Practical No.5

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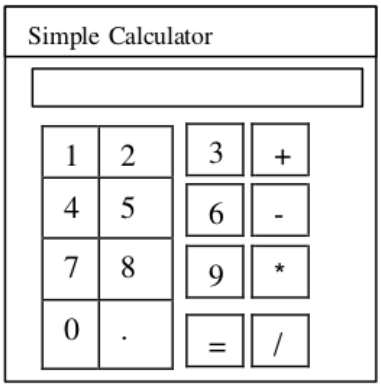
Class: T.Y.BSc(Comp. Science)
Roll No: 33
Div: A Batch: B
Subject :Object Oriented Programming Language Using Java-I
Assignment Name: GUI Designing, Event Handling
Performance Date: Submission Date: / /

Set-A)
1)Write a java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -, *, % operations. Add a text field to display the result.



Program:

```
import javax.swing.*;
import javax.swing.JFrame;
import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
public class SimpleCalculator extends JFrame implements ActionListener
{
   JTextField txt1;
   JButton b0, b1, b2, b3, b4, b5, b6, b7, b8, b9, bsum, bsub, bmult, bdiv, bdot, beql;
   JPanel p1, p2;
   String opt = " ", s1 = " ";
   float n1, n2;
   int s2;
   int aft = 0;
   SimpleCalculator()
   {
      setSize(300, 300);
      setVisible(true);
      setTitle("Simple Calculator");
      setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
```

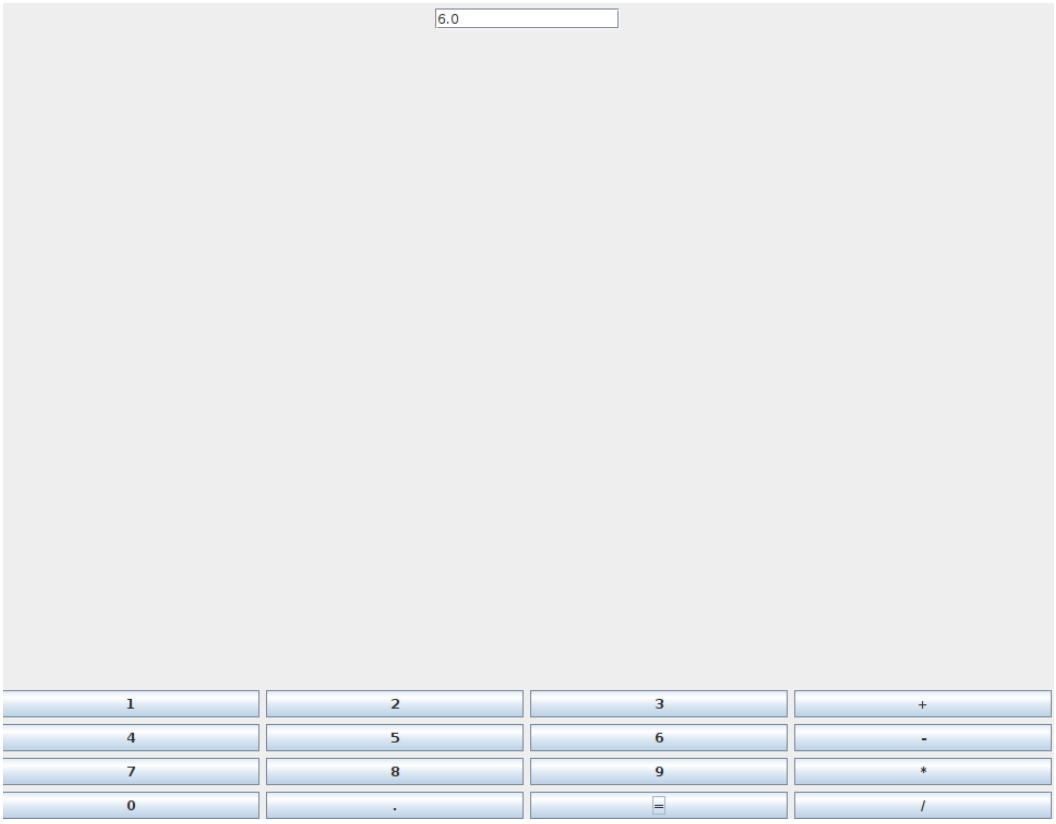
```
setLayout(new BorderLayout());
p1 = new JPanel();
p2 = new JPanel();
p1.setLayout(new FlowLayout());
txt1 = new JTextField(15);
p1.add(txt1);
p2.setLayout(new GridLayout(4, 4, 6, 6));
b1 = new JButton("1");
p2.add(b1);
b1.addActionListener(this);
b2 = new JButton("2");
p2.add(b2);
b2.addActionListener(this);
b3 = new JButton("3");
p2.add(b3);
bsum = new JButton("+");
p2.add(bsum);
bsum.addActionListener(this);
b4 = new JButton("4");
p2.add(b4);
b4.addActionListener(this);
b5 = new JButton("5");
p2.add(b5);
b5.addActionListener(this);
b6 = new JButton("6");
p2.add(b6);
bsub = new JButton("-");
p2.add(bsub);
bsub.addActionListener(this);
b6.addActionListener(this);
b7 = new JButton("7");
p2.add(b7);
b7.addActionListener(this);
b8 = new JButton("8");
p2.add(b8);
b8.addActionListener(this);
b9 = new JButton("9");
p2.add(b9);
b9.addActionListener(this);
bmult = new JButton("*");
p2.add(bmult);
bmult.addActionListener(this);
b0 = new JButton("0");
p2.add(b0);
b0.addActionListener(this);
bdot = new JButton(".");
```

```
    p2.add(bdot);
    bdot.addActionListener(this);
    beql = new JButton("=");
    p2.add(beql);
    beql.addActionListener(this);
    bdiv = new JButton("/");
    p2.add(bdiv);
    bdiv.addActionListener(this);
    add(p1, BorderLayout.NORTH);
    add(p2, BorderLayout.SOUTH);
}
public static void main(String[] args)
{
    SimpleCalculator sc = new SimpleCalculator();
}
public void actionPerformed(ActionEvent e)
{
    if(e.getSource() == b1)
        s1 = s1 + b1.getText();
    if(e.getSource() == b2)
        s1 = s1 + b2.getText();
    if(e.getSource() == b3)
        s1 = s1 + b3.getText();
    if(e.getSource() == b4)
        s1 = s1 + b4.getText();
    if(e.getSource() == b5)
        s1 = s1 + b5.getText();
    if(e.getSource() == b6)
        s1 = s1 + b6.getText();
    if(e.getSource() == b7)
        s1 = s1 + b7.getText();
    if(e.getSource() == b8)
        s1 = s1 + b8.getText();
    if(e.getSource() == b9)
        s1 = s1 + b9.getText();
    if(e.getSource() == b0)
        s1 = s1 + b0.getText();
    if(e.getSource() == bdot)
        s1 = s1 + bdot.getText();
    txt1.setText(s1);
    if(e.getSource() == bsum)
    {
        opt = "+";
        txt1.setText(" ");
        n1 = Float.parseFloat(s1);
        s1 = " ";
```

```
}
if(e.getSource() == beql) {
   if(opt.equals("+"))
   {
      n2 = Float.parseFloat(s1);
      txt1.setText((n1 + n2) +  " ");
      s1 = " ";
   }
}
else if (e.getSource() == bsub)
{
   opt = "-";
   txt1.setText(" ");
   n1 = Float.parseFloat(s1);
   s1 = " ";
}
if(e.getSource() == beql) {
   if(opt.equals("-"))
   {
      n2 = Float.parseFloat(s1);
      txt1.setText((n1 - n2) +  " ");
      s1 = " ";
   }
}
else if (e.getSource() == bmult)
{
   opt = "*";
   txt1.setText(" ");
   n1 = Float.parseFloat(s1);
   s1 = " ";
}
if(e.getSource() == beql) {
   if(opt.equals("*"))
   {
      n2 = Float.parseFloat(s1);
      txt1.setText((n1 * n2) +  " ");
      s1 = " ";
   }
}
else if (e.getSource() == bdiv)
{
   opt = "/";
   txt1.setText(" ");
   n1 = Float.parseFloat(s1);
   s1 = " ";
}
```

```
        if(e.getSource() == beql) {
            if(opt.equals("/"))
            {
                n2 = Float.parseFloat(s1);
                txt1.setText((n1 / n2) +  " ");
                s1 = " ";
            }
        }
    }
}
```

Output:



4+2=6
4-2=2
4*2=8
4/2=2

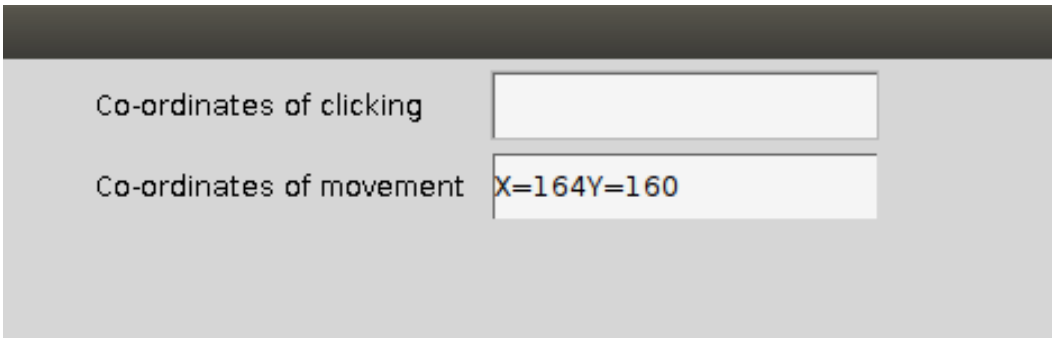
2) Design a screen to handle the Mouse Events such as MOUSE_MOVED and MOUSE_CLICK and display the position of the Mouse_Click in a TextField.

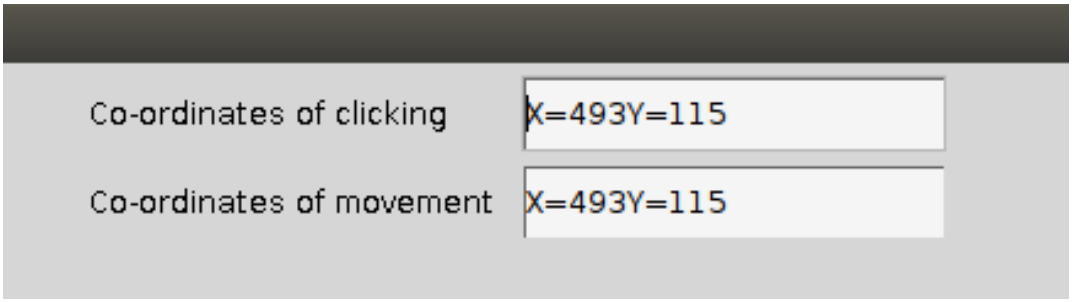
```
import java.awt.*;
import java.awt.event.*;
class MyFrame extends Frame
{
```

```
TextField t,t1;
Label l,l1;
int x,y;
Panel p;
MyFrame(String title)
{
super(title);
setLayout(new FlowLayout());
p=new Panel();
p.setLayout(new GridLayout(2,2,5,5));
t=new TextField(20);
l=new Label("Co-ordinates of clicking");
l1=new Label("Co-ordinates of movement");
t1=new TextField(20);
p.add(l);
p.add(t);
p.add(l1);
p.add(t1);
add(p);
addMouseListener(new MyClick());
addMouseMotionListener(new MyMove());
setSize(500,500);
setVisible(true);
}
class MyClick extends MouseAdapter
{
public void mouseClicked(MouseEvent me)
{
   x=me.getX();
   y=me.getY();
   t.setText("X="+x+ "Y="+y);
   }
   }
   class MyMove extends MouseMotionAdapter
   {
   public void mouseMoved(MouseEvent me)
   {
   x=me.getX();
   y=me.getY();
   t1.setText("X="+x+ "Y="+y);
   }
   }
     }
   class MouseMove
   {
   public static  void main(String args[])
```

```
    {
    MyFrame f=new MyFrame("Slip Number 4");
    }
}
```

Output:





Set B

b) Write a Java program to design a screen using Awt that will take a user name and password. If the user name and password are not same, raise an Exception with appropriate message. User can have 3 login chances only. Use clear button to clear the TextFields.

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

class InvalidPasswordException extends Exception
{}

class Login extends JFrame implements ActionListener
{
   JLabel name, pass;
   JTextField nameText;
   JPasswordField passText;
   JButton login, end;
   static int cnt=0;
```

```
    Login()
    {
        name = new JLabel("Name : ");
        pass = new JLabel("Password : ");

        nameText = new JTextField(20);
        passText = new JPasswordField(20);

        login = new JButton("Login");
        end = new JButton("End");

        login.addActionListener(this);
         end.addActionListener(this);


         setLayout(new GridLayout(3,2));
         add(name);
         add(nameText);
         add(pass);
         add(passText);
         add(login);
         add(end);

         setTitle("Login Check");
         setSize(300,300);
         setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
         setVisible(true);
    }

    public void actionPerformed(ActionEvent e)
    {
            if(e.getSource()==end)
        {
                    System.exit(0);

