NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL
OOPS LAB ASSIGNMENT-4

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Section: A

1. . Write a java program to implement a simple calculator having buttons for individual operations like +,-,*,/,% and one reset button and along with these button one Text Filed at the top of GUI to show the result. Arrange the buttons in the Grid layout. Handle the possible exceptions like divisible by zero.

```
import java.awt.*;
import java.awt.event.*;
public class calculator implements ActionListener
{
    int c,n;
    String s1,s2,s3,s4,s5;
    Frame f;
    Button b1,b2,b3,b4,b5,b6,b7,b8,b9,b10,b11,b12,b13,b14,b15,b16,b17;
    Panel p;
    TextField tf;
    GridLayout g;
    calculator()
    {
        f = new Frame("My calculator");
        f.addWindowListener(new WindowAdapter(){
            public void windowClosing(WindowEvent e) {
                System.exit(0);
            }
        });
        p = new Panel();
        f.setLayout(new GridLayout(2,1));
        b1 = new Button("0");
        b1.addActionListener(this);
        b2 = new Button("1");
        b2.addActionListener(this);
        b3 = new Button("2");
```

```
        b3.addActionListener(this);
        b4 = new Button("3");
        b4.addActionListener(this);
        b5 = new Button("4");
        b5.addActionListener(this);
        b6 = new Button("5");
        b6.addActionListener(this);
        b7 = new Button("6");
        b7.addActionListener(this);
        b8 = new Button("7");
        b8.addActionListener(this);
        b9 = new Button("8");
        b9.addActionListener(this);
        b10 = new Button("9");
        b10.addActionListener(this);
        b11 = new Button("+");
        b11.addActionListener(this);
        b12 = new Button("-");
        b12.addActionListener(this);
        b13 = new Button("*");
        b13.addActionListener(this);
        b14 = new Button("/");
        b14.addActionListener(this);
        b15 = new Button("%");
        b15.addActionListener(this);
        b16 = new Button("=");
        b16.addActionListener(this);
        b17 = new Button("C");
        b17.addActionListener(this);
        tf = new TextField(20);
        f.add(tf);
        g = new GridLayout(4,4,5,5);
        p.setLayout(g);
        p.add(b1);p.add(b2);p.add(b3);p.add(b4);p.add(b5);p.add(b6);p.add(b7);
        p.add(b8);p.add(b9);
        p.add(b10);p.add(b11);p.add(b12);p.add(b13);p.add(b14);p.add(b15);
        p.add(b16);p.add(b17);
        tf.setBackground(Color.yellow);
        f.add(p);
        f.setSize(300,300);
        f.setVisible(true);
    }
    public void actionPerformed(ActionEvent e)
    {
        if(e.getSource()==b1)
        {
            s3 = tf.getText();
            s4 = "0";
            s5 = s3+s4;
```

```
            tf.setText(s5);
        }
        if(e.getSource()==b2)
        {
            s3 = tf.getText();
            s4 = "1";
            s5 = s3+s4;
            tf.setText(s5);
        }
        if(e.getSource()==b3)
        {
            s3 = tf.getText();
            s4 = "2";
            s5 = s3+s4;
            tf.setText(s5);
        }if(e.getSource()==b4)
    {
        s3 = tf.getText();
        s4 = "3";
        s5 = s3+s4;
        tf.setText(s5);
    }
        if(e.getSource()==b5)
        {
            s3 = tf.getText();
            s4 = "4";
            s5 = s3+s4;
            tf.setText(s5);
        }
        if(e.getSource()==b6)
        {
            s3 = tf.getText();
            s4 = "5";
            s5 = s3+s4;
            tf.setText(s5);
        }
        if(e.getSource()==b7)
        {
            s3 = tf.getText();
            s4 = "6";
            s5 = s3+s4;
            tf.setText(s5);
        }
        if(e.getSource()==b8)
        {
            s3 = tf.getText();
            s4 = "7";
            s5 = s3+s4;
            tf.setText(s5);
```

```
        }
        if(e.getSource()==b9)
        {
            s3 = tf.getText();
            s4 = "8";
            s5 = s3+s4;
            tf.setText(s5);
        }
        if(e.getSource()==b10)
        {
            s3 = tf.getText();
            s4 = "9";
            s5 = s3+s4;
            tf.setText(s5);
        }
        if(e.getSource()==b11)
        {
            s1 = tf.getText();
            tf.setText("");
            c=1;

        }
        if(e.getSource()==b12)
        {
            s1 = tf.getText();
            tf.setText("");
            c=2;

        }
        if(e.getSource()==b13)
        {
            s1 = tf.getText();
            tf.setText("");
            c=3;

        }
        if(e.getSource()==b14)
        {
            s1 = tf.getText();
            tf.setText("");
            c=4;

        }
        if(e.getSource()==b15)
        {
            s1 = tf.getText();
            tf.setText("");
            c=5;
```

```
        }
        if(e.getSource()==b16)
        {
            s2 = tf.getText();
            if(c==1)
            {
                n = Integer.parseInt(s1)+Integer.parseInt(s2);
                tf.setText(String.valueOf(n));
            }
            else
            if(c==2)
            {
                n = Integer.parseInt(s1)-Integer.parseInt(s2);
                tf.setText(String.valueOf(n));
            }
            else
            if(c==3)
            {
                n = Integer.parseInt(s1)*Integer.parseInt(s2);
                tf.setText(String.valueOf(n));
            }
            if(c==4)
            {
                try
                {
                    int p=Integer.parseInt(s2);
                    if(p!=0)
                    {
                        n = Integer.parseInt(s1)/Integer.parseInt(s2);
                        tf.setText(String.valueOf(n));
                    }
                    else
                        tf.setText("infinite");

                }
                catch(Exception i){}
            }
            if(c==5)
            {
                n = Integer.parseInt(s1)%Integer.parseInt(s2);
                tf.setText(String.valueOf(n));
            }
        }
        if(e.getSource()==b17)
        {
            tf.setText("");
        }
    }
```

