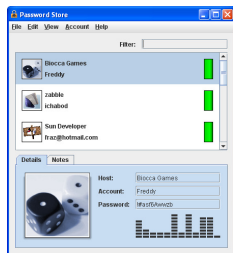


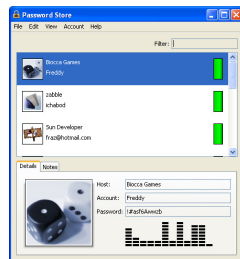
Programowanie w języku Java

Wykład 9: JFC/Swing – projektowanie GUI

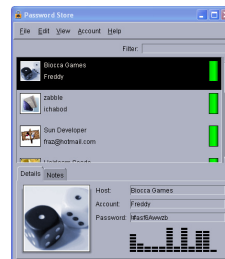
Widok komponentów



Java (Metal)



MS Windows



OSF/Motif

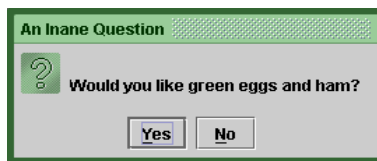
GTK+

Komponenty (1)

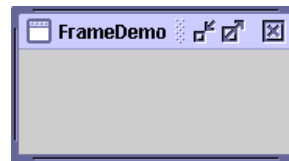
- Kontenery główne:



JApplet



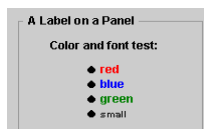
JDialog



JFrame

Komponenty (2)

- Kontenery pomocnicze:



JPanel



JScrollPane



JSplitPane



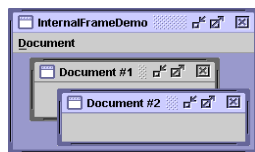
JTabbedPane



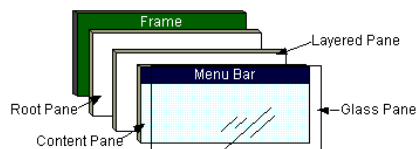
JToolBar

Komponenty (3)

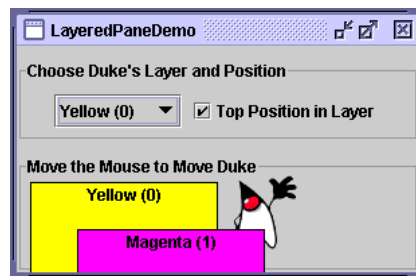
- Kontenery specjalnego przeznaczenia:



InternalFrame



JRootPane



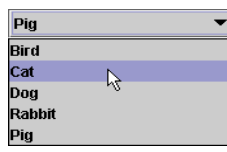
JLayeredPane

Komponenty (4)

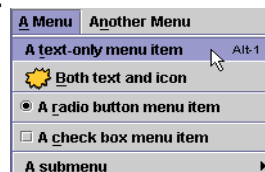
- Komponenty podstawowe



JButton



JComboBox



JMenu



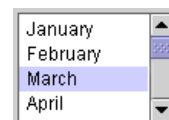
JSlider



JTextField



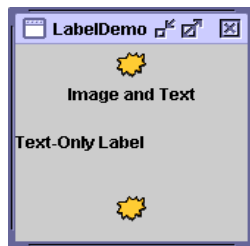
JSpinner



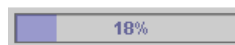
JList

Komponenty (5)

■ Komponenty informacyjne



JLabel



JProgressBar



JToolTip

Programowanie w języku Java

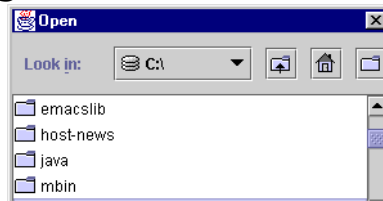
7

Komponenty (6)

■ Okna dialogowe



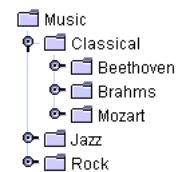
JColorChooser



JFileChooser

First Name	Last Name	Favorite Food
Jeff	Dinkins	
Ewan	Dinkins	
Amy	Fowler	
Hania	Gajewska	
David	Geary	

JTable



JTree



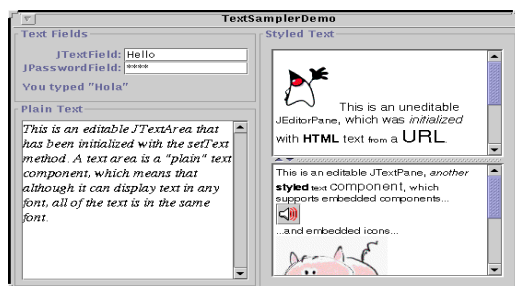
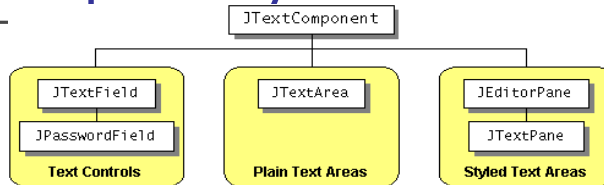
JText

Programowanie w języku Java

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Komponenty tekstowe

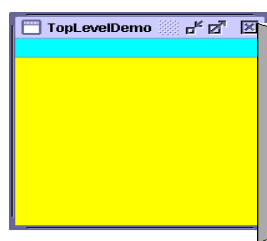


Programowanie w języku Java

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Kontenery



```
frame.setJMenuBar(cyanMenuBar);
```

```
frame.getContentPane()
```

↓
Container

↓
add(), setLayout(),

Programowanie w języku Java

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Komponenty

Klasa bazowa: **JComponent**

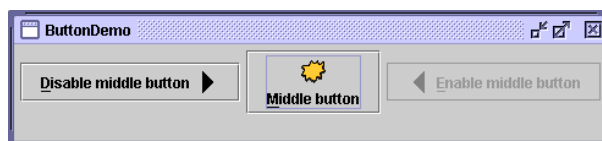
- metody zmieniające wygląd: **setBorder(), setForeground(), setOpaque(), setFont(), setCursor()**
- metody zmieniające stan: **setVisible(), isVisible(), setEnabled(), isEnabled(), isShowing(), setName(), getName()**
- metody obsługujące zdarzenia
- metody rysujące grafikę: **paintComponent(), repaint()**
- metody zarządzające hierarchią: **add(), remove(), getRootPane(), getParent()**
- metody zarządzające rozmieszczaniem: **getPreferredSize(), setPreferredSize(), setLayout()**
- metody odczytujące i ustalające rozmiar i pozycję: **getX(), getY(), getWidth(), getHeight(), setSize(), setLocation()**

Programowanie w języku Java

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Przyciski: **JButton**

- Klasa bazowa: **AbstractButton**



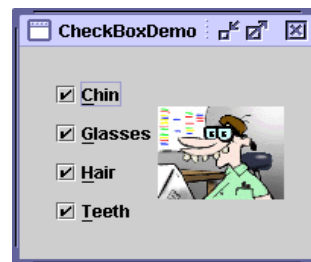
```
ImageIcon leftButtonIcon = createImageIcon("images/right.gif"); ImageIcon
middleButtonIcon = createImageIcon("images/middle.gif"); ImageIcon
rightButtonIcon = createImageIcon("images/left.gif");
b1 = new JButton("Disable middle button", leftButtonIcon);
b1.setVerticalTextPosition(AbstractButton.CENTER);
b1.setHorizontalTextPosition(AbstractButton.LEADING);
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);
b3.setMnemonic(KeyEvent.VK_E); b3.setActionCommand("enable");
b3.setEnabled(false);
```

Programowanie w języku Java

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Przyciski: JCheckBox

```
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);
```

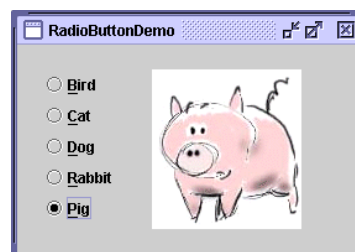


Programowanie w języku Java

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Przyciski: JRadioButton

```
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);
ButtonGroup group = new ButtonGroup();
group.add(birdButton);
group.add(catButton);
group.add(dogButton);
group.add(rabbitButton);
group.add(pigButton);
```



Programowanie w języku Java

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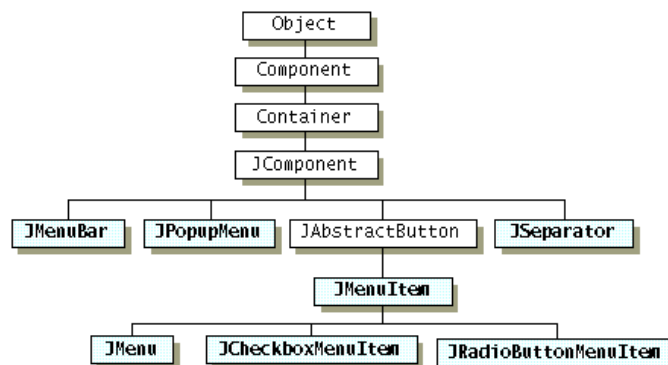
Komponent: JComboBox

```
String[] petStrings = { "Bird", "Cat", "Dog", "Rabbit", "Pig" };  
JComboBox petList = new JComboBox(petStrings);  
petList.setSelectedIndex(4);
```

