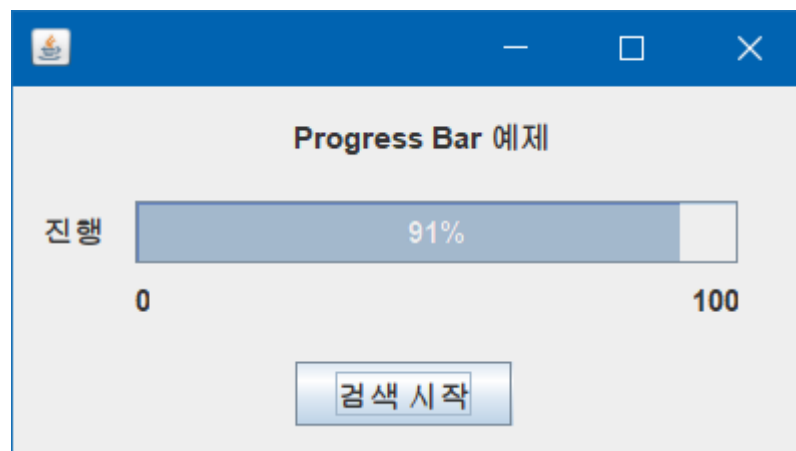




GUI Control III





학습 목표

■ 이 강의를 마치면 학생들은

- ❖ TabbedPane Control Function에 대하여 설명할 수 있다.
- ❖ Progress Bar Control Function에 대하여 설명할 수 있다.
- ❖ Slider Control에 대하여 설명할 수 있다.



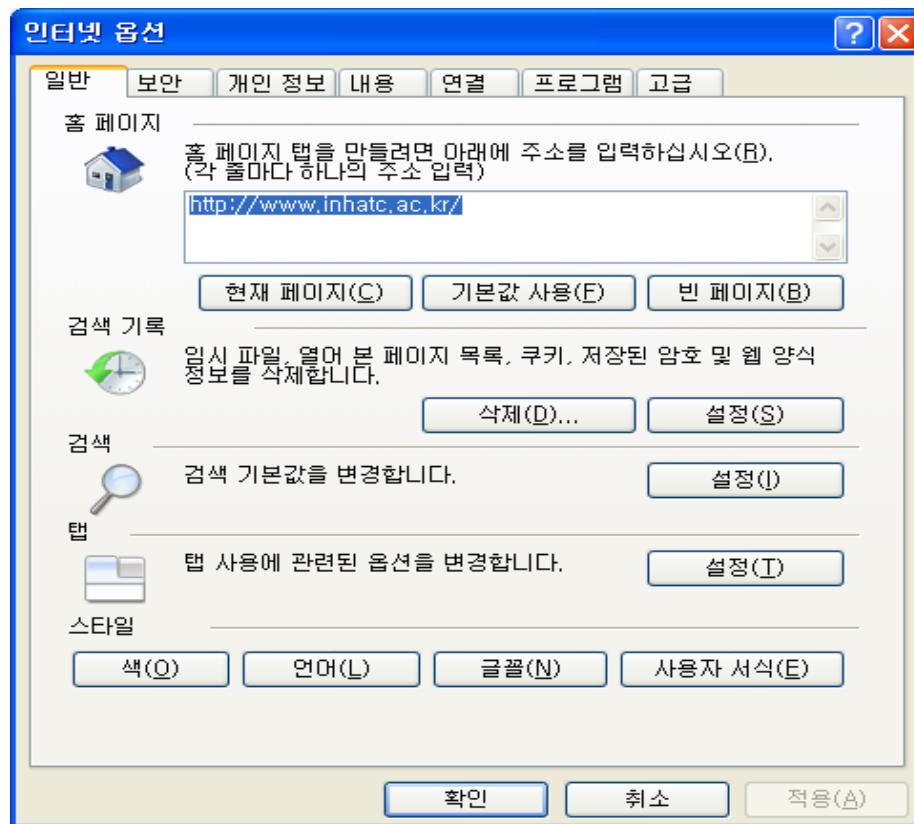


Tab Control

■ Tab Control

❖ Function

◆ 한 화면에 다양한 Function 표현



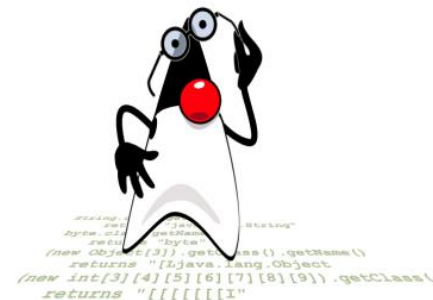
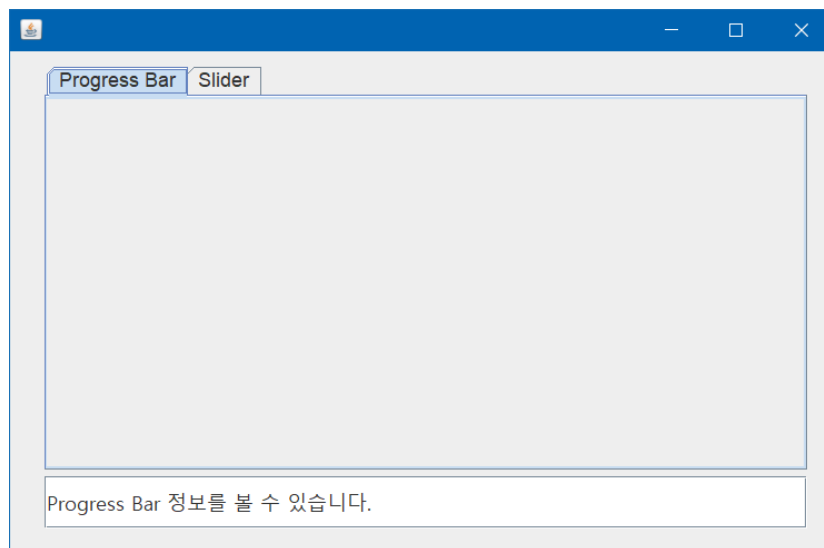


Practice: Tab Control

❖ Project Name: Tab_Source(Practice Time : 20 min)

■ TabbedPane 버튼 Click

• Pane의 Title을 상태 정보 출력 TextField에 출력한다.





Practice 1 : Tab Control (1)

Create Project

The screenshot shows the Apache NetBeans IDE interface. The 'File' menu is open, and the 'New Project...' option is highlighted. A yellow callout '1. Click' points to this option. The 'New Project' dialog box is open, showing the 'Steps' section with '1. Choose Project' and '2. ...'. A yellow callout '2. Click' points to the 'Java Application' option in the 'Projects' list. The 'Java with Ant' category is also highlighted in the 'Categories' list. A yellow callout '3. Click' points to the 'Next >' button at the bottom of the dialog. The 'Description' section at the bottom of the dialog explains that this creates a new Java SE application.

1. Click

2. Click

3. Click

Steps

1. Choose Project
2. ...

Choose Project

Filter:

Categories:

- Java with Maven
- Java with Gradle
- Java with Ant
- JavaFX
- Java Web
- Java Enterprise
- NetBeans Modules
- HTML5/JavaScript
- C/C++
- PHP

Projects:

- Java Application
- Java Class Library
- Java Project with Existing Sources
- Java Modular Project
- Java Free-Form Project

Description:

Creates a new Java SE application in a standard IDE project. You can also generate a main class in the project. Standard projects use an IDE-generated Ant build script to build, run, and debug your project.

< Back Next > Finish Cancel Help





Practice 1 : Tab Control (2)

■ Project Name and Location

❖ Project name: Tab_Source

New Java Application

Steps

1. Choose Project
2. Name and Location

Name and Location

Project Name: Tab_Source

Project Location: C:\Java_Project Browse...

Project Folder: C:\Java_Project\Tab_Source

☐ Use Dedicated Folder for Storing Libraries

Libraries Folder: Browse...

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

☐ Create Main Class tab_source.Tab_Source

< Back Next > Finish Cancel Help

5. Reset check

4. Input Project Name

6. Click

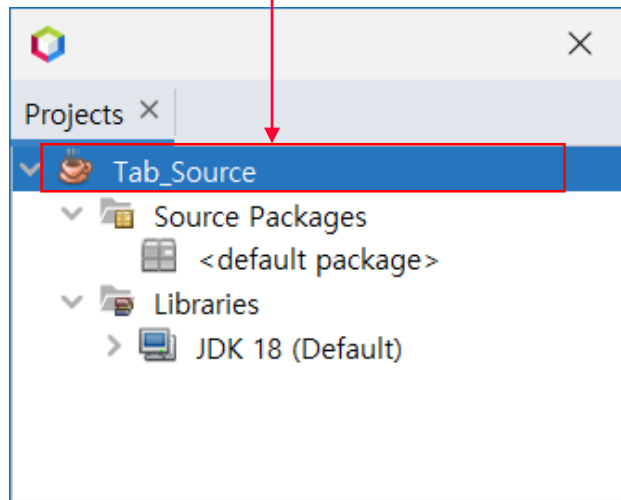




Practice 1 : Tab Control (3)

Create JFrame Form

7. Mouse right-button Click



New

Build
Clean and Build

8. Click

Run
Debug
Profile
Test
Set Configuration

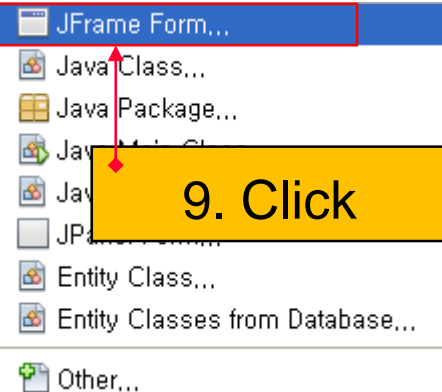
Set as Main Project
Open Required Projects
Close

Rename...
Move...
Copy...
Delete

Find...
Versioning
Local History

Properties

9. Click





Practice 1 : Tab Control (4)

■ Setting JFrame Form Name

❖ Create MainFrame.java

New JFrame Form

Steps

1. Choose File Type
2. **Name and Location**

Name and Location

Class Name: MainFrame

Project: Tab_Source

Location: Source Packages

Package:

Created File: C:\Java_Project\Tab_Source\src\MainFrame.java

Superclass: Browse...

Interfaces: Browse...

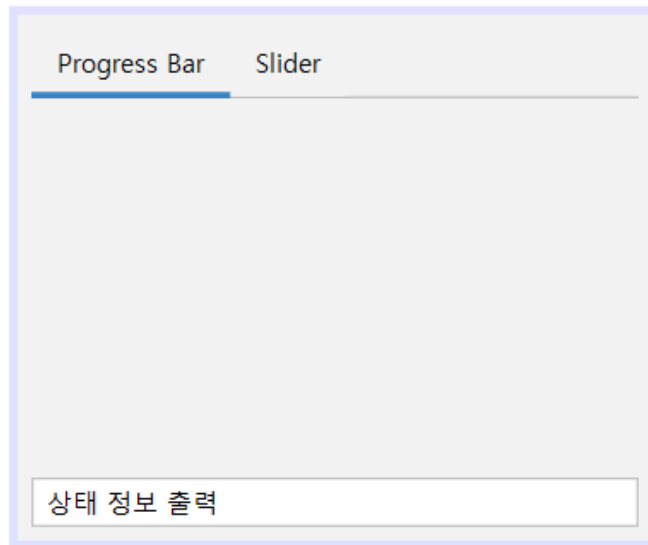
Warning: It is highly recommended that you do not place Java classes in the default package

< Back Next > **Finish** Cancel Help



Practice 1 : Tab Control (5)

Control Layout & Property Setting



12. UI Design

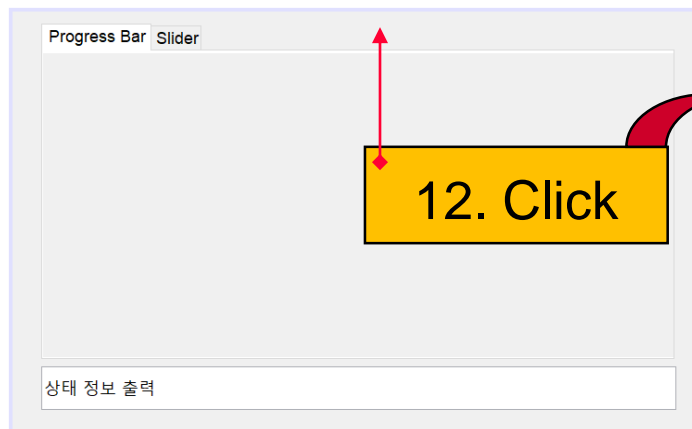
Control	Properties Setting
jTabbedPane1	
jPanel1	<ul style="list-style-type: none">• Tab Title: ProgressBar
jPanel2	<ul style="list-style-type: none">• Tab Title: Slider
jTextField1	<ul style="list-style-type: none">• Variable Name: txtStateInfo• Text: 상태 정보 출력



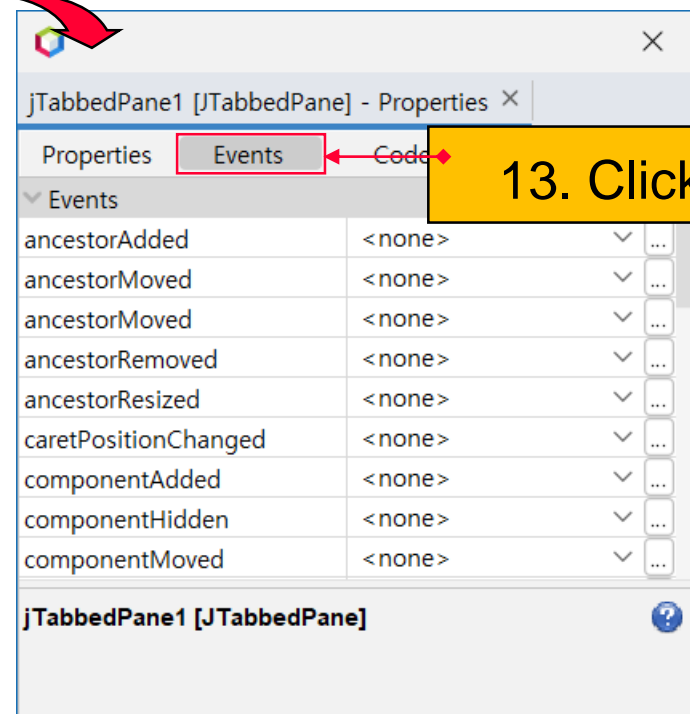


Practice 1 : Tab Control (6)

■ jTabbedPane1 Control Event 지정



12. Click



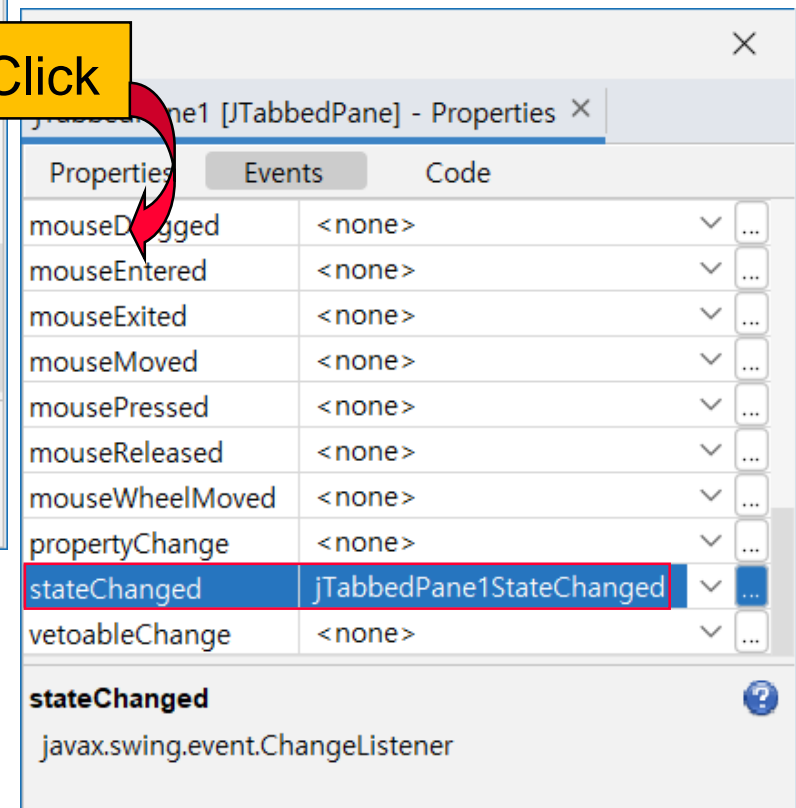
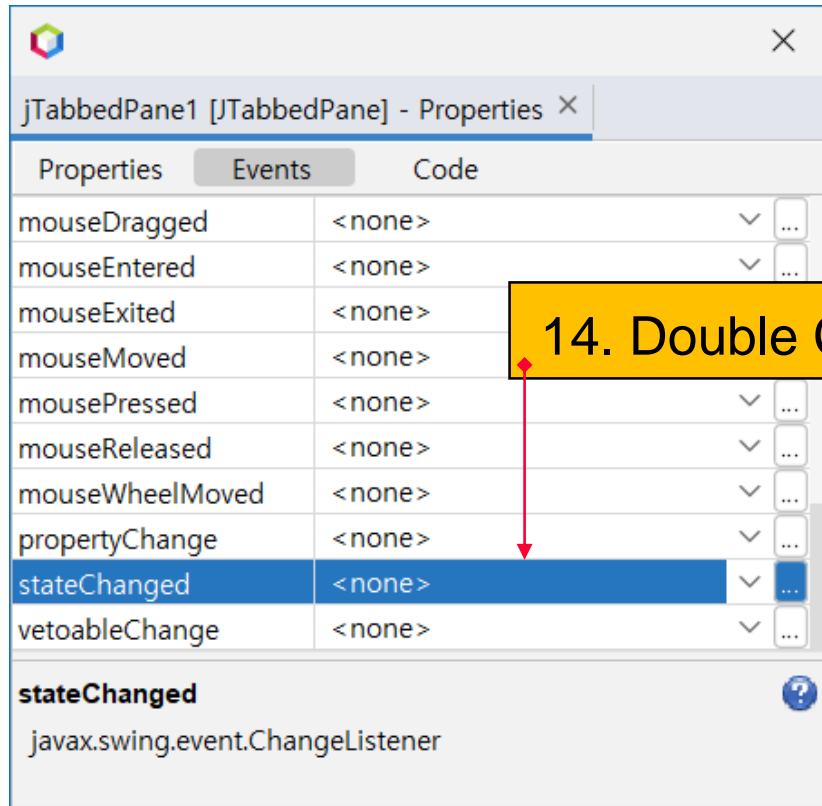
13. Click





Practice 1 : Tab Control (7)

■ JTabbedPane1 Control StateChanged() Event 지정





Practice 1 : Tab Control (8)

❖ jTablebedPane1StateChanged() Event Handler

```
MainFrame.java - Editor
MainFrame.java x
18 }
76
77
78
79
80
81
82 /**
83  * @param args the command line arguments
84  */
85 public static void main(String args[]) {
86     java.awt.EventQueue.invokeLater(new Runnable() {
87         public void run() {
88             new MainFrame().setVisible(true);
89         }
90     });
91 }
```

```
private void jTablebedPane1StateChanged(javax.swing.event.ChangeEvent evt) {
    int iTabindex = 0;           // jTablebedPane1 index 저장
    String strTabTitle = null;    // jTablebedPane1 Title 저장

    iTabindex = jTablebedPane1.getSelectedIndex();           // jTablebedPane1 index 반환
    strTabTitle = jTablebedPane1.getTitleAt(iTabindex);      // jTablebedPane1 Title 반환
    txtStateInfo.setText( strTabTitle + " 정보를 볼 수 있습니다.");
}

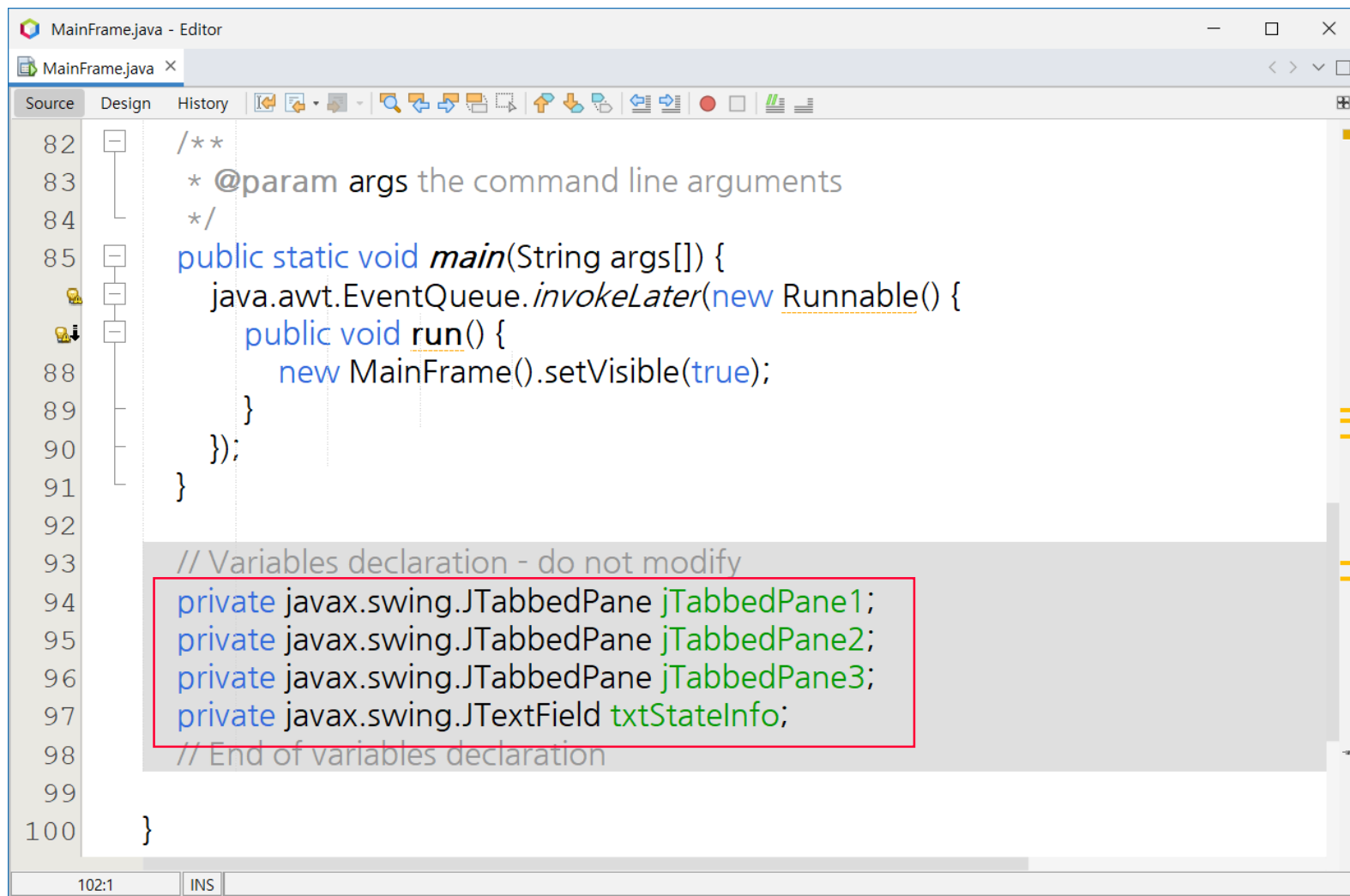
15. Coding
```





Practice: Tab Control (9)

❖ JTabbedPane Control Declaration Code



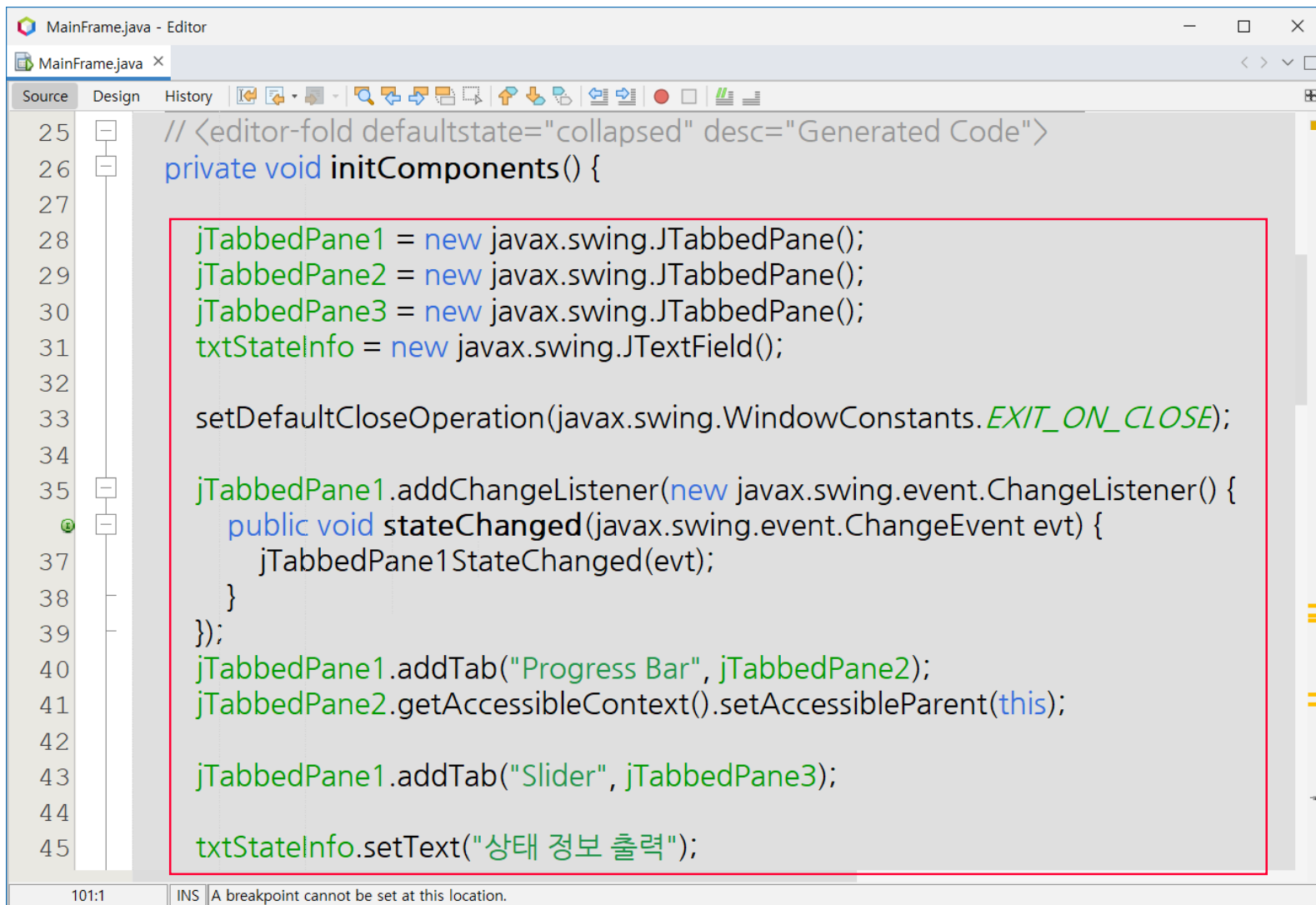
```
82  /**
83   * @param args the command line arguments
84   */
85  public static void main(String args[]) {
86      java.awt.EventQueue.invokeLater(new Runnable() {
87          public void run() {
88              new MainFrame().setVisible(true);
89          }
90      });
91  }
92
93  // Variables declaration - do not modify
94  private javax.swing.JTabbedPane jTabbedPane1;
95  private javax.swing.JTabbedPane jTabbedPane2;
96  private javax.swing.JTabbedPane jTabbedPane3;
97  private javax.swing.JTextField txtStateInfo;
98  // End of variables declaration
99
100 }
```





Practice 1 : Tab Control (10)

❖ JTabbedPane Control Properties Setting Code



```
25 // <editor-fold defaultstate="collapsed" desc="Generated Code">
26 private void initComponents() {
27
28     jTabbedPane1 = new javax.swing.JTabbedPane();
29     jTabbedPane2 = new javax.swing.JTabbedPane();
30     jTabbedPane3 = new javax.swing.JTabbedPane();
31     txtStateInfo = new javax.swing.JTextField();
32
33     setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
34
35     jTabbedPane1.addChangeListener(new javax.swing.event.ChangeListener() {
36         public void stateChanged(javax.swing.event.ChangeEvent evt) {
37             jTabbedPane1StateChanged(evt);
38         }
39     });
40     jTabbedPane1.addTab("Progress Bar", jTabbedPane2);
41     jTabbedPane2.setAccessibleContext().setAccessibleParent(this);
42
43     jTabbedPane1.addTab("Slider", jTabbedPane3);
44
45     txtStateInfo.setText("상태 정보 출력");
```

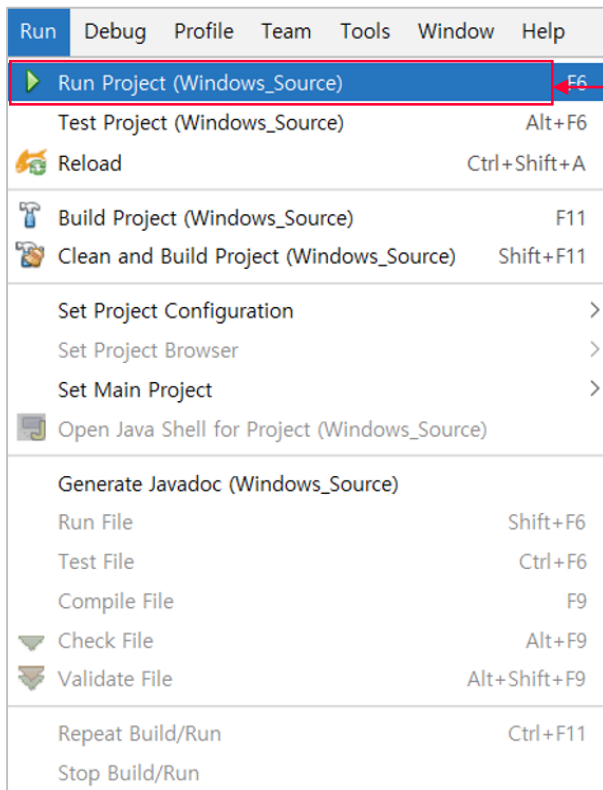
101:1 INS A breakpoint cannot be set at this location.



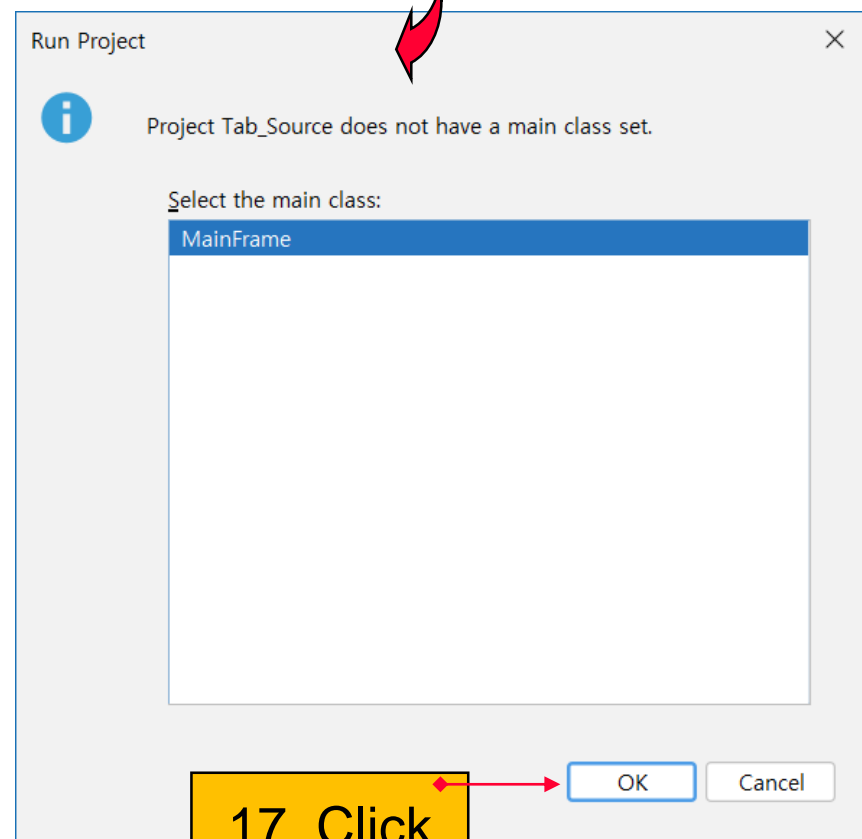


Practice 1 : Tab Control (11)

Run



16. Click



17. Click

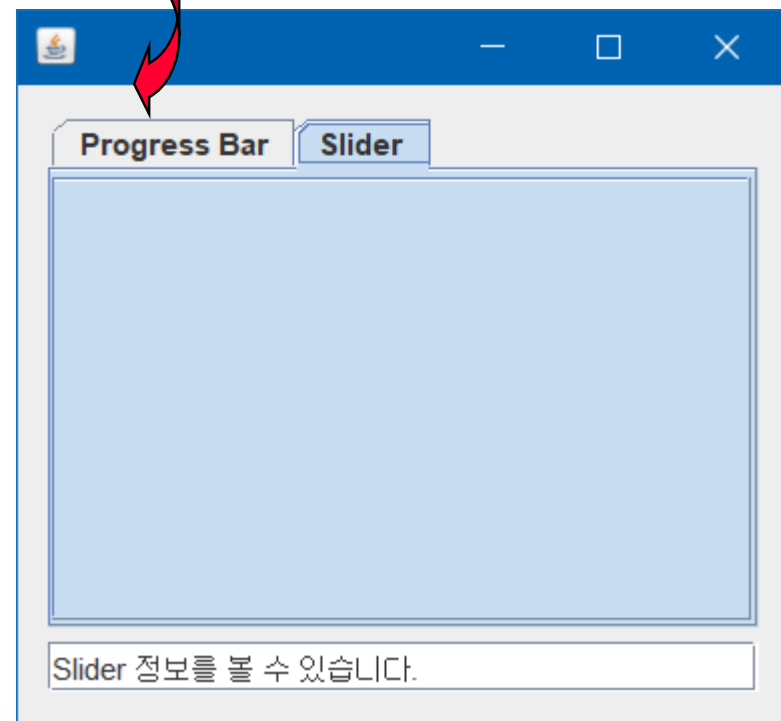
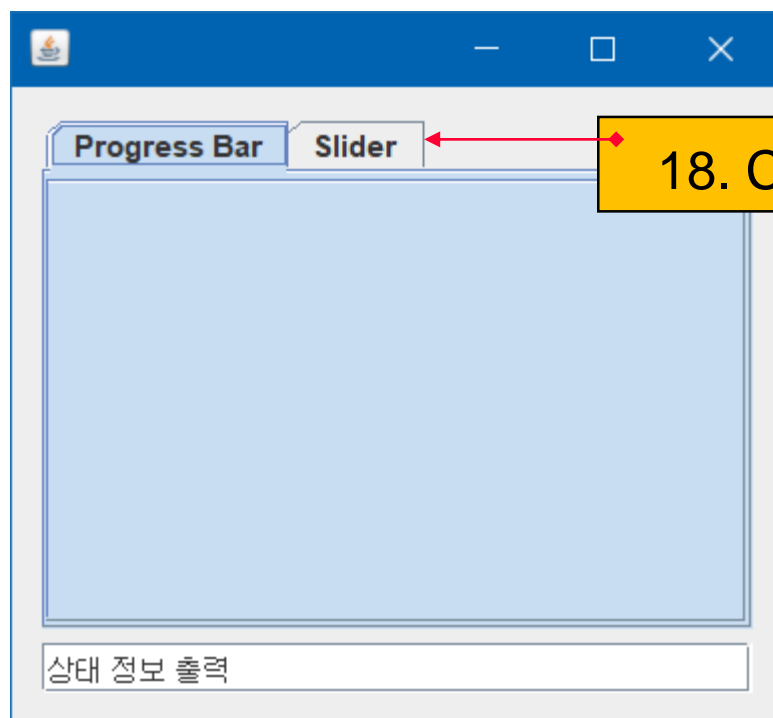




Practice 1 : Tab Control (12)

■ Run

❖ Tab Click



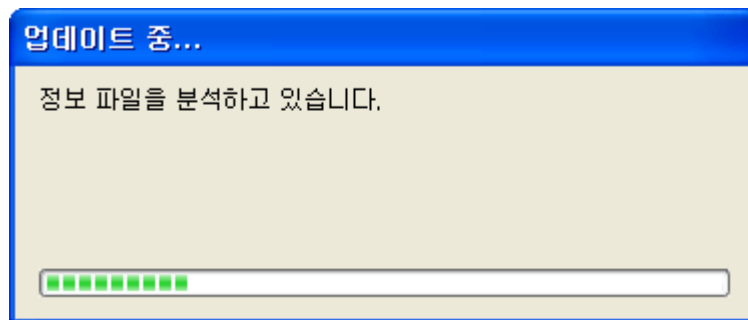


Progress Bar Control

■ ProgressBar Control

❖ Function

◆ 작업 진행 상태 표현



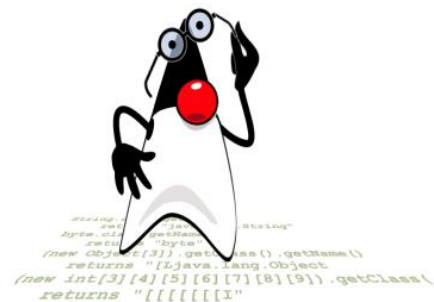
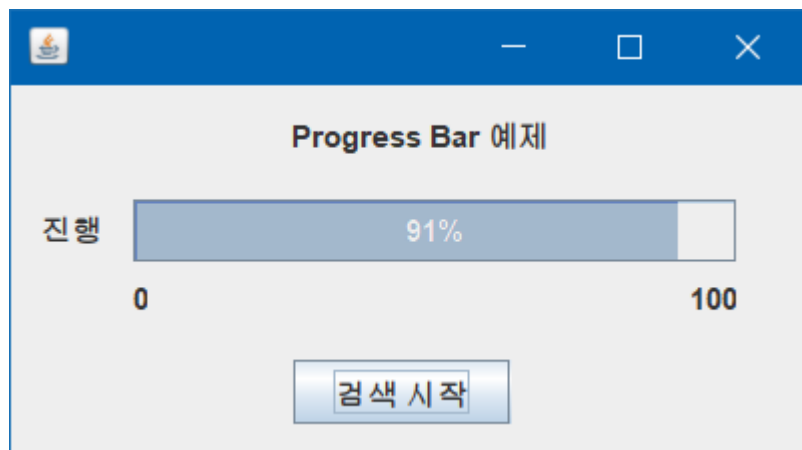


Practice 2 : Progress Bar Control

❖ Project Name: ProgressBar_Source(Time : 20 min)

■ [검색 시작] Button Click

• 진행 상태를 Progress Bar에 나타낸다.





Practice 2 : Progress Bar Control (1)

Create Project

The screenshot shows the Apache NetBeans IDE interface. The 'File' menu is open, and the 'New Project...' option is highlighted. A yellow callout '1. Click' points to this option. The 'New Project' dialog box is open, showing the 'Steps' section with '1. Choose Project' and '2. ...'. A yellow callout '2. Click' points to the 'Java Application' option in the 'Projects' list. The 'Java with Ant' category is also highlighted in the 'Categories' list. A yellow callout '3. Click' points to the 'Next >' button at the bottom of the dialog. The 'Description' section at the bottom of the dialog explains that this creates a new Java SE application in a standard IDE project, using an IDE-generated Ant build script.

1. Click

2. Click

3. Click

Steps

1. Choose Project
2. ...

Choose Project

Filter:

Categories:

- Java with Maven
- Java with Gradle
- Java with Ant
- JavaFX
- Java Web
- Java Enterprise
- NetBeans Modules
- HTML5/JavaScript
- C/C++
- PHP

Projects:

- Java Application
- Java Class Library
- Java Project with Existing Sources
- Java Modular Project
- Java Free-Form Project

Description:

Creates a new **Java SE application** in a standard IDE project. You can also generate a main class in the project. Standard projects use an **IDE-generated Ant build script** to build, run, and debug your project.

< Back Next > Finish Cancel Help





Practice 2 : Progress Bar Control (2)

■ Project Name and Location

❖ Project name: ProgressBar_Source

New Java Application

Steps

1. Choose Project
2. Name and Location

Name and Location

Project Name: ProgressBar_Source

Project Location: C:\Java_Project Browse...

Project Folder: C:\Java_Project\ProgressBar_Source

☐ Use Dedicated Folder for Storing Libraries

Libraries Folder: Browse...

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

☐ Create Main Class progressbar_source.ProgressBar_Source

< Back Next > Finish Cancel Help

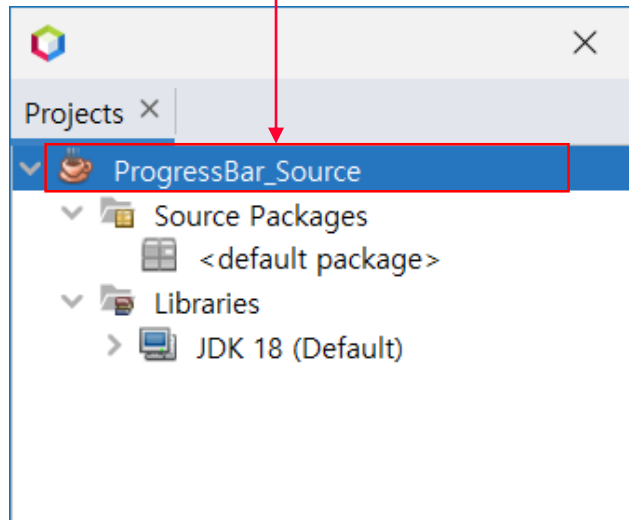




Practice 2 : Progress Bar Control (3)

Create JFrame Form

7. Mouse right-button Click



New

Build
Clean and Build

8. Click

Run
Debug
Profile
Test
Set Configuration

Alt+F6

Set as Main Project
Open Required Projects
Close

Rename...
Move...
Copy...
Delete

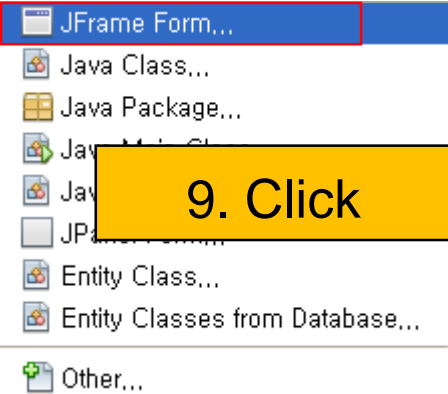
Delete

Find...
Versioning
Local History

Ctrl+F

Properties

9. Click





Practice 2 : Progress Bar Control (4)

■ Setting JFrame Form Name

❖ Create MainFrame.java

New JFrame Form

Steps

1. Choose File Type
2. Name and Location

Name and Location

Class Name: MainFrame

Project: ProgressBar_Source

Location: Source Packages

Package:

Created File: C:\Java_Project\ProgressBar_Source\src\MainFrame.java

Superclass: Browse...

Interfaces: Browse...

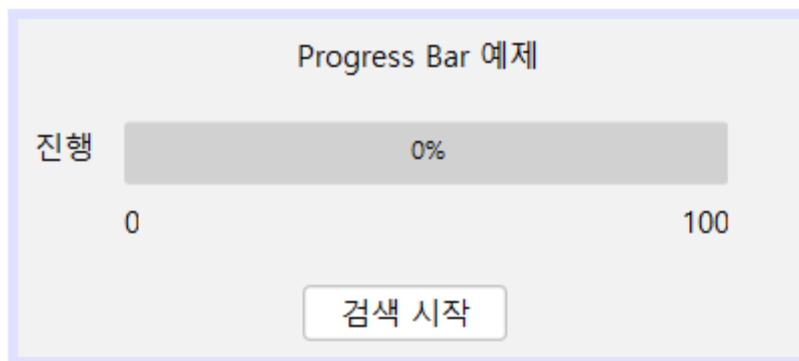
Warning: It is highly recommended that you do not place Java classes in the default package

< Back Next > Finish Cancel Help



Practice 2 : Progress Bar Control (5)

Control Layout & Property Setting



12. UI Design

Control	Properties Setting
jProgressBar	<ul style="list-style-type: none">• maximum: 100• minimum: 0• borderPainted: <input checked="" type="checkbox"/>• string: 0%• stringPainted: <input checked="" type="checkbox"/>

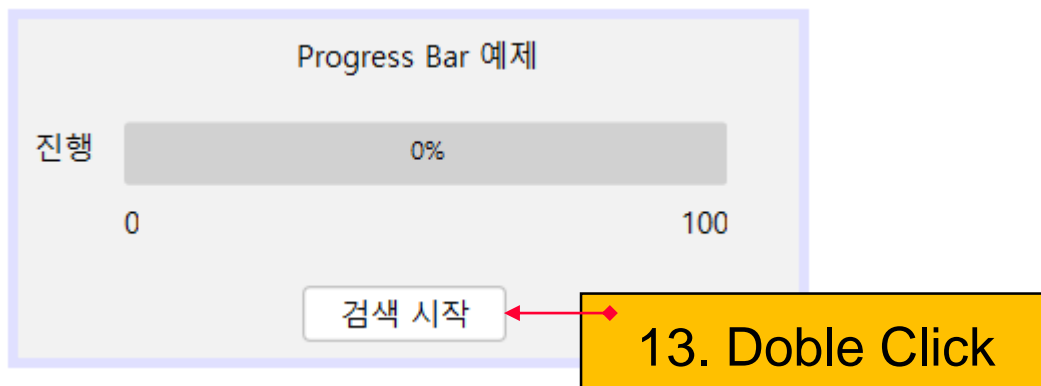
Control	Properties Setting
jLabel1	<ul style="list-style-type: none">• Variable Name: lblTitle• Text: Progress Bar 예제
jLabel2	<ul style="list-style-type: none">• Variable Name: lblProgress• Text: 진행
jLabel3	<ul style="list-style-type: none">• Variable Name: lblStartVal• Text: 0
jLabel4	<ul style="list-style-type: none">• Variable Name: lblEndVal• Text: 100
jButton1	<ul style="list-style-type: none">• Variable Name: btnSearch• Text: 검색 시작





Practice 2 : Progress Bar Control (6)

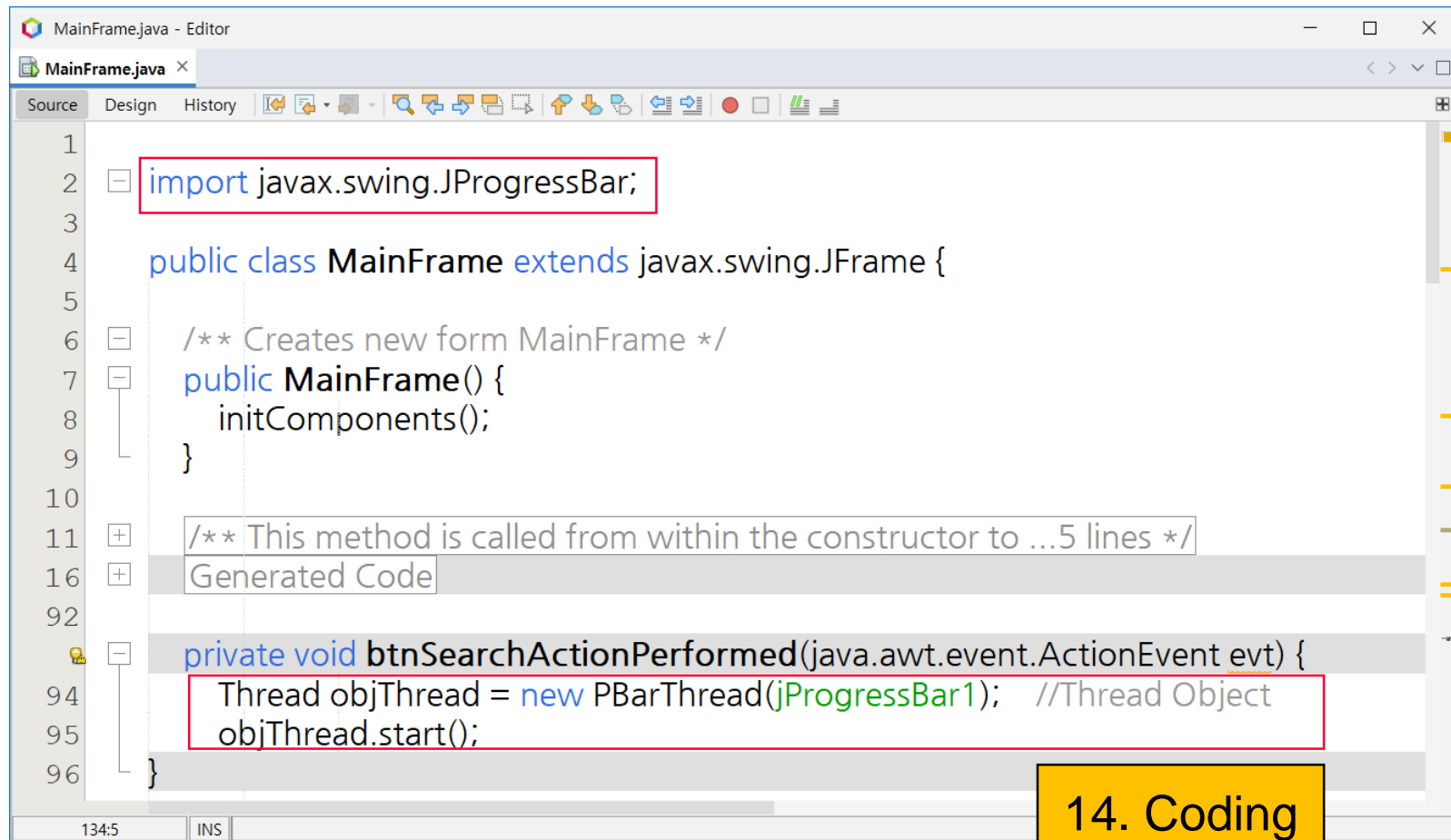
■ btnSearchActionPerformed() Event Handler Setting





Practice 2 : Progress Bar Control (7)

❖ btnSearchActionPerformed() Event Handler



```
1
2 import javax.swing.JProgressBar;
3
4 public class MainFrame extends javax.swing.JFrame {
5
6     /** Creates new form MainFrame */
7     public MainFrame() {
8         initComponents();
9     }
10
11     /** This method is called from within the constructor to ...5 lines */
12     Generated Code
13
14     private void btnSearchActionPerformed(java.awt.event.ActionEvent evt) {
15         Thread objThread = new PBarThread(jProgressBar1); //Thread Object
16         objThread.start();
17     }
18 }
```

134:5 INS

14. Coding





Practice 2 : Progress Bar Control (8)

❖ Progress BarThread

15. Coding

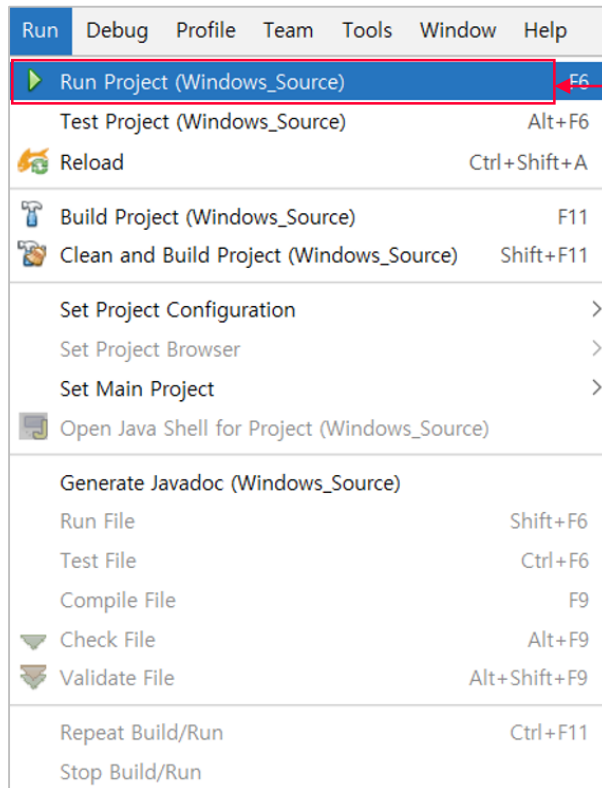
```
98 //Inner Class PBarThread
99 public class PBarThread extends Thread {
100     final static int DELAY = 500; //Thread delay 0.5 second
101     JProgressBar objProgressBar;
102
103     //Constructor
104     public PBarThread(JProgressBar objPB) {
105         objProgressBar = objPB;
106         objProgressBar.setStringPainted(true); //Show ProgressBar Value
107     }
108
109     public void run() {
110         int minValue = objProgressBar.getMinimum(); //ProgressBar.minimum value
111         int maxValue = objProgressBar.getMaximum(); //ProgressBar.maximum value
112
113         for (int idx = minValue; idx < maxValue; idx++) {
114             try {
115                 int iValue = objProgressBar.getValue();
116                 objProgressBar.setValue(iValue + 1); //Setting jProgressBar Value
117                 Thread.sleep(DELAY); //Thread Sleep
118             } catch (InterruptedException ignoredException) {
119             }
120         } //end of for loop
121     } //end of run() method
122 } //end of PBarThread Class
```



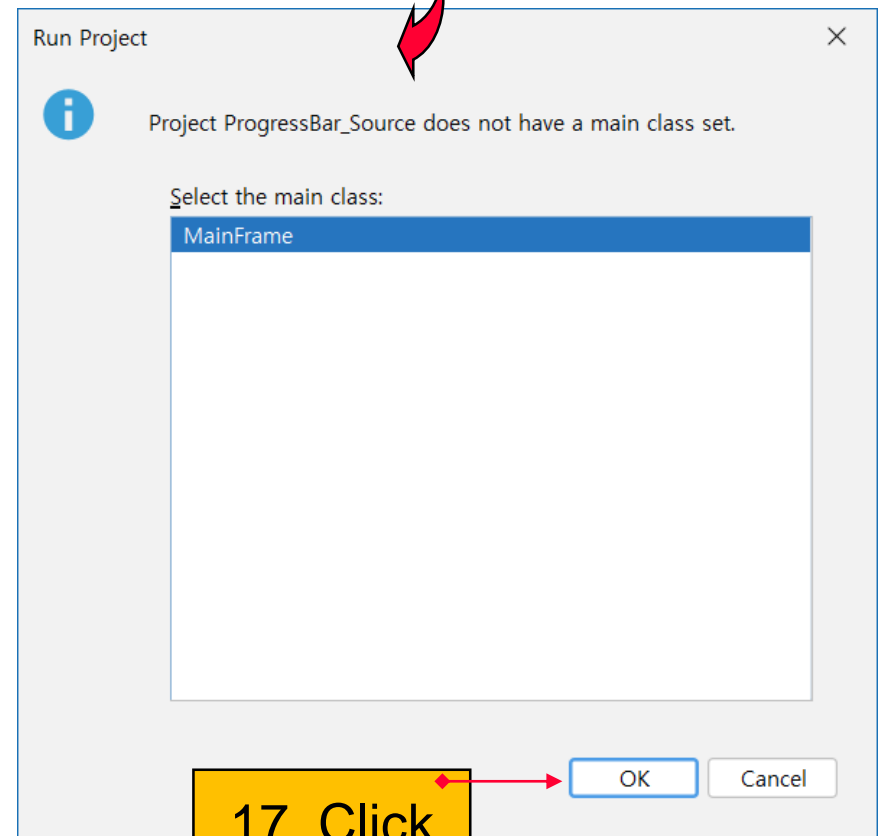


Practice 2 : Progress Bar Control (9)

Run



16. Click



17. Click

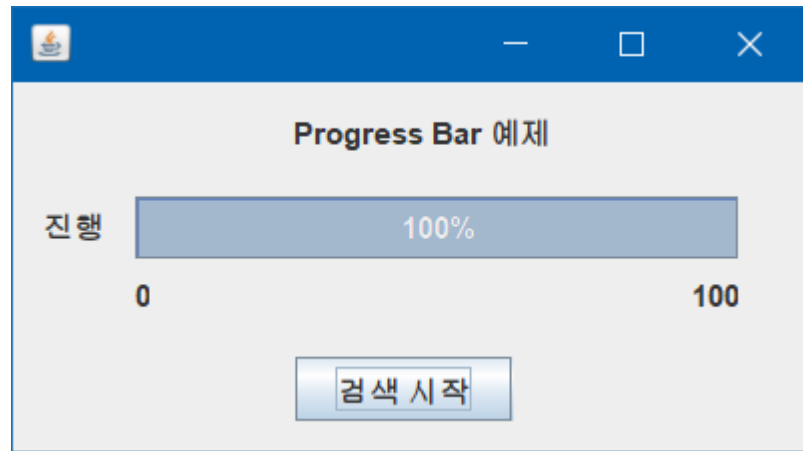
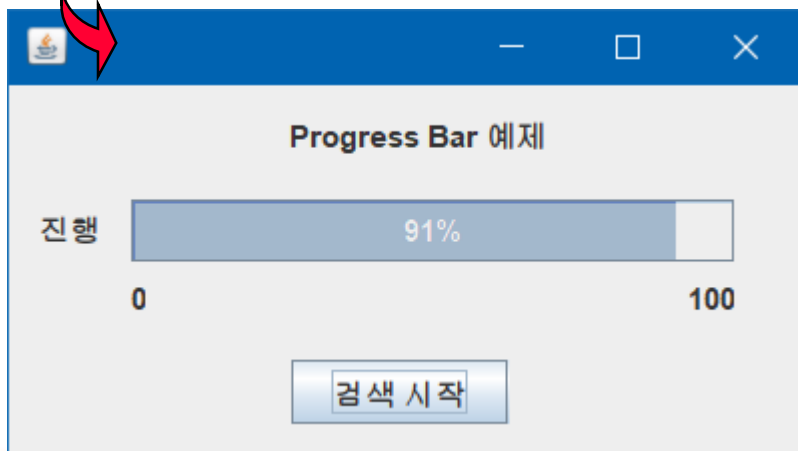
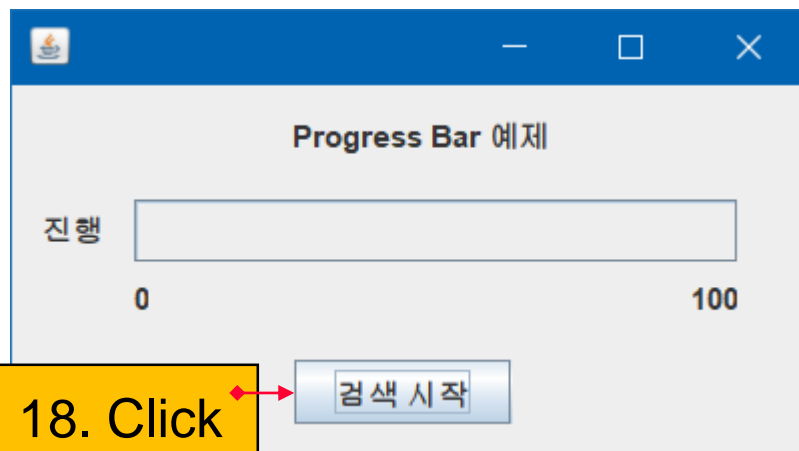




Practice 2 : Progress Bar Control (10)

■ Run

❖ [검색 시작] button Click



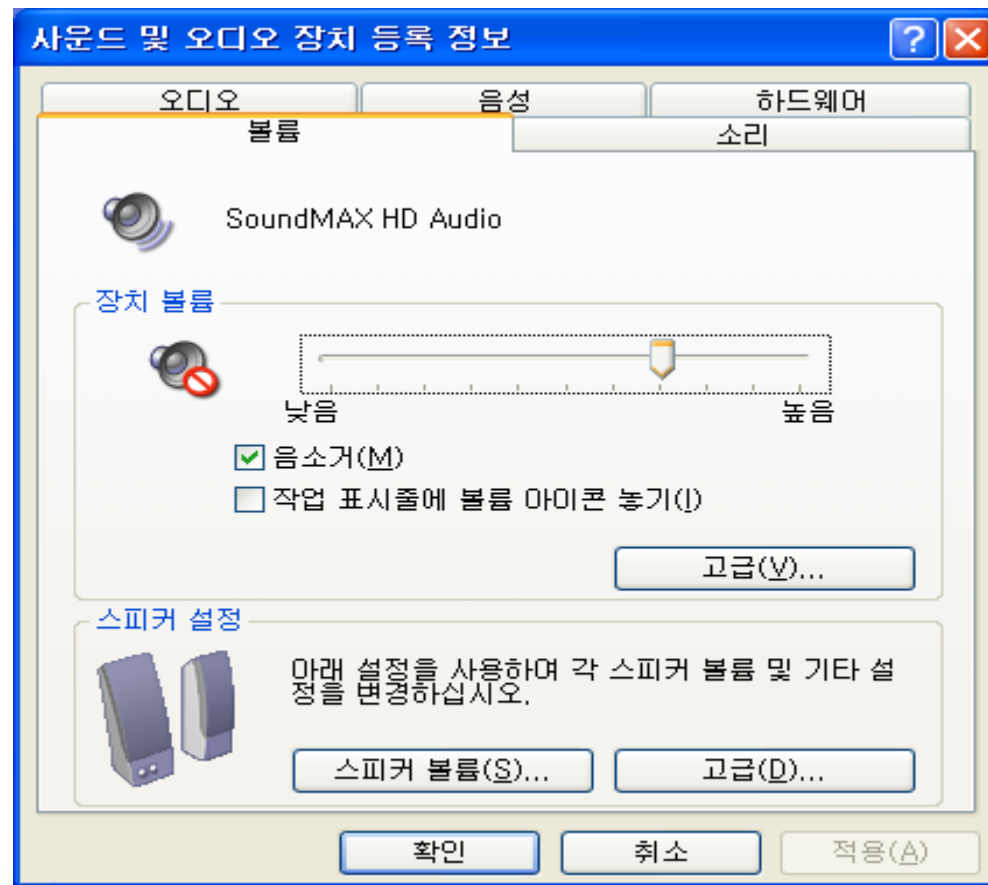


Slider Control

■ Slider Control

❖ Function

◆ 값 조정 및 진행 상태 표현



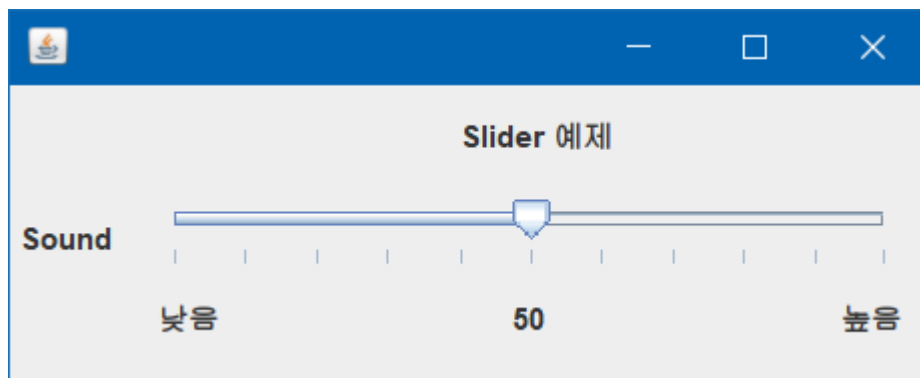
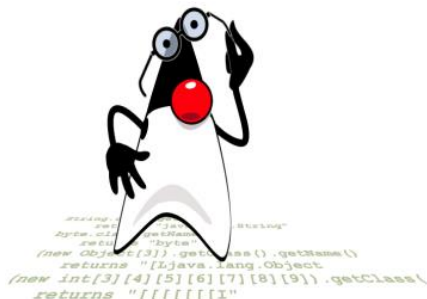


Practice 3 : Slider Control

❖ Project Name: Slider_Source(Time: 20 min)

■ Slider 조정

- Slider를 조정한 위치의 값을 Label Control에 표현하시오.





Practice 3 : Slider Control (1)

Create Project

The screenshot shows the Apache NetBeans IDE interface. The 'File' menu is open, and the 'New Project...' option is highlighted. A yellow callout '1. Click' points to this option. The 'New Project' dialog box is open, showing the 'Steps' section with '1. Choose Project' and '2. ...'. A yellow callout '2. Click' points to the 'Java Application' option in the 'Projects' list. The 'Java with Ant' category is also highlighted in the 'Categories' list. A yellow callout '3. Click' points to the 'Next >' button at the bottom of the dialog. The 'Description' section at the bottom of the dialog explains that this creates a new Java SE application in a standard IDE project, which can also generate a main class and use an IDE-generated Ant build script.

1. Click

2. Click

3. Click

Steps

1. Choose Project
2. ...

Choose Project

Filter:

Categories:

- Java with Maven
- Java with Gradle
- Java with Ant
- JavaFX
- Java Web
- Java Enterprise
- NetBeans Modules
- HTML5/JavaScript
- C/C++
- PHP

Projects:

- Java Application
- Java Class Library
- Java Project with Existing Sources
- Java Modular Project
- Java Free-Form Project

Description:

Creates a new Java SE application in a standard IDE project. You can also generate a main class in the project. Standard projects use an IDE-generated Ant build script to build, run, and debug your project.

< Back Next > Finish Cancel Help





Practice 3 : Slider Control (2)

■ Project Name and Location

❖ Project name: Slider_Source

The screenshot shows the 'New Java Application' dialog box. On the left, the 'Steps' pane lists '1. Choose Project' and '2. Name and Location'. The 'Name and Location' section contains the following fields and options:

- Project Name:** Slider_Source (Annotated with '4. Input Project Name')
- Project Location:** C:\Java_Project (with a 'Browse...' button)
- Project Folder:** C:\Java_Project\Slider_Source
- ☐ **Use Dedicated Folder for Storing Libraries**
- Libraries Folder:** (with a 'Browse...' button)
- ☐ **Create Main Class** slider_source.Slider_Source (Annotated with '5. Reset check')

Below the 'Libraries Folder' field, there is a note: 'Different users and projects can share the same compilation libraries (see Help for details).' At the bottom of the dialog, there are four buttons: '< Back', 'Next >', 'Finish' (Annotated with '6. Click'), and 'Cancel'. A 'Help' button is also present on the far right.

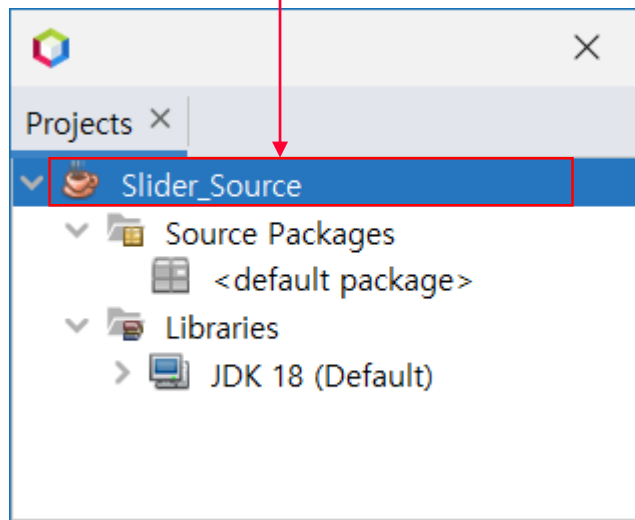




Practice 3 : Slider Control (3)

Create JFrame Form

7. Mouse right-button Click



New

Build
Clean and Build

8. Click

Run
Debug
Profile
Test
Set Configuration

Set as Main Project
Open Required Projects
Close

Rename...
Move...
Copy...
Delete

Find...
Versioning
Local History

Properties

JFrame Form...

Java Class...

Java Package...

Java Main Class...

Java Class...

Java Class...

Entity Class...

Entity Classes from Database...

Other...

9. Click





Practice 3 : Slider Control (4)

■ Setting JFrame Form Name

❖ Create MainFrame.java

New JFrame Form

Steps

1. Choose File Type
2. **Name and Location**

Name and Location

Class Name: MainFrame

Project: Slider_Source

Location: Source Packages

Package:

Created File: C:\Java_Project\Slider_Source\src\MainFrame.java

Superclass: Browse...

Interfaces: Browse...

10. Input "MainFrame"

11. Click

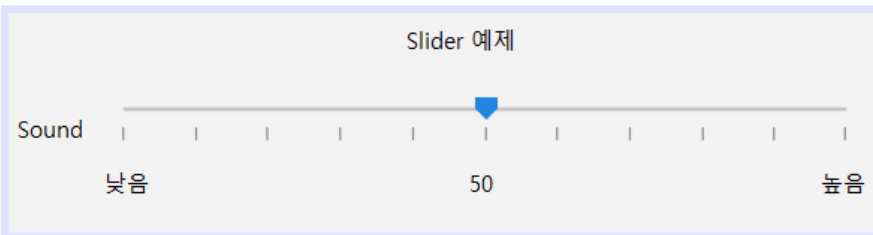
Warning: It is highly recommended that you do not place Java classes in the default package

< Back Next > Finish Cancel Help



Practice 3 : Slider Control (5)

Control Layout & Property Setting



Control	Properties Setting
jLabel1	<ul style="list-style-type: none"> • Variable Name : lblTitle • Text : Slider 예제
jLabel2	<ul style="list-style-type: none"> • Variable Name : lblSound • Text : Sound
jLabel3	<ul style="list-style-type: none"> • Variable Name : lblLow • Text : 낮음
jLabel4	<ul style="list-style-type: none"> • Variable Name : lblHigh • Text : 높음
jLabel5	<ul style="list-style-type: none"> • Variable Name : lblValue • Text : 50

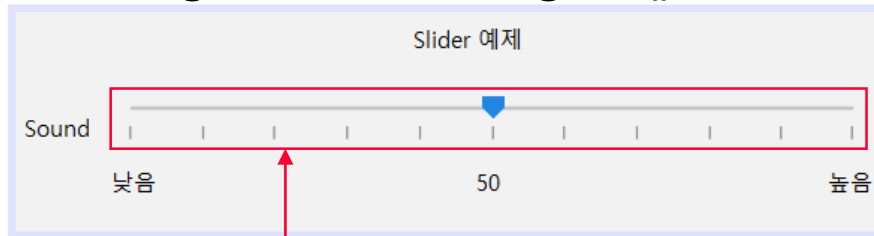
Control	Properties Setting
jSlider1	<ul style="list-style-type: none"> • majorTickSpacing : 10 • paintTicks : <input checked="" type="checkbox"/> • paintTrack : <input checked="" type="checkbox"/>



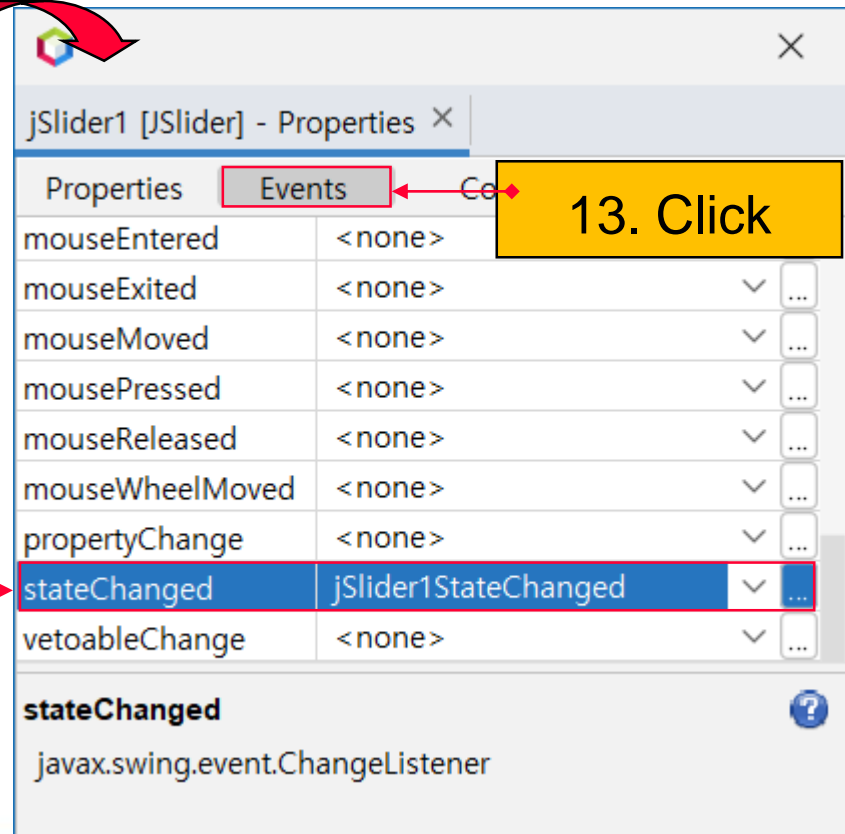


Practice 3 : Slider Control (6)

Setting StateChanged() Event Handler



12. Click



13. Click

14. Setting





Practice 3 : Slider Control (7)

❖ jSlider1 StateChanged() Event Handler

```
MainFrame.java - Editor
MainFrame.java x
Source Design History
90 private void jSlider1StateChanged(javax.swing.event.ChangeEvent evt) {
91     String strData = null;
92     int iValue = 0;
93
94     iValue = jSlider1.getValue(); //Return jSlider1 Value
95     strData = Integer.toString(iValue); //Integer -> String
96     lblValue.setText(strData);
97 }
98
99
100 /**
101  * @param args the command line arguments
102  */
103 public static void main(String args[]) {
104     java.awt.EventQueue.invokeLater(new Runnable() {
105         public void run() {
106             new MainFrame().setVisible(true);
107         }
108     });
109 }
```

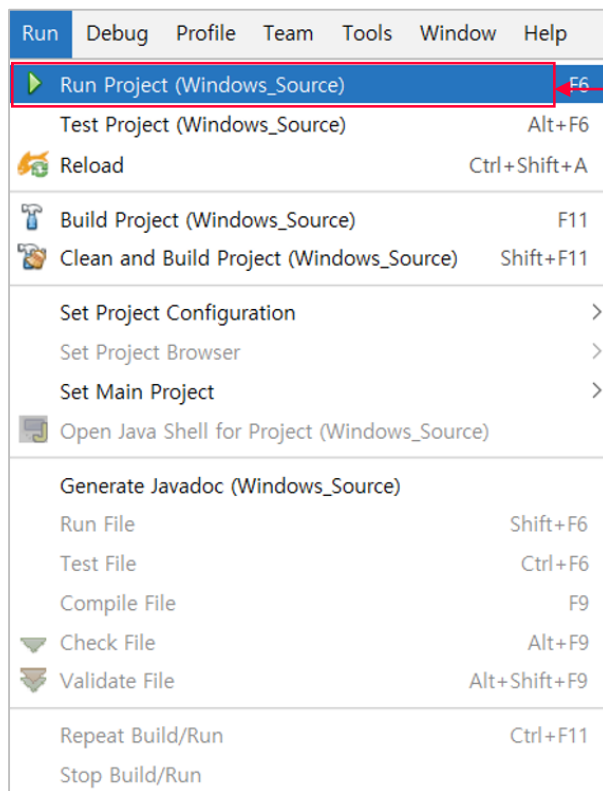
15. Coding



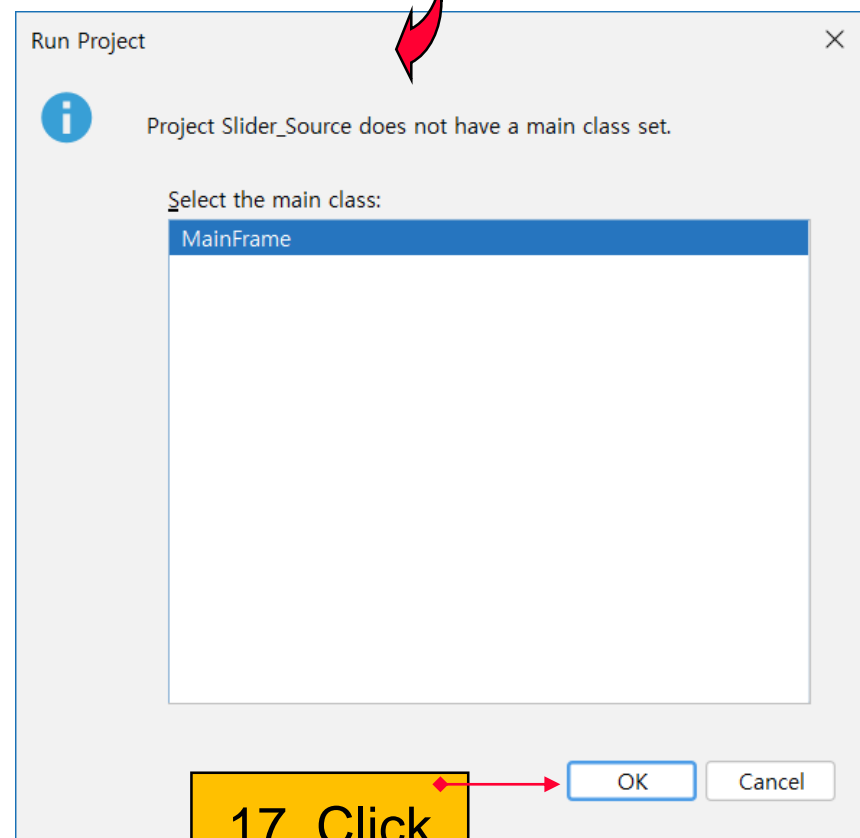


Practice 3 : Slider Control (8)

Run



16. Click



17. Click

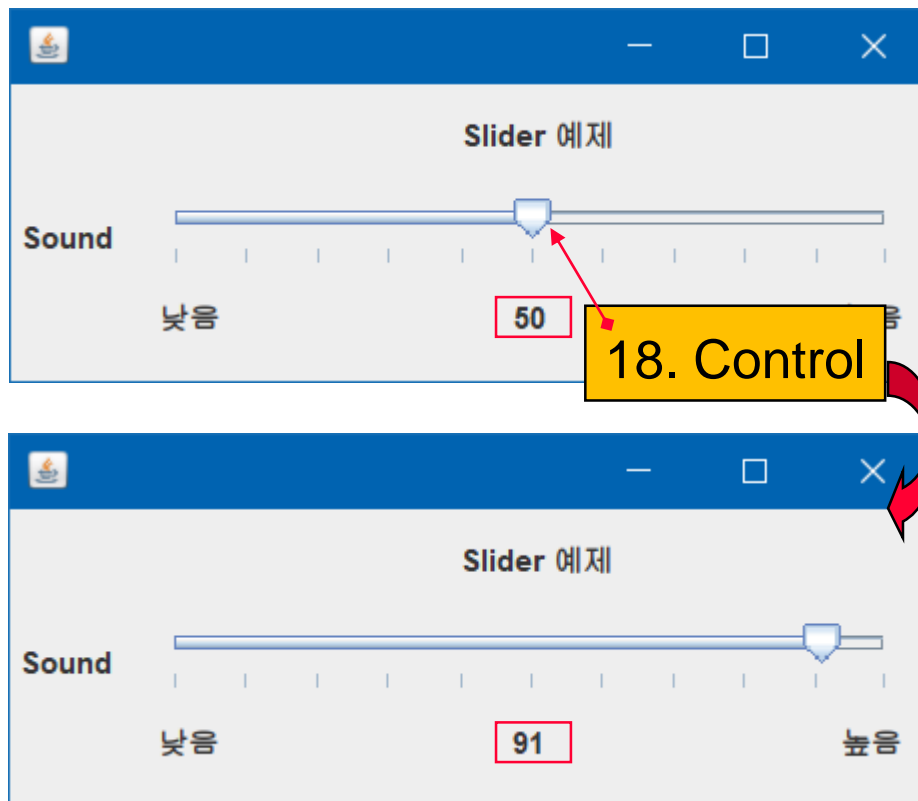




Practice 3 : Slider Control (9)

■ Run

❖ Slider 조정



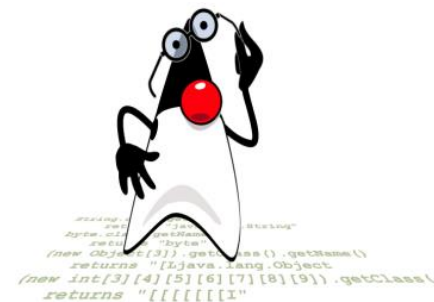
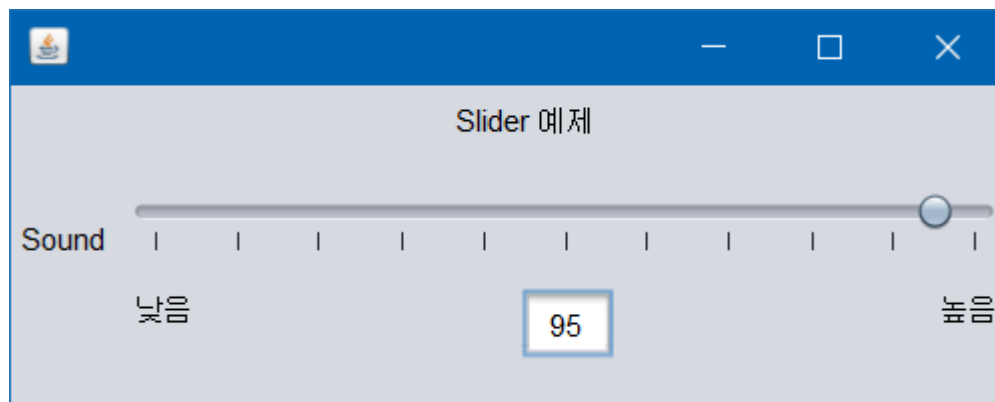


Practice 4 : Slider Control

❖ Project Name: Slider2_Source(Time: 20 min)

■ Input Slider Value

- Slider를 조정한 위치의 값을 txtField Control에 출력하도록 구현하시오.
- Slider의 입력값에 따라 Slider를 조정하도록 구현하시오.





Practice 4 : Slider Control (1)

❖ jSlider1 StateChanged() Event Handler

```
SliderFrame.java - Editor
SliderFrame.java x
Source Design History
1
2 import java.awt.event.KeyEvent;
3
4 public class SliderFrame extends javax.swing.JFrame {
5
6     /** Creates new form SliderFrame ...3 lines */
9     public SliderFrame() {...3 lines}
12
13     /** This method is called from within the constructor to initialize the form ...4 lines */
17     @SuppressWarnings("unchecked")
18     Generated Code
99
100     private void jSlider1StateChanged(javax.swing.event.ChangeEvent evt) {
101         String strData = null;
102         int iValue = 0;
103
104         iValue = jSlider1.getValue(); //Return jSlider1 Value
105         strData = Integer.toString( iValue); //Integer -> String
106         ①
107     }
```





Practice 4 : Slider Control (2)

❖ KeyTyped() Event Handler

15. Coding

```
SliderFrame.java - Editor
SliderFrame.java x
Source Design History
1
2 import java.awt.event.KeyEvent;
3
4 public class SliderFrame extends javax.swing.JFrame {
5
6     /** Creates new form SliderFrame ...3 lines */
9     public SliderFrame() {...3 lines}
12
13     /** This method is called from within the constructor to initialize the form ...4 lines */
17     @SuppressWarnings("unchecked")
18     Generated Code
99
108     private void jSlider1StateChanged(javax.swing.event.ChangeEvent evt) {...8 lines}
109
110     private void txtFD_ValueKeyTyped(java.awt.event.KeyEvent evt) {
111         String strData = null;
112         int iValue = 0;
113
114         if( ② ){
115             strData = txtFD_Value.getText();
116             ③ //String -> Integer
117             //Setting jSlider1 Value
118         }
119     }
```





학습 요약

- TabbedPane Control
- Progress Bar Control
- Slider Control

