

# OOPS

## LAB-13

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QUESTION-1:

Write a JavaFX application that allows the user to choose insurance options. Use a ToggleGroup to allow the user to select only one of two insurance types—HMO (health maintenance organization) or PPO (preferred provider organization). Use CheckBoxes for dental insurance and vision insurance options; the user can select one option, both options, or neither option. As the user selects each option, display its name and price in a text field; the HMO costs \$200 per month, the PPO costs \$600 per month, the dental coverage adds \$75 per month, and the vision care adds \$20 per month. Save the application as FXInsurance.java.

CODE:

```
import java.awt.GridLayout;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import java.text.DecimalFormat;
import javax.swing.BorderFactory;
import javax.swing.ButtonGroup;
import javax.swing.JCheckBox;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JPanel;
import javax.swing.JTextField;

public class FXInsurance implements ActionListener {
```

```
JTextField name;
JTextField price;
// Create checkbox
JCheckBox hmo;
JCheckBox ppo;
JCheckBox dental;
JCheckBox vision;
public FXInsurance() {
    name = new JTextField(10);
    price = new JTextField(10);
    name.setEditable(false);
    price.setEditable(false);
    // Create checkbox
    hmo = new JCheckBox("HMO - health maintenance
organisation");
    ppo = new JCheckBox("PPO - preferred provider
organisation");
    dental = new JCheckBox("Dental insuarance");
    vision = new JCheckBox("Vision insuarance");
}
public JPanel init() {
    JPanel mainPanel = new JPanel(new GridLayout(2, 1));
    // mainPanel.setPreferredSize(new Dimension(400,
200));

mainPanel.setBorder(BorderFactory.createTitledBorder("
"));
    JPanel subPanel = new JPanel(new GridLayout(4, 1));
    // Create buttongroup
```

```

ButtonGroup grp = new ButtonGroup();
grp.add(hmo);
grp.add(ppo);
// Add actionlistener
hmo.addActionListener(this);
ppo.addActionListener(this);
dental.addActionListener(this);
vision.addActionListener(this);
// Add checkbox to the panel
subPanel.add(hmo);
subPanel.add(ppo);
subPanel.add(dental);
subPanel.add(vision);
mainPanel.add(subPanel);
// Create sub panel for name and cost
JPanel subPanel2 = new JPanel(new GridLayout(2, 2));
subPanel2.add(new JLabel("Insurance: "));
subPanel2.add(name);
subPanel2.add(new JLabel("Cost: "));
subPanel2.add(price);
mainPanel.add(subPanel2);
return mainPanel;
}

@Override
public void actionPerformed(ActionEvent e) {
String insurance = "";
int cost = 0;

```

```
    if (hmo.isSelected()) {
        insurance = (insurance == "") ? "HMO" : insurance + ",
HMO";
        cost += 200;
    }
    if (ppo.isSelected()) {
        insurance = (insurance == "") ? "PPO" : insurance + ",
PPO";
        cost += 600;
    }
    if (dental.isSelected()) {
        insurance = (insurance == "") ? "Dental" : insurance +
", Dental";
        cost += 75;
    }
    if (vision.isSelected()) {
        insurance = (insurance == "") ? "Vision" : insurance +
", Vision";
        cost += 20;
    }
    name.setText(insurance);
    price.setText(new DecimalFormat("$
#,###.##").format(cost));
}

public static void main(String[] args) {
    JFrame frame = new JFrame("Select Insurance");
    frame.add(new FXInsurance().init());
    frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    frame.setSize(500, 200);
}
```

```

    frame.setResizable(false);

    frame.setLocationRelativeTo(null); // To center frame
    on the window

    frame.setVisible(true);
}
}

```

## COMPILATION VIEW:

```

C:\Users\MAJJIGA JASWANTH>cd desktop
C:\Users\MAJJIGA JASWANTH\Desktop>cd java
C:\Users\MAJJIGA JASWANTH\Desktop\java>javac --module-path "C:\Program Files\Java\javafx-sdk-17.0.1\lib"
--add-modules javafx.controls,javafx.fxml FXInsurance.java
C:\Users\MAJJIGA JASWANTH\Desktop\java>java --module-path "D:\javafx-sdk-17.0.1\lib" --add-modules javaf
x.controls,javafx.fxml FXInsurance
C:\Users\MAJJIGA JASWANTH\Desktop\java>java --module-path "D:\javafx-sdk-17.0.1\lib" --add-modules javaf
x.controls,javafx.fxml FXInsurance

```

## OUTPUT :

The image shows two screenshots of a JavaFX application window titled "Select Insurance".

