Southern Luzon State University
College of Engineering
Computer Engineering Department

CPE13 Object Oriented Programming

Activity 6: Frames and Its Components

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Section: BSCPE 3GF Score:_____

1.1 Introduction

JOptionPane is useful, but on its own it is not flexible or powerful enough to create rich graphical user interfaces. To do that, you'll need to learn about the various types of widgets, or components, that can be placed on the screen in Java. An onscreen window is called a **frame**. The graphical widgets inside a frame, such as buttons or text input fields, are collectively called components.

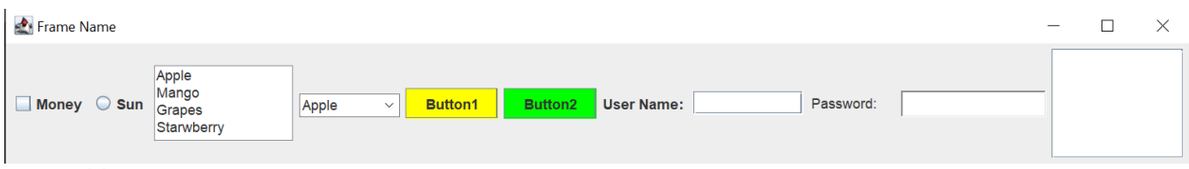
1.2 Objective

- To use Java programming language to create a program that exhibits GUI Frames and Components.
- To conceptualize the process and manipulate the program
- To distinguish different parts of GUI Creation particularly the creation of frames and its components.

Sample Program:

```
import java.awt.*; // for dimensions
import javax.swing.*; // for the GUI components

public class GUIActivity2 { //class

      public static void main(String[] args){ // main method

JFrame frame = new JFrame(); //creation of frame

frame.setLayout(new FlowLayout()); // layout  manager (flow layout)

frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE); // terminate the GUI after close
frame.setLocation(10,50); //set initial location
frame.setSize(300,1500); // set horizontal, vertical length
frame.setTitle("Frame Name"); //the name of the frame

JCheckBox checkbox = new JCheckBox("Money"); //creation of Check Box
frame.add(checkbox); // put the check box in the frame

JRadioButton radiobutton = new JRadioButton("Sun"); // creation of Radio Button
frame.add(radiobutton);// put the radio button in the frame

List fruitlist = new List(4,true); // creation of list with 4 possible option
fruitlist.add("Apple"); //list 1
fruitlist.add("Mango"); //list 2
fruitlist.add("Grapes"); // list 3
```

```
frame.add(fruitlist); // put the list in the frame

Choice fruitchoice = new Choice(); // creation of drop down list
fruitchoice.add("Apple"); // choice 1
fruitchoice.add("Mango"); // choice 2
fruitchoice.add("Grapes"); // choice 3
fruitchoice.add("Strawberry"); // choice 4
frame.add(fruitchoice); // add the drop down list in the frame

JButton button1 = new JButton("Button1"); // creation of button
button1.setBackground(Color.YELLOW); //set color
frame.add(button1); //add button to the frame

JButton button2 = new JButton("Button2"); // creation of button
button2.setBackground(Color.GREEN); // set color
frame.add(button2); // add button to frame

JLabel label = new JLabel("User Name:"); // creation of label
frame.add(label); // add label to the frame

JTextField field = new JTextField(10); // creation of text field with size 10
frame.add(field); // add text field to the frame

Label labelp = new Label("Password:"); // creation of label
frame.add(labelp);// add label to the frame

TextField passwordfield = new TextField(10); // creation of textfield
passwordfield.setEchoChar('*'); //set default input character to *
frame.add(passwordfield); // add text field to the frame

JTextArea textarea = new JTextArea(5,10); //creation of text are and dimension of 5,10
frame.add(textarea); // add text area to the frame
frame.add(new JScrollPane(textarea)); // add scroll bars to the text area
textarea.setFont(new Font("Calibri", Font.BOLD, 14)); // change font (name, style and size)

frame.pack();// make the frame compact
frame.setVisible(true); //set visibility
      }
```