        }
        if(e.getSource()==login)
        {
          try
          {
             String user = nameText.getText();
             String pass = new String(passText.getPassword());

             if(user.compareTo(pass)==0)
             {  JOptionPane.showMessageDialog(null,"Login
Successful","Login",JOptionPane.INFORMATION_MESSAGE);
```

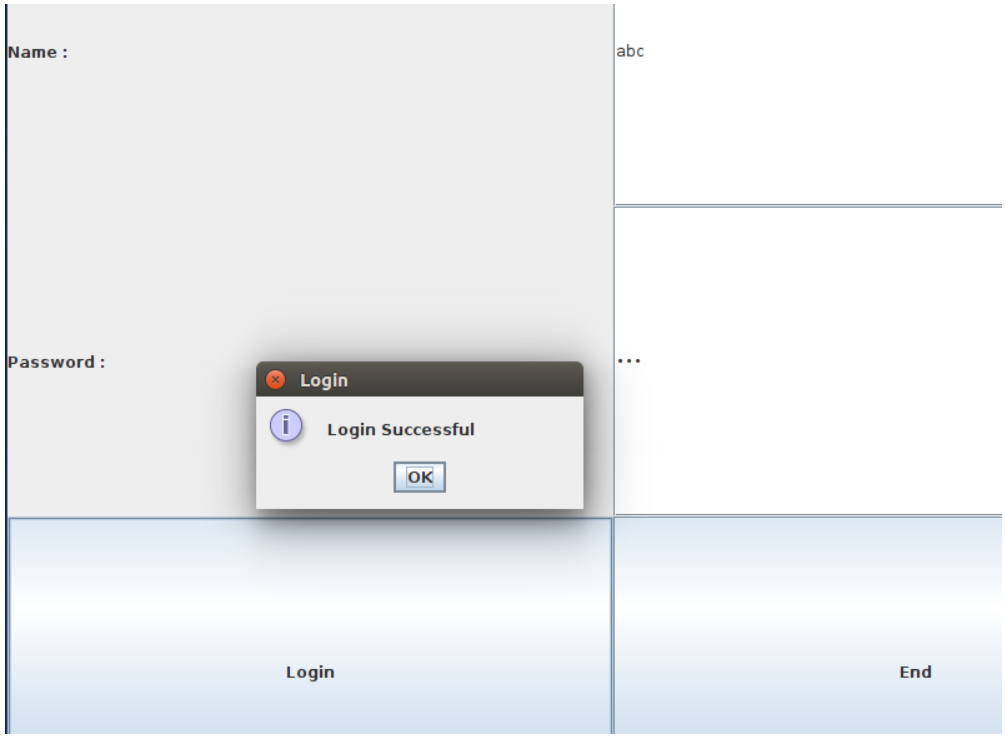
```
                System.exit(0);
              }

              else
              {
                 throw new InvalidPasswordException();
              }
            }
            catch(Exception e1)
            {
               cnt++;
               JOptionPane.showMessageDialog(null,"Login
Failed","Login",JOptionPane.ERROR_MESSAGE);
                nameText.setText("");
                passText.setText("");
                nameText.requestFocus();
                if(cnt == 3)
                {
        JOptionPane.showMessageDialog(null,"3 Attempts
Over","Login",JOptionPane.ERROR_MESSAGE);
                  System.exit(0);

                }
            }
       }
   }

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

Output:



b) Write a program to display the following menus and sub-menus.

Program:

```
import javax.swing.*;
import javax.swing.JFrame;
class MenuExample
{
JMenu menu,submenu;
JMenuItem i1,i2,i3,i4,i5;
MenuExample(){
JFrame f=new JFrame("Menu and MenuItem Example");
JMenuBar mb=new JMenuBar();
```

```
menu=new JMenu("Menu");
submenu=new JMenu("Sub Menu");
i1=new JMenuItem("Item 1");
i2=new JMenuItem("Item 2");
i3=new JMenuItem("Item 3");
i4=new JMenuItem("Item 4");
i5=new JMenuItem("Item 5");
menu.add(i1);
menu.add(i2);
menu.add(i3);
submenu.add(i4);
submenu.add(i5);
menu.add(submenu);
mb.add(menu);
f.setJMenuBar(mb);
f.setSize(400,400);
f.setLayout(null);
f.setVisible(true);
}
public static void main(String args[])
{
new MenuExample();
}
}
```

Output: