# OBJECT-ORIENTED PROGRAMMING LABORATORY WORK

# MODULE 12


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**INFORMATICS STUDY PROGRAM**

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**PRACTICE**

1)Frames

Things related to building a JFrame are:The frame title is created by running the constructor on the JFrame using the command super("Frame Title").'The size of the frame is set by the setSize() method.When the frame is closed and the Java application will also be closed/stopped, you can use the setDefaultCloseOperation() method.In order for the frame to be displayed on the computer screen (output), it is necessary to set the setVisible() method with the parameter TRUE. Implementation of frames can be seen in Program 1 below.

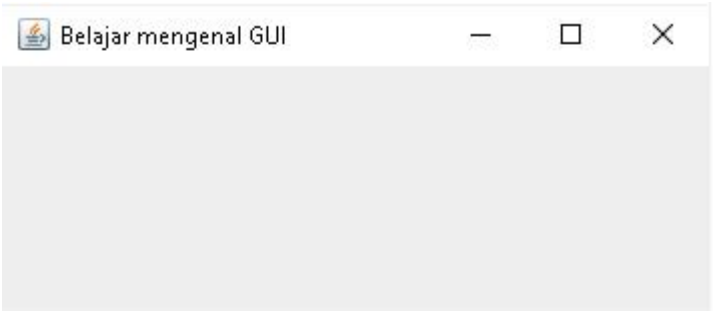
```
1   public class Utama extends javax.swing.JFrame{
2       public Utama(){
3           super("Belajar mengenal GUI");
4           setSize(300,100);
5           setDefaultCloseOperation(EXIT_ON_CLOSE);
6           setVisible(true);
7           setLocationRelativeTo(null);
8       }
9       public static void main(String[] args) {
10          Utama u = new Utama();
11      }
12  }
```

*Program 1. Implementasi JFrame*

Code program :

```
12
13  import java.awt.*;
14  import javax.swing.*;
15
16  public class Utama extends javax.swing.JFrame {
17      public Utama(){
18          super("Belajar mengenal GUI");
19          setSize(300, 100);
20          setDefaultCloseOperation(EXIT_ON_CLOSE);
21          setVisible(true);
22          setLocationRelativeTo(null);
23      }
24      public static void main(String[] args) {
25          Utama u = new Utama();
26      }
27  }
28
```

Output :




Complete the understanding of the implementation of the JFrame class in the following table:

| Konstruktor | Keterangan |
|---|---|
| `JFrame()` | Mengkonstruksi frame baru yang pada awalnya tidak tampak (invisible) |
| `JFrame(String Judul)` | Mengkonstruksi frame baru yang pada awalnya tidak tampak dengan title yang telah ditentukan |

| Metode | Keterangan |
|---|---|
| `void setSize(int lebar, int tinggi)` | Menentukan ukuran frame lebar dan tinggi |
| `void setLocation(int x, int y)` | Menentukan posisiatau letak frame |
| `void setVisible(Boolean)` | Menentukan apakah frame ditampilkan atau tidak |
| `setLocationRelativeTo(Component)` | Mengatur lokasi komponen yang spesifik, apabila komponennya null maka frame akan tepat ditengah layar |

2)Button

Program 2 is code to display buttons of a certain size. this button placed in the class FrameA which inherits from Jframe.

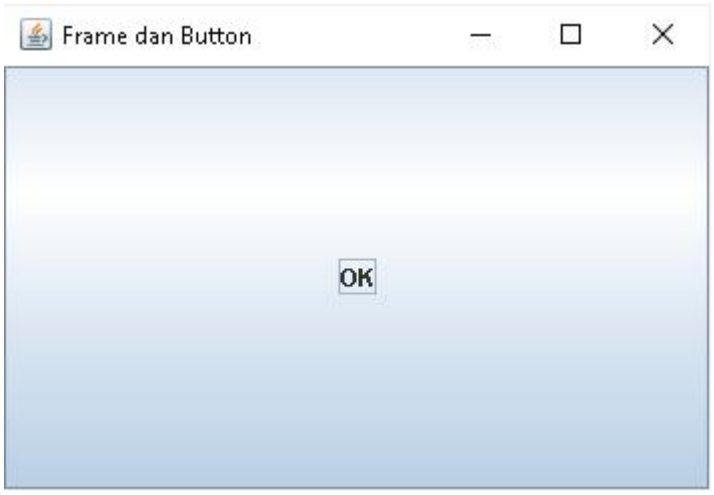
```
1   import java.awt.Container;
2   import javax.swing.JButton;
3   public class FrameA extends javax.swing.JFrame{
4       public FrameA(){
5           super("Frme dan Button");
6           setSize(100, 50);
7           setDefaultCloseOperation(EXIT_ON_CLOSE);
8           setVisible(true);
9           setLocationRelativeTo(null);
10      }
11      public static void main(String[] args) {
12          FrameA fa = new FrameA();
13          Container kontainer =
    fa.getContentPane();
14          JButton jbtOK = new JButton("OK");
15          kontainer.add(jbtOK);
16      }
17  }
```

*Program 2. Implementasi JButton*

Code Program :

```
12
13  import java.awt.Container;
14  import javax.swing.JButton;
15
16  public class FrameA extends javax.swing.JFrame {
17      public FrameA(){
18          super("Frame dan Button");
19          setSize(100, 50);
20          setDefaultCloseOperation(EXIT_ON_CLOSE);
21          setVisible(true);
22          setLocationRelativeTo(null);
23      }
24      public static void main(String[] args){
25          FrameA fa = new FrameA();
26          Container kontainer = fa.getContentPane();
27          JButton jbtOK = new JButton ("OK");
28          kontainer.add(jbtOK);
29      }
30  }
31
```

Output :




**b) Complete the understanding of JButton implementation in the following table:**

| Konstruktor | Keterangan |
|---|---|
| **JButton()** | Membuat JButton tanpa label atau ikon apapun. |
| **JButton(String teks)** | Membuat JButton dan menetapkan teks tertentu sebagai labelnya. |
| **JButton(Icon icon)** | Membuat JButton dengan ikon dan tanpa label. |
| **JButton(String teks, Icon icon)** | Membuat JButton dengan label dan ikon tertentu. |

3) Containers

The JFrame can be loaded with GUI components after placing the container. Containers are special components that are useful for holding other GUI components. Here's an example of two buttons with a JPanel container. The second button uses an icon image. Please prepare the image first and place it in the same folder as the Java file (FrameB.java) that is being compiled and try programming as in Program 3 below.

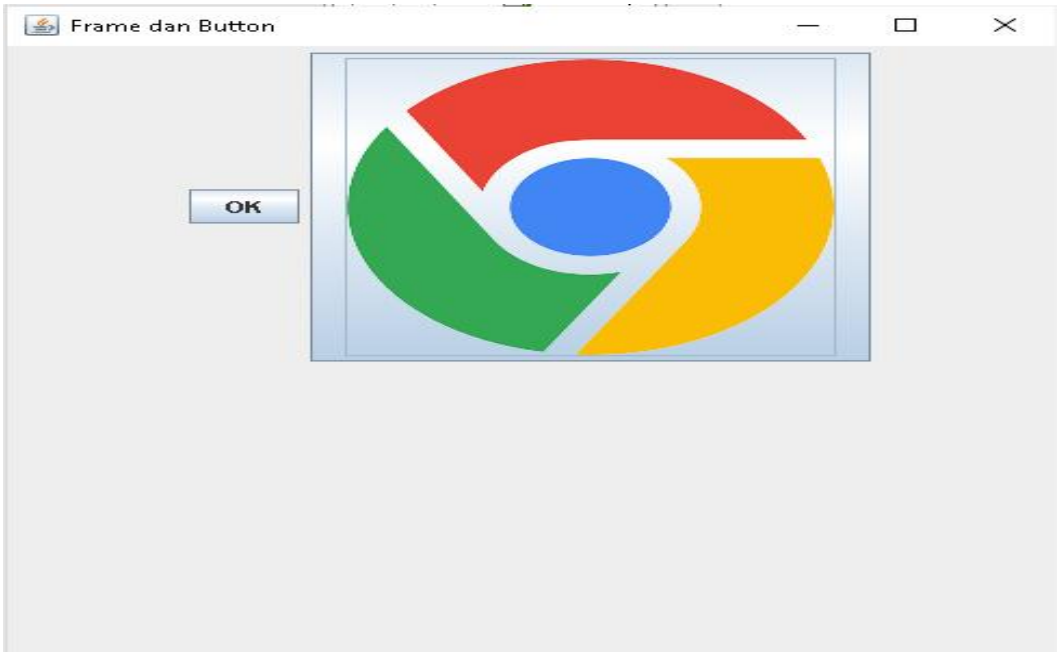
```
1  import java.net.URL;
2  import javax.swing.ImageIcon;
3  import javax.swing.JButton;
4  import javax.swing.JPanel;
5  public class FrameB extends javax.swing.JFrame{
6      public FrameB(){
7          super("Frame dan Button");
8          setSize(500,500);
9          setDefaultCloseOperation(EXIT_ON_CLOSE);
10         setLocationRelativeTo(null);
11     }
12     public static void main(String[] args) {
13         FrameB fb = new FrameB();
14         JPanel panel = new JPanel();
15         URL img =
16 FrameB.class.getResource("shakehand2.png");
17         JButton jbtOK = new JButton("OK");
18         JButton jbtImg = new JButton(new
   ImageIcon(img));
19         panel.add(jbtOK);
20         panel.add(jbtImg);
21         fb.add(panel);
22         fb.setVisible(true);
23     }
24 }
```

*Program 3. Implementasi container*

Code Program :

```
12
13  import java.net.URL;
14  import javax.swing.ImageIcon;
15  import javax.swing.JButton;
16  import javax.swing.JPanel;
17
18  public class FrameB extends javax.swing.JFrame {
19      public FrameB(){
20          super("Frame dan Button");
21          setSize(500,500);
22          setDefaultCloseOperation(EXIT_ON_CLOSE);
23          setLocationRelativeTo(null);
24      }
25      public static void main(String[] args){
26          FrameB fb = new FrameB();
27          JPanel panel = new JPanel();
28          URL img = FrameB.class.getResource("icons.png");
29          JButton jbtOK = new JButton("OK");
30          JButton jbtImg = new JButton(new ImageIcon(img));
31          panel.add(jbtOK);
32          panel.add(jbtImg);
33          fb.add(panel);
34          fb.setVisible(true);
35      }
36  }
37
```

Output :




4) Labels

Labels are graphic components made to contain text or icons. Program 4 is the implementation of JLabel using the Main class which was tried before in Program 4.

```
1   public class DemoLabel {
2       public static void main(String[] args) {
3           Utama u = new Utama();
4           u.setSize(500,500);
5           URL img = FrameB.class.
    getResource("shakehand.png");
6           ImageIcon ikon = new ImageIcon(img);
7           JLabel label = new JLabel("Label", ikon,
    SwingConstants.CENTER);
8           JPanel panel = new JPanel();
9           panel.add(label);
10          u.add(panel);
11      }
12  }
```

*Program 4. Implementasi JLabel*

Code Program :

```java
import java.net.URL;
import javax.swing.*;

public class DemoLabel {
    public static void main (String[] args){
        Utama u = new Utama();
        u.setSize(500, 500);
        URL img = FrameB.class.getResource("icons.png");
        ImageIcon ikon = new ImageIcon(img);
        JLabel label = new JLabel("Label", ikon, SwingConstants.CENTER);
        JPanel panel = new JPanel();
        panel.add(label);
        u.add(panel);
    }
}
```

Output:


B) Complete the understanding of the implementation of the JLabel class in the following table

| Konstruktor | Keterangan |
|---|---|
| `JLabel(String teks)` | Mengkonstruksi obyek label dengan teks. |
| `JLabel(String teks, int i)` | Mengkonstruksi obyek label dengan teks serta menentukan baris secara horizontal. |
| `JLabel(String teks, Icon ic, int i)` | Mengkonstruksi obyek label dengan teks dan ikon serta menentukan baris secara |

| | |
|---|---|
| | horizontal. |

5)TextField and Password Field

JTextField is a GUI component that can accommodate text typed by program users. JPasswordField is used to hold input but the contents of the text are hidden. Program 5 is the code for implementing both.

```
1  import javax.swing.JLabel;
2  import javax.swing.JPanel;
3  import javax.swing.JPasswordField;
4  import javax.swing.JTextField;
5  public class DemoTextField {
6      public static void main(String[] args) {
7          Utama u = new Utama();
8          JLabel nama = new JLabel("Nama : ");
9          JLabel password = new JLabel("Password :
   ");
10         JTextField inputNama = new
   JTextField(15);
11         JPasswordField inputpsw = new
12 JPasswordField(15);
13         JPanel panel = new JPanel();
14         panel.add(nama);
15         panel.add(inputNama);
16         panel.add(password);
17         panel.add(inputpsw);
18         u.add(panel);
19
20     }
21 }
```

*Program 5. Implementasi JTextField dan JPasswordField*

Code Program :

```
12
13  import javax.swing.JLabel;
14  import javax.swing.JPanel;
15  import javax.swing.JPasswordField;
16  import javax.swing.JTextField;
17
18  public class DemoTextField {
19      public static void main(String[] args){
20          Utama u = new Utama();
21          JLabel nama = new JLabel("Nama : ");
22          JLabel password = new JLabel("Password : ");
23          JTextField inputNama = new JTextField(15);
24          JPasswordField inputpsw = new JPasswordField(15);
25          JPanel panel = new JPanel();
26          panel.add(nama);
27          panel.add(inputNama);
28          panel.add(password);
29          panel.add(inputpsw);
30          u.add(panel);
31      }
32  }
33
```

Output :

b) Complete the understanding of the implementation of the JTextField class in the following table:

| Konstruktor | Keterangan |
|---|---|
| **JTextField()** | Mengkonstruksi obyek dengan teks kosong. |
| **JTextField(int i)** | Mengkonstruksi obyek dengan teks kosong dan jumlah kolom ditentukan oleh parameter columns. |
| **JTextField(String i)** | Mengkonstruksi obyek dengan teks ditentukan oleh nilai parameter text. |
| **JTextField(String teks, int i)** | Mengkonstruksi obyek dengan teks ditentukan oleh nilai parameter text dan jumlah kolom oleh nilai parameter columns. |

| Konstruktor | Keterangan |
|---|---|
| `JTextField()` | Mengkonstruksi obyek dengan teks kosong. |
| `JTextField(int i)` | Mengkonstruksi obyek dengan teks kosong dan jumlah kolom ditentukan oleh parameter columns. |
| `JTextField(String i)` | Mengkonstruksi obyek dengan teks ditentukan oleh nilai parameter text. |
| `JTextField(String teks, int i)` | Mengkonstruksi obyek dengan teks ditentukan oleh nilai parameter text dan jumlah kolom oleh nilai parameter columns. |

6). Radio Buttons and Check Boxes

JRadioButton is used to make one selection out of the many available options. JCheckBox is used to make multiple selections at once. JRadioButton has a constructor similar to JCheckBox. Program 6 is an implementation of using the JRadioButton GUI component.

