Pemograman 3 Sesi 04

Simple Component

Subject :

- Text Field
- Button
- Checkbox
- Radio Button

Tugas 1 : Membuat Text Field

Langkah - Langkah :

- Buat Folder dengan nama `Sesi_04` .
- Masuk kedalam folder `Sesi_04` dan buat file baru dengan nama `content.txt` .
- Isikan artikel atau kata-kata yang membentuk suatu paragraf pada file `content.txt` lalu save.
- Buat file baru dengan nama `TextFieldDemo.java` lalu ketikkan `Source Code` seperti dibawah ini dan save.

```java
/*
 * TextFieldDemo.java requires one additional file:
 * content.txt
 */

import java.awt.Color;
import java.awt.event.ActionEvent;
import java.io.IOException;
import java.io.InputStream;
import java.io.InputStreamReader;
import javax.swing.*;
import javax.swing.text.*;
import javax.swing.event.*;
import javax.swing.GroupLayout.*;

public class TextFieldDemo extends JFrame
                           implements DocumentListener {

    private JTextField entry;
    private JLabel jLabel1;
    private JScrollPane jScrollPane1;
    private JLabel status;
    private JTextArea textArea;

    final static Color  HILIT_COLOR = Color.LIGHT_GRAY;
    final static Color  ERROR_COLOR = Color.PINK;
    final static String CANCEL_ACTION = "cancel-search";

    final Color entryBg;
    final Highlighter hilit;
    final Highlighter.HighlightPainter painter;


    public TextFieldDemo() {
        initComponents();

        InputStream in = getClass().getResourceAsStream("content.txt");
        try {
            textArea.read(new InputStreamReader(in), null);
        } catch (IOException e) {
            e.printStackTrace();
        }
```

```
        hilit = new DefaultHighlighter();
        painter = new
DefaultHighlighter.DefaultHighlightPainter(HILIT_COLOR);
        textArea.setHighlighter(hilit);

        entryBg = entry.getBackground();
        entry.getDocument().addDocumentListener(this);

        InputMap im =
entry.getInputMap(JComponent.WHEN_IN_FOCUSED_WINDOW);
        ActionMap am = entry.getActionMap();
        im.put(KeyStroke.getKeyStroke("ESCAPE"), CANCEL_ACTION);
        am.put(CANCEL_ACTION, new CancelAction());
    }

    /** This method is called from within the constructor to
     * initialize the form.
     */

    private void initComponents() {
        entry = new JTextField();
        textArea = new JTextArea();
        status = new JLabel();
        jLabel1 = new JLabel();

        setDefaultCloseOperation(WindowConstants.EXIT_ON_CLOSE);
        setTitle("TextFieldDemo");

        textArea.setColumns(20);
        textArea.setLineWrap(true);
        textArea.setRows(5);
        textArea.setWrapStyleWord(true);
        textArea.setEditable(false);
        jScrollPane1 = new JScrollPane(textArea);

        jLabel1.setText("Enter text to search:");

        GroupLayout layout = new GroupLayout(getContentPane());
        getContentPane().setLayout(layout);

    //Create a parallel group for the horizontal axis
    ParallelGroup hGroup =
layout.createParallelGroup(GroupLayout.Alignment.LEADING);

    //Create a sequential and a parallel groups
    SequentialGroup h1 = layout.createSequentialGroup();
    ParallelGroup h2 =
layout.createParallelGroup(GroupLayout.Alignment.TRAILING);
```

```
    //Add a container gap to the sequential group h1
    h1.addContainerGap();

    //Add a scroll pane and a label to the parallel group h2
    h2.addComponent(jScrollPane1, GroupLayout.Alignment.LEADING,
GroupLayout.DEFAULT_SIZE, 450, Short.MAX_VALUE);
    h2.addComponent(status, GroupLayout.Alignment.LEADING,
GroupLayout.DEFAULT_SIZE, 450, Short.MAX_VALUE);

    //Create a sequential group h3
    SequentialGroup h3 = layout.createSequentialGroup();
    h3.addComponent(jLabel1);
    h3.addPreferredGap(LayoutStyle.ComponentPlacement.RELATED);
    h3.addComponent(entry, GroupLayout.DEFAULT_SIZE, 321,
Short.MAX_VALUE);

    //Add the group h3 to the group h2
    h2.addGroup(h3);
    //Add the group h2 to the group h1
    h1.addGroup(h2);

    h1.addContainerGap();

    //Add the group h1 to the hGroup
    hGroup.addGroup(GroupLayout.Alignment.TRAILING, h1);
    //Create the horizontal group
    layout.setHorizontalGroup(hGroup);


    //Create a parallel group for the vertical axis
    ParallelGroup vGroup =
layout.createParallelGroup(GroupLayout.Alignment.LEADING);
    //Create a sequential group v1
    SequentialGroup v1 = layout.createSequentialGroup();
    //Add a container gap to the sequential group v1
    v1.addContainerGap();
    //Create a parallel group v2
    ParallelGroup v2 =
layout.createParallelGroup(GroupLayout.Alignment.BASELINE);
    v2.addComponent(jLabel1);
    v2.addComponent(entry, GroupLayout.PREFERRED_SIZE,
GroupLayout.DEFAULT_SIZE, GroupLayout.PREFERRED_SIZE);
    //Add the group v2 tp the group v1
    v1.addGroup(v2);
```

```
v1.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED);
    v1.addComponent(jScrollPane1, GroupLayout.DEFAULT_SIZE, 233,
Short.MAX_VALUE);

v1.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED);
    v1.addComponent(status);
    v1.addContainerGap();

    //Add the group v1 to the group vGroup
    vGroup.addGroup(v1);
    //Create the vertical group
    layout.setVerticalGroup(vGroup);
    pack();
    }

    public void search() {
        hilit.removeAllHighlights();

        String s = entry.getText();
        if (s.length() <= 0) {
            message("Nothing to search");
            return;
        }

        String content = textArea.getText();
        int index = content.indexOf(s, 0);
        if (index >= 0) {   // match found
            try {
                int end = index + s.length();
                hilit.addHighlight(index, end, painter);
                textArea.setCaretPosition(end);
                entry.setBackground(entryBg);
                message("'" + s + "' found. Press ESC to end search");
            } catch (BadLocationException e) {
                e.printStackTrace();
            }
        } else {
            entry.setBackground(ERROR_COLOR);
            message("'" + s + "' not found. Press ESC to start a new
search");
        }
    }

    void message(String msg) {
        status.setText(msg);
    }
```

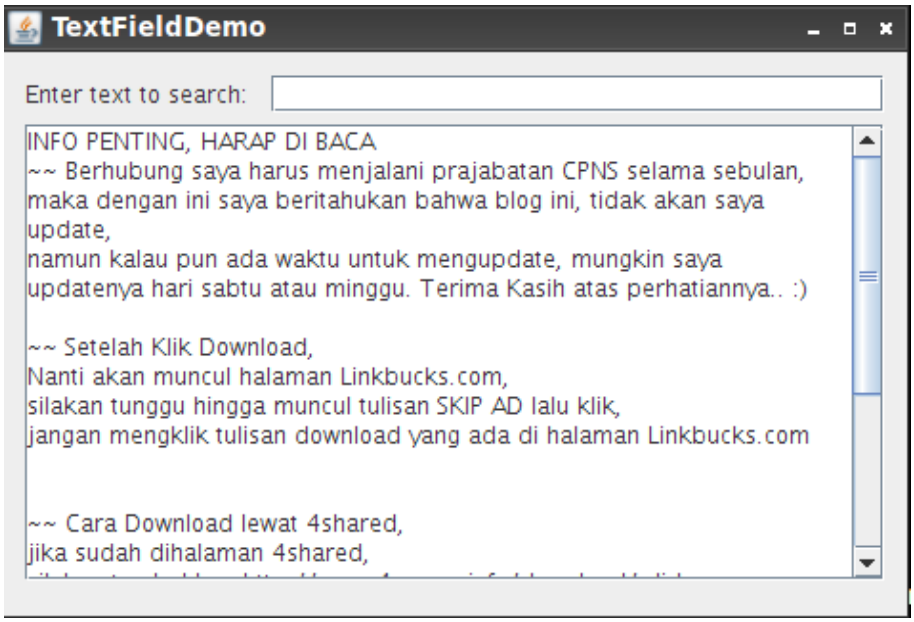
```
        // DocumentListener methods

        public void insertUpdate(DocumentEvent ev) {
            search();
        }

        public void removeUpdate(DocumentEvent ev) {
            search();
        }

        public void changedUpdate(DocumentEvent ev) {
        }

        class CancelAction extends AbstractAction {
            public void actionPerformed(ActionEvent ev) {
                hilit.removeAllHighlights();
                entry.setText("");
                entry.setBackground(entryBg);
            }
        }


        public static void main(String args[]) {
            //Schedule a job for the event dispatch thread:
            //creating and showing this application's GUI.
        SwingUtilities.invokeLater(new Runnable() {
                public void run() {
                    //Turn off metal's use of bold fonts
                    UIManager.put("swing.boldMetal", Boolean.FALSE);
            new TextFieldDemo().setVisible(true);
                }
            });
        }


    }
```

- Jika sudah kita dapat mengcompile file `TextFieldDemo.java` dengan perintah berikut.

```
javac TextFieldDemo.java
```

- Setelah berhasil compile kita jalankan dengan perintah `java TextFieldDemo` .

- Jika berhasil akan tampil seperti gambar dibawah ini.



Gambar TextField

Tugas 2 : Membuat Button

Langkah - Langkah :

- Masih berada pada folder `Sesi_04` dan buat folder `images` dan kita download 3 buah image pada link berikut dan letakkan pada folder `images`.

1. https://github.com/sholihin/Pemograman3/blob/master/Sesi_04/images/left.gif
2. https://github.com/sholihin/Pemograman3/blob/master/Sesi_04/images/right.gif
3. https://github.com/sholihin/Pemograman3/blob/master/Sesi_04/images/middle.gif

- Lalu kembali pada folder `Sesi_04` dan buat file dengan nama `ButtonDemo.java` .
- Isikan `ButtonDemo.java` dengan `Source Code` dibawah ini.

```java
import javax.swing.AbstractButton;
import javax.swing.JButton;
import javax.swing.JPanel;
import javax.swing.JFrame;
import javax.swing.ImageIcon;

import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import java.awt.event.KeyEvent;

/*
 * ButtonDemo.java requires the following files:
 *   images/right.gif
 *   images/middle.gif
 *   images/left.gif
 */
public class ButtonDemo extends JPanel
                        implements ActionListener {
    protected JButton b1, b2, b3;

    public ButtonDemo() {
        ImageIcon leftButtonIcon = createImageIcon("images/right.gif");
        ImageIcon middleButtonIcon = createImageIcon("images/middle.gif");
        ImageIcon rightButtonIcon = createImageIcon("images/left.gif");

        b1 = new JButton("Disable middle button", leftButtonIcon);
        b1.setVerticalTextPosition(AbstractButton.CENTER);
        b1.setHorizontalTextPosition(AbstractButton.LEADING); //aka LEFT, for
left-to-right locales
        b1.setMnemonic(KeyEvent.VK_D);
        b1.setActionCommand("disable");

        b2 = new JButton("Middle button", middleButtonIcon);
        b2.setVerticalTextPosition(AbstractButton.BOTTOM);
        b2.setHorizontalTextPosition(AbstractButton.CENTER);
        b2.setMnemonic(KeyEvent.VK_M);

        b3 = new JButton("Enable middle button", rightButtonIcon);
        //Use the default text position of CENTER, TRAILING (RIGHT).
        b3.setMnemonic(KeyEvent.VK_E);
        b3.setActionCommand("enable");
        b3.setEnabled(false);

        //Listen for actions on buttons 1 and 3.
        b1.addActionListener(this);
        b3.addActionListener(this);
```

```
        b1.setToolTipText("Click this button to disable the middle button.");
        b2.setToolTipText("This middle button does nothing when you click
it.");
        b3.setToolTipText("Click this button to enable the middle button.");

        //Add Components to this container, using the default FlowLayout.
        add(b1);
        add(b2);
        add(b3);
    }

    public void actionPerformed(ActionEvent e) {
        if ("disable".equals(e.getActionCommand())) {
            b2.setEnabled(false);
            b1.setEnabled(false);
            b3.setEnabled(true);
        } else {
            b2.setEnabled(true);
            b1.setEnabled(true);
            b3.setEnabled(false);
        }
    }

    /** Returns an ImageIcon, or null if the path was invalid. */
    protected static ImageIcon createImageIcon(String path) {
        java.net.URL imgURL = ButtonDemo.class.getResource(path);
        if (imgURL != null) {
            return new ImageIcon(imgURL);
        } else {
            System.err.println("Couldn't find file: " + path);
            return null;
        }
    }

    /**
     * Create the GUI and show it.  For thread safety,
     * this method should be invoked from the
     * event-dispatching thread.
     */
    private static void createAndShowGUI() {

        //Create and set up the window.
        JFrame frame = new JFrame("ButtonDemo");
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

        //Create and set up the content pane.
        ButtonDemo newContentPane = new ButtonDemo();
        newContentPane.setOpaque(true); //content panes must be opaque
        frame.setContentPane(newContentPane);
```

```
        //Display the window.
        frame.pack();
        frame.setVisible(true);
    }

    public static void main(String[] args) {
        //Schedule a job for the event-dispatching thread:
        //creating and showing this application's GUI.
        javax.swing.SwingUtilities.invokeLater(new Runnable() {
            public void run() {
                createAndShowGUI();
            }
        });
    }
}
```

- Jika telah selesai maka kita compile `ButtonDemo.java` dengan perintah berikut.

```
javac ButtonDemo.java
```

- Lalu kita jalankan dengan perintah `java ButtonDemo` , berikut adalah screenshootnya.

Gambar Button

Tugas 3 : Membuat Checkbox

Langkah - Langkah :

- Buat folder baru didalam folder `images` dengan nama `geek` .
- Isikan folder `geek` dengan image-image yang ada pada link dibawah ini.

https://github.com/sholihin/Pemograman3/tree/master/Sesi_04/images/geek

- Jika sudah maka kita dapat membuat file baru pada folder `Sesi_04` dengan nama file `CheckBoxDemo.java` .
- Isikan `CheckBoxDemo.java` dengan `Source Code` dibawah ini.

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

/*
 * CheckBoxDemo.java requires 16 image files in the images/geek
 * directory:
 * geek-----.gif, geek-c---.gif, geek--g--.gif, geek---h-.gif, geek----t.gif,
 * geek-cg--.gif, ..., geek-cght.gif.
 */

public class CheckBoxDemo extends JPanel
                          implements ItemListener {
    JCheckBox chinButton;
    JCheckBox glassesButton;
    JCheckBox hairButton;
    JCheckBox teethButton;

    StringBuffer choices;
    JLabel pictureLabel;

    public CheckBoxDemo() {
        super(new BorderLayout());

        //Create the check boxes.
        chinButton = new JCheckBox("Chin");
        chinButton.setMnemonic(KeyEvent.VK_C);
        chinButton.setSelected(true);

        glassesButton = new JCheckBox("Glasses");
        glassesButton.setMnemonic(KeyEvent.VK_G);
        glassesButton.setSelected(true);
```

```
        hairButton = new JCheckBox("Hair");
        hairButton.setMnemonic(KeyEvent.VK_H);
        hairButton.setSelected(true);

        teethButton = new JCheckBox("Teeth");
        teethButton.setMnemonic(KeyEvent.VK_T);
        teethButton.setSelected(true);

        //Register a listener for the check boxes.
        chinButton.addItemListener(this);
        glassesButton.addItemListener(this);
        hairButton.addItemListener(this);
        teethButton.addItemListener(this);

        //Indicates what's on the geek.
        choices = new StringBuffer("cght");

        //Set up the picture label
        pictureLabel = new JLabel();
        pictureLabel.setFont(pictureLabel.getFont().deriveFont(Font.ITALIC));
        updatePicture();

        //Put the check boxes in a column in a panel
        JPanel checkPanel = new JPanel(new GridLayout(0, 1));
        checkPanel.add(chinButton);
        checkPanel.add(glassesButton);
        checkPanel.add(hairButton);
        checkPanel.add(teethButton);

