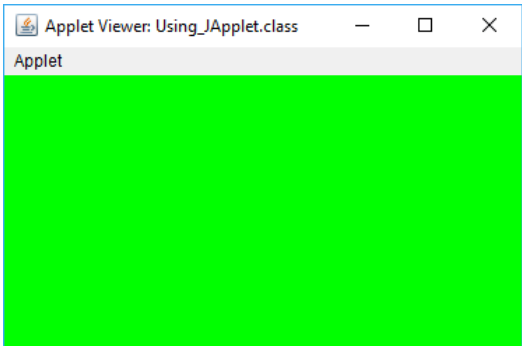
TTTK1143 - Program Design and Problem Solving
Tutorial 3
(GUI & Event Handlings)

Topic: JApplet and ContentPane.

1. Complete the following class to create a Java Applet whose pane's background color is green (as shown below).

A

```
public class ___B____ extends ____C_____{

   public void init() {
         Container pane = getContentPane();
         ________________D_____________________

   }
}
```



Topic: JFrame and ContentPane.

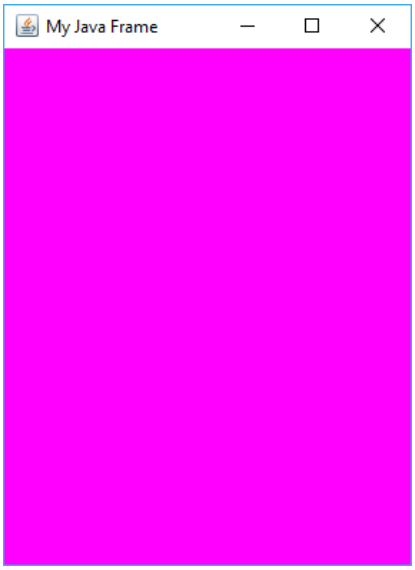
2. Complete the following class to create a Java frame whose title is "My Java Frame", width is 300, height is 400, and content pane's background color is magenta (as shown below).

A

```
class CreateMyFrame extends ___B_____ {

   public _______C________ () {
   Container pane = getContentPane();
   pane.setBackground(____D________); }

   public static void main(String[] args) {

   CreateMyFrame myframe = new CreateMyFrame ();
```

E

```
   }
}
```



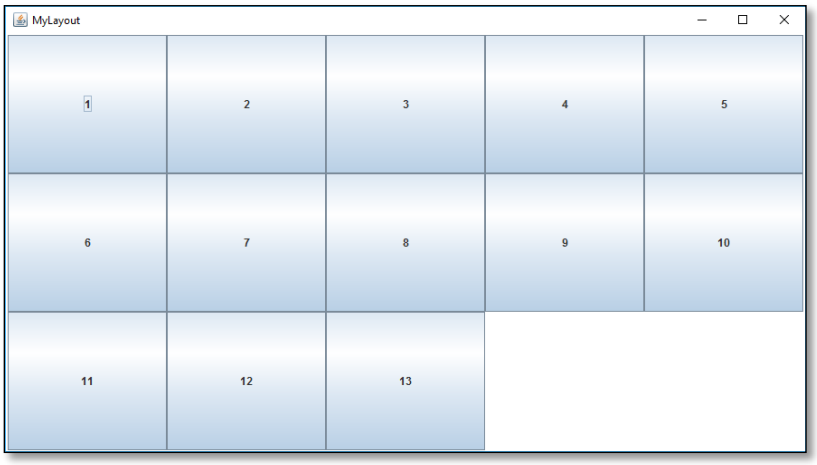
Topic : Layout Manager

3. List all the layout manager that can be used to arrange GUI components.

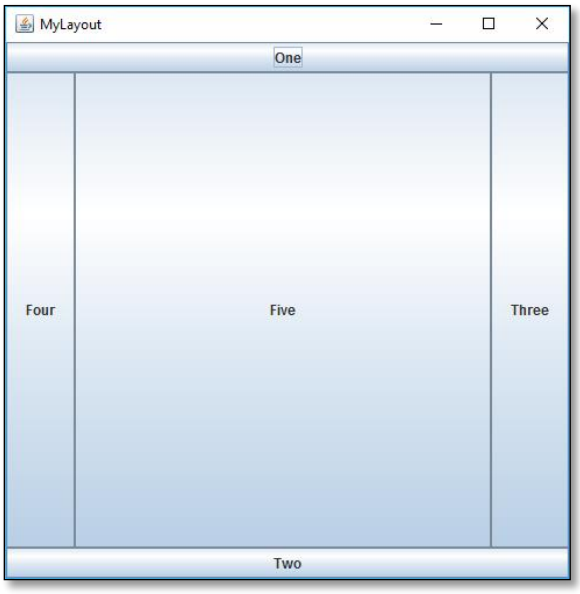
4. FlowLayout manager arrange the GUI components from left to right in the order they're created. (true/false)
5. Layout components on panel based on columns and rows.

6. Layout that user can choose to position the components on the North, South, East, West and Center of panel.

7. State the layout manager show in given figure. Write the line of statement to set this Layout in Container.



8. Complete the line of statement to set this Layout in Container (as shown below).



```
Container pane = getContentPane();
pane.setBackground(Color.white);

_____________________________
JButton b1=new JButton("One");
JButton b2=new JButton("Two");
JButton b3=new JButton("Three");
JButton b4=new JButton("Four");
JButton b5=new JButton("Five");
pane.add(b1 , _________A_________);
pane.add(b2 , _________B_________);
pane.add(b3 , _________C_________);
pane.add(b4 , _________D_________);
pane.add(b5 , _________E_________);
```

Topic : GUI Component

9. Name one Java Swing components that can be used for the following purposes:
    a. Displays text on the Java form but cannot receive any input.
    b. User can choose only one from many options
    c. Displays lines of text that can be chosen by user
    d. A component that hides text from user.
    e. Display information, warning or input
    f. User can select more than one items from many items to choose.
    g. User can key in only one line of text inside it
    h. Provide a list of items from which the user can make a single selection.

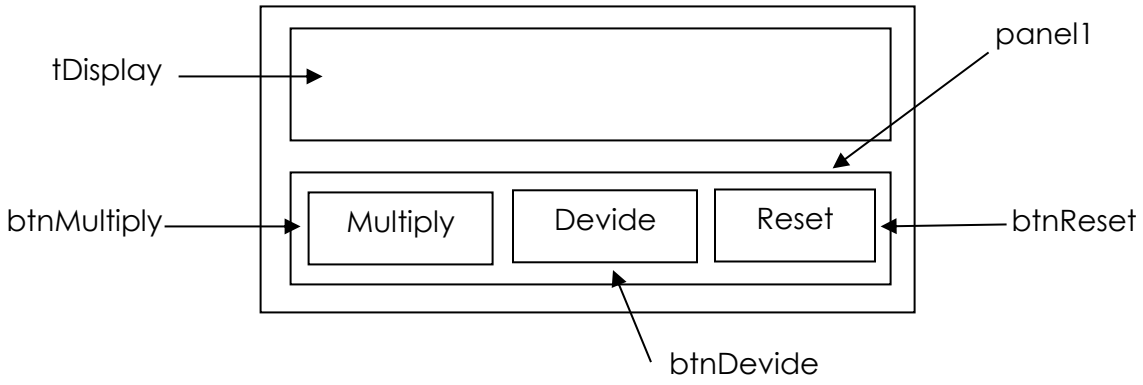
10. Write the code to build a JComboBox named sideDish with no arguments. Then, create the addItem() methods to provide options for "Fries", "Salad", and "Fruit".

11. Write the statement to create a JCheckBox object named feeWaived that is selected. Include the label "Fee Waived".

12. Write the statement to create a JButton named submitButton with the label "Submit your data".

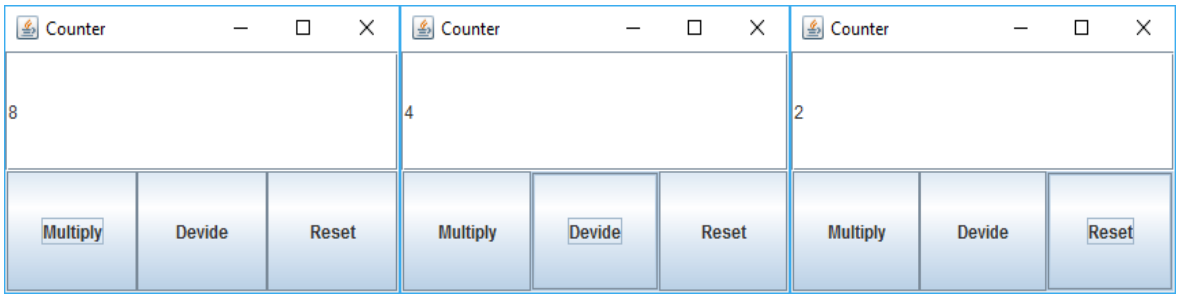
13. Write the statement to provide a JTextField object named myInfo that allows enough room for a user to enter 15 characters.

14. Below is a layout of a simple counter. Using the labels in the diagram, complete the following Java program to simulate the interface of a simple counter:



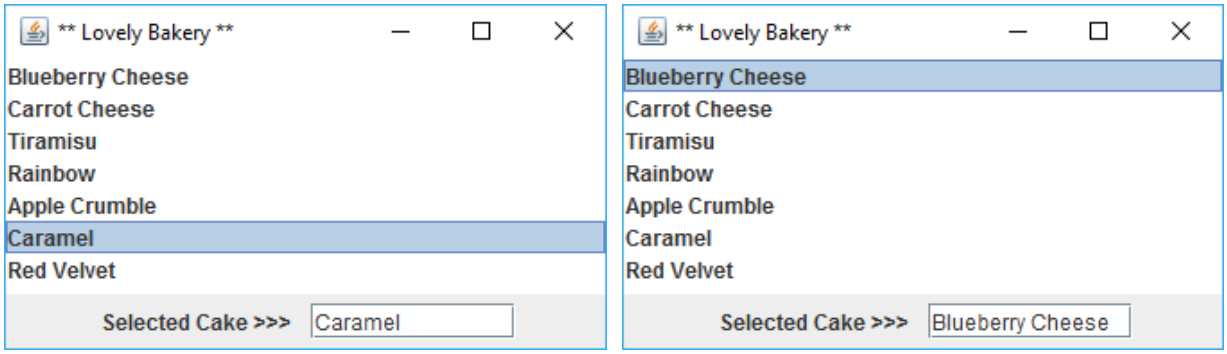

```
import javax.swing.*;
import java.awt.*;

public class Counter extends JFrame
{
      JPanel ____A____;
      JTextField _____B_____;
      _________________C_____________________;

      public Counter()
      {
            Container pane = getContentPane();
            ____________D_____________________
            tDisplay = new JTextField("2");
            ┌──────────────────────────┐
            │                          │
            │            E             │
            │                          │
            └──────────────────────────┘
            pane.add(tDisplay);
            pane.add(panel1);
      }

      public static void main (String[] args)
      {
            Counter frame1 = new Counter();
            frame1.setTitle("Counter");
            frame1.setSize(300, 200);
            frame1.setLocation(100, 100);
            frame1.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
            frame1.setVisible(true);
      }
}
```

15. Based on previous question (Question 14) Write the code to handle event so that when the Multiply button in the GUI is clicked, the number in the box will multiplied by 4, if Divide button is clicked, the number in the box will divided by 2, meanwhile if Reset Button is clicked, number 2 will display in the box as shown in the following figures.



16. Lovely Bakery provide several type of cake. Customer can choose from the list. Item that has been selected will be display in the textfield such as the following figure.

    a. Write the GUI program and event for the following figure.

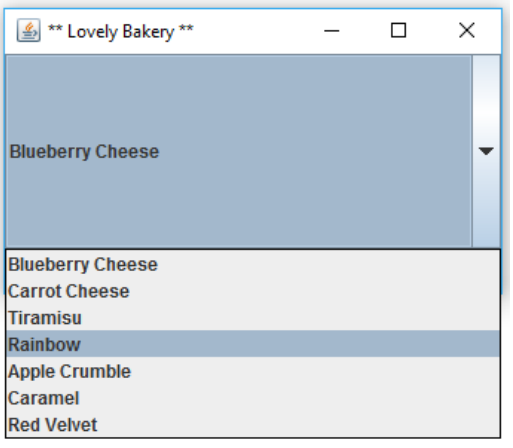


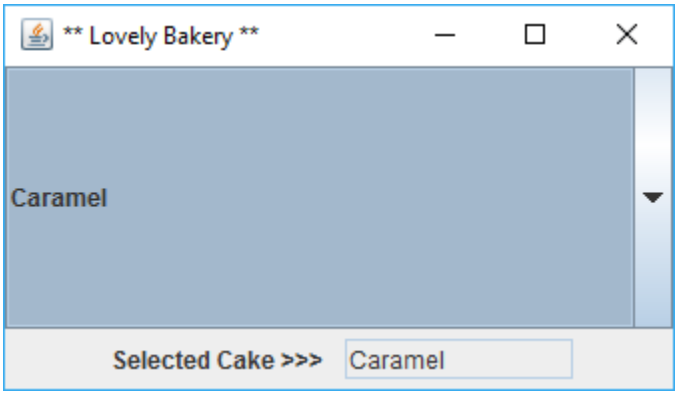

```
public class Cakes extends JFrame implements  ListSelectionListener {

      JList list;
      JTextField jtf;
      JLabel label1;

      String cakeList[] = {"Blueberry Cheese","Carrot Cheese", "Tiramisu",
                           "Rainbow", "Apple Crumble","Caramel", "Red Velvet"};

      public Cakes (){
            Container pane = getContentPane();
            pane.setLayout(new BorderLayout());
```

```
        JPanel jp = new JPanel(new FlowLayout());
        list = new JList(cakeList);
        label1 = new JLabel(" Selected Cake >>>  ");
        list.setSelectionMode(ListSelectionModel.SINGLE_SELECTION);
        jtf = new JTextField(10);
        list.addListSelectionListener(this);
        jp.add(list);
        jp.add(label1);
        jp.add(jtf);
        pane.add(list,"Center");
        pane.add(jp,"South");

    }

    public void valueChanged(ListSelectionEvent e){
        String cake = (String)list.getSelectedValue();
        jtf.setText(cake);
    }

    public static void main(String[] args) {

        Cakes frame = new Cakes ();
        frame.setTitle("** Lovely Bakery **");
        frame.setSize(350, 200);
        frame.setLocation(100, 100);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setVisible(true);

    }

}
```

b. Modify your program in (a) using JComboBox Component

c. Set textfield to non-editable value.





Part B – Problem Solving

Question 1

Write a GUI to that can accept the student's information. Button save will display the information from text field to text area as shown in Figure 2. Button Clear will reset the text field to initial state. User must input all the data to avoid the error message such as Figure 3.

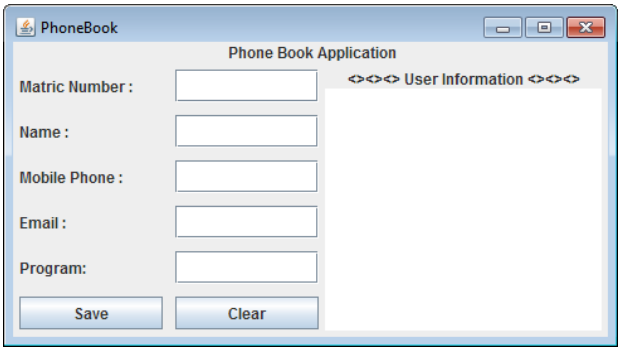


Figure 1: Initial GUI for Student Phone

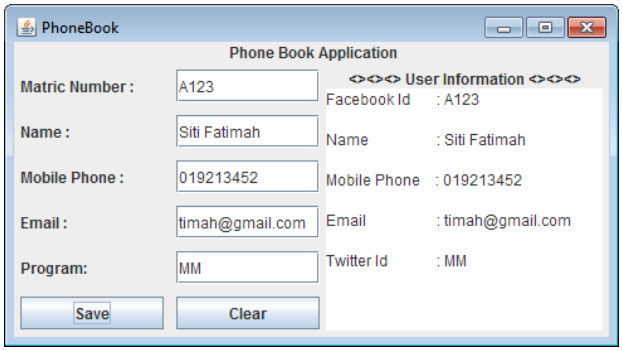


Figure 2: Initial GUI for Student Info

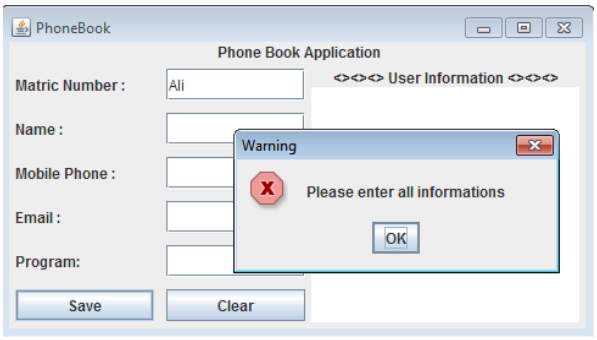


Figure 3: Error message when text field is empty

Question 2

Melati Publishing provides a special offer for 1 year magazine subscription for their customers. Customer are divided into two categories which is member and non-member. Write a GUI program that calculate the number of subscription and the total payment for the members or non-members.

Figure 1: Initial GUI for *Melati Publishing*

Figure 2: GUI *Melati Publishing when user tick on the image.*

Figure 3: T*otal payment & subscription for non-member*

Figure 4: GUI for *member's total payment & subscription*