

# Practice Assignment: W06\_10-05\_1

---

## CISC 3120 Section ER6 Design and Implementation of Software Applications I

This exercise helps you get familiar to write event handlers in JavaFX applications. The source code listed belongs to a `TwoButtons` application that has two buttons, one is to select a random text message to display, and another a random color for the message being displayed. You may browse the code on Github via the following URL,

<https://github.com/CISC3120/sampleprograms/tree/master/TwoButtons>

Your tasks are as follows.

1. Copy the `TwoButtons` project to your **weekly practice** repository;
2. Lines 56 – 62 is a statement that registers an event handler by instantiating an *anonymous* class implementing the `EventHandler<ActionEvent>` interface. Replace this statement by an equivalent one without using the *anonymous* class. For this, you will need to create a named class that implements the `EventHandler<ActionEvent>` interface. An example is demonstrated in Line 66. Note that since Java allows nested class, the named class referenced in Line 66 is defined as a private class in Lines 87 – 92.
3. Rewrite Line 66 to use an *anonymous* class implementing the `EventHandler<ActionEvent>` interface similar to the statement in Lines 56 – 62.

```
1 package edu.cuny.brooklyn.cisc3120.gui.TwoButtons;
2
3 import java.util.Random;
4
5 import javafx.application.Application;
6 import javafx.event.ActionEvent;
7 import javafx.event.EventHandler;
8 import javafx.geometry.Insets;
9 import javafx.geometry.Pos;
10 import javafx.scene.Scene;
11 import javafx.scene.control.Button;
12 import javafx.scene.control.Label;
13 import javafx.scene.layout.HBox;
14 import javafx.scene.layout.VBox;
15 import javafx.scene.paint.Color;
16 import javafx.scene.text.Font;
17 import javafx.scene.text.FontWeight;
18 import javafx.stage.Stage;
19
20 public class TwoButtons extends Application {
21     private final int WINDOW_WIDTH = 400;
22     private final int WINDOW_HEIGHT = 200;
23     private final int BUTTON_SPACING = 20;
24     private final int PADDING_TOP = 20;
25     private final int PADDING_RIGHT = 20;
26     private final int PADDING_BOTTOM = 20;
27     private final int PADDING_LEFT = 20;
28     private final Insets HBOX_PADDING = new Insets(PADDING_TOP, PADDING_RIGHT,
29                                                     PADDING_BOTTOM, PADDING_LEFT);
```

```

29     private final String[] MESSAGES = { "Hello, World!", "What a wonderful day!", "Happy
        Holidays!", "Are you driven?",
30         "I am bored, let 's play!" };
31
32     private Random rng;
33     private Label lblText;
34
35     public static void main(String[] args) {
36         launch(args);
37     }
38
39     @Override
40     public void init() {
41         rng = new Random();
42     }
43
44     @Override
45     public void start(Stage primaryStage) throws Exception {
46         lblText = new Label();
47         lblText.setText("Hello, World!");
48         // On Mac: use
49         // lblText.setFont(Font.font("Zapfino", FontWeight.NORMAL, 60.));
50         // On Windows: use
51         // lblText.setFont(Font.font("Kunstler Script", FontWeight.NORMAL, 60.));
52         lblText.setFont(Font.font("Kunstler Script", FontWeight.NORMAL, 60.));
53
54         Button btnSetText = new Button();
55         btnSetText.setText("Set Random Text");
56         btnSetText.setOnAction(new EventHandler<ActionEvent>() {
57
58             @Override
59             public void handle(ActionEvent event) {
60                 lblText.setText(getRandomMessage());
61             }
62         });
63
64         Button btnSetColor = new Button();
65         btnSetColor.setText("Set Random Color");
66         btnSetColor.setOnAction(new RandomColorEventHandler());
67
68         HBox hboxButtons = new HBox();
69         hboxButtons.getChildren().add(btnSetText);
70         hboxButtons.getChildren().add(btnSetColor);
71         hboxButtons.setAlignment(Pos.CENTER);
72         hboxButtons.setSpacing(BUTTON_SPACING);
73         hboxButtons.setPadding(HBOX_PADDING);
74
75         VBox vbox = new VBox();
76         vbox.getChildren().add(hboxButtons);
77         vbox.getChildren().add(lblText);
78         vbox.setAlignment(Pos.TOP_CENTER);
79
80         Scene scene = new Scene(vbox, WINDOW_WIDTH, WINDOW_HEIGHT);
81         primaryStage.setTitle("Two Buttons");
82         primaryStage.setScene(scene);
83         primaryStage.show();
84     }
85
86     private class RandomColorEventHandler implements EventHandler<ActionEvent> {
87         @Override
88         public void handle(ActionEvent event) {
89             lblText.setTextFill(getRandomColor());
90         }
91     }
92
93     private String getRandomMessage() {
94         return MESSAGES[rng.nextInt(MESSAGES.length)];
95     }

```

```
96     }
97
98     private Color getRandomColor() {
99         int r = rng.nextInt(256);
100         int g = rng.nextInt(256);
101         int b = rng.nextInt(256);
102         return Color.rgb(r, g, b);
103     }
104 }
```