PROJECT – 3

NAME OF THE PROJECT : SIMPLE CALCULATOR

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PROJECT SUMMARY:

we can develop calculator in java with the help of AWT/Swing with event handling. Calculator will perform the operations like Addition, Subtraction, division, Multiplication.

1. We import the Scanner class to take user input from the console.
2. We prompt the user to enter two numbers and the operation they want to perform.
3. We use a switch statement to determine which arithmetic operation to perform based on the operator input.
4. If the user attempts to divide by zero, we display an error message.
5. Finally, we display the result of the calculation.

INPUT:

```
package project2.

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

public class CALCULATOR implements ActionListener{

   JFrame frame;
   JTextField textfield;
   JButton numberButton[]=new JButton[10];
   JButton fuctionButton[]=new JButton[8];
   JButton addButton,subButton,mulButton,divButton;
   JButton decButton,eqButton,delButton,clrButton;
   JPanel panel;

   Font myFont=new Font("Ink Free",Font.BOLD,30);
   double num1=0,num2=0,result=0;
   char operator;

   CALCULATOR() {

      frame=new JFrame("Calculator");
      frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
```

```
frame.setSize(420,550);
frame.setLayout(null);
textfield=new JTextField();
textfield.setBounds(50,25,300,50);
textfield.setFont(myFont);
textfield.setEditable(false);
addButton=new JButton("+");
subButton=new JButton("-");
mulButton=new JButton("*");
divButton=new JButton("/");
decButton=new JButton(".");
eqButton=new JButton("=");
delButton=new JButton("Del");
clrButton=new JButton("Clear");
fuctionButton[0]=addButton;
fuctionButton[1]=subButton;
fuctionButton[2]=mulButton;
fuctionButton[3]=divButton;
fuctionButton[4]=decButton;
fuctionButton[5]=eqButton;
fuctionButton[6]=delButton;
fuctionButton[7]=clrButton;

for(int i=0;i<8;i++) {
   fuctionButton[i].addActionListener(this);
   fuctionButton[i].setFont(myFont);
   //fuctionButton[i].setFocusable(false);)
}
for(int i=0;i<10;i++) {
   numberButton[i]=new JButton(String.valueOf(i));
   numberButton[i].addActionListener(this);
   numberButton[i].setFont(myFont);
   numberButton[i].setFocusable(false);
}
delButton.setBounds(50,430,145,50);
clrButton.setBounds(205,430,145,50);

//Panel for buttons
panel=new JPanel();
panel.setBounds(50,100,300,300);
panel.setLayout(new GridLayout(4,4,10,10));
panel.add(numberButton[1]);
panel.add(numberButton[2]);
panel.add(numberButton[3]);
panel.add(addButton);
panel.add(numberButton[4]);
panel.add(numberButton[5]);
panel.add(numberButton[6]);
panel.add(subButton);
panel.add(numberButton[7]);
panel.add(numberButton[8]);
panel.add(numberButton[9]);
panel.add(mulButton);
panel.add(numberButton[0]);
panel.add(decButton);
panel.add(divButton);
panel.add(eqButton);
```

```
//All buttons add in Frame
      frame.add(delButton);
      frame.add(clrButton);
      frame.add(textfield);
      frame.add(panel);
      frame.setVisible(true);
   }
   public void actionPerformed(ActionEvent e) {
      for(int i=0;i<10;i++) {
         if(e.getSource()==numberButton[i]) {
            textfield.setText(textfield.getText().concat(String.valueOf(i)));
         }
      }
      if(e.getSource()==decButton) {
         textfield.setText(textfield.getText().concat("."));
      }
      if(e.getSource()==addButton) {
         num1=Double.parseDouble(textfield.getText());
         operator='+';
         textfield.setText("");
      }
      if(e.getSource()==mulButton) {
         num1=Double.parseDouble(textfield.getText());
         operator='*';
         textfield.setText("");
      }
      if(e.getSource()==subButton) {
         num1=Double.parseDouble(textfield.getText());
         operator='-';
         textfield.setText("");
      }
      if(e.getSource()==divButton) {
         num1=Double.parseDouble(textfield.getText());
         operator='/';
         textfield.setText("");
      }
      if(e.getSource()==eqButton) {
         num2=Double.parseDouble(textfield.getText());
         switch(operator) {
            case '+':
               result=num1+num2;
               break;
            case '-':
               result=num1-num2;
               break;
            case '*':
               result=num1*num2;
               break;
            case '/':
               result=num1/num2;
               break;
```

```
        }
        textfield.setText(String.valueOf(result));
        num1=result;
      }
      if(e.getSource()==clrButton) {
        textfield.setText("");
      }
      if(e.getSource()==delButton) {
        textfield.setText("");
      }
    }
    public static void main(String[] args) {
      // TODO Auto-generated method stub
      new CALCULATOR();
    }
}
```

OUTPUT: