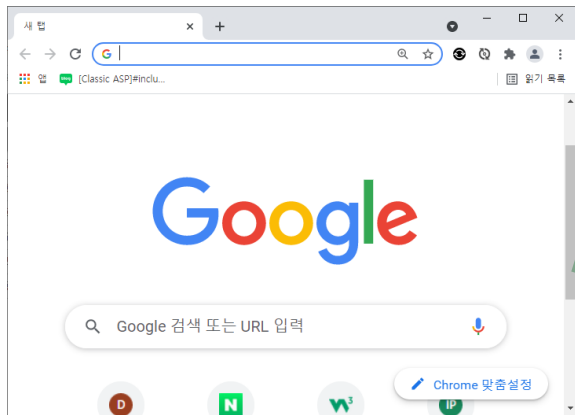




JSP

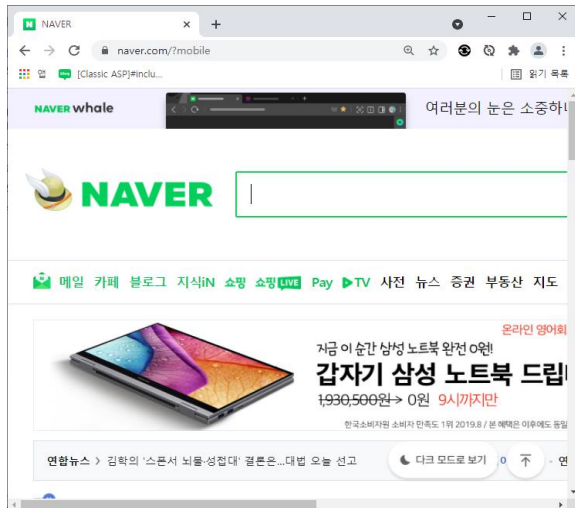
Sit Dolor Amet

톰캣 서버 이해하기



REQUEST

WEB서버



RESPONSE



WEB
SERVER

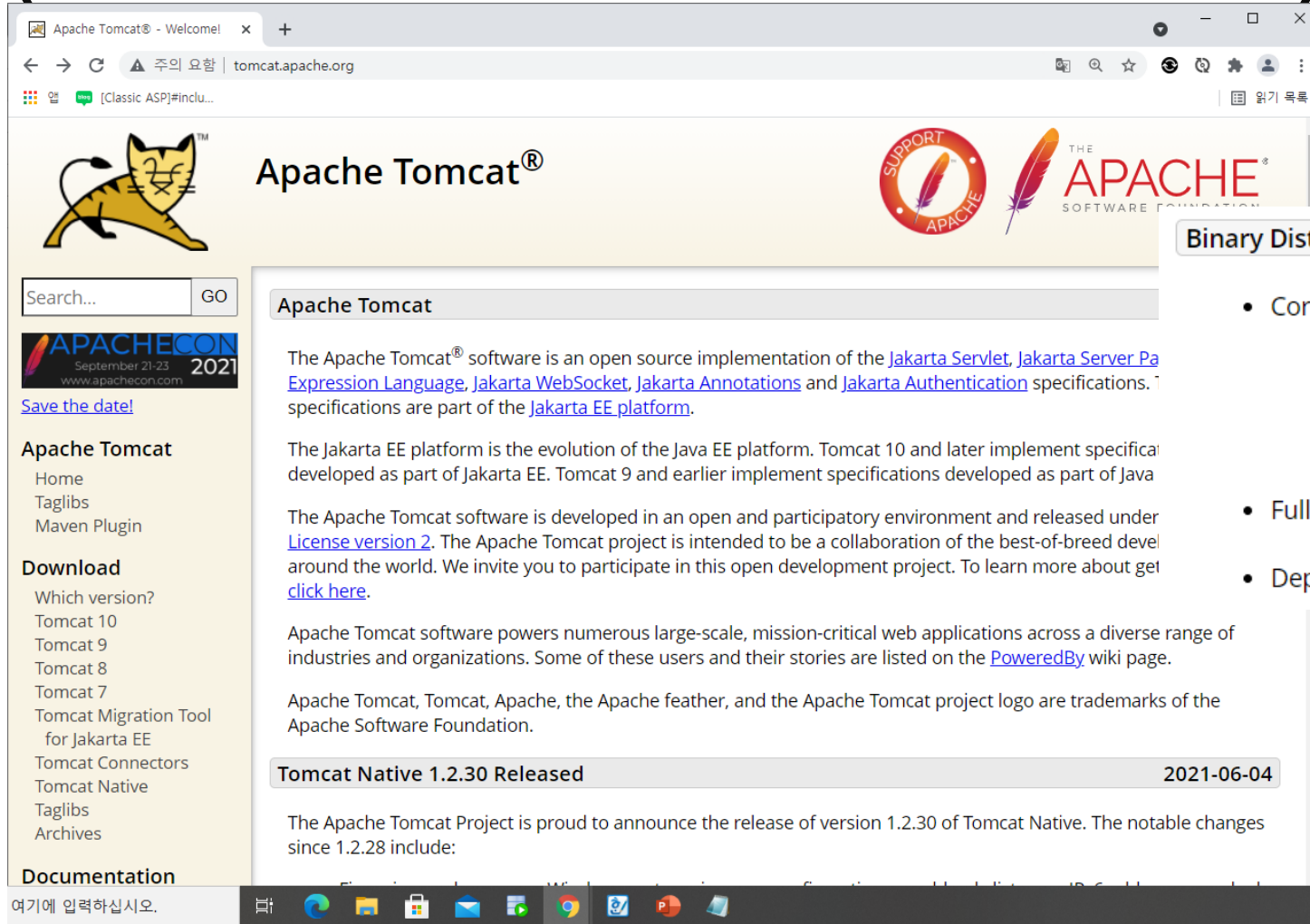
WEB
APPLICATION

Web
Application
Server



DB

톰캣서버설치 (TOMCAT.APACHE.ORG)



The screenshot shows the Apache Tomcat website in a web browser. The browser's address bar displays 'tomcat.apache.org'. The website features the Apache Tomcat logo (a yellow cat) and the Apache Software Foundation logo. A search bar is located on the left side. The main content area is titled 'Apache Tomcat' and contains several paragraphs of text describing the software. A sidebar on the left lists various links such as 'Home', 'Taglibs', 'Maven Plugin', 'Download', and 'Documentation'. A banner at the bottom of the main content area announces the release of 'Tomcat Native 1.2.30' dated '2021-06-04'.

Apache Tomcat®

Search... GO

APACHECON
September 21-23
www.apachecon.com
Save the date!

Apache Tomcat

- Home
- Taglibs
- Maven Plugin

Download

- Which version?
- Tomcat 10
- Tomcat 9
- Tomcat 8
- Tomcat 7
- Tomcat Migration Tool for Jakarta EE
- Tomcat Connectors
- Tomcat Native
- Taglibs
- Archives

Documentation

여기에 입력하십시오.

Apache Tomcat

The Apache Tomcat® software is an open source implementation of the [Jakarta Servlet](#), [Jakarta Server Pages](#), [Jakarta Expression Language](#), [Jakarta WebSocket](#), [Jakarta Annotations](#) and [Jakarta Authentication](#) specifications. These specifications are part of the [Jakarta EE platform](#).

The Jakarta EE platform is the evolution of the Java EE platform. Tomcat 10 and later implement specifications developed as part of Jakarta EE. Tomcat 9 and earlier implement specifications developed as part of Java EE.

The Apache Tomcat software is developed in an open and participatory environment and released under [License version 2](#). The Apache Tomcat project is intended to be a collaboration of the best-of-breed developers around the world. We invite you to participate in this open development project. To learn more about get [click here](#).

Apache Tomcat software powers numerous large-scale, mission-critical web applications across a diverse range of industries and organizations. Some of these users and their stories are listed on the [PoweredBy](#) wiki page.

