LAPORAN TUGAS PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

Pertemuan Ke-:	
11	
Pembahasan:	
GUI (Graphical User Interface)	
NIM:	**Dosen Pengampu:**
1841720178	Septian Enggar Sukmana
Nama Mahasiswa:	**Nilai:**
Aris Nur A	

TUJUAN PRAKTIKUM (10 points)

1. Membuat aplikasi Graphical User Interface sederhana dengan bahasa pemrograman java;
2. Mengenal komponen GUI seperti frame, label, textfield, combobox, radiobutton, checkbox, textarea, menu, serta table;
3. Menambahkan event handling pada aplikasi GUI.

JAWABAN PERTANYAAN (30 points)

Pertanyaan Percobaan 2	a) Modifikasi kode program dengan menambahkan JButton baru untuk melakukan fungsi perhitungan penambahan, sehingga ketika button di klik (event click) maka akan menampilkan hasil penambahan dari nilai A dan B
	
	Jawab:
	`/*`
	`* 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 myinputform;`
	
	`/**`
	`*`
	`* @author Acer`
	`*/`
	`import java.awt.event.ActionEvent;`
	`import java.awt.event.ActionListener;`
	`import javax.swing.*;`
	`public class MyInputForm extends JFrame {`
	`    private static final int FRAME_WIDTH = 600;`
	`    private static final int FRAME_HEIGHT = 200;`
	`    private JLabel aLabel;`
	`    private JLabel bLabel;`
	`    private JLabel cLabel;`
	`    private JLabel dLabel;`
	`    private JTextField aField;`
	`    private JTextField bField;`
	`    private JButton button;`
	`    private JButton button1;`
	`    private JPanel panel;`
	`  /**`
	`   * @param args the command line arguments`
	`   */`
	`    public MyInputForm(){`
	`      createTextField();`
	`      createButton();`
	`      createButtons();`
	`      createPanel();`
	`      setSize(FRAME_WIDTH, FRAME_WIDTH);`

```java
        }

        private void createTextField(){
            aLabel = new JLabel("Nilai A: ");
            bLabel = new JLabel("Nilai B: ");
            cLabel = new JLabel("Nilai C: ");
            dLabel = new JLabel("Nilai D: ");

            final int FIELD_WIDTH = 10;
            aField = new JTextField(FIELD_WIDTH);
            aField.setText("0");
            bField = new JTextField(FIELD_WIDTH);
            bField.setText("0");
        }

        private void createButton() {
        button = new JButton("Calculate");

        class AddInterestListener implements ActionListener{

            @Override
            public void actionPerformed(ActionEvent event) {
             int a = Integer.valueOf(aField.getText());
             int b = Integer.valueOf(bField.getText());
             int c = a * b;
             cLabel.setText("Hasil: " + c);
            }

        }
        ActionListener listener = new AddInterestListener();
        button.addActionListener(listener);

        }

            private void createButtons() {
        button1 = new JButton("Tambah");
        class AddInterestListener implements ActionListener{

            @Override
            public void actionPerformed(ActionEvent event) {
             int a = Integer.valueOf(aField.getText());
             int b = Integer.valueOf(bField.getText());
             int d = a + b;

             dLabel.setText("Hasil Jumlah: " + d);
```

| | ```
                }

            }
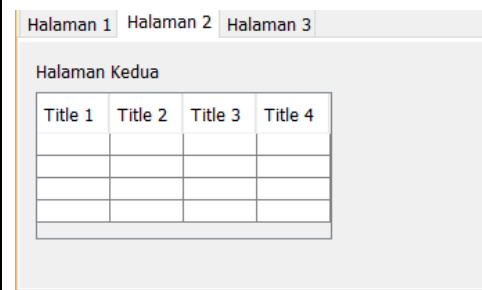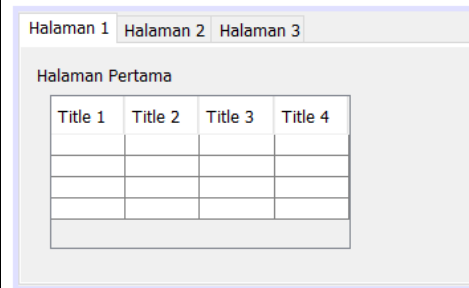            ActionListener listener = new AddInterestListener();
            button1.addActionListener(listener);
        }

         private void createPanel() {
            panel = new JPanel();
            panel.add(aLabel);
            panel.add(aField);
            panel.add(bLabel);
            panel.add(bField);
            panel.add(button);
            panel.add(button1);
            panel.add(cLabel);
            panel.add(dLabel);

            add(panel);
        }

    public static void main(String[] args) {
        // TODO code application logic here
        JFrame frame = new MyInputForm();

frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setVisible(true);
        frame.setLocationRelativeTo(null);
    }
}
``` |
| | |
| Pertanyaan Percobaan 3 | a) Apa perbedaan dari Grid Layout, Box Layout dan Border Layout?
 b) Apakah fungsi dari masing-masing kode berikut?
 Jawab:
    a) GridLayout menempatkan komponen dalam bentuk "rectangular grid", BoxLayout menempatkan komponen dalam satu baris atau satu kolom dan BorderLayout BorderLayout menyusun komponen berdasarkan lokasi geografis: NORTH, SOUTH, EAST, WEST, and CENTER.
    b) Untuk Manggil masing" Class. |

Pertanyaan Percobaan 4	a) Apakah fungsi dari kode berikut?
	
	b) Mengapa pada bagian logika checkbox dan radio button digunakan multiple if ?
	c) Lakukan modifikasi pada program untuk melakukan menambahkan inputan berupa alamat dan berikan fungsi pemeriksaan pada nilai Alamat tersebut jika belum diisi dengan menampilkan pesan peringatan
	Jawab:
	    a) Fungsi dari kode tersebut adalah fungsi atau method untuk menangani *event* klik pada tombol. b) Karena pada bagian logika checkbox dan radio button berisikan pilihan atau percabangan maka dari itu menggunakan multiple if c) .
	<pre>private void cmdtampilActionPerformed(java.awt.event.ActionEvent evt) {
	    // TODO add your handling code here:
	    nama=txtname.getText();
	    nim=txtnim.getText();
	    alamat=txtalamat.getText();
	    if(cbMK1.isSelected())
	        matakuliah = "Sistem terdistribusi";
	    if(cbMK2.isSelected())
	        matakuliah = "PBO";
	
	    if(rdjeniskelamin1.isSelected())
	        jeniskelamin = "Laki-Laki";
	    if(rdjeniskelamin2.isSelected())
	        jeniskelamin = "Perempuan";
	
	    jurusan = listjurusan.getSelectedValue().toString();
	    semester = comboboxsemester.getSelectedItem().toString();
	
	    info="Nama : "+nama+"\n";
	    info+="NIM : "+nim+"\n";
	    info+="Alamat : "+alamat+"\n";
	    info+="Jenis Kelamin : "+jeniskelamin+"\n";
	    info+="Jurusan : "+jurusan+"\n";
	    info+="Semester : "+semester+"\n";
	    info+="Mata Kuliah : "+matakuliah+"\n";
	    hasil.setText(info);
	    if(alamat.isEmpty())
	    JOptionPane.showMessageDialog(null,"Alamat Belum anda
	Isi","Peringatan!!!",JOptionPane.ERROR_MESSAGE);
	        JOptionPane.showMessageDialog(null,info);
	
	  }</pre>

Pertanyaan Percobaan 5	a) Apa kegunaan komponen swing JTabPane, JTtree, pada percobaan 5? b) Modifikasi program untuk menambahkan komponen JTable pada tab Halaman 1 dan tab Halaman 2 **Jawab:**

a) JTabPane berfungsi sebagai panel yang memiliki tab & bisa beralih dari tab 1 ke tab lainnya.
JTree berfungsi sebagai sebuah direktori folder yang tersusun seperti pohon ketika memiliki folder didalam folder
b) .

KODE PROGRAM DAN PENJELASAN TIAP METHODNYA (30 points)

Nama Class: Kalkulator

```java
package tugasgui;

/**
 *
 * @author Acer
 */
public class Kalkulator extends javax.swing.JFrame {
    double a;
    double b;
    String operation;
    double result;

    public Kalkulator() {
        initComponents();
    }

    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jtxtDisplay = new javax.swing.JTextField();
        b7 = new javax.swing.JButton();
        b8 = new javax.swing.JButton();
        b9 = new javax.swing.JButton();
        b4 = new javax.swing.JButton();
        b5 = new javax.swing.JButton();
        b6 = new javax.swing.JButton();
        b1 = new javax.swing.JButton();
        b2 = new javax.swing.JButton();
        b3 = new javax.swing.JButton();
        b0 = new javax.swing.JButton();
        btitik = new javax.swing.JButton();
        bbagi = new javax.swing.JButton();
        bkali = new javax.swing.JButton();
        bkurang = new javax.swing.JButton();
        btambah = new javax.swing.JButton();
        hasil = new javax.swing.JButton();
        jButton1 = new javax.swing.JButton();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jtxtDisplay.setFont(new java.awt.Font("Tahoma", 1, 18)); // NOI18N
```

```java
jtxtDisplay.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

b7.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
b7.setText("7");
b7.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      b7ActionPerformed(evt);
   }
});

b8.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
b8.setText("8");
b8.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      b8ActionPerformed(evt);
   }
});

b9.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
b9.setText("9");
b9.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      b9ActionPerformed(evt);
   }
});

b4.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
b4.setText("4");
b4.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      b4ActionPerformed(evt);
   }
});

b5.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
b5.setText("5");
b5.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      b5ActionPerformed(evt);
   }
});

b6.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
b6.setText("6");
b6.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
```

```java
        b6ActionPerformed(evt);
      }
    });

    b1.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
    b1.setText("1");
    b1.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        b1ActionPerformed(evt);
      }
    });

    b2.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
    b2.setText("2");
    b2.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        b2ActionPerformed(evt);
      }
    });

    b3.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
    b3.setText("3");
    b3.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        b3ActionPerformed(evt);
      }
    });

    b0.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
    b0.setText("0");
    b0.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        b0ActionPerformed(evt);
      }
    });

    btitik.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
    btitik.setText(".");
    btitik.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        btitikActionPerformed(evt);
      }
    });

    bbagi.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
    bbagi.setText("/");
```

```java
    bbagi.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        bbagiActionPerformed(evt);
      }
    });

    bkali.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
    bkali.setText("*");
    bkali.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        bkaliActionPerformed(evt);
      }
    });

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

    btambah.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
    btambah.setText("+");
    btambah.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        btambahActionPerformed(evt);
      }
    });

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

    jButton1.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
    jButton1.setText("C");
    jButton1.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton1ActionPerformed(evt);
      }
    });

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

```
        getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
      layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
      .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()
        .addContainerGap(53, Short.MAX_VALUE)
        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
TRAILING)
          .addGroup(layout.createSequentialGroup()
            .addComponent(jtxtDisplay)
            .addGap(35, 35, 35))
          .addGroup(layout.createSequentialGroup()
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Align
ment.TRAILING, false)
              .addComponent(hasil,
javax.swing.GroupLayout.Alignment.LEADING,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
              .addGroup(layout.createSequentialGroup()
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.
Alignment.TRAILING, false)
                  .addComponent(b0,
javax.swing.GroupLayout.Alignment.LEADING,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                  .addGroup(javax.swing.GroupLayout.Alignment.LEADING,
layout.createSequentialGroup()
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLay
out.Alignment.TRAILING, false)
                      .addComponent(b1,
javax.swing.GroupLayout.Alignment.LEADING,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                      .addComponent(b4,
javax.swing.GroupLayout.Alignment.LEADING,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                      .addComponent(b7,
javax.swing.GroupLayout.PREFERRED_SIZE,                             57,
javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlace
ment.RELATED)
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLay
out.Alignment.LEADING, false)
```

11

```
                              .addComponent(b8,
javax.swing.GroupLayout.PREFERRED_SIZE,                                    57,
javax.swing.GroupLayout.PREFERRED_SIZE)
                              .addComponent(b5,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                              .addComponent(b2,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))))
                       .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.
UNRELATED)
                       .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.
Alignment.LEADING, false)
                          .addComponent(b9,
javax.swing.GroupLayout.PREFERRED_SIZE,                                    57,
javax.swing.GroupLayout.PREFERRED_SIZE)
                          .addComponent(btitik,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                          .addComponent(b3,
javax.swing.GroupLayout.PREFERRED_SIZE,                                    57,
javax.swing.GroupLayout.PREFERRED_SIZE)
                          .addComponent(b6,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))))
                    .addGap(18, 18, 18)
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Align
ment.LEADING)
                       .addComponent(bbagi,
javax.swing.GroupLayout.PREFERRED_SIZE,                                    65,
javax.swing.GroupLayout.PREFERRED_SIZE)
                       .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Ali
gnment.LEADING, false)
                          .addComponent(bkali,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                          .addComponent(bkurang,
javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                          .addComponent(btambah,
javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE, 65, Short.MAX_VALUE)
                          .addComponent(jButton1,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)))
```

```
                    .addGap(27, 27, 27))))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jtxtDisplay, javax.swing.GroupLayout.PREFERRED_SIZE,
48, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(30, 30, 30)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING)
                    .addComponent(b7,  javax.swing.GroupLayout.PREFERRED_SIZE,  38,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignme
nt.BASELINE)
                        .addComponent(b8, javax.swing.GroupLayout.PREFERRED_SIZE, 38,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addComponent(b9, javax.swing.GroupLayout.PREFERRED_SIZE, 38,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addComponent(bbagi,  javax.swing.GroupLayout.PREFERRED_SIZE,
38, javax.swing.GroupLayout.PREFERRED_SIZE)))
                .addGap(18, 18, 18)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING, false)
                    .addComponent(b4,   javax.swing.GroupLayout.DEFAULT_SIZE,   38,
Short.MAX_VALUE)
                    .addComponent(b5,          javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(bkali,       javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(b6,          javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                .addGap(18, 18, 18)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING, false)
                    .addComponent(b1,   javax.swing.GroupLayout.DEFAULT_SIZE,   38,
Short.MAX_VALUE)
                    .addComponent(b2,          javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(bkurang,     javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(b3,          javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                .addGap(18, 18, 18)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING, false)
```

```
                .addComponent(b0,    javax.swing.GroupLayout.DEFAULT_SIZE,    38,
Short.MAX_VALUE)
                .addComponent(btitik,        javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addComponent(btambah,    javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING)
                .addGroup(layout.createSequentialGroup()
                  .addGap(18, 18, 18)
                  .addComponent(hasil,   javax.swing.GroupLayout.PREFERRED_SIZE,
34, javax.swing.GroupLayout.PREFERRED_SIZE)
                  .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
                .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()
                  .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.REL
ATED, 19, Short.MAX_VALUE)
                  .addComponent(jButton1)
                  .addGap(27, 27, 27))))
        );

        pack();
    }// </editor-fold>

    private void b8ActionPerformed(java.awt.event.ActionEvent evt) {
        String enternumber = jtxtDisplay.getText() + b8.getText();
        jtxtDisplay.setText(enternumber);
    }

    private void b7ActionPerformed(java.awt.event.ActionEvent evt) {
        String enternumber = jtxtDisplay.getText() + b7.getText();
        jtxtDisplay.setText(enternumber);
    }

    private void b1ActionPerformed(java.awt.event.ActionEvent evt) {
        String enternumber = jtxtDisplay.getText() + b1.getText();
        jtxtDisplay.setText(enternumber);
    }

    private void b2ActionPerformed(java.awt.event.ActionEvent evt) {
        String enternumber = jtxtDisplay.getText() + b2.getText();
        jtxtDisplay.setText(enternumber);
    }

    private void b3ActionPerformed(java.awt.event.ActionEvent evt) {
```

```java
      String enternumber = jtxtDisplay.getText() + b3.getText();
      jtxtDisplay.setText(enternumber);
   }

   private void b4ActionPerformed(java.awt.event.ActionEvent evt) {
      String enternumber = jtxtDisplay.getText() + b4.getText();
      jtxtDisplay.setText(enternumber);
   }

   private void b5ActionPerformed(java.awt.event.ActionEvent evt) {
     String enternumber = jtxtDisplay.getText() + b5.getText();
      jtxtDisplay.setText(enternumber);
   }

   private void b6ActionPerformed(java.awt.event.ActionEvent evt) {
      String enternumber = jtxtDisplay.getText() + b6.getText();
      jtxtDisplay.setText(enternumber);
   }

   private void b9ActionPerformed(java.awt.event.ActionEvent evt) {
      String enternumber = jtxtDisplay.getText() + b9.getText();
      jtxtDisplay.setText(enternumber);
   }

   private void b0ActionPerformed(java.awt.event.ActionEvent evt) {
      String enternumber = jtxtDisplay.getText() + b0.getText();
      jtxtDisplay.setText(enternumber);
   }

   private void btambahActionPerformed(java.awt.event.ActionEvent evt) {
     a = Double.parseDouble(jtxtDisplay.getText());
     jtxtDisplay.setText("");
     operation="+";
   }

   private void bkurangActionPerformed(java.awt.event.ActionEvent evt) {
     a = Double.parseDouble(jtxtDisplay.getText());
     jtxtDisplay.setText("");
     operation="-";
   }

   private void bkaliActionPerformed(java.awt.event.ActionEvent evt) {
     a = Double.parseDouble(jtxtDisplay.getText());
     jtxtDisplay.setText("");
     operation="*";
   }
```

```java
    private void bbagiActionPerformed(java.awt.event.ActionEvent evt) {
        a = Double.parseDouble(jtxtDisplay.getText());
        jtxtDisplay.setText("");
        operation="/";
    }

    private void btitikActionPerformed(java.awt.event.ActionEvent evt) {
        String enternumber = jtxtDisplay.getText() + btitik.getText();
        jtxtDisplay.setText(enternumber);
    }

    private void hasilActionPerformed(java.awt.event.ActionEvent evt) {
        String jawab;
        b = Double.parseDouble(jtxtDisplay.getText());
        if (operation == "+"){
            result = a + b;
            jawab = String.valueOf( result);
            jtxtDisplay.setText(jawab);
        }
        else if (operation == "-"){
            result = a - b;
            jawab = String.valueOf( result);
            jtxtDisplay.setText(jawab);
        }
        else if (operation == "*"){
            result = a * b;
            jawab = String.valueOf( result);
            jtxtDisplay.setText(jawab);
        }
        else if (operation == "/"){
            result = a / b;
            jawab = String.valueOf( result);
            jtxtDisplay.setText(jawab);
        }
    }

    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
        jtxtDisplay.setText("");
    }

    /**
     * @param args the command line arguments
     */
    public static void main(String args[]) {
        /* Set the Nimbus look and feel */
```

```java
    //<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 ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
                break;
            }
        }
    } catch (ClassNotFoundException ex) {

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

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

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

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

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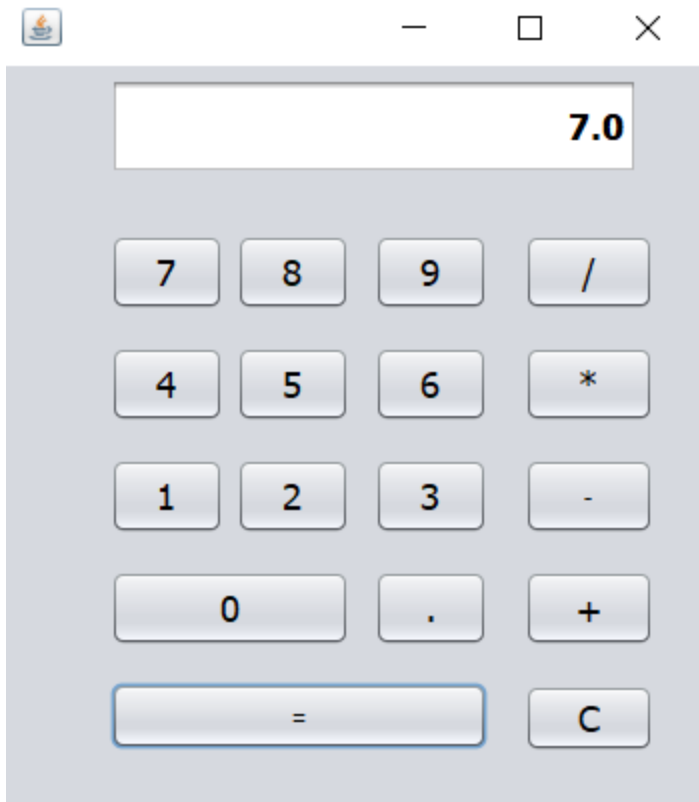        }
    });
}

// Variables declaration - do not modify
private javax.swing.JButton b0;
private javax.swing.JButton b1;
private javax.swing.JButton b2;
```

```
    private javax.swing.JButton b3;
    private javax.swing.JButton b4;
    private javax.swing.JButton b5;
    private javax.swing.JButton b6;
    private javax.swing.JButton b7;
    private javax.swing.JButton b8;
    private javax.swing.JButton b9;
    private javax.swing.JButton bbagi;
    private javax.swing.JButton bkali;
    private javax.swing.JButton bkurang;
    private javax.swing.JButton btambah;
    private javax.swing.JButton btitik;
    private javax.swing.JButton hasil;
    private javax.swing.JButton jButton1;
    private javax.swing.JTextField jtxtDisplay;
    // End of variables declaration
}
```

Penjelasan:

HASIL **(15 points)**

KESIMPULAN **(15 points)**

Dalam pemrograman GUI terdapat beberapa bagian yang harus dilakukan yaitu:
Membuat windows utama,menentukan komponen-komponen pendukung
program,menentukan tata letak layout agar nantinya semua komponen – komponen yang
sudah dipersiapkan bisa diaatur sedemikian rupa,event Handling dari sebuah aktivitas,
seperti penekanan button, check box dan lain-lain.