OBJECT ORIENTED PROGRAMING LAB

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Aim

Implement a simple calculator using AWT components.

Source Code

```
import java.awt.*;
import java.awt.event.*;
class MyCalc extends WindowAdapter implements ActionListener{
        Frame f;
        Label l1;
        Button b1,b2,b3,b4,b5,b6,b7,b8,b9,b0;
        Button badd,bsub,bmult,bdiv,bmod,bcalc,bclr,bpts,bneg,bback;
        double xd;
        double num1,num2,check;
        MyCalc(){
        f= new Frame("MY CALCULATOR");
        l1=new Label();
        l1.setBackground(Color.LIGHT_GRAY);
        l1.setBounds(50,50,260,60);
        b1=new Button("1");
        b1.setBounds(50,340,50,50);
        b2=new Button("2");
        b2.setBounds(120,340,50,50);
```

```
b3=new Button("3");
b3.setBounds(190,340,50,50);
b4=new Button("4");
b4.setBounds(50,270,50,50);
b5=new Button("5");
b5.setBounds(120,270,50,50);
b6=new Button("6");
b6.setBounds(190,270,50,50);
b7=new Button("7");
b7.setBounds(50,200,50,50);
b8=new Button("8");
b8.setBounds(120,200,50,50);
b9=new Button("9");
b9.setBounds(190,200,50,50);
b0=new Button("0");
b0.setBounds(120,410,50,50);
bneg=new Button("+/-");
bneg.setBounds(50,410,50,50);
bpts=new Button(".");
bpts.setBounds(190,410,50,50);
bback=new Button("back");
bback.setBounds(120,130,50,50);
badd=new Button("+");
badd.setBounds(260,340,50,50);
bsub=new Button("-");
bsub.setBounds(260,270,50,50);
bmult=new Button("*");
bmult.setBounds(260,200,50,50);
bdiv=new Button("/");
```

```
bdiv.setBounds(260,130,50,50);
bmod=new Button("%");
bmod.setBounds(190,130,50,50);
bcalc=new Button("=");
bcalc.setBounds(245,410,65,50);
bclr=new Button("CE");
bclr.setBounds(50,130,65,50);
b1.addActionListener(this);
b2.addActionListener(this);
b3.addActionListener(this);
b4.addActionListener(this);
b5.addActionListener(this);
b6.addActionListener(this);
b7.addActionListener(this);
b8.addActionListener(this);
b9.addActionListener(this);
b0.addActionListener(this);
bpts.addActionListener(this);
bneg.addActionListener(this);
bback.addActionListener(this);
badd.addActionListener(this);
bsub.addActionListener(this);
bmult.addActionListener(this);
bdiv.addActionListener(this);
bmod.addActionListener(this);
bcalc.addActionListener(this);
bclr.addActionListener(this);
f.addWindowListener(this);
f.add(l1);
```

```
        f.add(b1); f.add(b2); f.add(b3); f.add(b4); f.add(b5);f.add(b6); f.add(b7);
f.add(b8);f.add(b9);f.add(b0);

        f.add(badd); f.add(bsub); f.add(bmod); f.add(bmult); f.add(bdiv);
f.add(bmod);f.add(bcalc);

        f.add(bclr); f.add(bpts);f.add(bneg); f.add(bback);

        f.setSize(360,500);

        f.setLayout(null);

        f.setVisible(true);

}

public void windowClosing(WindowEvent e){

        f.dispose();

}

public void actionPerformed(ActionEvent e){

        String z,zt;

        if(e.getSource()==b1){

                zt=l1.getText();

                z=zt+"1";

                l1.setText(z);

        }

        if(e.getSource()==b2){

                zt=l1.getText();

                z=zt+"2";

                l1.setText(z);

        }

        if(e.getSource()==b3){

                zt=l1.getText();

                z=zt+"3";

                l1.setText(z);

        }

        if(e.getSource()==b4){
```

```
            zt=l1.getText();
            z=zt+"4";
            l1.setText(z);
        }
        if(e.getSource()==b5){
            zt=l1.getText();
            z=zt+"5";
            l1.setText(z);
        }
        if(e.getSource()==b6){
            zt=l1.getText();
            z=zt+"6";
            l1.setText(z);
        }
        if(e.getSource()==b7){
            zt=l1.getText();
            z=zt+"7";
            l1.setText(z);
        }
        if(e.getSource()==b8){
            zt=l1.getText();
            z=zt+"8";
            l1.setText(z);
        }
        if(e.getSource()==b9){
            zt=l1.getText();
            z=zt+"9";
            l1.setText(z);
        }
```

```
if(e.getSource()==b0){
        zt=l1.getText();
        z=zt+"0";
        l1.setText(z);
}
if(e.getSource()==bpts){
        zt=l1.getText();
        z=zt+".";
        l1.setText(z);
}
if(e.getSource()==bneg){
        zt=l1.getText();
        z="-"+zt;
        l1.setText(z);
}
if(e.getSource()==bback){
        zt=l1.getText();
        try{
                z=zt.substring(0, zt.length()-1);
        }
        catch(StringIndexOutOfBoundsException f){
                return;
        }
        l1.setText(z);
}
if(e.getSource()==badd){
        try{
                num1=Double.parseDouble(l1.getText());
        }
```

```
            catch(NumberFormatException f){
                l1.setText("Invalid Format");
                return;
            }
            z="";
            l1.setText(z);
            check=1;
        }
        if(e.getSource()==bsub){                //FOR SUBTRACTION
            try{
                num1=Double.parseDouble(l1.getText());
            }
            catch(NumberFormatException f){
                l1.setText("Invalid Format");
                return;
            }
            z="";
            l1.setText(z);
            check=2;
        }
        if(e.getSource()==bmult){               //FOR MULTIPLICATION
            try{
                num1=Double.parseDouble(l1.getText());
            }
            catch(NumberFormatException f){
                l1.setText("Invalid Format");
                return;
            }
            z="";
```

```
            l1.setText(z);
            check=3;
        }
        if(e.getSource()==bdiv){                //FOR DIVISION
            try{
                num1=Double.parseDouble(l1.getText());
            }
            catch(NumberFormatException f){
                l1.setText("Invalid Format");
                return;
            }
            z="";
            l1.setText(z);
            check=4;
        }
        if(e.getSource()==bmod){                //FOR MOD/REMAINDER
            try{
                num1=Double.parseDouble(l1.getText());
            }
            catch(NumberFormatException f){
                l1.setText("Invalid Format");
                return;
            }
            z="";
            l1.setText(z);
            check=5;
        }
        if(e.getSource()==bcalc){
            try{
```

```
                num2=Double.parseDouble(l1.getText());
            }
            catch(Exception f){
                l1.setText("ENTER NUMBER FIRST ");
                return;
            }
            if(check==1)
            xd =num1+num2;
            if(check==2)
            xd =num1-num2;
            if(check==3)
            xd =num1*num2;
            if(check==4)
            xd =num1/num2;
            if(check==5)
            xd =num1%num2;
            l1.setText(String.valueOf(xd));
        }
        if(e.getSource()==bclr){
            num1=0;
            num2=0;
            check=0;
            xd=0;
            z="";
            l1.setText(z);
        }
}
public static void main(String args[]){
        new MyCalc();
```

```
}
}
```

Output Screenshot