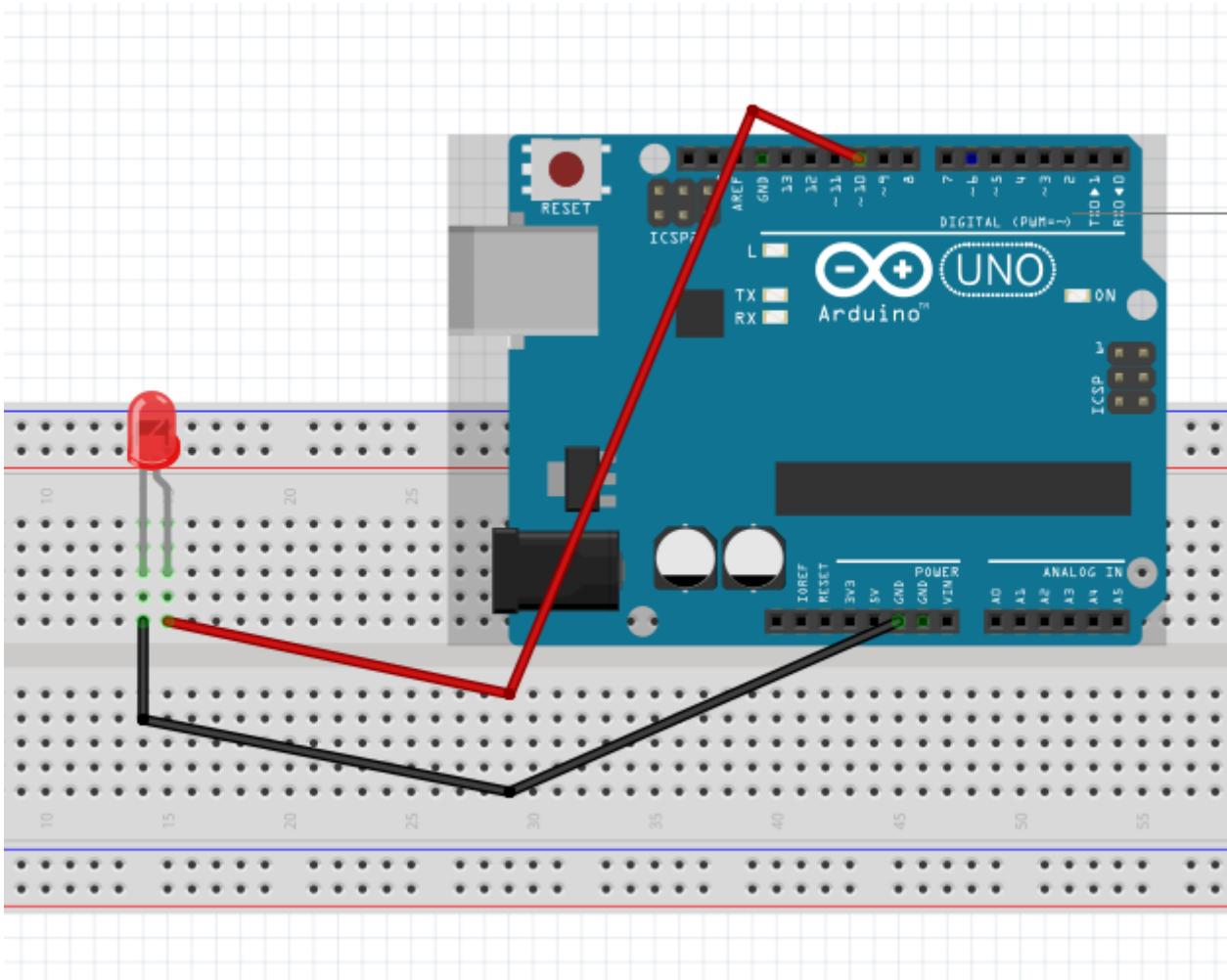
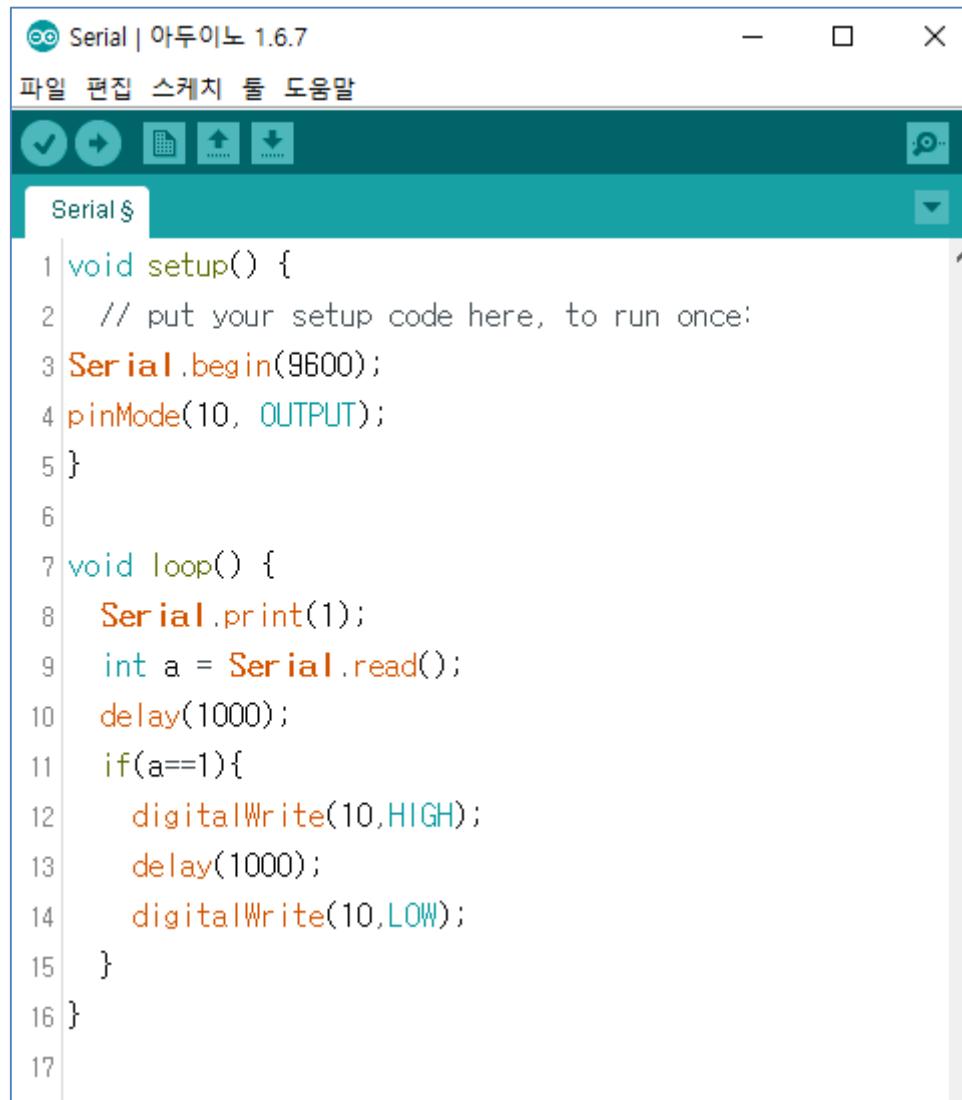


