Chapitre IV
Les SWINGs

Généralités

Les composants *Swing* constituent une évolution naturelles des composants AWT. Donc , ajout de nouvelles fonctionnalités pour chacune des classes. Ce package "*javax.Swing.**" comporte les éléments suivants :

- Les conteneurs de plus haut niveau : JFrame, JApplet
- Les composants légers (*Light-Weight*) : *JButton, JCheckBox, etc.*

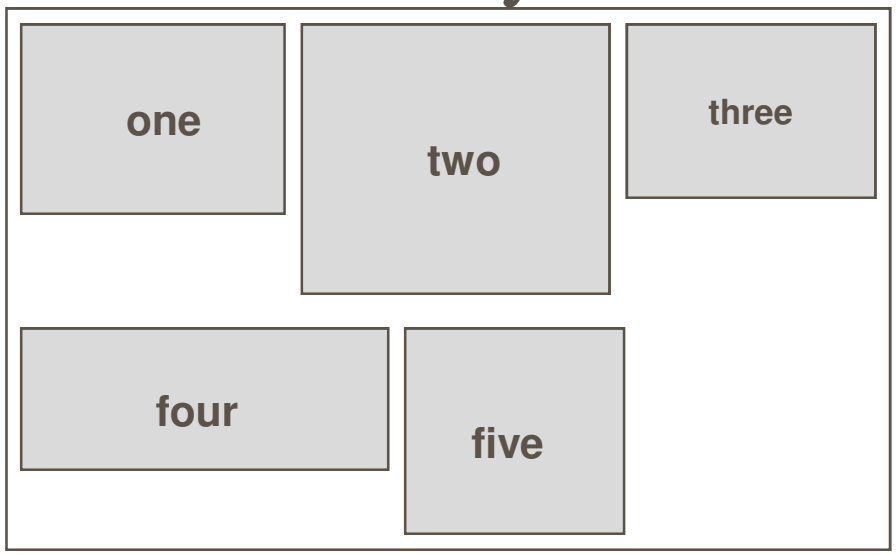
Les composants Swing se placent dans un conteneur de plus haut niveau "ContentPane" : C'est la fenêtre visible.

Généralités

- Les widgets
  - javax.swing.JButton
  - javax.swing.JRadioButton
  - javax.swing.JCheckBox
  - javax.swing.JLabel
  - javax.swing.JList
  - …
  - javax.swing.JTable
  - javax.swing.JSplitPane
  - javax.swing.JSlider
  - javax.swing.JProgressBar

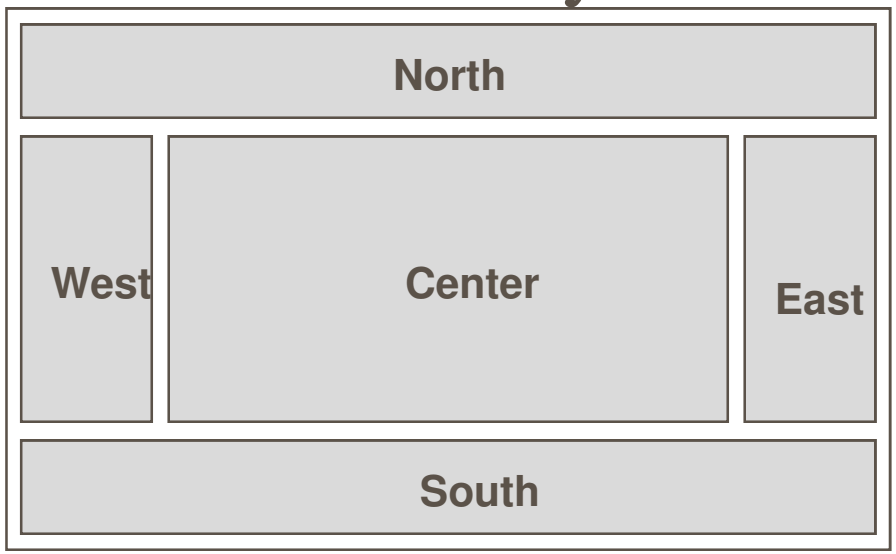
Rappel des composants AWT

- java.awt.FlowLayout



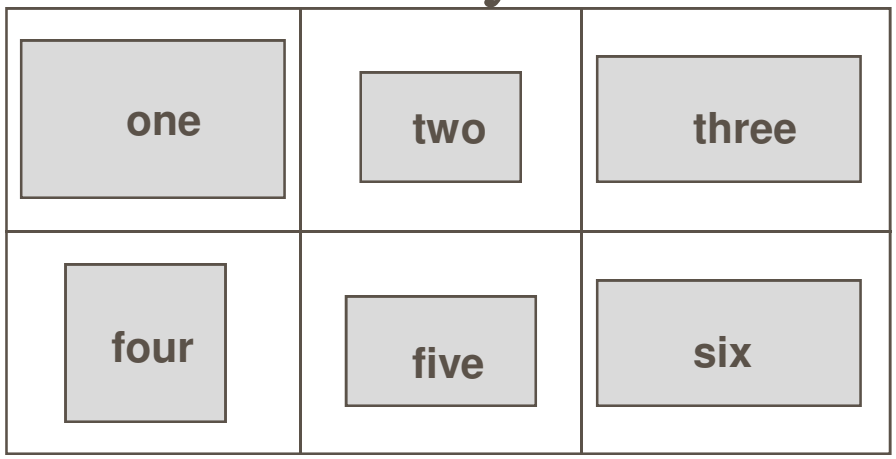
Rappel des composants AWT

- java.awt.BorderLayout

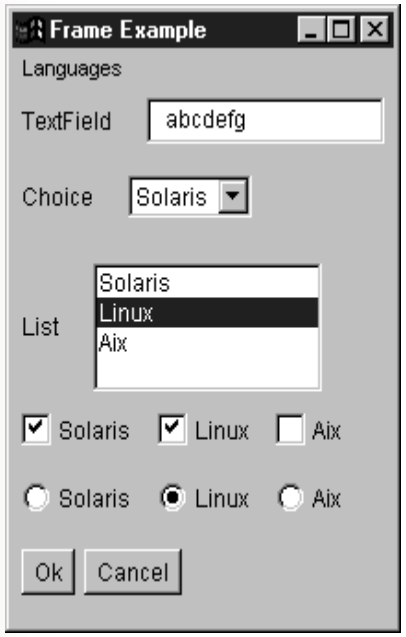


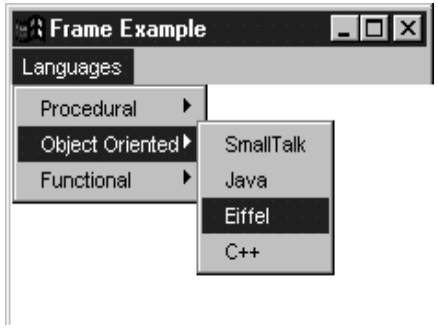
Généralités

- java.awt.GridLayout

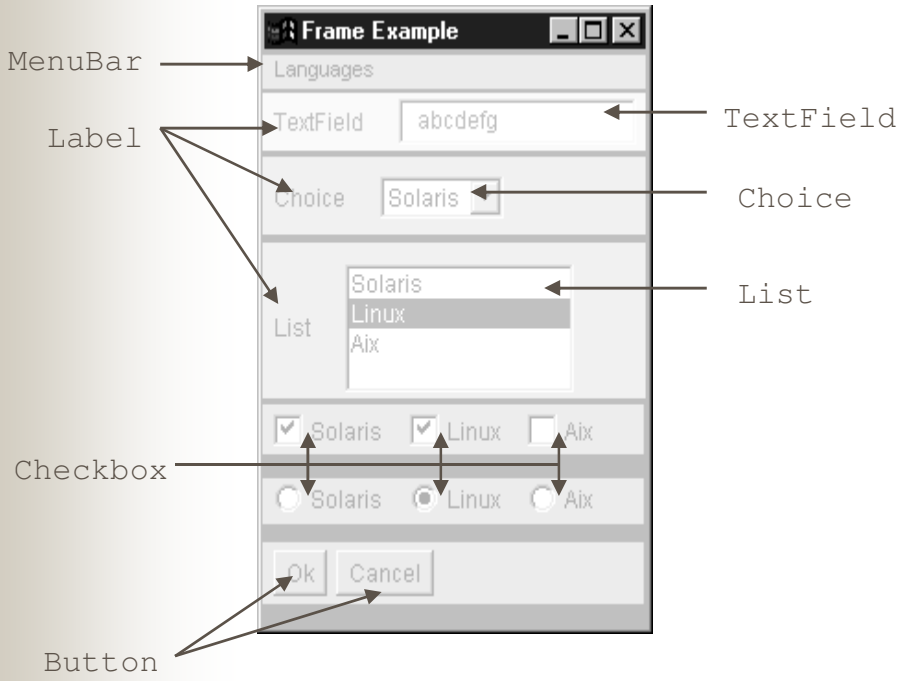


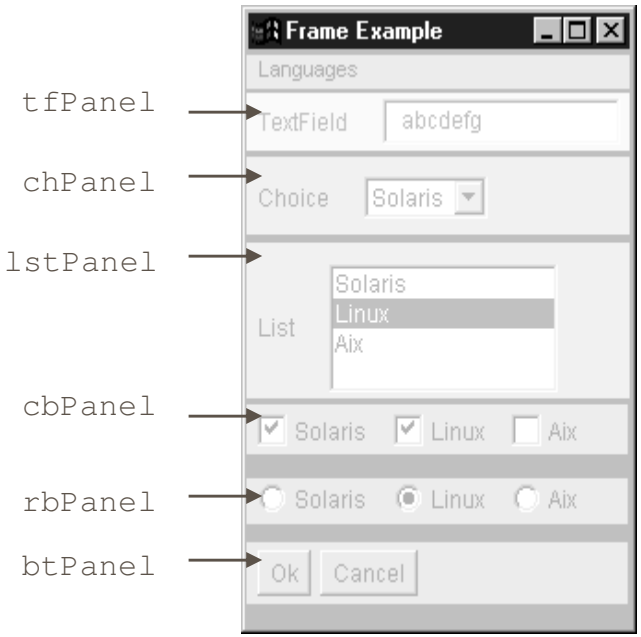
Exemple de composants AWT





Exemple de composants AWT





Exemple AWT

```
// Text Field Panel
Panel tfPanel = new Panel(new FlowLayout(FlowLayout.LEFT));

label = new Label("TextField");
tfdPanel.add(label);

textField = new TextField(15);
tfPanel.add(textField);
```

Exemple AWT

```
// Choice Panel
Panel chPanel = new Panel(new FlowLayout(FlowLayout.LEFT));

label = new Label("Choice");
chPanel.add(label);

choice = new Choice();
choice.addItem("Solaris");
choice.addItem("Linux");
choice.addItem("Aix");

chPanel.add(choice);
```

Exemple AWT

```
// List Panel
Panel listPanel = new Panel(new FlowLayout(FlowLayout.LEFT));

label = new Label("List");
listPanel.add(label);

list = new List();
list.addItem("Solaris");
list.addItem("Linux");
list.addItem("Aix");

listPanel.add(list);
```

Exemple AWT

```
// Checkbox Panel
Panel cbPanel = new Panel(new FlowLayout(FlowLayout.LEFT));

cbSolaris = new Checkbox("Solaris");
cbPanel.add(cbSolaris);

cbLinux = new Checkbox("Linux");
cbPanel.add(cbLinux);

cbAix = new Checkbox("Aix");
cbPanel.add(cbAix);
```

Exemple AWT

```
// RadioButton Panel
Panel rbPanel = new Panel(new FlowLayout(FlowLayout.LEFT));

rbGroup = new CheckboxGroup();

rbSolaris = new Checkbox("Solaris");
rbSolaris.setCheckboxGroup(rbGroup);
rbPanel.add(rbSolaris);

rbLinux = new Checkbox("Linux");
rbLinux.setCheckboxGroup(rbGroup);
rbPanel.add(rbLinux);

rbAix = new Checkbox("Aix");
rbAix.setCheckboxGroup(rbGroup);
rbPanel.add(rbAix);

rbGroup.setSelectedCheckbox(rbSolaris);
```

Exemple AWT

```
// Button Panel
Panel btPanel = new Panel(new FlowLayout(FlowLayout.LEFT));

okButton = new Button("Ok");
okButton.addActionListener(new OkButtonListener());
btPanel.add(okButton);

cancelButton = new Button("Cancel");
cancelButton.addActionListener(new CancelButtonListener());
btPanel.add(cancelButton);
```

Exemple AWT

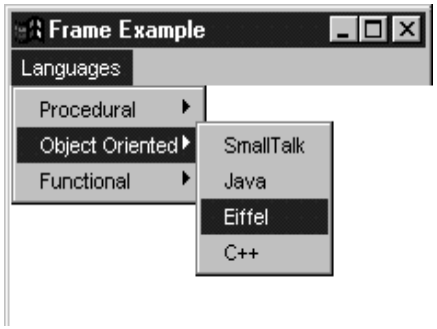
```
// Menu Bar
Menu procMenu = new Menu("Procedural");
procMenu.add(new MenuItem("Pascal"));
...

Menu ooMenu = new Menu("Object Oriented");
ooMenu.add(new MenuItem("SmallTalk"));
...

Menu funcMenu = new Menu("Functional");
funcMenu.add(new MenuItem("Lisp"));
...

Menu languageMenu = new Menu("Languages");
languageMenu.add(procMenu);
...

MenuBar mb = new MenuBar();
mb.add(languageMenu);
```



Exemple AWT

```
public class FrameExample extends Frame {

  public FrameExample(String title) {
    super(title);
    // Widget, panel, menu bar creation
    ...
    setMenuBar(mb);
    setLayout(new GridLayout(6,1)); // 6 lignes et 1 colonne
    add(textFieldPanel);
    add(choicePanel);
    add(listPanel);
    add(checkboxPanel);
    add(radioButtonPanel);
    add(buttonPanel);
    pack();
    show();
}
```

Exemple AWT

- Gestion des événements : clic sur le bouton Ok

```
okButton.addActionListener(new OkButtonListener());

public class OkButtonListener implements ActionListener {
    public void actionPerformed(ActionEvent evt) {
      System.out.println("textField = " + textField.getText());
      System.out.println("choice = "    + choice.getSelectedItem());
      System.out.println("list = "      + list.getSelectedItem());
      System.out.println("cbSolaris="   + (cbSolaris.getState() ? "Yes" : "No"));
      System.out.println("cbLinux="     + (cbLinux.getState()   ? "Yes" : "No"));
      System.out.println("cbWindow="    + (cbAix.getState()     ? "Yes" : "No"));
      System.out.println("rbSolaris="   + (rbSolaris.getState() ? "Yes" : "No"));
      System.out.println("rbLinux="     + (rbLinux.getState()   ? "Yes" : "No"));
      System.out.println("rbWindow="    + (rbAix.getState()     ? "Yes" : "No"));
    }
}
```

Exemple AWT

- Gestion des événements : sélection d'items du menu

```
MenuItem mi = new MenuItem("Pascal");
mi.addActionListener(new LanguageMenuListener());

public class LanguageMenuListener implements ActionListener {
  public void actionPerformed(ActionEvent evt) {
    System.out.println("Menu: " + evt.getActionCommand());
  }
}
```

Exemple AWT

- Gestion des événements : fermeture de la fenêtre

```
addWindowListener(new MyWindowListener());

public class MyWindowListener extends WindowAdapter {
    public void windowClosing(WindowEvent evt) {
      System.out.println("Window closing");
      System.exit(0);
    }
  }
```

Les Composants SWING

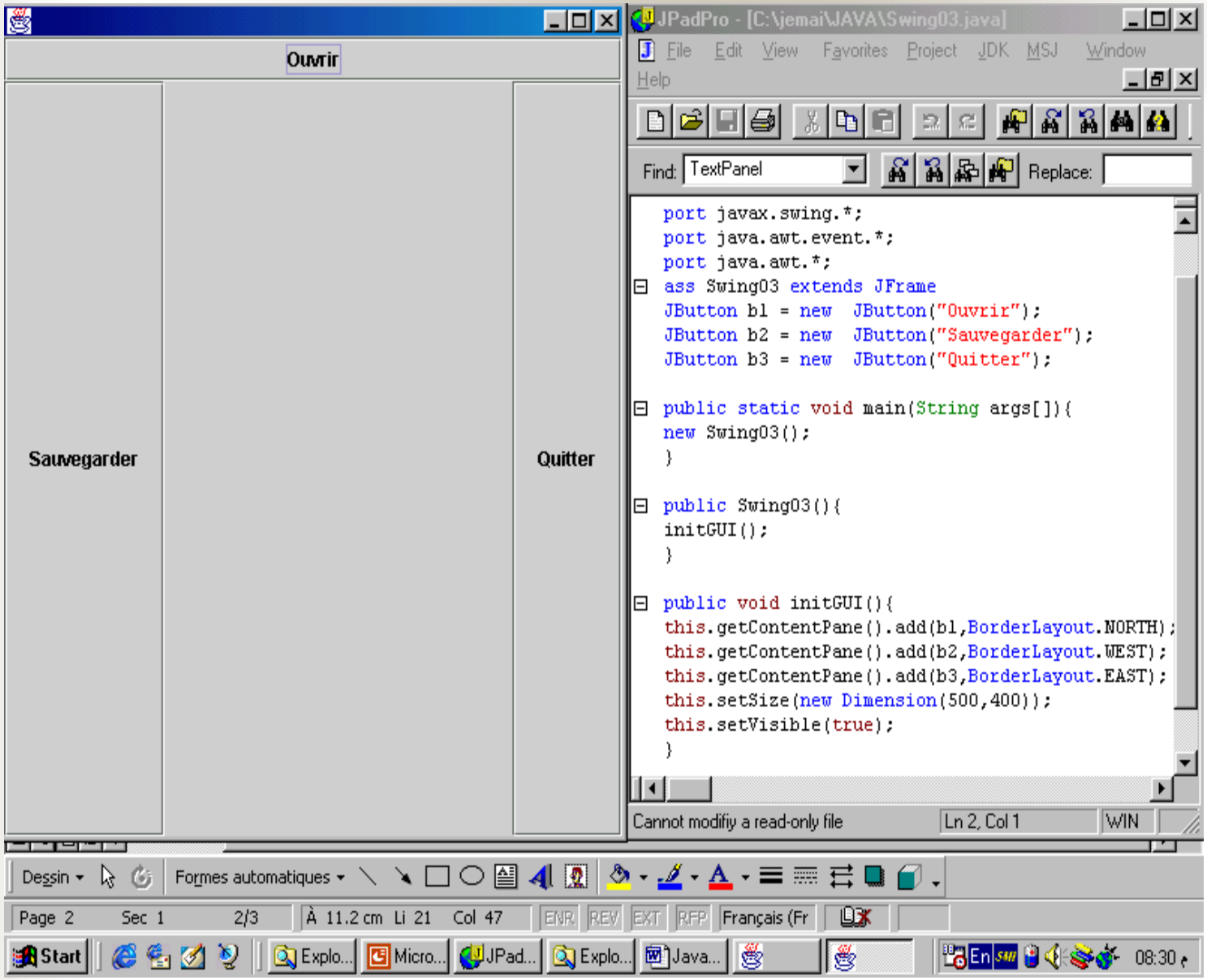
JFrame

```
import javax.swing.*;
import java.awt.event.*;
import java.awt.*;
class Swing03 extends JFrame
{ JButton b1 = new  JButton("Nord");
  JButton b2 = new  JButton("Ouest");
  JButton b3 = new  JButton("Est");

    public static void main(String args[]){
    new Swing03();
    }

    public Swing03(){
    initGUI();
    }

    public void initGUI(){
    this.getContentPane().add(b1,BorderLayout.NORTH);
    this.getContentPane().add(b2,BorderLayout.WEST);
    this.getContentPane().add(b3,BorderLayout.EAST);
    this.setSize(new Dimension(500,400));
    this.setVisible(true);
  }
}
```


Ouvrir
Sauvegarder
Quitter
JPadPro - [C:\jemai\JAVA\Swing03.java]
File Edit View Favorites Project JDK MSJ Window
Help
Find: TextPanel
Replace:
port javax.swing.*;
port java.awt.event.*;
port java.awt.*;
ass Swing03 extends JFrame
JButton b1 = new JButton("Ouvrir");
JButton b2 = new JButton("Sauvegarder");
JButton b3 = new JButton("Quitter");
public static void main(String args[]){
new Swing03();
}
public Swing03(){
initGUI();
}
public void initGUI(){
this.getContentPane().add(b1,BorderLayout.NORTH);
this.getContentPane().add(b2,BorderLayout.WEST);
this.getContentPane().add(b3,BorderLayout.EAST);
this.setSize(new Dimension(500,400));
this.setVisible(true);
}
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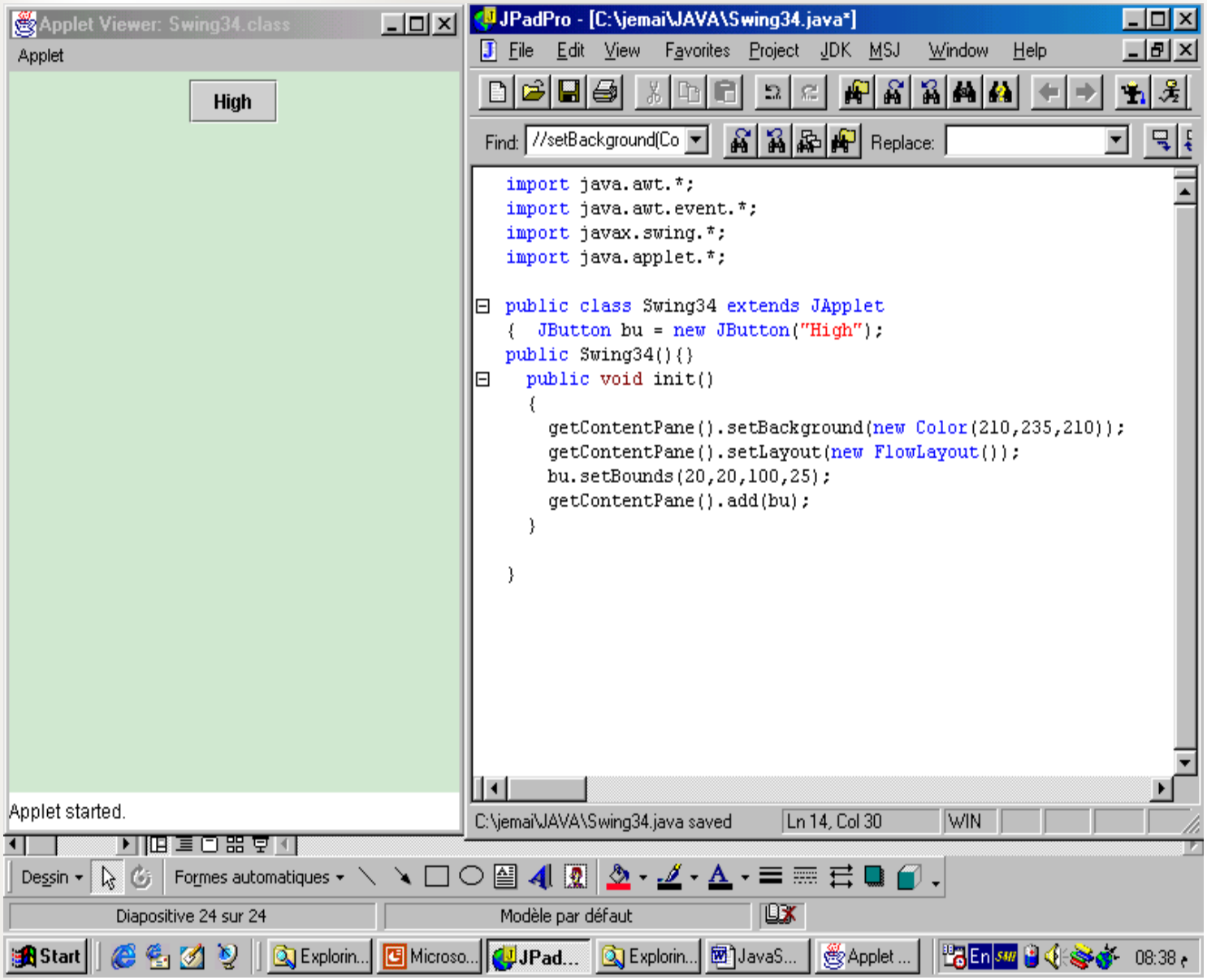
Explo...
Java...
08:30

JApplet

```
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;
import java.applet.*;

public class Swing34 extends JApplet
{  JButton bu = new JButton("High");
public Swing34(){}
   public void init()
   {
       getContentPane().setBackground(new Color(210,235,210));
       getContentPane().setLayout(new FlowLayout());
       bu.setBounds(20,20,100,25);
       getContentPane().add(bu);
   }
}
```


Applet Viewer: Swing34.class
Applet
High
Applet started.
JPadPro - [C:\jemai\JAVA\Swing34.java*]
File Edit View Favorites Project JDK MSJ Window Help
Find: //setBackground(Co
Replace:
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;
import java.applet.*;
public class Swing34 extends JApplet
{ JButton bu = new JButton("High");
public Swing34(){}
public void init()
{
getContentPane().setBackground(new Color(210,235,210));
getContentPane().setLayout(new FlowLayout());
bu.setBounds(20,20,100,25);
getContentPane().add(bu);
}
}
C:\jemai\JAVA\Swing34.java saved
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Applet ...
08:38

JSplitPane

```
import javax.swing.*;
import java.awt.*;

class JSplitPaneEx extends JFrame
{
JPanel p1 = new JPanel();
JPanel p2 = new JPanel();
JPanel p3 = new JPanel();

JSplitPane sp1 = new JSplitPane();
JSplitPane sp2 = new JSplitPane();

Color cp1 = new Color(100,150,200);
Color cp2 = new Color(150,150,200);
Color cp3 = new Color(150,200,200);

public static void main(String [] args){
      new JSplitPaneEx();
}

public JSplitPaneEx(){
        initJSplitPaneEx();
}
```

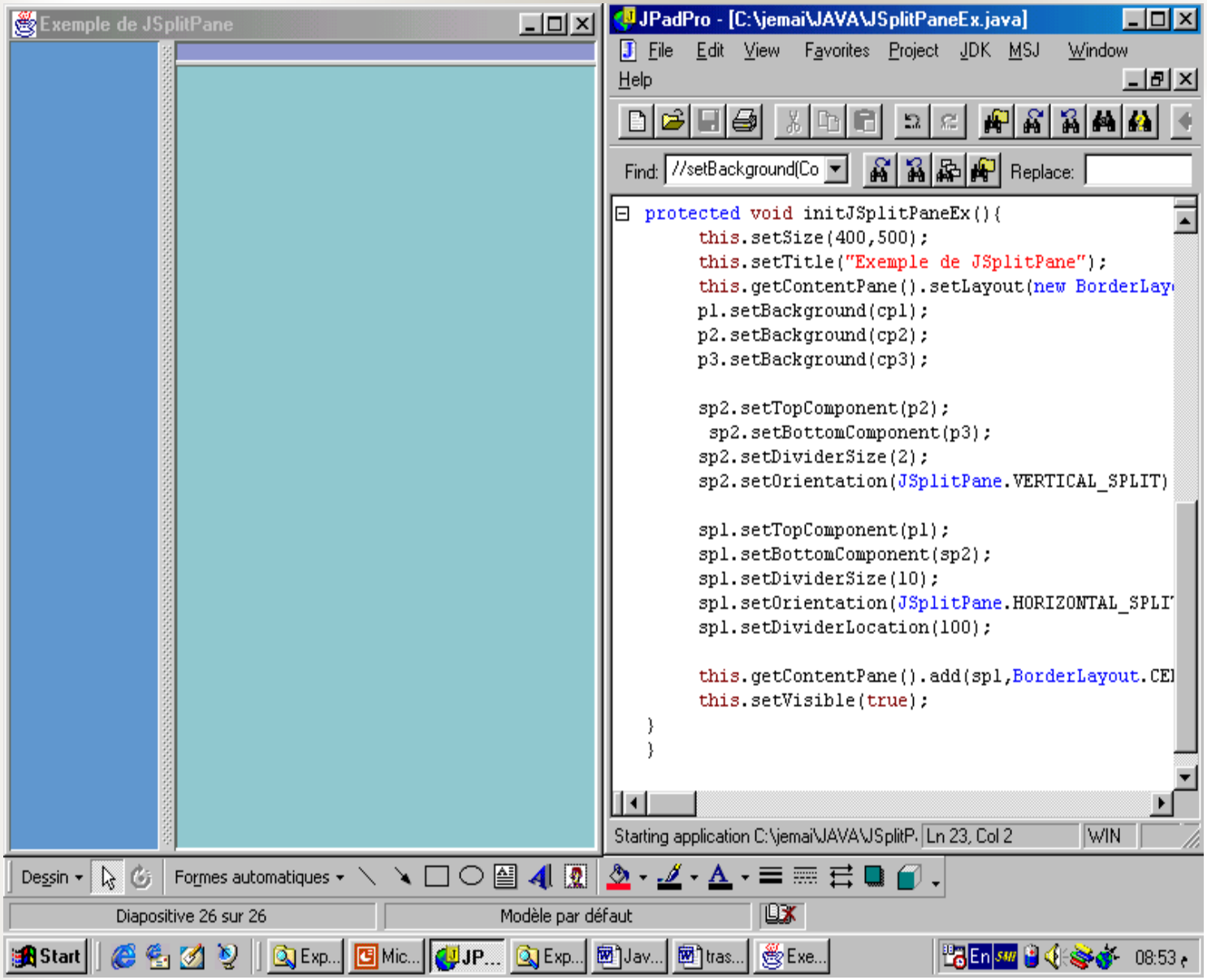
JSplitPane (suite)

```
protected void initJSplitPaneEx(){
     this.setSize(400,500);       this.setTitle("Exemple de JSplitPane");
     this.getContentPane().setLayout(new BorderLayout());
     p1.setBackground(cp1);        p2.setBackground(cp2);
     p3.setBackground(cp3);


     sp2.setTopComponent(p2);      sp2.setBottomComponent(p3);
     sp2.setDividerSize(2);
     sp2.setOrientation(JSplitPane.VERTICAL_SPLIT);


     sp1.setTopComponent(p1);      sp1.setBottomComponent(sp2);
     sp1.setDividerSize(10);
     sp1.setOrientation(JSplitPane.HORIZONTAL_SPLIT);
     sp1.setDividerLocation(100);


     this.getContentPane().add(sp1,BorderLayout.CENTER);
     this.setVisible(true);
}
```


Exemple de JSplitPane
JPadPro - [C:\jemai\JAVA\JSplitPaneEx.java]
File Edit View Favorites Project JDK MSJ Window
Help
Find: //setBackground(Co
Replace:
protected void initJSplitPaneEx(){
this.setSize(400,500);
this.setTitle("Exemple de JSplitPane");
this.getContentPane().setLayout(new BorderLay
p1.setBackground(cp1);
p2.setBackground(cp2);
p3.setBackground(cp3);
sp2.setTopComponent(p2);
sp2.setBottomComponent(p3);
sp2.setDividerSize(2);
sp2.setOrientation(JSplitPane.VERTICAL_SPLIT)
sp1.setTopComponent(p1);
sp1.setBottomComponent(sp2);
sp1.setDividerSize(10);
sp1.setOrientation(JSplitPane.HORIZONTAL_SPLI
sp1.setDividerLocation(100);
this.getContentPane().add(sp1,BorderLayout.CE
this.setVisible(true);
}
}
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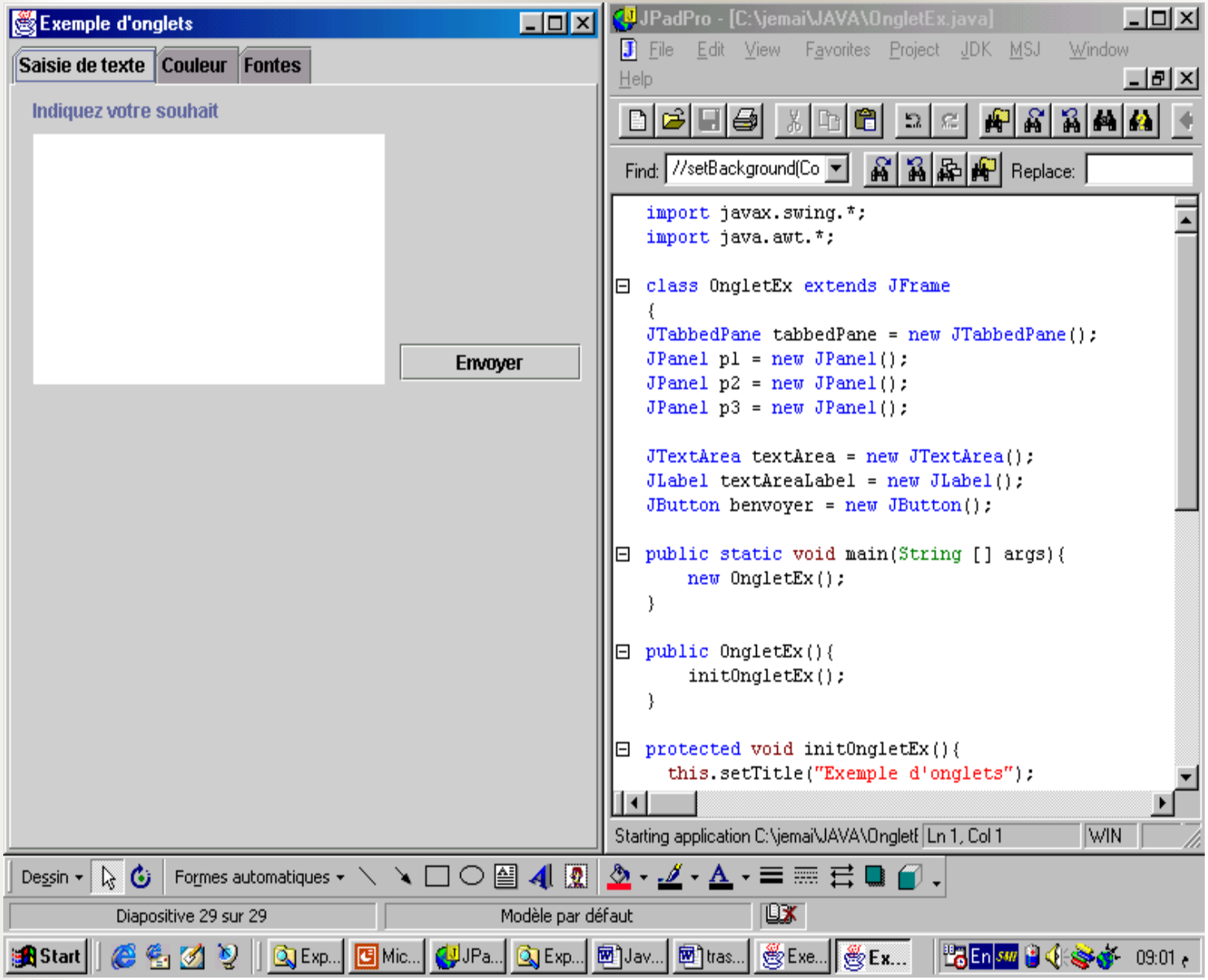
08:53

JTabbedPane

```
import javax.swing.*;
import java.awt.*;

class OngletEx extends JFrame
{
JTabbedPane tabbedPane = new JTabbedPane();
JPanel p1 = new JPanel();
JPanel p2 = new JPanel();
JPanel p3 = new JPanel();

JTextArea textArea = new JTextArea();
JLabel textAreaLabel = new JLabel();
JButton benvoyer = new JButton();

public static void main(String [] args){
      new OngletEx();
}

public OngletEx(){
      initOngletEx();
}
```

JTabbedPane (suite)

```
protected void initOngletEx(){
  this.setTitle("Exemple d'onglets");
  this.setSize(400,250);
  textArea.setBounds(14,29,234,154);
  textAreaLabel.setText("Indiquez votre souhait");
  textAreaLabel.setBounds(14,7,211,15);
  benvoyer.setText("Envoyer");
  benvoyer.setBounds(258,158,121,23);
  p1.setLayout(null);
  p1.add(textArea, null);
  p1.add(textAreaLabel, null);
  p1.add(benvoyer,null);

  tabbedPane.addTab("Saisie de texte", p1);
  tabbedPane.addTab("Couleur", p2);
  tabbedPane.addTab("Fontes", p3);
  this.getContentPane().add(tabbedPane, BorderLayout.CENTER);
  this.setVisible(true);
}

}
```

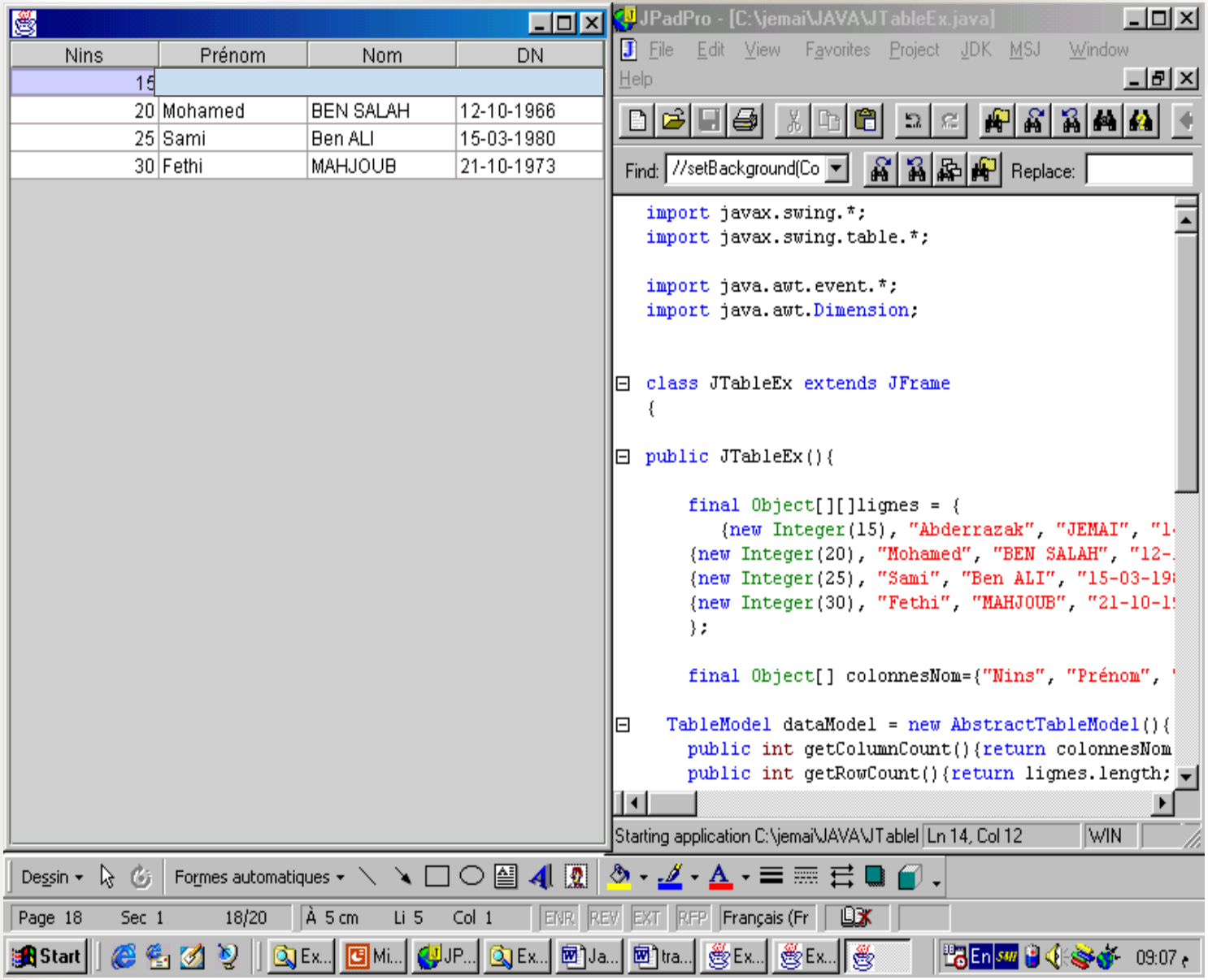

Exemple d'onglets
Saisie de texte
Couleur
Fontes
Indiquez votre souhait
Envoyer
JPadPro - [C:\jemai\JAVA\OngletEx.java]
File Edit View Favorites Project JDK MSJ Window Help
Find: //setBackground(Co
Replace:
import javax.swing.*;
import java.awt.*;
class OngletEx extends JFrame
{
JTabbedPane tabbedPane = new JTabbedPane();
JPanel p1 = new JPanel();
JPanel p2 = new JPanel();
JPanel p3 = new JPanel();
JTextArea textArea = new JTextArea();
JLabel textAreaLabel = new JLabel();
JButton benvoyer = new JButton();
public static void main(String [] args){
new OngletEx();
}
public OngletEx(){
initOngletEx();
}
protected void initOngletEx(){
this.setTitle("Exemple d'onglets");
Starting application C:\jemai\JAVA\Onglet
Ln 1, Col 1
WIN
Dessin
Formes automatiques
Diapositive 29 sur 29
Modèle par défaut
Start
09:01

JTable

```
import javax.swing.*;
import javax.swing.table.*;

import java.awt.event.*;
import java.awt.Dimension;


class JTableEx extends JFrame
{

public JTableEx(){

      final Object[][]lignes = {
         {new Integer(15), " Ahmed", " SLIMANI", " 10-03-1983"},
         {new Integer(20), "Mohamed", "BEN SALAH", "12-10-1966"},
         {new Integer(25), "Sami", "Ben ALI", "15-03-1980"},
         {new Integer(30), "Fethi", "MAHJOUB", "21-10-1973"}
      };

      final Object[] colonnesNom={"Nins", "Prénom", "Nom", "DN"};
```

JTable (suite)

```
 TableModel dataModel = new AbstractTableModel(){
        public int getColumnCount(){return colonnesNom.length;}
        public int getRowCount(){return lignes.length;}
        public Object getValueAt(int l, int c)
            {return lignes[l][c];}
        public String getColumnName(int col)
            {return (String)colonnesNom[col];}
        public Class  getColumnClass(int cl)
                {return getValueAt(0,cl).getClass();}

       };// fin de définition de AbstractTableModel
        JTable table = new JTable(dataModel);

        JScrollPane scrollpane = new JScrollPane(table);
        scrollpane.setPreferredSize(new Dimension(500, 300));

        this.getContentPane().add(scrollpane);
        this.pack();
        this.setVisible(true);
}

public static void main(String[] args) {
        new JTableEx();
    }
}
```


Nins
Prénom
Nom
DN
15
20 Mohamed BEN SALAH 12-10-1966
25 Sami Ben ALI 15-03-1980
30 Fethi MAHJOUB 21-10-1973
JPadPro - [C:\jemai\JAVA\JTableEx.java]
File Edit View Favorites Project JDK MSJ Window
Help
Find: //setBackground(Co
Replace:
import javax.swing.*;
import javax.swing.table.*;
import java.awt.event.*;
import java.awt.Dimension;
class JTableEx extends JFrame
{
public JTableEx(){
final Object[][]lignes = {
{new Integer(15), "Abderrazak", "JEMAI", "1
{new Integer(20), "Mohamed", "BEN SALAH", "12-
{new Integer(25), "Sami", "Ben ALI", "15-03-19
{new Integer(30), "Fethi", "MAHJOUB", "21-10-1
};
final Object[] colonnesNom={"Nins", "Prénom",
TableModel dataModel = new AbstractTableModel(){
public int getColumnCount(){return colonnesNom
public int getRowCount(){return lignes.length;
Starting application C:\jemai\JAVA\JTabl
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WIN
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Formes automatiques
Page 18 Sec 1 18/20 À 5 cm Li 5 Col 1
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Start
09:07

Gestion des Evenements avec les composants Swing

Evenement sur JButton

```
import javax.swing.*;
import java.awt.event.*;
import java.awt.*;
class SwingFrameEvent extends JFrame
{ JButton b1 = new  JButton("Ouvrir");
  JButton b2 = new  JButton("Sauvegarder");
  JButton b3 = new  JButton("Quitter");

        public static void main(String args[]){
        new SwingFrameEvent();
        }

        public SwingFrameEvent(){
        initGUI();
        }

        public void initGUI(){
        b3.addActionListener(new AcLis(this));
        this.getContentPane().add(b1,BorderLayout.NORTH);
        this.getContentPane().add(b2,BorderLayout.WEST);
        this.getContentPane().add(b3,BorderLayout.EAST);
        this.setSize(new Dimension(500,400)); this.setVisible(true);
  }
public void message(){
System.out.println("Ceci est un message de SwingFrameEvent");
}
}
```

```
import java.awt.event.*;
class AcLis implements ActionListener
{
SwingFrameEvent obj;
public AcLis(SwingFrameEvent obj){
this.obj = obj;
}

public void actionPerformed(ActionEvent e){
obj.message();
}

}
```

Evenements (suite)

```
import javax.swing.*;
import java.awt.event.*;
import java.awt.*;
class SwingFrameEvent2 extends JFrame
{ JButton b1 = new  JButton("Ouvrir");
  JButton b2 = new  JButton("Sauvegarder");
  JButton b3 = new  JButton("Quitter");
  public static void main(String args[]){new SwingFrameEvent2();}
  public SwingFrameEvent2(){initGUI(); }

        protected void processWindowWvent(WindowEvent e){
        if (e.getID() == WindowEvent.WINDOW_CLOSING){ System.exit(0);}
        }
        public void initGUI(){
        b3.addActionListener(new AcLis2(this));
        this.getContentPane().add(b1,BorderLayout.NORTH);
        this.getContentPane().add(b2,BorderLayout.WEST);
        this.getContentPane().add(b3,BorderLayout.EAST);
        this.setSize(new Dimension(500,400));
        this.setVisible(true);
  }
public void buttonPressed(ActionEvent e){
String cmd = e.getActionCommand();
if ("Quitter".equals(cmd)){ System.exit(0); }
}
}
```