Ex-10	Calculator
Date	

AIM:

To develop java console to create a calculator.

Requirements:

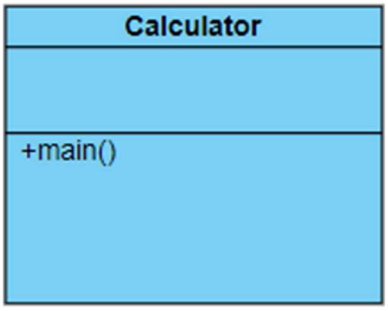
Develop a java application to create a package calc and to create a class

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…….

```
/*created by kaarthikeyan
 * email:gk81299@gmail.com
 *
 */
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.