아두이노와 웹서버 연동

아두이노 세팅



아두이노 코딩



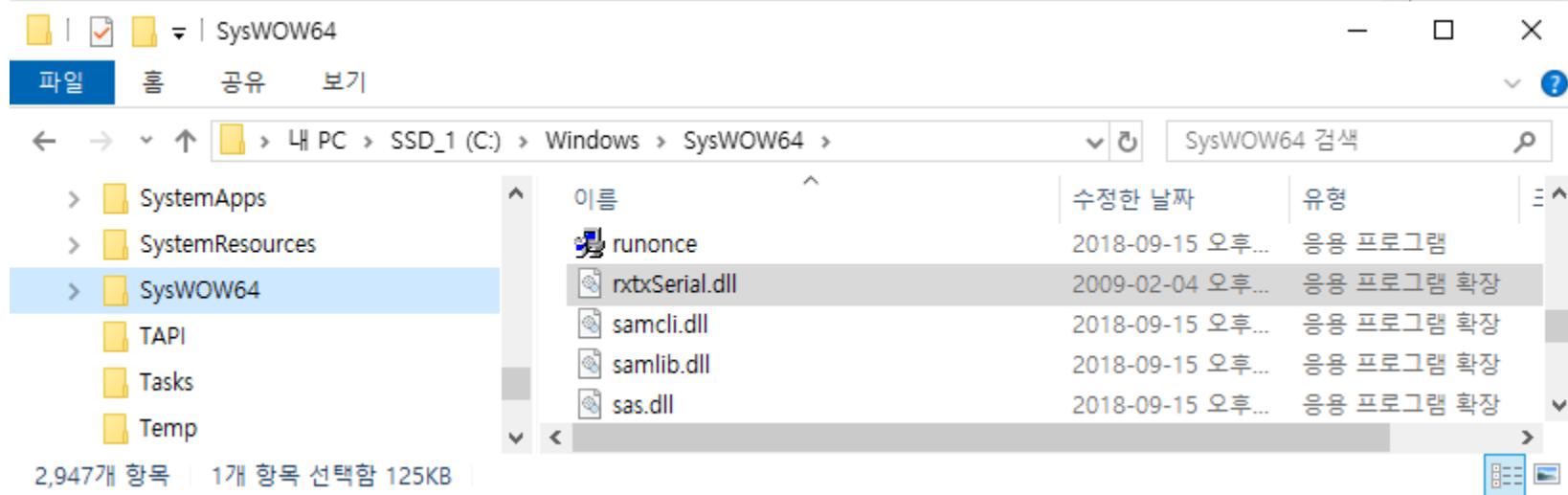
Serial | 아두이노 1.6.7

파일 편집 스케치 툴 도움말

```
Serial §
```

```
1 void setup() {  
2     // put your setup code here, to run once:  
3     Serial.begin(9600);  
4     pinMode(10, OUTPUT);  
5 }  
6  
7 void loop() {  
8     Serial.print(1);  
9     int a = Serial.read();  
10    delay(1000);  
11    if(a==1){  
12        digitalWrite(10,HIGH);  
13        delay(1000);  
14        digitalWrite(10,LOW);  
15    }  
16 }  
17
```

rxtxSerial.dll 추가



경로 →

C:\Windows\SysWOW64\rxtxSerial.dll

윈도우 10 64bit 경로

PC - 이클립스

프로젝트생성
(JAVA Project)

Main.java coding

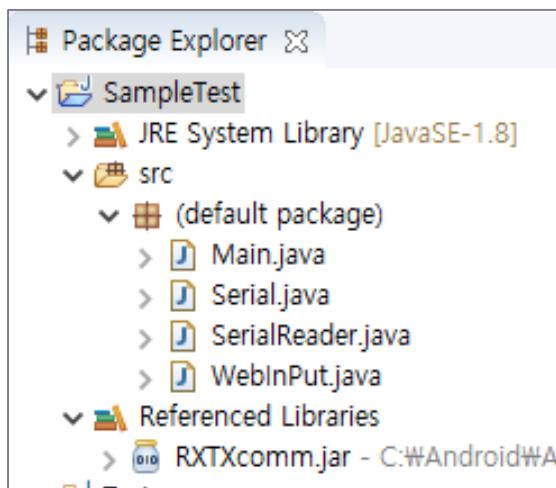
server.jsp coding

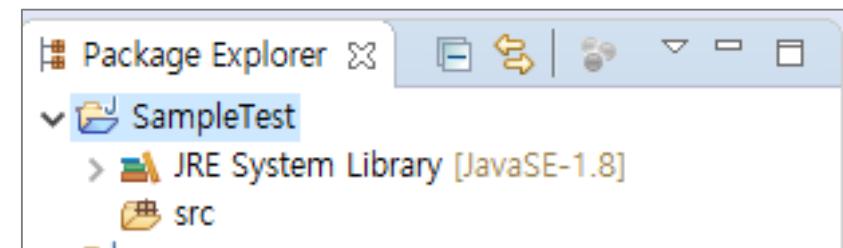
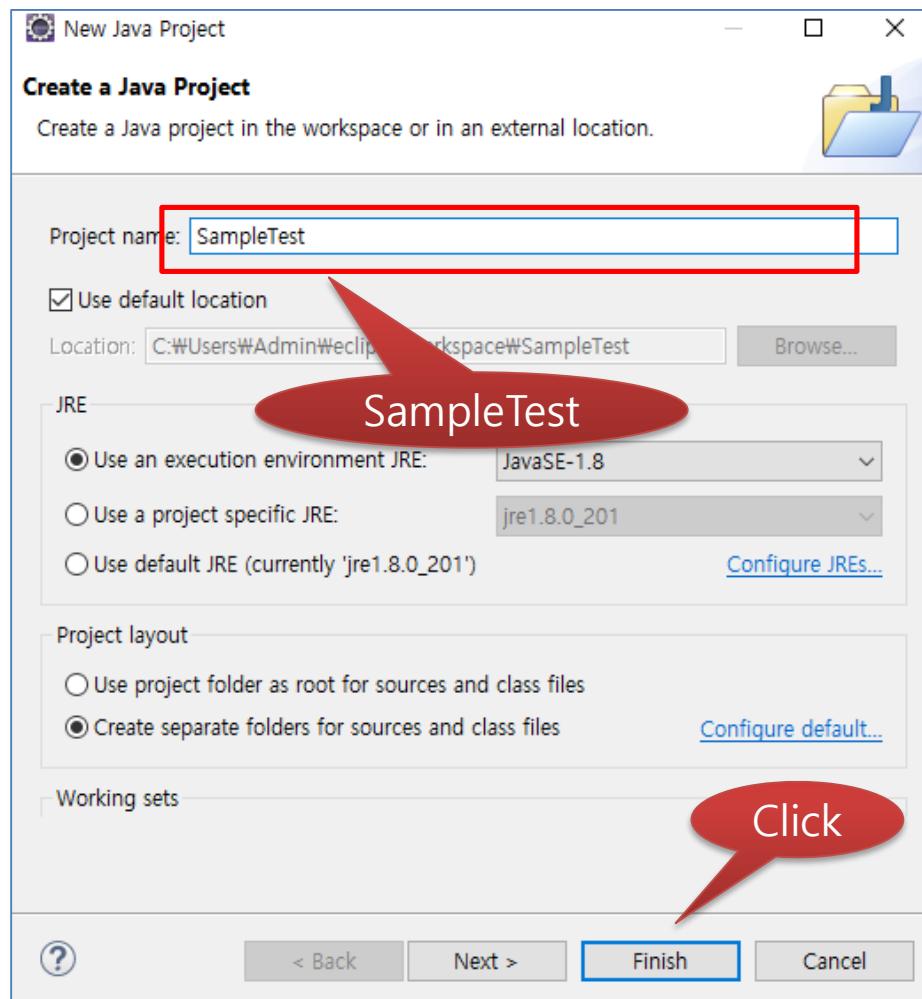
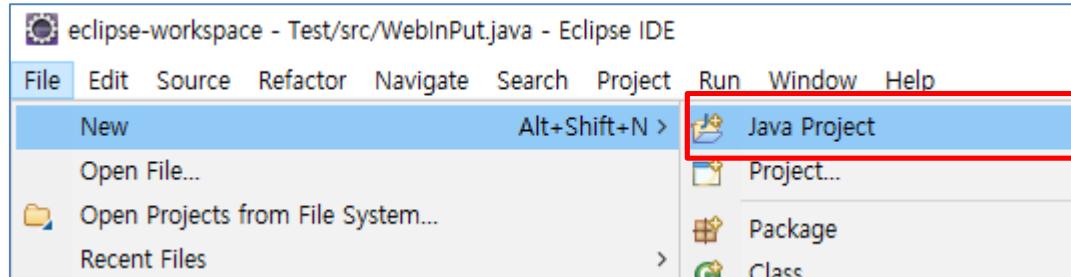
Serial.java coding

SerialReader.java
coding

WebInPut.java
coding

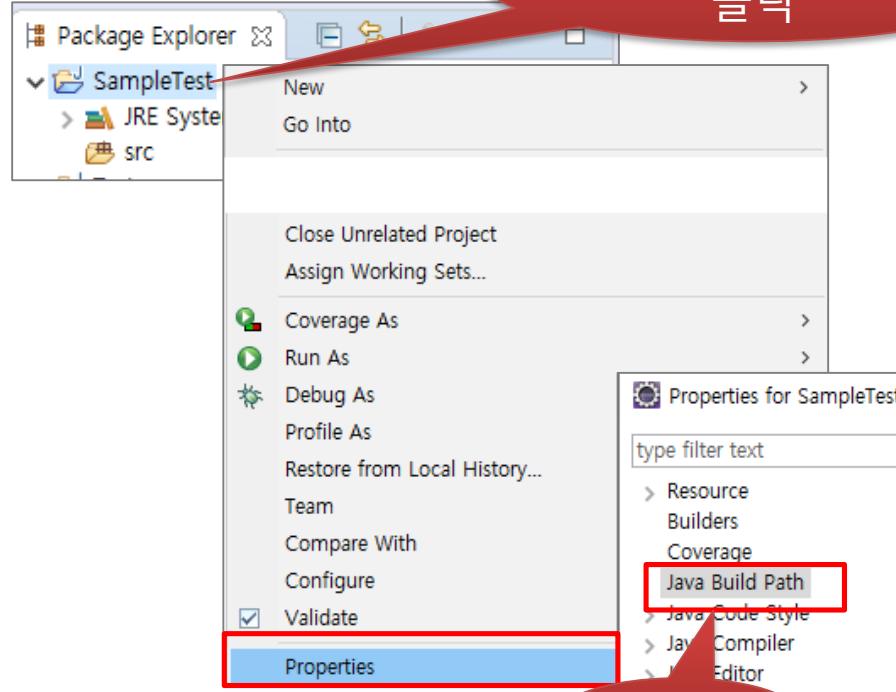
168.126.146.39 서버
학번/server.jsp
에 저장





Click

1. 오른쪽 마우스
클릭



3.Click

Properties for SampleTest

- Resource
- Builders
- Coverage
- Java Build Path**
- Java Code Style
- Java Compiler
- Editor

Project Natures

Project References

Run/Debug Settings

Server

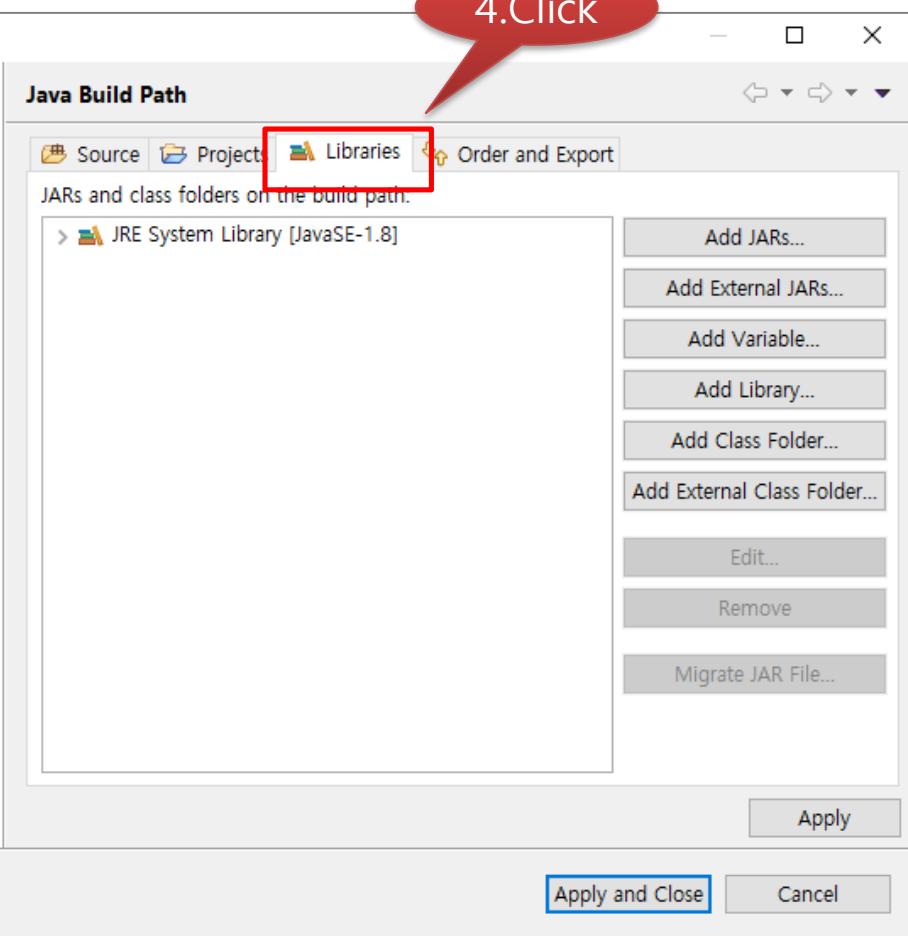
Task Repository

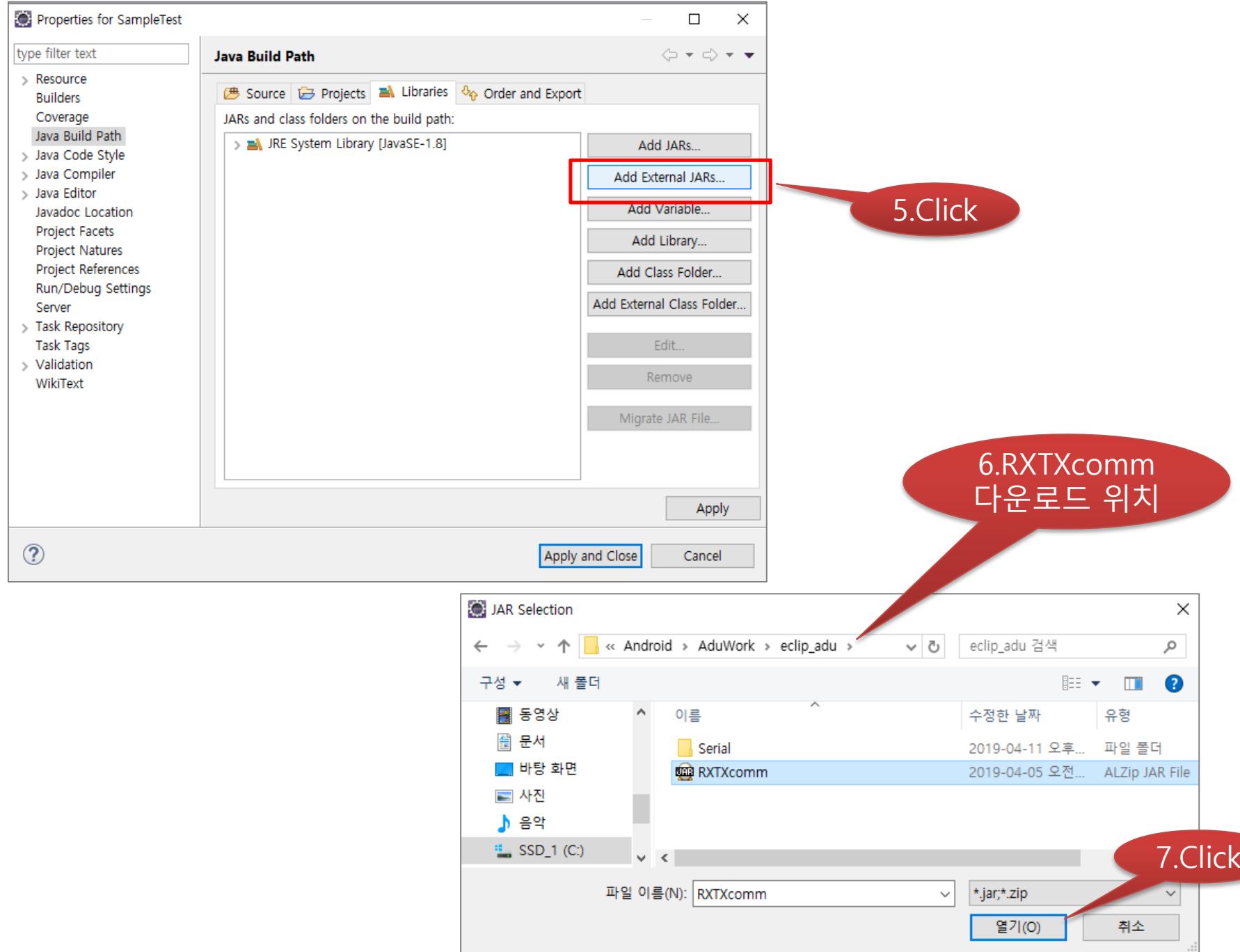
Task Tags

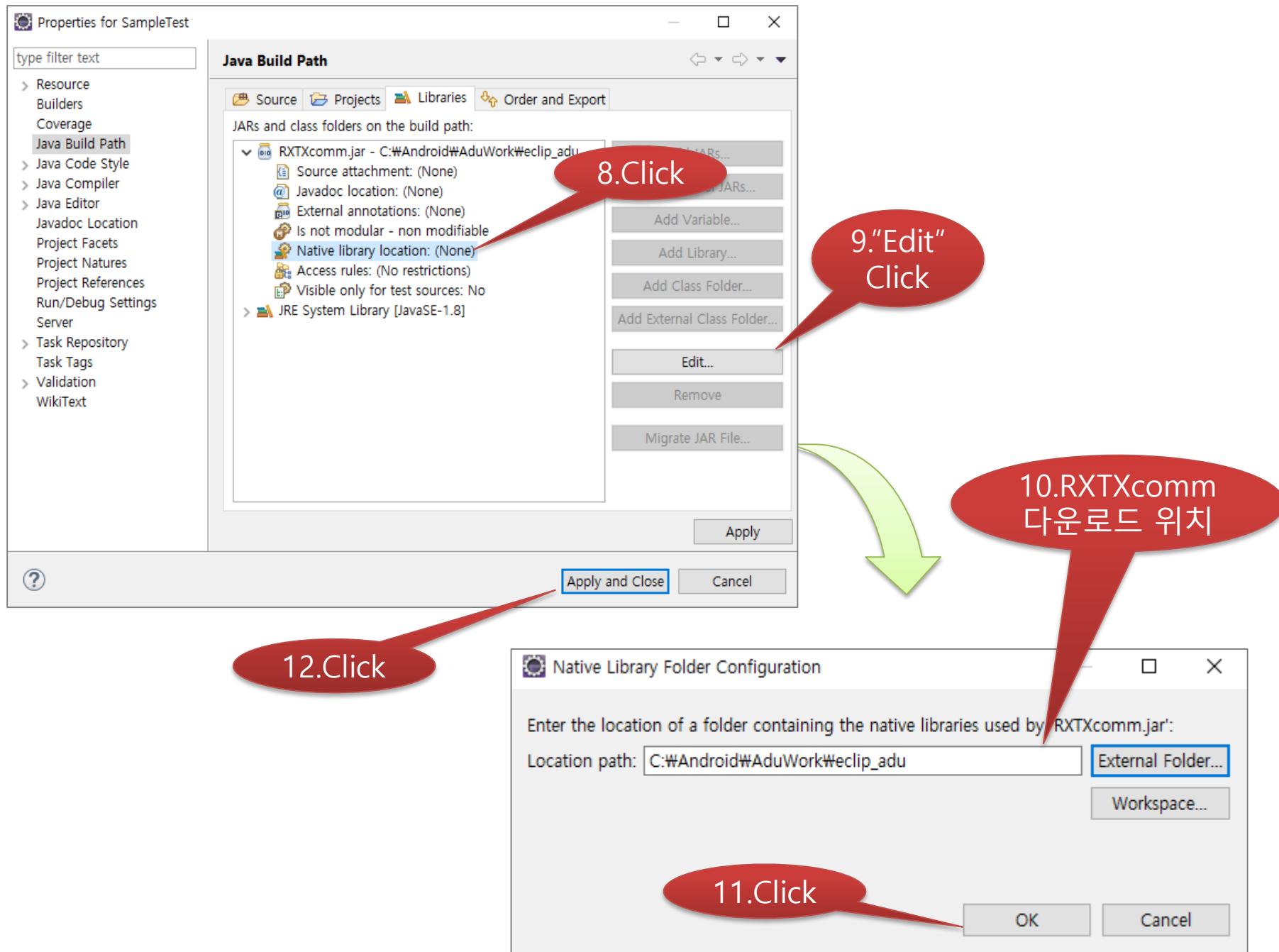
Validation

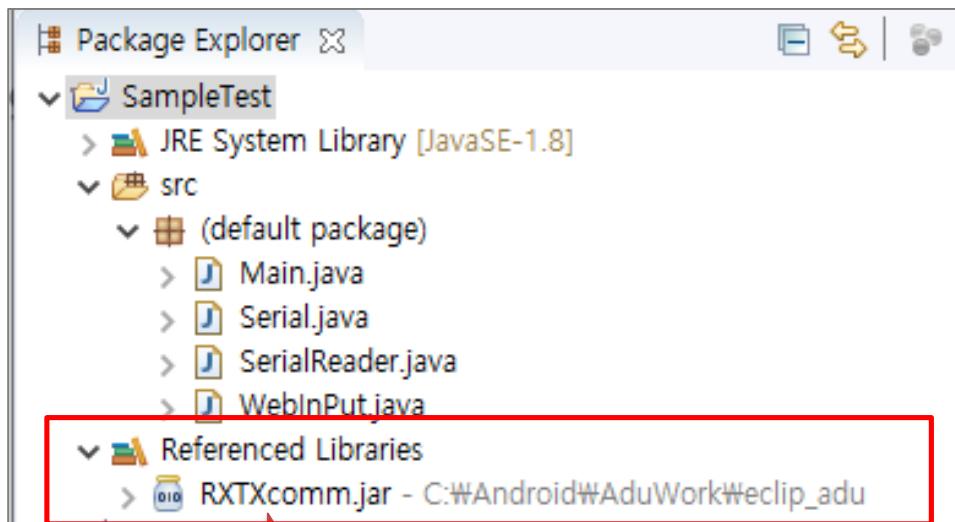
WikiText

4.Click

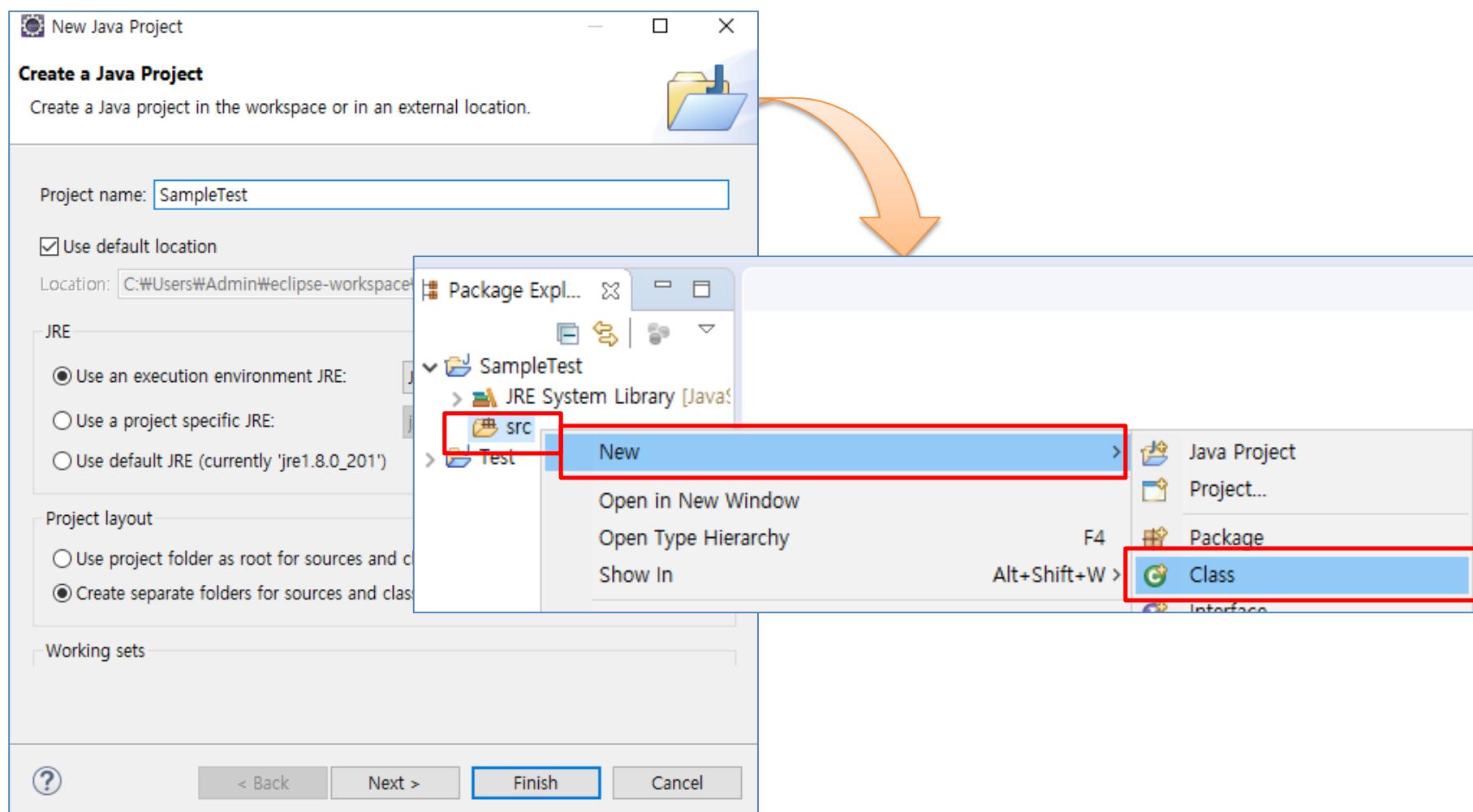
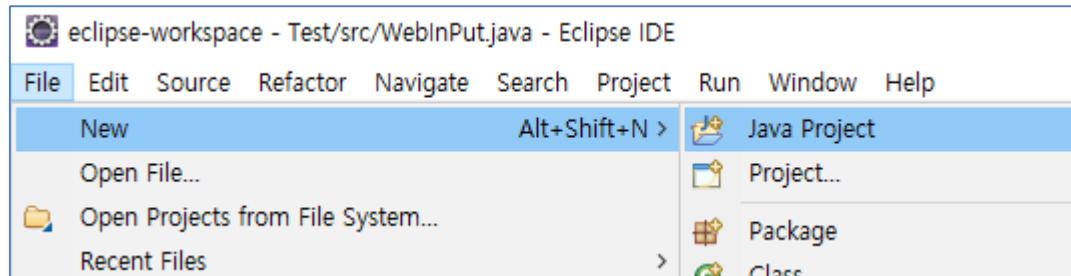


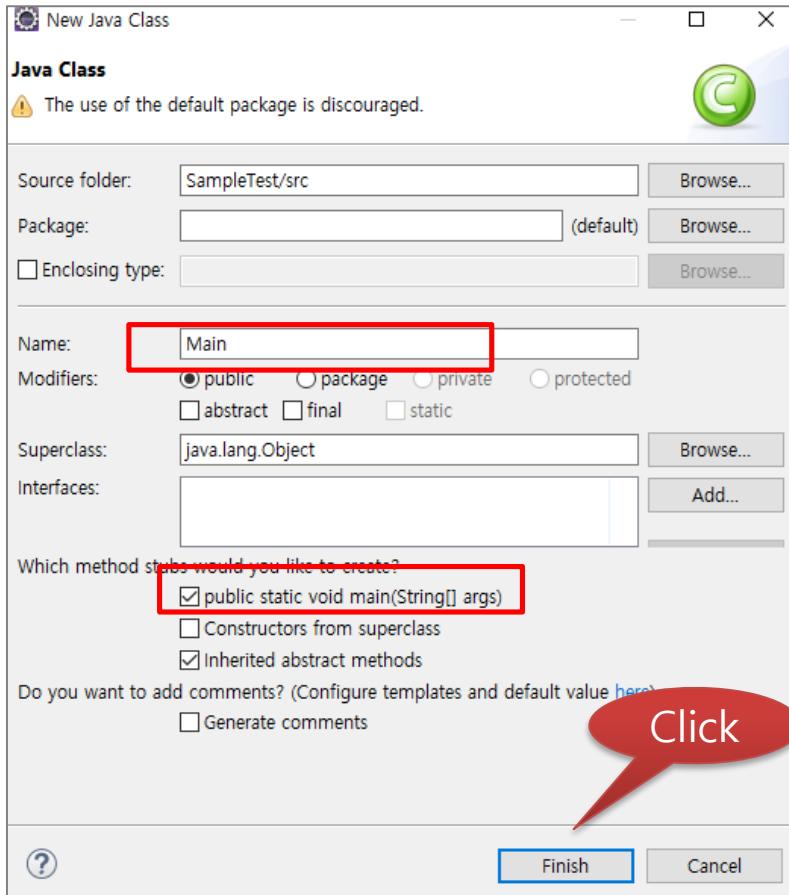






13.추가 확인





Main.java

```
1
2 public class Main {
3
4     public static void main(String[] args) {
5
6         try {
7             (new Serial()).connect("COM4");
8         } catch (Exception e) {
9             e.printStackTrace();
10        }
11    }
12 }
13 }
```