**First Screenshot:**

- ☒ HMO - health maintenance organisation
- ☐ PPO - preferred provider organisation
- ☒ Dental insurance
- ☒ Vision insurance
- Insurance: HMO, Dental, Vision
- Cost: \$ 295

**Second Screenshot:**

- ☐ HMO - health maintenance organisation
- ☒ PPO - preferred provider organisation
- ☒ Dental insurance
- ☐ Vision insurance
- Insurance: PPO, Dental
- Cost: \$ 675

## QUESTION-2:

Design a JavaFX application for the Sublime Sandwich Shop. The user makes sandwich order choices from list boxes, and the application displays the price. The user can choose from three main sandwich ingredients of your choice (for example, chicken) at three different prices. The user also can choose from three different bread types (for example, rye) from a list of at least three options. Save the application as FXSandwich.java.

CODE:

```
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;
public class FXSandwich
{
    String sandwichIngredients [] = {"Chicken", "Mutton",
    "Veg"};
    String breadTypes[] = {"Bloomer", "Cob", "Plait"};
    JFrame jf;
    JPanel p1, p2, p3, p4, mainP;
    // Component object declared
    JList ingredient, bread;
    JLabel ingL, breadL, amountL;
    JTextField amountT;
    JButton amountB, exitB;
    FXSandwich()
    {
        // Creates frame
        jf = new JFrame("Sandwich Shop");
```

```
p1 = new JPanel();
p2 = new JPanel();
p3 = new JPanel();
p4 = new JPanel();
mainP = new JPanel();

// Creates list box and adds string array
ingredient = new JList<String>(sandwichIngredients);
bread = new JList<String>(breadTypes);

// Creates labels
ingL = new JLabel("Select Sandwich Ingredients");
breadL = new JLabel("Select Bread Types");
amountL = new JLabel("Amount: ");

// Creates text field
amountT = new JTextField(5);

// Creates buttons
amountB = new JButton("Check Amount");
exitB = new JButton("Exit");

// Adds components to panels
p1.add(ingL);
p1.add(ingredient);
p2.add(breadL);
p2.add(bread);
```

```
p3.add(amountL);
p3.add(amountT);
p4.add(amountB);
p4.add(exitB);

// Adds panels to main panel
mainP.add(p1);
mainP.add(p2);
mainP.add(p3);
mainP.add(p4);
mainP.setLayout(new GridLayout(4, 1));
jf.add(mainP);
jf.setVisible(true);
jf.setSize(400, 300);
exitB.addActionListener(new ActionListener()
{
    public void actionPerformed(ActionEvent ae)
    {
        System.exit(0);
    }
});
amountB.addActionListener(new ActionListener()
{
    public void actionPerformed(ActionEvent ae)
    {
        int indexIngredient = ingredient.getSelectedIndex();
        int indexBread = bread.getSelectedIndex();
```



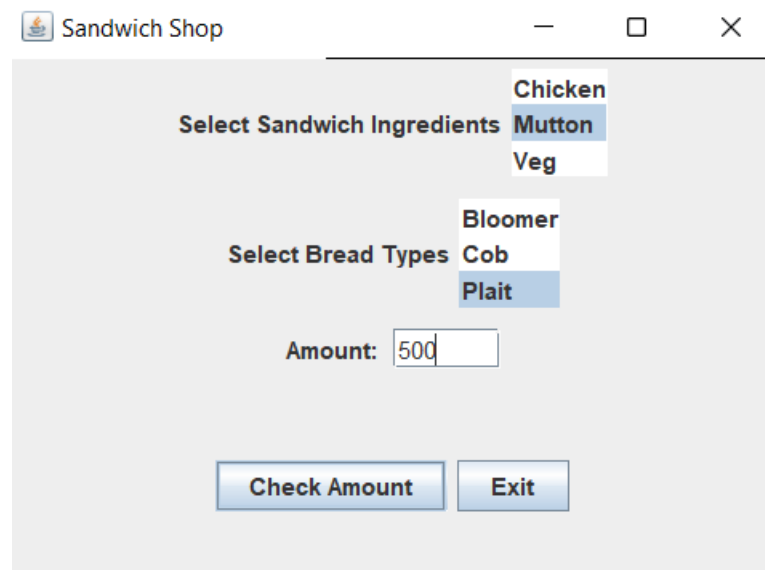
```
if(indexIngredient == 0 && indexBread == 0)
amountT.setText("100");
if(indexIngredient == 0 && indexBread == 1)
amountT.setText("120");
if(indexIngredient == 0 && indexBread == 2)
amountT.setText("160");
if(indexIngredient == 1 && indexBread == 0)
amountT.setText("190");
if(indexIngredient == 1 && indexBread == 1)
amountT.setText("205");
if(indexIngredient == 1 && indexBread == 2)
amountT.setText("210");
if(indexIngredient == 2 && indexBread == 0)
amountT.setText("97");
if(indexIngredient == 2 && indexBread == 1)
amountT.setText("85");
if(indexIngredient == 2 && indexBread == 2)
amountT.setText("70");
}
});
}
public static void main(String[] args)
{
new FXSandwich();
}
}
```

## COMPILATION VIEW:

```
C:\Users\MAJJIGA JASWANTH\Desktop>java>
C:\Users\MAJJIGA JASWANTH\Desktop>javac --module-path "C:\Program Files\Java\javafx-sdk-17.0.1\lib"
--add-modules javafx.controls,javafx.fxml FXSandwich.java

C:\Users\MAJJIGA JASWANTH\Desktop>java --module-path "D:\javafx-sdk-17.0.1\lib" --add-modules javaf
x.controls,javafx.fxml FXSandwich
```

## INPUT1:



Sandwich Shop

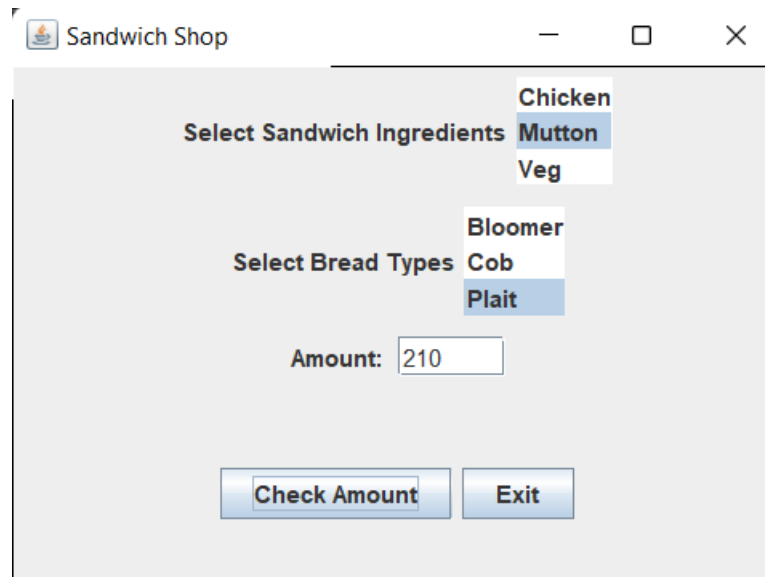
Select Sandwich Ingredients: Chicken, Mutton, Veg

Select Bread Types: Bloomer, Cob, Plait

Amount: 500

Check Amount Exit

## OUTPUT1:



Sandwich Shop

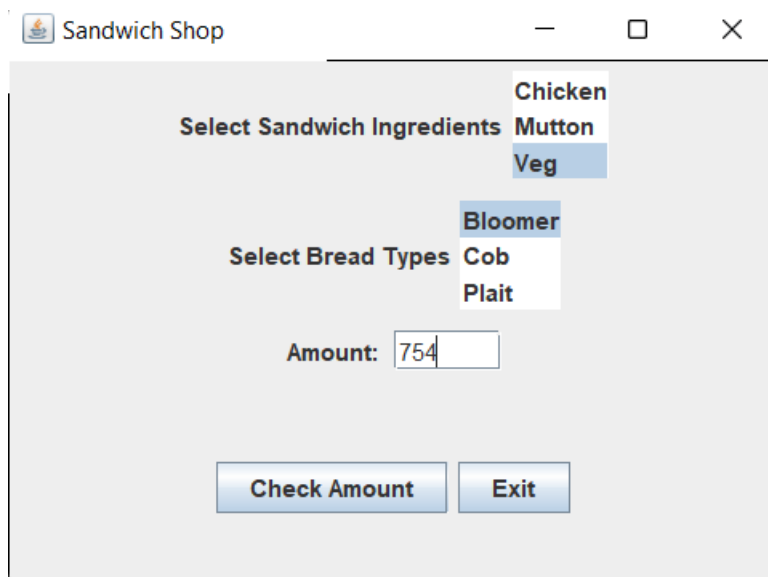
Select Sandwich Ingredients: Chicken, Mutton, Veg

Select Bread Types: Bloomer, Cob, Plait

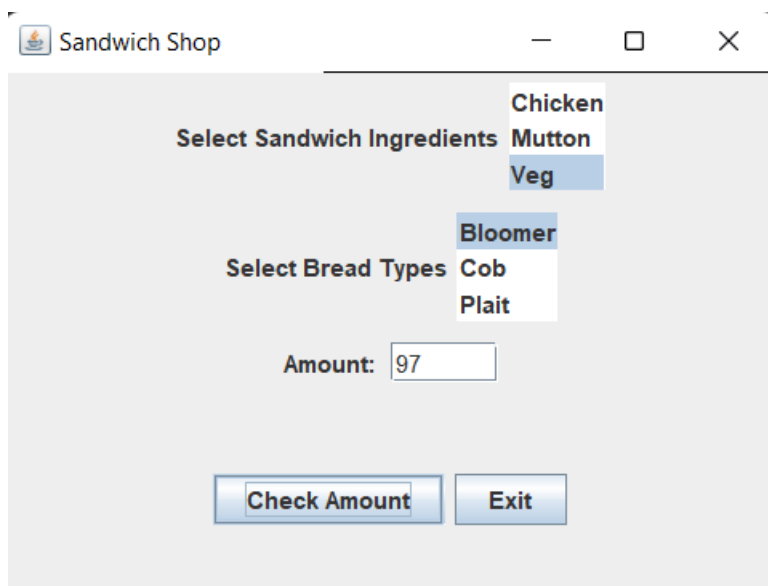
Amount: 210

Check Amount Exit

## INPUT2:



## OUTPUT2:



## QUESTION3:

Develop a Menu Based GUI using JavaFX:

Menus:Country, Font, Color

Menu Items:

—Any 7 country names under Country.

—Name,Type,Size are Menu items under Font.

—Any four font names under Name Menu

—Type should contain Bold,Italic

*–Size may contain 12,14,16,18*

–Any standard seven colours as Menu items under ColourMenu.

If a user clicks any menu item, It should be displayed with specified colour and font in window area. Provide shortcut keys to every menu and menu items like ctrl+o, ctrl+s. Provide a popup menu to contain two options, clear and exit. When user clicks clear, it should clear the window area and when user clicks exit, it should terminate the application. Save the file as MenuWithJavaFX.java

CODE:

```
import javafx.application.Application;
import javafx.scene.Scene;
import javafx.scene.control.*;
import javafx.event.ActionEvent;
import javafx.event.EventHandler;
import javafx.scene.layout.VBox;
import javafx.stage.Stage;
import javafx.stage.StageStyle;
import javafx.scene.text.*;
import javafx.scene.paint.Color;
import javafx.scene.layout.BorderPane;
public class MenuWithJavaFX extends Application
{
    public static void main(String[] args)
    {
        launch(args);
    }
}
```

```
public void start(Stage primaryStage)
{
    primaryStage.setTitle("Country Menu Bar");
    MenuBar menuBar = new MenuBar();

    Label label = new Label("No Country is selected.");
    BorderPane bPane = new BorderPane();

    Font font = Font.font(Font.getFontNames().get(0), 20);
    Font font1 = Font.font(Font.getFontNames().get(1), 20);
    Font font2 = Font.font(Font.getFontNames().get(2), 20);
    Font font3 = Font.font(Font.getFontNames().get(3), 20);

    Font def = Font.font(20);
    Font size1 = Font.font(22);
    Font size2 = Font.font(24);
    Font size3 = Font.font(26);
    Font size4 = Font.font(28);

    label.setFont(def);

    bPane.setTop(menuBar);
    bPane.setCenter(label);

    Scene scene = new Scene(bPane, 600, 600);
```

```
Menu menu1 = new Menu("_Country");
Menu menu2 = new Menu("_Colour");
Menu menu3 = new Menu("_Font");
Menu menu4 = new Menu("_Pop-up");
```

```
menuBar.getMenus().add(menu1);
menuBar.getMenus().add(menu2);
menuBar.getMenus().add(menu3);
menuBar.getMenus().add(menu4);
```

```
MenuItem c1 = new MenuItem("India");
MenuItem c2 = new MenuItem("Nigeria");
MenuItem c3 = new MenuItem("Japan");
MenuItem c4 = new MenuItem("Russia");
MenuItem c5 = new MenuItem("USA");
MenuItem c6 = new MenuItem("UK");
MenuItem c7 = new MenuItem("Canada");
```

```
menu1.getItems().add(c1);
c1.setOnAction(e -> {
    label.setText("India");
});
```

```
menu1.getItems().add(c2);
c2.setOnAction(e -> {
    label.setText("Nigeria");
});
```

```
menu1.getItems().add(c3);  
c3.setOnAction(e -> {  
    label.setText("Japan");  
});
```

```
menu1.getItems().add(c4);  
c4.setOnAction(e -> {  
    label.setText("Russia");  
});
```

```
menu1.getItems().add(c5);  
c5.setOnAction(e -> {  
    label.setText("USA");  
});
```

```
menu1.getItems().add(c6);  
c6.setOnAction(e -> {  
    label.setText("UK");  
});
```

```
menu1.getItems().add(c7);  
c7.setOnAction(e -> {  
    label.setText("Canada");  
});
```

```
MenuItem col = new MenuItem("Red");
```

```
MenuItem co2 = new MenuItem("Green");
MenuItem co3 = new MenuItem("Blue");
MenuItem co4 = new MenuItem("Yellow");

menu2.getItems().add(co1);
co1.setOnAction(e -> {
    label.setTextFill(Color.web("#FF0000"));
});

menu2.getItems().add(co2);
co2.setOnAction(e -> {
    label.setTextFill(Color.web("#008000"));
});

menu2.getItems().add(co3);
co3.setOnAction(e -> {
    label.setTextFill(Color.web("#0000FF"));
});

menu2.getItems().add(co4);
co4.setOnAction(e -> {
    label.setTextFill(Color.web("#FFFF00"));
});

Menu f1 = new Menu("Name");
Menu f2 = new Menu("Type");
Menu f3 = new Menu("Size");
```



```
menu3.getItems().add(f1);  
menu3.getItems().add(f2);  
menu3.getItems().add(f3);
```

```
MenuItem no1 = new MenuItem("AR Berkley");  
MenuItem no2 = new MenuItem("AR Blanca");  
MenuItem no3 = new MenuItem("AR Bonnie");  
MenuItem no4 = new MenuItem("AR Carter");
```

```
f1.getItems().add(no1);  
no1.setOnAction(e -> {  
    label.setFont(font);  
});
```

```
f1.getItems().add(no2);  
no2.setOnAction(e -> {  
    label.setFont(font1);  
});
```

```
f1.getItems().add(no3);  
no3.setOnAction(e -> {  
    label.setFont(font2);  
});
```

```
f1.getItems().add(no4);  
no4.setOnAction(e -> {
```

```
label.setFont(font3);  
});
```

```
MenuItem fo1 = new MenuItem("Bold");  
MenuItem fo2 = new MenuItem("Italic");
```

```
f2.getItems().add(fo1);  
fo1.setOnAction(e -> {
```

```
label.setFont(Font.font("Verdana", FontWeight.EXTRA_BOLD  
, 20));  
});
```

```
f2.getItems().add(fo2);  
fo2.setOnAction(e -> {
```

```
label.setFont(Font.font("Verdana", FontPosture.ITALIC, 20  
));  
});
```

```
MenuItem so1 = new MenuItem("22");  
MenuItem so2 = new MenuItem("24");  
MenuItem so3 = new MenuItem("26");  
MenuItem so4 = new MenuItem("28");
```

```
f3.getItems().add(so1);  
so1.setOnAction(e -> {  
label.setFont(size1);
```

```
});
```

```
f3.getItems().add(so2);  
so2.setOnAction(e -> {  
    label.setFont(size2);  
});
```

```
f3.getItems().add(so3);  
so3.setOnAction(e -> {  
    label.setFont(size3);  
});
```

```
f3.getItems().add(so4);  
so4.setOnAction(e -> {  
    label.setFont(size4);  
});
```

```
MenuItem clear = new MenuItem("Clear");  
MenuItem exit = new MenuItem("Exit");
```

```
menu4.getItems().add(clear);  
clear.setOnAction(e -> {  
    label.setText("No Country is selected");  
    label.setFont(def);  
    label.setTextFill(Color.web("#000000"));  
});
```

```
menu4.getItems().add(exit);
exit.setOnAction(e -> {
    System.exit(0);
});

primaryStage.setScene(scene);
primaryStage.show();
}
}
```

### COMPILATION VIEW:

```
C:\Users\MAJJIGA JASWANTH\Desktop\java>
C:\Users\MAJJIGA JASWANTH\Desktop\java>java --module-path "D:\javafx-sdk-17.0.1\lib" --add-modules javafx.controls,javafx.fxml MenuWithJavaFX

C:\Users\MAJJIGA JASWANTH\Desktop\java>javac --module-path "C:\Program Files\Java\javafx-sdk-17.0.1\lib" --add-modules javafx.controls,javafx.fxml MenuWithJavaFX.java

C:\Users\MAJJIGA JASWANTH\Desktop\java>java --module-path "D:\javafx-sdk-17.0.1\lib" --add-modules javafx.controls,javafx.fxml MenuWithJavaFX
```

### OUTPUT:

