Ministerul Educației al Republicii Moldova

Universitatea Tehnică a Moldovei
Facultatea CIM

Catedra Automatica și Tehnologii Informaționale

RAPORT

Lucrare de laborator Nr.3
La MIDPS

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Lucrarea de laborator nr.3

Tema: *GUI Development*

Scopul lucrării:

Realizeaza un simplu GUI Calculator

Operatiile simple: +,-,*,/,putere,radical,InversareSemn(+/-),operatii cu numere zecimale.

Divizare proiectului in doua module - Interfata grafica(Modul GUI) si Modulul de baza(Core Module).

Sarcina lucrării:

- Basic Level (nota 5 || 6):

Realizeaza un simplu GUI calculator care suporta functiile de baza: +, -, /, *.

- Normal Level (nota 7 || 8):

Realizeaza un simplu GUI calculator care suporta urmatoare functii: +, -, /, *, putere, radical, InversareSemn(+/-).

- Advanced Level (nota 9 || 10):

Realizeaza un simplu GUI calculator care suporta urmatoare functii: +, -, /, *, putere, radical, InversareSemn(+/-), operatii cu numere zecimale.

Divizare proiectului in doua module - Interfata grafica(Modul GUI) si Modulul de baza(Core Module).

Listing-ul programului:

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package clac.stuff;

/**
 *
 * @author Sandu
 */
public class Calc extends javax.swing.JFrame {

    double FirstNum, secondNum, result;
    int plusClicked, minusClicked, multiplyClicked, divideClicked, squareClicked, pointClicked=0,
equalClicked=0;

    /**
```

```
     * Creates new form Calc
     */
    public Calc() {
        initComponents();
    }

    /**
     * This method is called from within the constructor to initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">//GEN-BEGIN:initComponents
    private void initComponents() {

        jPanel1 = new javax.swing.JPanel();
        display = new javax.swing.JTextField();
        jPanel2 = new javax.swing.JPanel();
        seven = new javax.swing.JButton();
        eight = new javax.swing.JButton();
        nine = new javax.swing.JButton();
        six = new javax.swing.JButton();
        five = new javax.swing.JButton();
        four = new javax.swing.JButton();
        three = new javax.swing.JButton();
        two = new javax.swing.JButton();
        one = new javax.swing.JButton();
        point = new javax.swing.JButton();
        zero = new javax.swing.JButton();
        divide = new javax.swing.JButton();
        minus = new javax.swing.JButton();
        multiply = new javax.swing.JButton();
        plus = new javax.swing.JButton();
        equal = new javax.swing.JButton();
        plusminus = new javax.swing.JButton();
        square = new javax.swing.JButton();
        squareroot = new javax.swing.JButton();
        clear = new javax.swing.JButton();
        pi = new javax.swing.JButton();
        allclear = new javax.swing.JButton();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
        setTitle("Calculator");
        setCursor(new java.awt.Cursor(java.awt.Cursor.DEFAULT_CURSOR));
        setPreferredSize(new java.awt.Dimension(310, 360));
        setResizable(false);

        display.setEditable(false);
        display.setFont(new java.awt.Font("Serif", 0, 18)); // NOI18N
        display.setHorizontalAlignment(javax.swing.JTextField.RIGHT);
        display.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                displayActionPerformed(evt);
            }
        });
```

```
        javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
        jPanel1.setLayout(jPanel1Layout);
        jPanel1Layout.setHorizontalGroup(
            jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(display, javax.swing.GroupLayout.PREFERRED_SIZE, 287,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );
        jPanel1Layout.setVerticalGroup(
            jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addGap(19, 19, 19)
                .addComponent(display, javax.swing.GroupLayout.PREFERRED_SIZE, 44,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addContainerGap(26, Short.MAX_VALUE))
        );

        seven.setText("7");
        seven.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                sevenActionPerformed(evt);
            }
        });

        eight.setText("8");
        eight.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                eightActionPerformed(evt);
            }
        });

        nine.setText("9");
        nine.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                nineActionPerformed(evt);
            }
        });

        six.setText("6");
        six.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                sixActionPerformed(evt);
            }
        });

        five.setText("5");
        five.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                fiveActionPerformed(evt);
            }
        });
```

```
four.setText("4");
four.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      fourActionPerformed(evt);
   }
});

three.setText("3");
three.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      threeActionPerformed(evt);
   }
});

two.setText("2");
two.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      twoActionPerformed(evt);
   }
});

one.setText("1");
one.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      oneActionPerformed(evt);
   }
});

point.setText(".");
point.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      pointActionPerformed(evt);
   }
});

zero.setText("0");
zero.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      zeroActionPerformed(evt);
   }
});

divide.setText("/");
divide.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      divideActionPerformed(evt);
   }
});

minus.setText("-");
minus.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      minusActionPerformed(evt);
   }
});
```

