import java.awt.\*;  
import java.awt.event.\*;  
public class SimpleCalulator extends Frame{  
public boolean setClear=true;  
double number, memValue;  
char op;  
String digitButtonText[] = {"7", "8", "9", "4", "5", "6", "1", "2", "3", "0", "." };  
String operatorButtonText[] = {"/", "sqrt", "\*", "%", "-", "+", "=" };  
String specialButtonText[] = {"Backspc", "C", "CE" };  
MyDigitButton digitButton[]=new MyDigitButton[digitButtonText.length];  
MyOperatorButton operatorButton[]=new MyOperatorButton[operatorButtonText.length];

MySpecialButton specialButton[]=new MySpecialButton[specialButtonText.length];

Label displayLabel=new Label("0",Label.RIGHT);  
Label memLabel=new Label(" ",Label.RIGHT);

final int FRAME\_WIDTH=325,FRAME\_HEIGHT=325;  
final int HEIGHT=30, WIDTH=30, H\_SPACE=10,V\_SPACE=10;  
final int TOPX=30, TOPY=50;  
///////////////////////////  
SimpleCalulator(String frameText)//constructor  
{  
super(frameText);

int tempX=TOPX, y=TOPY;  
displayLabel.setBounds(tempX,y,240,HEIGHT);  
displayLabel.setBackground(Color.BLUE);  
displayLabel.setForeground(Color.WHITE);  
add(displayLabel);

memLabel.setBounds(TOPX,  TOPY+HEIGHT+ V\_SPACE,WIDTH, HEIGHT);  
add(memLabel);

//set Co-ordinates for Special Buttons  
tempX=TOPX+1\*(WIDTH+H\_SPACE); y=TOPY+1\*(HEIGHT+V\_SPACE);  
for(int i=0;i<specialButton.length;i++)  
{  
specialButton[i]=new MySpecialButton(tempX,y,WIDTH\*2,HEIGHT,specialButtonText[i], this);  
specialButton[i].setForeground(Color.RED);  
tempX=tempX+2\*WIDTH+H\_SPACE;  
}

//set Co-ordinates for Digit Buttons  
int digitX=TOPX+WIDTH+H\_SPACE;  
int digitY=TOPY+2\*(HEIGHT+V\_SPACE);  
tempX=digitX;  y=digitY;  
for(int i=0;i<digitButton.length;i++)  
{  
digitButton[i]=new MyDigitButton(tempX,y,WIDTH,HEIGHT,digitButtonText[i], this);  
digitButton[i].setForeground(Color.BLUE);  
tempX+=WIDTH+H\_SPACE;  
if((i+1)%3==0){tempX=digitX; y+=HEIGHT+V\_SPACE;}  
}

//set Co-ordinates for Operator Buttons  
int opsX=digitX+2\*(WIDTH+H\_SPACE)+H\_SPACE;  
int opsY=digitY;  
tempX=opsX;  y=opsY;  
for(int i=0;i<operatorButton.length;i++)  
{  
tempX+=WIDTH+H\_SPACE;  
operatorButton[i]=new MyOperatorButton(tempX,y,WIDTH,HEIGHT,operatorButtonText[i], this);  
operatorButton[i].setForeground(Color.RED);  
if((i+1)%2==0){tempX=opsX; y+=HEIGHT+V\_SPACE;}  
}

addWindowListener(new WindowAdapter()  
{  
public void windowClosing(WindowEvent ev)  
{System.exit(0);}  
});

setLayout(null);  
setSize(FRAME\_WIDTH,FRAME\_HEIGHT);  
setVisible(true);  
}  
//////////////////////////////////  
static String getFormattedText(double temp)  
{  
String resText=""+temp;  
if(resText.lastIndexOf(".0")>0)  
    resText=resText.substring(0,resText.length()-2);  
return resText;  
}  
////////////////////////////////////////  
public static void main(String []args)  
{  
new SimpleCalulator("Calculator - JavaTpoint");  
}  
}

/\*\*\*\*\*\*\*\*\*\*NEW CLASS\*\*\*\*\*\*\*\*\*/

class MyDigitButton extends Button implements ActionListener  
{  
SimpleCalulator cl;

