



LAPORAN PRAKTIKUM

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A. IDENTITAS

NIM : 2403001
Nama Lengkap : Siti Sa'adah
Kelas : D3 TI 2A
Program Studi : D3 TEKNIK INFORMATIKA
Jurusan : TEKNIK INFORMATIKA

B. HASIL PRAKTIKUM/ TUGAS

Sajikanlah Laporan **Praktikum 10 - Event-Driven Programming (Event Handling)** dengan format (*.pdf) dan ketentuan sebagai berikut:

1. Terdapat penyelesaian **Latihan** event handling Counter App menggunakan library MigLayout dan FlatLaf yang disertai bukti hasil running
2. Terdapat penyelesaian **Tugas** event handling Counter App menggunakan library MigLayout dan FlatLaf dan **navigasi** JPanel dinamis menggunakan objek CardLayout, yang disertai bukti hasil running
3. Terdapat **foto (scan)** gambar dari media kertas beserta **deskripsi penjelesannya** mengenai rancangan tampilan UI menu utama aplikasi yang telah disepakati bersama oleh tim (mengacu ke tim proyek) dengan ketentuan:
 - (a) tampilan UI menu utama aplikasi pada ukuran ideal,
 - (b) tampilan UI menu utama aplikasi pada ukuran tidak ideal (bisa jadi ukuran resolusi layar terlalu luas, atau lebih sempit dari ukuran ideal)
4. Terdapat penyajian redaksi **pengalaman pembelajaran yang didapat** (secara **pribadi**) selama mempelajari materi Event-Driven Programming secara keseluruhan (baik dari teori, praktikum/latihan, maupun pengerjaan tugas individu dan kelompok)

1. Latihan

a. Kode Program

```
//import java.awt.Button;
import java.awt.Dimension;
import java.awt.Font;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JPanel;
//import javax.swing.JScrollBar;
import javax.swing.JScrollPane;
import javax.swing.SwingUtilities;
import javax.swing.UIManager;
import javax.swing.UnsupportedLookAndFeelException;
import com.formdev.flatlaf.themes.FlatMacLightLaf;
import net.miginfocom.swing.MigLayout;

public class CounterApp {
```



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```
private static int nilaiCounter = 0;
public static void main(String[] args) {
    try {
        UIManager.setLookAndFeel(new FlatMacLightLaf());
    } catch (UnsupportedLookAndFeelException e) {
        e.printStackTrace();
    }

    SwingUtilities.invokeLater(() -> {

        JFrame frame = new JFrame("Counter App Midori");
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setPreferredSize(new Dimension(400, 300));
        frame.setMinimumSize(new Dimension(200, 150));

        JPanel panelCounter = new JPanel(new MigLayout("fill, wrap1",
                "[grow, center]", "[grow][grow]"));

        JLabel labelCounter = new JLabel(nilaiCounter + "");
        labelCounter.setFont(new Font("Arial", Font.BOLD, 50));
        panelCounter.add(labelCounter, "bottom");

        JButton buttonAdd = new JButton("+");
        buttonAdd.setFont(new Font("Arial", Font.BOLD, 25));
        panelCounter.add(buttonAdd, "top");

        buttonAdd.addActionListener(e -> {
            nilaiCounter++;
            labelCounter.setText(nilaiCounter+"");
        });

        JScrollPane scrollPane = new JScrollPane(panelCounter);
        scrollPane.getVerticalScrollBar().setUnitIncrement(10);
        scrollPane.getVerticalScrollBar().putClientProperty("JScrollBar.fastWheelScrolling", true);
        scrollPane.setOpaque(true);

        frame.add(scrollPane);
        frame.pack();
        frame.setLocationRelativeTo(null);
        frame.setVisible(true);

    });
}
```



b. Run

```
D:\Tisa\Tisa\PBO\murasaki-app>javac -cp "lib/*" -d bin src/*.java
Picked up JAVA_TOOL_OPTIONS: -Dstdout.encoding=UTF-8 -Dstde
rr.encoding=UTF-8

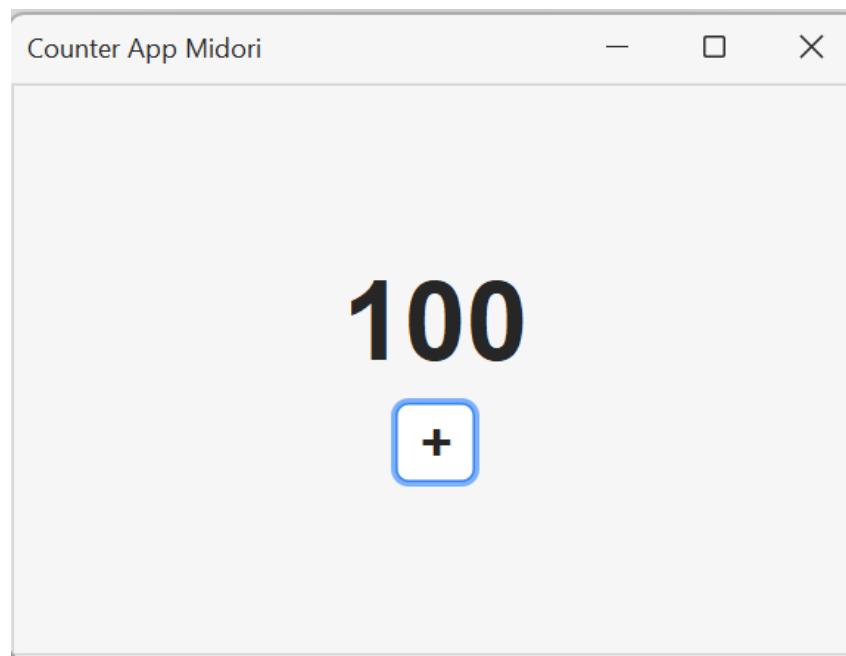
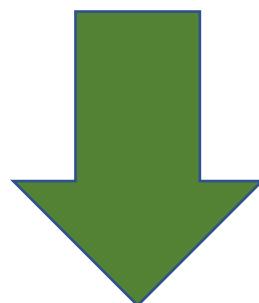
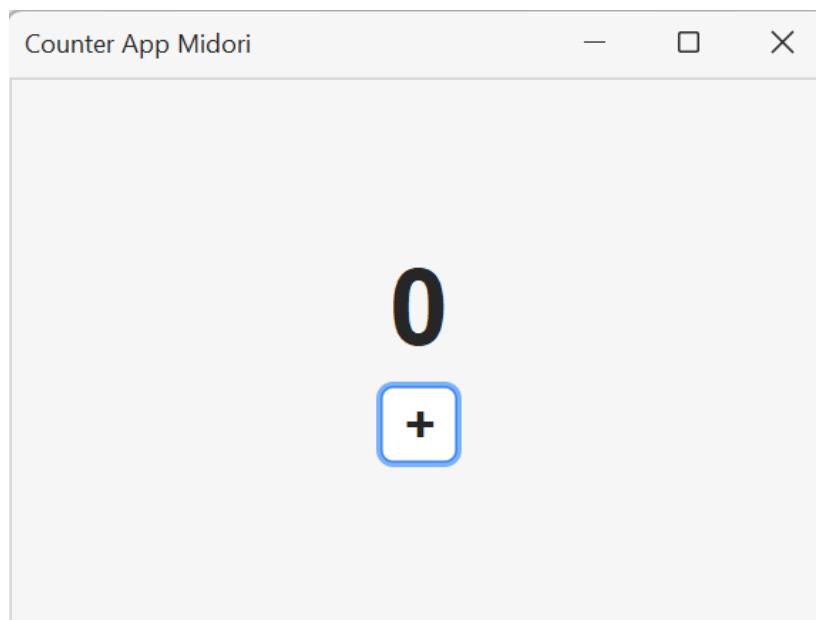
D:\Tisa\Tisa\PBO\murasaki-app>java -cp "lib/*;bin" CounterA
pp
Picked up JAVA_TOOL_OPTIONS: -Dstdout.encoding=UTF-8 -Dstde
rr.encoding=UTF-8
WARNING: A restricted method in java.lang.System has been c
alled
WARNING: java.lang.System::load has been called by com.form
dev.flatlaf.util.NativeLibrary in an unnamed module (file:/
D:/Tisa/Tisa/PBO/murasaki-app/lib/flatlaf-3.6.2.jar)
WARNING: Use --enable-native-access=ALL-UNNAMED to avoid a
warning for callers in this module
WARNING: Restricted methods will be blocked in a future rel
ease unless native access is enabled
```



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c. Output





2. Tugas Individu

a. Percobaan 1

- Kode Program

```
//import java.awt.Button;
import java.awt.Dimension;
import java.awt.Font;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JPanel;
//import javax.swing.JScrollBar;
import javax.swing.JScrollPane;
import javax.swing.SwingUtilities;
import javax.swing.UIManager;
import javax.swing.UnsupportedLookAndFeelException;
import com.formdev.flatlaf.themes.FlatMacLightLaf;
import net.miginfocom.swing.MigLayout;

public class CounterAppTugas {
    private static int nilaiCounter = 0;
    public static void main(String[] args) {
        try {
            UIManager.setLookAndFeel(new FlatMacLightLaf());
        } catch (UnsupportedLookAndFeelException e) {
            e.printStackTrace();
        }

        SwingUtilities.invokeLater(() -> {

            JFrame frame = new JFrame("Counter App Midori");
            frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
            frame.setPreferredSize(new Dimension(400, 300));
            frame.setMinimumSize(new Dimension(200, 150));

            JPanel panelCounter = new JPanel(new MigLayout("fill, wrap1",
                "[grow, center]", "[grow][grow]"));

            JLabel labelCounter = new JLabel(nilaiCounter + "");
            labelCounter.setFont(new Font("Arial", Font.BOLD, 50));
            panelCounter.add(labelCounter, "bottom");

            JPanel panelButtons = new JPanel(new MigLayout("insets 0",
                "[10[]", "[ ]"));
        
```



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```
 JButton buttonAdd1 = new JButton("-");  
buttonAdd1.setFont(new Font("Arial", Font.BOLD, 25));  
//panelCounter.add(buttonAdd1, "top");  
panelButtons.add(buttonAdd1);  
  
buttonAdd1.addActionListener(e -> {  
    nilaiCounter--;  
    labelCounter.setText(nilaiCounter+"");  
});  
  
 JButton buttonAdd = new JButton("+");  
buttonAdd.setFont(new Font("Arial", Font.BOLD, 25));  
//panelCounter.add(buttonAdd, "top");  
panelButtons.add(buttonAdd);  
  
buttonAdd.addActionListener(e -> {  
    nilaiCounter++;  
    labelCounter.setText(nilaiCounter+"");  
});  
  
panelCounter.add(panelButtons, "top");  
  
 JScrollPane scrollPane = new JScrollPane(panelCounter);  
scrollPane.getVerticalScrollBar().setUnitIncrement(10);  
scrollPane.getVerticalScrollBar().putClientProperty("JScrollBar.fastWheelScrolling", true);  
scrollPane.setOpaque(true);  
  
frame.add(scrollPane);  
frame.pack();  
frame.setLocationRelativeTo(null);  
frame.setVisible(true);  
  
});  
}  
}
```



- Run

```
D:\Tisa\Tisa\PBO\murasaki-app>javac -cp "lib/*" -d bin src/*.java
Picked up JAVA_TOOL_OPTIONS: -Dstdout.encoding=UTF-8 -Dstde
rr.encoding=UTF-8

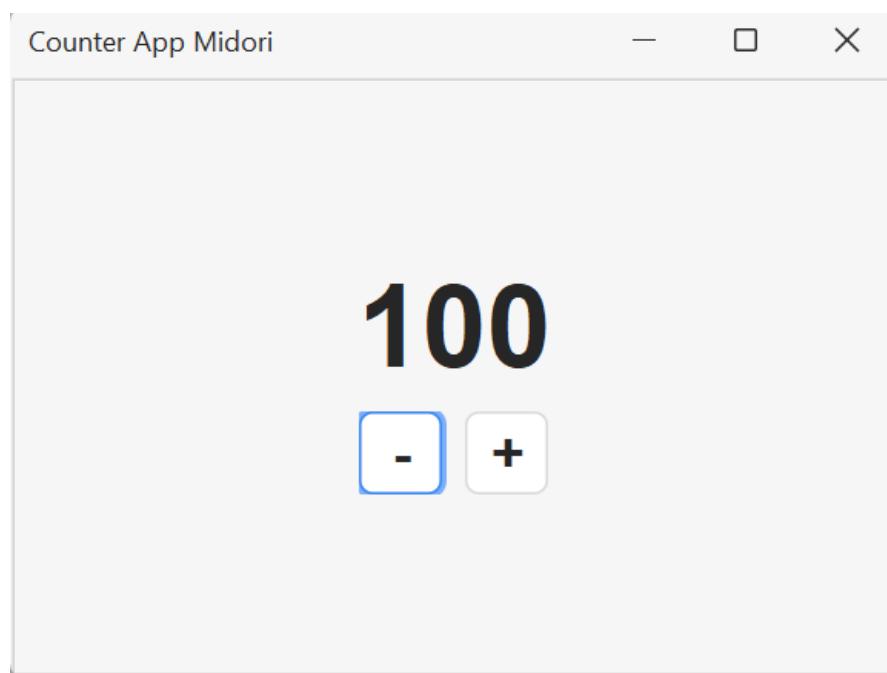
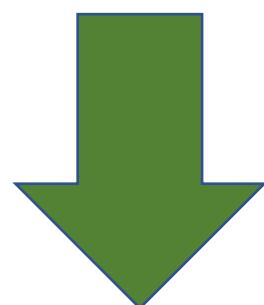
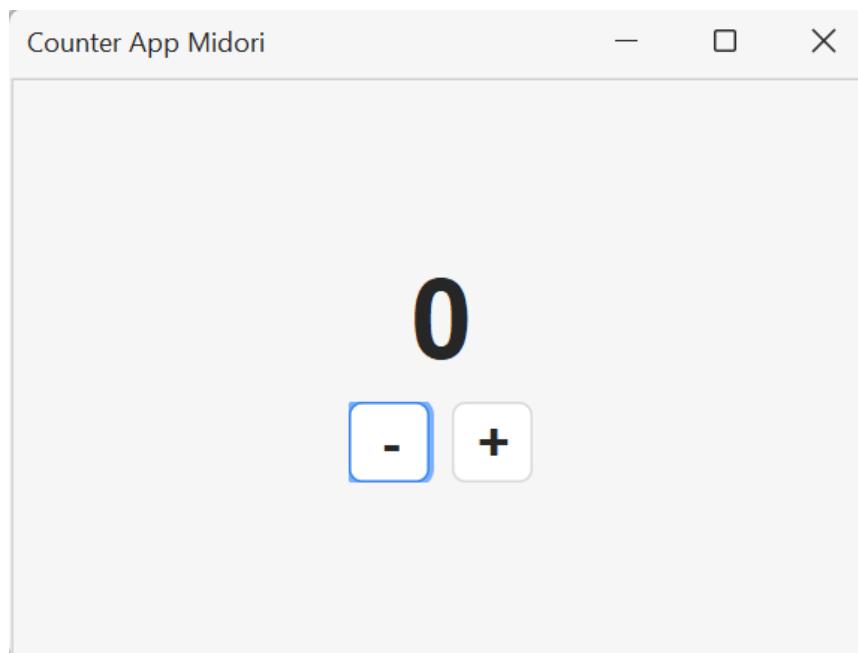
D:\Tisa\Tisa\PBO\murasaki-app>java -cp "lib/*;bin" CounterA
ppTugas
Picked up JAVA_TOOL_OPTIONS: -Dstdout.encoding=UTF-8 -Dstde
rr.encoding=UTF-8
WARNING: A restricted method in java.lang.System has been c
alled
WARNING: java.lang.System::load has been called by com.form
dev.flatlaf.util.NativeLibrary in an unnamed module (file:/
D:/Tisa/Tisa/PBO/murasaki-app/lib/flatlaf-3.6.2.jar)
WARNING: Use --enable-native-access=ALL-UNNAMED to avoid a
warning for callers in this module
WARNING: Restricted methods will be blocked in a future rel
ease unless native access is enabled
```



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- Output





b. Percobaan 2

- Kode Program

```
//import java.awt.Button;
import java.awt.Dimension;
import java.awt.Font;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JPanel;
//import javax.swing.JScrollBar;
import javax.swing.JScrollPane;
import javax.swing.SwingUtilities;
import javax.swing.UIManager;
import javax.swing.UnsupportedLookAndFeelException;
import com.formdev.flatlaf.themes.FlatMacLightLaf;
import net.miginfocom.swing.MigLayout;

public class CounterAppTugas2 {
    private static int nilaiCounter = 0;
    public static void main(String[] args) {
        try {
            UIManager.setLookAndFeel(new FlatMacLightLaf());
        } catch (UnsupportedLookAndFeelException e) {
            e.printStackTrace();
        }

        SwingUtilities.invokeLater(() -> {

            JFrame frame = new JFrame("Counter App Midori");
            frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
            frame.setPreferredSize(new Dimension(400, 300));
            frame.setMinimumSize(new Dimension(200, 150));

            JPanel mainPanel = new JPanel(new java.awt.CardLayout());

            JPanel panelCounter = new JPanel(new MigLayout("fill, wrap1",
                "[grow, center]", "[grow][grow]"));

            JLabel labelCounter = new JLabel(nilaiCounter + "");
            labelCounter.setFont(new Font("Arial", Font.BOLD, 50));
            panelCounter.add(labelCounter, "center");

            JPanel panelButtons = new JPanel(new MigLayout("insets 0",
                "[10[]", "[ ]"));
        });
    }
}
```



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```
 JButton buttonAdd1 = new JButton("-");  
buttonAdd1.setFont(new Font("Arial", Font.BOLD, 25));  
//panelCounter.add(buttonAdd1, "top");  
panelButtons.add(buttonAdd1);  
  
buttonAdd1.addActionListener(e -> {  
    nilaiCounter--;  
    labelCounter.setText(nilaiCounter+"");  
} );  
  
 JButton buttonAdd = new JButton("+");  
buttonAdd.setFont(new Font("Arial", Font.BOLD, 25));  
//panelCounter.add(buttonAdd, "top");  
panelButtons.add(buttonAdd);  
  
buttonAdd.addActionListener(e -> {  
    nilaiCounter++;  
    labelCounter.setText(nilaiCounter+"");  
} );  
  
panelCounter.add(panelButtons, "center");  
  
 JButton buttonNext = new JButton(">");  
buttonNext.setFont(new Font("Arial", Font.BOLD, 25));  
panelCounter.add(buttonNext, "right, bottom");  
  
mainPanel.add(panelCounter, "page1");  
  
 JScrollPane scrollPane = new JScrollPane(panelCounter);  
scrollPane.getVerticalScrollBar().setUnitIncrement(10);  
scrollPane.getVerticalScrollBar().putClientProperty("JScrollBar.fastWheelScrolling", true);  
scrollPane.setOpaque(true);  
  
frame.add(scrollPane);  
frame.pack();  
frame.setLocationRelativeTo(null);  
frame.setVisible(true);  
  
});  
}  
}
```



- Run

```
D:\Tisa\Tisa\PBO\murasaki-app>javac -cp "lib/*" -d bin src/*.java
Picked up JAVA_TOOL_OPTIONS: -Dstdout.encoding=UTF-8 -Dstde
rr.encoding=UTF-8

D:\Tisa\Tisa\PBO\murasaki-app>java -cp "lib/*;bin" CounterA
ppTugas2
Picked up JAVA_TOOL_OPTIONS: -Dstdout.encoding=UTF-8 -Dstde
rr.encoding=UTF-8
WARNING: A restricted method in java.lang.System has been c
alled
WARNING: java.lang.System::load has been called by com.form
dev.flatlaf.util.NativeLibrary in an unnamed module (file:/
D:/Tisa/Tisa/PBO/murasaki-app/lib/flatlaf-3.6.2.jar)
WARNING: Use --enable-native-access=ALL-UNNAMED to avoid a
warning for callers in this module
WARNING: Restricted methods will be blocked in a future rel
ease unless native access is enabled
```

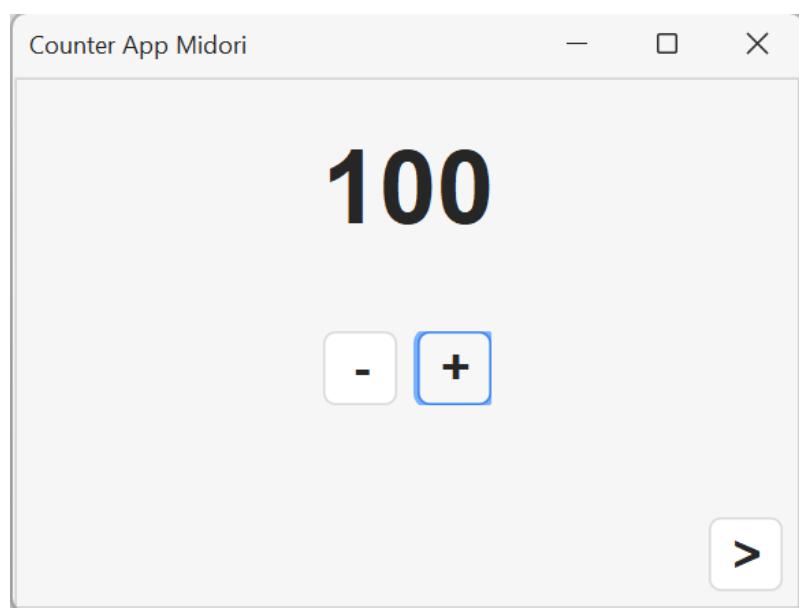
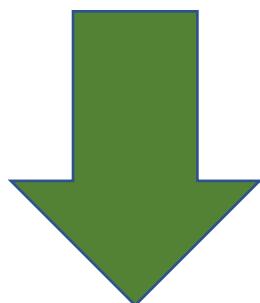
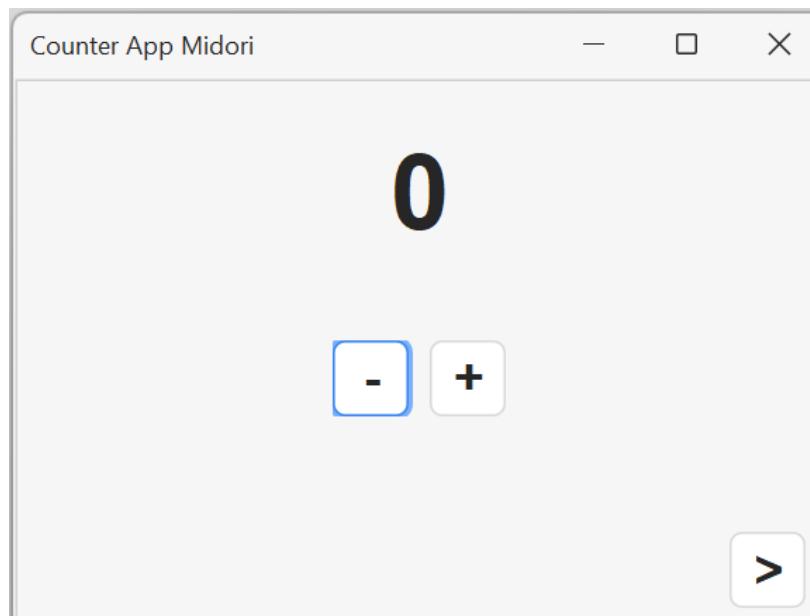


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- Output

Button “>” belum berfungsi.





c. Percobaan 3 (Hasil Akhir)

- Kode Program

```
//import java.awt.Button;
import java.awt.CardLayout;
import java.awt.Dimension;
import java.awt.Font;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JPanel;
//import javax.swing.JScrollBar;
import javax.swing.JScrollPane;
import javax.swing.SwingUtilities;
import javax.swing.UIManager;
import javax.swing.UnsupportedLookAndFeelException;
import com.formdev.flatlaf.themes.FlatMacLightLaf;
import net.miginfocom.swing.MigLayout;

public class CounterAppTugas3 {
    private static int nilaiCounter = 0;
    public static void main(String[] args) {
        try {
            UIManager.setLookAndFeel(new FlatMacLightLaf());
        } catch (UnsupportedLookAndFeelException e) {
            e.printStackTrace();
        }

        SwingUtilities.invokeLater(() -> {

            JFrame frame = new JFrame("Counter App Midori");
            frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
            frame.setPreferredSize(new Dimension(400, 300));
            frame.setMinimumSize(new Dimension(200, 150));

            JPanel mainPanel = new JPanel(new CardLayout());

            JPanel panelCounter = new JPanel(new MigLayout("fill, wrap1",
                "[grow, center]", "[grow][grow]"));

            JLabel labelCounter = new JLabel(nilaiCounter + "");
            labelCounter.setFont(new Font("Arial", Font.BOLD, 50));
            panelCounter.add(labelCounter, "center");
        });
    }
}
```



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```
JPanel panelButtons = new JPanel(new MigLayout("insets 0",
"[]10[], []"));

JButton buttonAdd1 = new JButton("-");
buttonAdd1.setFont(new Font("Arial", Font.BOLD, 25));
//panelCounter.add(buttonAdd1, "top");
panelButtons.add(buttonAdd1);

buttonAdd1.addActionListener(e -> {
    nilaiCounter--;
    labelCounter.setText(nilaiCounter+"");
} );

JButton buttonAdd = new JButton("+");
buttonAdd.setFont(new Font("Arial", Font.BOLD, 25));
//panelCounter.add(buttonAdd, "top");
panelButtons.add(buttonAdd);

buttonAdd.addActionListener(e -> {
    nilaiCounter++;
    labelCounter.setText(nilaiCounter+"");
} );

panelCounter.add(panelButtons, "center");

JButton buttonNext = new JButton(">");
buttonNext.setFont(new Font("Arial", Font.BOLD, 25));
panelCounter.add(buttonNext, "right, bottom");

mainPanel.add(panelCounter, "page1");

JPanel panelResult = new JPanel(new MigLayout("fill, wrap1",
"[grow, center]", "[grow][grow][grow]"));

JLabel labelInfo = new JLabel("Nilai terakhir Anda adalah");
labelInfo.setFont(new Font("Arial", Font.PLAIN, 18));
panelResult.add(labelInfo, "center");

JLabel labelHasil = new JLabel("0");
labelHasil.setFont(new Font("Arial", Font.BOLD, 50));
panelResult.add(labelHasil, "center");

JButton buttonBack = new JButton("<");
buttonBack.setFont(new Font("Arial", Font.BOLD, 25));
panelResult.add(buttonBack, "left, bottom");
```



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```
mainPanel.add(panelResult, "page2");

buttonNext.addActionListener(e -> {
    labelHasil.setText(String.valueOf(nilaiCounter));
    CardLayout cl = (CardLayout) mainPanel.getLayout();
    cl.show(mainPanel, "page2");
} );

buttonBack.addActionListener(e -> {
    CardLayout cl = (CardLayout) mainPanel.getLayout();
    cl.show(mainPanel, "page1");
});

JScrollPane scrollPane = new JScrollPane(mainPanel);
scrollPane.getVerticalScrollBar().setUnitIncrement(10);
scrollPane.getVerticalScrollBar().putClientProperty("JScrollBar.fastWheelScrolling", true);
scrollPane.setOpaque(true);

frame.add(scrollPane);
//frame.add(mainPanel);
frame.pack();
frame.setLocationRelativeTo(null);
frame.setVisible(true);

});
}
}
```



- Run

```
D:\Tisa\Tisa\PBO\murasaki-app>javac -cp "lib/*" -d bin src/*.java
Picked up JAVA_TOOL_OPTIONS: -Dstdout.encoding=UTF-8 -Dstde
rr.encoding=UTF-8

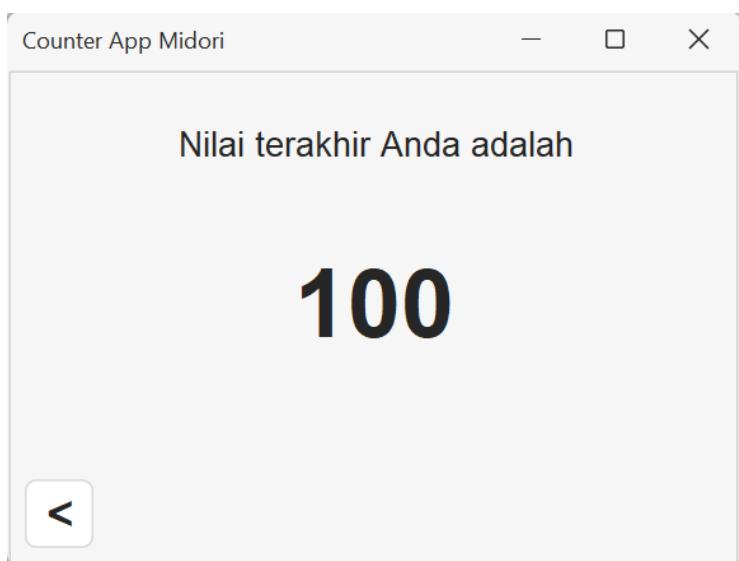
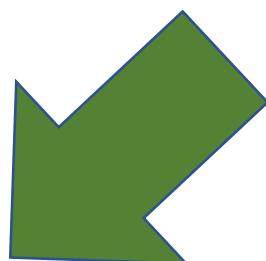
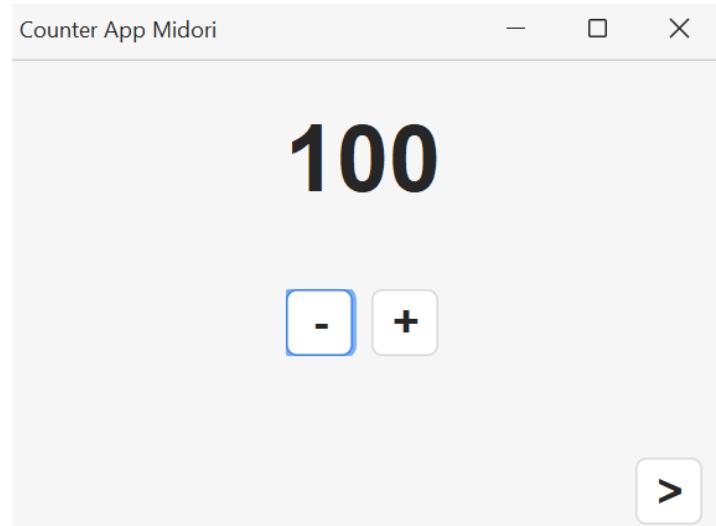
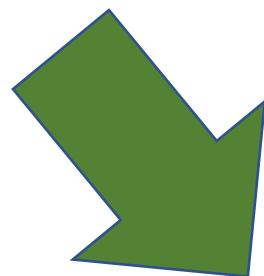
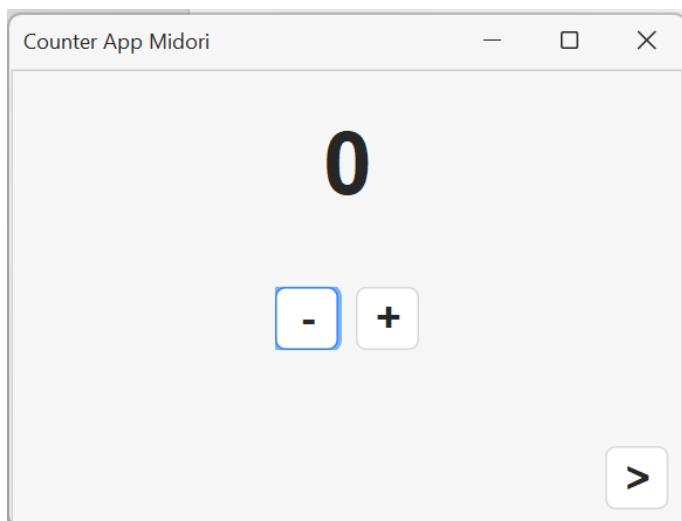
D:\Tisa\Tisa\PBO\murasaki-app>java -cp "lib/*;bin" CounterA
ppTugas3
Picked up JAVA_TOOL_OPTIONS: -Dstdout.encoding=UTF-8 -Dstde
rr.encoding=UTF-8
WARNING: A restricted method in java.lang.System has been c
alled
WARNING: java.lang.System::load has been called by com.form
dev.flatlaf.util.NativeLibrary in an unnamed module (file:/
D:/Tisa/Tisa/PBO/murasaki-app/lib/flatlaf-3.6.2.jar)
WARNING: Use --enable-native-access=ALL-UNNAMED to avoid a
warning for callers in this module
WARNING: Restricted methods will be blocked in a future rel
ease unless native access is enabled
```



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- Output





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3. Pengalaman Pembelajaran

Pada materi Event-Driven Programming ini kita mempelajari cara membuat perangkat lunak yang terpicu oleh *event* yang berbeda beda. Yaitu :

1. Event Source
2. Event Trigger
3. Event Object
4. Event Dispatching
5. Event Listener
6. Event Handler

Selain itu kategori Event Handling terbagi menjadi 3 :

1. Semantic
2. Low-level
3. Specific

4. Link Repository

<https://github.com/Tisa-34/murasaki-app>