

SDM College of Engineering and Technology

Dhavalagiri, Dharwad-580002. Karnataka State. India.



Department of Computer Science & Engineering, SDMCET, Dharwad

AOOP Assignment Submission Report

[Submitted as part of CTA Assignment No-1]

Course:	Advanced Object-Oriented Programming	Course code:	18UCSE508
Semester:	V	Division:	B
Course Instructor:	Prof.Indira Umarji		

AOOP ASSIGNMENT-2

Submitted by:

NAME:	PRATEEK DESAI	USN:	2SD20CS079
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Q1. Write a Java program to build the GUI application using JavaFX for the following requirements:

- a) Read user name and password using appropriate JavaFX controls.
- b) Validate the input. If user name and password are matched with the assumed values, then display the welcome scene with proper text.
- c) If user name and password don't match, then raise appropriate exception

```
package question_1;
```

```
import javafx.application.Application;
import javafx.event.ActionEvent;
import javafx.event.EventHandler;
import javafx.geometry.Pos;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.control.Label;
import javafx.scene.control.PasswordField;
import javafx.scene.control.TextField;
import javafx.scene.layout.GridPane;
import javafx.scene.text.Font;
import javafx.stage.Stage;
```

```
public class Login extends Application{
```

```
    @SuppressWarnings("serial")
```

```
    class InvalidUserNameOrPasswordException extends Exception{
        public InvalidUserNameOrPasswordException() {
            super("please enter valid UserName or Password!!!");
        }
    }
```

