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| **Ex-10** | **Calculator** |
| **Date** |

**AIM:**

To develop java console to create a calculator.

**Requirements:**

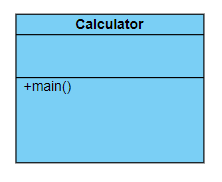
Develop a java application to create a package calc and to create a class

calculator with the required buttons and actions using the GUI in java.

**ALGORITHUM:**

* Create a package name calc.
* Create a class name calculator.
* Get the interface frames when creating the class to get access to the GUI in java.
* Create a frame for the layout for the calculator Eg:(350\*450).
* Get the implements actionlistener and windowslistener.
* Customize the the required buttons and functions as required.
* Get the date from the user and calculate the date as required for the user define and display the data in the calculator.

**CLASS DIAGRAM:**



**PROGRAM:**

…………………………………………Calculator……………………………….

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\*

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package calc;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.awt.event.WindowEvent;

import java.awt.event.WindowListener;

import javax.swing.\*;

public class MyCalculator extends Frame implements WindowListener ,ActionListener{

TextField display;

Button b\_0,b\_1,b\_2,b\_3,b\_4,b\_5,b\_6,b\_7,b\_8,b\_9,b\_00;

Button b\_add,b\_sub,b\_equals,b\_div,b\_mod,b\_clr,b\_multi,b\_back,b\_point;

Button b\_sin,b\_cos,b\_tan;

Panel p;

String nums;

Double op1,op2;

int operator;

static final int OP\_ADD=1;

static final int OP\_SUB=2;

static final int OP\_DIV=3;

static final int OP\_MOD=5;

static final int OP\_MULTI=4;

static final int OP\_sin=5;

static final int OP\_cos=6;

static final int OP\_tan=7;

public MyCalculator()

{

this.addWindowListener(this);

this.setLayout(new GridLayout(2,2));

nums=" ";

display=new TextField();

this.add(display);

p=new Panel();

p.setLayout(new GridLayout(5, 2));

this.add(p);

b\_0=new Button("0");

b\_0.addActionListener(this);

p.add(b\_0);

b\_1=new Button("1");

b\_1.addActionListener(this);

p.add(b\_1);

b\_2=new Button("2");

b\_2.addActionListener(this);

p.add(b\_2);

b\_3=new Button("3");

b\_3.addActionListener(this);

p.add(b\_3);

b\_4=new Button("4");

b\_4.addActionListener(this);

p.add(b\_4);

b\_5=new Button("5");

b\_5.addActionListener(this);

p.add(b\_5);

b\_6=new Button("6");

b\_6.addActionListener(this);

p.add(b\_6);

b\_7=new Button("7");

b\_7.addActionListener(this);

p.add(b\_7);

b\_8=new Button("8");

b\_8.addActionListener(this);

p.add(b\_8);

b\_9=new Button("9");

b\_9.addActionListener(this);

p.add(b\_9);

b\_00=new Button("00");

b\_00.addActionListener(this);

p.add(b\_00);

b\_back=new Button("Delete");

b\_back.addActionListener(this);

p.add(b\_back);

b\_add=new Button("+");

b\_add.addActionListener(this);

p.add(b\_add);

b\_sub=new Button("-");

b\_sub.addActionListener(this);

p.add(b\_sub);

b\_multi=new Button("\*");

b\_multi.addActionListener(this);

p.add(b\_multi);

b\_div=new Button("/");

b\_div.addActionListener(this);

p.add(b\_div);

b\_mod=new Button("%");

b\_mod.addActionListener(this);

p.add(b\_mod);

b\_point=new Button(".");

b\_point.addActionListener(this);

p.add(b\_point);

b\_clr=new Button("C");

b\_clr.addActionListener(this);

p.add(b\_clr);

b\_equals=new Button("=");

b\_equals.addActionListener(this);

p.add(b\_equals);

b\_sin=new Button("sin");

b\_sin.addActionListener(this);

p.add(b\_sin);

b\_cos=new Button("cos");

b\_cos.addActionListener(this);

p.add(b\_cos);

b\_tan=new Button("tan");

b\_tan.addActionListener(this);

p.add(b\_tan);

}

public static void main(String[] args)

{

MyCalculator mc;

mc=new MyCalculator();

mc.setSize(500,500);

mc.setTitle("Calculator");

mc.setVisible(true);