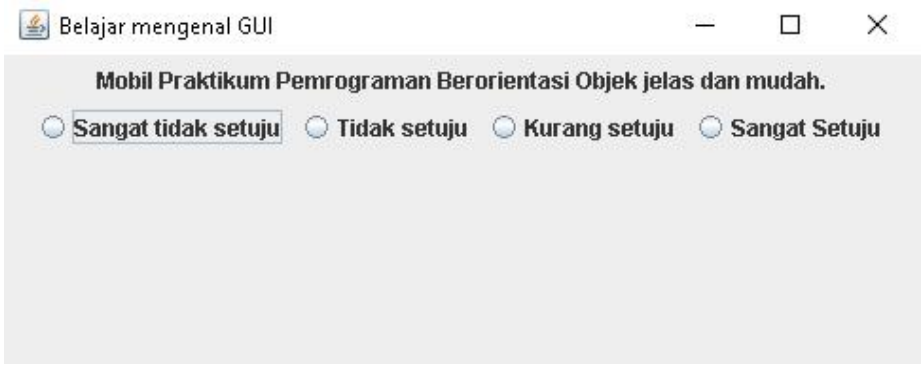
```
1   public class DemRadioButton {
2       public static void main(String[] args) {
3           Utama u = new Utama();
4           u.setSize(1000, 100);
5
6           JRadioButton[] teams = new
    JRadioButton[4];
7           teams [0] = new JRadioButton("Sangat
    tidak setuju");
8           teams [1] = new JRadioButton("Tidak
    setuju");
9           teams [2] = new JRadioButton("Kurang
    setuju");
10          teams [3] = new JRadioButton("Setuju",
    true);
11          teams [3] = new JRadioButton("Sangat
    Setuju");
12
13          JPanel panel = new JPanel();
14          JLabel Pernyataan = new JLabel("Modul
    Praktikum Pemrograman Berorientasi Objek jelas
    dan mudah.");
15          panel.add(Pernyataan);
16
17          ButtonGroup group = new ButtonGroup();
18          for(int i = 0; i<teams.length; i++){
19              group.add(teams[i]);
20              panel.add(teams[i]);
21          }
22
23          u.add(panel);
24          u.setVisible(true);
25      }
26  }
```

*Program 6. Implementasi JRadioButton*

Code Program :

```
12
13  import javax.swing.*;
14
15  public class DemoRadio {
16      public static void main(String[] args){
17          Utama u = new Utama();
18          u.setSize(1000, 100);
19
20          JRadioButton[] teams = new JRadioButton[4];
21          teams [0] = new JRadioButton("Sangat tidak setuju");
22          teams [1] = new JRadioButton("Tidak setuju");
23          teams [2] = new JRadioButton("Kurang setuju");
24          teams [3] = new JRadioButton("Setuju",true);
25          teams [3] = new JRadioButton("Sangat Setuju");
26
27          JPanel panel = new JPanel();
28          JLabel Pernyataan = new JLabel("Mobil Praktikum Pemrograman "
29                  + "Berorientasi Objek jelas dan mudah.");
30          panel.add(Pernyataan);
31
32          ButtonGroup group = new ButtonGroup();
33          for(int i = 0; i < teams.length; i++){
34              group.add(teams[i]);
35              panel.add(teams[i]);
36          }
37          u.add(panel);
38          u.setVisible(true);
39      }
40  }
41
```

Output :




b) Complete the understanding of the implementation of the JCheckBox class in the following table:

| Konstruktor | Keterangan |
|---|---|
| **`JCheckBox(String teks)`** | Mengkonstruksi obyek check box dengan text. |
| **`JCheckBox(String, Boolean)`** | Mengkonstruksi obyek check box dengan text serta menentukan apakah check box dalam kondisi dipilih atau tidak. |
| **`JCheckBox(icon)`** | Mengkonstruksi obyek check box dengan ikon. |
| **`JCheckBox(icon, Boolean)`** | Mengkonstruksi obyek check box dengan ikon serta menentukan apakah check box dalam kondisi dipilih atau tidak. |
| **`JCheckBox(String, Icon)`** | Mengkonstruksi obyek check box dengan text dan ikon. |