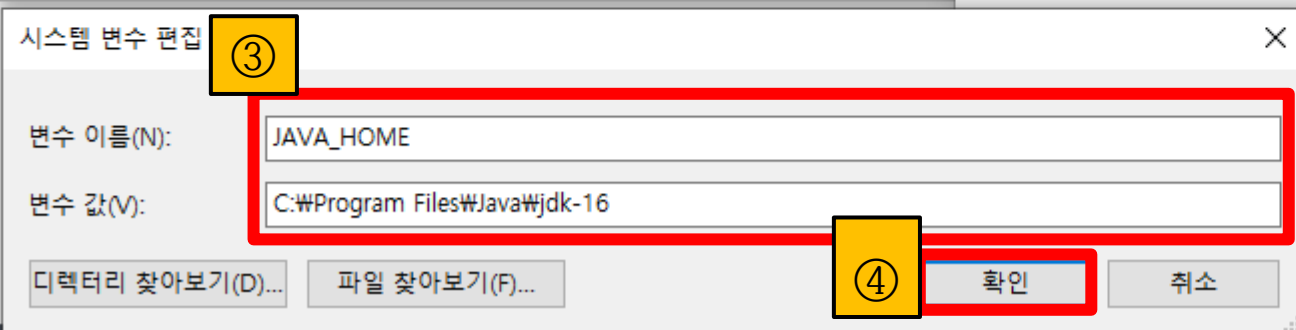
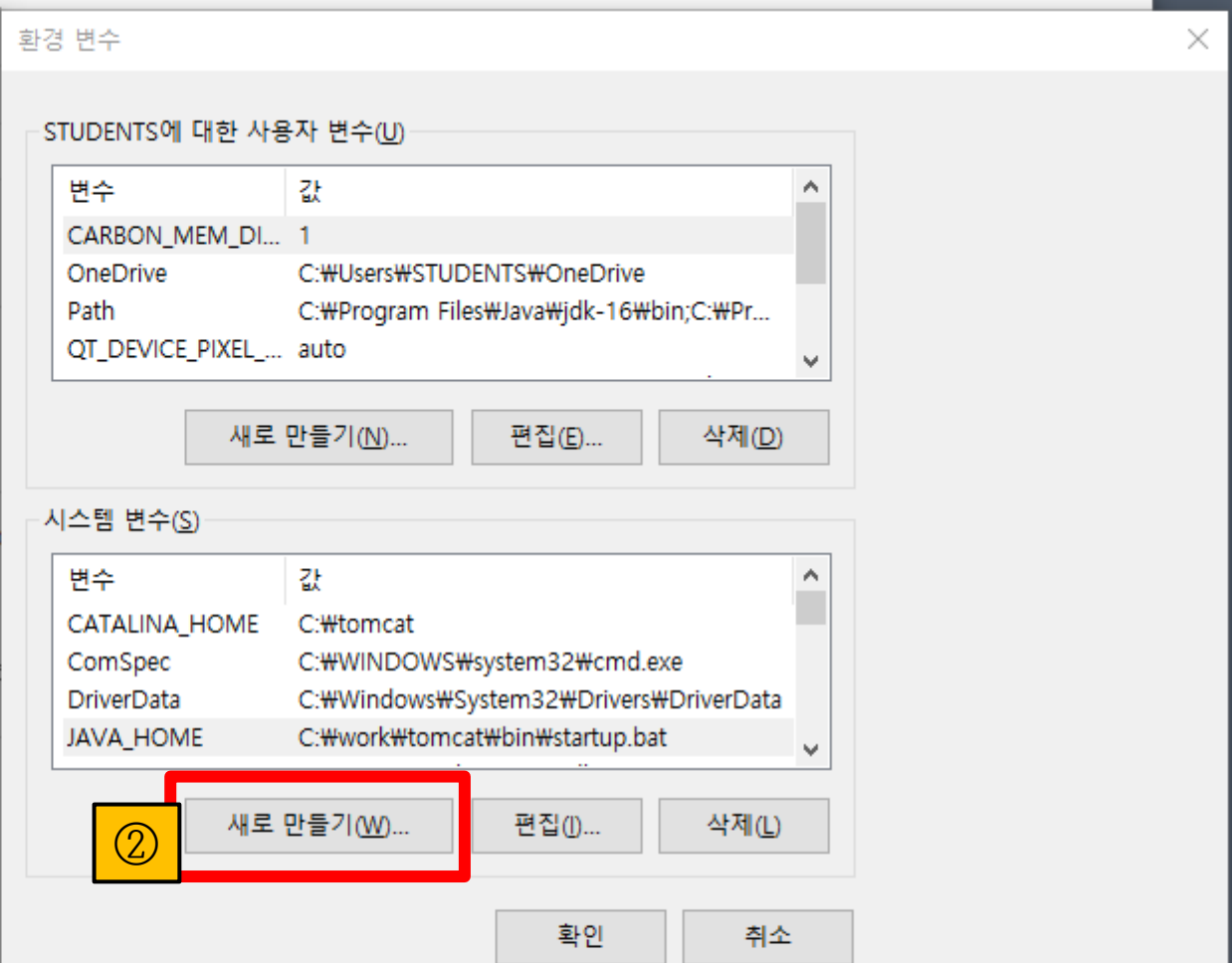
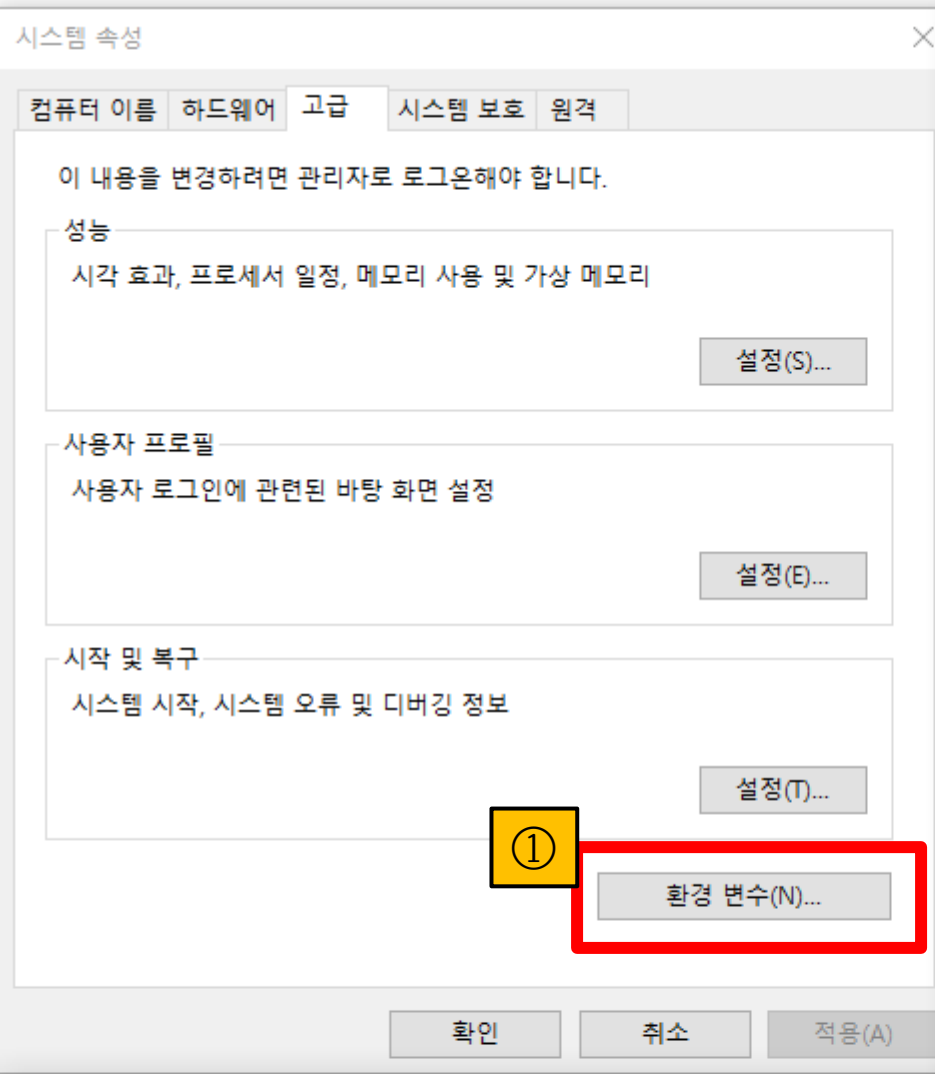
Apache Tomcat, Tomcat, Apache, the Apache feather, and the Apache Tomcat project logo are trademarks of the Apache Software Foundation.

