



GUI 컨트롤 IV

Table 예제

순 위

영 화 제 목

관 객 동 원

순위	영화 제목	관객 동원
1	한산(용의 출현)	2000000
2	로마의 휴일	1000000
3	타이타닉	800000
4	죽은 시인의 사회	600000
5	쉬리	400000





학습 목표

■ 이 강의를 마치면 학생들은

- ❖ Table Control에 대하여 설명할 수 있다.
- ❖ Tree Control에 대하여 설명할 수 있다.

순위	영화 제목	관객 동원
1	한산(홍의 출현)	2000000
2	로마의 휴일	1000000
3	타이타닉	800000
4	죽은 시인의 사회	600000
5	쉬리	400000

Path : [강의 자료, 컴퓨터언어]





Table Control

■ Table Control

❖ Function

◆ Table 형태의 데이터 저장

❖ Method

Method	Function
<code>int getColumnCount()</code>	열의 수 반환
<code>int getRowCount()</code>	행의 수 반환
<code>Object getValueAt(int row, int column)</code>	해당 데이터 반환
<code>String getColumnName(int column)</code>	열 제목 반환
<code>int getSelectedRow()</code>	Table의 선택 행 번호 반환
<code>int getSelectedColumn()</code>	Table의 선택 열 번호 반환





Practice 1 : Table Control

❖ Project Name: Table_Source(Time: 20 min)

■ [Insert] Button

- 순위, 영화제목, 관객동원을 순위 입력값과 같은 행에 삽입한다.

■ [Update] Button

- Table에서 선택한 행의 순위, 영화제목, 관객동원을 데이터를 수정한다.

■ [Delete] Button

- Table에서 선택한 행의 순위, 영화제목, 관객동원을 데이터를 삭제한다.

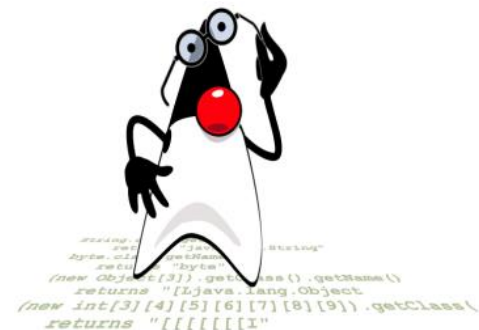
Table 예제

순 위

영 화 제 목

관 객 동 원

순위	영화 제목	관객 동원
1	로마의 휴일	1000000
2	타이타닉	800000
3	죽은 시인의 사회	600000
4	쉬리	400000
5	한산(용의출현)	1500000





Practice 1 : Table 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 displayed, 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 1 : Table Control (2)

■ Project Name and Location

❖ Project name: Table_Source

New Java Application

Steps

1. Choose Project
2. Name and Location

Name and Location

Project Name: Table_Source

Project Location: C:\Java_Project Browse...

Project Folder: C:\Java_Project\Table_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 table_source.Table_Source

< Back Next > Finish Cancel Help

5. Reset check

4. Input Project Name

6. Click

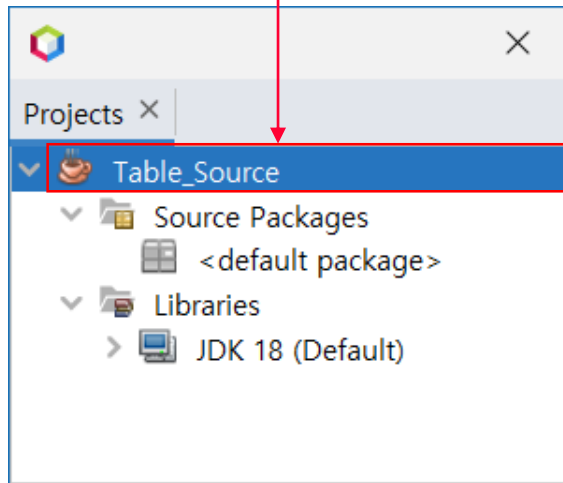




Practice 1 : Table Control (3)

Create JFrame Form

7. Mouse right-button Click



New

Build
Clean and Build

8. Click

Run
Debug
Profile
Test
Set Configuration

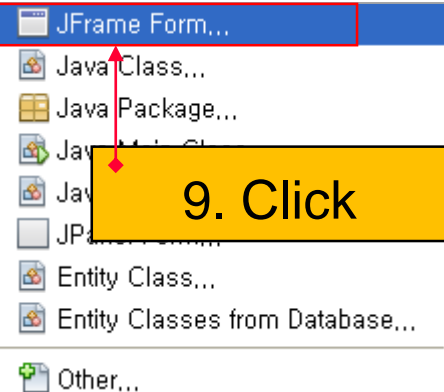
Set as Main Project
Open Required Projects
Close

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

Find...
Versioning
Local History

Properties

9. Click





Practice 1 : Table Control (4)

■ Setting JFrame Form Name

❖ Create MainFrame.java

Steps

1. Choose File Type
2. Name and Location

Name and Location

Class Name: MainFrame

Project: Table_Source

Location: Source Packages

Package:

Created File: C:\Java_Project\Table_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 : Table Control (5)

Control Layout & Property Setting

Table 예제

순 위

영화 제목

관객 동원

순위	영화 제목	관객 동원
1	로마의 휴일	1000000
2	타이타닉	800000
3	죽은 시인의 사회	600000
4	쉬리	400000

Control	Properties Setting
jLabel1	<ul style="list-style-type: none">Variable Name : lblTitleText : Table 예제
jLabel2	<ul style="list-style-type: none">Variable Name : lblOrderText : 순위
jLabel3	<ul style="list-style-type: none">Variable Name : lblMovieText : 영화 제목
jLabel4	<ul style="list-style-type: none">Variable Name : lblGalleryText : 관객 동원

Control	Properties Setting
(jTextField1)	<ul style="list-style-type: none">Variable Name : txtOrderText :
(jTextField2)	<ul style="list-style-type: none">Variable Name : txtMovieText :
(jTextField3)	<ul style="list-style-type: none">Variable Name : txtGalleryText :
jButton1	<ul style="list-style-type: none">Variable Name : btnInsertText : Insert
jButton2	<ul style="list-style-type: none">Variable Name : btnUpdateText : Update
jButton3	<ul style="list-style-type: none">Variable Name : btnDeleteText : Delete
jTable	<ul style="list-style-type: none">Variable Name : jTable1





Practice 1 : Table Control (6)

■ Setting table model property

Table 예제

순 위

영화 제목

관객 동원

순위	영화 제목	관객 동원
1	로마의 휴일	1000000
2	타이타닉	800000
3	죽은 시인의 사회	600000
4	쉬리	400000

12. Click

jTable1 [JTable] - Properties

Properties Events Code

Properties

- autoCreateColumnsFr ☒
- autoCreateRowSorter ☐
- background ☐ [255,255,255]
- border (No Border)
- font 맑은 고딕 12 Plain
- foreground ☐ [0,0,0]
- model [TableModel]**
- toolTipText

Other Properties

UIClassID TableUI

model

(javax.swing.table.TableModel) The model that is the source of the data for this view.

13. Click





Practice 1 : Table Control (7)

❖ Table Settings

jTable1 [JTable] - model

Set jTable1's model property using: Table model customizer

Table Model

Table Settings Default Values

Specify Title and Column Types Here:

Column	Title	Type	Editable
1	순위	Integer	<input checked="" type="checkbox"/>
2	영화 제목	String	<input checked="" type="checkbox"/>
3	관객 동원	Integer	<input checked="" type="checkbox"/>

Insert
Delete
Move Up
Move Down

14. Setting Title, Type

Rows: 5 + - Columns: 3 + -

OK Reset to Default Cancel Help



Practice 1 : Table Control (8)

❖ Setting Default Values property

jTable1 [JTable] - model

Set jTable1's model property using: Table model customizer

Table Model

Table Settings **Default Values**

Default Table Values:

순위	영화 제목	관객 동원
1	로마의 휴일	1000000
2	타이타닉	800000
3	죽은 시인...	600000
4	쉬리	400000

Columns:

Insert
Delete
Move Left
Move Right

Rows:

Insert
Delete
Move Up
Move Down

Rows: 5 + - Columns: 3 + -

OK Reset to Default Cancel Help

15. Click

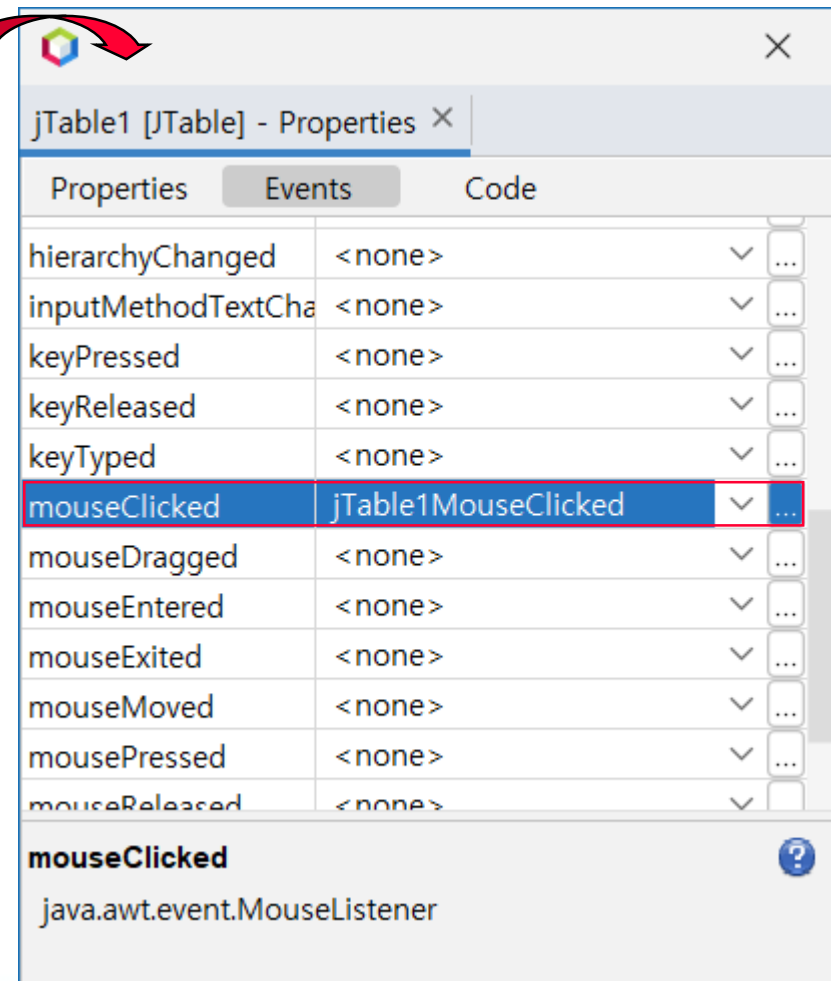
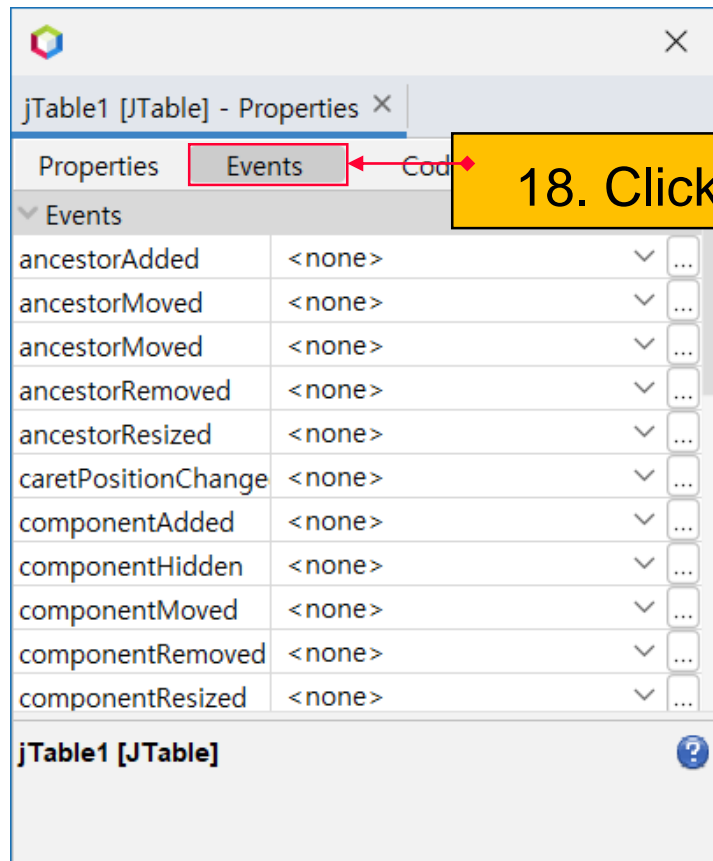
16. Input default data

17. Click



Practice 1 : Table Control (9)

■ Setting mouseClicked() Event Handler





Practice 1 : Table Control (10)