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

```

public void start(Stage primaryStage) throws Exception{

    Label lb1 = new Label("Username: ");
    Label lb3 = new Label();
    lb3.setWrapText(true);
    TextField user = new TextField();
    user.setMaxWidth(200);

    Label lb2 = new Label("Password: ");

    PasswordField passwd = new PasswordField();
    user.setMaxWidth(200);

    Button bt = new Button("LOGIN");

    bt.setOnAction(new EventHandler<ActionEvent>() {

        @Override
        public void handle(ActionEvent arg0) {
            try {

                if(user.getText().equalsIgnoreCase("bharatesh")&&passwd.getText().equalsIgnoreCase(
                    "b@123")) {

                    lb3.setText("Login Successful");
                    lb3.setTextFill(javafx.scene.paint.Color.GREY);
                    lb3.setFont(new Font("Times New Roman", 32));
                }
                else {
                    throw new
InvalidUserNameOrPasswordException();
                }
            } catch (InvalidUserNameOrPasswordException e) {
                System.out.println(e);
            }
        }
    });

    GridPane gp = new GridPane();
    gp.setHgap(10);
    gp.setVgap(10);

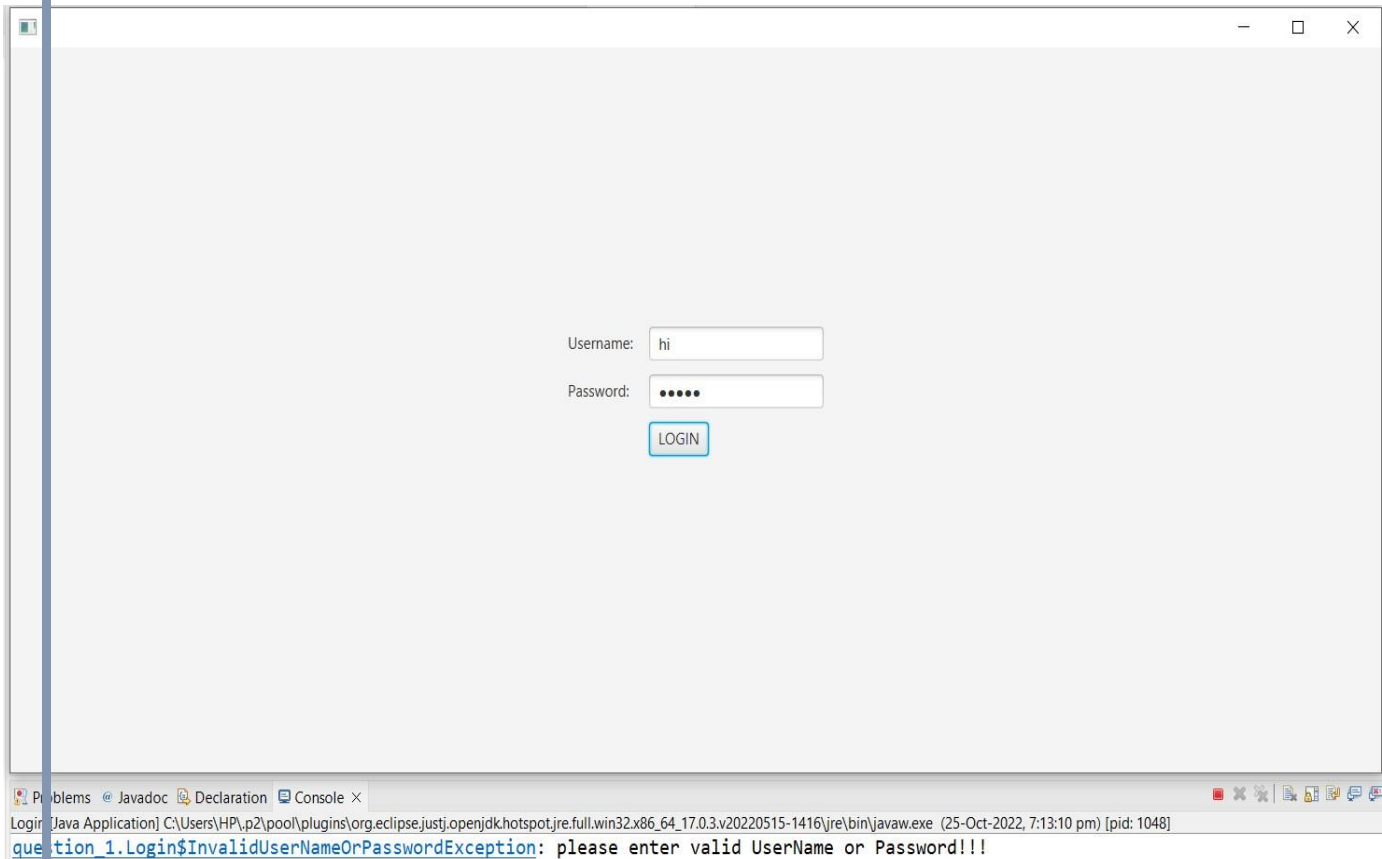
    gp.add(lb1, 0, 0);
    gp.add(user, 1,0 );
    gp.add(lb2, 0, 1);
    gp.add(passwd, 1,1 );
    gp.add(bt, 1, 2);
    gp.add(lb3, 1, 3);

    gp.setAlignment(Pos.CENTER);
    Scene sc = new Scene(gp);
    primaryStage.setScene(sc);

```

```
        primaryStage.setWidth(500);  
        primaryStage.setHeight(500);  
        primaryStage.show();  
    }  
}
```

Output:



Q2) Write a Java program to build the GUI application using JavaFX for the following requirements:

- a) Create a Menu control to display the menu items: File, Edit & Help.
- b) Create sub menus in the order: File → New, Open & Save. Edit → Cut, Copy & Paste, Help → Help Centre, About Us

The program must use Mnemonics and Accelerators (wherever appropriate) to Menu Items.

```
package question_2;

import javafx.application.Application;
import javafx.scene.Scene;
import javafx.scene.control.Menu;
import javafx.scene.control.MenuBar;
import javafx.scene.control.MenuItem;
import javafx.scene.layout.BorderPane;
import javafx.stage.Stage;
public class menuCreation extends Application{

    public static void main(String[] args) {

        Launch();
    }

    public void start(Stage primaryStage) throws Exception {
        //Creation of main menu File,Edit,Help
        MenuBar main_menu = new MenuBar();

        Menu File = new Menu("File");
        Menu Edit = new Menu("Edit");
        Menu Help = new Menu("Help");
```

```

main_menu.getMenus().add(File);
main_menu.getMenus().add(Edit);
main_menu.getMenus().add(Help);

MenuItem New = new MenuItem("New");
MenuItem Open = new MenuItem("Open");
MenuItem Save = new MenuItem("Save");
//Adding Submenus New,Open and Save to File Menu
File.getItems().addAll(New,Open,Save);

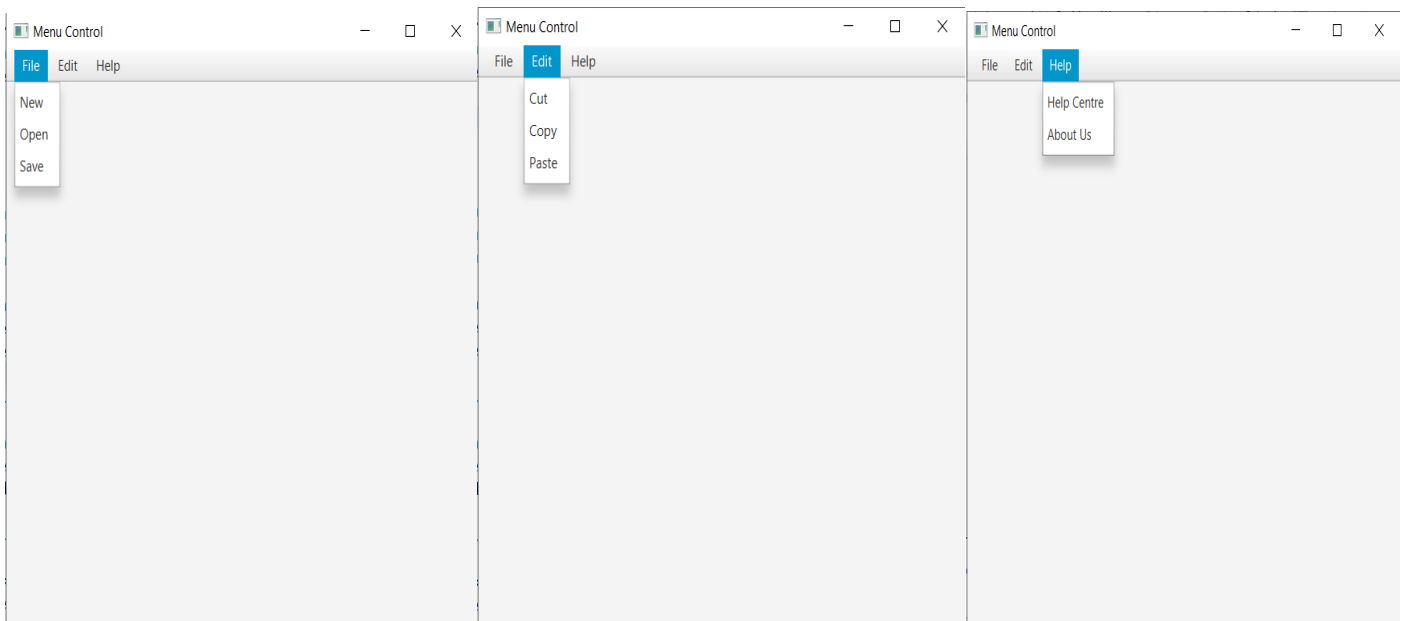
MenuItem Cut = new MenuItem("Cut");
MenuItem Copy = new MenuItem("Copy");
MenuItem Paste = new MenuItem("Paste");
//Adding Submenus Cut,Copy and Paste to Edit Menu
Edit.getItems().addAll(Cut,Copy,Paste);

MenuItem Help_Centre = new MenuItem("Help Centre");
MenuItem About_Us = new MenuItem("About Us");
//Adding Submenus Help_Centre and About_Us to Help menu
Help.getItems().addAll(Help_Centre,About_Us);

BorderPane root = new BorderPane();
root.setTop(main_menu);
//Creating Scene
Scene sc=new Scene(root);
//Adding Scene to Stage
primaryStage.setScene(sc);
primaryStage.setTitle("Menu Control");
primaryStage.setWidth(500);
primaryStage.setHeight(500);
primaryStage.show();
}
}

```

Output:



Q3) Write a Java program to build the GUI application using JavaFX for the following requirements:

- a) Create Context menu involving the menu items in the order: New & View.
- b) Create sub menus for the above main context menu: New → File, Folder & Image, View → Large, Medium & Small.

