

## Programare avansata pe obiecte - laborator 12 (231)

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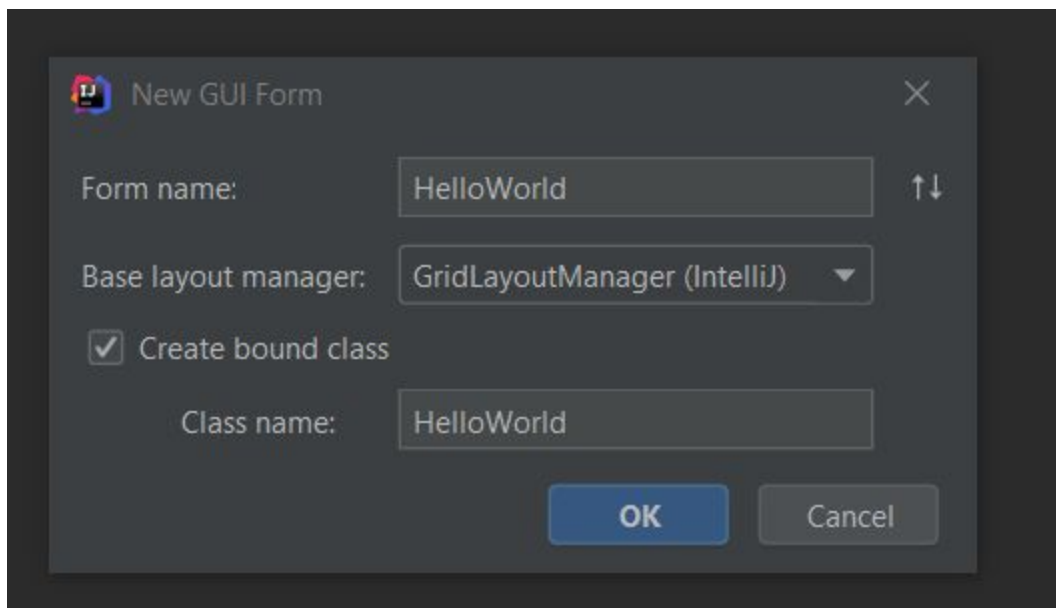
### Object oriented programming - lab 12

#### Swing Graphical User Interface (GUI)

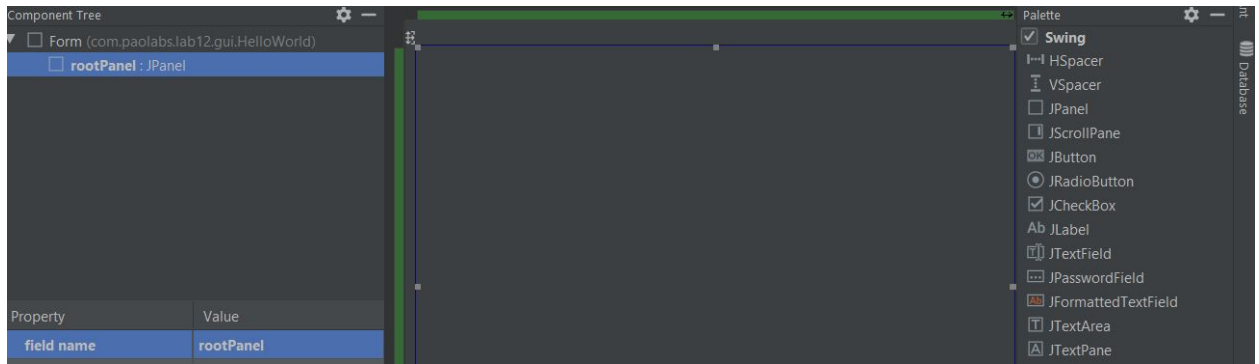
Java provides a set of components 'Swing components' which allow the creation of a User Interface that works across different platforms (e.g. Mac / Windows).

#### Creating the project:

1. Create a new Java Project containing a package called gui.
2. Right click on the gui folder in the project window and choose:  
**New -> Swing UI Designer -> GUI Form**
3. Name the form 'HelloWorld', and configure it:



4. The form will be displayed and will include a panel. In the component tree (select the JPanel and enter the value 'rootPanel' into the field name property box:



5. Navigate to the HelloWorld.java file and ensure that you can now see the JPanel as a variable in the HelloWorld class as follows:

```
package com.paolabs.lab12.gui;

import javax.swing.*;

public class HelloWorld {
    private JPanel rootPanel;
}
```

6. Ensure that the application runs the form on startup:

```
package com.paolabs.lab12.gui;

import javax.swing.*;

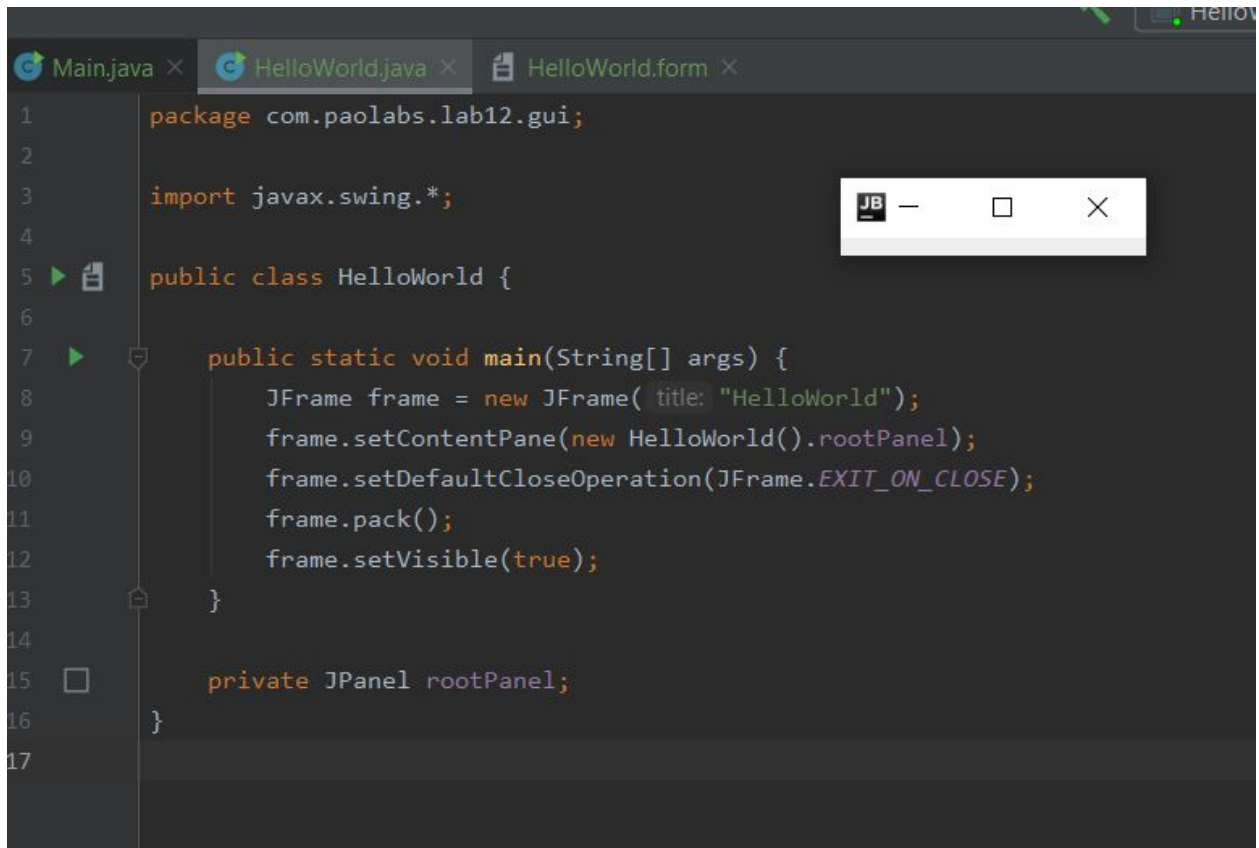
public class HelloWorld {

    public static void main(String[] args) {
        JFrame frame = new JFrame("HelloWorld");
        frame.setContentPane(new HelloWorld().rootPanel);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.pack();
        frame.setVisible(true);
    }

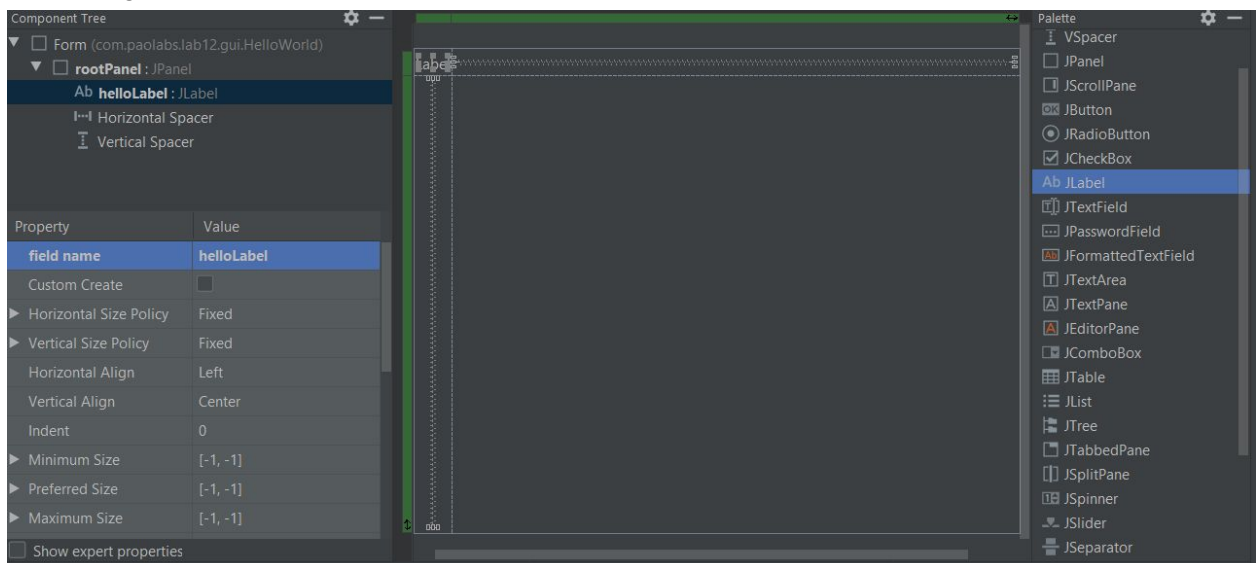
    private JPanel rootPanel;
}
```

7. When running the code, as the JPanel has no content, you will only see the title bar of

an application, with no contents:



8. Next, drag a JLabel onto it at the top of the Window:



9. Select the label in the Component tree and set it to have a field name of **helloLabel**. Add a JButton below the label and set its field name to **helloButton**.

Right-click on the button and choose '**Create Listener**' from the menu, then from the dialogue box that appears, choose '**ActionListener**'. This creates a method in the code which will be called when a user clicks on the button.

```
package com.paolabs.lab12.gui;

import javax.swing.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

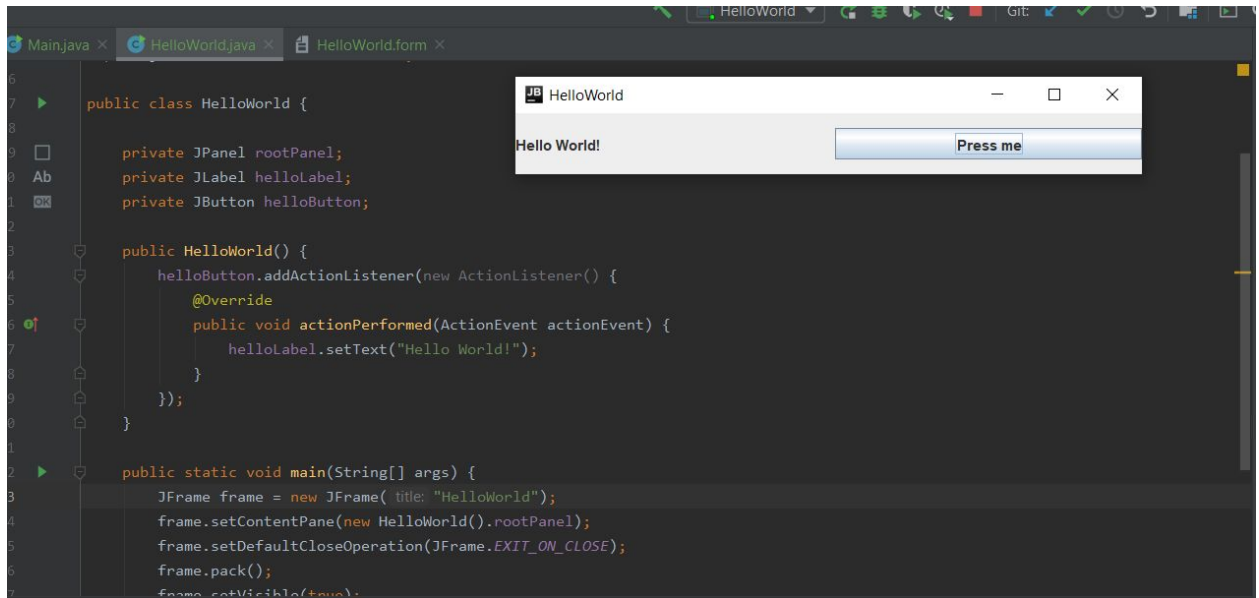
public class HelloWorld {

    private JPanel rootPanel;
    private JLabel helloLabel;
    private JButton helloButton;

    public HelloWorld() {
        helloButton.addActionListener(new ActionListener() {
            @Override
            public void actionPerformed(ActionEvent actionEvent) {
                helloLabel.setText("Hello World!");
            }
        });
    }

    public static void main(String[] args) {
        JFrame frame = new JFrame("HelloWorld");
        frame.setContentPane(new HelloWorld().rootPanel);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.pack();
        frame.setVisible(true);
    }
}
```