❖ Setting jTable1 Control property

```
MainFrame.java - Editor
MainFrame.java x
Source Design History
44
45 jTable1.setModel(new javax.swing.table.DefaultTableModel(
46     new Object [][] {
47         { new Integer(1), "로마의 휴일", new Integer(1000000)},
48         { new Integer(2), "타이타닉", new Integer(800000)},
49         { new Integer(3), "죽은 시인의 사회", new Integer(600000)},
50         { new Integer(4), "쉬리", new Integer(400000)},
51         {null, null, null}
52     },
53     new String [] {
54         "순위", "영화 제목", "관객 동원"
55     }
56 ) {
57     Class[] types = new Class [] {
58         java.lang.Integer.class, java.lang.String.class, java.lang.Integer.class
59     };
60
61     public Class getColumnClass(int columnIndex) {
62         return types [columnIndex];
63     }
64 };
65 jTable1.addMouseListener(new java.awt.event.MouseAdapter() {
66     public void mouseClicked(java.awt.event.MouseEvent evt) {
67         jTable1MouseClicked(evt);
68     }
69 });
```





Practice 1 : Table Control (11)

❖ jTable1MouseClicked() Event Handler

```
MainFrame.java - Editor
MainFrame.java x
Source Design History
private void jTable1MouseClicked(java.awt.event.MouseEvent evt) {
    int iCntRow = 0;
    iCntRow = jTable1.getSelectedRow(); //Return the selected row
    txtOrder.setText(jTable1.getValueAt(iCntRow, 0).toString()); //Return the rank
    txtMovie.setText(jTable1.getValueAt(iCntRow, 1).toString()); //Return the movie title
    txtGallery.setText(jTable1.getValueAt(iCntRow, 2).toString()); //Return the number of gallery
}
private void btnSortActionPerformed(java.awt.event.ActionEvent evt) {... 19 lines }
/**...3 lines */
public static void main(String args[]) {
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new MainFrame().setVisible(true);
        }
    });
}
```

19. Coding





Practice 1 : Table Control (12)

❖ [Insert] Button Event Handler

```
MainFrame.java - Editor
MainFrame.java x
Source Design History
171 private void btnInsertActionPerformed(java.awt.event.ActionEvent evt) {
172     int iCntRow = 0;
173     int iOrder = 0;
174     int iGallery = 0;
175
176     iCntRow = jTable1.getRowCount(); //Return the number of rows
177     for(int idx = 0; idx < jTable1.getRowCount(); idx++){
178         //Check the values in column 0 of each row
179         if (jTable1.getValueAt(idx, 0) == null){
180             iCntRow = idx;
181             break;
182         }
183     }
184
185     iOrder = Integer.parseInt(txtOrder.getText());
186     jTable1.setValueAt(iOrder, iCntRow, 0); //Setting the rank
187
188     jTable1.setValueAt(txtMovie.getText(), iCntRow, 1); //Setting the movie title
189
190     iGallery = Integer.parseInt(txtGallery.getText());
191     jTable1.setValueAt(iGallery, iCntRow, 2); //Setting the number of gallery
192 }
193
```

20. Coding





Practice 1 : Table Control (13)

❖ [Update] Button Event Handler

```
MainFrame.java - Editor
MainFrame.java x
Source Design History
private void btnUpdateActionPerformed(java.awt.event.ActionEvent evt) {
    int iCntRow = 0;
    int iOrder = 0;
    int iGallery = 0;

    iCntRow = jTable1.getSelectedRow(); //Returns the selected row number

    iOrder = Integer.parseInt(txtOrder.getText());
    jTable1.setValueAt(iOrder, iCntRow, 0); //Setting the rank

    jTable1.setValueAt(txtMovie.getText(), iCntRow, 1); //Setting the movie title

    iGallery = Integer.parseInt(txtGallery.getText());
    jTable1.setValueAt(iGallery, iCntRow, 2); //Setting the number of gallery
}

private void btnDeleteActionPerformed(java.awt.event.ActionEvent evt) {...4 lines}

public class MakeRowData {...4 lines}

261:9 INS Explicit type can be replaced with 'var'
```

21. Coding





Practice 1 : Table Control (14)

❖ [Delete] Button Event Handler

```
MainFrame.java - Editor
MainFrame.java x
Source Design History
private void btnDeleteActionPerformed(java.awt.event.ActionEvent evt) {
    MakeRowData objRowData;
    Vector myVC = new Vector();

    int iCntRow = 0;
    iCntRow = jTable1.getSelectedRow();           //Returns the selected row number

    DefaultTableModel jTableModel = (DefaultTableModel)jTable1.getModel();

    //Step 1: jTable1 -> myVC
    for(int iRow = 0; iRow < jTable1.getRowCount(); iRow++){
        if (jTable1.getValueAt(iRow, 0) != null) {
            objRowData = new MakeRowData();
            objRowData.strMovie = jTable1.getValueAt(iRow, 1).toString();
            objRowData.iGallery = Integer.parseInt(jTable1.getValueAt(iRow, 2).toString());
            myVC.add(objRowData);
        } else{
            break;
        }
    }

    //Step 2: Remove seleted row
    myVC.removeElementAt(iCntRow);
    jTableModel.removeRow(iCntRow);
}
```

22. Coding





Practice 1 : Table Control (15)

```
MainFrame.java - Editor
MainFrame.java x
Source Design History
235
236 //Step 3: myVC -> jTable1
237 for(int idx = 0; idx < myVC.size(); idx++){
238     objRowData = (MakeRowData) myVC.get(idx);
239     jTable1.setValueAt(idx+1, idx, 0);
240     jTable1.setValueAt(objRowData.strMovie, idx, 1);
241     jTable1.setValueAt(objRowData.iGallery, idx, 2);
242 }
243
244 //Step 4: Add one dummy row to jTable1
245 String[] strRecord = new String[ jTable1.getColumnCount()];
246 jTableModel.addRow(strRecord);
247
248 txtOrder.setText(null); // Initialize txtOrder
249 txtMovie.setText(null); // Initialize txtMovie
250 txtGallery.setText(null); // Initialize txtGallery
251 }
252
253 public class MakeRowData{
254     public String strMovie;
255     public int iGallery;
256 }
```

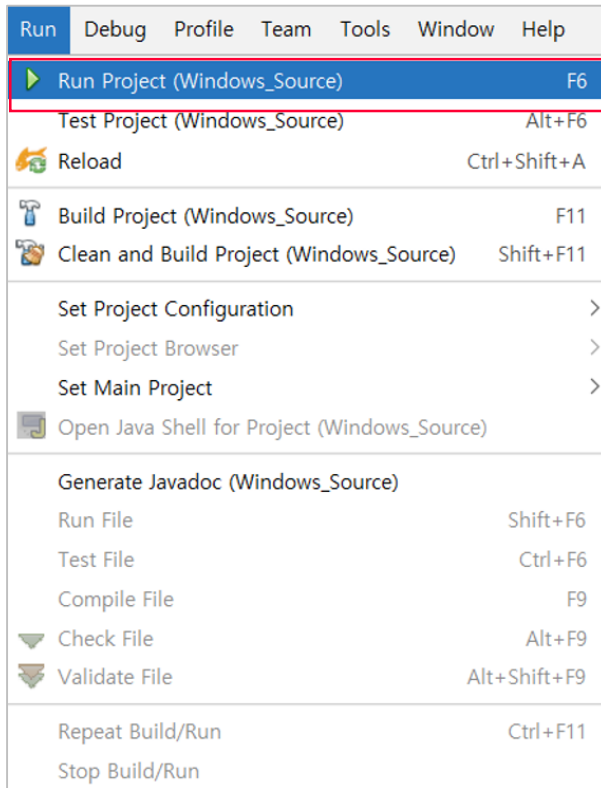
23. Coding



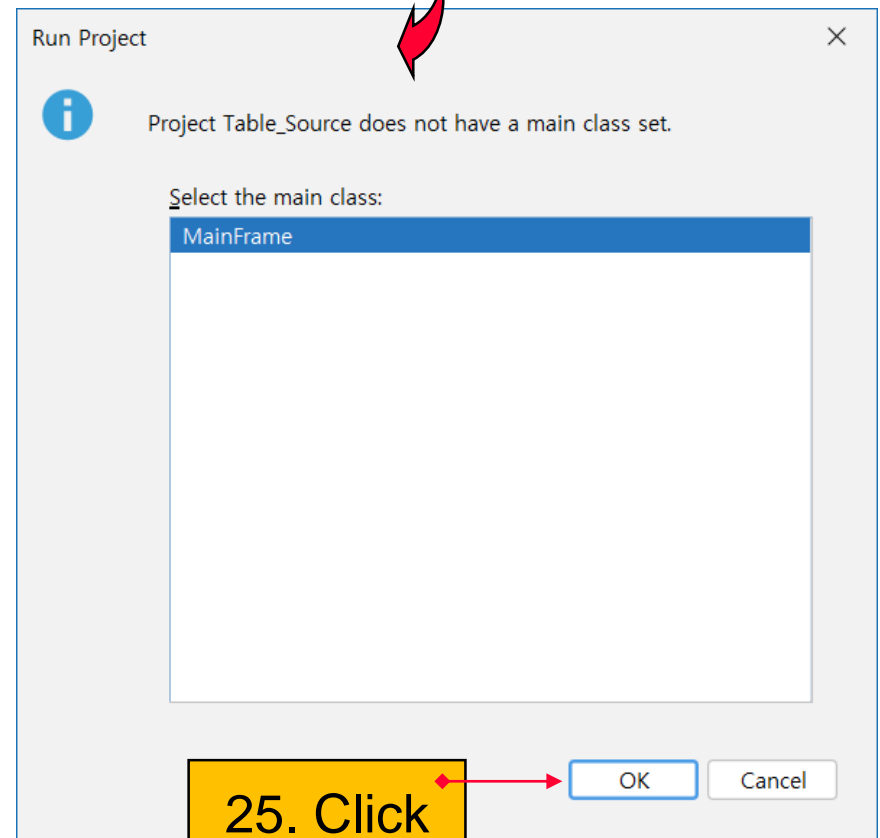


Practice 1 : Table Control (16)

Run



24. Click



25. Click





Practice 1 : Table Control (17)

■ Run

❖ [Insert] Button Click

26. 데이터 입력

27. Click

Table 예제

순 위 5

영화 제목 한산(용의출현)

관객 동원 1500000

Insert

Update

Delete

순위	영화 제목	관객 동원
1	로마의 휴일	1000000
2	타이타닉	800000
3	죽은 시인의 사회	600000
4	쉬리	400000

Table 예제

순 위 5

영화 제목 한산(용의출현)

관객 동원 1500000

Insert

Update

Delete

순위	영화 제목	관객 동원
1	로마의 휴일	1000000
2	타이타닉	800000
3	죽은 시인의 사회	600000
4	쉬리	400000
5	한산(용의출현)	1500000





Practice 1 : Table Control (18)

❖ [Update] Button Click

Table 예제

순 위 5

영화 제목 한산(용의출현)

관객 동원 1500000

순위	영화 제목	관객 동원
1	로마의 휴일	1000000
2	타이타닉	800000
3	죽은 시인의 사회	600000
4	쉬리	400000
5	한산(용의출현)	1500000

28. Click

29. modify

30. Click

순 위 5

영화 제목 한산(용의출현)

관객 동원 2000000

순위	영화 제목	관객 동원
1	로마의 휴일	1000000
2	타이타닉	800000
3	죽은 시인의 사회	600000
4	쉬리	400000
5	한산(용의출현)	2000000



Practice 1 : Table Control (19)

❖ [Delete] Button Click

Table 예제

순 위 5

영화 제목 한산(용의출현)

관객 동원 2000000

순위	영화 제목	관객 동원
1	로마의 휴일	1000000
2	타이타닉	800000
3	죽은 시인의 사회	600000
4	쉬리	400000
5	한산(용의출현)	2000000

31. Click

Table 예제

순 위

영화 제목

관객 동원

순위	영화 제목	관객 동원
1	로마의 휴일	1000000
2	타이타닉	800000
3	죽은 시인의 사회	600000
4	쉬리	400000

32. Click





Practice 2: Table Control

❖ Project Name: Table_Source(Time: 30 min)

■ [Insert] Button

- 아래 그림의 실행 결과에서 “로마의 휴일” 과 같이 동일한 데이터가 삽입 되지 않도록 [Insert] button event handler를 수정하시오.

Table 예제

순 위 5

영화 제목 로마의 휴일

관객 동원 800000

순위	영화 제목	관객 동원
1	로마의 휴일	1000000
2	타이타닉	800000
3	죽은 시인의 사회	600000
4	쉬리	400000
5	로마의 휴일	800000





Homework

❖ Project Name: TableSorting_Source

■ [Sort] Button

- “관객 동원” 수에 따라 내림차순으로 정렬하도록 구현하시오.

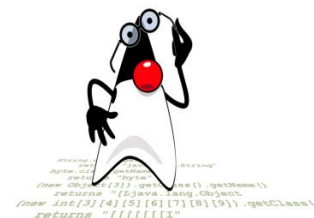


Table 예제

순 위

영화 제목

관객 동원

순위	영화 제목	관객 동원
1	로마의 휴일	1000000
2	타이타닉	800000
3	죽은 시인의 사회	600000
4	쉬리	400000
5	한산(용의 출현)	2000000

Table 예제

순 위

영화 제목

관객 동원

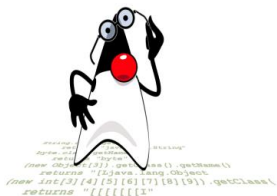
순위	영화 제목	관객 동원
1	한산(용의 출현)	2000000
2	로마의 휴일	1000000
3	타이타닉	800000
4	죽은 시인의 사회	600000
5	쉬리	400000





Homework (1)

❖ Solution 1

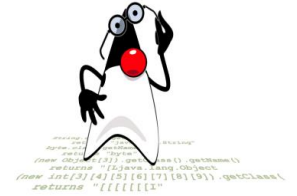


```
MainFrame.java - Editor
MainFrame.java x
Source Design History
private void btnSortActionPerformed(java.awt.event.ActionEvent evt) {
218     MakeRowData objRowData;
219     Vector myVC = new Vector();
220
221     //1. jTable1 -> myVC
222     for(int iRow = 0; iRow < jTable1.getRowCount(); iRow++){
223         if (jTable1.getValueAt(iRow, 0) != null) {
224             objRowData = new MakeRowData();
225             objRowData.strMovie = jTable1.getValueAt(iRow, 1).toString();
226             objRowData.iGallery = Integer.parseInt(jTable1.getValueAt(iRow, 2).toString());
227             myVC.add(objRowData);
228         } else{
229             break;
230         }
231     }
232
233     //2. Sorting
234     1
235
236     //3. myVC -> jTable1
237     for(int idx = 0; idx < myVC.size(); idx++){
238         objRowData = (MakeRowData) myVC.get(idx);
239         jTable1.setValueAt(idx+1, idx, 0);
240         jTable1.setValueAt(objRowData.strMovie, idx, 1);
241         jTable1.setValueAt(objRowData.iGallery, idx, 2);
242     }
243
244     //4. Initialize TextField
245     txtOrder.setText(null);           // Initialize txtOrder
246     txtMovie.setText(null);          // Initialize txtMovie
247     txtGallery.setText(null);        // Initialize txtGallery
248 }
```





Homework (2)



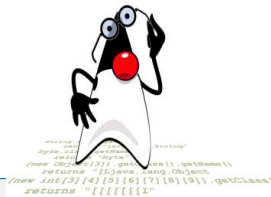
```
MainFrame.java - Editor
MainFrame.java x
Source Design History
250 public class MakeRowData{
251     public String strMovie;
252     public int iGallery;
253 }
254 public class GalleryDescCompare implements Comparator {
255     public int compare(Object arg0, Object arg1){
256         //Ascending(<) : Descending(>)
257         if(((MakeRowData)arg0).iGallery > ((MakeRowData)arg1).iGallery )
258             return -1;
259         else if(((MakeRowData)arg0).iGallery == ((MakeRowData)arg1).iGallery)
260             return Integer.compare(((MakeRowData)arg0).iGallery, ((MakeRowData)arg1).iGallery);
261         else
262             return 1;
263     }
264 }
265
266 /**...3 lines */
269 public static void main(String args[]) {
270     java.awt.EventQueue.invokeLater(new Runnable() {
271         public void run() {
272             new MainFrame().setVisible(true);
273         }
274     });
275 }
```





Homework (3)

❖ Solution 2



```
MainFrame.java - Editor
MainFrame.java x
Source Design History
266 private void btnSortActionPerformed(java.awt.event.ActionEvent evt) {
267
268     TableRowSorter<TableModel> objSorter = new TableRowSorter<>(jTable1.getModel());
269     jTable1.setRowSorter(objSorter);
270     ArrayList<RowSorter.SortKey> SortKeys = new ArrayList<>();
271
272     [Redacted Code Block]
273
274     1
275
276
277     for(int idx = 0; idx < jTable1.getRowCount(); idx++){
278         if (jTable1.getValueAt(idx, 0) != null)
279             jTable1.setValueAt(idx+1, idx, 0);
280         else
281             break;
282     }
283
284
285 }
286
```





Tree Control (1)

■ Tree Control

❖ Function

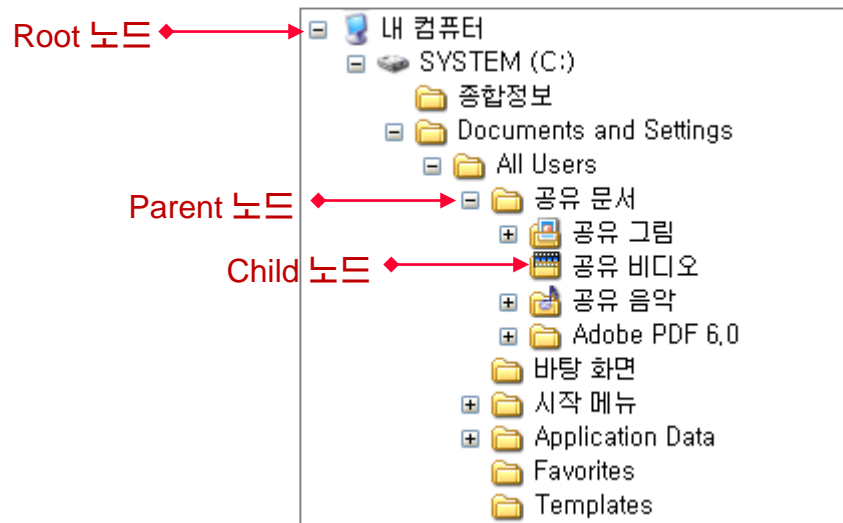
- ◆ 계층적인 자료를 구현
- ◆ 폴더 구조와 같이 트리 형태의 데이터 구조

■ Tree 구조

❖ Root 노드

❖ Child 노드

❖ Parent 노드





Tree Control (2)

■ Model

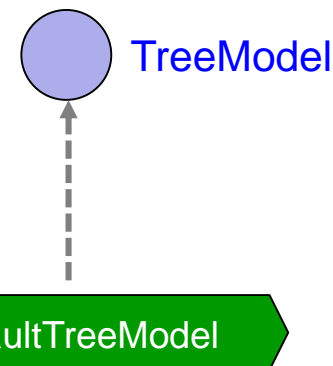
❖ TreeModel

- ◆ Tree 노드 간의 관계를 알려 주는 메서드가 정의되어 있는 인터페이스
- ◆ 데이터 보관 관리

❖ DefaultTreeModel

- ◆ TreeModel의 모든 메서드 미리 구현

❖ Method



Method	Function
<code>Object</code> getChild(Object parent, int index)	Parent node의 자식들중에 index에 해당하는 자식 노드 반환
<code>int</code> getChildCount(Object parent)	자식 노드 수 반환
<code>boolean</code> isLeaf(Object node)	말단 노드 여부 반환





Tree Control (3)

■ TreeSelectionModel

❖ 노드 선택 관리

❖ Mode

◆ SINGLE_TREE_SELECTION

- 한번에 한 노드만 선택

◆ CONTIGUOUS_TREE_SELECTION

- 연속된 여러 노드 선택

◆ DISCONTIGUOUS_TREE_SELECTION

- 연속하지 않은 여러 노드 선택

❖ Method

Method	Function
<code>void setSelectionPath(TreePath path)</code>	한번에 하나의 노드 선택
<code>TreePath getSelectionPath()</code>	선택한 노드의 path 반환
<code>void setSelectionPaths(TreePath[] paths)</code>	여러 개의 노드를 다 선택
<code>TreePath[] getSelectionPaths()</code>	선택한 여러 노드의 path 반환

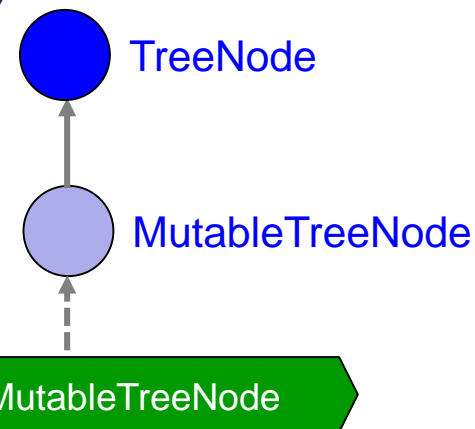




Tree Control (4)

■ TreeNode

- ❖ 노드의 상하관계 표현
- ❖ DefaultMutableTreeNode
- ❖ Method



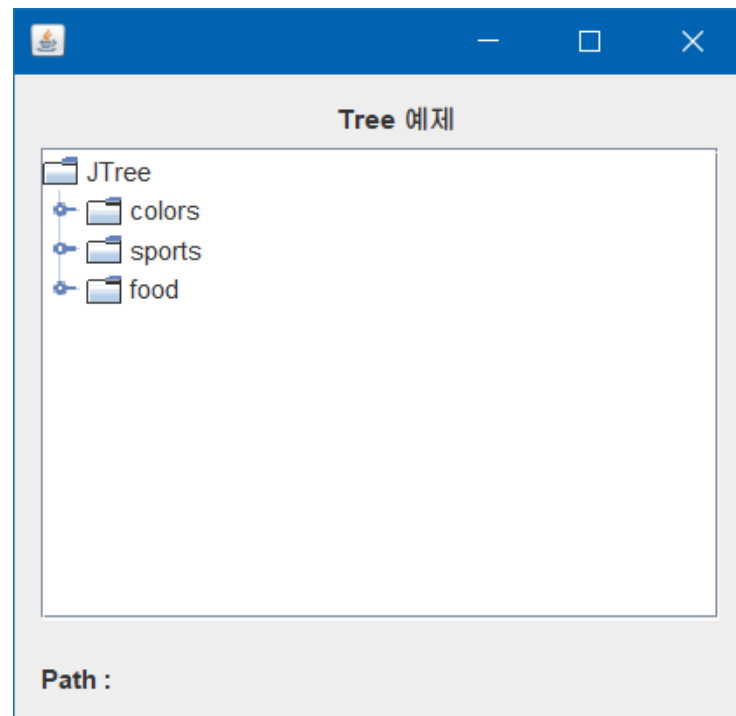
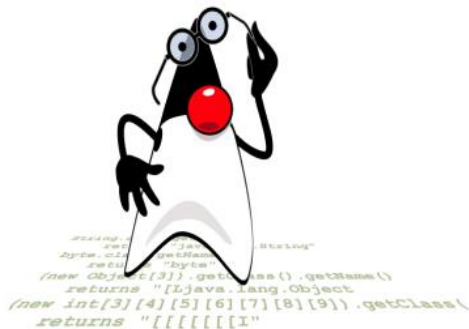
Method	Function
<code>int getParent()</code>	부모 노드 index 반환
<code>int getChildAt()</code>	자식 노드 index 반환
<code>void add(MutableTreeNode newChild)</code>	기존 tree의 말단 노드로 newChild 추가
<code>void add(MutableTreeNode newChild, int index)</code>	기존 tree의 index 위치에 newChild 추가
<code>void remove(int index)</code>	index 위치에 노드 삭제
<code>void remove(MutableTreeNode aChild)</code>	aChild 노드 삭제
<code>void removeAllChildren()</code>	모든 Child 노드 삭제
<code>void insertNodeInto(MutableTreeNode newChild, MutableTreeNode parent, int index)</code>	Parent 노드의 index 위치에 자식 노드로 newChild 추가
<code>void reload()</code>	변경된 node 를 포함한 전체 tree 구조 반영
<code>void nodeStructureChanged(TreeNode node)</code>	Node의 하위 노드만을 update





A stylized cartoon character with a large red eye and a raised hand. The character is white with a black outline, featuring a large red eye and a black hand raised in a gesture.

- Tree 폴더 Click
 - Path : Tree의 해당 폴더 선택 경로 출력
- Tree Expanded
 - Tree의 폴더 확장 경로 출력
- Tree Collapsed
 - Tree의 폴더 축소





Practice 2 : Tree Control (1)

Create Project

1. Click

2. Click

3. Click

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help Apache NetBeans IDE 14 Search (Ctrl+I)

New Project... Ctrl+Shift+N

New File... Ctrl+N

Open Project... Ctrl+Shift+O

Open Recent Project

Close Project

Close Other Projects

Close All Projects

Open File...

Open Recent File

Project Groups...

Project Properties

Import Project

Export Project

Save Ctrl+S

Save As...

Save All Ctrl+Shift+S

Page Setup...

Print... Ctrl+Alt+Shift+P

Print to HTML...

Exit

New Project

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 : Tree Control (2)

■ Project Name and Location

❖ Project name: Tree_Source

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

4. Input Project Name

5. Reset check

6. Click

< Back Next > **Finish** Cancel Help

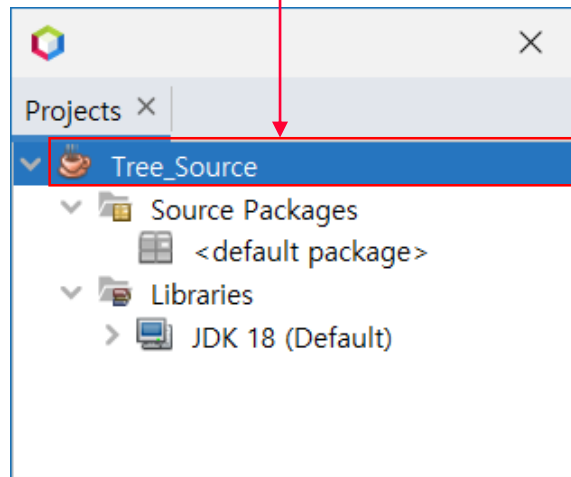




Practice 2 : Tree Control (3)

■ Create JFrame Form

7. Mouse right-button Click



New

Build
Clean and Build

8. Click

Run
Debug
Profile
Test
Set Configuration

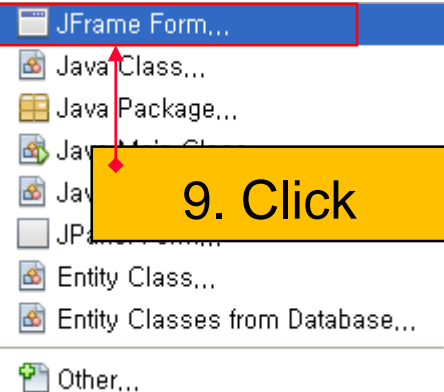
Set as Main Project
Open Required Projects
Close

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

Find...
Versioning
Local History

Properties

9. Click





Practice 2 : Tree Control (4)

■ Setting JFrame Form Name

❖ Create MainFrame.java

New JFrame Form

Steps

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

Projects

- Tree_Source
 - Source Packages
 - MainFrame.java**
 - <default package>
 - Libraries
 - JDK 18 (Default)

Name and Location

Class Name: MainFrame

Project: Tree_Source

Location: Source Packages

Package:

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

Superclass: Browse...

Interfaces: Browse...

10. Input "MainFrame"

11. Click

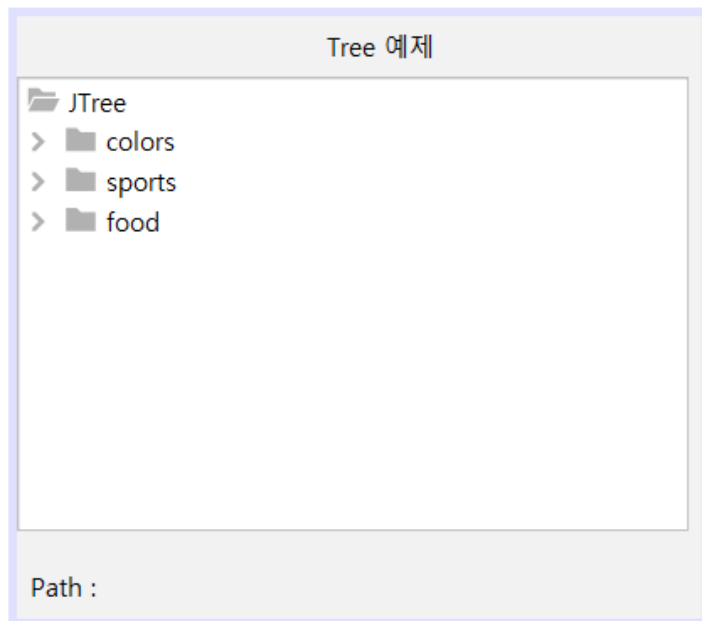
Warning: It is highly recommended that you do not place Java classes in the default package

< Back Next > Finish Cancel Help



Practice 2 : Tree Control (5)

Control Layout & Property Setting



12. UI Design

Control	Properties Setting
jLabel1	<ul style="list-style-type: none">Variable Name : lblTitleText : Tree 예제
jLabel2	<ul style="list-style-type: none">Variable Name : lblPathText : Path :
jTree1	<ul style="list-style-type: none">Variable Name : jTree1

Event	Properties Setting
treeExpanded	<ul style="list-style-type: none">tree 확장시 발생:
treeCollapsed	<ul style="list-style-type: none">tree 축소시 발생
valueChanged	<ul style="list-style-type: none">Tree 값 변할때 발생





Practice 2 : Tree Control (6)

■ Setting JTree1 Control valueChanged() Event Handler

Properties	Events	Code
mouseEntered	<none>	...
mouseExited	<none>	...
mouseMoved	<none>	...
mousePressed	<none>	...
mouseReleased	<none>	...
mouseWheelMoved	<none>	...
propertyChange	<none>	...
treeCollapsed	JTree1TreeCollapsed	...
treeExpanded	JTree1TreeExpanded	...
treeWillCollapse	<none>	...
treeWillExpand	<none>	...
valueChanged	JTree1ValueChanged	...
vetoableChange	<none>	...

valueChanged
javax.swing.event.TreeSelectionListener

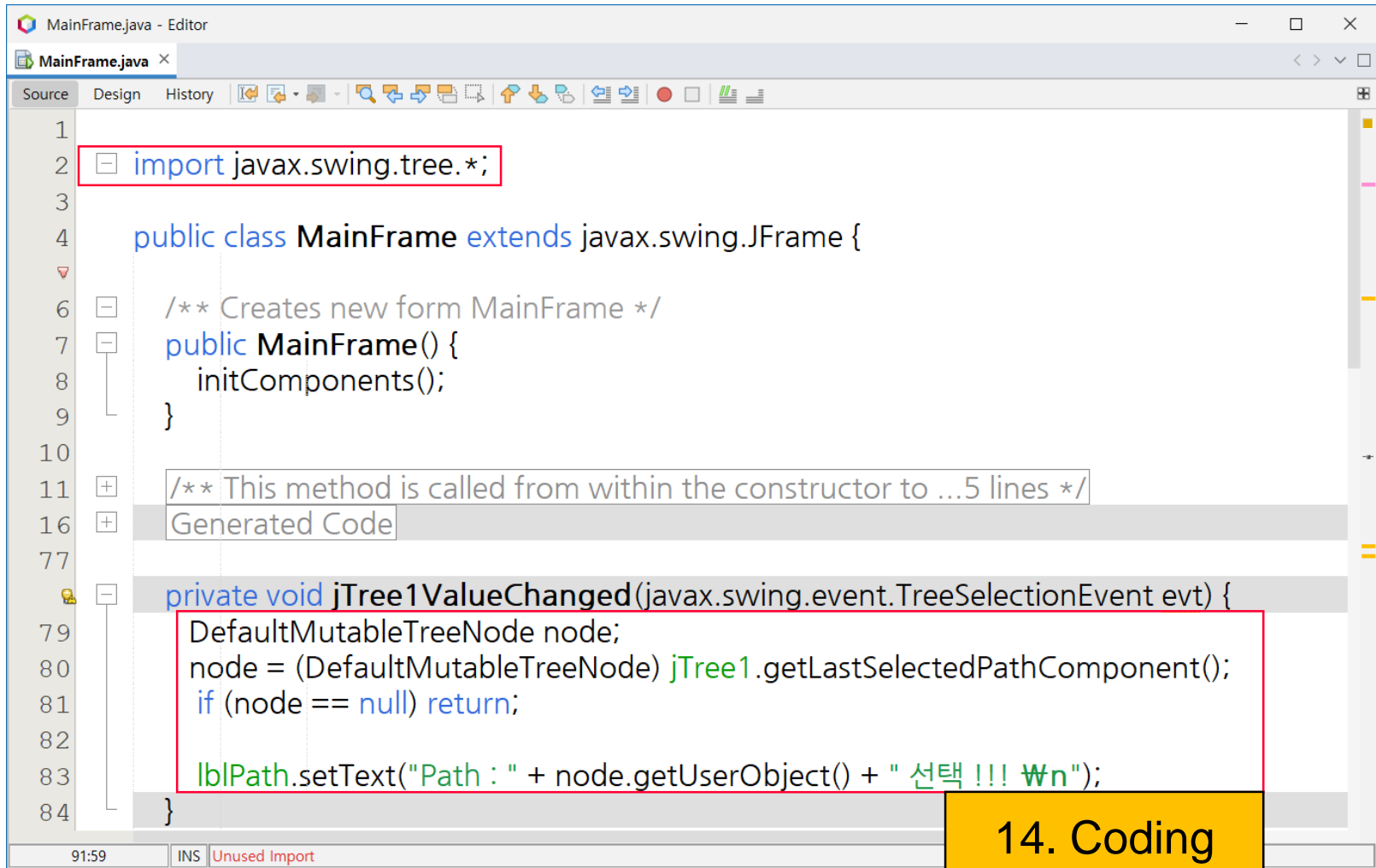
13. Click





Practice 2 : Tree Control (7)

❖ jTree1ValueChanged() Event Handler



```
1
2 import javax.swing.tree.*;
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
13     Generated Code
14
15
16     private void jTree1ValueChanged(javax.swing.event.TreeSelectionEvent evt) {
17         DefaultMutableTreeNode node;
18         node = (DefaultMutableTreeNode) jTree1.getLastSelectedPathComponent();
19         if (node == null) return;
20
21         lblPath.setText("Path : " + node.getUserObject() + " 선택 !!! \n");
22     }
23 }
```

91:59 INS Unused Import





Practice 2 : Tree Control (8)

■ Setting JTree1 Control Tree Collapsed() Event Handler

Properties	Events	Code
mouseEntered	<none>	...
mouseExited	<none>	...
mouseMoved	<none>	...
mousePressed	<none>	...
mouseReleased	<none>	...
mouseWheelMoved	<none>	...
propertyChange	<none>	...
treeCollapsed	jTree1TreeCollapsed	...
treeExpanded	jTree1TreeExpanded	...
treeWillCollapse	<none>	...
treeWillExpand	<none>	...
valueChanged	jTree1ValueChanged	...
vetoableChange	<none>	...

treeCollapsed

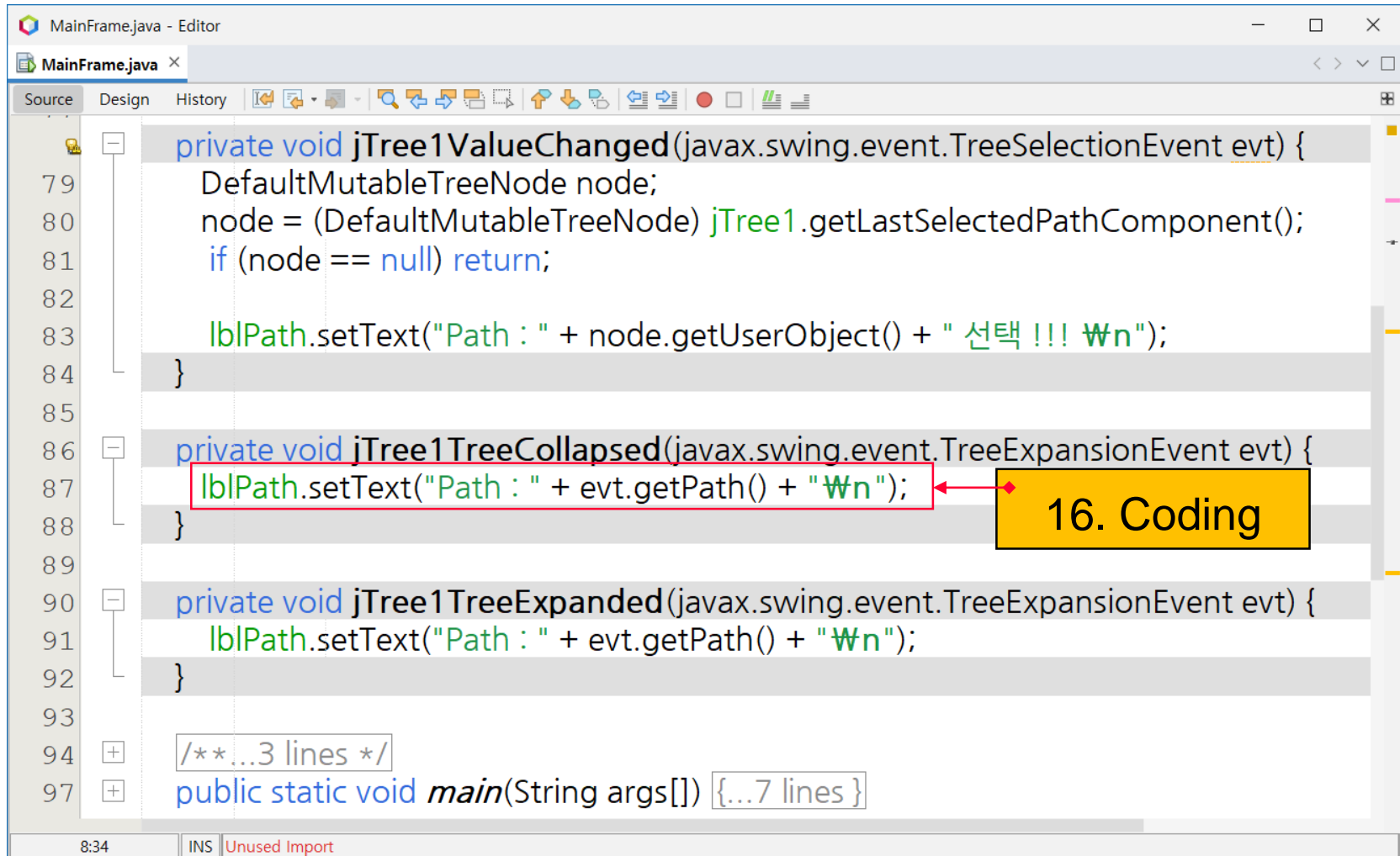
javax.swing.event.TreeExpansionListener





Practice 2 : Tree Control (9)

❖ jTree1TreeCollapsed() Event Handler



```
private void jTree1ValueChanged(javax.swing.event.TreeSelectionEvent evt) {
    DefaultMutableTreeNode node;
    node = (DefaultMutableTreeNode) jTree1.getLastSelectedPathComponent();
    if (node == null) return;

    lblPath.setText("Path : " + node.getUserObject() + " 선택 !!! Wn");
}

private void jTree1TreeCollapsed(javax.swing.event.TreeExpansionEvent evt) {
    lblPath.setText("Path : " + evt.getPath() + "Wn");
}

private void jTree1TreeExpanded(javax.swing.event.TreeExpansionEvent evt) {
    lblPath.setText("Path : " + evt.getPath() + "Wn");
}

/** ...3 lines */
public static void main(String args[]) {...7 lines }
```





Practice 2 : Tree Control (10)

■ Setting JTree1 Control TreeExpanded() Event Handler

Properties	Events	Code
mouseEntered	<none>	...
mouseExited	<none>	...
mouseMoved	<none>	...
mousePressed	<none>	...
mouseReleased	<none>	...
mouseWheelMoved	<none>	...
propertyChange	<none>	...
treeCollapsed	jTree1TreeCollapsed	...
treeExpanded	jTree1TreeExpanded	...
treeWillCollapse	<none>	...
treeWillExpand	<none>	...
valueChanged	jTree1ValueChanged	...
vetoableChange	<none>	...

treeExpanded

javax.swing.event.TreeExpansionListener



Practice 2 : Tree Control (11)

❖ jTree1TreeExpanded() Event Handler

```
MainFrame.java - Editor
MainFrame.java x
Source Design History
private void jTree1ValueChanged(javax.swing.event.TreeSelectionEvent evt) {
    DefaultMutableTreeNode node;
    node = (DefaultMutableTreeNode) jTree1.getLastSelectedPathComponent();
    if (node == null) return;

    lblPath.setText("Path : " + node.getUserObject() + " 선택 !!! \n");
}

private void jTree1TreeCollapsed(javax.swing.event.TreeExpansionEvent evt) {
    lblPath.setText("Path : " + evt.getPath() + "\n");
}

private void jTree1TreeExpanded(javax.swing.event.TreeExpansionEvent evt) {
    lblPath.setText("Path : " + evt.getPath() + "\n");
}

/** ...3 lines */
public static void main(String args[]) {...7 lines }
```

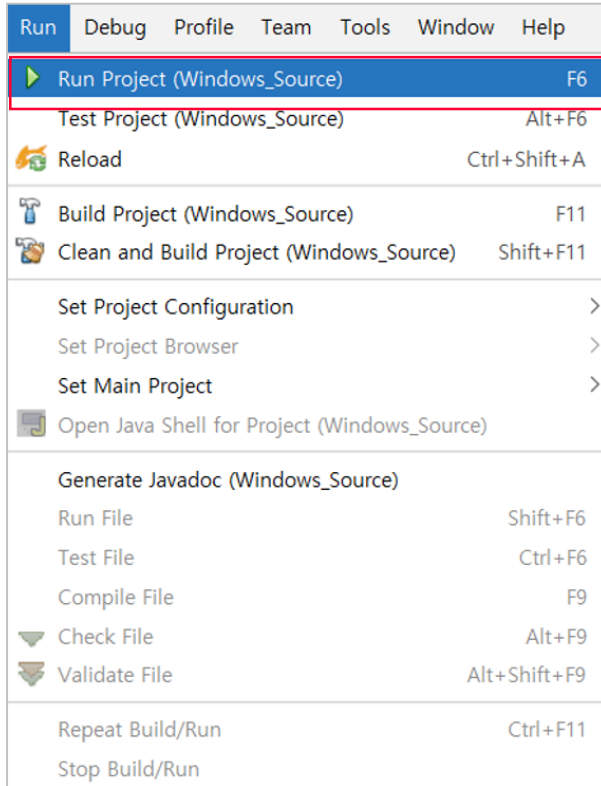
18. Coding



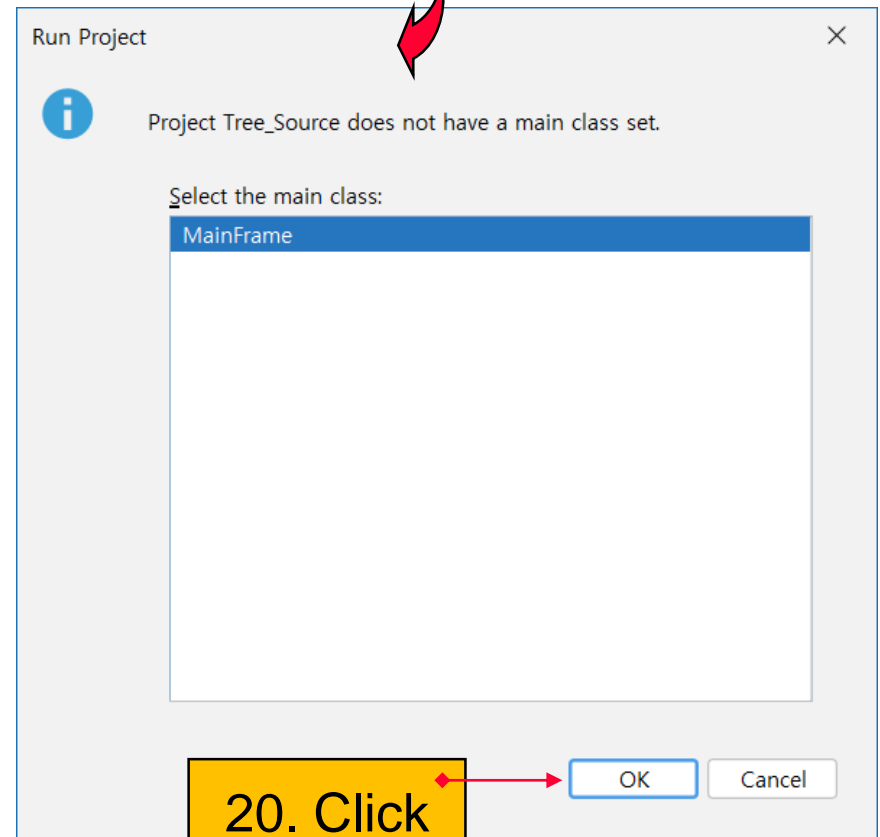


Practice 2 : Tree Control (12)

Run



19. Click



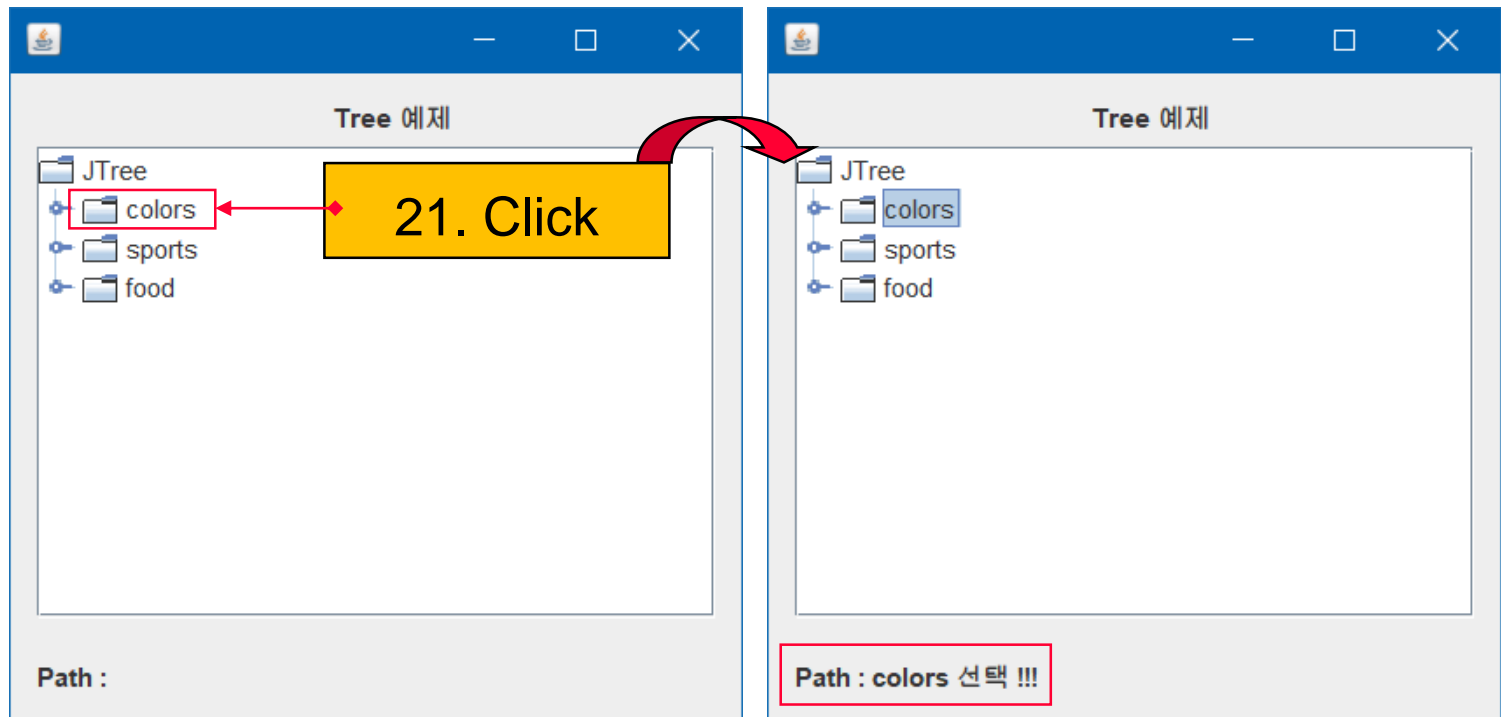
20. Click





Practice 2 : Tree Control (13)

❖ colors 폴더 선택

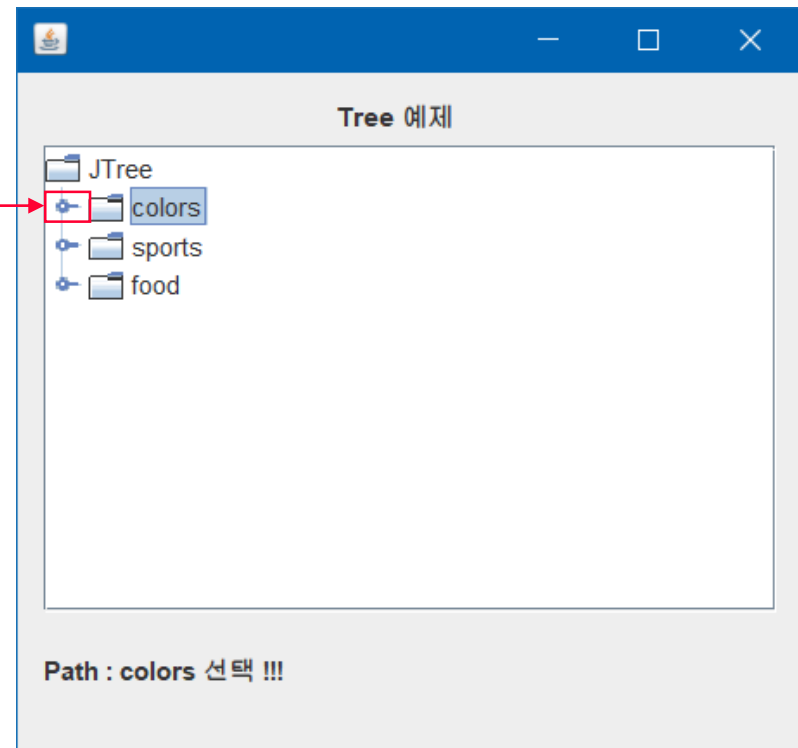
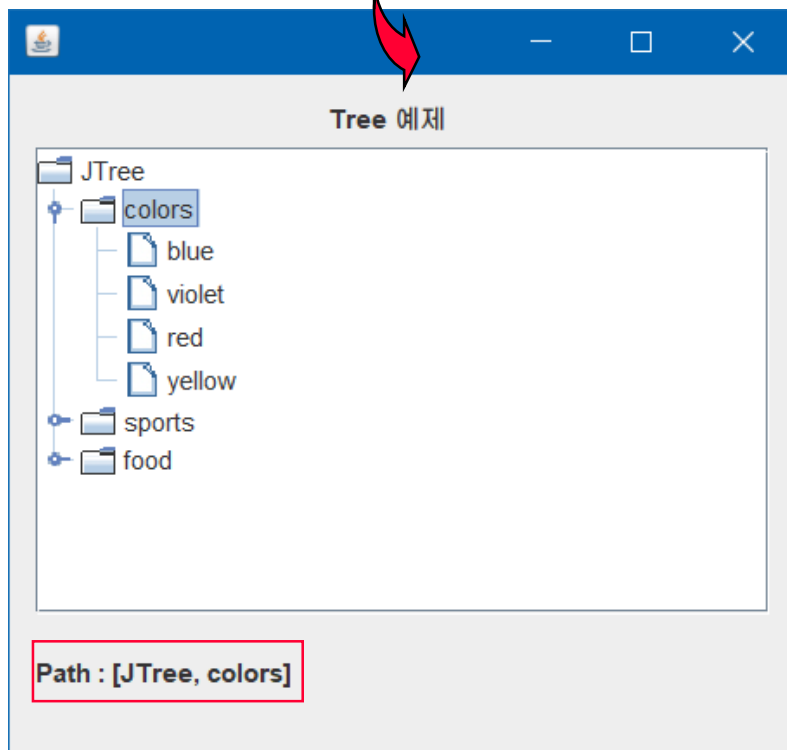