```
multiply.setText("*");
multiply.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        multiplyActionPerformed(evt);
    }
});

plus.setText("+");
plus.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        plusActionPerformed(evt);
    }
});

equal.setText("=");
equal.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        equalActionPerformed(evt);
    }
});

plusminus.setText("∓ ");
plusminus.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        plusminusActionPerformed(evt);
    }
});

square.setText("x²");
square.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        squareActionPerformed(evt);
    }
});

squareroot.setText("√");
squareroot.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        squarerootActionPerformed(evt);
    }
});

clear.setText("C");
clear.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        clearActionPerformed(evt);
    }
});

pi.setText("pi");
pi.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        piActionPerformed(evt);
    }
```

```
        });

        allclear.setText("ac");
        allclear.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                allclearActionPerformed(evt);
            }
        });

        javax.swing.GroupLayout jPanel2Layout = new javax.swing.GroupLayout(jPanel2);
        jPanel2.setLayout(jPanel2Layout);
        jPanel2Layout.setHorizontalGroup(
            jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel2Layout.createSequentialGroup()
                .addContainerGap()

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel2Layout.createSequentialGroup()
                        .addComponent(seven)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(eight)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(nine))
                    .addGroup(jPanel2Layout.createSequentialGroup()
                        .addComponent(four)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(five)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(six))
                    .addGroup(jPanel2Layout.createSequentialGroup()
                        .addComponent(one)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(two)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(three))
                    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel2Layout.createSequentialGroup()
                        .addComponent(zero, javax.swing.GroupLayout.PREFERRED_SIZE, 82,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(point)))
                .addGap(18, 18, 18)

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                    .addComponent(plus, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(minus, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(multiply, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(divide, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
```

```
.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(jPanel2Layout.createSequentialGroup()

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                        .addComponent(square, javax.swing.GroupLayout.DEFAULT_SIZE, 45,
Short.MAX_VALUE)
                        .addComponent(squareroot, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                        .addComponent(clear, javax.swing.GroupLayout.PREFERRED_SIZE, 45,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addComponent(allclear, javax.swing.GroupLayout.PREFERRED_SIZE, 45,
javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGap(0, 0, Short.MAX_VALUE))
                .addGroup(jPanel2Layout.createSequentialGroup()

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                        .addComponent(plusminus, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                        .addComponent(pi, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                    .addComponent(equal, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)))
            .addContainerGap())
        );
        jPanel2Layout.setVerticalGroup(
            jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel2Layout.createSequentialGroup()
                .addContainerGap()

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(jPanel2Layout.createSequentialGroup()

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                        .addComponent(seven, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addComponent(eight, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addComponent(nine, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addComponent(divide, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                        .addComponent(four, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addComponent(five, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
```

```
                    .addComponent(six, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(multiply, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(one, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(two, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(three, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(minus, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(zero, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(point, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(plus, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(pi, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)))
            .addGroup(jPanel2Layout.createSequentialGroup()

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(squareroot, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(clear, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(square, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(allclear, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(plusminus, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(equal, javax.swing.GroupLayout.PREFERRED_SIZE, 86,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(0, 0, Short.MAX_VALUE)))
            .addContainerGap())
    );

    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
```

```
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addComponent(jPanel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
            .addComponent(jPanel2, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                .addComponent(jPanel2, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addContainerGap())
        );

        pack();
    }// </editor-fold>//GEN-END:initComponents

    private void displayActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_displayActionPerformed
        // TODO add your handling code here:
    }//GEN-LAST:event_displayActionPerformed

    private void zeroActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_zeroActionPerformed
        if(equalClicked==1) {
            display.setText("");
            equalClicked=0;
        }
        display.setText(display.getText()+zero.getText());
    }//GEN-LAST:event_zeroActionPerformed

    private void oneActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_oneActionPerformed
        if(equalClicked==1) {
            display.setText("");
            equalClicked=0;
        }
        display.setText(display.getText()+one.getText());
    }//GEN-LAST:event_oneActionPerformed

    private void twoActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_twoActionPerformed
        if(equalClicked==1) {
            display.setText("");
            equalClicked=0;
        }
        display.setText(display.getText()+two.getText());
    }//GEN-LAST:event_twoActionPerformed

    private void threeActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_threeActionPerformed
        if(equalClicked==1) {
```

```
            display.setText("");
            equalClicked=0;
        }
        display.setText(display.getText()+three.getText());
    }//GEN-LAST:event_threeActionPerformed

    private void fourActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_fourActionPerformed
        if(equalClicked==1) {
            display.setText("");
            equalClicked=0;
        }
        display.setText(display.getText()+four.getText());
    }//GEN-LAST:event_fourActionPerformed

    private void pointActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_pointActionPerformed
        if(equalClicked==1) {
            display.setText("");
            equalClicked=0;
        }
        if(pointClicked==0){
            if(display.getText().equals("")){
                display.setText(display.getText()+"0"+point.getText());
            }else{
                display.setText(display.getText()+point.getText());
            }
        }
        pointClicked=1;
    }//GEN-LAST:event_pointActionPerformed

    private void fiveActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_fiveActionPerformed
        if(equalClicked==1) {
            display.setText("");
            equalClicked=0;
        }
        display.setText(display.getText()+five.getText());
    }//GEN-LAST:event_fiveActionPerformed

    private void sixActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_sixActionPerformed
        if(equalClicked==1) {
            display.setText("");
            equalClicked=0;
        }
        display.setText(display.getText()+six.getText());
    }//GEN-LAST:event_sixActionPerformed

    private void sevenActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_sevenActionPerformed
        if(equalClicked==1) {
            display.setText("");
            equalClicked=0;
        }
```

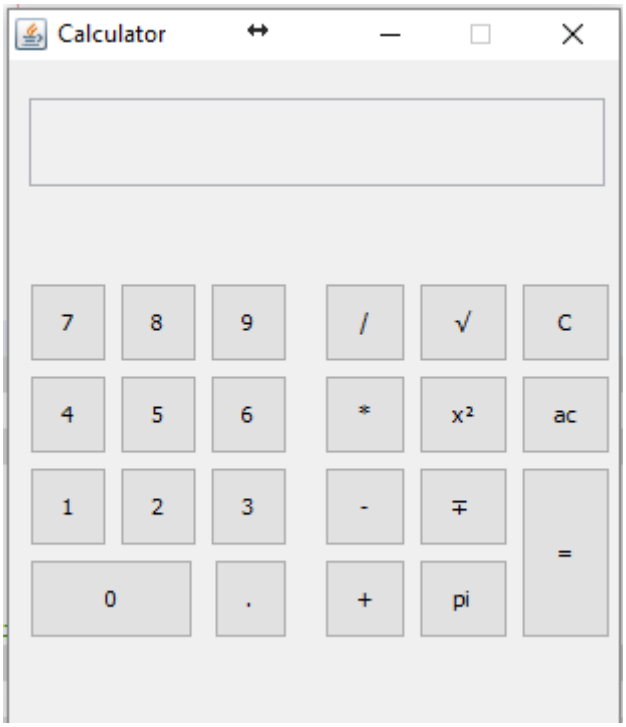
```
        display.setText(display.getText()+seven.getText());
    }//GEN-LAST:event_sevenActionPerformed

    private void eightActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_eightActionPerformed
        if(equalClicked==1) {
            display.setText("");
            equalClicked=0;
        }
        display.setText(display.getText()+eight.getText());
    }//GEN-LAST:event_eightActionPerformed

    private void nineActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_nineActionPerformed
        if(equalClicked==1) {
            display.setText("");
            equalClicked=0;
        }
        display.setText(display.getText()+nine.getText());
    }//GEN-LAST:event_nineActionPerformed

    private void clearActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_clearActionPerformed
        String text;
        text = display.getText();
        int len = text.length();
        text = text.substring(0, len-1);
        display.setText(text);

    }//GEN-LAST:event_clearActionPerformed

    private void allclearActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_allclearActionPerformed
        display.setText("");
        pointClicked=0;
    }//GEN-LAST:event_allclearActionPerformed

    private void plusActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_plusActionPerformed
        FirstNum = Double.parseDouble(display.getText());
        display.setText("");

        plusClicked =1;
        minusClicked = multiplyClicked = divideClicked = squareClicked = pointClicked =
equalClicked = 0;
    }//GEN-LAST:event_plusActionPerformed

    private void equalActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_equalActionPerformed
        secondNum=Double.parseDouble(display.getText());
        if(plusClicked>0){
            result  = FirstNum + secondNum;
            display.setText(String.valueOf(result));
        }else if(minusClicked>0){
            result  = FirstNum - secondNum;
```

