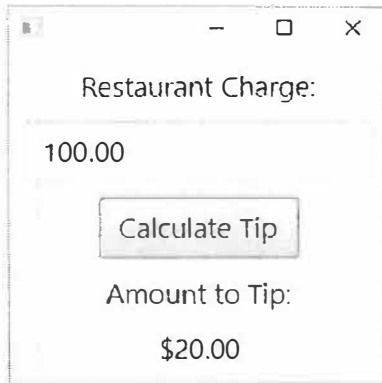


In this tutorial you will use JavaFX to create a tip calculator. The application will let you enter the amount of a restaurant charge, and it will display the amount of a 20% tip. The completed application will look like this:



1. Launch your Java IDE and start a new project. Enter the following code. (If you compile and run the following code, you will see an empty window.)

```
import javafx.application.Application;
import javafx.stage.Stage;

public class MyFirstFXGUI extends Application
{
    public static void main(String[] args)
    {
        launch(args);
    }

    @Override
    public void start(Stage primaryStage)
    {
        // Show the window.
        primaryStage.show();
    }
}
```

2. Now you will add the code that creates the controls and displays them. Insert the code shown here in bold:

```
import javafx.application.Application;
import javafx.stage.Stage;
import javafx.scene.Scene;
import javafx.scene.control.Label;
import javafx.scene.control.TextField;
import javafx.scene.control.Button;
import javafx.scene.layout.VBox;
import javafx.geometry.Pos;

public class MyFirstFXGUI extends Application
{

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

    @Override
    public void start(Stage primaryStage)
    {
        // Create the controls.
        Label promptLabel = new Label("Restaurant Charge:");
        TextField chargesTextField = new TextField();
        Button calcButton = new Button("Calculate Tip");
        Label outputLabel = new Label("Amount to Tip:");
        Label tipAmountLabel = new Label();

        // Put the controls in a VBox.
        VBox vbox = new VBox(10, promptLabel, chargesTextField,
            calcButton, outputLabel, tipAmountLabel);

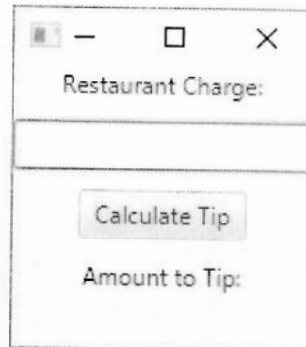
        // Center align the VBox.
        vbox.setAlignment(Pos.CENTER);

        // Make the VBox the root node.
        Scene scene = new Scene(vbox);

        // Set the scene to the stage.
        primaryStage.setScene(scene);

        // Show the window.
        primaryStage.show();
    }
}
```

If you compile and run the program now, it should look like this:



3. Let's put some "padding" around the VBox so it doesn't all the way to the edge of the window. Insert the lines shown here in bold:

```
import javafx.application.Application;
import javafx.stage.Stage;
import javafx.scene.Scene;
import javafx.scene.control.Label;
import javafx.scene.control.TextField;
import javafx.scene.control.Button;
import javafx.scene.layout.VBox;
import javafx.geometry.Pos;
import javafx.geometry.Insets;

public class MyFirstFXGUI extends Application
{
    public static void main(String[] args)
    {
        launch(args);
    }

    @Override
    public void start(Stage primaryStage)
    {
        // Create the controls.
        Label promptLabel = new Label("Restaurant Charge:");
        TextField chargesTextField = new TextField();
        Button calcButton = new Button("Calculate Tip");
        Label outputLabel = new Label("Amount to Tip:");
        Label tipAmountLabel = new Label();

        // Put the controls in a VBox.
        VBox vbox = new VBox(10, promptLabel, chargesTextField,
                               calcButton, outputLabel, tipAmountLabel);
```

```

// Center align and pad the VBox.
vbox.setAlignment(Pos.CENTER);
vbox.setPadding(new Insets(10));

// Make the VBox the root node.
Scene scene = new Scene(vbox);

// Set the scene to the stage.
primaryStage.setScene(scene);

// Show the window.
primaryStage.show();
}
}

```

If you compile and run the program now, it should look like this:



4. Now you will add an event handler to calculate the tip. Insert the lines shown here in bold:

```

import javafx.application.Application;
import javafx.stage.Stage;
import javafx.scene.Scene;
import javafx.scene.control.Label;
import javafx.scene.control.TextField;
import javafx.scene.control.Button;
import javafx.scene.layout.VBox;
import javafx.geometry.Pos;
import javafx.geometry.Insets;

public class MyFirstFXGUI extends Application
{
    public static void main(String[] args)
    {
        launch(args);
    }

    @Override
    public void start(Stage primaryStage)
    {

