

3.3 Penanganan Kejadian *(Event Handling)*

Event

1. Event adalah kejadian atau **peristiwa** yang dilakukan oleh **user** terhadap **user interface** menggunakan peralatan **mouse** dan **keyboard**
2. Setiap objek dapat **dinotifikasi** jika suatu event terjadi sehingga objek tersebut dapat **memutuskan apa yang harus dilakukan** untuk menanggapi (menangani) event tersebut (event handling)
3. Agar suatu objek dapat dinotifikasi tentang suatu event, **objek harus mendaftarkan diri** sebagai **event listener** ke sumber yg menghasilkan event, dan mengimplementasikan **interface listener** yg sesuai

Proses Penanganan Event (Kejadian)

1. Komponen harus didaftarkan sebagai pendengar (listener) dg menggunakan method addXXXListener()

```
 JButton tombolSelesai = new JButton("Selesai");  
tombolSelesai.addActionListener(this);
```

2. Meng-implementasi interface listener atau meng-extends class adapter (bisa juga dengan membuat inner class)

1. class HelloGUI implements MouseListener{}
2. class HelloGUI extends MouseAdapter{} atau
class HelloGUI extends JFrame{ class handler extends MouseAdapter{}}

3. Menuliskan code penangan event pada method handler

```
 MouseAdapter{  
  
    public void mouseClicked(MouseEvent e){  
        //code penangan kejadian  
    }  
}
```

Listener Yang Sering Digunakan

Kategorie	Interface	Method
Action	ActionListener	actionPerformed(ActionEvent)
Item	ItemListener	itemStateChanged(ItemEvent)
Mouse	MouseListener	mouseClicked(MouseEvent) mouseEntered(MouseEvent) mouseExited(MouseEvent) mousePressed(MouseEvent) mouseReleased(MouseEvent)
Mouse Motion	MouseMotionListener	mouseDragged(MouseEvent) mouseMoved(MouseEvent)
Key	KeyListener	keyPressed(KeyEvent) keyReleased(KeyEvent) keyTyped(KeyEvent)
Focus	FocusListener	focusGained(FocusEvent) focusLost(FocusEvent)
Window	WindowListener	windowClosing(WindowEvent) windowOpened(WindowEvent) windowActivated(WindowEvent) windowDeactivated(WindowEvent)

Daftar Listener Lengkap

Listener (Semua Komponen Swing)

Listener	Deskripsi
ComponentListener	Mendengarkan perubahan size, position, atau visibility dari komponen
FocusListener	Mendengarkan ketika komponen mendapatkan atau kehilangan fokus keyboard
KeyListener	Mendengarkan penekanan tombol keyboard (hanya untuk komponen yang mendapat fokus keyboard)
MouseListener	Mendengarkan penekanan mouse, klik mouse, pelepasan mouse, dan pergerakan mouse
MouseMotionListener	Mendengarkan perubahan posisi kursor mouse pada komponen
MouseWheelListener	Mendengarkan pergerakan roda mouse pada komponen
HierarchyListener	Mendengarkan perubahan hirarki komponen karena kejadian yang berubah
HierarchyBoundListener	Mendengarkan perubahan hirarki komponen karena kejadian pergerakan dan perubahan ukuran

Listener (Komponen Tertentu) -1-

Component	Action	Caret	Change	Document	Item	ListSelection	Window
JButton	●		●		●		
JCheckBox	●		●		●		
JColorChooser			●				
JComboBox	●				●		
JDialog							●
JEditorPane		●		●			
JFileChooser	●						
JFormattedTextField	●	●		●			
JFrame							●
JList						●	
JMenuItem	●		●		●		

Listener (Komponen Tertentu) -2-

Component	Action	Caret	Change	Document	Item	ListSelection	Window
JPasswordField	●	●		●			
JProgressBar			●				
JRadioButton	●		●		●		
JSlider			●				
JSpinner			●				
JTabbedPane			●				
JTable						●	
JTextArea		●		●			
JTextField	●	●		●			
JTextPane		●		●			
JToggleButton	●		●		●		
ViewPort (JScrollPane)			●				

Listener API Table -1-

Listener or Adapter	Listener Method	Deskripsi
ActionListener	actionPerformed(ActionEvent)	
AncestorListener	ancestorAdded(AncestorEvent) ancestorMoved(AncestorEvent) ancestorRemoved(AncestorEvent)	
CaretListener	caretUpdate(CaretEvent)	
CellEditorListener	editingStopped(ChangeEvent) editingCanceled(ChangeEvent)	
ChangeListener	stateChanged(ChangeEvent)	
ComponentListener ComponentAdapter	componentHidden(ComponentEvent) componentMoved(ComponentEvent) componentResized(ComponentEvent) componentShown(ComponentEvent)	
ContainerListener ContainerAdapter	componentAdded(ContainerEvent) componentRemoved(ContainerEvent)	
DocumentListener	changedUpdate(DocumentEvent) insertUpdate(DocumentEvent) removeUpdate(DocumentEvent)	
ExceptionListener	exceptionThrown(Exception)	

Listener API Table -2-

Listener or Adapter	Listener Method	Deskripsi
FocusListener FocusAdapter	focusGained(FocusEvent) focusLost(FocusEvent)	
HierarchyBoundsListener HierarchyBoundsAdapter	ancestorMoved(HierarchyEvent) ancestorResized(HierarchyEvent)	
HierarchyListener	hierarchyChanged(HierarchyEvent)	
HyperlinkListener	hyperlinkUpdate(HyperlinkEvent)	
InputMethodListener	caretPositionChanged(InputMethodEvent) inputMethodTextChanged(InputMethodEvent)	
InternalFrameListener InternalFrameAdapter	internalFrameActivated(InternalFrameEvent) internalFrameClosed(InternalFrameEvent) internalFrameClosing(InternalFrameEvent) internalFrameDeactivated(InternalFrameEvent) internalFrameDeiconified(InternalFrameEvent) internalFrameIconified(InternalFrameEvent) internalFrameOpened(InternalFrameEvent)	
ItemListener	itemStateChanged(ItemEvent)	
KeyListener KeyAdapter	keyPressed(KeyEvent) keyReleased(KeyEvent) keyTyped(KeyEvent)	

Listener API Table -3-

Listener or Adapter	Listener Method	Deskripsi
ListDataListener	contentsChanged(ListDataEvent) intervalAdded(ListDataEvent) intervalRemoved(ListDataEvent)	
ListSelectionListener	valueChanged(ListSelectionEvent)	
MenuDragMouseListener	menuDragMouseDragged(MenuDragMouseEvent) menuDragMouseEntered(MenuDragMouseEvent) menuDragMouseExited(MenuDragMouseEvent) menuDragMouseReleased(MenuDragMouseEvent)	
MenuKeyListener	menuKeyPressed(MenuKeyEvent) menuKeyReleased(MenuKeyEvent) menuKeyTyped(MenuKeyEvent)	
MenuListener	menuCanceled(MenuEvent) menuDeselected(MenuEvent) menuSelected(MenuEvent)	

Listener API Table -4-

Listener or Adapter	Listener Method	Deskripsi
MouseListener	mouseClicked(MouseEvent) mouseEntered(MouseEvent) mouseExited(MouseEvent) mousePressed(MouseEvent) mouseReleased(MouseEvent)	
MouseMotionListener MouseMotionAdapter, MouseInputAdapter	mouseDragged(MouseEvent) mouseMoved(MouseEvent)	
MouseWheelListener MouseAdapter	popupMenuCanceled(PopupMenuEvent) popupMenuWillBecomeInvisible(PopupMenuEvent) popupMenuWillBecomeVisible(PopupMenuEvent)	
PropertyChangeListener	propertyChange(PropertyChangeEvent)	
TableColumnModelListener	columnAdded(TableColumnModelEvent) columnMoved(TableColumnModelEvent) columnRemoved(TableColumnModelEvent) columnMarginChanged(ChangeEvent) columnSelectionChanged(ListSelectionEvent)	

Membangun Aplikasi GUI dengan Netbeans



<default config>



Search (Ctrl+I)

- | AplikasiBiodataMahasiswa
- | AplikasiDataMahasiswa
- | AplikasiKalkulator
- | AplikasiPertambahan
- | AppJumlahHari
- | Calculator
- | CelciusToFahrenheit
- | Exercises
- | Kalkulator
- | KonversiSuhu
- | Latihan
- | Latihan28Pebruari2009
- | SistemBiodataMahasiswa

Navigator

<No View Available>

Start Page | KalkulatorGUI.java | TambahTambahGUI.java | NilaiMahasiswaGUI.java | NewJFrame.java...



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Get Started



Quick Start Tutorial



What's New



Take a Tour

Extend Your IDE

Add any IDE plugins that you have not yet installed and look for other features provided by the NetBeans team and other developers.

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- Java
- Java Web (Visual JSF)
- Java EE
- Java ME (Ricoh SDK/J)
- PHP
- Groovy
- UML
- NetBeans Modules

- Java Web
- Web Services
- Java ME (MIDP)
- Java ME (BD-J)
- Ruby
- C/C++
- SOA

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- UML Modeling

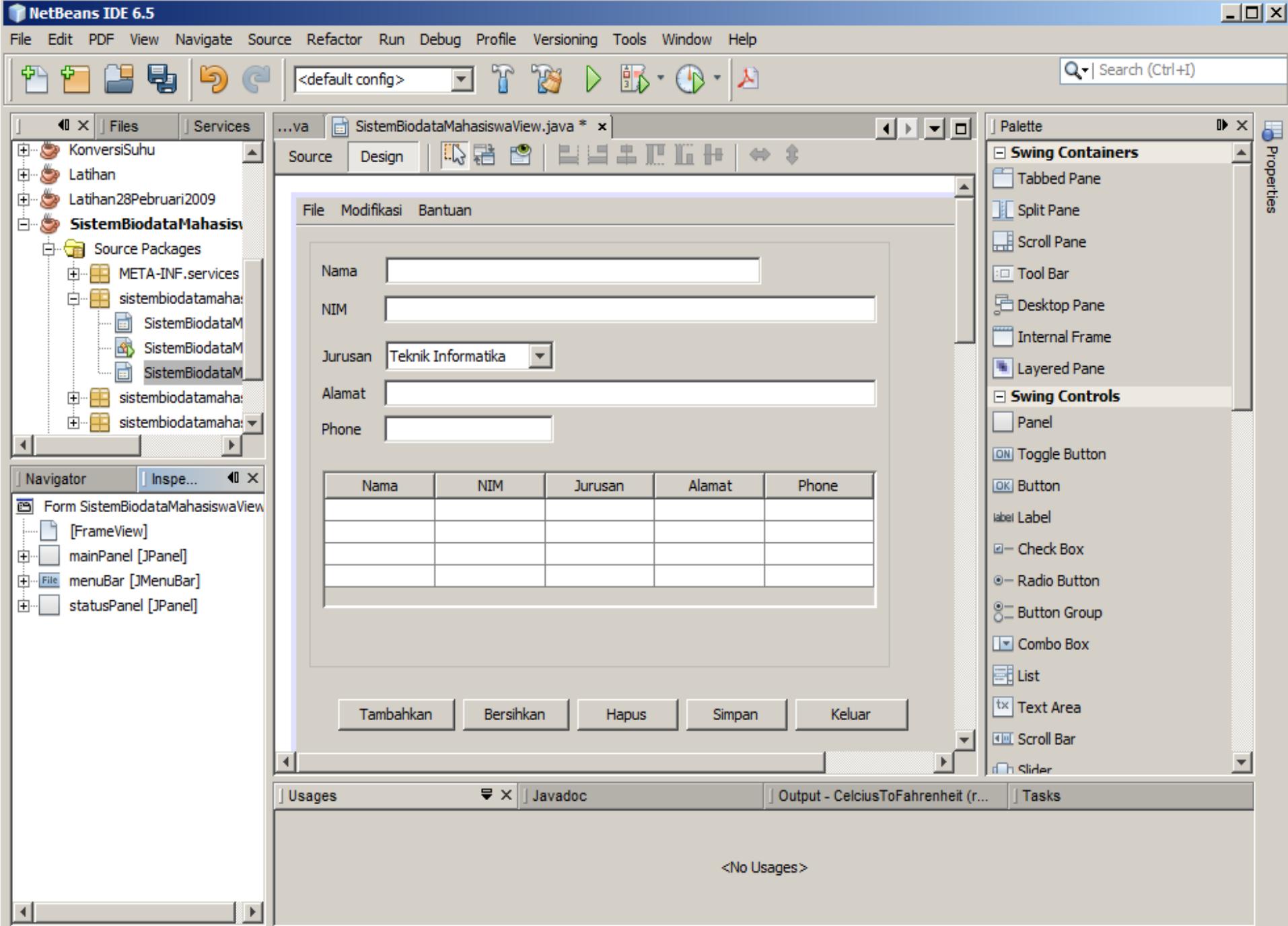
Usages

Javadoc

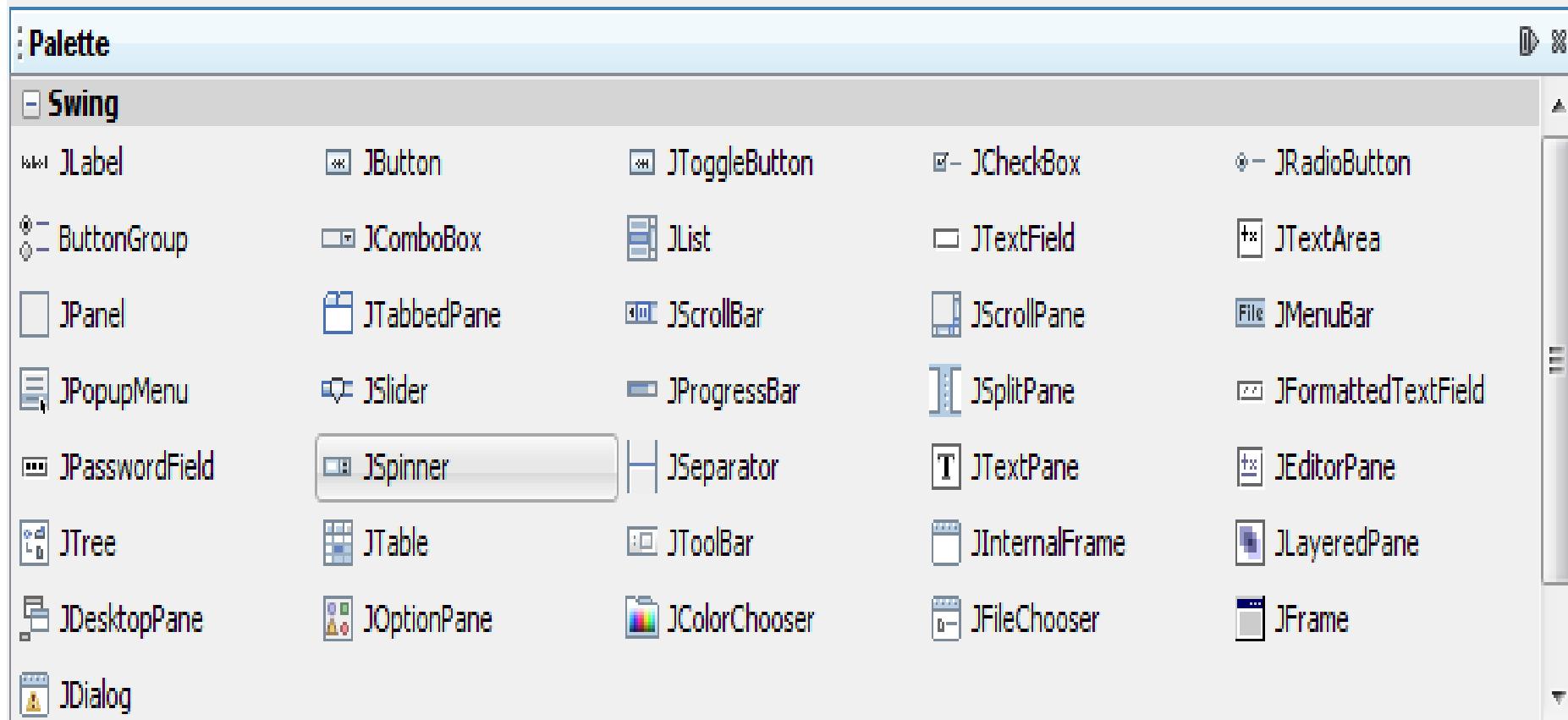
Output - CelciusToFahrenheit (r...)

Tasks

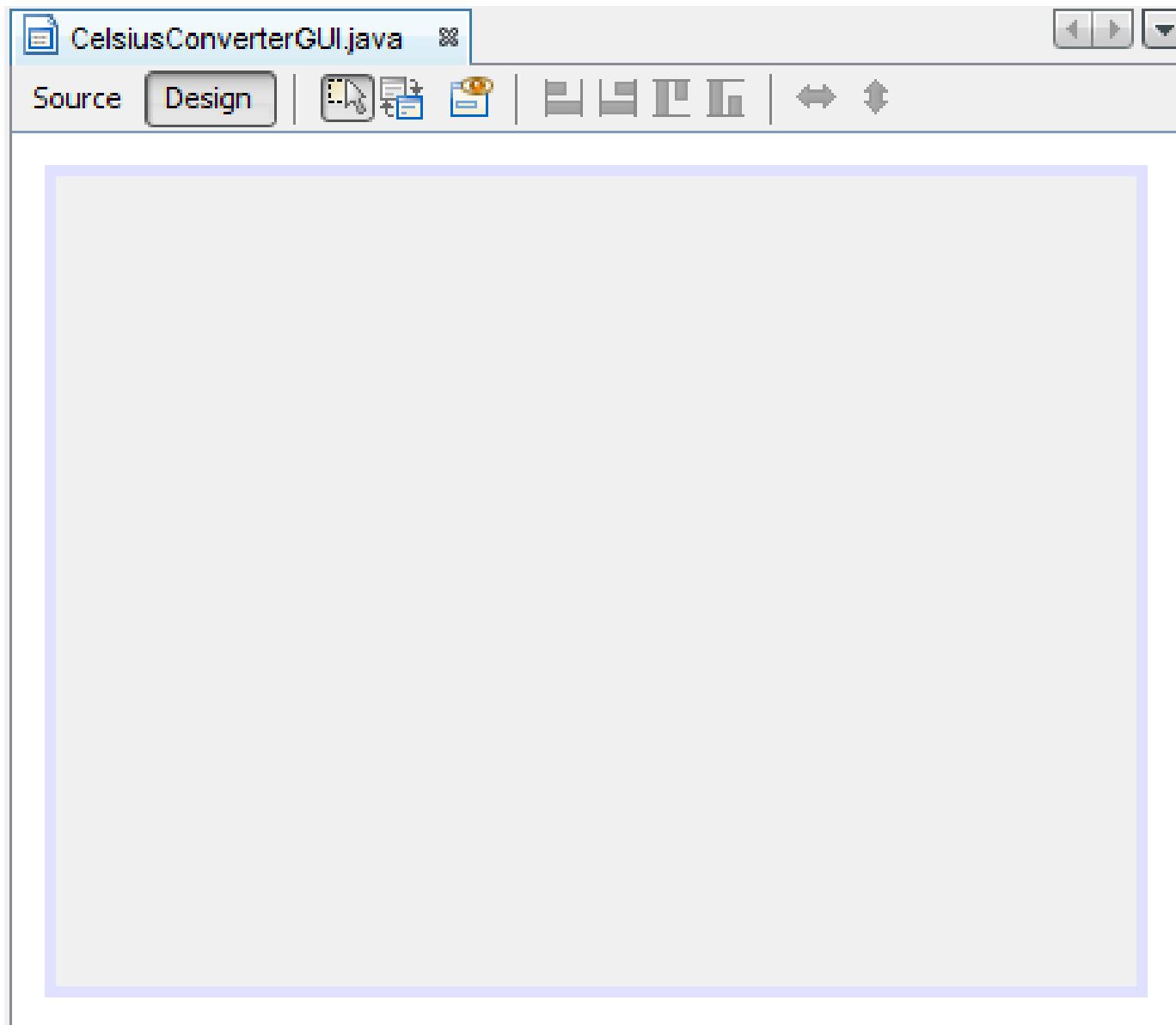
<No Usages>



The Palette



The Design Area



The Source Editor

The screenshot shows the NetBeans IDE's Source Editor window for a Java file named `CelsiusConverterGUI.java`. The code implements a GUI application using Java Swing. The editor features syntax highlighting and code folding. A specific section of the code, which defines a layout for the content pane, is highlighted with a yellow background.

```
public class CelsiusConverterGUI extends javax.swing.JFrame {

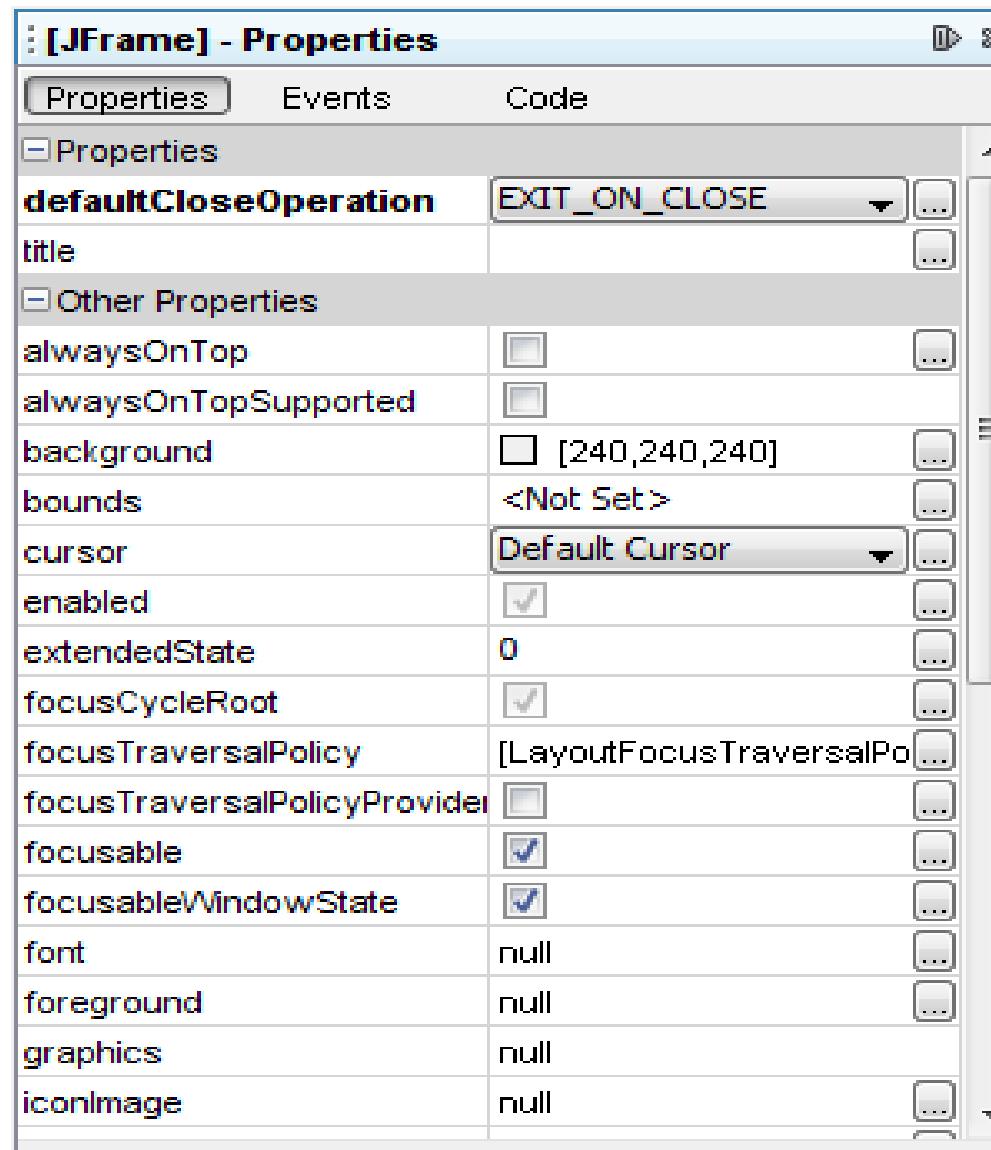
    /** Creates new form CelsiusConverterGUI */
    public CelsiusConverterGUI() {
        initComponents();
    }

    /** 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.
     */
    // <editor-fold defaultstate="collapsed" desc=" Generated Code ">
    private void initComponents() {

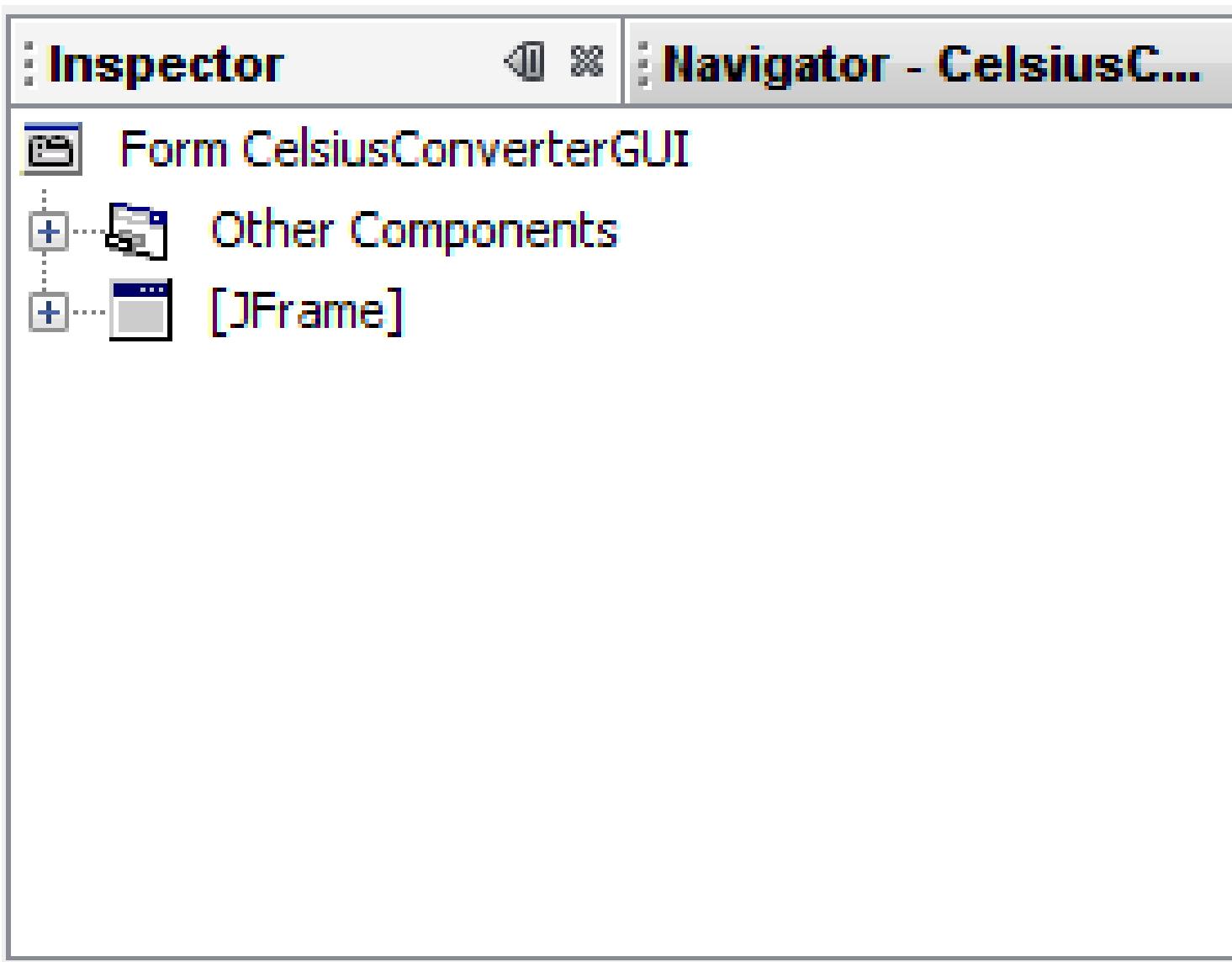
        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
        javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
        getContentPane().setLayout(layout);
        layout.setHorizontalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()
                    .addGap(0, 400, Short.MAX_VALUE)
                    .addGap(0, 300, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()
                    .addGap(0, 400, Short.MAX_VALUE)
                    .addGap(0, 300, Short.MAX_VALUE))
        );
        pack();
    }// </editor-fold>

    /**
     * @param args the command line arguments
     */
    public static void main(String args[]) {
        36:2 INS
    }
}
```

The Property Editor



The Inspector



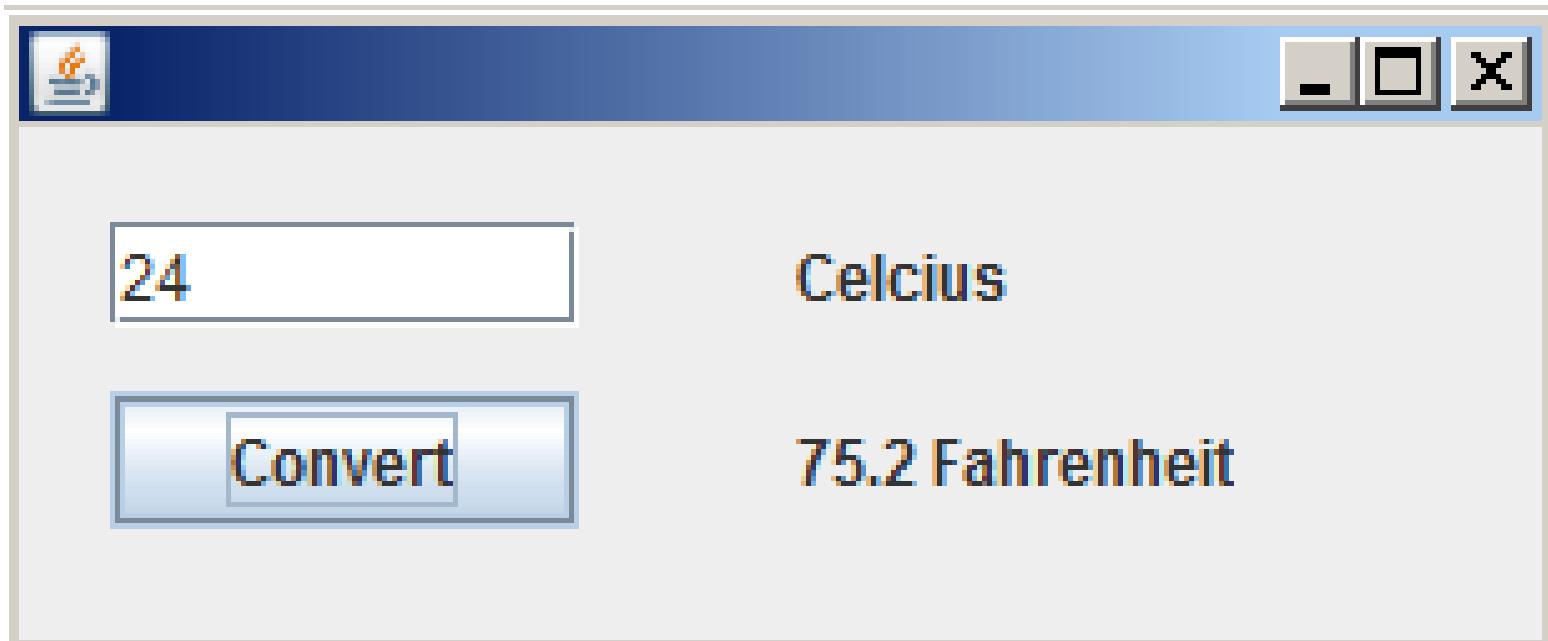
3.4 Studi Kasus Membangun Aplikasi GUI

Studi Kasus Aplikasi GUI

1. Aplikasi Konversi Suhu
2. Aplikasi Pertambahan Dua Angka
3. Aplikasi Penghitungan Jumlah Hari
4. Aplikasi Penampil Gambar
5. Aplikasi Kalkulator
6. Aplikasi Penentu Nilai Mahasiswa
7. Aplikasi Biodata Mahasiswa

Aplikasi Konversi Suhu

GUI Component: **TextField**, **Label**, **Button**
Events: **actionPerformed**, **mouseClicked**



Algoritma untuk Event Handling

1. Ambil Isi dari textfield, simpan dalam variabel celcius
2. Konversi celcius ke fahrenheit dengan rumus di bawah, dan simpan hasilnya dalam variabel fahrenheit
$$\text{fahrenheit} = 1.8 * \text{celcius} + 32$$
3. Tempelkan hasil (fahrenheit) ke label fahrenheit (menimpa isi lama)

1. Membuat Project Baru

New Project...

Ctrl+Shift+N

New File...

Ctrl+N

Open Project...

Ctrl+Shift+O

Open Recent Project

Close Project

Open File...

Open Recent File

Project Group

Project Properties

Import Project

Save Ctrl+S

Save As...

Save All Ctrl+Shift+S

Page Setup...

Print... Ctrl+Alt+Shift+P

Print to HTML...

Exit

<No View Available>

Fault config>



Search (Ctrl+I)

Start Page

KalkulatorGUI.java

TambahTambahanGUI.java

NilaiMahasiswaGUI.java

Ne...



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- Groovy
- UML
- NetBeans Modules

- Java Web
- Web Services
- Java ME (MIDP)
- Java ME (BD-J)
- Ruby
- C/C++
- SOA

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- Ruby and Rails
- SOA
- EJB
- Swing GUIs
- Java EE
- Mobile Apps
- UML Modeling

Usages

Javadoc

Output

Tasks

New Project

Steps

1. Choose Project
2. ...

Choose Project

Categories:

- Java
- Java Web
- Java EE
- Java ME
- PHP
- Ruby
- Groovy
- C/C++
- UML
- SOA
- NetBeans Modules
- Samples

Projects:

- Java Application
- Java Desktop Application
- Java Class Library
- Java Project with Existing Sources
- Java Free-Form Project

Description:

Creates a new Java SE application in a standard IDE project. You can add source files to the project. Standard projects use an IDE-generated Ant build script to build and debug your project.

< Back Next > Finish Cancel Help

2. Memberi Nama Project

Nama Project: CelciusToFahrenheit

Uncheck: Create Main Class



New Java Application

Steps

1. Choose Project
2. Name and Location

Name and Location

Project Name: CelciusToFahrenheit

Project Location: C:\Users\Romi Satria Wahono\Documents\NetBeansProjects

Project Folder: \Users\Romi Satria Wahono\Documents\NetBeansProjects\CelciusToFahrenhei

 Use Dedicated Folder for Storing Libraries

Libraries Folder:

Different users and projects can share the same compilation libraries (see Help for details).

 Create Main Class celciustofahrenheit.Main Set as Main Project

< Back

Next >

Finish

Cancel

Help

main

Members



3. Menambahkan JFrame Form Pada Project

Nama Frame: CelciusToFahrenheitGUI

Package: GUI



<default config>



Search (Ctrl+I)

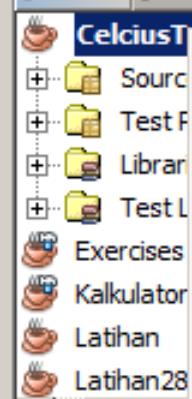
Files Se...

Start Page

KalkulatorGUI.java

TambahTambahanGUI.java

NilaiMahasiswaGUI.java...



Navigator

<No View>

New

Build
Clean and Build
Clean
Generate JavadocRun
Debug
ProfileTest Alt+F6
Set ConfigurationSet as Main Project
Open Required Projects
Close

Rename...

Move...

Copy...

Delete

Delete Ctrl+F
Find...
Reverse Engineer...
Versioning
Local History

Properties

Java Class...

Java Interface...

JFrame Form...

Java Package...

JPanel Form...

Entity Class...

Entity Classes from Database...

Web Service Client...

Other...

IDE 6.5

My NetBeans

Try a Sample Project

- Java Web
- Web Services
- Java ME (MIDP)
- Java ME (BD-J)
- Ruby
- C/C++
- SOA

(Visual JSF)

Ricoh SDK/J

- PHP
- Groovy
- UML
- NetBeans Modules

Take a Tour

Find Your IDE

Learn More About

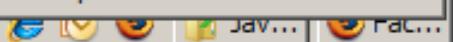
Javadoc

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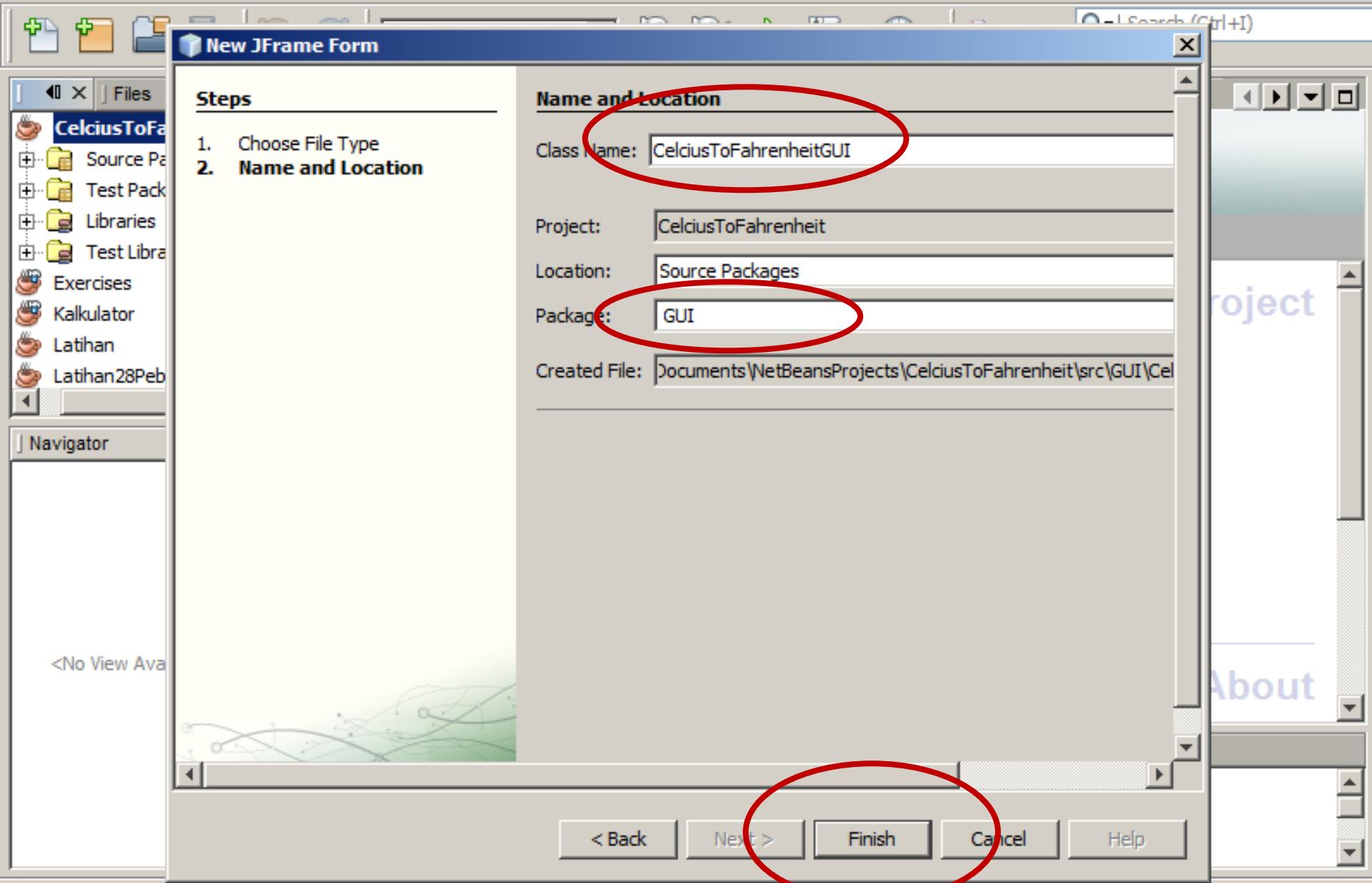
Tasks

hun: 1900

lan: 2



14:09



3. Menempatkan GUI Component ke Design (Frame)



<default config>



Search (Ctrl+I)

Files Se...

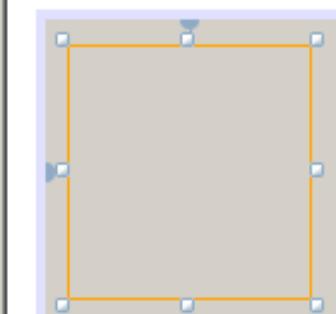
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Navigator I... [X]

Form CelciusToFahrenheitView
Other Components
[JFrame]
+ jPanle1 [JPanel]

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Source Design



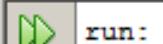
Palette [X]

Swing Controls

- Panel
- Toggle Button
- Button
- Label
- Check Box
- Radio Button
- Button Group
- Combo Box
- List
- Text Area
- ScrollBar
- Slider
- Text Field
- Progress Bar

Properties

Usages Javadoc Output - Konversi... [X] Tasks

run:
BUILD SUCCESSFUL (total time: 31 seconds)

The screenshot shows the NetBeans IDE interface with the following details:

- Toolbar:** Standard NetBeans toolbar with icons for file operations, search, and project navigation.
- Project Explorer:** Shows the project structure under "Source Packages".
- Code Editor:** Displays three files: SistemBiodataMahasiswaView.java, Karakter.java, and Lingkaran.java.
- Design View:** Shows a form with components: jTextField1, jLabel1, jButton1, and jLabel2.
- Palette:** A list of Java Swing components categorized by type:
 - Swing Containers:** Tabbed Pane, Split Pane, Scroll Pane, Tool Bar, Desktop Pane, Layered Pane.
 - Swing Controls:** Panel (selected), Toggle Button (highlighted with a red oval), OK Button, Check Box, Radio Button, Combo Box, List, Text Area, Scroll Bar, Slider, Text Field (highlighted with a red oval), Password Field, Text Pane, Editor Pane, Tree, Button Group.
 - Swing Menus:** Menu Bar, Menu Item, Menu Item / CheckBox, Menu Item / RadioButton, Popup Menu, Separator.
 - Swing Windows:** Dialog, Frame, Color Chooser, File Chooser, Option Pane.
 - AWT:** Not expanded.
 - Borders:** Not expanded.
 - Beans:** Not expanded.
 - Java Persistence:** Not expanded.
 - Look and Feels:** Not expanded.
- Output:** Shows the command-line output of the application's run command, including user input for year and month.

```
run:  
Masukkan tahun: 1900  
Masukkan bulan: 2
```

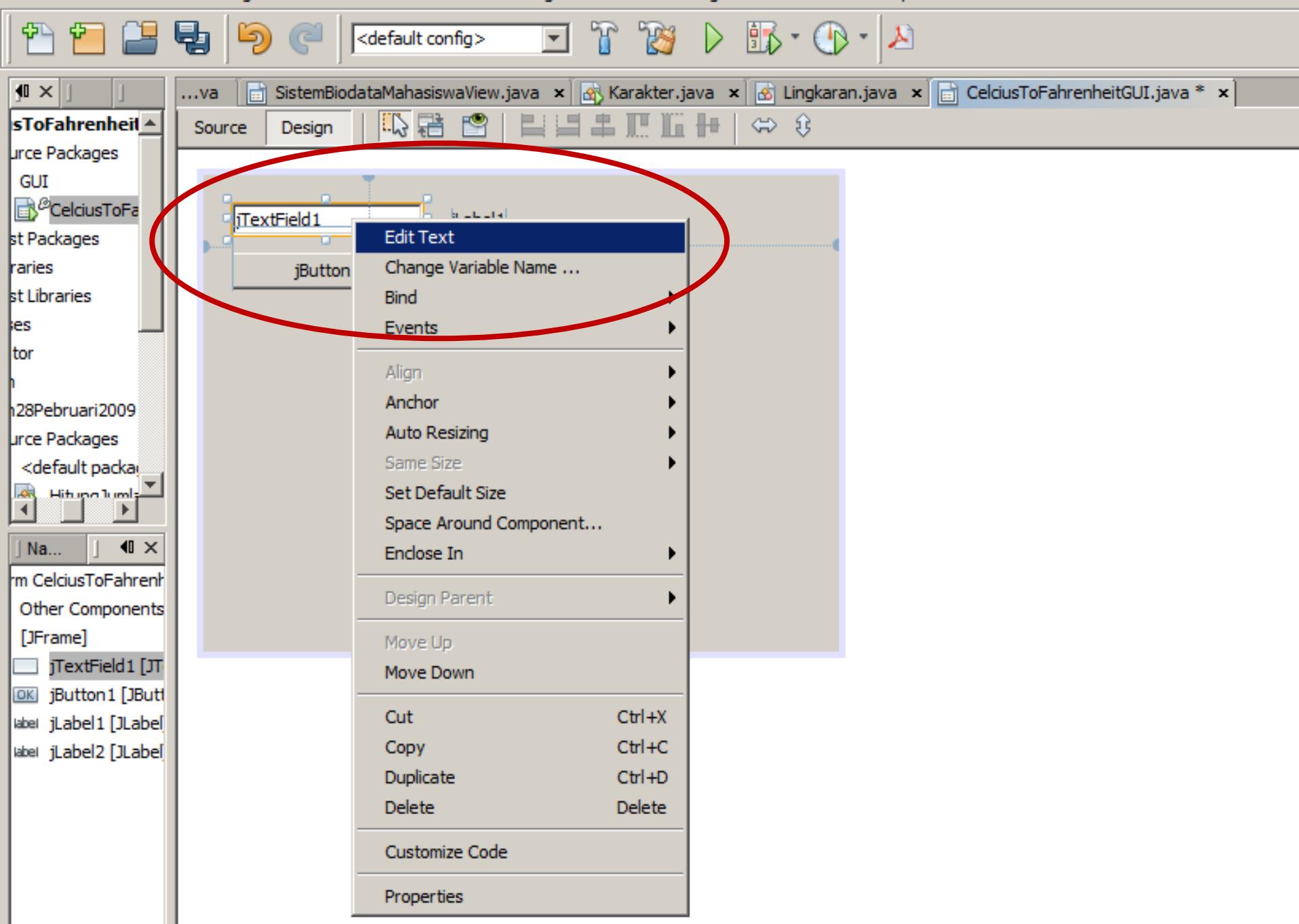
4. Mengubah Text dari GUI Component (Edit Text)

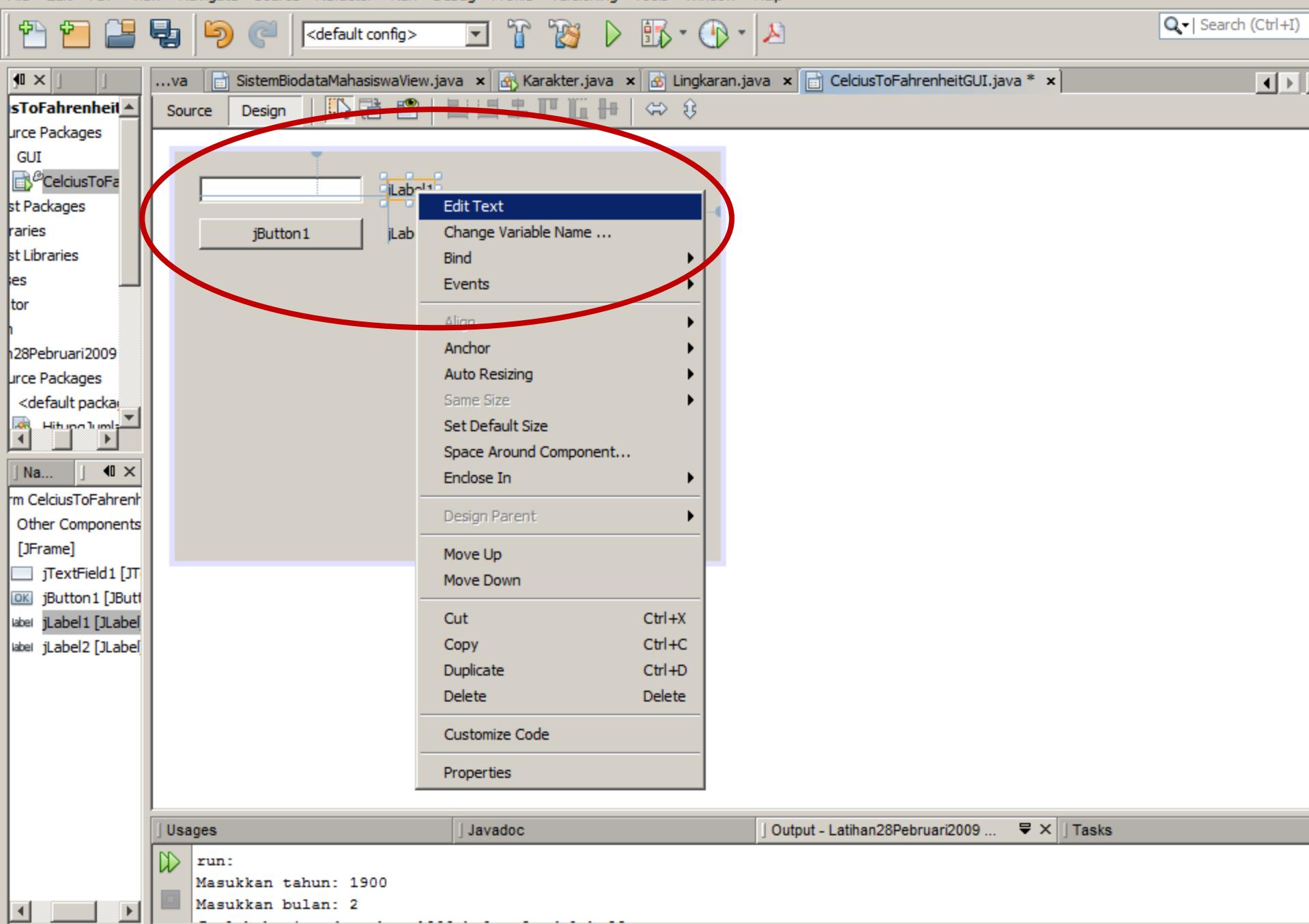
JTextField1: Kosong

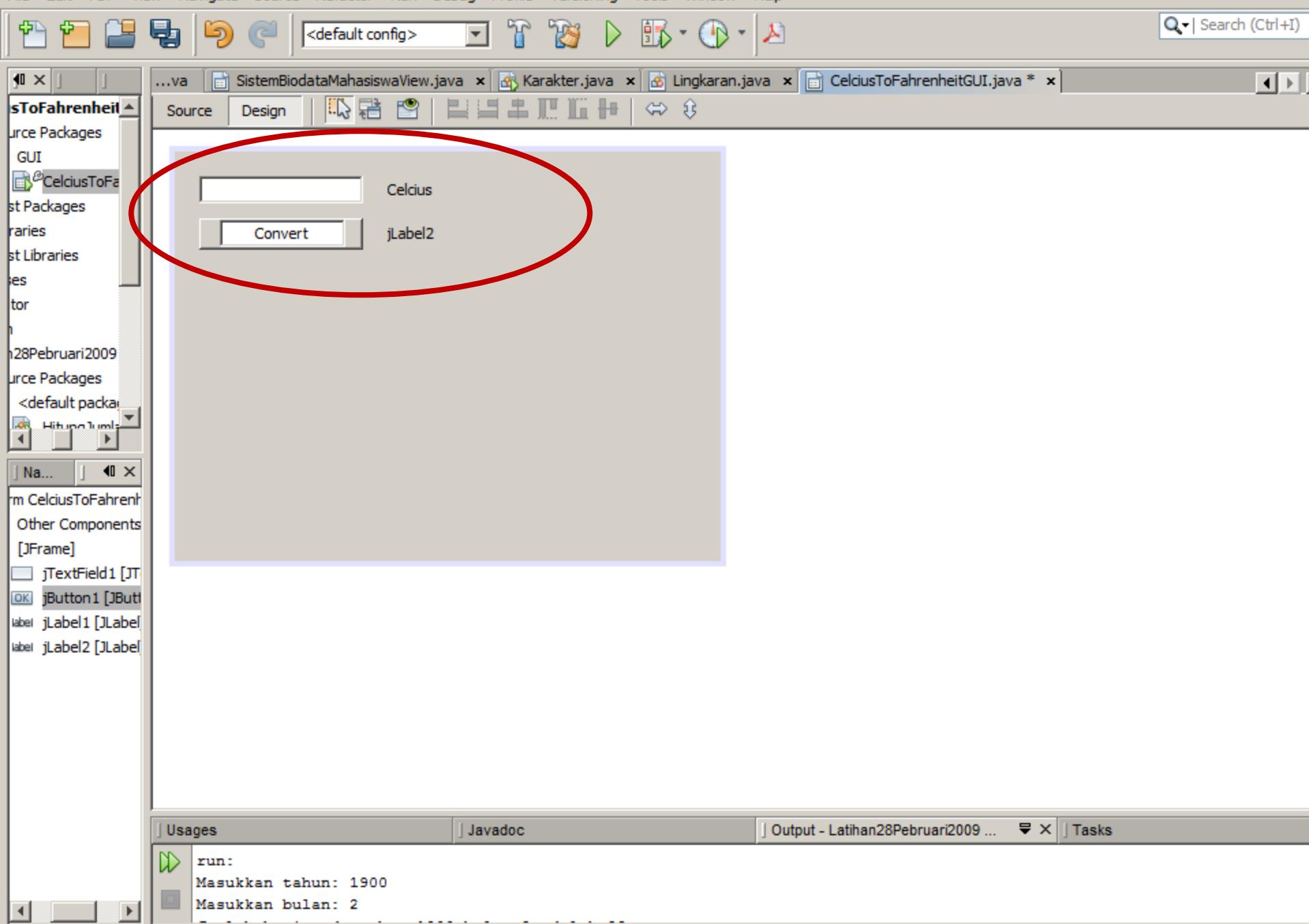
JLabel1: Celcius

JLabel2: Fahrenheit

JButton1: Convert







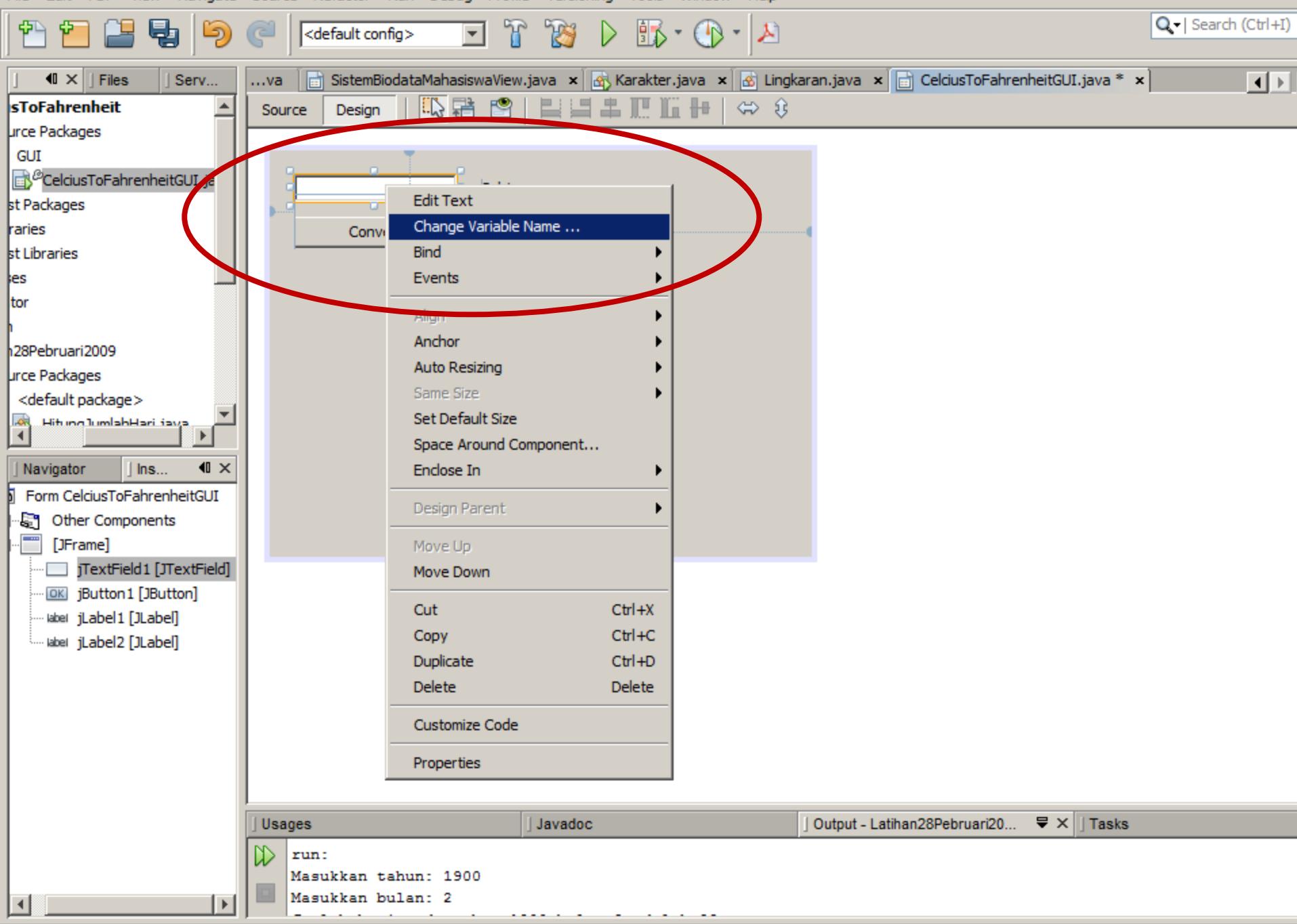
5. Mengubah Nama Variable dari Setiap GUI Component (Change Variable Name)

JTextField1: celciusTextField

JLabel1: celciusLabel

JLabel2: fahrenheitLabel

JButton1: convertButton





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Files | Serv...

CelciusToFahrenheit

Source Packages

GUI

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Source Packages

<default package>

HitungJumlahHari.java

Navigator | Ins... |

Form CelciusToFahrenheitGUI

Other Components

[JFrame]

jTextField1 [JTextField]

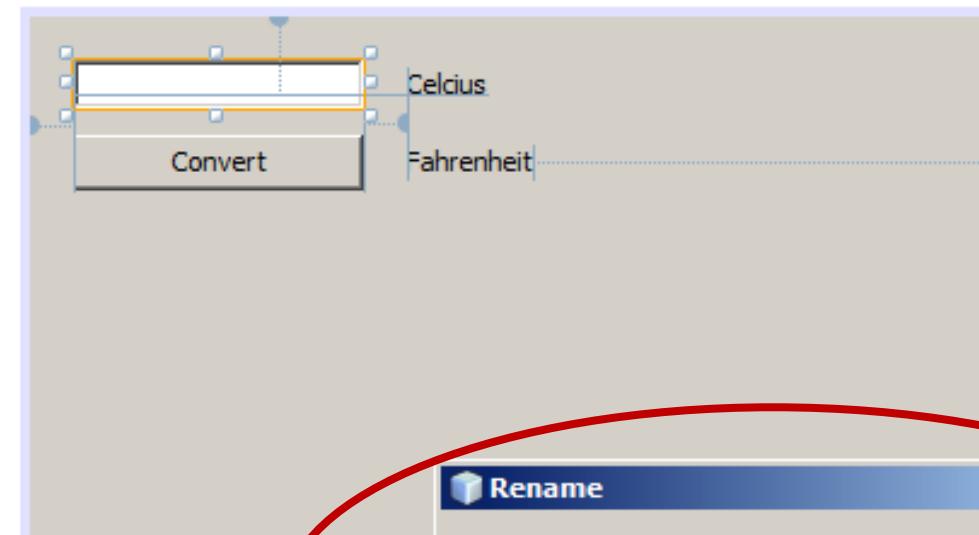
OK jButton1 [JButton]

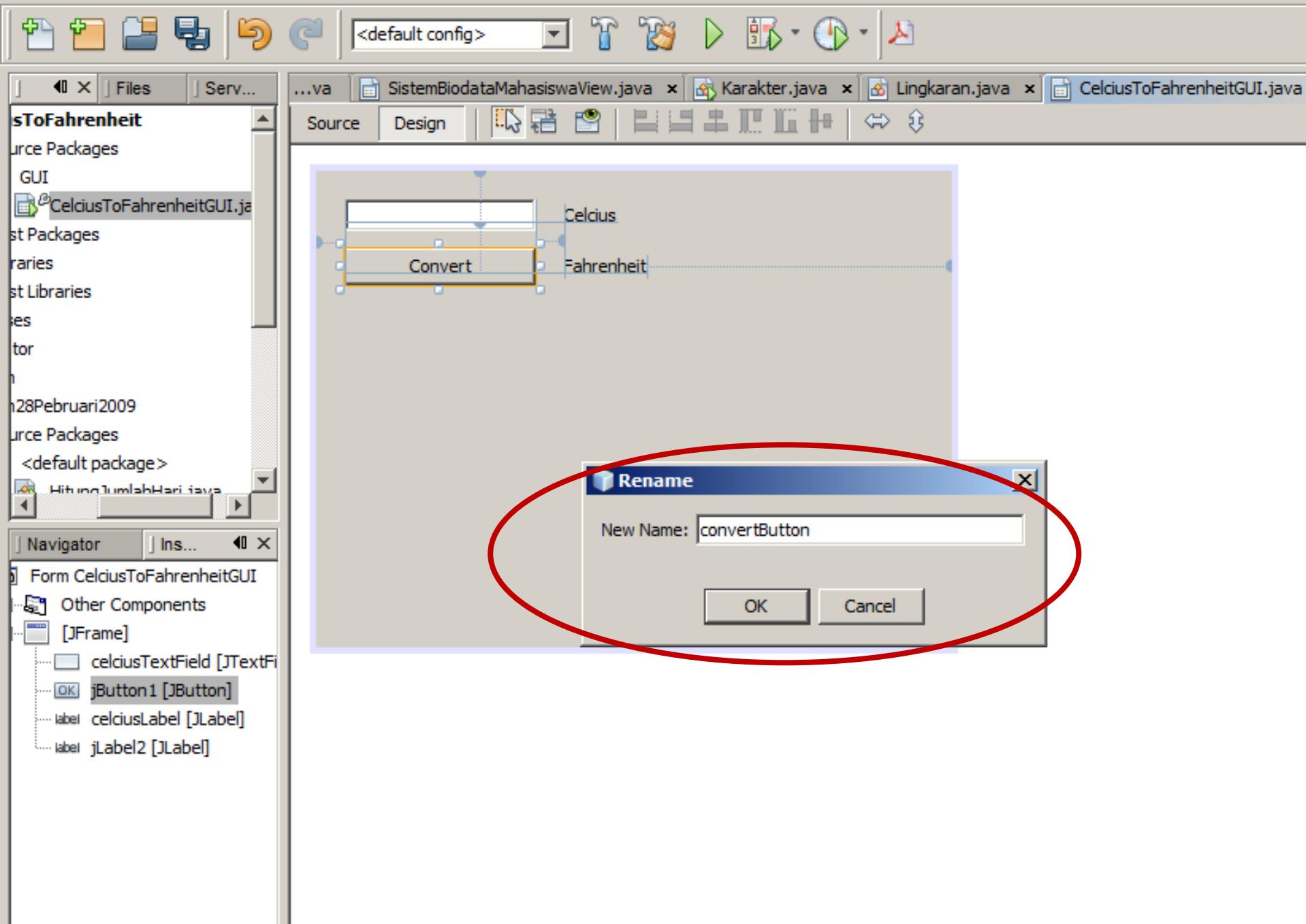
label jLabel1 [JLabel]

label jLabel2 [JLabel]

...va SistemBiodataMahasiswaView.java x Karakter.java x Lingkaran.java x CelciusToFahrenheitGUI

Source | Design





6. Rapikan Tampilan Frame Program Kita (Potong Yang Tidak Perlu)

CelciusToFahrenheit - NetBeans IDE 6.5

File Edit PDF View Navigate Source Refactor Run Debug Profile Versioning Tools Window Help



Files Serv...

CelciusToFahrenheit

Source Packages

GUI

CelciusToFahrenheitGUI.java

Test Packages

Libraries

Test Libraries

Resources

Author

Created on 28 Februari 2009

Source Packages

<default package>

HitungJumlahHari.java

...va SistemBiodataMahasiswaView.java x Karakter.java x Lingkaran.java x CelciusTo

Source

Design

The design view shows a form with the following components:

- A text field labeled "Celcius".
- A button labeled "Convert".
- A label "Celcius" positioned to the right of the text field.
- A label "Fahrenheit" positioned to the right of the text field.

Navigator Ins... <> X

Form CelciusToFahrenheitGUI

Other Components

[JFrame]

celciusTextField [JTextField]

convertButton [JButton]

celciusLabel [JLabel]

fahrenheitLabel [JLabel]

7. Buat Event untuk Convert Button

Klik Kanan Pada Convert Button

Pilih **Event** → **Action** → **ActionPerformed**

atau Pilih **Event** → **Mouse** → **MouseClicked**

The screenshot shows the NetBeans IDE interface for a Java application named "CelciusToFahrenheit".

Projects Tab: Shows the project structure with packages like "CelciusToFahrenheit", "Test Packages", "Libraries", "Exercises", "Kalkulator", "Latihan", and "Latihan28Pebruari2009".

Code Editor Tab: Displays three files: "Karakter.java", "Lingkaran.java", and "CelciusToFahrenheitGUI.java". The "CelciusToFahrenheitGUI.java" file is currently selected.

Design View: Shows the GUI form "Form CelciusToFahrenheitGUI" with components: celciusTextField, convertButton, celciusLabel, and fahrenheitLabel. The "convertButton" is highlighted.

Context Menu: A context menu is open over the "convertButton". It includes options like "Edit Text", "Change Variable Name...", "Bind", and "Events". The "Events" option is expanded, showing a list of actions and their corresponding events. The entry "actionPerformed" under the "actionPerformed" event is highlighted with a red oval.

Inspector Tab: Shows the component tree for the form, listing "Form CelciusToFahrenheitGUI", "Other Components", and the "JFrame" node containing the four UI components.