Practice 2 : Tree Control (14)

❖ Tree Expanded

22. Click

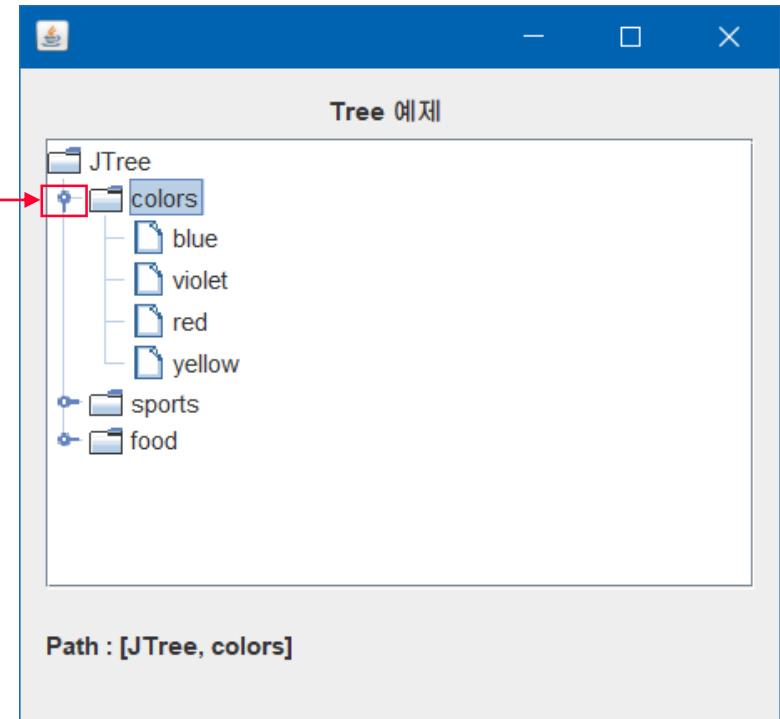
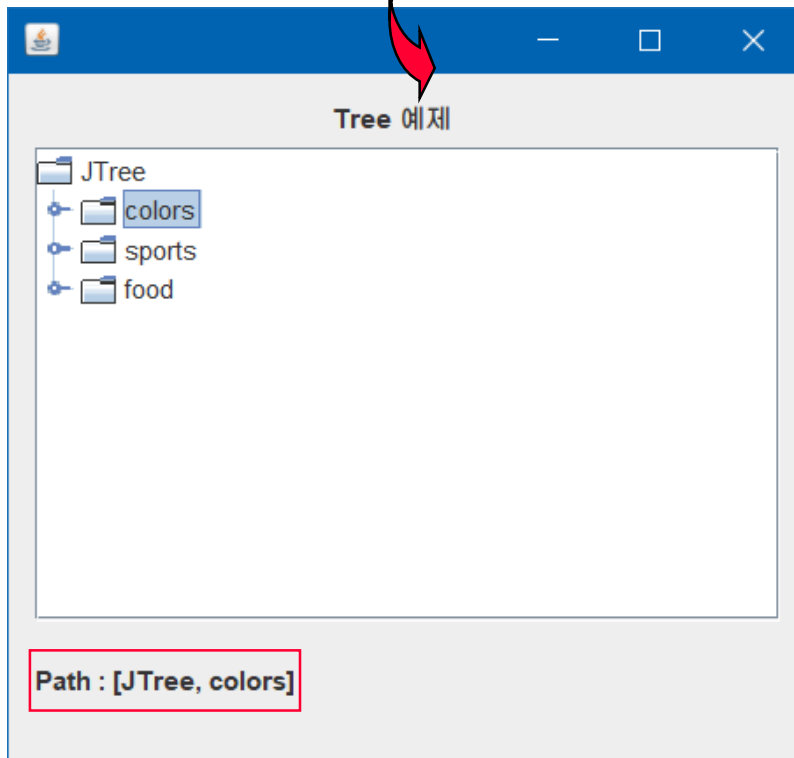




Practice 2 : Tree Control (15)

❖ Tree Collapsed

23. Click

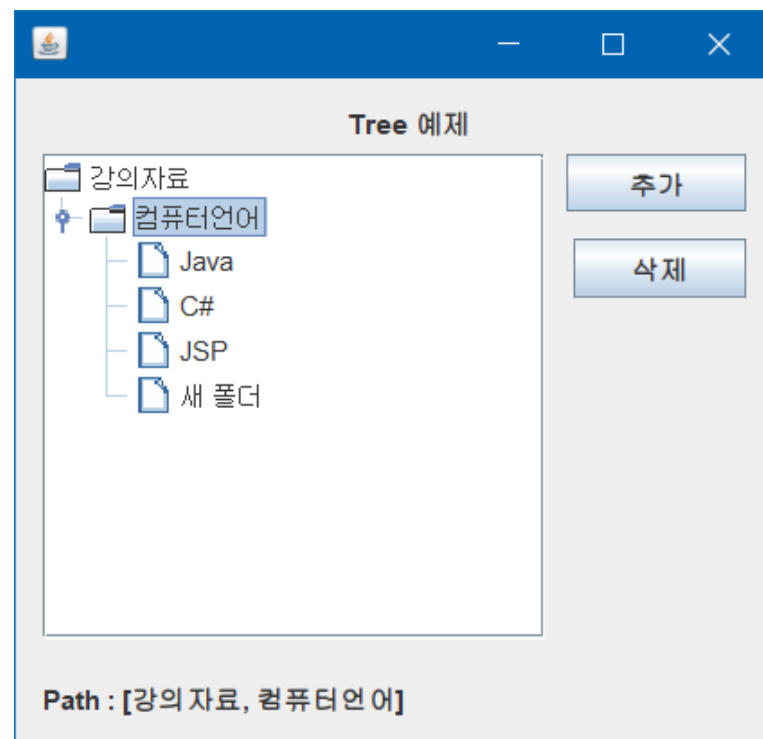
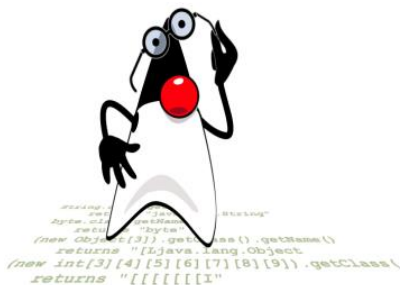




Practice 3 : Tree Control

❖ Project Name: TreeNode_Source(Time: 60 min)

- [추가] Button Click
 - 선택한 폴더의 Child Node로 “새 폴더” 추가
- [삭제] Button Click
 - 선택한 폴더 삭제





Practice 3 : Tree 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 'Choose Project' tab. The 'Java with Ant' category is selected in the 'Categories' list. A yellow callout '2. Click' points to the 'Java Application' project type in the 'Projects' list. The 'Description' section at the bottom explains that this creates a new Java SE application. A yellow callout '3. Click' points to the 'Next >' button at the bottom right of the dialog.

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 : Tree Control (2)

■ Project Name and Location

❖ Project name: `TreeNode_Source`

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

< Back Next > **Finish** Cancel Help

5. Reset check

4. Input Project Name

6. Click

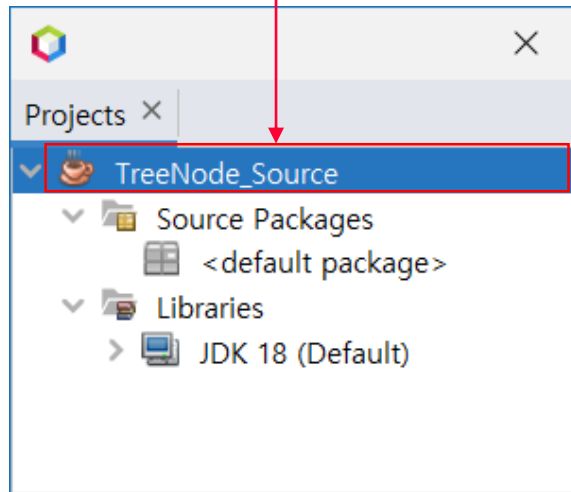




Practice 3 : Tree Control (3)

Create JFrame Form

7. Mouse right-button Click



New

Build
Clean and Build

8. Click

Run
Debug
Profile
Test
Set Configuration

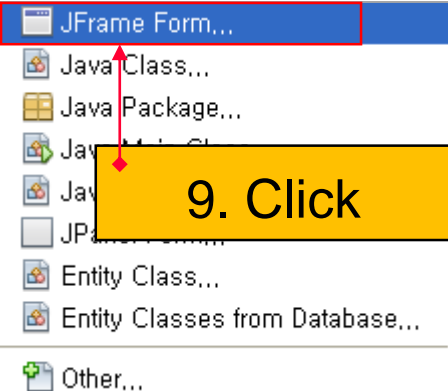
Set as Main Project
Open Required Projects
Close

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

Find...
Versioning
Local History

Properties

9. Click





Practice 3 : Tree 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: TreeNode_Source

Location: Source Packages

Package:

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

Superclass: Browse...

Interfaces: Browse...

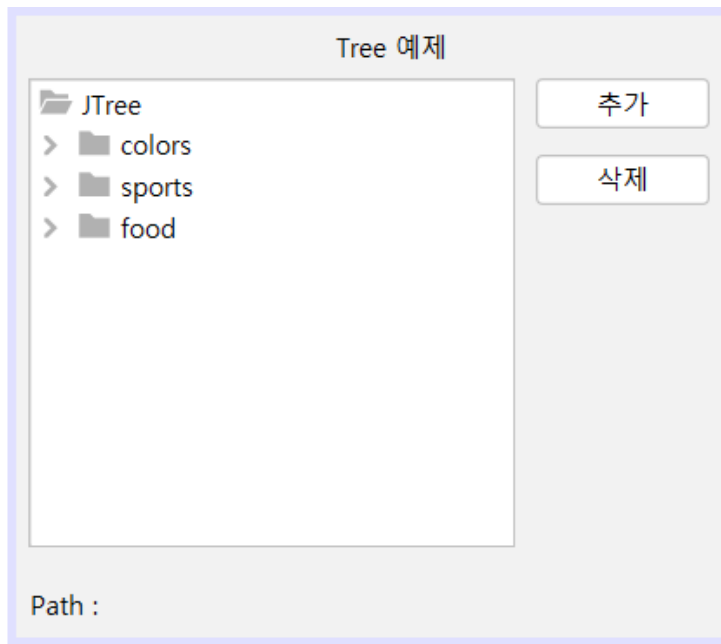
Warning: It is highly recommended that you do not place Java classes in the default package

< Back Next > Finish Cancel Help



Practice 3 : Tree Control (5)

Control Layout & Property Setting



12. UI Design

Control	Properties Setting
jLabel1	<ul style="list-style-type: none">Variable Name : lblTitleText : Tree 예제
jLabel2	<ul style="list-style-type: none">Variable Name : lblPathText : Path :
jTree1	<ul style="list-style-type: none">Variable Name : jTree1
jButton1	<ul style="list-style-type: none">Variable Name : btnInsertText : Path : 추가
jButton2	<ul style="list-style-type: none">Variable Name : btnDeleteText : Path : 삭제

Event	Properties Setting
treeExpanded	<ul style="list-style-type: none">tree 확장시 발생
treeCollapsed	<ul style="list-style-type: none">tree 축소시 발생
valueChanged	<ul style="list-style-type: none">Tree 값 변할때 발생





Practice 3 : Tree Control (6)

■ Setting jTree1 Control Event Handler

- ❖ jTree1TreeCollapsed()
- ❖ jTree1TreeExpanded()
- ❖ jTree1ValueChanged()

13. Setting Event handler

Properties	Events	Code
keyTyped	< none >	...
mouseClicked	< none >	...
mouseDragged	< none >	...
mouseEntered	< none >	...
mouseExited	< none >	...
mouseMoved	< none >	...
mousePressed	< none >	...
propertyChange	< none >	...
treeCollapsed	jTree1TreeCollapsed	...
treeExpanded	jTree1TreeExpanded	...
treeWillCollapse	< none >	...
treeWillExpand	< none >	...
valueChanged	jTree1ValueChanged	...
vetoableChange	< none >	...

