



Uniwersytet Ekonomiczny
we Wrocławiu



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Programowanie w języku Java

w ramach projektu

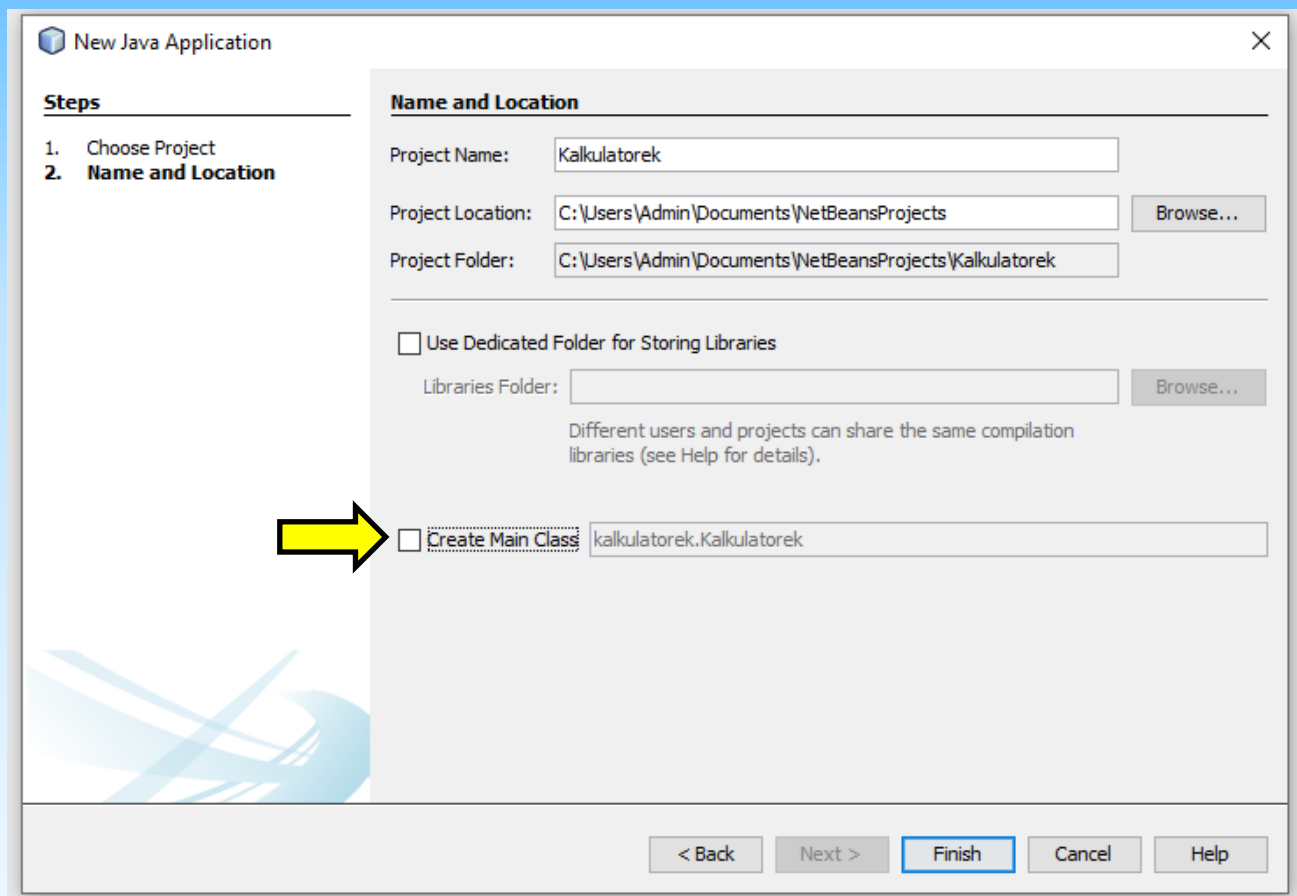
„Trzecia Misja Uniwersytetu Ekonomicznego we Wrocławiu dla dzieci i młodzieży”

Część III

Rok szkolny 2021/22

Prowadzący: dr inż. Piotr Tutak

Zadanie 1 Kalkulator z interfejsem



New Java Application

Steps

1. Choose Project
2. **Name and Location**

Name and Location

Project Name:

Project Location:

Project Folder:

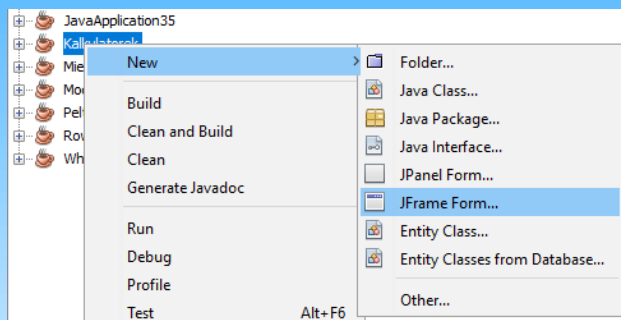
☐ Use Dedicated Folder for Storing Libraries

Libraries Folder:

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

☒ **Create Main Class**

Dodanie JFrame form

A screenshot of the 'New JFrame Form' dialog box. The dialog has a title bar with a close button. On the left, under the 'Steps' section, there are two steps: '1. Choose File Type' and '2. Name and Location'. The 'Name and Location' section is active. It contains several input fields: 'Class Name' with the text 'Kalkulator', 'Project' with 'Kalkulatorek', 'Location' with a dropdown menu showing 'Source Packages', and 'Package' with a dropdown menu showing 'Obliczenia'. Below these is a 'Created File' field showing the full path: 'C:\Users\Admin\Documents\NetBeansProjects\Kalkulatorek\src\Obliczenia\Kalkulator.java'. At the bottom, there are five buttons: '< Back', 'Next >', 'Finish' (which is highlighted with a blue border), 'Cancel', and 'Help'.

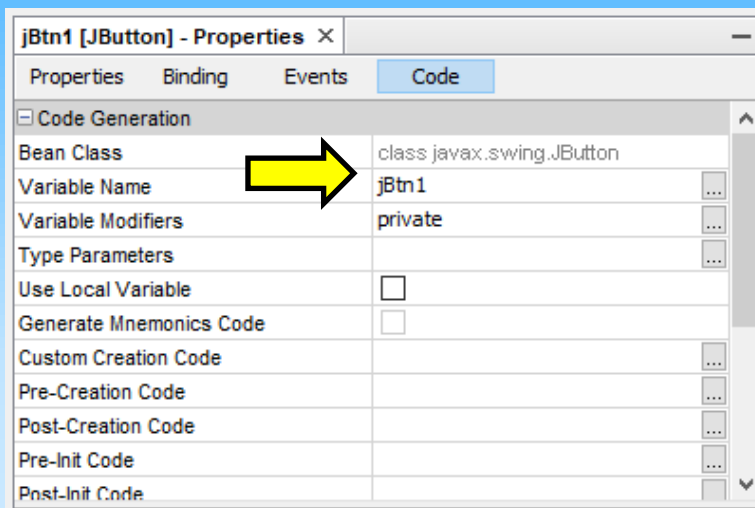
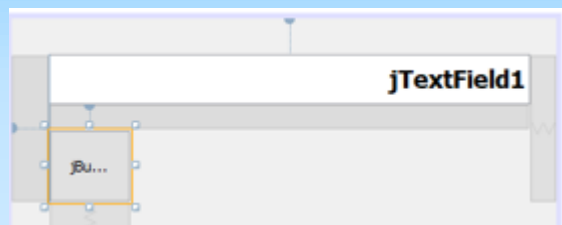
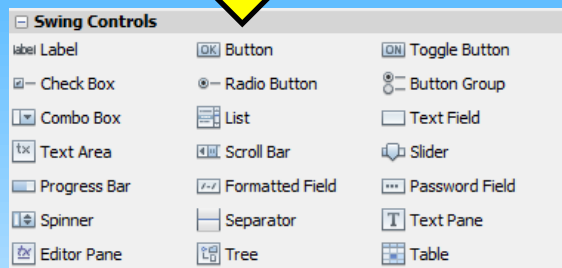
Dodanie pola tekstowe