The context menu must be displayed on right-click of the mouse button.

```
package question_3;
```

```
import java.io.FileNotFoundException;
import javafx.application.Application;
import javafx.event.ActionEvent;
import javafx.event.EventHandler;
import javafx.geometry.Pos;
import javafx.scene.Scene;
import javafx.scene.control.*;
import javafx.scene.input.ContextMenuEvent;
import javafx.scene.layout.BorderPane;
import javafx.scene.layout.FlowPane;
import javafx.scene.text.Font;
import javafx.stage.Stage;
```

```
public class ContextMenuCreation extends Application {
    public static void main(String args[]){
        Launch(args);
    }
    @Override
    public void start(Stage primaryStage) throws FileNotFoundException {

        Label txt=new Label("Press right click of the mouse button to display
Context Menu :");
        txt.setFont(new Font("Times New Roman", 28));

        BorderPane root = new BorderPane();
```

```

root.getChildren().add(txt);

//Creating a context menu
ContextMenu contextMenu = new ContextMenu();

//Creating the menu Items for the context menu
Menu New = new Menu("New");
Menu View = new Menu("View");

contextMenu.getItems().addAll(New, View);

MenuItem file = new MenuItem("File");
MenuItem folder = new MenuItem("Folder");
MenuItem image = new MenuItem("Image");

New.getItems().addAll(file, folder, image);

MenuItem large = new MenuItem("Large");
MenuItem medium = new MenuItem("Medium");
MenuItem small = new MenuItem("Small");

View.getItems().addAll(large, medium, small);

Label response = new Label("Context menu demo");
root.setOnContextMenuRequested(new EventHandler<ContextMenuEvent>() {
    public void handle(ContextMenuEvent event) {
        contextMenu.show(root, event.getScreenX(), event.getScreenY());
    }
});

EventHandler<ActionEvent> MEHandler = new EventHandler<ActionEvent>() {
    public void handle(ActionEvent ae) {
        String name = ((MenuItem) ae.getTarget()).getText();

        response.setText(name + " selected");
    }
};

New.setOnAction(MEHandler);
file.setOnAction(MEHandler);
folder.setOnAction(MEHandler);
image.setOnAction(MEHandler);

View.setOnAction(MEHandler);
large.setOnAction(MEHandler);
medium.setOnAction(MEHandler);
small.setOnAction(MEHandler);

Scene sc = new Scene(root, 500, 500);