```

```

// Create the controls.
Label promptLabel = new Label("Restaurant Charge:");
TextField chargesTextField = new TextField();
Button calcButton = new Button("Calculate Tip");
Label outputLabel = new Label("Amount to Tip:");
Label tipAmountLabel = new Label();

// Put the controls in a VBox.
VBox vbox = new VBox(10, promptLabel, chargesTextField,
    calcButton, outputLabel, tipAmountLabel);

// Center align and pad the VBox.
vbox.setAlignment(Pos.CENTER);
vbox.setPadding(new Insets(10));

// Register an event handler for the Button.
calcButton.setOnAction(e ->
{
    double tip = Double.parseDouble(chargesTextField.getText()) * 0.2;
    tipAmountLabel.setText(String.format("%.2f", tip));
});

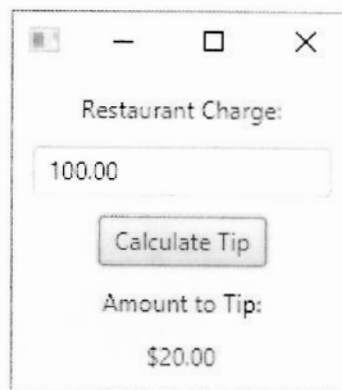
// Make the VBox the root node.
Scene scene = new Scene(vbox);

// Set the scene to the stage.
primaryStage.setScene(scene);

// Show the window.
primaryStage.show();
}
}

```

If you compile and run the program now, it should calculate a 20 percent tip when you enter an amount for the restaurant charge, and click the Button. Here is an example:



5. Now you will create a simple stylesheet for the scene. The stylesheet will set all text in the scene, beginning at the root node, to a 14-point font. Create a separate file named `nccia.css` with the following contents:

```
.root {  
    -fx-font-size: 14pt;  
}
```

6. Now you will set the stylesheet to the scene. Insert the lines shown here in bold:

```
import javafx.application.Application;  
import javafx.stage.Stage;  
import javafx.scene.Scene;  
import javafx.scene.control.Label;  
import javafx.scene.control.TextField;  
import javafx.scene.control.Button;  
import javafx.scene.layout.VBox;  
import javafx.geometry.Pos;  
import javafx.geometry.Insets;  
  
public class MyFirstFXGUI extends Application  
{  
    public static void main(String[] args)  
    {  
        launch(args);  
    }  
  
    @Override  
    public void start(Stage primaryStage)  
    {  
        // Create the controls.  
        Label promptLabel = new Label("Restaurant Charge:");  
        TextField chargesTextField = new TextField();  
        Button calcButton = new Button("Calculate Tip");  
        Label outputLabel = new Label("Amount to Tip:");  
        Label tipAmountLabel = new Label();  
  
        // Put the controls in a VBox.  
        VBox vbox = new VBox(10, promptLabel, chargesTextField,  
                               calcButton, outputLabel, tipAmountLabel);  
  
        // Center align and pad the VBox.  
        vbox.setAlignment(Pos.CENTER);  
        vbox.setPadding(new Insets(10));  
  
        // Register an event handler for the Button.  
        calcButton.setOnAction(e ->  
        {  
            double tip = Double.parseDouble(chargesTextField.getText()) * 0.2;  
            tipAmountLabel.setText(String.format("%.2f", tip));  
        });  
    }  
}
```

```

// Make the VBox the root node.
Scene scene = new Scene(vbox);

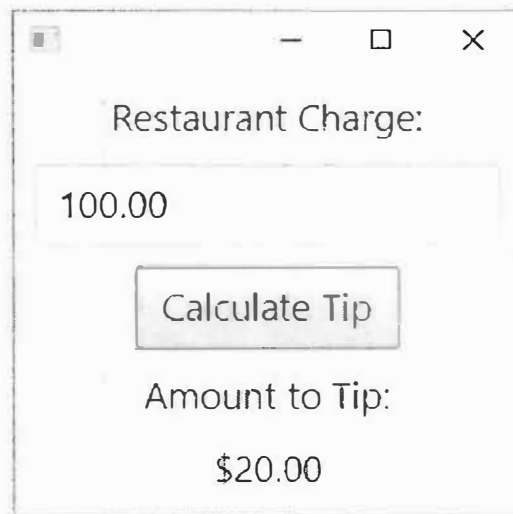
// Set a stylesheet for the scene.
scene.getStylesheets().add("nccia.css");

// Set the scene to the stage.
primaryStage.setScene(scene);

// Show the window.
primaryStage.show();
}

```

If you compile and run the program now, all of the text should appear in a 14-point font. Here is an example:



Zip and upload your files to mark your attendance for the week!