The screenshot shows the NetBeans IDE with the 'Kalkulator.java' project. A text field component, labeled 'jTextField1', is being added to the design view. A yellow arrow points from the 'Text Field' component in the 'Swing Controls' palette to the design view. A dialog box titled 'jTextField1 [JTextField] - font' is open, allowing the user to set the font properties. The font is set to 'Tahoma', style to 'Bold', and size to '18'. The preview text is 'The quick brown fox jumps over the lazy dog'. The 'Properties' window for 'jTextField1 [JTextField]' is also visible, showing various properties like 'editable', 'background', 'columns', 'document', 'font', 'foreground', 'horizontalAlignment', 'text', 'toolTipText', and 'Other Properties'.

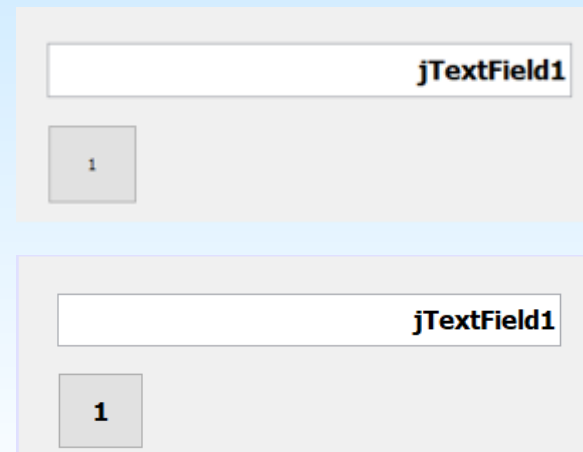
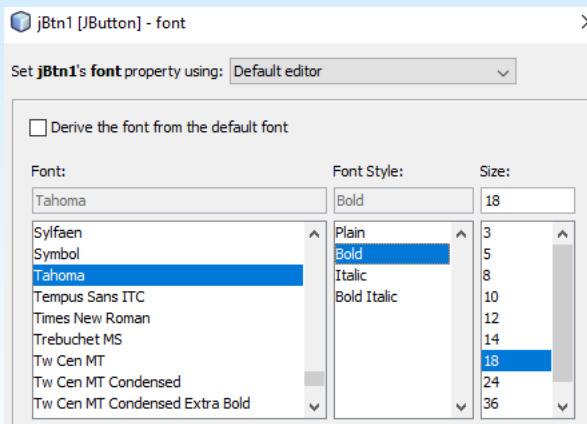
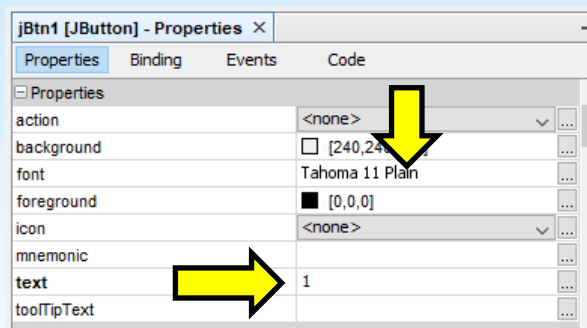
The screenshot shows the 'jtxtDisplay [JTextField] - Properties' window with the 'Code' tab selected. A yellow arrow points to the 'Variable Name' field, which contains 'jtxtDisplay'. The 'Bean Class' is 'class javax.swing.JTextField' and the 'Variable Modifiers' are 'private'.

The screenshot shows the 'jTextField1 [JTextField] - Properties' window with the 'Properties' tab selected. A yellow arrow points to the 'font' property, which is set to 'Tahoma 18 Bold'. The 'text' property is set to 'jTextField1'.

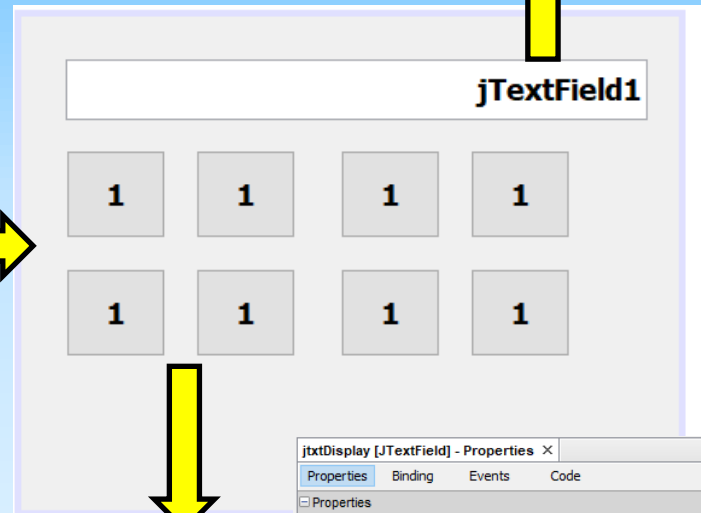
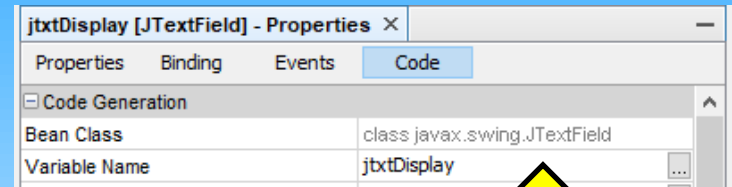
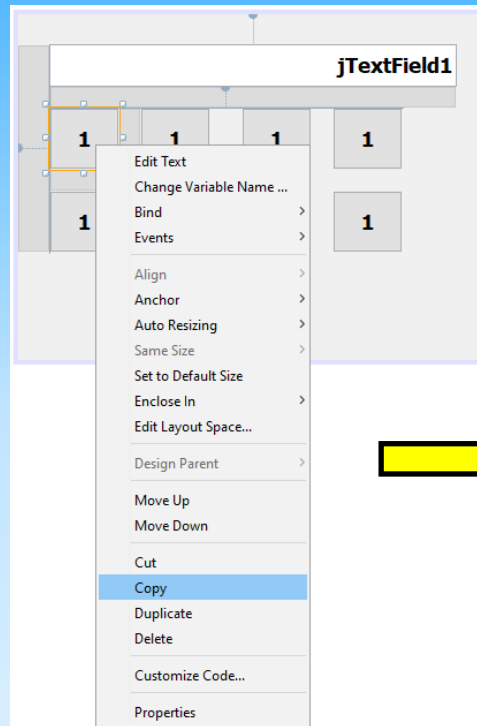
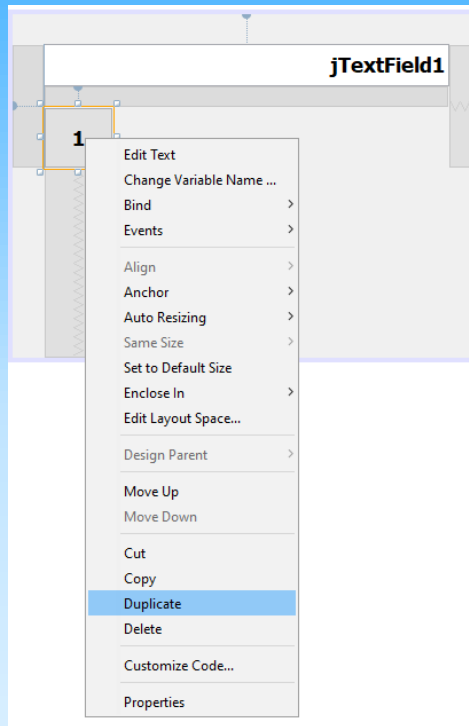
Dodanie przycisku



Zmiana nazwy przycisku



Duplikowanie i kopiowanie przycisków



Ctrl c + ctrl v

Variable Name

jBtn1

jBtn2

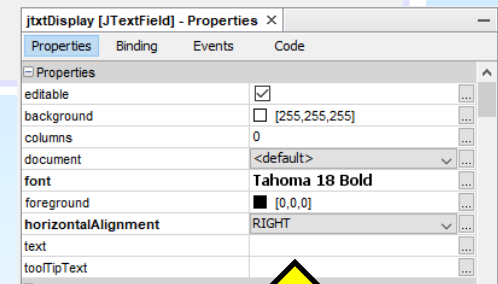
.....

jBtn6

jBtn7

jBtn8

itd...



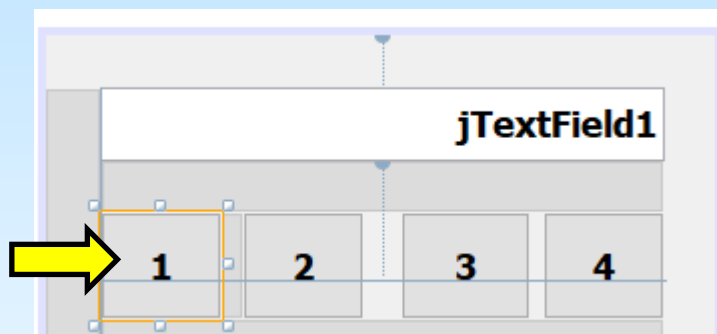
Należy wykasować tekst
`jTextField1` z pola text

Wygląd interfejsu kalkulatora



Przekazywanie liczb do operacji matematycznych

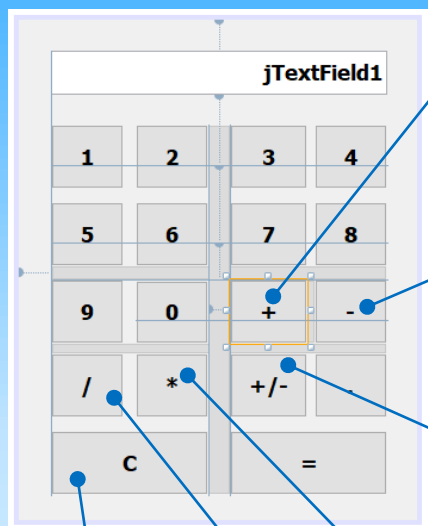
```
Source Design History
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6   package Obliczenia;
7
8   /**
9    *
10   * @author Admin
11   */
12   public class Kalkulator extends javax.swing.JFrame {
13
14
15       double firstnum;
16       double secondnum;
17       double result;
18       String operation;
19
20
21       public Kalkulator() {
22           initComponents();
23       }
```



```
private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    String Enternumber = jtxtDisplay.getText() + jButton1.getText();
    jtxtDisplay.setText(Enternumber);
}
```

Czynność powtórzyć dla przycisku 2, 3, 4, 5, 6, 7, 8, 9, 0 kopiując powyższy kod i zmieniając cyfrę 1 w jButton1 odpowiednio na jButton2, jButton3 itd...

Operacje matematyczne



```
private void jBtn26ActionPerformed(java.awt.event.ActionEvent evt) {  
    firstnum = Double.parseDouble(jtxtDisplay.getText());  
    jtxtDisplay.setText("");  
    operations="+";  
}
```

```
private void jBtn23ActionPerformed(java.awt.event.ActionEvent evt) {  
    firstnum = Double.parseDouble(jtxtDisplay.getText());  
    jtxtDisplay.setText("");  
    operations="-";  
}
```

```
private void jBtn24ActionPerformed(java.awt.event.ActionEvent evt) {  
  
    Double ops = Double.parseDouble(String.valueOf(jtxtDisplay.getText()));  
    ops = ops * (-1);  
    jtxtDisplay.setText(String.valueOf(ops));  
}
```

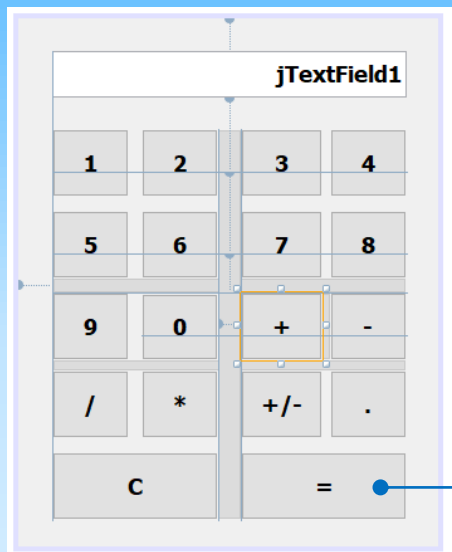
```
private void jBtn15ActionPerformed(java.awt.event.ActionEvent evt) {  
    firstnum = Double.parseDouble(jtxtDisplay.getText());  
    jtxtDisplay.setText("");  
    operations="*";  
}
```

```
private void jBtn11ActionPerformed(java.awt.event.ActionEvent evt) {  
    firstnum = Double.parseDouble(jtxtDisplay.getText());  
    jtxtDisplay.setText("");  
    operations="/";  
}
```

Zerowanie kalkulatora

```
private void jBtn28ActionPerformed(java.awt.event.ActionEvent evt) {  
    jtxtDisplay.setText("");  
}
```

Operacje matematyczne



```
private void jBtn27ActionPerformed(java.awt.event.ActionEvent evt) {  
    String answer;  
    secondnum = Double.parseDouble(jtxtDisplay.getText());  
    if (operations=="+") {  
        result= firstnum + secondnum;  
        answer=String.format("%.0f", result);  
        jtxtDisplay.setText(answer);  
    }  
    else if (operations=="-") {  
        result= firstnum - secondnum;  
        answer=String.format("%.0f", result);  
        jtxtDisplay.setText(answer);  
    }  
    else if (operations=="*") {  
        result= firstnum * secondnum;  
        answer=String.format("%.0f", result);  
        jtxtDisplay.setText(answer);  
    }  
    else if (operations=="/") {  
        result= firstnum / secondnum;  
        answer=String.format("%.0f", result);  
        jtxtDisplay.setText(answer);  
    }  
}
```

Projekt – konwerter temperatury

➤ **Temperatury** Celsjusza, Fahrenheita, Kelvina

Wzory do zamiany temperatury z Celsjuszy na inne skale

Celsjusz na Fahrenheit	$^{\circ}\text{F} = (^{\circ}\text{C} \times 1.8) + 32$
Celsjusz na Kelvin	$\text{K} = ^{\circ}\text{C} + 273.15$

Wzory do zamiany temperatury na Celsjusze

Fahrenheit na Celsjusz	$^{\circ}\text{C} = (^{\circ}\text{F} - 32) / 1.8$
Kelvin na Celsjusz	$^{\circ}\text{C} = \text{K} - 273.15$

Wzory do zmiany na Fahrenheity

Celsjusz na Fahrenheit	$^{\circ}\text{F} = (^{\circ}\text{C} \times 1.8) + 32$
Kelvin na Fahrenheit	$^{\circ}\text{F} = (\text{K} \times 1.8) - 459.67$

Wzory do zmiany z Fahrenheitów

Fahrenheit na Celsjusz	$^{\circ}\text{C} = (^{\circ}\text{F} - 32) / 1.8$
Fahrenheit na Kelvin	$\text{K} = (^{\circ}\text{F} + 459.67) \times 5/9$

Konwerter Temperatur

Skala Celsjusza [$^{\circ}\text{C}$]:

100

Skala Fahrenheita [$^{\circ}\text{F}$]:

212

Skala Kelvina [K]:

373.15



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Dziękuję za uwagę!