Serial port

Serial.java

Serial.java

```
1 import java.io.InputStream;
2 import java.io.OutputStream;
3 import java.net.URL;
4
5 import gnu.io.CommPort;
6 import gnu.io.CommPortIdentifier;
7 import gnu.io.SerialPort;
8
9 public class Serial {
10     WebInPut client = null;
11     public Serial() {
12         super();
13     }
14
15     void connect(String portName) throws Exception {
16         CommPortIdentifier portIdentifier = CommPortIdentifier.getPortIdentifier(portName);
17         if (portIdentifier.isCurrentlyOwned()) {
18             System.out.println("Error: Port is currently in use");
19         } else {
20             CommPort commPort = portIdentifier.open(this.getClass().getName(), 2000);
21
22             if (commPort instanceof SerialPort) {
23                 SerialPort serialPort = (SerialPort) commPort;
24                 serialPort.setSerialPortParams(9600, SerialPort.DATABITS_8, SerialPort.STOPBITS_1,
25                                             SerialPort.PARITY_NONE);
26         }
27     }
28 }
```

Serial.java

```
26
27     InputStream in = serialPort.getInputStream();
28     OutputStream out = serialPort.getOutputStream();
29
30     client = new WebInPut();
31     URL url = new URL("http://168.126.146.39:8080/egu/server.jsp");
32     client.init(url, out);
33
34     (new Thread(new SerialReader(in, client))).start();
35
36 } else {
37     System.out.println("Error: Only serial ports are handled by this example.");
38 }
39 }
40 }
41 }
42 }
```

Web Server Address

SerialReader.java

```
10 import java.io.IOException;
2 import java.io.InputStream;
3
4 public class SerialReader implements Runnable {
5     InputStream in;
6     public static String Data = "";
7     WebInPut client = null;
8     public SerialReader(InputStream in, WebInPut _client) {
9         this.in = in;
10        this.client = _client;
11    }
120    public void run() {
13        byte[] buffer = new byte[1024];
14        int len = -1;
15    }
}
```

SerialReader.java

```
15
16     try {
17
18         while ((len = this.in.read(buffer)) > -1) {
19             System.out.print(new String(buffer, 0, len));
20             String iaa = new String(buffer, 0, len);
21             if(iaa.equals("1")) {
22                 System.out.print("1--");
23                 Data = iaa;
24                 System.out.println(Data);
25                 client.sendData( Data);
26             }
27         }
28     } catch (IOException e) {
29         e.printStackTrace();
30     }
31 }
32 }
```