```
            display.setText(String.valueOf(result));
        }else if(multiplyClicked>0){
            result  = FirstNum * secondNum;
            display.setText(String.valueOf(result));
        }else if(divideClicked>0){
            result  = FirstNum / secondNum;
            display.setText(String.valueOf(result));
        }
        FirstNum = Double.parseDouble(display.getText());
        equalClicked=1;
    }//GEN-LAST:event_equalActionPerformed

    private void minusActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_minusActionPerformed
        FirstNum = Double.parseDouble(display.getText());
        display.setText("");

        minusClicked =1;
        plusClicked = multiplyClicked = divideClicked = squareClicked = pointClicked =
equalClicked = 0;
    }//GEN-LAST:event_minusActionPerformed

    private void multiplyActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_multiplyActionPerformed
        FirstNum = Double.parseDouble(display.getText());
        display.setText("");

        multiplyClicked =1;
        minusClicked = plusClicked = divideClicked = squareClicked = pointClicked = equalClicked
= 0;
    }//GEN-LAST:event_multiplyActionPerformed

    private void divideActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_divideActionPerformed
        FirstNum = Double.parseDouble(display.getText());
        display.setText("");

        divideClicked =1;
        minusClicked = multiplyClicked = plusClicked = squareClicked = pointClicked =
equalClicked = 0;
    }//GEN-LAST:event_divideActionPerformed

    private void squarerootActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_squarerootActionPerformed
        FirstNum = Double.parseDouble(display.getText());
        display.setText(String.valueOf(Math.sqrt(FirstNum)));
    }//GEN-LAST:event_squarerootActionPerformed

    private void piActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_piActionPerformed
        display.setText(String.valueOf(Math.PI));
    }//GEN-LAST:event_piActionPerformed

    private void squareActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_squareActionPerformed
```

```
        FirstNum = Double.parseDouble(display.getText());
        display.setText(String.valueOf(Math.pow(FirstNum,2)));
    }//GEN-LAST:event_squareActionPerformed

    private void plusminusActionPerformed(java.awt.event.ActionEvent evt) {//GEN-
FIRST:event_plusminusActionPerformed
        FirstNum = Double.parseDouble(display.getText());
        display.setText(String.valueOf((-1)*(FirstNum)));
    }//GEN-LAST:event_plusminusActionPerformed

    /**
     * @param args the command line arguments
     */
    public static void main(String args[]) {
        /* Set the Nimbus look and feel */
        //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
        /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
         * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
         */
        try {
            for (javax.swing.UIManager.LookAndFeelInfo info :
javax.swing.UIManager.getInstalledLookAndFeels()) {
                if ("Windows".equals(info.getName())) {
                    javax.swing.UIManager.setLookAndFeel(info.getClassName());
                    break;
                }
            }
        } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(Calc.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
        } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(Calc.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(Calc.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(Calc.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
        }
        //</editor-fold>

        /* Create and display the form */
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new Calc().setVisible(true);
            }
        });
    }

    // Variables declaration - do not modify//GEN-BEGIN:variables
```

```
    private javax.swing.JButton allclear;
    private javax.swing.JButton clear;
    private javax.swing.JTextField display;
    private javax.swing.JButton divide;
    private javax.swing.JButton eight;
    private javax.swing.JButton equal;
    private javax.swing.JButton five;
    private javax.swing.JButton four;
    private javax.swing.JPanel jPanel1;
    private javax.swing.JPanel jPanel2;
    private javax.swing.JButton minus;
    private javax.swing.JButton multiply;
    private javax.swing.JButton nine;
    private javax.swing.JButton one;
    private javax.swing.JButton pi;
    private javax.swing.JButton plus;
    private javax.swing.JButton plusminus;
    private javax.swing.JButton point;
    private javax.swing.JButton seven;
    private javax.swing.JButton six;
    private javax.swing.JButton square;
    private javax.swing.JButton squareroot;
    private javax.swing.JButton three;
    private javax.swing.JButton two;
    private javax.swing.JButton zero;
    // End of variables declaration//GEN-END:variables
}
```

Captura de ecran:



Concluzie: În urma efectuării acestei lucrări de laborator am făcut cunoștință cu modulul GDI al programului NetBeans astfel am creat un simplu calculator în limbajul Java, avînd funcțiile de bază +,-,*,/,putere, radical, schimbare semn. Efecuînd acestă sarcină am luat ucnoștință cu limbajul Java care este un limbaj usor de implimentat în cod și poate fi ușor construit un calculator simplu utilizîmd butoane, si casete de text.