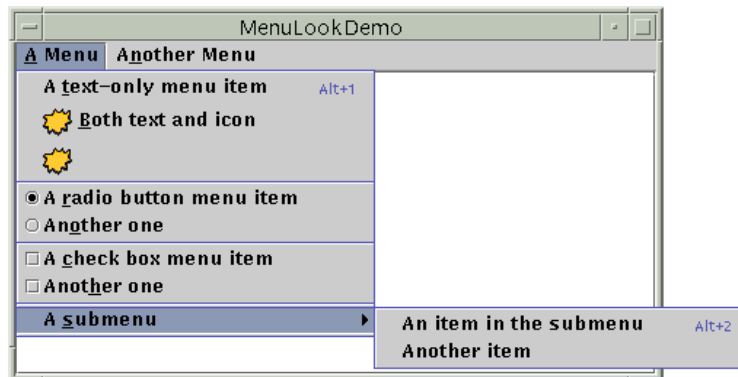


```
petList.setEditable(true);
```

Tworzenie Menu (1)



Tworzenie Menu (2)



Programowanie w języku Java

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Tworzenie Menu (3)

```
JMenuBar menuBar;  
JMenu menu, submenu;  
JMenuItem menuItem;  
JRadioButtonMenuItem rbMenuItem;  
JCheckBoxMenuItem cbMenuItem;  
menuBar = new JMenuBar();  
menu = new JMenu("A Menu");  
menu.setMnemonic(KeyEvent.VK_A);  
menu.getAccessibleContext().setAccessibleDescription(  
    "The only menu in this program that has menu items");  
menuBar.add(menu);  
menuItem = new JMenuItem("A text-only menu item", KeyEvent.VK_T);  
menuItem.setAccelerator(KeyStroke.getKeyStroke( KeyEvent.VK_1,  
    KeyEvent.ALT_MASK));  
menuItem.getAccessibleContext().setAccessibleDescription(  
    "This doesn't really do anything");  
menu.add(menuItem);  
menuItem = new JMenuItem("Both text and icon", new ImageIcon("images/middle.gif"));  
menuItem.setMnemonic(KeyEvent.VK_B);  
menu.add(menuItem);  
menuItem = new JMenuItem(new ImageIcon("images/middle.gif")); menuItem.setMnemonic(KeyEvent.VK_D);  
menu.add(menuItem);
```

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Tworzenie Menu (4)

```
menu.addSeparator();
ButtonGroup group = new ButtonGroup();
rbMenuItem = new JRadioButtonMenuItem("A radio button menu item");
rbMenuItem.setSelected(true);
rbMenuItem.setMnemonic(KeyEvent.VK_R);
group.add(rbMenuItem);
menu.add(rbMenuItem);
rbMenuItem = new JRadioButtonMenuItem("Another one");
rbMenuItem.setMnemonic(KeyEvent.VK_O);
group.add(rbMenuItem);
menu.add(rbMenuItem);
menu.addSeparator();
cbMenuItem = new JCheckBoxMenuItem("A check box menu item");
cbMenuItem.setMnemonic(KeyEvent.VK_C);
menu.add(cbMenuItem);
cbMenuItem = new JCheckBoxMenuItem("Another one");
cbMenuItem.setMnemonic(KeyEvent.VK_H);
menu.add(cbMenuItem);
```

Programowanie w języku Java

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Tworzenie Menu (5)

```
menu.addSeparator();
submenu = new JMenu("A submenu"); submenu.setMnemonic(KeyEvent.VK_S);
menuItem = new JMenuItem("An item in the submenu");
menuItem.setAccelerator(KeyStroke.getKeyStroke( KeyEvent.VK_2, ActionEvent.ALT_MASK));
submenu.add(menuItem);
menuItem = new JMenuItem("Another item");
submenu.add(menuItem);
menu.add(submenu);

menu = new JMenu("Another Menu");
menu.setMnemonic(KeyEvent.VK_N);
menu.getAccessibleContext().setAccessibleDescription("This menu does nothing");
menuBar.add(menu);

frame.setJMenuBar(menuBar);
```

Programowanie w języku Java

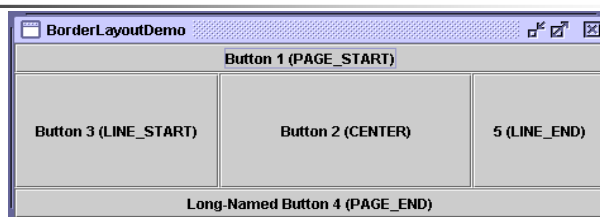
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Rozmieszczanie komponentów w kontenerach

- Kontenery:
 - główne: **JFrame**, **JDialog**, **JApplet**
 - pośrednie: **JPanel**,
- Rozmieszczanie komponentów:
 - menadżer rozmieszczenia (**LayoutManager**):
 - [BorderLayout](#) [BoxLayout](#)
 - [CardLayout](#) [FlowLayout](#)
 - [GridBagLayout](#) [GridLayout](#)
 - [SpringLayout](#)

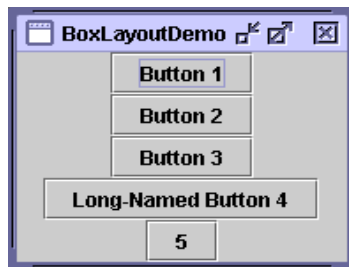
```
np.contentPane.setLayout(new FlowLayout());
```

BorderLayout (domyślny)



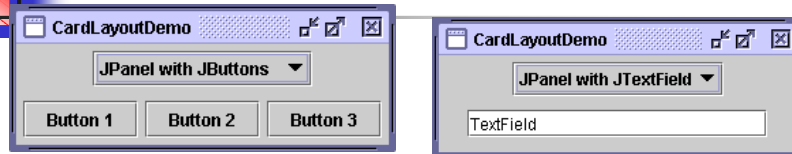
```
JButton button = new JButton("Button 1 (PAGE_START)");  
pane.add(button, BorderLayout.PAGE_START);  
button = new JButton("Button 2 (CENTER)");  
button.setPreferredSize(new Dimension(200, 100));  
pane.add(button, BorderLayout.CENTER);  
button = new JButton("Button 3 (LINE_START)");  
pane.add(button, BorderLayout.LINE_START);  
button = new JButton("Long-Named Button 4 (PAGE_END)");  
pane.add(button, BorderLayout.PAGE_END);  
button = new JButton("5 (LINE_END)");  
pane.add(button, BorderLayout.LINE_END);
```

BoxLayout



```
pane.setLayout(new BoxLayout(pane, BoxLayout.Y_AXIS));
```

CardLayout



```

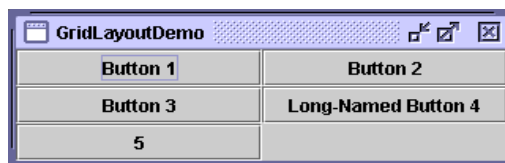
JPanel cards;
final static String BUTTONPANEL = "JPanel with JButtons";
final static String TEXTPANEL = "JPanel with JTextField";
public void addComponentToPane(Container pane) {
    JPanel comboBoxPane = new JPanel();
    String comboBoxItems[] = { BUTTONPANEL, TEXTPANEL };
    JComboBox cb = new JComboBox(comboBoxItems);
    cb.setEditable(false);
    cb.addItemListener(this);
    comboBoxPane.add(cb);
    JPanel card1 = new JPanel();
    card1.add(new JButton("Button 1"));
    card1.add(new JButton("Button 2"));
    card1.add(new JButton("Button 3"));
    JPanel card2 = new JPanel();
    card2.add(new JTextField("TextField", 20));
    cards = new JPanel(new CardLayout());
    cards.add(card1, BUTTONPANEL);
    cards.add(card2, TEXTPANEL);
    pane.add(comboBoxPane,
            BorderLayout.PAGE_START);
    pane.add(cards,
            BorderLayout.CENTER);
}

```

FlowLayout i GridLayout

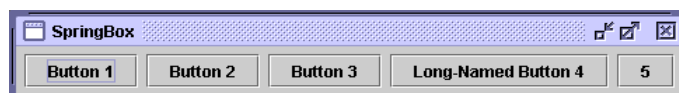
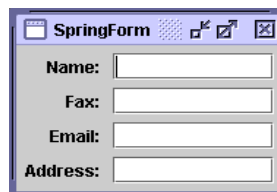
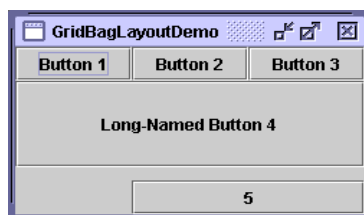


FlowLayout (domyślny dla JPanel)



GridLayout (rozmieszczanie wg. siatki)

GridBagLayout i SpringLayout





Koniec

Programowanie w języku Java

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