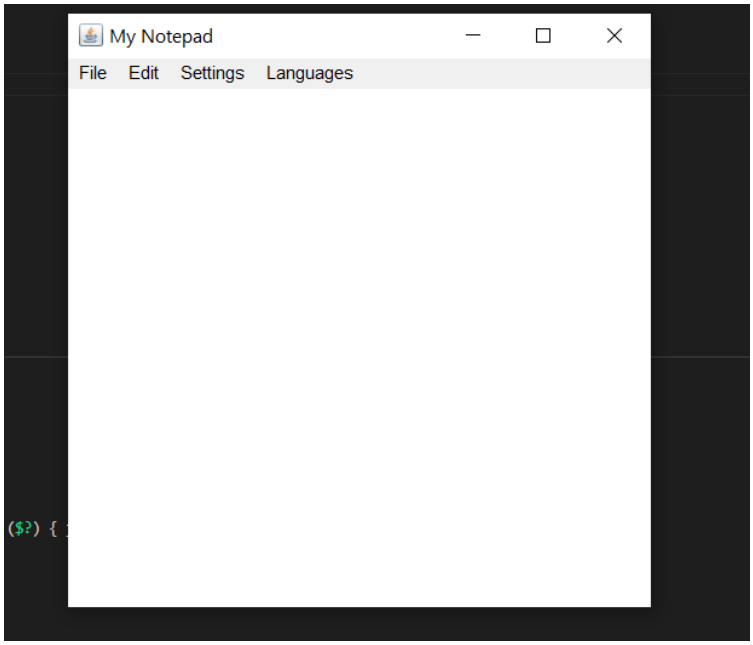
```
    public static void main(String[] abc)
    {
        new calculator();
    }
}
```