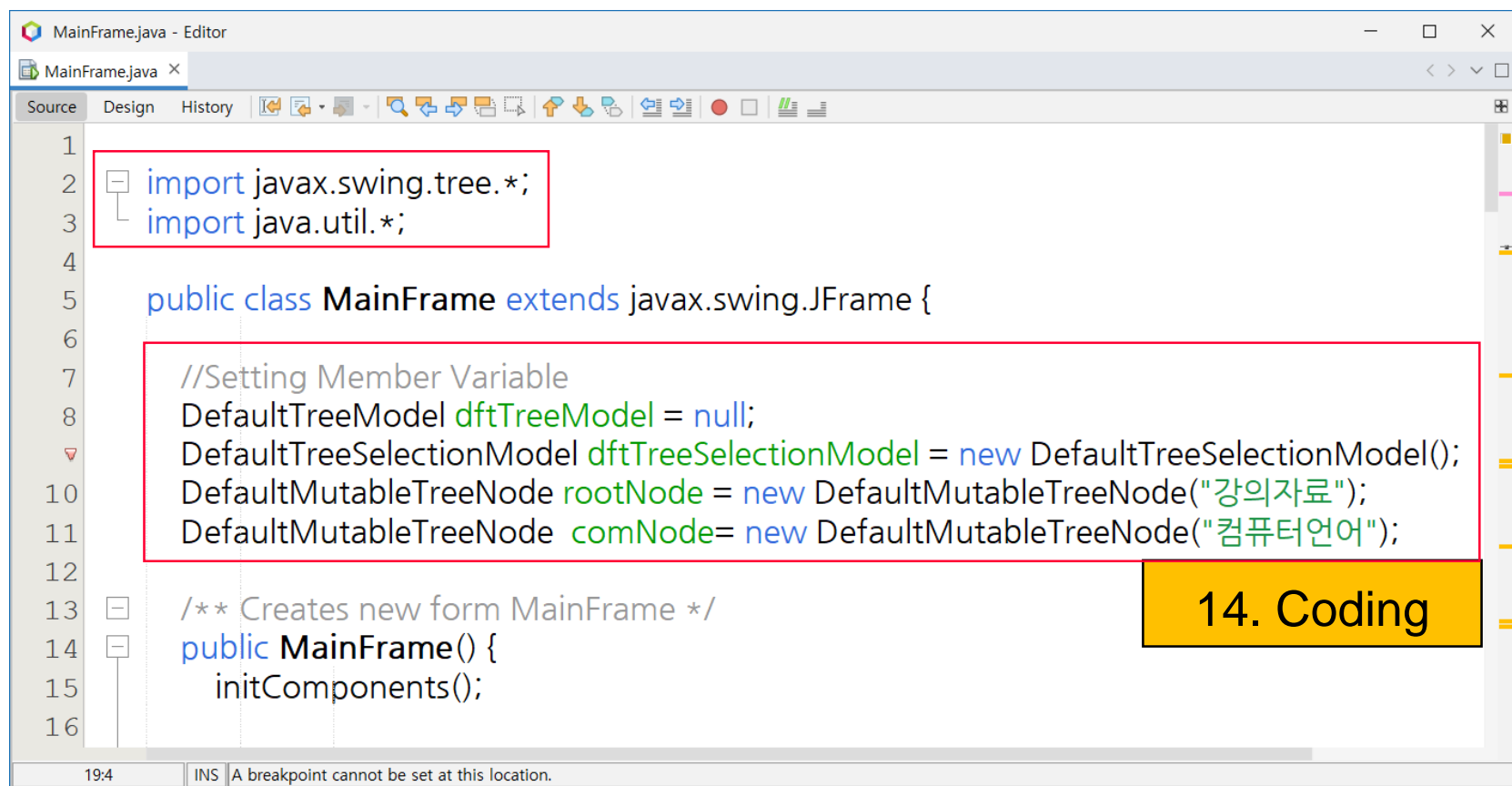
treeCollapsed
javax.swing.event.TreeExpansionListener





Practice 3 : Tree Control (7)

❖ Declaration Member Variable



```
1  import javax.swing.tree.*;  
2  import java.util.*;  
3  
4  
5  public class MainFrame extends javax.swing.JFrame {  
6  
7      //Setting Member Variable  
8      DefaultTreeModel dftTreeModel = null;  
9      DefaultTreeSelectionModel dftTreeSelectionModel = new DefaultTreeSelectionModel();  
10     DefaultMutableTreeNode rootNode = new DefaultMutableTreeNode("강의자료");  
11     DefaultMutableTreeNode comNode = new DefaultMutableTreeNode("컴퓨터언어");  
12  
13     /** Creates new form MainFrame */  
14     public MainFrame() {  
15         initComponents();  
16     }  
17 }
```

19:4 INS A breakpoint cannot be set at this location.

14. Coding





Practice 3 : Tree Control (8)

❖ Constructor

MainFrame.java - Editor

MainFrame.java x

Source Design History

13 /** Creates new form MainFrame */
14 public MainFrame() {
15 initComponents();
16
17 //Selection Mode = SINGLE_SELECTION_MODE Setting
18 dftTreeSelectionMode.setSelectionMode(1);
19 //Create 컴퓨터언어 node의 childNode
20 Vector<DefaultMutableTreeNode> myVC = new Vector<>();
21 String [] objFolder = {"Java", "C#", "JSP"};
22 for(int idx=0; idx < objFolder.length; idx++)
23 {
24 //Create node object to add Vector element
25 myVC.add(new DefaultMutableTreeNode(objFolder[idx]));
26 comNode.add(myVC.get(idx));
27 }
28
29 //Add comNode as child node of rootNode
30 rootNode.add(comNode);
31 //Setting rootNode as DefaultTreeModel
32 dftTreeModel = new DefaultTreeModel(rootNode);
33 //Setting dftTreeModel as TreeModel of jTree1
34 jTree1.setModel(dftTreeModel);
35 jTree1.setEditable(true);
36 jScrollPane1.getViewport().add(jTree1, null);
37 }

15. Coding

9:47 INS





Practice 3 : Tree Control (9)

❖ jTree1의 Event Handler

MainFrame.java - Editor

16. Coding

```
37 }  
130  
131 private void jTree1ValueChanged(javax.swing.event.TreeSelectionEvent evt) {  
132     DefaultMutableTreeNode node;  
133     node = (DefaultMutableTreeNode) jTree1.getLastSelectedPathComponent();  
134     if (node == null) return;  
135  
136     lblPath.setText("Path : " + node.getUserObject() + " 선택 !!! \n");  
137 }  
138  
139 private void jTree1TreeCollapsed(javax.swing.event.TreeExpansionEvent evt) {  
140     lblPath.setText("Path : " + evt.getPath() + "\n");  
141 }  
142  
143 private void jTree1TreeExpanded(javax.swing.event.TreeExpansionEvent evt) {  
144     lblPath.setText("Path : " + evt.getPath() + "\n");  
145 }  
146
```

14:24 INS





Practice 3 : Tree Control (10)

❖ Setting [추가] Button Event Handler

```
MainFrame.java - Editor
MainFrame.java x
Source Design History
private void jTree1ValueChanged(javax.swing.event.TreeSelectionEvent evt) {...7 lines}
138
139 private void jTree1TreeCollapsed(javax.swing.event.TreeExpansionEvent evt) {...3 lines}
142
143 private void jTree1TreeExpanded(javax.swing.event.TreeExpansionEvent evt) {...3 lines}
146
147 private void btnInsertActionPerformed(java.awt.event.ActionEvent evt) {
148     int index = 0; //Save the index of the "new folder" to be added
149
150     DefaultMutableTreeNode select_Node;
151     select_Node = (DefaultMutableTreeNode) jTree1.getLastSelectedPathComponent();
152
153     DefaultMutableTreeNode newFolder = new DefaultMutableTreeNode("새 폴더");
154     index = select_Node.getChildCount();
155     dftTreeModel.insertNodeInto(newFolder, select_Node, index);
156
157
158     jTree1.setModel(dftTreeModel);
159     jTree1.setSelectionModel(dftTreeSelectionModel);
160     jScrollPane1.getViewport().add(jTree1, null);
161 }
```

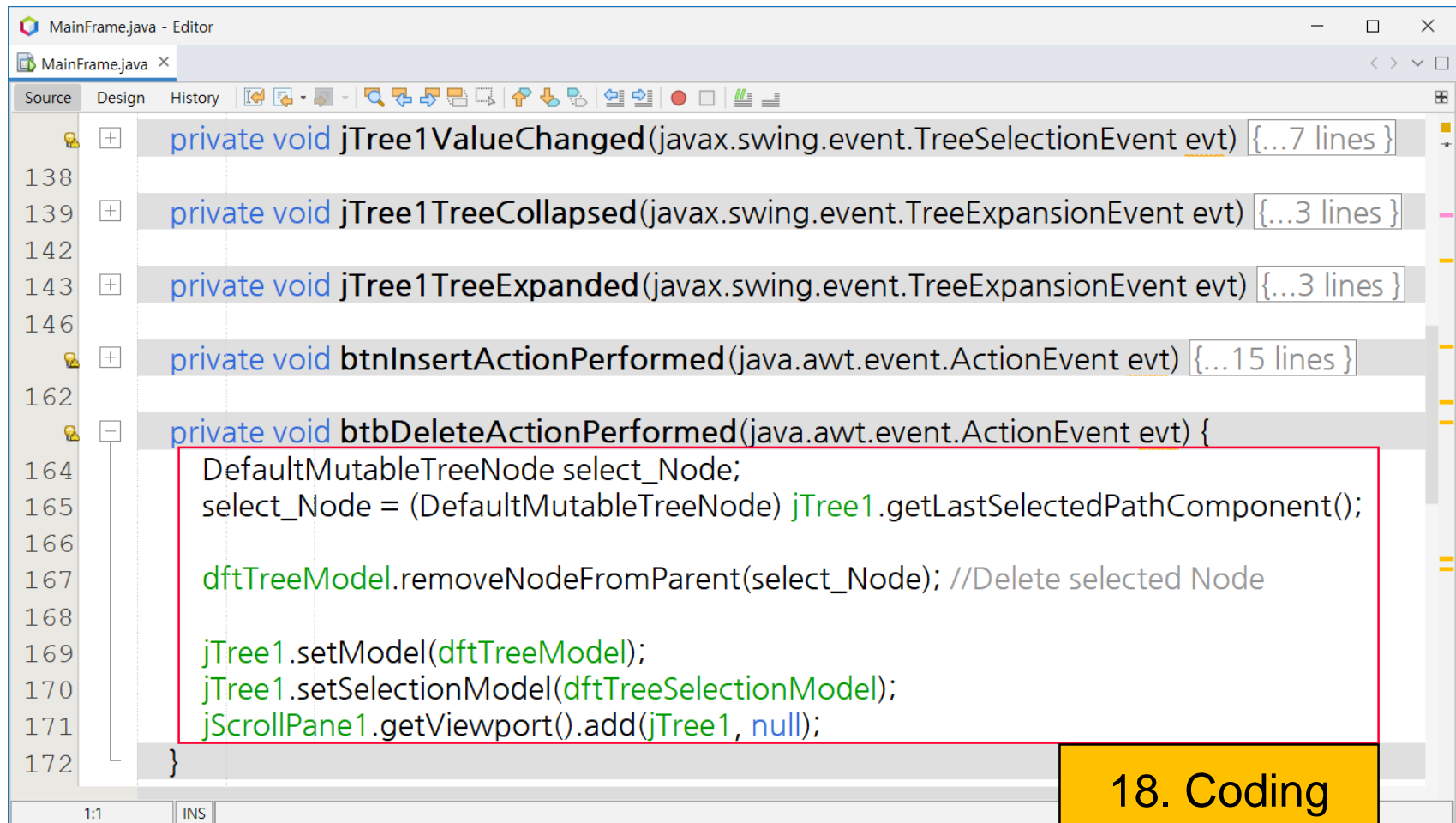
17. Coding





Practice 3 : Tree Control (11)