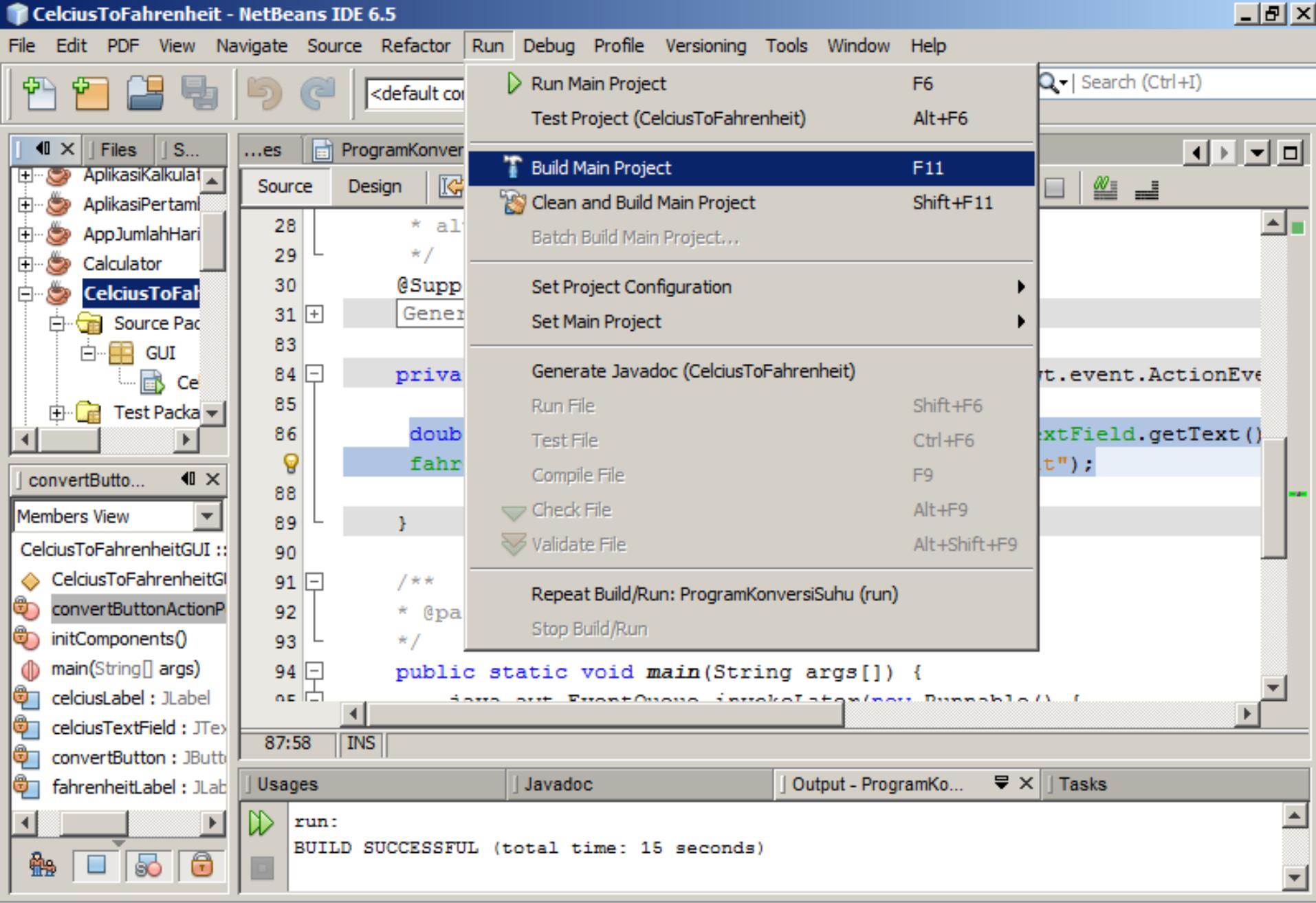
Output Tab: Displays the output of a run command, showing the console output: "Masukkan tahun: 1900" and "Masukkan bulan: 2".

8. Buat Code untuk Event Handling di Convert Button

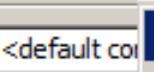
```
double celcius = Double.parseDouble(celciusTextField.getText());  
double fahrenheit = celcius * 1.8 + 32;  
fahrenheitLabel.setText(fahrenheit + " Fahrenheit");
```

```
22     initComponents();
23 }
24
25 /**
26 * This method is called from within the constructor to
27 * initialize the form.
28 *
29 * WARNING: Do NOT modify this code. The content of this method is
30 * always regenerated by the Form Editor.
31 */
32 @SuppressWarnings("unchecked")
33
34 + Generated Code
35
36
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72
73
74
75
76
77
78
79
80
81
82
83
84 - private void convertButtonActionPerformed(java.awt.event.ActionEvent evt) {
85
86     double fahrenheit = Double.parseDouble(celciusTextField.getText()) * 1.8 + 32;
87     fahrenheitLabel.setText(fahrenheit + " Fahrenheit");
88
89 }
90
91 /**
92 * @param args the command line arguments
93 */
94 - public static void main(String args[]) {
```

9. Kompilasi (Build, F11) Project



10. Jalankan (Run, F6) Project



- ▶ Run Main Project F6
- Test Project (CelciusToFahrenheit) Alt+F6

- Build Main Project F11
- Clean and Build Main Project Shift+F11
- Batch Build Main Project...

- Set Project Configuration ▶
- Set Main Project ▶

- Generate Javadoc (CelciusToFahrenheit)
- Run File Shift+F6
- Test File Ctrl+F6
- Compile File F9
- Check File Alt+F9
- Validate File Alt+Shift+F9

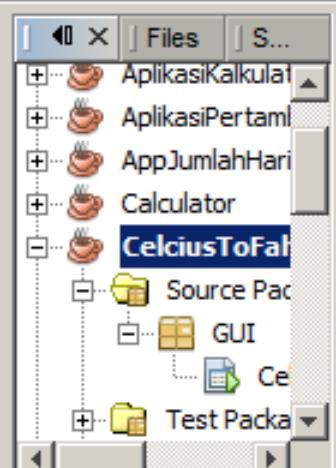
- Repeat Build/Run: ProgramKonversiSuhu (run)
- Stop Build/Run

extField.getText ()
t");

```

public static void main(String args[]) {
    ...
}

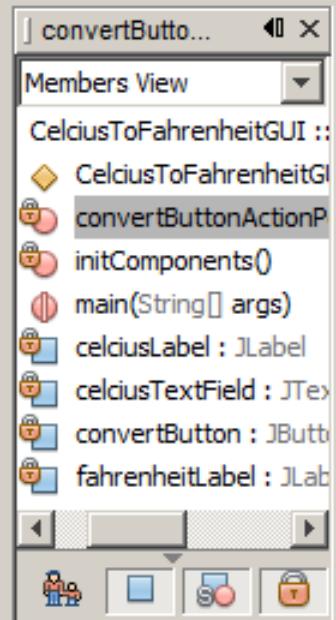
```



```

...es ProgramKonver
Source Design [ ] 
28 * al
29 */
30 @Supp
31 [+] Gener
83
84 [+] priva
85
86 doub
87 fahr
88 }
89 }
90
91 /**
92 * @pa
93 */
94 public static void main(String args[]) {
    ...
}

```



```

Members View
CelciusToFahrenheitGUI :: 
    CelciusToFahrenheitG
    convertButtonActionP
    initComponents()
    main(String[] args)
    celciusLabel : JLabel
    celciusTextField : JTextField
    convertButton : JButton
    fahrenheitLabel : JLabel

```

87:58 INS

Usages

Javadoc

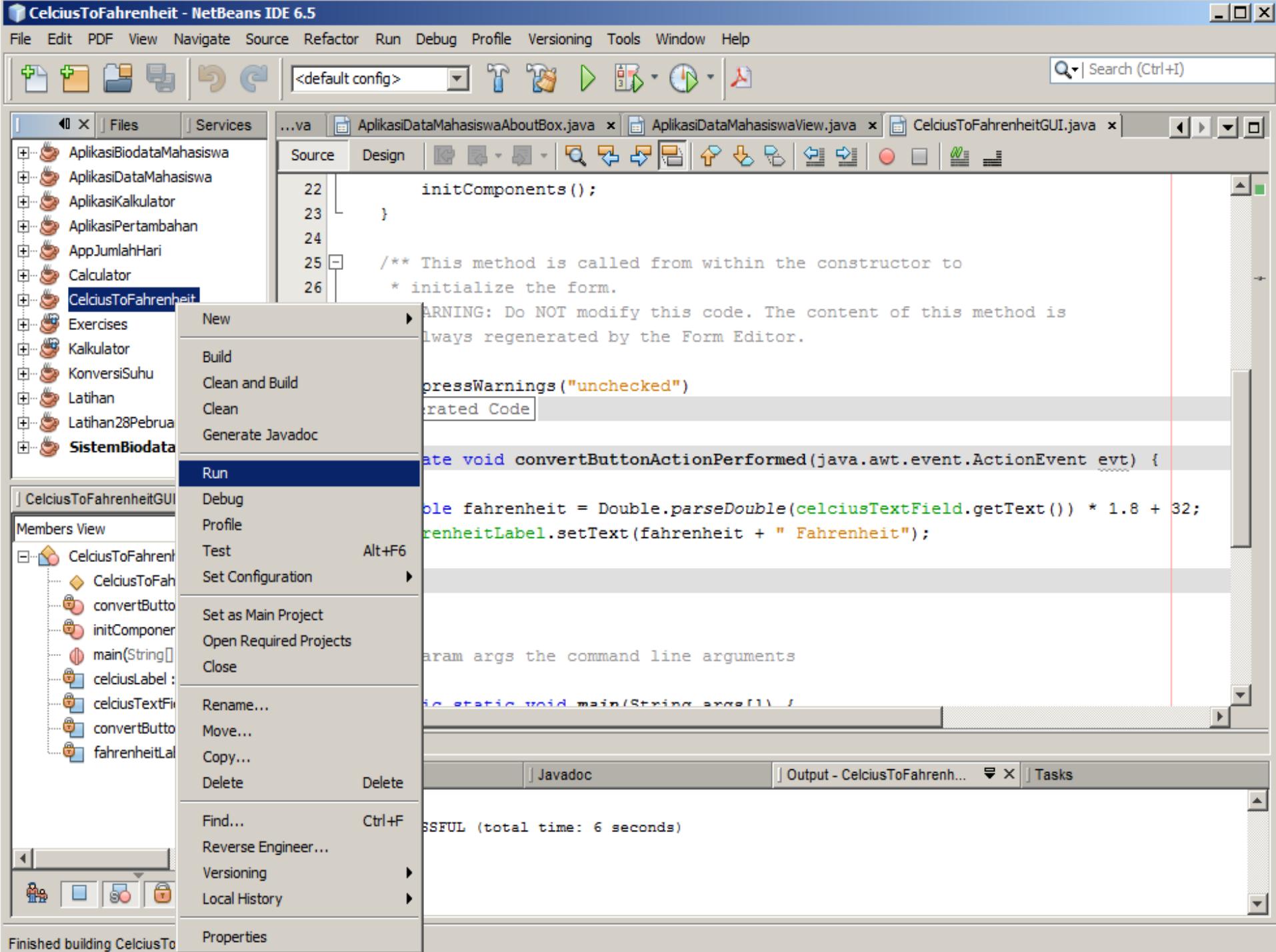
Output - ProgramKo...

Tasks

run:

BUILD SUCCESSFUL (total time: 15 seconds)

**Bisa Juga dengan Klik Kanan dan pilih
Run Pada File Java**



Services

...va AplikasiDataMahasiswaAboutBox.java x AplikasiDataMahasiswaView.java x CelciusToFahrenheitGUI.java x

Source Design

```
22         initComponents();  
23     }  
24  
25     /** This method is called from within the constructor to  
26      * initialize the form.  
27      * WARNING: Do NOT modify this code. The content of this method is  
28      * always regenerated by the Form Editor.  
29      */  
30     @SuppressWarnings("unchecked")  
31     Generated C  
32     private void fahrenheitLabelActionPerformed(AnActionEvent evt)  
33     {  
34         double celcius = Double.parseDouble(celciusField.getText());  
35         double fahrenheit = celcius * 1.8 + 32;  
36         fahrenheitLabel.setText(fahrenheit + " Fahrenheit");  
37     }  
38  
39     /**  
40      * @param args the command line arguments  
41      */  
42     public static void main(String args[]){  
43         /* Create and display the form */  
44         java.awt.EventQueue.invokeLater(new Runnable(){  
45             public void run(){  
46                 new CelciusToFahrenheitGUI().setVisible(true);  
47             }  
48         });  
49     }  
50 }
```

A red circle highlights the Java code block containing the conversion logic.

The screenshot shows the Java code for a Celsius-to-Fahrenheit converter. The code uses a Swing GUI with two text fields (celciusField and fahrenheitLabel) and a button (Convert). The conversion logic is implemented in the actionPerformed method of the fahrenheitLabel component. The code uses the formula $f = c \times 1.8 + 32$ to calculate the Fahrenheit value from the Celsius input. The resulting Fahrenheit value is then displayed in the fahrenheitLabel. The Java code is annotated with Javadoc-style comments and suppression annotations for warnings.

Memainkan Variable Properties

File Services

Exercises

HaloJakarta

HelloWorld

KalkulatorSederhana

Konversi

KonversiCelciusFahrenheit

KonversiCelciusKeFahrenheit

KonversiSuhu

Konversi Suhu

Source Packages

gui

CelciusToFahrenheit.java

Test Packages

Libraries

Test Libraries

CelciusToFahr... Inspector

Form CelciusToFahrenheit

Other Components

jPanel1 [JPanel]

JFrame

<default config>

Source Design

Celcius

Fahrenheit

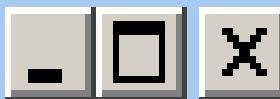
Convert

Exit

The screenshot shows the NetBeans IDE interface with the title bar 'Konversi Suhu - NetBeans IDE 6.5'. The menu bar includes File, Edit, PDF, View, Navigate, Source, Refactor, Run, Debug, Profile, Versioning, Tools, Window, and Help. The toolbar has icons for file operations like New, Open, Save, and Build. The central workspace shows a Java Swing application window titled 'HaloJakarta.java'. The application's title bar is 'Konversi Suhu'. The main panel contains a form with three components: a text input field labeled 'Celcius', a button labeled 'Convert', and a text output field labeled 'Fahrenheit'. Below the form is an 'Exit' button. The left sidebar displays a project tree with packages like 'Source Packages' and 'Test Packages', and files like 'CelciusToFahrenheit.java'. The bottom-left corner shows the NetBeans logo with the tagline 'ikatlah dirimu dengan menuliskannya'.



Aplikasi Konversi Suhu



Celcius

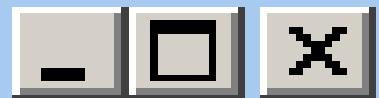
Convert

Fahrenheit

Exit



Aplikasi Konversi Suhu



Celcius

Convert

Fahrenheit

Clear

Exit

Tahapan Membuat Aplikasi GUI

1. Membuat Project baru
2. Menambahkan JFrame Form (top level container)
3. Diatas JFrame diletakkan JPanel (intermediate container)
4. Tempelkan atomic (GUI) component
5. Edit text dari tiap component
6. Edit nama variable dari tiap component (untuk mempermudah coding)
7. Rapikan tampilan dengan mengedit JFrame, JPanel dan mengubah Layout
8. Pilih component yang akan mengelola event dan pilih jenis event sesuai dengan kebutuhan
9. Tambahkan kode di method event yang disediakan

Rumus Konversi Suhu

- Kelvin = Celcius + 273.15
- Fahrenheit = Celcius * 1.8 + 32
- Reamur = Celcius * 0.8
- Kelvin = (Fahrenheit + 459.67) / 1.8
- Celsius = (Fahrenheit – 32) / 1.8
- Reamur = (Fahrenheit – 32) / 2.25
- Celcius = Kelvin – 273.15
- Fahrenheit = Kelvin * 1.8 – 459.67
- Reamur = (Kelvin – 273.15) * 0.8
- Kelvin = Reamur / 0.8 + 273.15
- Celsius = Reamur / 0.8
- Fahrenheit = (Reamur – 7.5) * 24/7 + 32

Aplikasi Pertambahan Dua Angka

GUI Component: Panel, Label, TextField, Button

Logic Programming: if-else

Events: actionPerformed

Features: requestFocus, Sistem.exit(0)

Aplikasi Pertambahan Dua Angka

Aplikasi Pertambahan Angka

Angka Pertama

Angka Kedua

Hasil

Tambah Hapus Keluar

- 1. Angka Pertama dan Angka Kedua dimasukkan oleh user**
- 2. Tombol Tambah diklik maka akan keluar hasil pertambahan di field ketiga**
- 3. Tombol Hapus untuk membersihkan**

Aplikasi Operasi Dua Angka

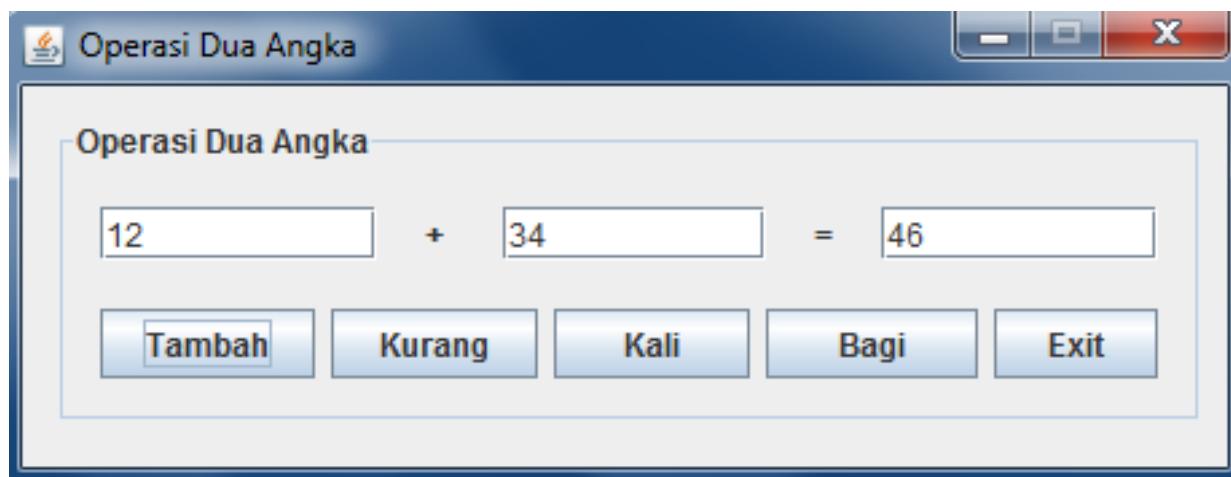
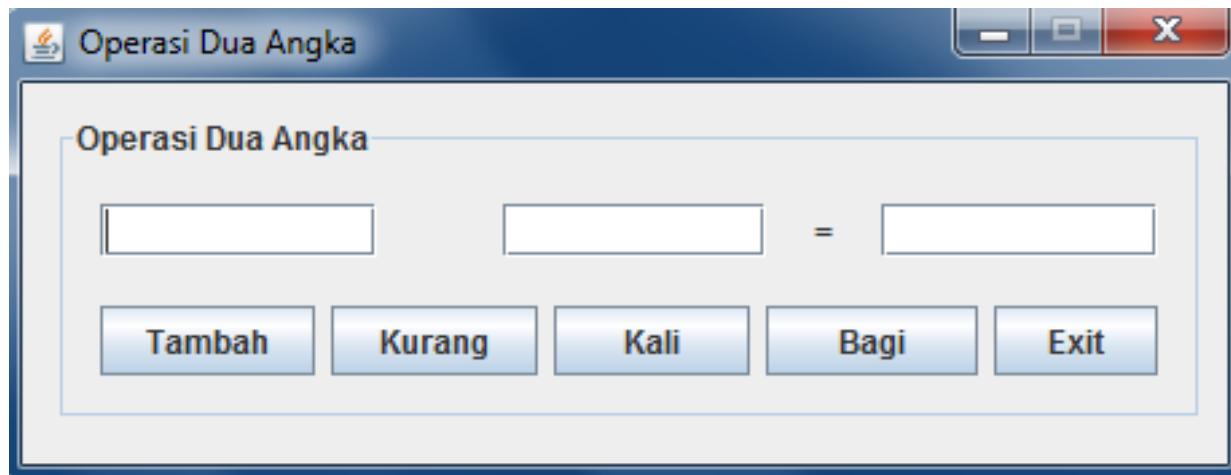
GUI Component: Panel, Label, TextField, Button

Logic Programming: if-else

Event: actionPerformed, keyTyped

Features: pembuatan method baru

Operasi Dua Angka



Fitur Tambahan:

1. **Error dialog** muncul bila input nilai bukan numerik
2. Gunakan **Event keyTyped** pada **TextField** untuk tampilkan error
3. Memunculkan **error dialog**:
`JOptionPane.showMessageDialog(this, "error");`

Source

Design



188 }

189

190 } private void clearButtonActionPerformed(java.awt.event.ActionEvent evt) {
191 celciusTextField.setText("");
192 fahrenheitLabel.setText("Fahrenheit");
193 celciusTextField.requestFocus();
194 }

195

196 } private void exitButtonActionPerformed(java.awt.event.ActionEvent evt) {
197 System.exit(0);
198 }

199

200 } private void celciusTextFieldKeyTyped(java.awt.event.KeyEvent evt) {
201 char c = evt.getKeyChar();
202 if (! ((Character.isDigit(c) ||
203 (c == KeyEvent.VK_BACK_SPACE) ||
204 (c == KeyEvent.VK_DELETE))
205)) {
206 getToolkit().beep();
207 JOptionPane.showMessageDialog(null, "masukkan hanya 0-9!");
208 evt.consume();
209 }
210 }

211

212 /**
213 * @param args the command line arguments
214 */

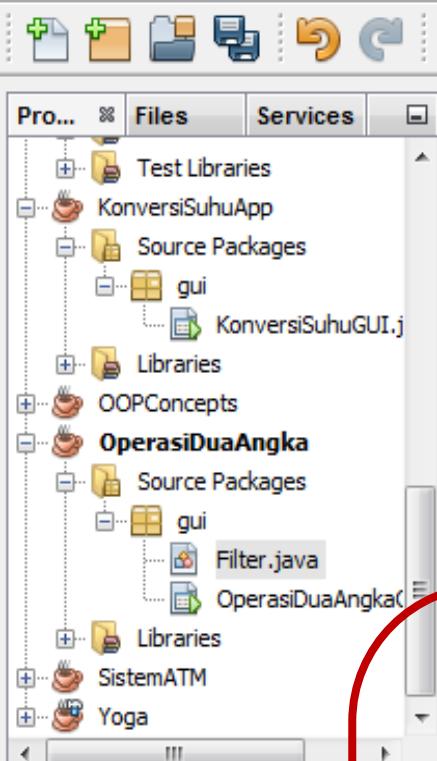


```
Source Design |    |    |     |   |    
```

```
188         fahrenheitLabel.setText("Fahrenheit");
189     }
190
191     private void exitButtonActionPerformed(java.awt.event.ActionEvent evt) {
192         System.exit(0);
193     }
194
195     private void filterKeyTyped(java.awt.event.KeyEvent evt) {
196         char c = evt.getKeyChar();
197         if (! ((Character.isDigit(c) ||
198                 (c == KeyEvent.VK_BACK_SPACE) ||
199                 (c == KeyEvent.VK_DELETE)))
200             )) {
201             Toolkit.getDefaultToolkit().beep();
202             JOptionPane.showMessageDialog(null, "masukkan hanya 0-9!");
203             evt.consume();
204         }
205     }
206
207     private void celciusTextFieldKeyTyped(java.awt.event.KeyEvent evt) {
208         filterKeyTyped(evt);
```

method baru

panggil method



Filter.java OperasiDuaAngka.java Filter.java

Source History

```
5 package gui;
6
7 import java.awt.event.KeyEvent;
8 import javax.swing.JFrame;
9 import javax.swing.JOptionPane;
10
11 /**
12 * @author Romi Satria Wahono
13 */
14
15 public class Filter{
16     public static void digitFilter(KeyEvent evt) {
17         char input = evt.getKeyChar();
18         if(!((Character.isDigit(input)) ||
19               (input == KeyEvent.VK_BACK_SPACE) ||
20               (input == KeyEvent.VK_DELETE))) {
21
22             new JFrame().getToolkit().beep();
23             JOptionPane.showMessageDialog(null, "error");
24             evt.consume();
25         }
26     }
27 }
```

class dan method baru

Aplikasi Penghitungan Jumlah Hari

GUI Component: Panel, Label, TextField, PasswordField,
Button, ComboBox

Logic Programming: if-else, switch

Event: actionPerformed, keyTyped

Aplikasi Penghitungan Jumlah Hari

The image shows two windows of a Java Swing application. The top window is a login screen with fields for 'ID User' (admin) and 'Password' (*****), and a 'Login' button. The bottom window is titled 'Aplikasi Penentu Jumlah Hari' and contains fields for 'Tahun' and 'Bulan', and a text area displaying 'Jumlah hari adalah'. At the bottom are buttons for 'Hitung', 'Hapus', 'Simpan' (which is highlighted with a red rectangle), and 'Keluar'.

1. Muncul login form, bila ID User dan Password = **admin**, maka aplikasi akan muncul
2. Tombol Hitung diklik, maka akan muncul **jumlah hari** pada bulan dan tahun yang ditunjuk
3. Perhatikan bahwa ada perhitungan **tahun kabisat** pada bulan **pebruari**
4. Tombol simpan untuk menyimpan hasil ke file

Error Dialog:

1. Error dialog muncul bila

04 JAVA GUI - NetBeans IDE 6.9.1

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

...java KombinasiLayout.java rumah1.JPG LoginForm.java PenentuJumlahHari.java

Source Design

```
116
117     | private void loginBTActionPerformed(java.awt.event.ActionEvent evt) {
118
119         if((userTF.getText().equals("admin")) &&
120             // (new String(passwordTF.getPassword()).equals("admin"))){
121             (String.valueOf(passwordTF.getPassword()).equals("admin"))){
122             //PenentuJumlahHari pjh = new PenentuJumlahHari();
123             //pjh.setVisible(true);
124             new PenentuJumlahHari().setVisible(true);
125             dispose();
126         }else{
127             JOptionPane.showMessageDialog(
128                 null,
129                 userTF.getText() +
130                 ", password anda salah ",
131                 "Pesan Kesalahan",
132                 JOptionPane.ERROR_MESSAGE);
133             userTF.setText("");
134             passwordTF.setText("");
135             userTF.requestFocus();
136         }
137     }
138
139     | private void userTFKeyPressed(java.awt.event.KeyEvent evt) {
```

04 JAVA GUI - NetBeans IDE 6.9.1

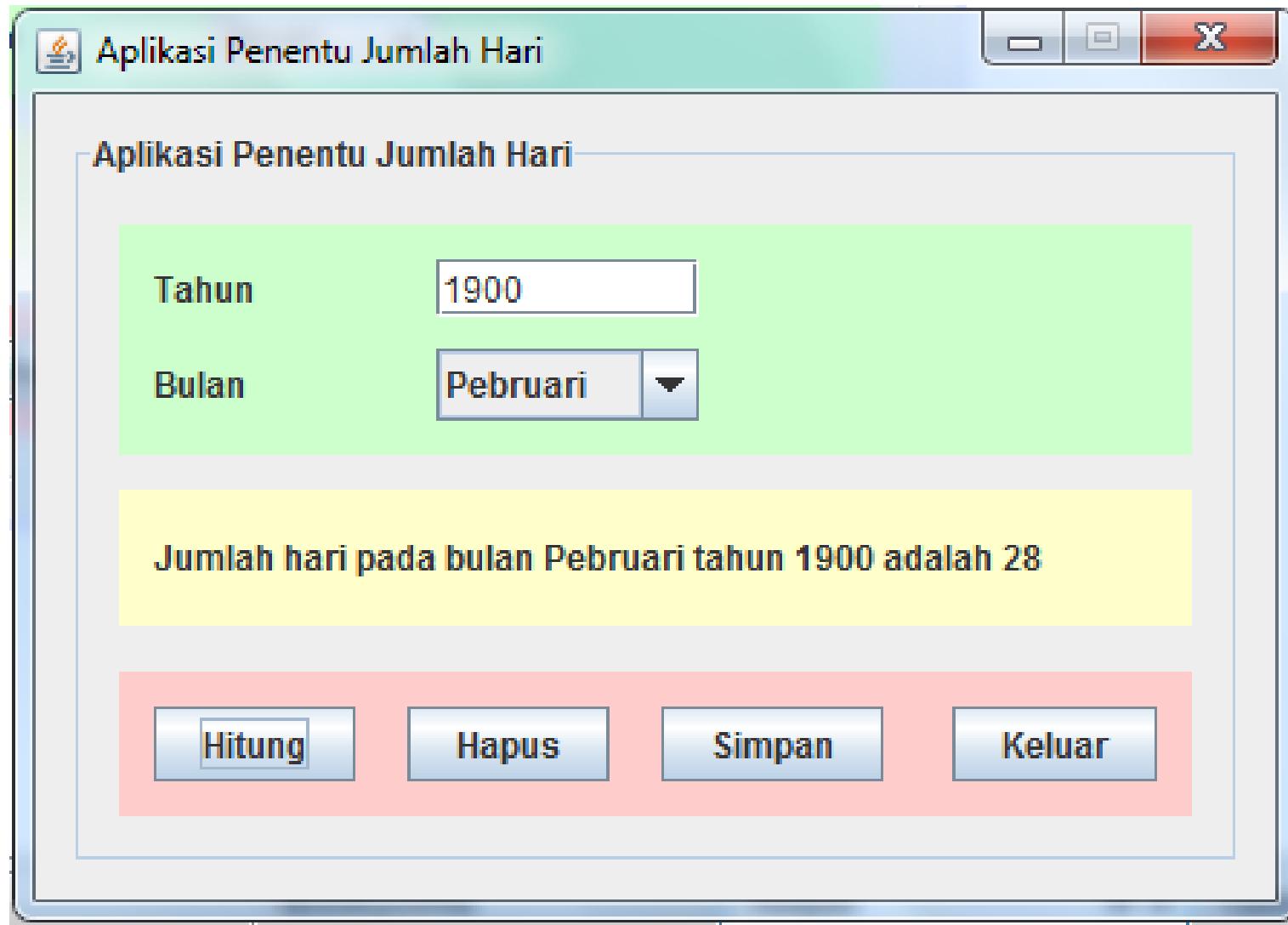
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

PenetuJumlahHari.java x LoginForm.java x

Source Design

```
262     private void simpanButtonActionPerformed(java.awt.event.ActionEvent evt) {  
263         try{  
264             // Buat file  
265             BufferedWriter out = new BufferedWriter(new FileWriter("jumlahhari.txt"));  
266             // Simpan ke file  
267             out.write(jumlahhariLabel.getText());  
268             // Tampilkan dialog bila berhasil  
269             JOptionPane.showMessageDialog(null, "Berhasil Disimpan dalam File");  
270             // Tutup output stream  
271             out.close();  
272         }catch (Exception e){//Catch exception if any  
273             System.err.println("Error: " + e.getMessage());  
274         }  
275     }  
  
277     private void keluarButtonActionPerformed(java.awt.event.ActionEvent evt) {  
278         System.exit(0);  
279     }  
  
281     private void hapusButtonActionPerformed(java.awt.event.ActionEvent evt) {  
282         jumlahhariLabel.setText("");  
283         tahunTextField.setText("");  
284         bulanComboBox.setSelectedItem("Januari");  
285     }
```

Ganti TextField menjadi ComboBox



NetBeans IDE 6.9.1

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

PenentuJumlahHari.java

Source Design

```
private void hitungButtonActionPerformed(java.awt.event.ActionEvent evt) {
    if(tahunTextField.getText().isEmpty()){
        JOptionPane.showMessageDialog(null, "Error: isian tahun kosong!",
            "Error: isian tahun kosong!", JOptionPane.WARNING_MESSAGE);
    }else{
        int tahun = Integer.parseInt(tahunTextField.getText());
        int jumlahHari;
        if(bulanComboBox.getSelectedItem().equals("Februari")){
            if( ((tahun % 4 == 0) && !(tahun % 100 == 0)) || (tahun % 400 == 0) )
                jumlahHari = 29;
            else jumlahHari = 28;
        }else if(bulanComboBox.getSelectedItem().equals("April") ||
            bulanComboBox.getSelectedItem().equals("Juni") ||
            bulanComboBox.getSelectedItem().equals("September") ||
            bulanComboBox.getSelectedItem().equals("Nopember")){
            jumlahHari = 30;
        }else{
            jumlahHari = 31;
        }
        jumlahhariLabel.setText("Jumlah hari pada bulan " +
            bulanComboBox.getSelectedItem() +
            " tahun " + tahun + " adalah " + jumlahHari);
    }
}
```

Aplikasi Penampil Gambar dengan Button

GUI Component: **BorderLayout**, **Button**, **CardLayout**

Logic Programming: **none**

Event: **actionPerformed**

Penampil Gambar (Button)



04 JAVA GUI - NetBeans IDE 6.9.1

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

<default config>

Proj... Files Services

Source Packages

- calculator
- frame
 - FullScreenFrame.java
- img
- layout
 - PilihGambarButton.java
 - PilihGambarFullScreen.java
 - PilihGambarComboBox.java
 - glassfish.jpg
 - javaee.jpg
 - postgresql.jpg
- login
- table

Navigator Inspector

Form PilihGambarButton

Other Components

JFrame

- BorderLayout
- buttonPanel [JPanel]
 - FlowLayout
 - glassfishBT [JButton]
 - javaeeBT [JButton]
 - postgresqlBT [JButton]
 - exitBT [JButton]
- imagePanel [JPanel]
 - CardLayout
 - label glassfishLB [JLabel]
 - label javaeelB [JLabel]
 - label postgresqlLB [JLabel]

Output - 04 JAVA GUI (run)

run:
BUILD SUCCESSFUL (total time: 2 seconds)

Tasks

Search (Ctrl+I)

Palette

Swing Containers

- Panel
- Split Pane
- ToolBar
- Internal Frame

Swing Controls

- label Label
- ON Toggle Button
- Radio Button
- OK Button
- Check Box
- Button Group

glassfishLB [JLabel] - Properties

Properties	Binding
Events	Code
font	Tahoma 11 Plain
foreground	[0,0,0]
horizontalAlignment	CENTER
icon	glassfish.jpg
labelFor	<none>
text	null
toolTipText	null
verticalAlignment	CENTER
Other Properties	
UIClassID	LabelUI
alignmentX	0.0
glassfishLB [JLabel]	

IN 133 | 8 10:51

aplikasipenampilga...

romi-oop-03-javagui...

04 JAVA GUI - NetBe...

04 JAVA GUI - NetBeans IDE 6.9.1

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

<default config>

Search (Ctrl+I)

Projects

- Source Packages
 - calculator
 - img
 - layout
 - PilihGambarButt
 - PilihGambarCom
 - glassfish.jpg
 - javaee.jpg
 - postgresql.jpg
 - login

Properties

Source Design Glassfish JavaEE PostgreSQL

Glassfish JavaEE PostgreSQL

Properties Binding

inheritsPopupMenu insets [0, 0, 0, 0] maximumSize [316, 400] minimumSize [316, 400] name null nextFocusableComponent <none> opaque paintingForPrint preferredSize [316, 400] requestFocusEnabled verifyInputWhenFocused verticalTextPosition CENTER

Layout

Card Name 0

Accessibility

Accessible Name 0 Accessible Description null Accessible Parent imagePanel

Output - 04 JAVA GUI (run)

run:

04 JAVA GUI (run) running... 105 | 5

Slide 115 of 132 "Network" 73%

The screenshot shows the NetBeans IDE 6.9.1 interface. The title bar reads "04 JAVA GUI - NetBeans IDE 6.9.1". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, and Help. The toolbar has icons for file operations like New, Open, Save, and Run. The Projects panel on the left lists source packages: calculator, img, layout (containing PilihGambarButt, PilihGambarCom, glassfish.jpg, javaee.jpg, postgresql.jpg), and login. The Properties panel on the right shows properties for a JLabel named "glassfishLB" with a red box highlighting the "Card Name" field set to "0". The central workspace shows a JPanel with a CardLayout containing a JLabel with a red background and yellow/red abstract lines. The Inspector panel on the left shows the component tree with "glassfishLB" selected. The Output panel at the bottom shows the run command and the output "glassfishLB [JLabel]". The status bar at the bottom right shows the window title, status "running...", and page number "105 | 5".

04 JAVA GUI - NetBeans IDE 6.9.1

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

...java NewJFrame2.java PilihGambarButton.java PilihGambarComboBox.java glassfish.jpg

Source Design

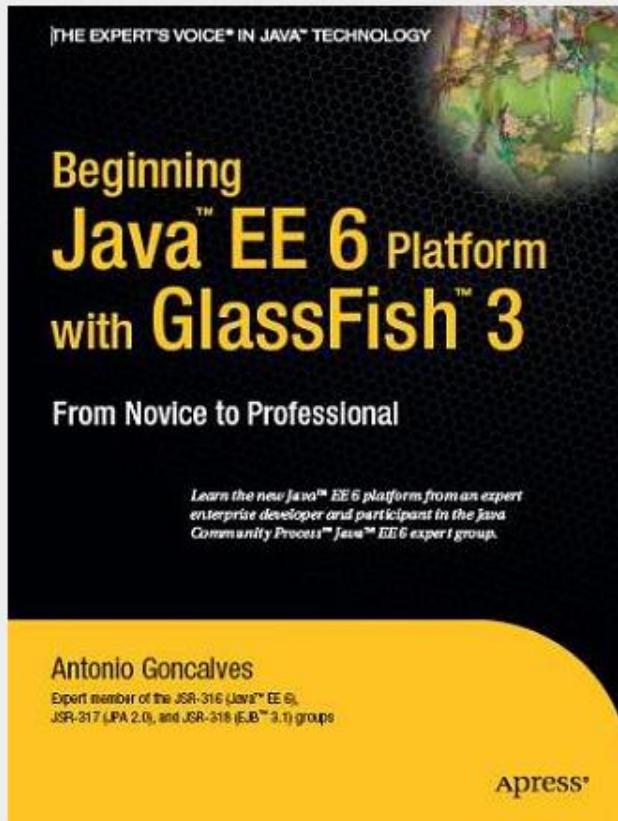
```
104
105     private void glassfishBTActionPerformed(java.awt.event.ActionEvent evt) {
106         CardLayout cl = (CardLayout)(imagePanel.getLayout());
107         cl.show(imagePanel, "0");
108     }
109
110    private void javaeeBTActionPerformed(java.awt.event.ActionEvent evt) {
111        CardLayout cl = (CardLayout)(imagePanel.getLayout());
112        cl.show(imagePanel, "1");
113    }
114
115    private void postgresalBTActionPerformed(java.awt.event.ActionEvent evt) {
116        CardLayout cl = (CardLayout)(imagePanel.getLayout());
117        cl.show(imagePanel, "2");
118    }
119
120    private void exitBTActionPerformed(java.awt.event.ActionEvent evt) {
121        System.exit(0);
122    }
123
124    /**
125     * @param args the command line arguments
126     */
127    public static void main(String args[]) {
```

Aplikasi Penampil Gambar dengan Button (FullScreen Undecorated)

GUI Component: **BorderLayout**, **Button**, **CardLayout**

Logic Programming: **none**

Event: **actionPerformed**



```
9.1 Refactor Run Debug Profile Team Tools Window Help <default config> Search (Ctrl+I) Main.java PenampilGambar.java PilihGambarButton.java FullScreenFrame.java
```

```
/**  
 * @param args the command line arguments  
 */  
public static void main(String args[]) {  
    java.awt.EventQueue.invokeLater(new Runnable() {  
        public void run() {  
  
            PilihGambarButton fullFrame = new PilihGambarButton();  
  
            GraphicsDevice device =  
                GraphicsEnvironment.getLocalGraphicsEnvironment().getDefa  
            device.setFullScreenWindow(fullFrame);  
  
            fullFrame.setVisible(true);  
  
        }  
    });  
}  
  
// Variables declaration - do not modify  
private javax.swing.JPanel buttonPanel;  
private javax.swing.JButton exitBT;  
private javax.swing.JButton glassfishBT;  
private javax.swing.JLabel glassfishLB;  
private javax.swing.JPanel imagePanel;  
private javax.swing.JButton javaeeBT;
```

Project Files Services

FullScreenFrame.java PilihGambarButtonFullScreen.java

Source Design

Glassfish JavaEE PostgreSQL Exit

Navigator Inspector

Form PilihGambarButtonFullScreen

Other Components [JFrame]

Output - 04 JAVA GUI (run)

run:
BUILD SUCCESSFUL (total time: 2 seconds)

Search (Ctrl+I)

Palette

Swing Containers

- Panel Tabbed Pane
- Split Pane Scroll Pane
- Tool Bar Desktop Pane
- Internal Frame Layered Pane

Swing Controls

- label Label OK Button

[JFrame] - Properties

Properties	Binding
Events	Code
maximizedBounds	null
maximumSize	[2147483647, 214...]
minimumSize	[356, 486]
modalExclusionType	NO_EXCLUDE
name	frame4
preferredSize	[356, 486]
resizable	<input checked="" type="checkbox"/>
state	0
undecorated	<input checked="" type="checkbox"/>

Accessibility

Accessible Name

Accessible Description null

Accessible Parent <none>

[JFrame]

Aplikasi Penampil Gambar dengan ComboBox

GUI Component:**ComboBox, CardLayout**

Logic Programming: **none**

Event: **itemStateChanged**

Penampil Gambar (ComboBox)

