

A MINI PROJECT REPORT ON "CALCULATOR"

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CONTENTS:

1.Title of mini Project- : "Design simple calculator GUI application using AWT components."

2.Objective:From this experiment the students will be able to

- a.Learn the concept of AWT content.
- b.Understand concepts database connectivity.

3.Outcomes:To develop GUI based application and build GUI interfaces for a computer program to interact with users, and to understand the event based GUI handling principles

4.Software Required : Java

5.Code of the Project :

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

import java.awt.*;

class Calculator extends Frame implements ActionListener

{
    TextField tf;

    int st=1,op=0;

    Label lb;

    int opr;

    double val1,val2;

    public Calculator()

    {

        setLayout(new FlowLayout());

        setFont(new Font("Arial",Font.BOLD,14));

        tf=new TextField(30);

        tf.setEditable(false);

        tf.setFont(new Font("Comic Sans MS", Font.BOLD,20));

        lb=new Label("ON");

        lb.setForeground(Color.red);
```

```
Button btn1=new Button("1");
Button btn2=new Button("2");
Button btn3=new Button("3");
Button btn4=new Button("4");
Button btn5=new Button("5");
Button btn6=new Button("6");
Button btn7=new Button("7");
Button btn8=new Button("8");
Button btn9=new Button("9");
Button btn10=new Button("0");
Button btn11=new Button(".");
Button btn12=new Button("=");
Button btn13=new Button("+");
Button btn14=new Button("-");
Button btn15=new Button("x");
Button btn16=new Button("/");
Button btn17=new Button("SQRT");
Button btn18=new Button("FACT");
Button btn19=new Button("sin");
Button btn20=new Button("cos");
Button btn21=new Button("tan");
Button btn22=new Button("CLR");
Button btn23=new Button("BKSP");
Button btn24=new Button("ON/OFF");
add(tf);
add(btn1);add(btn2);add(btn3);add(btn4);add(btn5);add(btn6);add(btn7);
add(btn8);add(btn9);add(btn10);add(btn11);add(btn12);add(btn13);add(btn14);
add(btn15);add(btn16);add(btn17);add(btn18);add(btn19);add(btn20);add(btn21);
add(btn22);add(btn23);add(btn24);add(lb);

btn1.addActionListener(this);btn2.addActionListener(this);btn3.addActionListener(this);
```

```
btn4.addActionListener(this);btn5.addActionListener(this);btn6.addActionListener(this);
btn7.addActionListener(this);btn8.addActionListener(this);btn9.addActionListener(this);
btn10.addActionListener(this);btn11.addActionListener(this);
btn12.addActionListener(this);
btn13.addActionListener(this);btn14.addActionListener(this);
btn15.addActionListener(this);
btn16.addActionListener(this);btn17.addActionListener(this);
btn18.addActionListener(this);
btn19.addActionListener(this);btn20.addActionListener(this);
btn21.addActionListener(this);
btn22.addActionListener(this);btn23.addActionListener(this);
btn24.addActionListener(this);

}
```

```
public void actionPerformed(ActionEvent ae)
```

```
{
```

```
String s=ae.getActionCommand();
```

```
if(s.equals("ON/OFF"))
```

```
{
```

```
if(op%2==1) // st=1 means ON
```

```
{
```

```
st=1;
```

```
op++;
```

```
tf.setEnabled(true);
```

```
lb.setText("ON");
```

```
}
```

```
else if(op%2==0) // st=2 means OFF
```

```
{
```

```
st=2;
```

```
op++;
tf.setEnabled(false);
tf.setText("");
lb.setText("OFF");
}
}
```

```
if(st==1)
{
if(s.equals("1") || s.equals("2") || s.equals("3") || s.equals("4") || s.equals("5") ||
s.equals("6") || s.equals("7") || s.equals("8") || s.equals("9") || s.equals("0"))
{
Button bt=(Button)ae.getSource();
tf.setText(tf.getText()+""+bt.getLabel());
}
}
```

```
if(s.equals("."))
{
String t;
t=tf.getText();
int ind= t.indexOf('.');
boolean b= ind!=-1? true:false;
if(b)
{
tf.setText(tf.getText()+".");
}
}
```

```
if(s.equals("+"))
{
val1=Double.parseDouble(tf.getText());
```

```
opr=1;
```

```
tf.setText("");
```

```
}
```

```
if(s.equals("-"))
```

```
{
```

```
val1=Double.parseDouble(tf.getText());
```

```
opr=2;
```

```
tf.setText("");
```

```
}
```

```
if(s.equals("x"))
```

```
{
```

```
val1=Double.parseDouble(tf.getText());
```

```
opr=3;
```

```
tf.setText("");
```

```
}
```

```
if(s.equals("/"))
```

```
{
```

```
val1=Double.parseDouble(tf.getText());
```

```
opr=4;
```

```
tf.setText("");
```

```
}
```

```
if(s.equals("="))
```

```
{
```

```
val2=Double.parseDouble(tf.getText());
```

```
String t;
```

```
switch(opr)
```

```
{
```

```
case 1:t=""+(val1+val2);
    if(t.endsWith(".0"))
    {
        t=""+t.substring(0,t.length()-2);
    }
    tf.setText(t);
    break;
case 2:t=""+(val1-val2);
    if(t.endsWith(".0"))
    {
        t=""+t.substring(0,t.length()-2);
    }
    tf.setText(t);
    break;
case 3:t=""+(val1*val2);
    if(t.endsWith(".0"))
    {
        t=""+t.substring(0,t.length()-2);
    }
    tf.setText(t);
    break;
case 4:t=""+(val1/val2);
    if(t.endsWith(".0"))
    {
        t=""+t.substring(0,t.length()-2);
    }
    tf.setText(t);
    break;
}
}
```

```
if(s.equals("CLR"))
```

```
{
```

```
tf.setText("");
```

```
}
```

```
if(s.equals("FACTO"))
```

```
{
```

```
String t;
```

```
t=tf.getText();
```

```
int ind=t.indexOf('.');
```

```
boolean b=ind== -1? false:true;
```

```
if(b)
```

```
{
```

```
tf.setText("Invalid");
```

```
}
```

```
else //find factorial
```

```
{
```

```
int n=Integer.parseInt(tf.getText());
```

```
long f=1;
```

```
int i;
```

```
for(i=1;i<=n;i++)
```

```
{
```

```
    f=f*i;
```

```
}
```

```
tf.setText(""+f);
```

```
}
```

```
}
```

```
if(s.equals("SQRT"))
```

```
{
```

```
val1=Double.parseDouble(tf.getText());  
double res= Math.sqrt(val1);  
tf.setText(""+res);  
}
```

```
if(s.equals("sin"))  
{  
val1=Double.parseDouble(tf.getText());  
double res= Math.sin(val1);  
tf.setText(""+res);  
}
```

```
if(s.equals("cos"))  
{  
val1=Double.parseDouble(tf.getText());  
double res= Math.cos(val1);  
tf.setText(""+res);  
}
```

```
if(s.equals("tan"))  
{  
val1=Double.parseDouble(tf.getText());  
double res= Math.tan(val1);  
tf.setText(""+res);  
}
```

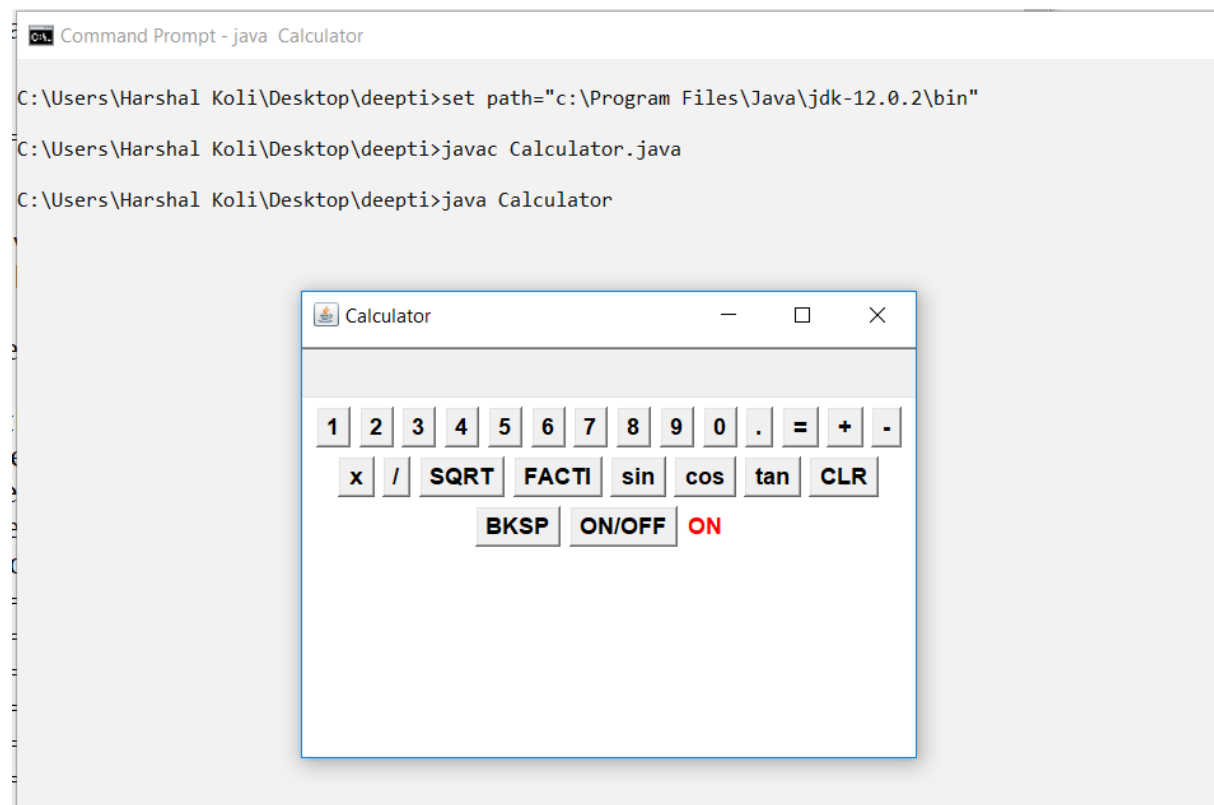
```
if(s.equals("BKSP"))  
{  
String t=tf.getText();  
tf.setText(t.substring(0,t.length()-1));  
}
```



```
}  
}
```

```
public static void main(String ar[])  
{  
    Calculator fr= new Calculator();  
    fr.setSize(400,300);  
    fr.setVisible(true);  
    fr.setTitle("Calculator");  
}  
}
```

7.OUTPUT:-



8.Conclusion :-The Mini project is created using the java AWT content and Database connection by applying current skills and technologies.