Facultatea Calculatoare, Informatica si Microelectronica

Universitatea Tehnica a Moldovei

Medii Interactive de Dezvoltare a Produselor Soft

Lucrar de Laborator#4

GUI DEVELOPMENT

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Lucrare de Laborator nr. 3

Scopul lucrarii:

Realizarea unui simplu GUI Calculator

Obiective:

- Realizeaza un simplu GUI Calculator
- Operatiile simple: +,-,*,/,putere,radical,InversareSemn(+/-),operatii cu numere zecimale.
- Divizare proiectului in un modul.

Implimentarea Programului

Listingul Programului

```
import java.awt.*;
import javax.swing.*;
import java.awt.event.*;

class Calculator extends JFrame implements  ActionListener
        {
        Container c ;
                JTextField result ;
                JPanel p = new JPanel();
                JButton b[] = new JButton[16];
                String s[] = {"0","1","2","3","4","5","6","7","8","9","+","-
","/","*","=","C"};
                //----------------------Me-----------------------
```

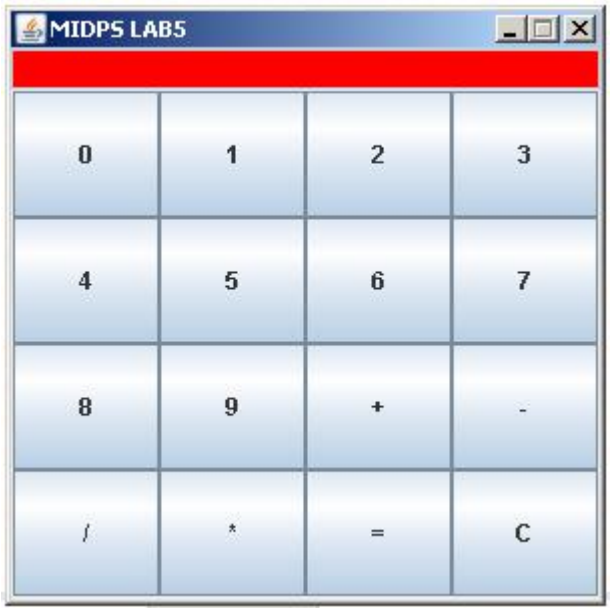
```
String Screen="",monitor1="",monitor2="",OperationOnScreen="";
boolean CommandEmpty=true,switcher=true;
double R=Integer.MIN_VALUE,L=Integer.MIN_VALUE;
//---------------------------------------------
public Calculator ()
        {
        super ("MIDPS LAB5");

        c=getContentPane();
        result = new JTextField();
        result.setEditable(false);
        result.setBackground(Color.red);

        p.setLayout(new GridLayout(4,4));
        for (int i=0;i<16;i++)
        {
                b[i] = new JButton(s[i]);
                b[i].addActionListener(this);
                p.add(b[i]);
        }
        c.add(result,BorderLayout.NORTH);
        c.add(p);

        setSize(300,300);
        setVisible(true);
        setResizable(false);
        setLocationRelativeTo(null);
        }//End Constructor
public static void main (String[] args)
        {
                new Calculator();
        }
//---------------------------------------------
public void actionPerformed(ActionEvent event)
        {
```

```
                    for (int i=0; i<=9; i++)//Numbers
                    {
                        if(event.getSource()==b[i])
                        {
                            Screen+=i;
                            result.setText("");
                            result.setText(Screen);
                        }
                    }

                    for (int i=10; i<=14; i++)//Commands
                    {
                        if(event.getSource()==b[i])
                        {

        if(result.getText().lastIndexOf(OperationOnScreen)!=-1)//prevent exception

        result.setText(result.getText().substring(0,result.getText().lastIndexOf(OperationOnSc
reen))+s[i]);
                            else
                                result.setText(result.getText()+s[i]);
                            OperationOnScreen=s[i];

                            if(switcher)
                               {monitor1=s[i];switcher=false;}
                            else {monitor2=s[i];switcher=true;}

                            if (monitor1!=monitor2 && monitor2!="")
                                {
                                if(switcher) //execute older,send sign newer

{Calc(event,monitor1.charAt(0),monitor2); }
                                else
{Calc(event,monitor2.charAt(0),monitor1); }
                                }
```

```
                    if(s[i]!="=") //calc returns 0
                        Calc(event,s[i].charAt(0),s[i]);
                }
            }

            if(event.getSource()==b[15]) //Clear
            {
                Screen=""; monitor1=""; monitor2="";
                switcher=true; CommandEmpty=true;
                result.setText("");
            }
        }//end actionPerformed

        public void Calc(ActionEvent event,char OpType,String Operator)
        {       if (Operator=="=")
                    Operator="";

                if(CommandEmpty && Screen=="")
                {
                    return;
                }

                else if(CommandEmpty && Screen!="")
                {
                    R=Integer.parseInt(Screen);
                    result.setText(Screen+Operator);
                    Screen="";
                    CommandEmpty=false;
                }
                else if(!CommandEmpty && Screen!="")
                {
                    L=Integer.parseInt(Screen);
                    R=Operations(R,L,OpType);//calculate
                    Screen="";
                    result.setText("");
```

```
                                        result.setText(R+Operator);
                                }
                }//End Calc

                public static double  Operations(double R, double L, char op)
                {
                        switch (op)
                        {
                                case '+':
                                        return R+L;
                                case '-':
                                        return R-L;
                                case '*':
                                        return R*L;
                                case '/':
                                        return R/L;

                        }
                        return 0;}
}//end class
```

Captura de ecran



Concluzie:

In urma efectuarii acestei lucrari de laborator am facut cunostinta cu modulul GDI al programului NetBeans astfel am creat un simplu calculator in limbajul Java, avind functiile de baza +,-,*,/,putere,radical,schimbarea semnului. Efectuind aceasta sarcina am luat cunostinta cu limbajul Java care este un limbaj usor de implimentat in cod si poate fi usor construit un calculator simplu utilizind butoane, si casete de text.