```



```

FlowPane fpRoot = new FlowPane(10, 10);
root.setCenter(fpRoot);
fpRoot.setAlignment(Pos.CENTER);
fpRoot.getChildren().addAll(txt, response);
response.setWrapText(true);
txt.setWrapText(true);
root.setTop(txt);

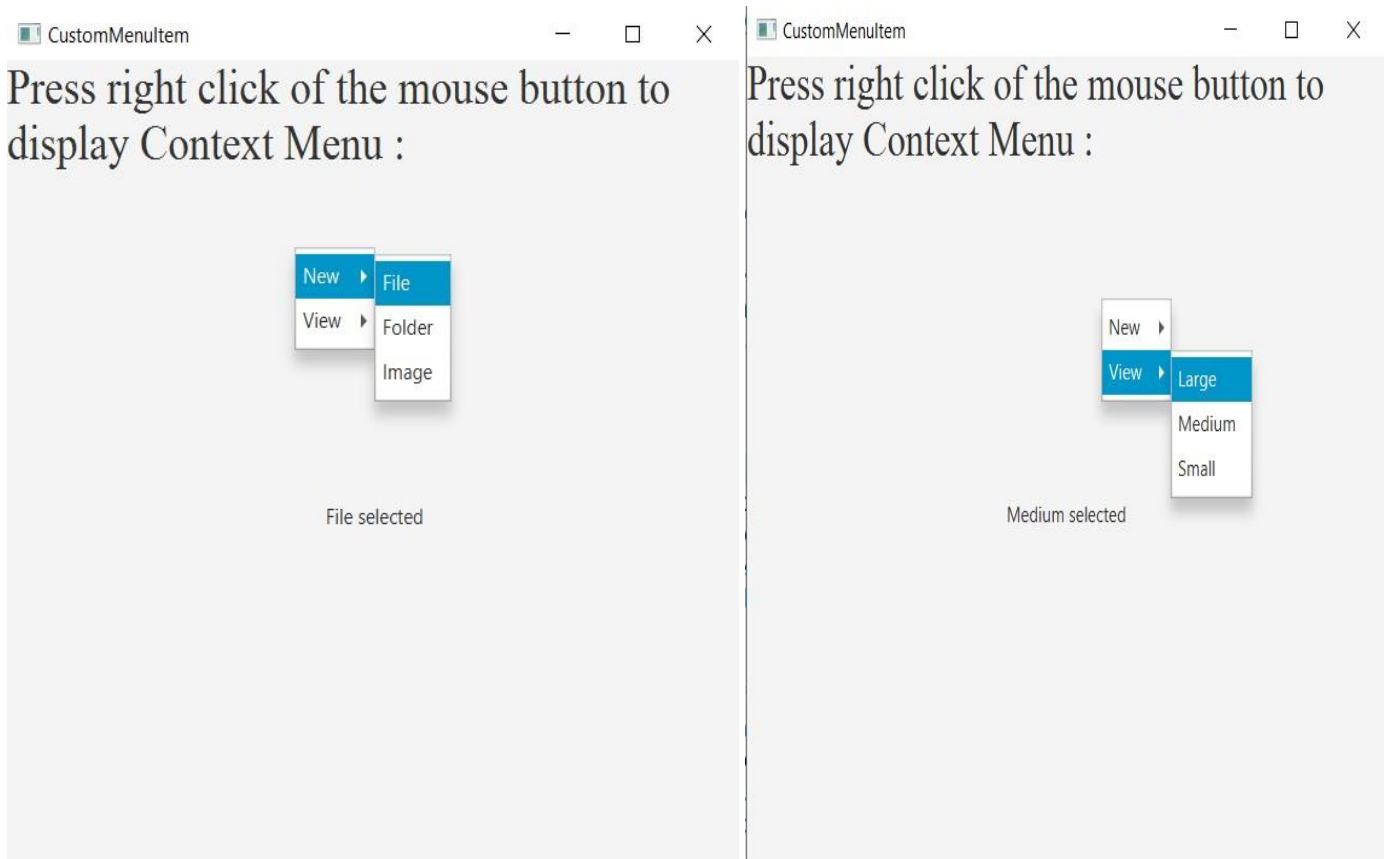
```

```

    primaryStage.setTitle("CustomMenuItem");
    primaryStage.setScene(sc);
    primaryStage.setWidth(500);
    primaryStage.setHeight(500);
    primaryStage.show();
}
}

```

Output:



Q4) Write a JavaFX program that produces the following output when executed and displays Dialog Box

(as shown in Figure.2) on click of Register button (as shown in Figure.1):



The screenshot shows a JavaFX window titled "JavaFX Registration Form". Inside, there is a form titled "Employee Registration Form". The form contains the following fields and controls:

- "Enter Your Name:" followed by a text input field with the placeholder text "Enter Your Name".
- "Select Your Gender:" followed by two radio buttons labeled "Male" and "Female".
- "Enter Date of Birth:" followed by a date picker showing "07/10/2022".
- "Select Your State:" followed by a dropdown menu showing "Karnataka".
- "Select Your Qualification:" followed by three checked checkboxes labeled "UG", "PG", and "PhD".
- A "Register" button at the bottom.