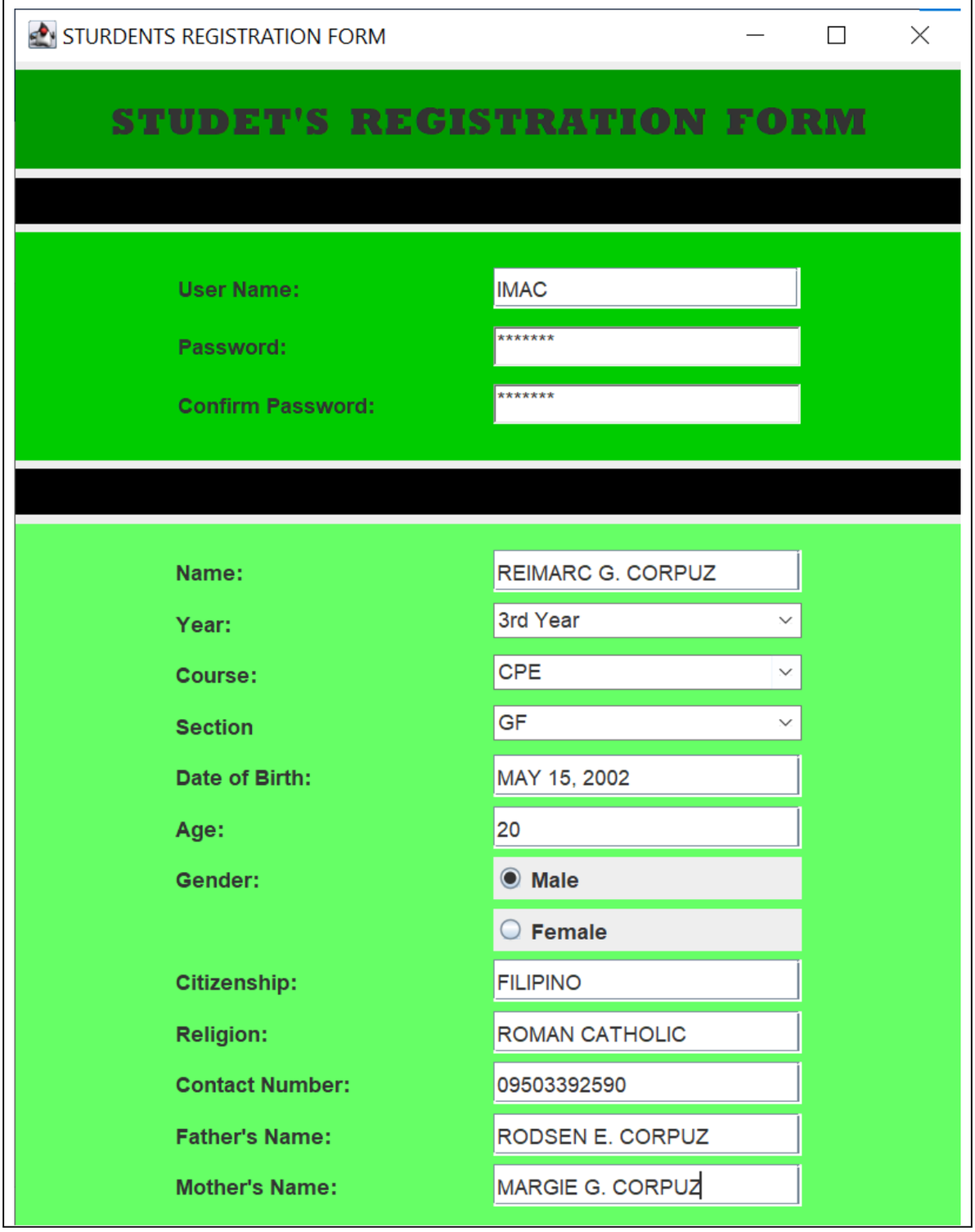
1.3 Problem

Write a program of a registration form of a student. The components are as follows:

User Name (label and text field)
Password (label and password field)
Confirm Password (label and password field)
Name(label and text field)
Year, Course and Section(Drop Down List and label)
Date of Birth(label and text field)
Age (label and text field)
Gender (Radio Button and label)
Citizenship (label and text field)
Religion (label and text field)
Contact Number (label and text field)
Father's Name and Mother's Name (label and text field)
Motto (label and text area)
Skills (label and text area)
Seminars Attended (label and text area with scroll)
Submit , Reset and Validate (button)

Note: Be creative in designing this registration form. Attach JAVA file.

Output: Screenshot only



1.4 Questions

1. What are the purposes of using frames in creating GUI?

The Frame is the container that contains a title bar and border and can have menu bars. It can have other components like buttons, text fields, scrollbars, etc. The frame is the most widely used container while developing an AWT application.

- JFrame has the option to hide or close the window.
- Frame object is actually a section of main memory that holds information and methods.
- It serves as the graphical representation of the monitor.
- It is a container that holds the different components that the frame should have.

2. Distinguish the different components that can be used in a frame?

From my codes the different components that I used in a frame are:

- JLabel – used for labeling.
- JTextField – text container of the label.
- JRadioButton – serves as choices.
- JTextArea – it is the same as JTextField but it is the larger container that holds much text. It can use a scroll bar to view all the text within that text area.
- JScrollPane – it inserts a scroll bar like in a panel or in a text area.
- JButton – a button that will command to change the frame or to save, edit, or delete the data input from the text field.
- JPanel – it is a container that doesn't contain a title bar, border, or menu bar. An instance of the Panel class creates a container, in which we can add components.

1.5 Conclusion

After I explore some components that are used in the frame, I concluded that GUI is like a portfolio that is divided into different parts. It is like a container that contains components within another container. Each component has a function to make the frame or a window responsive and can be used in collecting data from the keyboard or the user of the system. I also concluded that this method of creating a window is the same display in the HTML. So, I realize that if it is like an HTML form, it can also be used as a collector of data for the database. Because it also has buttons and text field that is used to ask a data from the user, and that data will save to the memory of the program. But, because only the objective of this activity is to familiarize or to create different components used in the frame, I don't know yet how the input data are going to save in the memory. For example, in HTML the data can be saved, edited, reset, or delete by the use of XAMPP.

When it comes to the design of the registration form, I made it look good but, I encountered some difficulties in aligning the label. Also, I observed that if the components are so many, other components are not visible to the given size of the frame. Only the component that is fitted to the frame is visible. I tried some solutions to fix my problem. I created a scroll bar within the panel, but it is not scrolling. After that, while I am searching for the difference between window, panel, and frame, I realize that what if I create components inside the text area and I will add a scroll bar… Inside the frame, there is a panel. Inside the panel, there is a text area with a scroll bar. And inside the text area, it has different components that ask for the data. But in the end, it did not work. So, just to show all the components I comment on other parts and then screenshots. For the next meeting, this problem will be my question to you sir how can I make all the components or labels visible to the frame? I think sir maybe you can teach me some way to create syntax for this, or maybe I can solve it by myself in the next activity. But sir I really want to know the answer from you. I hope you can help me sir, thank you.