Experiment 3

Q)Design a simple calculator with ail basic arithmetic functionalities.

import javax.swing.\*;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

public class SimpleCalculator extends JFrame implements ActionListener {

private JTextField display;

private JButton[] numberButtons;

private JButton addButton, subtractButton, multiplyButton, divideButton, equalsButton, clearButton;

private double num1, num2, result;

private char operator;

public SimpleCalculator() {

setTitle("Simple Calculator");

setSize(300, 400);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

setLayout(new BorderLayout());

display = new JTextField();

display.setEditable(false);

add(display, BorderLayout.NORTH);

JPanel panel = new JPanel();

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

numberButtons = new JButton[10];

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

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

numberButtons[i].addActionListener(this);

panel.add(numberButtons[i]);

}

addButton = new JButton("+");

subtractButton = new JButton("-");

multiplyButton = new JButton("\*");

divideButton = new JButton("/");

equalsButton = new JButton("=");

clearButton = new JButton("C");

addButton.addActionListener(this);

subtractButton.addActionListener(this);

multiplyButton.addActionListener(this);

divideButton.addActionListener(this);

equalsButton.addActionListener(this);

clearButton.addActionListener(this);

panel.add(addButton);

panel.add(subtractButton);

panel.add(multiplyButton);

panel.add(divideButton);

panel.add(equalsButton);

panel.add(clearButton);

add(panel, BorderLayout.CENTER);

}

@Override

public void actionPerformed(ActionEvent e) {

String command = e.getActionCommand();

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

if (command.equals(String.valueOf(i))) {

display.setText(display.getText() + command);

return;

}

}

switch (command) {

case "+":

num1 = Double.parseDouble(display.getText());

operator = '+';

display.setText("");

break;

case "-":

num1 = Double.parseDouble(display.getText());

operator = '-';

display.setText("");

break;

case "\*":

num1 = Double.parseDouble(display.getText());

operator = '\*';

display.setText("");

break;

case "/":

num1 = Double.parseDouble(display.getText());

operator = '/';

display.setText("");

break;

case "=":

num2 = Double.parseDouble(display.getText());

switch (operator) {

case '+':

result = num1 + num2;

break;

case '-':

result = num1 - num2;

break;

case '\*':

result = num1 \* num2;

break;

case '/':

if (num2 != 0) {

result = num1 / num2;

} else {

display.setText("Error");

return;

}

break;

}

display.setText(String.valueOf(result));

break;

case "C":

display.setText("");

num1 = num2 = result = 0;

operator = '\0';

break;

}

}

public static void main(String[] args) {

SimpleCalculator calculator = new SimpleCalculator();

calculator.setVisible(true);

}

}