}

@Override

public void windowOpened(WindowEvent e) {

// TODO Auto-generated method stub

}

@Override

public void windowClosing(WindowEvent e) {

// TODO Auto-generated method stub

System.exit(0);

}

@Override

public void windowClosed(WindowEvent e) {

// TODO Auto-generated method stub

}

@Override

public void windowIconified(WindowEvent e) {

// TODO Auto-generated method stub

}

@Override

public void windowDeiconified(WindowEvent e) {

// TODO Auto-generated method stub

}

@Override

public void windowActivated(WindowEvent e) {

// TODO Auto-generated method stub

}

@Override

public void windowDeactivated(WindowEvent e) {

// TODO Auto-generated method stub

}

@Override

public void actionPerformed(ActionEvent e)

{

if(e.getSource()==b\_0){

nums=nums+0;

display.setText(nums);

}

else if(e.getSource()==b\_1) {

nums=nums+1;

display.setText(nums);

}

else if(e.getSource()==b\_2) {

nums=nums+2;

display.setText(nums);

}

else if(e.getSource()==b\_3) {

nums=nums+3;

display.setText(nums);

}

else if(e.getSource()==b\_4) {

nums=nums+4;

display.setText(nums);

}

else if(e.getSource()==b\_5) {

nums=nums+5;

display.setText(nums);

}

else if(e.getSource()==b\_6) {

nums=nums+6;

display.setText(nums);

}

else if(e.getSource()==b\_7) {

nums=nums+7;

display.setText(nums);

}

else if(e.getSource()==b\_8) {

nums=nums+8;

display.setText(nums);

}

else if(e.getSource()==b\_9) {

nums=nums+9;

display.setText(nums);

}

else if(e.getSource()==b\_00) {

nums=nums+0+0;

display.setText(nums);

}

else if(e.getSource()==b\_back) {

nums=nums.substring(0,nums.length()-1);

display.setText(nums);

}

else if(e.getSource()==b\_add) {

op1=Double.parseDouble(nums);

nums=" ";

display.setText(nums);

operator=OP\_ADD;

}

else if(e.getSource()==b\_sub) {

op1=Double.parseDouble(nums);

nums=" ";

display.setText(nums);

operator=OP\_SUB;

}

else if(e.getSource()==b\_multi) {

op1=Double.parseDouble(nums);

nums=" ";

display.setText(nums);

operator=OP\_MULTI;

}

else if(e.getSource()==b\_mod) {

op1=Double.parseDouble(nums);

nums=" ";

display.setText(nums);

operator=OP\_MOD;

}

else if(e.getSource()==b\_equals) {

switch(operator) {

case OP\_ADD:

op2=Double.parseDouble(nums);

nums=""+(op1+op2);

display.setText(nums);

break;

case OP\_SUB:

op2=Double.parseDouble(nums);

nums=""+(op1-op2);

display.setText(nums);

break;

case OP\_MULTI:

op2=Double.parseDouble(nums);

nums=""+(op1\*op2);

display.setText(nums);

break;

case OP\_DIV:

op2=Double.parseDouble(nums);

nums=""+(op1/op2);

display.setText(nums);

break;

case OP\_MOD:

op2=Double.parseDouble(nums);

nums=""+(op1%100);

display.setText(nums);

break;

}}

else if(e.getSource()==b\_sin)

{

op1=Double.parseDouble(nums);

nums=""+Math.sin(op1\*180/Math.PI);

display.setText(nums);

}

else if(e.getSource()==b\_cos)

{

op1=Double.parseDouble(nums);

nums=""+Math.cos(op1\*180/Math.PI);

display.setText(nums);

}

else if(e.getSource()==b\_tan)

{

op1=Double.parseDouble(nums);

nums=""+Math.tan(op1\*180/Math.PI);

display.setText(nums);

}

else if(e.getSource()==b\_clr)

{

nums="";

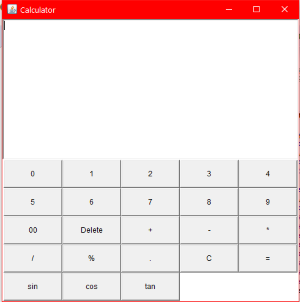
display.setText(nums);

}

}

}

**OUTPUT:**



**RESULT:**

Thus the java program for creating calculator is executed and output is verified successfully.