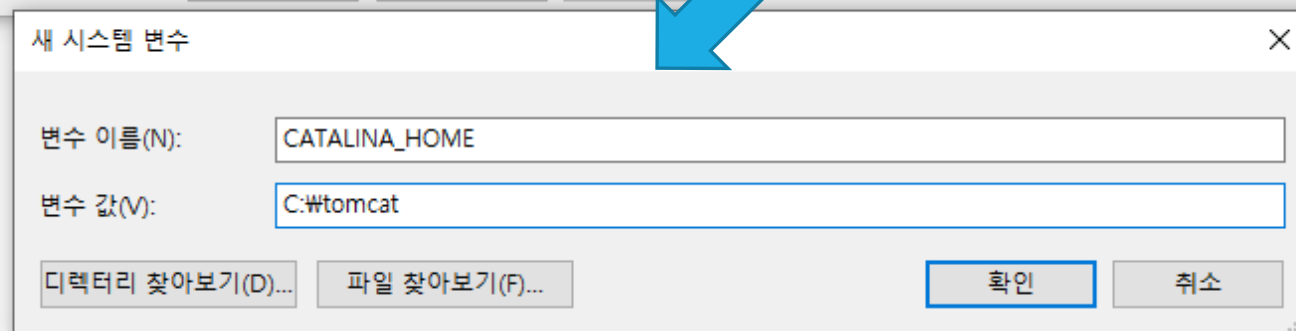
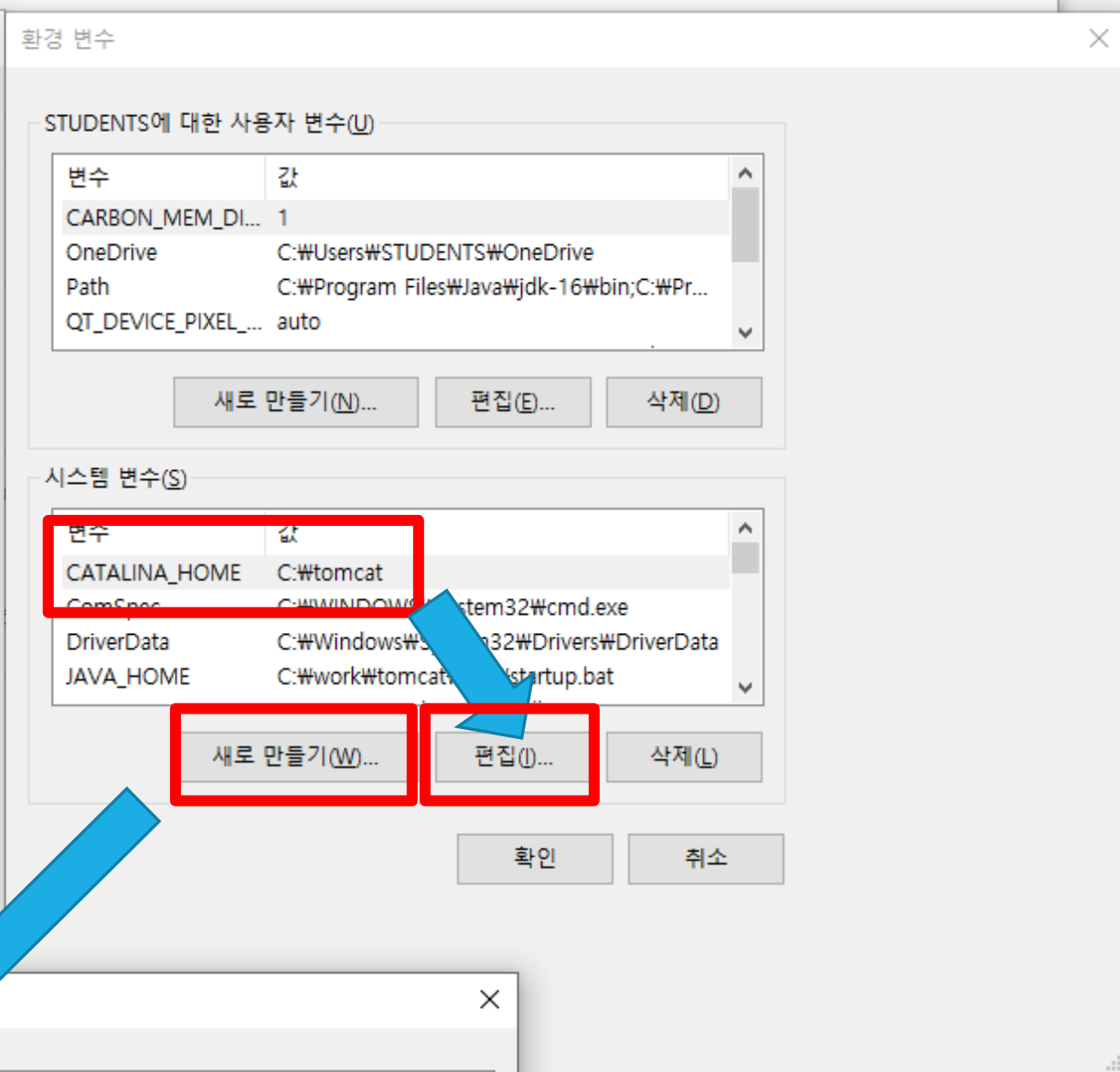
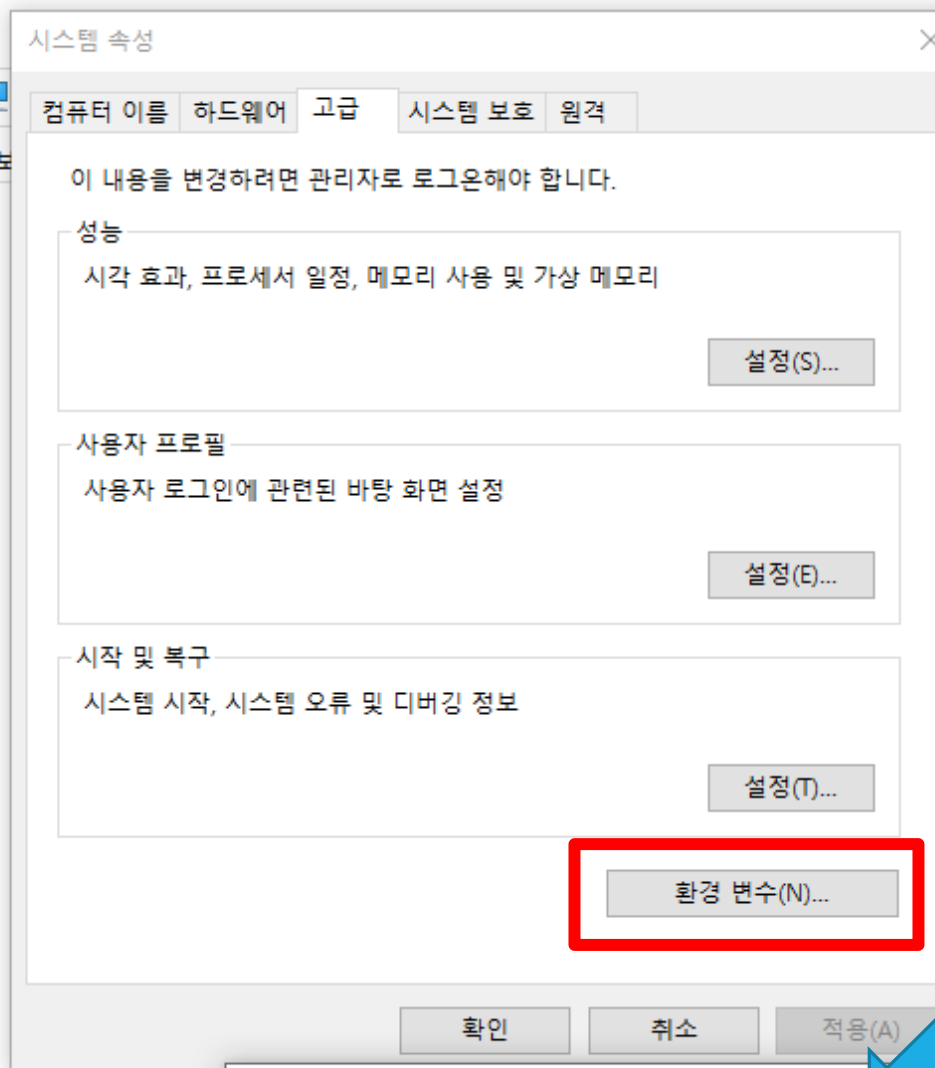
Tomcat Native 1.2.30 Released 2021-06-04

The Apache Tomcat Project is proud to announce the release of version 1.2.30 of Tomcat Native. The notable changes since 1.2.28 include:

Binary Distributions

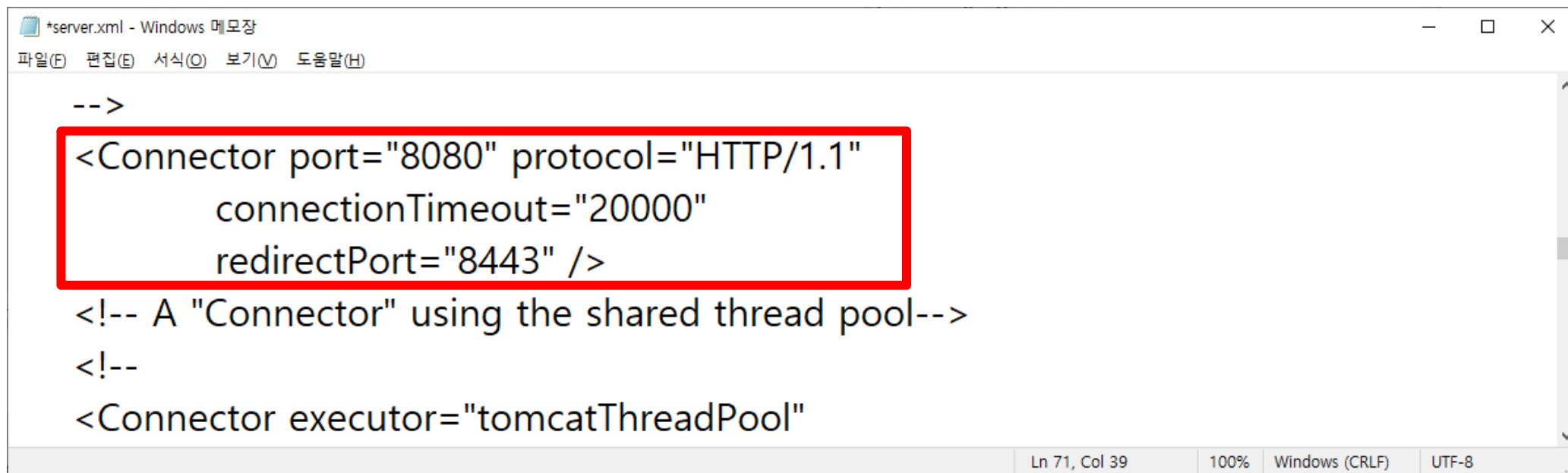
- Core:
 - [zip](#) ([pgp](#), [sha512](#))
 - [tar.gz](#) ([pgp](#), [sha512](#))
 - [32-bit Windows zip](#) ([pgp](#), [sha512](#))
 - [64-bit Windows zip](#) ([pgp](#), [sha512](#))
 - [32-bit/64-bit Windows Service Installer](#) ([pgp](#), [sha512](#))
- Full documentation:
 - [tar.gz](#) ([pgp](#), [sha512](#))
- Deployer:
 - [zip](#) ([pgp](#), [sha512](#))





