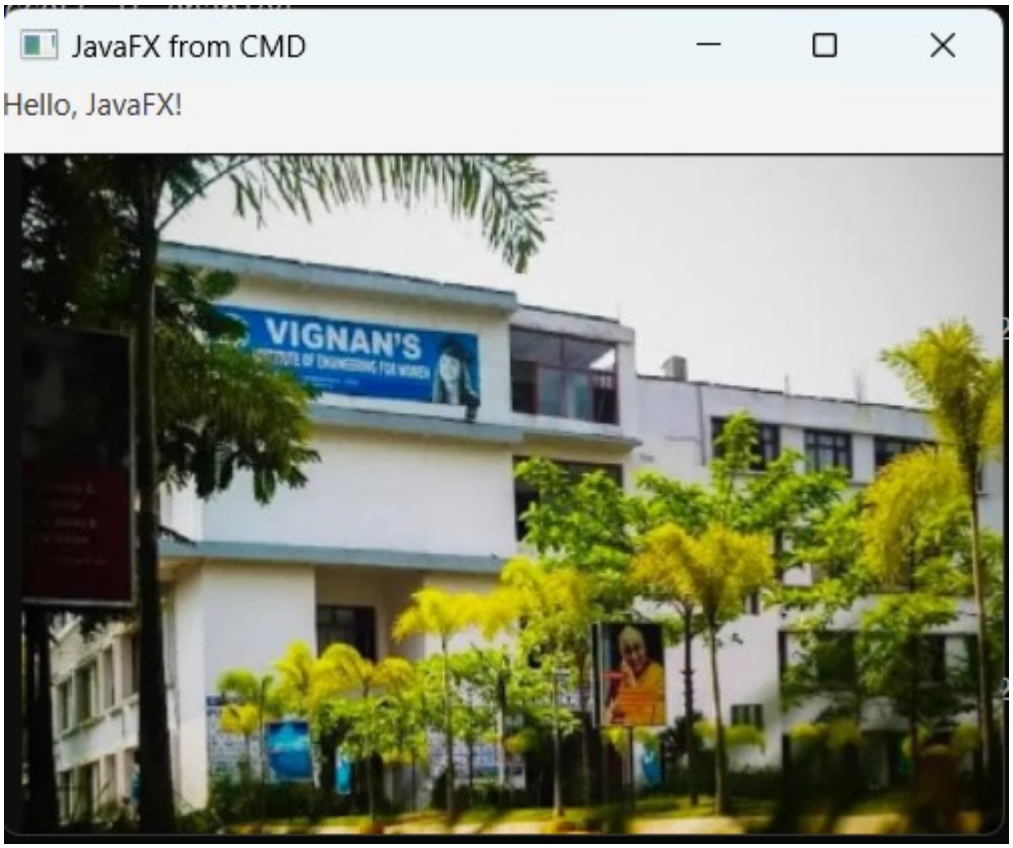
```
Sum: 15
Difference: 5
```

write program that build GUI that display text in lable and image in image view using javafx

```
import javafx.application.Application;
import javafx.scene.Scene;
import javafx.scene.control.Label;
import javafx.scene.image.Image;
import javafx.scene.image.ImageView;
import javafx.scene.layout.VBox;
import javafx.stage.Stage;

public class Main extends Application {
   @Override
   public void start(Stage primaryStage) {
      Label label = new Label("Hello, JavaFX!");
      Image image = new Image("file:resources/logo.png",400, 300, false, false);
                  if (image.isError()) {
                        System.out.println("Image failed to load: " + image.getException());
                        }

      ImageView imageView = new ImageView(image);
```

```
        VBox root = new VBox(10, label, imageView);
        Scene scene = new Scene(root, 400, 300);
        primaryStage.setTitle("JavaFX from CMD");
        primaryStage.setScene(scene);
        primaryStage.show();
    }

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

OUTPUT:



How to Run from CMD

Save as Main.java

Compile:

javac --module-path "D:\javafx-sdk-24\lib" --add-modules javafx.controls,javafx.fxml Main.java

Run:

java --module-path "D:\javafx-sdk-24\lib" --add-modules javafx.controls,javafx.fxml Main

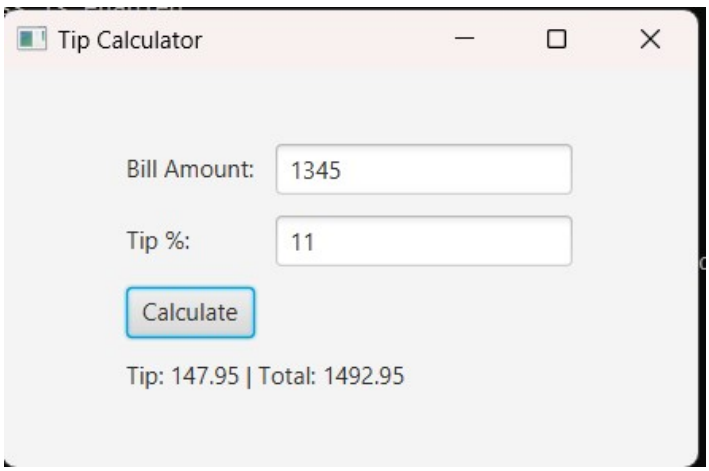
3. **build a tip calculator app using javafx and learn how to respond user interaction with GUI**

```
import javafx.application.Application;

import javafx.geometry.Insets;

import javafx.geometry.Pos;

import javafx.scene.Scene;

import javafx.scene.control.Button;

import javafx.scene.control.Label;

import javafx.scene.control.TextField;

import javafx.scene.layout.GridPane;

import javafx.stage.Stage;


public class TipCalculator extends Application {

    @Override

    public void start(Stage primaryStage) {

        // Labels

        Label billLabel = new Label("Bill Amount:");

        Label tipLabel = new Label("Tip %:");

        Label resultLabel = new Label("Tip + Total will appear here");
```

```
// Input fields
TextField billField = new TextField();
TextField tipField = new TextField();

// Button
Button calculateBtn = new Button("Calculate");

// Event Handling (user interaction)
calculateBtn.setOnAction(e -> {
    try {
        double bill = Double.parseDouble(billField.getText());
        double tipPercent = Double.parseDouble(tipField.getText());

        double tip = bill * (tipPercent / 100);
        double total = bill + tip;

        resultLabel.setText(String.format("Tip: %.2f | Total: %.2f", tip, total));
    } catch (NumberFormatException ex) {
        resultLabel.setText("⚠ Please enter valid numbers.");
    }
});

// Layout
GridPane grid = new GridPane();
grid.setAlignment(Pos.CENTER);
grid.setPadding(new Insets(20));
grid.setHgap(10);
grid.setVgap(10);
```

```
        // Add nodes to layout
        grid.add(billLabel, 0, 0);
        grid.add(billField, 1, 0);
        grid.add(tipLabel, 0, 1);
        grid.add(tipField, 1, 1);
        grid.add(calculateBtn, 0, 2, 2, 1);
        grid.add(resultLabel, 0, 3, 2, 1);

        // Scene + Stage
        Scene scene = new Scene(grid, 350, 200);
        primaryStage.setTitle("Tip Calculator");
        primaryStage.setScene(scene);
        primaryStage.show();
    }

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

Output:



Note:

To run javafx through cmd

1. Save javafx program with filemname.java

2. Compile the Program

javac --module-path "D:\javafx-sdk-24\lib" --add-modules javafx.controls,javafx.fxml TipCalculator.java

3. Run the program

java --module-path "D:\javafx-sdk-24\lib" --add-modules javafx.controls,javafx.fxml TipCalculator