



# **AOOP Assignment Submission Report**

[Submitted as part of CTA Assignment No-2]

Course:	Advanced Object-Oriented Programming	Course Code:	18UCSE508
Semester:	V	Division:	B

Submitted by:

USN:	2SD20CS121	Name:	VENUGOPAL K MALLI
------	------------	-------	-------------------

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

**PROGRAM:**

```
package application;
```

```
import javafx.application.Application;
import javafx.event.ActionEvent;
import javafx.event.EventHandler;
import javafx.geometry.Insets;
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.stage.Stage;
```

```
public class Q1 extends Application {
    String usrNameString= "Sumanth";
    String passwordString="1234";

    @Override
    public void start(Stage primaryStage) {
        try {
            GridPane root = new GridPane();
```

```
root.setHgap(20);
root.setVgap(20);
root.setPadding(new Insets(0,10,0,10));
Scene scene = new Scene(root,300,200);

scene.getStylesheets().add(getClass().getResource("application.css").toExternalForm());
primaryStage.setScene(scene);
root.setGridLinesVisible(false);

Label usrNameLabel = new Label("User Name");
root.add(usrNameLabel, 0, 1);
Label passWdLabel = new Label("Password");
root.add(passWdLabel, 0, 2);
Label responseLabel = new Label();
root.add(responseLabel, 2, 4);

TextField usrnNameTextField = new TextField();
root.add(usrnNameTextField, 2, 1);
PasswordField passwordField = new PasswordField();
root.add(passwordField, 2, 2);

Button suButton = new Button("Submit");

root.add(suButton, 2, 3);

suButton.setOnAction(new EventHandler<ActionEvent>() {
    @Override
    public void handle(ActionEvent arg0) {
        String str1 = usrnNameTextField.getText();
        String str2 = passwordField.getText();

        try {

            if(str1.equalsIgnoreCase(usrNameString)&&str2.equals(passwordString)) {
                responseLabel.setText("Login
                Succesful");
            }
        }
    }
});
```

```
                }else {  
                    throw new  
InvalidUserNameOrPasswordException();  
                }  
            } catch (InvalidUserNameOrPasswordException e) {  
                System.out.println(e);  
            }  
        }  
    }  
});  
  
//root.getChildren().addAll(usrNameLabel,usrnNameTextField,passWdLabel,passwordField,suB  
utton,responseLabel);  
  
        primaryStage.show();  
  
        } catch(Exception e) {  
            System.err.println(e);  
        }  
    }  
  
    public static void main(String[] args) {  
        launch(args);  
    }  
}  
  
class InvalidUserNameOrPasswordException extends Exception{  
  
    private static final long serialVersionUID = 1L;  
  
    public InvalidUserNameOrPasswordException() {  
        super("Invalid UserName or Password!!");  
    }  
}
```

## EXECUTION:



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.

**PROGRAM:**

```
package application;
```

```
import javafx.application.Application;
import javafx.event.ActionEvent;
import javafx.event.EventHandler;
import javafx.geometry.Insets;
import javafx.scene.Scene;
import javafx.scene.control.Label;
import javafx.scene.control.Menu;
import javafx.scene.control.MenuBar;
import javafx.scene.control.MenuItem;
import javafx.scene.input.KeyCombination;
import javafx.scene.layout.BorderPane;
import javafx.stage.Stage;
```

```
public class Q2 extends Application {
    String usrNameString= "Sumanth";
    String passwordString="1234";

    @Override
```

```
public void start(Stage primaryStage) {  
    try {  
  
        primaryStage.setTitle("Menu Design");  
  
        BorderPane root = new BorderPane();  
  
        root.setPadding(new Insets(0,0,0,0));  
        Scene scene = new Scene(root,300,200);  
  
        scene.getStylesheets().add(getClass().getResource("application.css").toExternalForm());  
        primaryStage.setScene(scene);  
  
  
        MenuBar menuBar = new MenuBar();  
  
        Menu fileMenu = new Menu("File");  
  
  
        MenuItem fnewMenuItem = new MenuItem("New");  
        MenuItem fopenMenuItem = new MenuItem("Open");  
        MenuItem fsaveMenuItem = new MenuItem("Save");  
  
        fileMenu.setMnemonicParsing(true);  
  
  
        fnewMenuItem.setAccelerator(KeyCombination.keyCombination("shortcut  
+n"));
```

```
fopenMenuItem.setAccelerator(KeyCombination.keyCombination("shortcut+o"));
```

```
fsaveMenuItem.setAccelerator(KeyCombination.keyCombination("shortcut+s"));
```

```
fileMenu.getItems().addAll(fnewMenuItem,fopenMenuItem,fsaveMenuItem);
```

```
menuBar.getMenus().add(fileMenu);
```

```
Menu editMenu = new Menu("Edit");
```

```
MenuItem cutMenuItem = new MenuItem("Cut");
```

```
MenuItem copyMenuItem = new MenuItem("Copy");
```

```
MenuItem pasteMenuItem = new MenuItem("Paste");
```

```
editMenu.setMnemonicParsing(true);
```

```
cutMenuItem.setAccelerator(KeyCombination.keyCombination("shortcut+x"));
```

```
copyMenuItem.setAccelerator(KeyCombination.keyCombination("shortcut+c"));
```

```
pasteMenuItem.setAccelerator(KeyCombination.keyCombination("shortcut+v"));
```



```
editMenu.getItems().addAll(cutMenuItem,copyMenuItem,pasteMenuItem);

        menuBar.getMenus().add(editMenu);

        Menu helpMenu = new Menu("Help");

        MenuItem helpcentreMenuItem = new MenuItem("Help
Centre");

        MenuItem aboutMenuItem = new MenuItem("About Us");

        helpMenu.setMnemonicParsing(true);

        helpcentreMenuItem.setAccelerator(KeyCombination.keyCombination("F1
"));

        helpMenu.getItems().addAll(helpcentreMenuItem,aboutMenuItem);
        menuBar.getMenus().add(helpMenu);

        Label response = new Label();

        root.setTop(menuBar);
        root.setCenter(response);

        EventHandler<ActionEvent> menuEventHandler = new
EventHandler<ActionEvent>() {
            @Override
            public void handle(ActionEvent ae) {
```

---

```
        String outputString =
        ((MenuItem)ae.getTarget()).getText();
            if(outputString.equals("Exit")) {
                System.exit(0);
            }

            response.setText(outputString + " selected");

        }
    };

    fnewMenuItem.setOnAction(menuEventHandler);
    fopenMenuItem.setOnAction(menuEventHandler);
    fsaveMenuItem.setOnAction(menuEventHandler);
    cutMenuItem.setOnAction(menuEventHandler);
    copyMenuItem.setOnAction(menuEventHandler);
    pasteMenuItem.setOnAction(menuEventHandler);
    helpcentreMenuItem.setOnAction(menuEventHandler);
    aboutMenuItem.setOnAction(menuEventHandler);

    primaryStage.show();
} catch (Exception e) {
    System.err.println(e);
}
}

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

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.

### **PROGRAM:**

```
package application;
```

```
import javafx.application.Application;
```

```
import javafx.event.ActionEvent;
```

```
import javafx.event.EventHandler;
```

```
import javafx.geometry.Insets;
```

```
import javafx.geometry.Pos;
```

```
import javafx.scene.Scene;
```

```
import javafx.scene.control.ContextMenu;
```

```
import javafx.scene.control.Label;
```

```
import javafx.scene.control.Menu;
```

```
import javafx.scene.control.MenuItem;
```

```
import javafx.scene.control.TextField;
```

```
import javafx.scene.layout.FlowPane;
```

```
import javafx.stage.Stage;
```

```
public class Q3 extends Application {
```

```
    String usrNameString= "Sumanth";
```

```
    String passwordString="8765";
```

```
    @Override
```

```
    public void start(Stage primaryStage) {
```

```
        try {
```

```
            primaryStage.setTitle("Menu Design");
```

```
            FlowPane root = new FlowPane(10,10);
```

```
            root.setAlignment(Pos.CENTER);
```

```
root.setPadding(new Insets(0,0,0,0));
```

```
Scene scene = new Scene(root,300,200);
```

```
scene.getStylesheets().add(getClass().getResource("application.css").toExternalForm());
```

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

```
Label responseLabel = new Label();
```

```
Menu newMenu = new Menu("New");
```

```
MenuItem fileMenuItem = new MenuItem("File");
```

```
MenuItem folderMenuItem = new MenuItem("Folder");
```

```
MenuItem imageMenuItem = new MenuItem("Image");
```

```
newMenu.getItems().addAll(fileMenuItem,folderMenuItem,imageMenuItem);
```

```
Menu viewMenu = new Menu("View");
```

```
MenuItem largeMenuItem = new MenuItem("Large");
```

```
MenuItem mediumMenuItem = new MenuItem("Medium");
```

```
MenuItem smallMenuItem = new MenuItem("Small");
```

```
viewMenu.getItems().addAll(largeMenuItem,mediumMenuItem,smallMenuItem);
```

```
ContextMenu contextMenu = new ContextMenu();
```

```
contextMenu.getItems().addAll(newMenu,viewMenu);
```

```
TextField txTextField = new TextField();
```

```
txTextField.setPrefColumnCount(20);
```

```
txTextField.setContextMenu(contextMenu);
```

```
        EventHandler<ActionEvent> meEventHandler = new  
EventHandler<ActionEvent>() {  
  