2 . Write a java program to implement a simple notepad with the following specifications. In the menu bar add 4 menu items like File, Edit, Settings, and Languages. File should contain the items like New, Open, Save, Delete, Rename and print. Edit should contain cut, copy, paste, convert case and undo. In settings add import, change background and apply theme. In languages add c, cpp, java, python, Go, Ruby, PHP, JavaScript. (Note: No need to add any actionlistener to any component). Just implement basic user interface.)

```
3  import java.awt.*;
4  import java.awt.event.*;
5  class a4q2
6  {
```

```
7       a4q2(){
8           Frame f= new Frame("My Notepad");
9           f.addWindowListener(new WindowAdapter(){
10              public void windowClosing(WindowEvent e) {
11                  System.exit(0);
12              }
13          });
14          MenuBar mb=new MenuBar();
15          Menu file=new Menu("File");
16          Menu edit=new Menu("Edit");
17          Menu settings=new Menu("Settings");
18          Menu languages=new Menu("Languages");
19
20          MenuItem i1=new MenuItem("New");
21          MenuItem i2=new MenuItem("Open");
22          MenuItem i3=new MenuItem("Save");
23          MenuItem i4=new MenuItem("Delete");
24          MenuItem i5=new MenuItem("Rename");
25          MenuItem i6=new MenuItem("Print");
26          file.add(i1);
27          file.add(i2);
28          file.add(i3);
29          file.add(i4);
30          file.add(i5);
31          file.add(i6);
32
33          MenuItem i7=new MenuItem("Cut");
34          MenuItem i8=new MenuItem("Copy");
35          MenuItem i9=new MenuItem("Paste");
36          MenuItem i10=new MenuItem("Convert Case");
37          MenuItem i11=new MenuItem("Undo");
38
39          edit.add(i7);
40          edit.add(i8);
41          edit.add(i9);
42          edit.add(i10);
43          edit.add(i11);
44
45          MenuItem i12=new MenuItem("Add Import");
46          MenuItem i13=new MenuItem("Change Background");
47          MenuItem i14=new MenuItem("Apply Theme");
48
49          settings.add(i12);
50          settings.add(i13);
51          settings.add(i14);
52
53          MenuItem i15=new MenuItem("C");
54          MenuItem i16=new MenuItem("CPP");
55          MenuItem i17=new MenuItem("JAVA");
```

```
56          MenuItem i18=new MenuItem("PYTHON");
57          MenuItem i19=new MenuItem("GO");
58          MenuItem i20=new MenuItem("RUBY");
59          MenuItem i21=new MenuItem("PHP");
60          MenuItem i22=new MenuItem("JavaScript");
61
62          languages.add(i15);
63          languages.add(i16);
64          languages.add(i17);
65          languages.add(i18);
66          languages.add(i19);
67          languages.add(i20);
68          languages.add(i21);
69          languages.add(i22);
70
71          mb.add(file);
72          mb.add(edit);
73          mb.add(settings);
74          mb.add(languages);
75
76          f.setMenuBar(mb);
77          f.setSize(400,400);
78          f.setLayout(null);
79          f.setVisible(true);
80      }
81      public static void main(String args[])
82      {
83          new a4q2();
84      }
85  }
86
```