**Output:**



Example:

```
package com.paolabs.lab12.gui;

import javax.swing.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class HelloUserForm extends JFrame {

    private JPanel panel;
    private JButton pressMeButton;
    private JTextArea myTextArea;

    public HelloUserForm() {
        add(panel);

        setTitle("Hello User Form");
        setSize(400, 500);
        setDefaultCloseOperation(JFrame.DISPOSE_ON_CLOSE);

        pressMeButton.addActionListener(new ActionListener() {
            @Override
            public void actionPerformed(ActionEvent actionEvent) {
                String textAreaText = myTextArea.getText();
                if ("".equals(textAreaText)) {
```

```

        JOptionPane.showMessageDialog(panel, "Hello there!");
    } else {
        JOptionPane.showMessageDialog(panel, "Hello " +
textAreaText + "!");
    }
    }
    });
}
}

```

```

package com.paolabs.lab12;

import com.paolabs.lab12.gui.HelloUserForm;

import javax.swing.*;

public class Main {

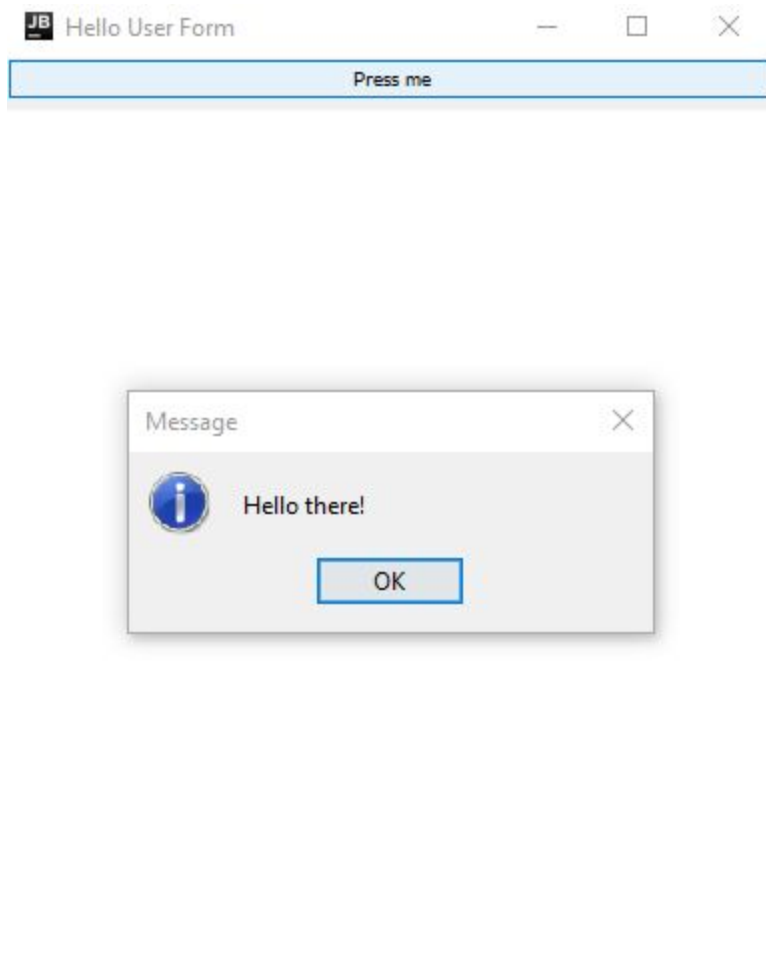
    public static void main(String[] args) throws ClassNotFoundException,
UnsupportedLookAndFeelException, InstantiationException,
IllegalAccessException {

        UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());

        // run GUI code on Event Dispatch Thread
        SwingUtilities.invokeLater(new Runnable() {
            @Override
            public void run() {
                HelloUserForm helloUserForm = new HelloUserForm();
                helloUserForm.setVisible(true);
            }
        });
    }
}

```

**Output:**



Resources:

- <https://www.javatpoint.com/java-swing>
- <http://zetcode.com/tutorials/javaswingtutorial/>