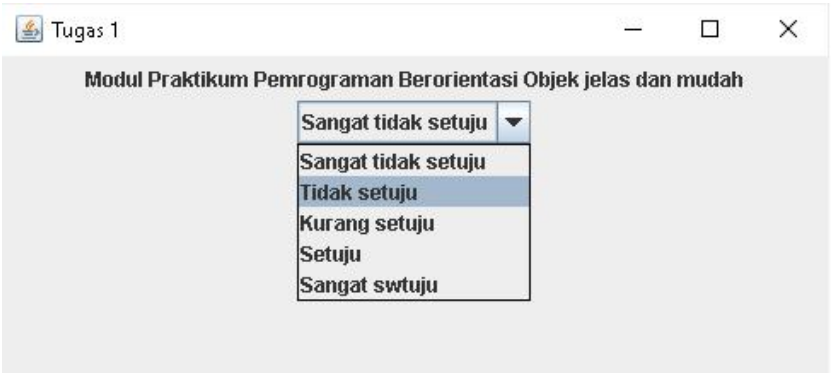
| | |
|---|---|
| **`JCheckBox(String, Icon, Boolean)`** | Mengkonstruksi obyek check box dengan text dan ikon serta menentukan apakah check box dalam kondisi dipilih atau tidak. |

TASK :

1. Code Program :

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

public class JComb extends javax.swing.JFrame {
    public JComb(){
        super("Tugas 1");
        setSize(600, 100);
        setDefaultCloseOperation(EXIT_ON_CLOSE);
        setVisible(true);
        setLocationRelativeTo(null);

    }
    public static void main(String[] args) {
        JComb jc = new JComb();

        JPanel panel = new JPanel();
        JLabel pernyataan = new JLabel("Modul Praktikum Pemrograman Berorientasi "
                + "Objek jelas dan mudah");
        panel.add(pernyataan);
        jc.add(panel);

        String[] pilihan = new String[]{"Sangat tidak setuju", "Tidak setuju" ,
         "Kurang setuju" , "Setuju" , "Sangat swtuju"};
        JComboBox<String> jenisPilihan = new JComboBox<>(pilihan);
        panel.add(jenisPilihan);
    }
}

```

Output :



2. Code Program :

```
13  import java.awt.*;
14  import java.awt.event.*;
15  import javax.swing.*;
16
17  public class changeColor extends JFrame implements ActionListener {
18      JCheckBox m,k,h;
19
20      public changeColor(){
21          super("Change Color Right Now");
22          JMenuBar menuBar = new JMenuBar();
23          JMenu menu = new JMenu("Ubah Warna");
24          JPanel panel = new JPanel();
25          ButtonGroup group = new ButtonGroup();
26          m = new JCheckBox("Merah");
27          k = new JCheckBox("Kuning");
28          h = new JCheckBox("Hijau");
29          menu.add(m);
30          menu.add(k);
31          menu.add(h);
32          group.add(m);
33          group.add(k);
34          group.add(h);
35          menuBar.add(menu);
36          add(menuBar, "North");
37          add(panel, "South");
            m.addActionListener(this);
            k.addActionListener(this);
            h.addActionListener(this);
41      }
42
        public void actionPerformed(ActionEvent e){
44          Object src = e.getSource();
45          Container cnt = getContentPane();
46          if(src==m)
47              cnt.setBackground(java.awt.Color.RED);
48          else if(src==k)
49              cnt.setBackground(java.awt.Color.YELLOW);
```

Output :


Change Color Right Now
Ubah Warna
Merah
Kuning
Hijau


Change Color Right Now
Ubah Warna