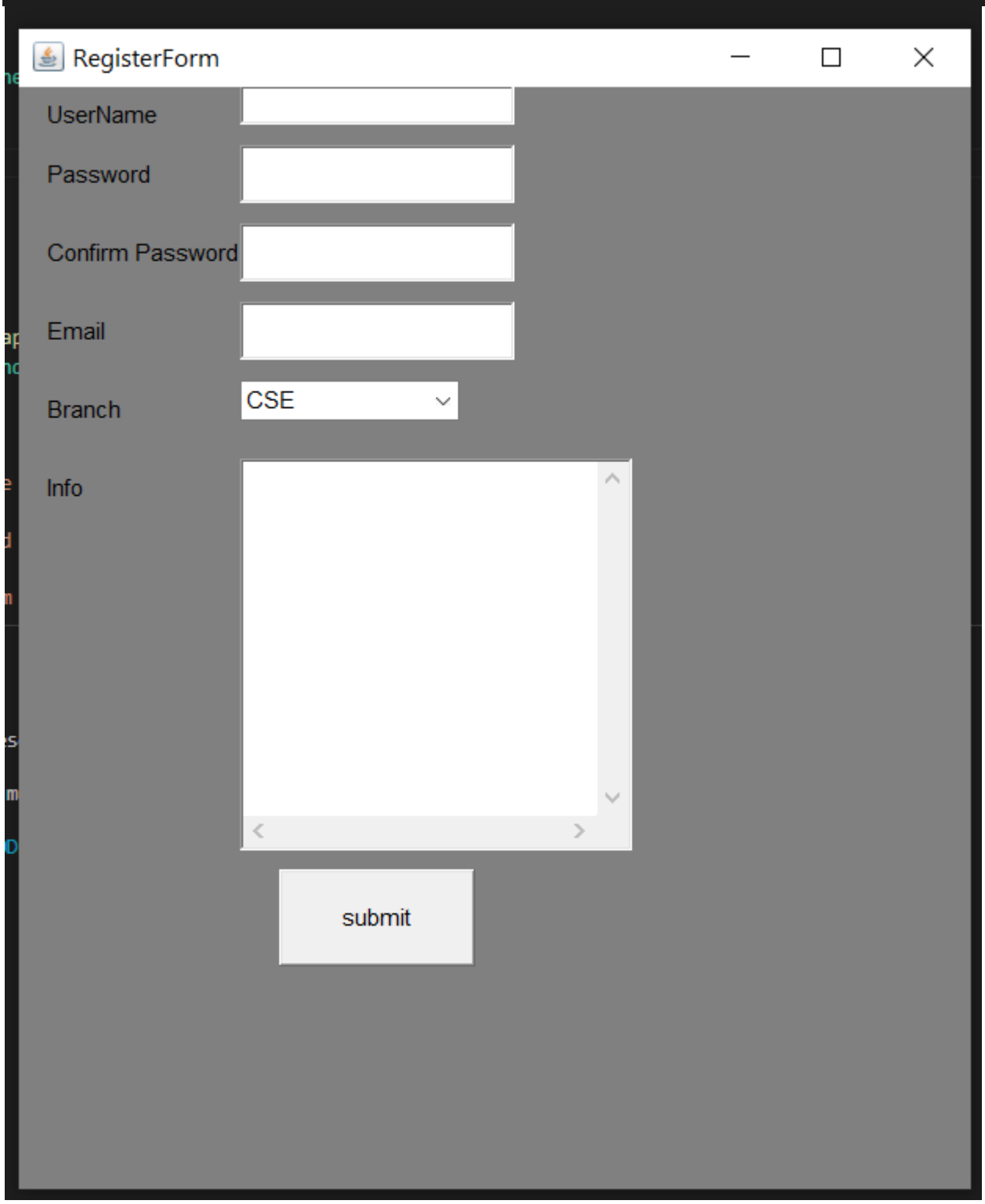


3.Write a java program to implement a Registration form with the requirements that the components like username, password, confirm password, Email, Branch (Branch is Choice), and some info about yourself (Means Text Area). And one button. Now, up on clicking the button you should compare the data in password and confirm password if both doesn't match then clear both Text Fields data.

```
import java.awt.*;
import java.awt.event.*;

public class a4q3 implements ActionListener{
    Frame f;
    TextField cpass,pass,username,email;
    TextArea info;
    Choice branch;
    Label fl;
    String s1,s2;
    a4q3(){
        f = new Frame("RegisterForm");
        f.addWindowListener(new WindowAdapter(){
            public void windowClosing(WindowEvent e) {
                System.exit(0);
            }
        });
        Label userL = new Label("UserName     ");
        userL.setBounds(20,30,60,30);
        Label passL = new Label("Password    ");
        passL.setBounds(20,60,60,30);
        Label cpassL = new Label("Confirm Password ");
        cpassL.setBounds(20,100,100,30);
        Label emailL = new Label("Email     ");
        emailL.setBounds(20,140,60,30);
        Label branchL = new Label("Branch     ");
        branchL.setBounds(20,180,60,30);
        Label infoL = new Label("Info     ");
        infoL.setBounds(20,220,60,30);

        username = new TextField(10);
        username.setBounds(120,30,140,20);
        pass = new TextField(10);
        pass.setBounds(120,60,140,30);
        cpass = new TextField(10);
        cpass.setBounds(120,100,140,30);
        email = new TextField(10);
        email.setBounds(120,140,140,30);
        branch = new Choice();
```