❖ Setting [삭제] Button Event Handler



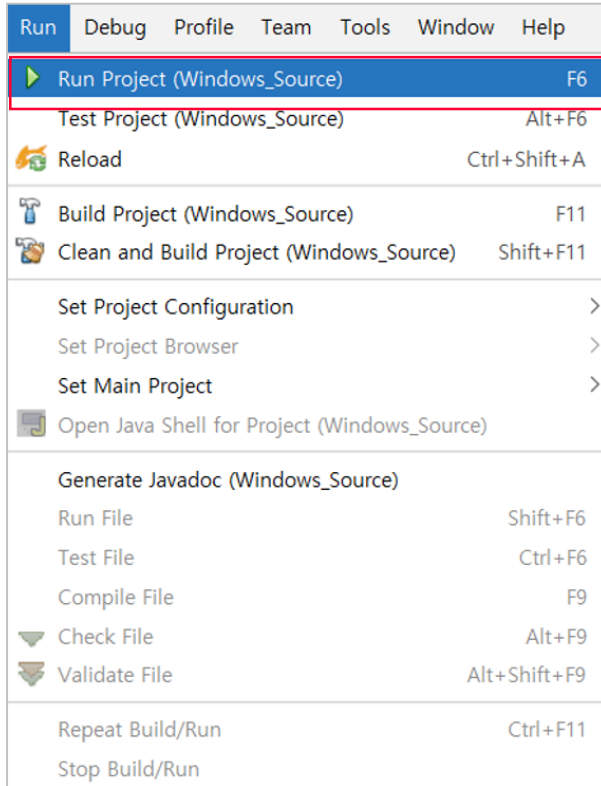
```
MainFrame.java - Editor
MainFrame.java x
Source Design History
private void jTree1ValueChanged(javax.swing.event.TreeSelectionEvent evt) {...7 lines}
138
139 private void jTree1TreeCollapsed(javax.swing.event.TreeExpansionEvent evt) {...3 lines}
142
143 private void jTree1TreeExpanded(javax.swing.event.TreeExpansionEvent evt) {...3 lines}
146
147 private void btnInsertActionPerformed(java.awt.event.ActionEvent evt) {...15 lines}
162
163 private void btbDeleteActionPerformed(java.awt.event.ActionEvent evt) {
164     DefaultMutableTreeNode select_Node;
165     select_Node = (DefaultMutableTreeNode) jTree1.getLastSelectedPathComponent();
166
167     dftTreeModel.removeNodeFromParent(select_Node); //Delete selected Node
168
169     jTree1.setModel(dftTreeModel);
170     jTree1.setSelectionModel(dftTreeSelectionModel);
171     jScrollPane1.getViewport().add(jTree1, null);
172 }
```

18. Coding

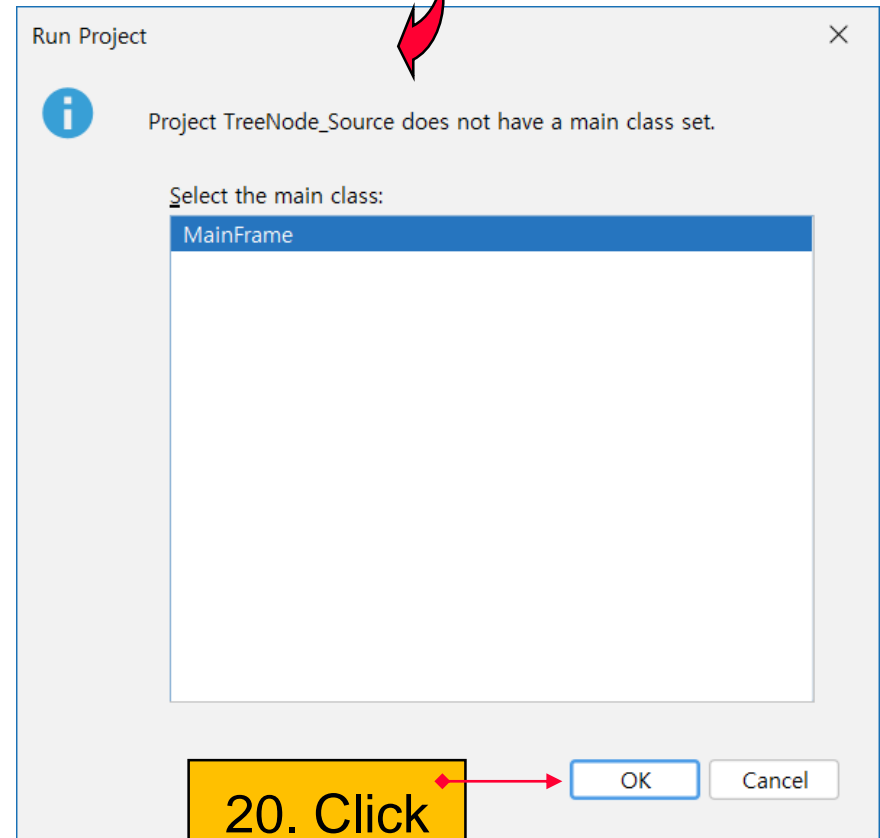


Practice 3 : Tree Control (12)

Run



19. Click



20. Click

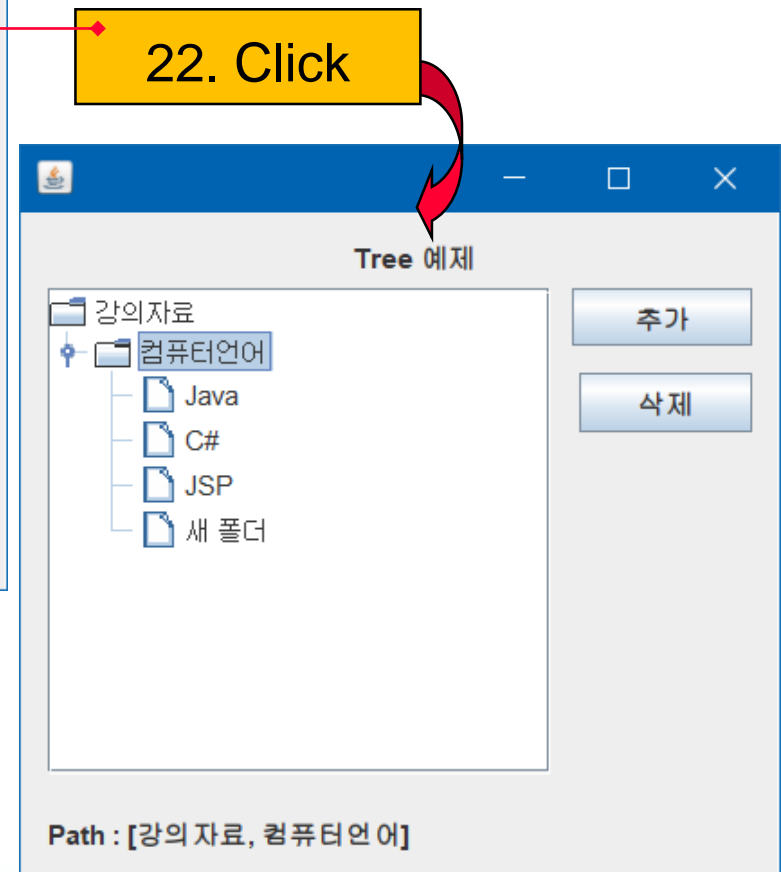
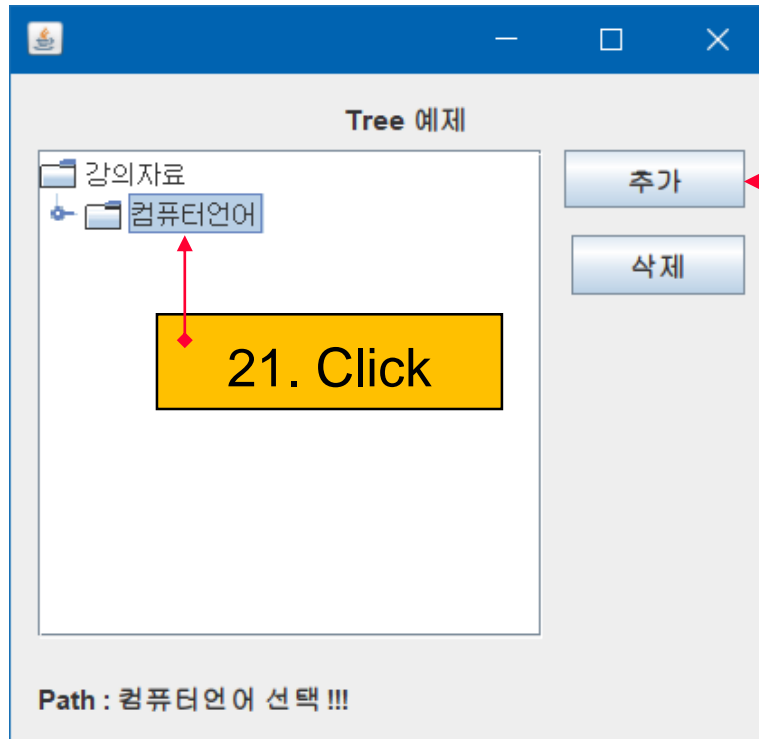




Practice 3 : Tree Control (13)

❖ [추가] Button

◆ 새 폴더 추가



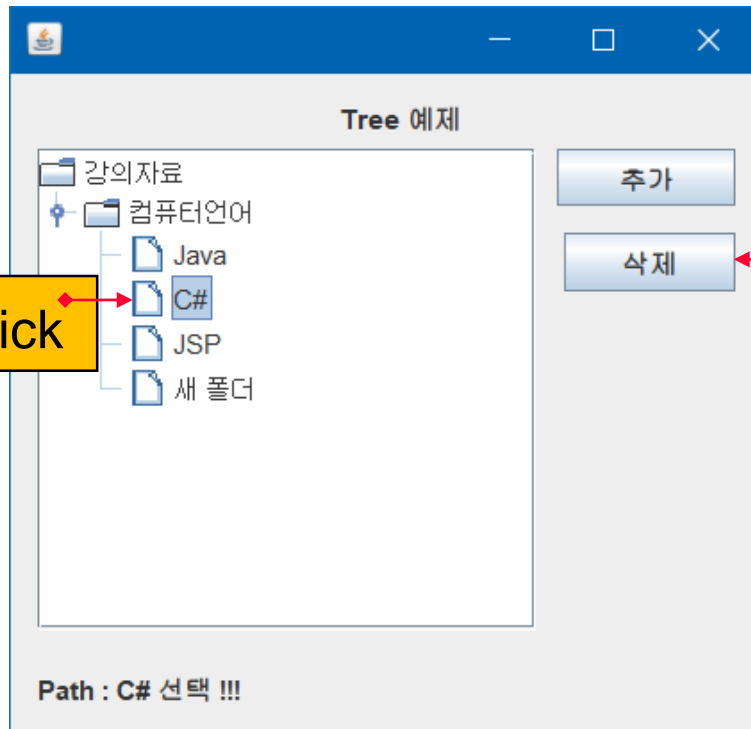


Practice 3 : Tree Control (14)

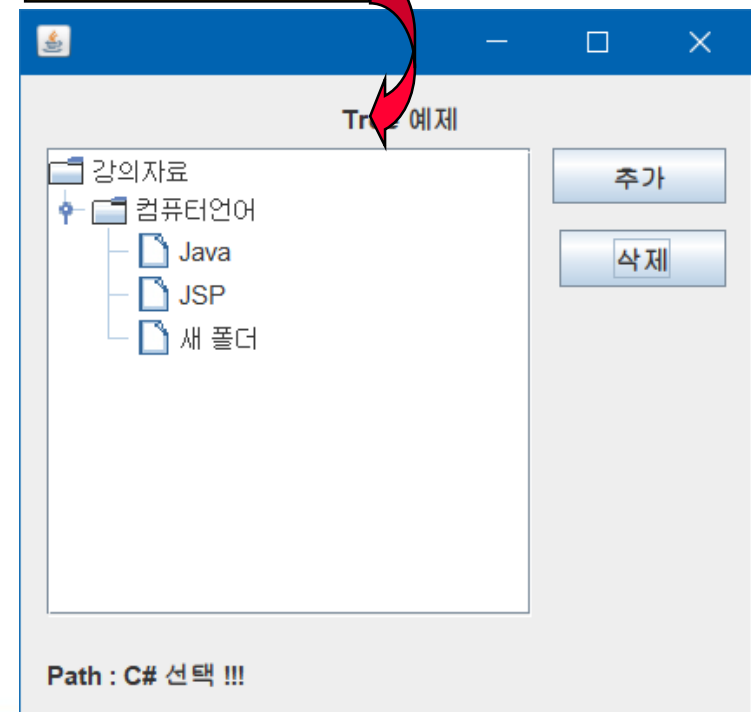
❖ [삭제] Button

◆ 선택 폴더 삭제

23. Click



24. Click





학습 요약

❖ Table Control

❖ Tree Control