Figure.1

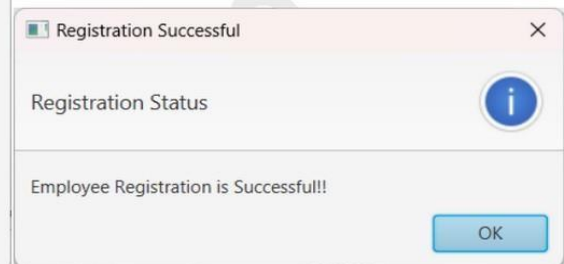


Figure. 2

```
package question_4;
```

```
import javafx.application.Application;
import javafx.geometry.Insets;
import javafx.geometry.Pos;
import javafx.scene.Scene;
import javafx.scene.control.Alert;
import javafx.scene.control.Alert.AlertType;
import javafx.scene.control.Button;
import javafx.scene.control.CheckBox;
import javafx.scene.control.ComboBox;
import javafx.scene.control.DatePicker;
import javafx.scene.control.Label;
import javafx.scene.control.RadioButton;
import javafx.scene.control.TextField;
import javafx.scene.control.ToggleGroup;
import javafx.scene.layout.BorderPane;
import javafx.scene.layout.HBox;
```

```

import javafx.scene.layout.VBox;
import javafx.scene.text.Font;
import javafx.stage.Stage;

public class Registration extends Application{

    public void start(Stage primaryStage) throws Exception{

        VBox root = new VBox();
        root.setAlignment(Pos.CENTER);
        root.setSpacing(10);
        root.setPadding(new Insets(0,10,0,50));

        //Adding 'Employee Registration Form' label
        Label lb1 = new Label("Employee Registration Form");
        lb1.setWrapText(true);
        lb1.setFont(new Font(20));

        //Adding label lb1 control to BorderPane layout
        BorderPane bp = new BorderPane(lb1);
        BorderPane.setAlignment(lb1, Pos.TOP_CENTER);

        //Adding Name field
        HBox name = new HBox();
        Label lb2 = new Label("Enter your Name:");
        TextField tf1 = new TextField();
        tf1.setPromptText("Enter your Name");
        tf1.setFocusTraversable(false);
        name.setSpacing(10);
        name.getChildren().addAll(lb2,tf1);

        //Adding Gender Radiobuttons
        HBox gender = new HBox();
        Label lb3 = new Label("Select Your Gender:");
        ToggleGroup tg = new ToggleGroup();
        RadioButton rb1 = new RadioButton("Male");
        RadioButton rb2 = new RadioButton("Female");
        rb1.setToggleGroup(tg);
        rb2.setToggleGroup(tg);
        gender.setSpacing(10);
        gender.getChildren().addAll(lb3,rb1,rb2);

        //Adding DatePicker
        HBox date = new HBox();
        Label lb4 = new Label("Enter Date of Birth:");
        DatePicker dp = new DatePicker();
        date.setSpacing(10);
        date.getChildren().addAll(lb4,dp);

        //Adding State field
        HBox state = new HBox();
        Label lb5 = new Label("Select Your State:");
        ComboBox<String> cb = new ComboBox<String>();
    }
}

```

```

cb.getItems().addAll("Karnataka", "Maharashtra", "Goa", "AndhraPradesh", "Tamilnadu", "Kerala");
state.setSpacing(10);
state.getChildren().addAll(lb5, cb);

//Adding Qualification Selection checkbox
HBox qualification = new HBox();
Label lb6 = new Label("Select Your Qualification:");
CheckBox ch1 = new CheckBox("UG");
CheckBox ch2 = new CheckBox("PG");
CheckBox ch3 = new CheckBox("PhD");
qualification.setSpacing(10);
qualification.getChildren().addAll(lb6, ch1, ch2, ch3);

//Adding register button
Button button = new Button("Register");

button.setOnAction((ae)->{

    if((!(ch1.isSelected() || ch2.isSelected() || ch3.isSelected())) ||
cb.getSelectionModel().isEmpty() || (!(rb1.isSelected() || rb2.isSelected()))
|| tf1.getText().isEmpty())
    {
        Alert registration = new Alert(AlertType.ERROR);
        registration.setTitle("Registration Unsuccessful");
        registration.setHeaderText("Registration Error");
        registration.setContentText("Kindly Fill All The Details!!");
        registration.showAndWait();
    }

    else
    {
        Alert registration = new Alert(AlertType.INFORMATION);
        registration.setTitle("Registration Successful");
        registration.setHeaderText("Registration Status");
        registration.setContentText("Employee Registration Successful!!");
        registration.showAndWait();
    }
});

//Adding all controls to layout

root.getChildren().addAll(bp, name, gender, date, state, qualification, button)
;

//Adding layout to scene
Scene sc = new Scene(root);
//Adding scene to stage
primaryStage.setScene(sc);
primaryStage.setWidth(500);
primaryStage.setHeight(350);
primaryStage.setTitle("Registration Form");
primaryStage.show();