        @Override  
  
        public void handle(ActionEvent ae){  
  
                String name = ((MenuItem)  
ae.getTarget()).getText();  
  
                responseLabel.setText(name + " selected");  
  
        }  
};
```

```
fileMenuItem.setOnAction(meEventHandler);  
folderMenuItem.setOnAction(meEventHandler);  
imageMenuItem.setOnAction(meEventHandler);  
largeMenuItem.setOnAction(meEventHandler);  
mediuMenuItem.setOnAction(meEventHandler);  
smallMenuItem.setOnAction(meEventHandler);
```

```
        root.getChildren().addAll(txTextField,responseLabel);

        primaryStage.show();
    } catch (Exception e) {

        System.err.println(e);
    }
}

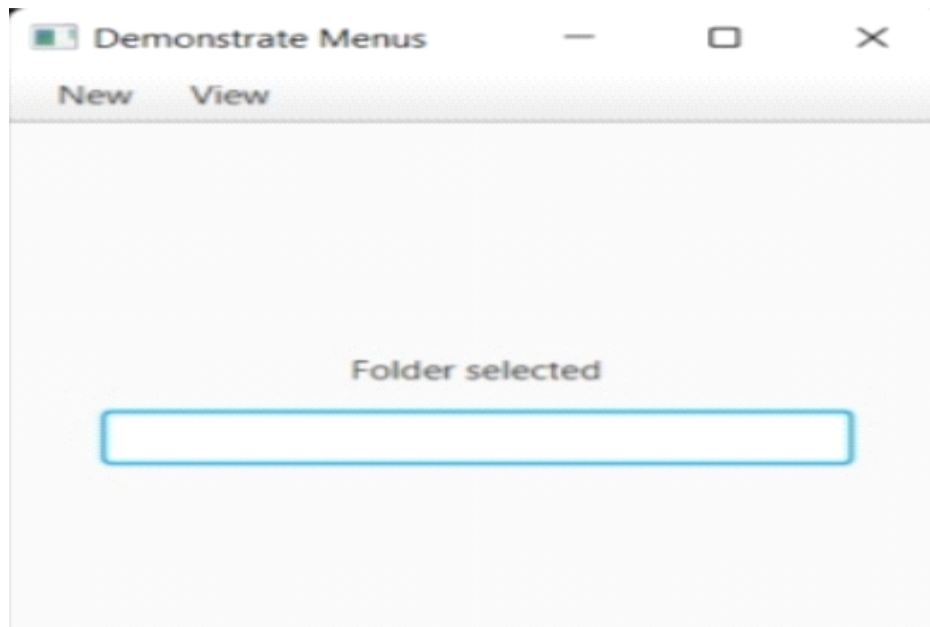
public static void main(String[] args) {

    launch(args);

}
}
```



## 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 containing "Enter Your Name".
- "Select Your Gender:" followed by two radio buttons, "Male" (selected) 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: "UG", "PG", and "PhD".
- A "Register" button at the bottom.

Figure.1

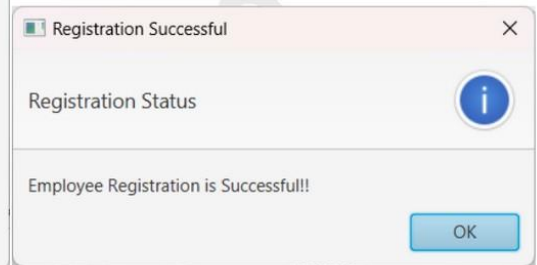


Figure. 2

## PROGRAM:

```
package application;
```

```
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 Q4 extends Application {

    String usrNameString= "Sumanth";

    String passwordString="8765";

    @Override

    public void start(Stage primaryStage) {

        try {
```

```
VBox root = new VBox();  
root.setAlignment(Pos.CENTER);  
root.setSpacing(10);  
root.setPadding(new Insets(0,10,0,50));  
Scene scene = new Scene(root,500,300);  
  
scene.getStylesheets().add(getClass().getResource("application.css").toExternalForm());  
  
primaryStage.setScene(scene);  
  
Label headingLabel = new Label("Employee Registration  
Form");  
  
headingLabel.setFont(Font.font(22));  
BorderPane.setAlignment(headingLabel, Pos.CENTER);  
  
Label nameLabel = new Label("Enter Your Name:");  
  
TextField nameField = new TextField();  
nameField.setPromptText("Enter Your Name");  
nameField.setFocusTraversable(false);
```

```
        HBox nameBox = new HBox();

        nameBox.setSpacing(10);

        nameBox.getChildren().addAll(nameLabel,nameField);


        Label genderLabel = new Label("Enter Your Gender");

        RadioButton maleButton = new RadioButton("Male");

        RadioButton femaleButton = new RadioButton("Female");


        ToggleGroup genderGroup = new ToggleGroup();

        maleButton.setToggleGroup(genderGroup);

        femaleButton.setToggleGroup(genderGroup);


        HBox genderBox = new HBox();

//        genderBox.setPadding(new Insets(10));

        genderBox.setSpacing(10);

        genderBox.getChildren().addAll(genderLabel,
maleButton,femaleButton);


        Label dobLabel = new Label("Enter Date of Birth");

        DatePicker dobDatePicker = new DatePicker();
```

```
HBox dateBox = new HBox();  
dateBox.setSpacing(10);  
dateBox.getChildren().addAll(dobLabel,dobDatePicker);  
  
Label stateLabel = new Label("Select Your State");  
ComboBox<String> stateComboBox = new ComboBox<>();  
stateComboBox.setPrefWidth(130);  
stateComboBox.getItems().addAll("Karnataka","Assam",  
"Bihar");  
  
HBox stateBox =new HBox();  
stateBox.setSpacing(10);  
stateBox.getChildren().addAll(stateLabel,stateComboBox);  
  
Label qualifiLabel = new Label("Select Your Qualification");  
CheckBox ugCheckBox = new CheckBox("UG");  
CheckBox pgCheckBox = new CheckBox("PG");  
CheckBox phdCheckBox = new CheckBox("PhD");  
  
HBox qualifiBox = new HBox();
```

```
qualifiBox.setSpacing(10);

qualifiBox.getChildren().addAll(qualifiLabel,
ugCheckBox,pgCheckBox,phdCheckBox);

Button registerButton = new Button("Register");

registerButton.setOnAction((ae)->{

    Alert registerDialog = new
Alert(AlertType.INFORMATION);

    registerDialog.setTitle("Registration Successful");

    registerDialog.setHeaderText("Registration Status");
    registerDialog.setContentText("Employee Registration
Successful!!");

    registerDialog.showAndWait();

});

root.getChildren().addAll(headingLabel,nameBox,genderBox,dateBox,state
Box,qualifiBox,registerButton);
```

```
        primaryStage.show();

    } catch (Exception e) {
        System.err.println(e);
    }
}

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



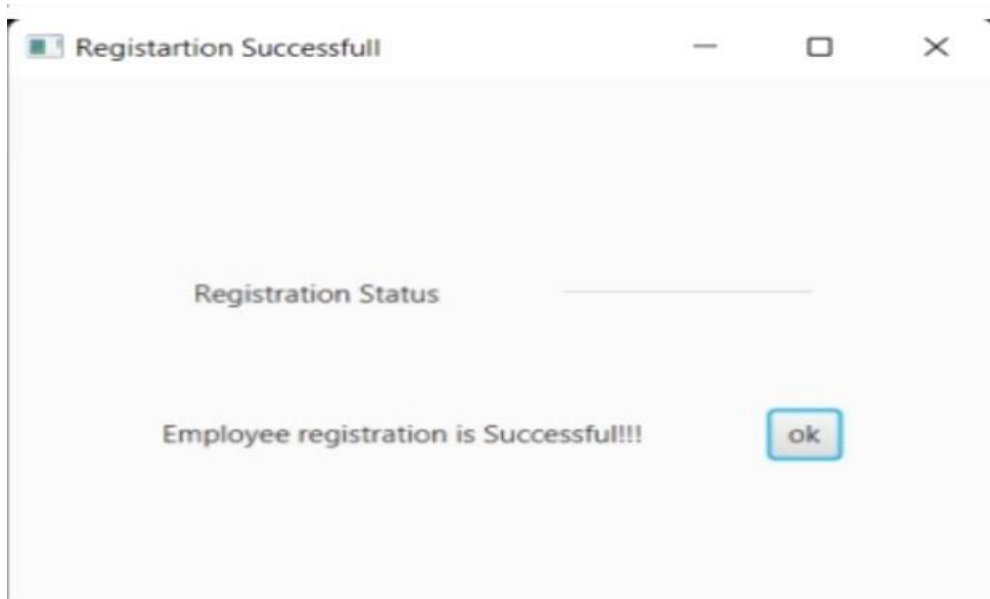
## OUTPUT:

### 3. Screen Shots of Execution:



The screenshot shows a window titled "Registration Form". It contains the following fields and controls:

- Name:** A text input field.
- Date of birth:** A date picker control.
- gender:** Two radio buttons labeled "male" and "female".
- Select Your Qualification:** Three checkboxes labeled "UG", "PG", and "PhD".
- Select Your State:** A dropdown menu.
- Register:** A button at the bottom right.



The screenshot shows a window titled "Registration Successfull". It contains the following text and controls:

- Registration Status:** A label followed by a horizontal line.
- Employee registration is Successful!!!** A message displayed below the status line.
- ok:** A button at the bottom right.

