Write a Java Program to Demonstrate a Basic Calculator using Applet

Problem Description

We have to write a program in Java such that it creates a calculator which allows basic

operations of addition, subtraction, multiplication and division.

Expected Input and Output

For creating a calculator, we can have the following different sets of input and output.

To Perform Addition :

When the addition expression &quot;58+10&quot; is typed,

it is expected that the result is displayed as &quot;58+10=68.0&quot;.

2. To Perform Subtraction :

When the subtraction expression &quot;100.0-28.25&quot; is typed,

it is expected that the result is displayed as &quot;100.0-28.25=71.75&quot;.

3. To Perform Multiplication :

When an multiplication expression &quot;113.6539&quot; is typed,

it is expected that the result is displayed as &quot;113.6539=4432.35&quot;.

4. To Perform Division : When the denominator is non-zero

When an division expression &quot;25126.0/3&quot; is typed,

it is expected that the result is displayed as &quot;25126.0/3=8375.33&quot;.

5. To Perform Division : When the denominator is zero

When an division expression &quot;169.0/0&quot; is typed,

it is expected that the error is displayed as &quot;169.0/0=Zero Divison Error&quot;.

import java.awt.\*;

import java.applet.\*;

import java.awt.event.\*;

public class Calculator extends Applet implements ActionListener

{

TextField inp;

public void init()

{

setBackground(Color.white);

setLayout(null);

int i;

inp = new TextField();

inp.setBounds(150,100,270,50);

this.add(inp);

Button button[] = new Button[10];

for(i=0;i&lt;10;i++)

{

button[i] = new Button(String.valueOf(9-i));

button[i].setBounds(150+((i%3)\*50),150+((i/3)\*50),50,50);

this.add(button[i]);

button[i].addActionListener(this);

}

Button dec=new Button(&quot;.&quot;);

dec.setBounds(200,300,50,50);

this.add(dec);

dec.addActionListener(this);

Button clr=new Button(&quot;C&quot;);

clr.setBounds(250,300,50,50);

this.add(clr);

clr.addActionListener(this);

Button operator[] = new Button[5];

operator[0]=new Button(&quot;/&quot;);

operator[1]=new Button(&quot;\*&quot;);

operator[2]=new Button(&quot;-&quot;);

operator[3]=new Button(&quot;+&quot;);

operator[4]=new Button(&quot;=&quot;);

for(i=0;i&lt;4;i++)

{

operator[i].setBounds(300,150+(i\*50),50,50);

this.add(operator[i]);

operator[i].addActionListener(this);

}

operator[4].setBounds(350,300,70,50);

this.add(operator[4]);

operator[4].addActionListener(this);

}

String num1=&quot;&quot;;

String op=&quot;&quot;;

String num2=&quot;&quot;;

//Function to calculate the expression

public void actionPerformed(ActionEvent e)

{

String button = e.getActionCommand();

char ch = button.charAt(0);

if(ch&gt;=&#39;0&#39; &amp;&amp; ch&lt;=&#39;9&#39;|| ch==&#39;.&#39;)

{

if (!op.equals(&quot;&quot;))

num2 = num2 + button;

else

num1 = num1 + button;

inp.setText(num1+op+num2);

}

else if(ch==&#39;C&#39;)

{

num1 = op = num2 = &quot;&quot;;

inp.setText(&quot;&quot;);

}

else if (ch ==&#39;=&#39;)

{

if(!num1.equals(&quot;&quot;) &amp;&amp; !num2.equals(&quot;&quot;))

{

double temp;

double n1=Double.parseDouble(num1);

double n2=Double.parseDouble(num2);

if(n2==0 &amp;&amp; op.equals(&quot;/&quot;))

{

inp.setText(num1+op+num2+&quot; = Zero Division Error&quot;);

num1 = op = num2 = &quot;&quot;;

}

else

{

if (op.equals(&quot;+&quot;))

temp = n1 + n2;

else if (op.equals(&quot;-&quot;))

temp = n1 - n2;

else if (op.equals(&quot;/&quot;))

temp = n1/n2;

else

temp = n1\*n2;

inp.setText(num1+op+num2+&quot; = &quot;+temp);

num1 = Double.toString(temp);

op = num2 = &quot;&quot;;

}

}

else

{

num1 = op = num2 = &quot;&quot;;

inp.setText(&quot;&quot;);

}

}

else

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if (op.equals(&quot;&quot;) || num2.equals(&quot;&quot;))

op = button;

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Output:

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inp.setText(num1+op+num2);

}

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Output:









