**PROJECT – 3**

**PROJECT NAME :**  **SIMPLE CALCULATOR**

**NAME OF THE STUDENT : YARRAGUNTLA KEERTHANA REDDY**

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**PROJECT SUMMARY :**

Calculator in Java is used to calculate addition, subtraction, multiplication, division, modulus, power of numbers, etc.. Calculator in java can be developed with the help of AWT/swing with event handling. A simple calculator functions by placing the input, number, into a calculator and then selecting an operation in which it must compute, resulting in the output.

Here By Using Switch Case

1.User enters the character for which operation wants to perform like “+”, “-”, “\*”, “/”, “%”, “^” etc..Within the switch case, we have implemented logic for each character.

2.Based on character operation performed like addition, subtraction, multiplication, division, modulus (finds remainder) and power of the number.

These statements compute the product of two numbers and print the output. Finally, the break statement ends the switch statement.Similarly, for different operators, different cases are executed.

They can promote the higher-order thinking and reasoning needed for problem solving and their strategic use can boost understanding and fluency with arithmetic operations. They allow for mathematical exploration and experimentation and can enhance understanding of concepts and mathematical capability.

**INPUT :**

**package sourcecode;**

**import javax.swing.\*;**

**import java.awt.\*;**

**import java.awt.event.\*;**

**public class CALCI implements ActionListener{**

**JFrame frame;**

**JTextField textfield;**

**JButton[] numberButtons = new JButton[10];**

**JButton[] functionButtons = new JButton[9];**

**JButton addButton,subButton,mulButton,divButton;**

**JButton decButton, equButton, delButton, clrButton, negButton;**

**JPanel panel;**

**Font myFont = new Font("Calbiri",Font.BOLD,50);**

**double num1=0,num2=0,result=0;**

**char operator;**

**CALCI(){**

**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(".");**

**equButton = new JButton("=");**

**delButton = new JButton("Del");**

**clrButton = new JButton("Clr");**

**negButton = new JButton("(-)");**

**functionButtons[0] = addButton;**

**functionButtons[1] = subButton;**

**functionButtons[2] = mulButton;**

**functionButtons[3] = divButton;**

**functionButtons[4] = decButton;**

**functionButtons[5] = equButton;**

**functionButtons[6] = delButton;**

**functionButtons[7] = clrButton;**

**functionButtons[8] = negButton;**

**for(int i =0;i<9;i++) {**

**functionButtons[i].addActionListener(this);**

**functionButtons[i].setFont(myFont);**

**functionButtons[i].setFocusable(false);**

**}**

**for(int i =0;i<10;i++) {**

**numberButtons[i] = new JButton(String.valueOf(i));**

**numberButtons[i].addActionListener(this);**

**numberButtons[i].setFont(myFont);**

**numberButtons[i].setFocusable(false);**

**}**

**negButton.setBounds(50,430,100,50);**

**delButton.setBounds(150,430,100,50);**

**clrButton.setBounds(250,430,100,50);**

**panel = new JPanel();**

**panel.setBounds(50, 100, 300, 300);**

**panel.setLayout(new GridLayout(4,4,10,10));**

**panel.add(numberButtons[1]);**

**panel.add(numberButtons[2]);**

**panel.add(numberButtons[3]);**

**panel.add(addButton);**

**panel.add(numberButtons[4]);**

**panel.add(numberButtons[5]);**

**panel.add(numberButtons[6]);**

**panel.add(subButton);**

**panel.add(numberButtons[7]);**

**panel.add(numberButtons[8]);**

**panel.add(numberButtons[9]);**

**panel.add(mulButton);**

**panel.add(decButton);**

**panel.add(numberButtons[0]);**

**panel.add(equButton);**

**panel.add(divButton);**

**frame.add(panel);**

**frame.add(negButton);**

**frame.add(delButton);**

**frame.add(clrButton);**

**frame.add(textfield);**

**frame.setVisible(true);**

**}**

**public static void main(String[] args) {**

**CALCI calc = new CALCI();**

**}**

**@Override**

**public void actionPerformed(ActionEvent e) {**

**for(int i=0;i<10;i++) {**

**if(e.getSource() == numberButtons[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()==subButton) {**

**num1 = Double.parseDouble(textfield.getText());**

**operator ='-';**

**textfield.setText("");**

**}**

**if(e.getSource()==mulButton) {**

**num1 = Double.parseDouble(textfield.getText());**

**operator ='\*';**

**textfield.setText("");**

**}**

**if(e.getSource()==divButton) {**

**num1 = Double.parseDouble(textfield.getText());**

**operator ='/';**

**textfield.setText("");**

**}**

**if(e.getSource()==equButton) {**

**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) {**

**String string = textfield.getText();**

**textfield.setText("");**

**for(int i=0;i<string.length()-1;i++) {**

**textfield.setText(textfield.getText()+string.charAt(i));**

**}**

**}**

**if(e.getSource()==negButton) {**

**double temp = Double.parseDouble(textfield.getText());**

**temp\*=-1;**

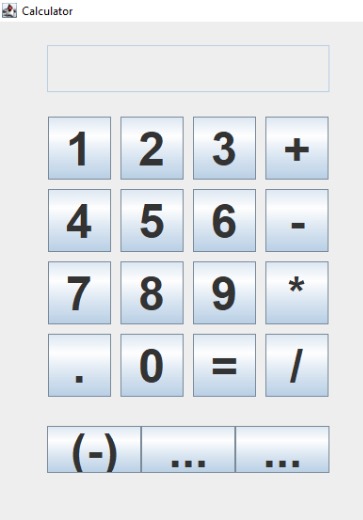
**textfield.setText(String.valueOf(temp));**

**}**

**}**

**}**

**OUTPUT :**

**** PROJECT BY : Y.KEERTHANA REDDY

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