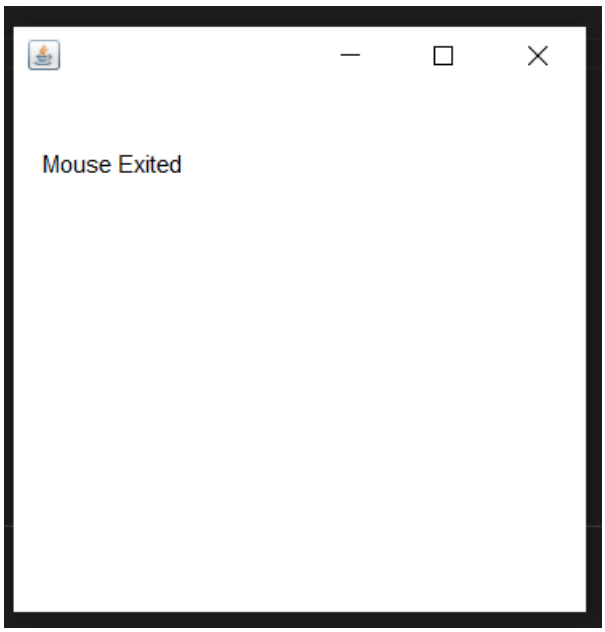
```
        branch.addItem("CSE");
        branch.addItem("ECE");
        branch.addItem("EEE");
        branch.setBounds(120,180,140,30);
        info = new TextArea();
        info.setBounds(120,220,200,200);

        f.setLayout(null);
        f.add(userL);f.add(username);
        f.add(passL);f.add(pass);
        f.add(cpassL);f.add(cpass);
        f.add(emailL);f.add(email);
        f.add(branchL);f.add(branch);
        f.add(infoL);f.add(info);

        Button b=new Button("submit");
        b.setBounds(140,430,100,50);
        b.addActionListener(this);
        fl=new Label();
        fl.setBounds(40,500,300,30);
        f.add(b);
        f.add(fl);
        f.setSize(500,600);
        f.setBackground(Color.gray);
        f.setVisible(true);
    }

    public void actionPerformed(ActionEvent e)
    {
        s1=pass.getText();
        s2=cpass.getText();

        if (s1.equals(s2))
        {
            fl.setText("Your form is filled");
            username.setText("");
            email.setText("");
            cpass.setText("");
            pass.setText("");
            info.setText("");
        }
        else
        {
            fl.setText("passwords do not match - renter");
            pass.setText("");
            cpass.setText("");
        }
    }
```

```java
    public static void main(String args[])
    {
        a4q3 reg = new a4q3();
    }
}
```



4.Write a java program to illustrate all mouse events which are available in MOuseListener interface.

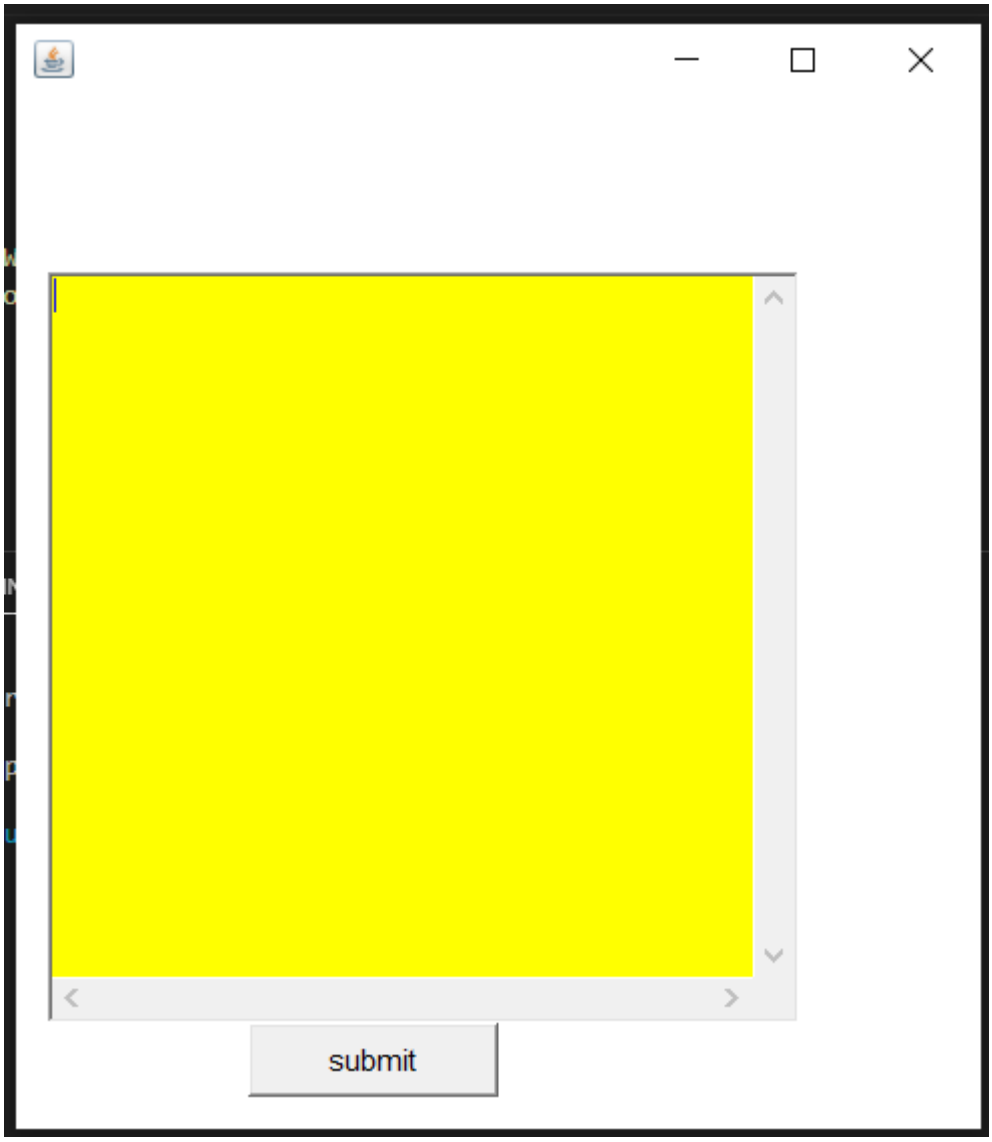
```
import java.awt.*;
import java.awt.event.*;

public class a4q4 implements MouseListener{
    Frame f;
    Label l;
    a4q4(){
        f=new Frame();
        f.setName("mouse events");
        f.addMouseListener(this);

        l=new Label();
        l.setBounds(20,50,100,40);
        f.add(l);
        f.setSize(300,300);
        f.setLayout(null);
        f.setVisible(true);
    }
    public void mouseClicked(MouseEvent e) {
        l.setText("Mouse Clicked");
    }
    public void mouseEntered(MouseEvent e) {
        l.setText("Mouse Entered");
    }
    public void mouseExited(MouseEvent e) {
        l.setText("Mouse Exited");
    }
    public void mousePressed(MouseEvent e) {
        l.setText("Mouse Pressed");
    }
    public void mouseReleased(MouseEvent e) {
        l.setText("Mouse Released");
    }
    public static void main(String[] args) {
        new a4q4();
    }
}
```



5.Write a java program to implement the following. Create a frame and add a TextArea, label, Button inside it. Now, Create a file called Biodata. Now, after clicking the button the data which we typed inside the testarea should be saved inside the file and the constraint is that the Minimum number of words in TextArea should be 30, if this constraint is not followed then after clicking the button the label should be set to “Minimum number of words should be 30”. If constraint is followed properly the label should be set to “ successfully copied data into the file”.

```
import java.awt.*;
import java.awt.event.*;
import java.io.*;

class a4q5 implements ActionListener{
    Frame f;
    TextArea ta;
    Label l1,l2;
    Button b;
    String s;

    a4q5()
    {
        f=new Frame();
        f.addWindowListener(new WindowAdapter(){
            public void windowClosing(WindowEvent e) {
                System.exit(0);
            }
        });
```

```
        ta=new TextArea();
        l1=new Label();
        l2=new Label();
        b=new Button("submit");
        b.addActionListener(this);
        ta.setBackground(Color.yellow);
        l1.setBounds(30,50,60,30);
        l2.setBounds(100,50,250,30);
        ta.setBounds(20,100,300,300);
        b.setBounds(100,400,100,30);
        f.add(l1);
        f.add(l2);
        f.add(ta);
        f.add(b);
        f.setLayout(null);
        f.setSize(400,450);
        f.setVisible(true);
    }
    public void actionPerformed(ActionEvent e){
        String s=ta.getText();
        String words[]=s.split("\\s");
        l1.setText("Words: "+words.length);
        if (words.length<30)
        {
            l2.setText("Output: insufficient length");
            return;
        }
        else
        {
            try (PrintWriter out = new PrintWriter("biodata.txt")) {
                out.println(s);
            }
            catch (Exception ex)
            {
                System.out.println(ex);
            }
            l2.setText("Output: successfully copied data into the file");

        }

    }
    public static void main(String args[])
    {
        new a4q5();
    }
}
```



6.Write a program in Java to design a banner where a number of smiling colorful faces will be displayed and once you click on those faces some writings about those faces will be scrolled around the screen

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

public class a4q6 implements Runnable,ActionListener {
    String str = "Happy to see you ";
    Label msg,tf;
    JButton b1,b2,b3;
    Thread t ;
    a4q6()
```

```
{
    Frame frame = new Frame();
    Font myFont = new Font("Segoe UI", Font.BOLD , 20);
    tf=new Label("Welcome here !! Click an emoji to see the magic");
    tf.setAlignment(Label.CENTER);
    tf.setBounds(30,50,500,500);
    t = new Thread(this);
    b1 = new JButton("", new ImageIcon("C:\\Users\\hp\\Downloads\\smile.png"));
    b2 = new JButton("", new ImageIcon("C:\\Users\\hp\\Downloads\\blush.png"));
    b3 = new JButton("", new ImageIcon("C:\\Users\\hp\\Downloads\\sad.png"));
    msg = new Label("");

    b1.setBounds(30, 100, 150, 150);
    b2.setBounds(180, 100, 150, 150);
    b3.setBounds(330, 100, 150, 150);
    msg.setBounds(0, 360, 500, 20);
    msg.setAlignment(Label.CENTER);
    msg.setFont(myFont);
    b1.addActionListener(this);
    b2.addActionListener(this);
    frame.add(b1);
    frame.add(b2);
    frame.add(b3);
    frame.add(msg);
    frame.add(tf);
    frame.setSize(500, 500);
    frame.setBackground(Color.lightGray);
    frame.setLayout(null);
    frame.setVisible(true);
}

public void run () {
    char ch;
    for( ; ; ) {
        try {

            Thread.sleep(250);
            ch = str.charAt(0);
            str = str.substring(1, str.length());
            str = str + ch;
            msg.setText(str);
        }
        catch(InterruptedException e) {}
    }
}

public void actionPerformed(ActionEvent e) {
    if (e.getSource()==b1)
        str=" Hey there its a laughing emoji ";
```

```
        else if (e.getSource()==b2)
            str=" Hey there its a blushing emoji ";
        else
            str=" Hey there its a sad emoji";
        t.run();
    }

    public static void main(String[] args) {
        new a4q6();
    }
}
```