```

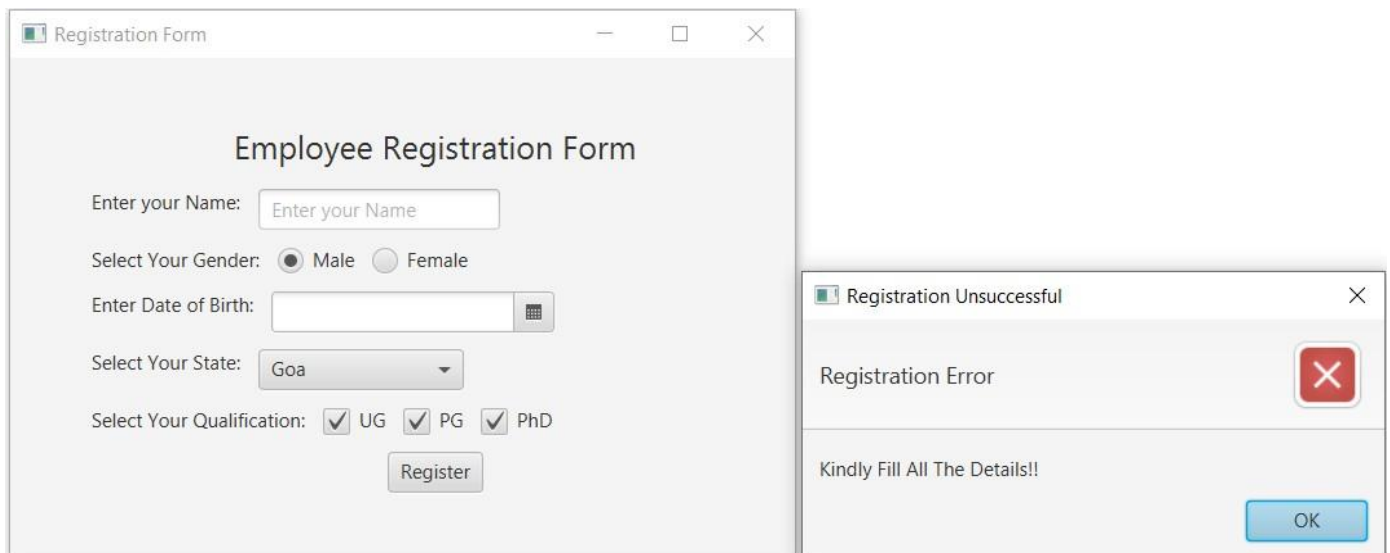
```

    }

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

```

Output



The image displays two windows from a Java Swing application. The primary window, titled "Registration Form", contains the following fields and controls:

- Title:** Employee Registration Form
- Name Field:** Labeled "Enter your Name:" with a text input field containing the placeholder "Enter your Name".
- Gender Selection:** Labeled "Select Your Gender:" with two radio buttons, "Male" (selected) and "Female".
- Date of Birth Field:** Labeled "Enter Date of Birth:" with a text input field and a calendar icon.
- State Selection:** Labeled "Select Your State:" with a dropdown menu showing "Goa".
- Qualification Selection:** Labeled "Select Your Qualification:" with three checked checkboxes: "UG", "PG", and "PhD".
- Register Button:** A button labeled "Register" located at the bottom right of the form.

A secondary window, titled "Registration Unsuccessful", is overlaid on the right side of the main window. It contains the following information:

- Title:** Registration Unsuccessful
- Message:** "Registration Error" followed by a red square icon with a white 'X'.
- Text:** "Kindly Fill All The Details!!"
- Button:** A blue button labeled "OK" at the bottom right.