        add(checkPanel, BorderLayout.LINE_START);
        add(pictureLabel, BorderLayout.CENTER);
        setBorder(BorderFactory.createEmptyBorder(20,20,20,20));
    }
```

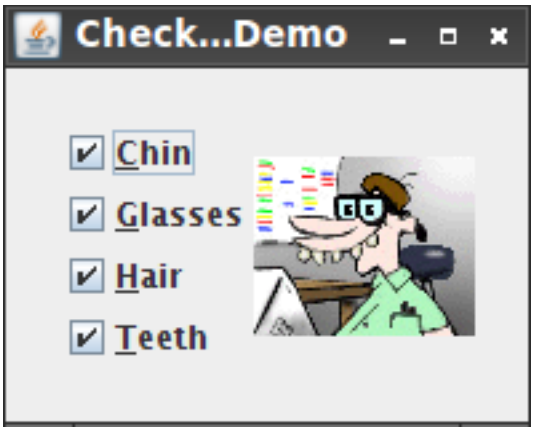
```
/** Listens to the check boxes. */
public void itemStateChanged(ItemEvent e) {
    int index = 0;
    char c = '-';
    Object source = e.getItemSelectable();

    if (source == chinButton) {
        index = 0;
        c = 'c';
    } else if (source == glassesButton) {
        index = 1;
        c = 'g';
    } else if (source == hairButton) {
        index = 2;
        c = 'h';
    } else if (source == teethButton) {
        index = 3;
        c = 't';
    }

    //Now that we know which button was pushed, find out
    //whether it was selected or deselected.
    if (e.getStateChange() == ItemEvent.DESELECTED) {
        c = '-';
    }

    //Apply the change to the string.
    choices.setCharAt(index, c);

    updatePicture();
}

protected void updatePicture() {
    //Get the icon corresponding to the image.
    ImageIcon icon = createImageIcon(
                                "images/geek/geek-"
                                + choices.toString()
                                + ".gif");
    pictureLabel.setIcon(icon);
    pictureLabel.setToolTipText(choices.toString());
    if (icon == null) {
        pictureLabel.setText("Missing Image");
    } else {
        pictureLabel.setText(null);
    }
}
```

```
    /** Returns an ImageIcon, or null if the path was invalid. */
    protected static ImageIcon createImageIcon(String path) {
        java.net.URL imgURL = CheckBoxDemo.class.getResource(path);
        if (imgURL != null) {
            return new ImageIcon(imgURL);
        } else {
            System.err.println("Couldn't find file: " + path);
            return null;
        }
    }

    /**
     * Create the GUI and show it.  For thread safety,
     * this method should be invoked from the
     * event-dispatching thread.
     */
    private static void createAndShowGUI() {
        //Create and set up the window.
        JFrame frame = new JFrame("CheckBoxDemo");
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

        //Create and set up the content pane.
        JComponent newContentPane = new CheckBoxDemo();
        newContentPane.setOpaque(true); //content panes must be opaque
        frame.setContentPane(newContentPane);

        //Display the window.
        frame.pack();
        frame.setVisible(true);
    }

    public static void main(String[] args) {
        //Schedule a job for the event-dispatching thread:
        //creating and showing this application's GUI.
        javax.swing.SwingUtilities.invokeLater(new Runnable() {
            public void run() {
                createAndShowGUI();
            }
        });
    }
}
```

- Jika telah selesai maka kita compile `CheckBoxDemo.java` dengan perintah berikut

```
javac CheckBoxDemo.java
```

- Lalu kita jalankan dengan perintah `java CheckBoxDemo` , berikut adalah screenshootnya.



Gambar CheckBox

Tugas 4 : Membuat Radio Button

Langkah - Langkah :

- Download image-image yang ada pada link dibawah ini dan letakkan pada folder `images` .

1. https://github.com/sholihin/Pemograman3/blob/master/Sesi_04/images/Bird.gif
2. https://github.com/sholihin/Pemograman3/blob/master/Sesi_04/images/Cat.gif
3. https://github.com/sholihin/Pemograman3/blob/master/Sesi_04/images/Dog.gif
4. https://github.com/sholihin/Pemograman3/blob/master/Sesi_04/images/Pig.gif
5. https://github.com/sholihin/Pemograman3/blob/master/Sesi_04/images/Rabbit.gif

- Jika sudah maka kita dapat membuat file baru pada folder `Sesi_04` dengan nama file `RadioButtonDemo.java` .
- Isikan `RadioButtonDemo.java` dengan `Source Code` dibawah ini.

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

/*
 * RadioButtonDemo.java requires these files:
 *   images/Bird.gif
 *   images/Cat.gif
 *   images/Dog.gif
 *   images/Rabbit.gif
 *   images/Pig.gif
 */
public class RadioButtonDemo extends JPanel
                             implements ActionListener {
    static String birdString = "Bird";
    static String catString = "Cat";
    static String dogString = "Dog";
    static String rabbitString = "Rabbit";
    static String pigString = "Pig";

    JLabel picture;

    public RadioButtonDemo() {
        super(new BorderLayout());

        //Create the radio buttons.
        JRadioButton birdButton = new JRadioButton(birdString);
        birdButton.setMnemonic(KeyEvent.VK_B);
        birdButton.setActionCommand(birdString);
        birdButton.setSelected(true);

        JRadioButton catButton = new JRadioButton(catString);
        catButton.setMnemonic(KeyEvent.VK_C);
        catButton.setActionCommand(catString);

        JRadioButton dogButton = new JRadioButton(dogString);
        dogButton.setMnemonic(KeyEvent.VK_D);
        dogButton.setActionCommand(dogString);

        JRadioButton rabbitButton = new JRadioButton(rabbitString);
        rabbitButton.setMnemonic(KeyEvent.VK_R);
        rabbitButton.setActionCommand(rabbitString);

        JRadioButton pigButton = new JRadioButton(pigString);
        pigButton.setMnemonic(KeyEvent.VK_P);
        pigButton.setActionCommand(pigString);
```

```
    //Group the radio buttons.
    ButtonGroup group = new ButtonGroup();
    group.add(birdButton);
    group.add(catButton);
    group.add(dogButton);
    group.add(rabbitButton);
    group.add(pigButton);

    //Register a listener for the radio buttons.
    birdButton.addActionListener(this);
    catButton.addActionListener(this);
    dogButton.addActionListener(this);
    rabbitButton.addActionListener(this);
    pigButton.addActionListener(this);

    //Set up the picture label.
    picture = new JLabel(createImageIcon("images/"
                                         + birdString
                                         + ".gif"));

    //The preferred size is hard-coded to be the width of the
    //widest image and the height of the tallest image.
    //A real program would compute this.
    picture.setPreferredSize(new Dimension(177, 122));


    //Put the radio buttons in a column in a panel.
    JPanel radioPanel = new JPanel(new GridLayout(0, 1));
    radioPanel.add(birdButton);
    radioPanel.add(catButton);
    radioPanel.add(dogButton);
    radioPanel.add(rabbitButton);
    radioPanel.add(pigButton);

    add(radioPanel, BorderLayout.LINE_START);
    add(picture, BorderLayout.CENTER);
    setBorder(BorderFactory.createEmptyBorder(20,20,20,20));
}

/** Listens to the radio buttons. */
public void actionPerformed(ActionEvent e) {
    picture.setIcon(createImageIcon("images/"
                                    + e.getActionCommand()
                                    + ".gif"));
}
```

```
    /** Returns an ImageIcon, or null if the path was invalid. */
    protected static ImageIcon createImageIcon(String path) {
        java.net.URL imgURL = RadioButtonDemo.class.getResource(path);
        if (imgURL != null) {
            return new ImageIcon(imgURL);
        } else {
            System.err.println("Couldn't find file: " + path);
            return null;
        }
    }

    /**
     * Create the GUI and show it.  For thread safety,
     * this method should be invoked from the
     * event-dispatching thread.
     */
    private static void createAndShowGUI() {
        //Create and set up the window.
        JFrame frame = new JFrame("RadioButtonDemo");
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

        //Create and set up the content pane.
        JComponent newContentPane = new RadioButtonDemo();
        newContentPane.setOpaque(true); //content panes must be opaque
        frame.setContentPane(newContentPane);

        //Display the window.
        frame.pack();
        frame.setVisible(true);
    }

    public static void main(String[] args) {
        //Schedule a job for the event-dispatching thread:
        //creating and showing this application's GUI.
        javax.swing.SwingUtilities.invokeLater(new Runnable() {
            public void run() {
                createAndShowGUI();
            }
        });
    }
}
```

- Jika telah selesai maka kita compile `RadioButtonDemo.java` dengan perintah berikut.

```
javac RadioButtonDemo.java
```

- Lalu kita jalankan dengan perintah `java RadioButtonDemo` , berikut adalah screenshootnya.

Gambar RadioButton