//////////////////////////////////////////  
MyDigitButton(int x,int y, int width,int height,String cap, SimpleCalulator clc)  
{  
super(cap);  
setBounds(x,y,width,height);  
this.cl=clc;  
this.cl.add(this);  
addActionListener(this);  
}  
////////////////////////////////////////////////  
static boolean isInString(String s, char ch)  
{  
for(int i=0; i<s.length();i++) if(s.charAt(i)==ch) return true;  
return false;  
}  
/////////////////////////////////////////////////  
public void actionPerformed(ActionEvent ev)  
{  
String tempText=((MyDigitButton)ev.getSource()).getLabel();

if(tempText.equals("."))  
{  
 if(cl.setClear)   
    {cl.displayLabel.setText("0.");cl.setClear=false;}  
 else if(!isInString(cl.displayLabel.getText(),'.'))  
    cl.displayLabel.setText(cl.displayLabel.getText()+".");  
 return;  
}

int index=0;  
try{  
        index=Integer.parseInt(tempText);  
    }catch(NumberFormatException e){return;}

if (index==0 && cl.displayLabel.getText().equals("0")) return;

if(cl.setClear)  
            {cl.displayLabel.setText(""+index);cl.setClear=false;}  
else  
    cl.displayLabel.setText(cl.displayLabel.getText()+index);  
}//actionPerformed  
}//class defination

/\*\*\*\*\*\*\*\*\*\*\*\*\*NEW CLASS\*\*\*\*\*\*\*\*\*\*\*/

class MyOperatorButton extends Button implements ActionListener  
{  
SimpleCalulator cl;

MyOperatorButton(int x,int y, int width,int height,String cap, SimpleCalulator clc)  
{  
super(cap);  
setBounds(x,y,width,height);  
this.cl=clc;  
this.cl.add(this);  
addActionListener(this);  
}  
///////////////////////  
public void actionPerformed(ActionEvent ev)  
{  
String opText=((MyOperatorButton)ev.getSource()).getLabel();

cl.setClear=true;  
double temp=Double.parseDouble(cl.displayLabel.getText());

if(opText.equals("1/x"))  
    {  
    try  
        {double tempd=1/(double)temp;  
        cl.displayLabel.setText(SimpleCalulator.getFormattedText(tempd));}  
     catch(ArithmeticException excp)  
                        {cl.displayLabel.setText("Divide by 0.");}  
    return;  
    }  
if(opText.equals("sqrt"))  
    {  
    try  
        {double tempd=Math.sqrt(temp);  
        cl.displayLabel.setText(SimpleCalulator.getFormattedText(tempd));}  
            catch(ArithmeticException excp)  
                    {cl.displayLabel.setText("Divide by 0.");}  
    return;  
    }  
if(!opText.equals("="))  
    {  
    cl.number=temp;  
    cl.op=opText.charAt(0);  
    return;  
    }  
// process = button pressed  
switch(cl.op)  
{  
case '+':  
    temp+=cl.number;break;  
case '-':  
    temp=cl.number-temp;break;  
case '\*':  
    temp\*=cl.number;break;  
case '%':  
    try{temp=cl.number%temp;}  
    catch(ArithmeticException excp)  
        {cl.displayLabel.setText("Divide by 0."); return;}  
    break;  
case '/':  
    try{temp=cl.number/temp;}  
        catch(ArithmeticException excp)  
                {cl.displayLabel.setText("Divide by 0."); return;}  
    break;  
}//switch

cl.displayLabel.setText(SimpleCalulator.getFormattedText(temp));  
//cl.number=temp;  
}//actionPerformed  
}//class

/\*\*\*\*\*\*\*\*NEW CLASS\*\*\*\*\*\*\*\*\*\*/

//MySpecialButton.java

class MySpecialButton extends Button implements ActionListener  
{  
SimpleCalulator cl;

MySpecialButton(int x,int y, int width,int height,String cap, SimpleCalulator clc)  
{  
super(cap);  
setBounds(x,y,width,height);  
this.cl=clc;  
this.cl.add(this);  
addActionListener(this);  
}  
//////////////////////  
static String backSpace(String s)  
{  
String Res="";  
for(int i=0; i<s.length()-1; i++) Res+=s.charAt(i);  
return Res;  
}

//////////////////////////////////////////////////////////  
public void actionPerformed(ActionEvent ev)  
{  
String opText=((MySpecialButton)ev.getSource()).getLabel();  
//check for backspace button  
if(opText.equals("Backspc"))  
{  
String tempText=backSpace(cl.displayLabel.getText());  
if(tempText.equals(""))   
    cl.displayLabel.setText("0");  
else   
    cl.displayLabel.setText(tempText);  
return;  
}  
//check for "C" button i.e. Reset  
if(opText.equals("C"))   
{  
cl.number=0.0; cl.op=' '; cl.memValue=0.0;  
cl.memLabel.setText(" ");  
}

//it must be CE button pressed  
cl.displayLabel.setText("0");cl.setClear=true;  
}//actionPerformed  
}