Arduino Read
data

Arduino Read
Data를 Web
Server로 전송

```
1① import java.io.BufferedReader;
2 import java.io.IOException;
3 import java.io.InputStreamReader;
4 import java.io.OutputStream;
5 import java.io.OutputStreamWriter;
6 import java.net.MalformedURLException;
7 import java.net.URL;
8 import java.netURLConnection;
9 import java.net.URLEncoder;
10
11
12 public class WebInPut{
13
14     public int inData = 0;
15     public int outData = 0;
16     public URL url;
17     public boolean isInit = false;
18     public OutputStream out = null;
19
20②     public void init(URL _url, OutputStream _out){
21         this.isInit = true;
22         this.url = _url;
23         this.out = _out;
24     }
```

```
25  public void sendData( String reqData) throws MalformedURLException {  
26  
27  
28      try {  
29          if(!isInit)  
30          {  
31              return;  
32          }  
33  
34          URLConnection urlConn = null;  
35          OutputStreamWriter osw = null;  
36          BufferedReader br = null;  
37          String resData = null;  
38  
39          urlConn = url.openConnection();  
40          urlConn.setDoOutput(true);  
41  
42          osw = new OutputStreamWriter(urlConn.getOutputStream());  
43          System.out.println("indata-"+reqData);  
44          reqData = URLEncoder.encode("msg","UTF-8") + "="  
45                  + URLEncoder.encode(reqData,"UTF-8");  
46          osw.write(reqData);  
47          osw.flush();  
48          String result = "";  
49          br = new BufferedReader(new InputStreamReader(urlConn.getInputStream()));  
50          while((resData = br.readLine()) != null) {  
51              result += resData;  
52          }  
53      }  
54  }  
55  
56  public void close() {  
57      if(urlConn != null)  
58      {  
59          urlConn.disconnect();  
60      }  
61  }  
62  
63  public String getResult() {  
64      return result;  
65  }  
66  
67  public void setInit(boolean isInit) {  
68      this.isInit = isInit;  
69  }  
70  
71  public boolean isInit() {  
72      return isInit;  
73  }  
74  
75  public void setUrl(URL url) {  
76      this.url = url;  
77  }  
78  
79  public URL getUrl() {  
80      return url;  
81  }  
82  
83  public void setReqData(String reqData) {  
84      this.reqData = reqData;  
85  }  
86  
87  public String getReqData() {  
88      return reqData;  
89  }  
90  
91  public void setResData(String resData) {  
92      this.resData = resData;  
93  }  
94  
95  public String getResData() {  
96      return resData;  
97  }  
98  
99  public void setResData(String resData) {  
100     this.resData = resData;  
101 }  
102  
103  public String getResult() {  
104      return result;  
105  }  
106  
107  public void setUrl(URL url) {  
108      this.url = url;  
109  }  
110  
111  public URL getUrl() {  
112      return url;  
113  }  
114  
115  public void setReqData(String reqData) {  
116      this.reqData = reqData;  
117  }  
118  
119  public String getReqData() {  
120      return reqData;  
121  }  
122  
123  public void setResData(String resData) {  
124      this.resData = resData;  
125  }  
126  
127  public String getResData() {  
128      return resData;  
129  }  
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131  public void setInit(boolean isInit) {  
132      this.isInit = isInit;  
133  }  
134  
135  public boolean isInit() {  
136      return isInit;  
137  }  
138  
139  public void close() {  
140      if(urlConn != null)  
141      {  
142          urlConn.disconnect();  
143      }  
144  }  
145  
146  public void setUrl(URL url) {  
147      this.url = url;  
148  }  
149  
150  public URL getUrl() {  
151      return url;  
152  }  
153  
154  public void setReqData(String reqData) {  
155      this.reqData = reqData;  
156  }  
157  
158  public String getReqData() {  
159      return reqData;  
160  }  
161  
162  public void setResData(String resData) {  
163      this.resData = resData;  
164  }  
165  
166  public String getResData() {  
167      return resData;  
168  }  
169  
170  public void setInit(boolean isInit) {  
171      this.isInit = isInit;  
172  }  
173  
174  public boolean isInit() {  
175      return isInit;  
176  }  
177  
178  public void close() {  
179      if(urlConn != null)  
180      {  
181          urlConn.disconnect();  
182      }  
183  }  
184  
185  public void setUrl(URL url) {  
186      this.url = url;  
187  }  
188  
189  public URL getUrl() {  
190      return url;  
191  }  
192  
193  public void setReqData(String reqData) {  
194      this.reqData = reqData;  
195  }  
196  
197  public String getReqData() {  
198      return reqData;  
199  }  
200  
201  public void setResData(String resData) {  
202      this.resData = resData;  
203  }  
204  
205  public String getResData() {  
206      return resData;  
207  }  
208  
209  public void setInit(boolean isInit) {  
210      this.isInit = isInit;  
211  }  
212  
213  public boolean isInit() {  
214      return isInit;  
215  }  
216  
217  public void close() {  
218      if(urlConn != null)  
219      {  
220          urlConn.disconnect();  
221      }  
222  }  
223  
224  public void setUrl(URL url) {  
225      this.url = url;  
226  }  
227  
228  public URL getUrl() {  
229      return url;  
230  }  
231  
232  public void setReqData(String reqData) {  
233      this.reqData = reqData;  
234  }  
235  
236  public String getReqData() {  
237      return reqData;  
238  }  
239  
240  public void setResData(String resData) {  
241      this.resData = resData;  
242  }  
243  
244  public String getResData() {  
245      return resData;  
246  }  
247  
248  public void setInit(boolean isInit) {  
249      this.isInit = isInit;  
250  }  
251  
252  public boolean isInit() {  
253      return isInit;  
254  }  
255  
256  public void close() {  
257      if(urlConn != null)  
258      {  
259          urlConn.disconnect();  
260      }  
261  }  
262  
263  public void setUrl(URL url) {  
264      this.url = url;  
265  }  
266  
267  public URL getUrl() {  
268      return url;  
269  }  
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271  public void setReqData(String reqData) {  
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273  }  
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277  }  
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281  }  
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289  }  
290  
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292      return isInit;  
293  }  
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295  public void close() {  
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297      {  
298          urlConn.disconnect();  
299      }  
300  }  
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302  public void setUrl(URL url) {  
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308  }  
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329  
330  public boolean isInit() {  
331      return isInit;  
332  }  
333  
334  public void close() {  
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336      {  
337          urlConn.disconnect();  
338      }  
339  }  
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341  public void setUrl(URL url) {  
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527  }  
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532          urlConn.disconnect();  
533      }  
534  }  
535  
536  public void setUrl(URL url) {  
537      this.url = url;  
538  }  
539  
540  public URL getUrl() {  
541      return url;  
542  }  
543  
544  public void setReqData(String reqData) {  
545      this.reqData = reqData;  
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563  
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565      return isInit;  
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567  
568  public void close() {  
569      if(urlConn != null)  
570      {  
571          urlConn.disconnect();  
572      }  
573  }  
574  
575  public void setUrl(URL url) {  
576      this.url = url;  
577  }  
578  
579  public URL getUrl() {  
580      return url;  
581  }  
582  
583  public void setReqData(String reqData) {  
584      this.reqData = reqData;  
585  }  
586  
587  public String getReqData() {  
588      return reqData;  
589  }  
590  
591  public void setResData(String resData) {  
592      this.resData = resData;  
593  }  
594  
595  public String getResData() {  
596      return resData;  
597  }  
598  
599  public void setInit(boolean isInit) {  
600      this.isInit = isInit;  
601  }  
602  
603  public boolean isInit() {  
604      return isInit;  
605  }  
606  
607  public void close() {  
608      if(urlConn != null)  
609      {  
610          urlConn.disconnect();  
611      }  
612  }  
613  
614  public void setUrl(URL url) {  
615      this.url = url;  
616  }  
617  
618  public URL getUrl() {  
619      return url;  
620  }  
621  
622  public void setReqData(String reqData) {  
623      this.reqData = reqData;  
624  }  
625  
626  public String getReqData() {  
627      return reqData;  
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```

WebInPut.java

```
52 }  
53  
54     System.out.println("web_output:"+result);  
55  
56     osw.close();  
57     br.close();  
58  
59     out.write(Integer.parseInt(result));  
60  
61 }  
62 catch (IOException e) {  
63     e.printStackTrace();  
64 }  
65 }  
66  
67 }  
68 }
```

Web Server
data를 Arduino
로 보내기

server.jsp

```
<%@ page language="java" contentType="text/html; charset=EUC-KR"  
    pageEncoding="EUC-KR"%>  
<% String recvMessage = request.getParameter("msg");  
    out.println(recvMessage);  
%>
```

Web Server
jsp 파일

실행

```
Problems @ Javadoc Declaration Console X
Main (1) [Java Application] C:\Program Files\Java\jre1.8.0_201\bin\javaw.exe (2019. 4. 11. 오후 7:20:57)
web_output:1
11--1
indata-1
web_output:1
11--1
```

이클립스