서버포트 확인하기(SERVER.XML)

C:\tomcat\conf\server.xml



```
*server.xml - Windows 메모장
파일(F) 편집(E) 서식(O) 보기(V) 도움말(H)

-->
<Connector port="8080" protocol="HTTP/1.1"
    connectionTimeout="20000"
    redirectPort="8443" />
<!-- A "Connector" using the shared thread pool-->
<!--
<Connector executor="tomcatThreadPool"
```

Ln 71, Col 39 100% Windows (CRLF) UTF-8

100

C:\tomcat\bin\Startup.bat

```

선택 Tomcat
선택?덬똥.
10-Jun-2021 09:15:15.234 INFO [main] org.apache.catalina.startup.HostConfig.deployDirectory ???랠똥똥 ㅂ??덬똥 ?똥겅?죤
[C:\work\Tomcat\webapps\host-manager]???ㅁ?덬겅랠똥[44] ㅁ똥 ㅂ 똥???똥겅?똥똥?덬똥??
덬똥?덬똥?덬똥.
10-Jun-2021 09:15:15.237 INFO [main] org.apache.catalina.startup.HostConfig.deployDirectory ???랠똥똥 ㅂ??덬똥 ?똥겅?죤
[C:\work\Tomcat\webapps\manager]???덬? ㅁ겅랠똥(5)똥??
선택?덬똥.
10-Jun-2021 09:15:15.272 INFO [main] org.apache.catalina.startup.HostConfig.deployDirectory ???랠똥똥 ㅂ??덬똥 ?똥겅?죤
[C:\work\Tomcat\webapps\manager]???ㅁ?덬겅랠똥[35] ㅁ똥 ㅂ 똥???똥겅?똥똥?덬똥??
덬똥?덬똥?덬똥.
10-Jun-2021 09:15:15.274 INFO [main] org.apache.catalina.startup.HostConfig.deployDirectory ???랠똥똥 ㅂ??덬똥 ?똥겅?죤
[C:\work\Tomcat\webapps\ROOT]???덬? ㅁ겅랠똥(5)똥??
선택?덬똥.
10-Jun-2021 09:15:15.301 INFO [main] org.apache.catalina.startup.HostConfig.deployDirectory ???랠똥똥 ㅂ??덬똥 ?똥겅?죤
[C:\work\Tomcat\webapps\ROOT]???ㅁ?덬겅랠똥[27] ㅁ똥 ㅂ 똥???똥겅?똥똥?덬똥??
덬똥?덬똥?덬똥.
10-Jun-2021 09:15:15.307 INFO [main] org.apache.coyote.AbstractProtocol.start ?똥죤?랠똥 ?똥똥?["http-nio-8080"]???덬? ?
똥겅(5)똥??
(5)똥??
10-Jun-2021 09:15:15.462 INFO [main] org.apache.catalina.startup.Catalina.start ?똥랠똥[1435] ㅁ똥 ㅂ 똥 ?덬똥 ?똥겅?똥
똥?덬똥??
덬똥.

```

서버 동작 확인

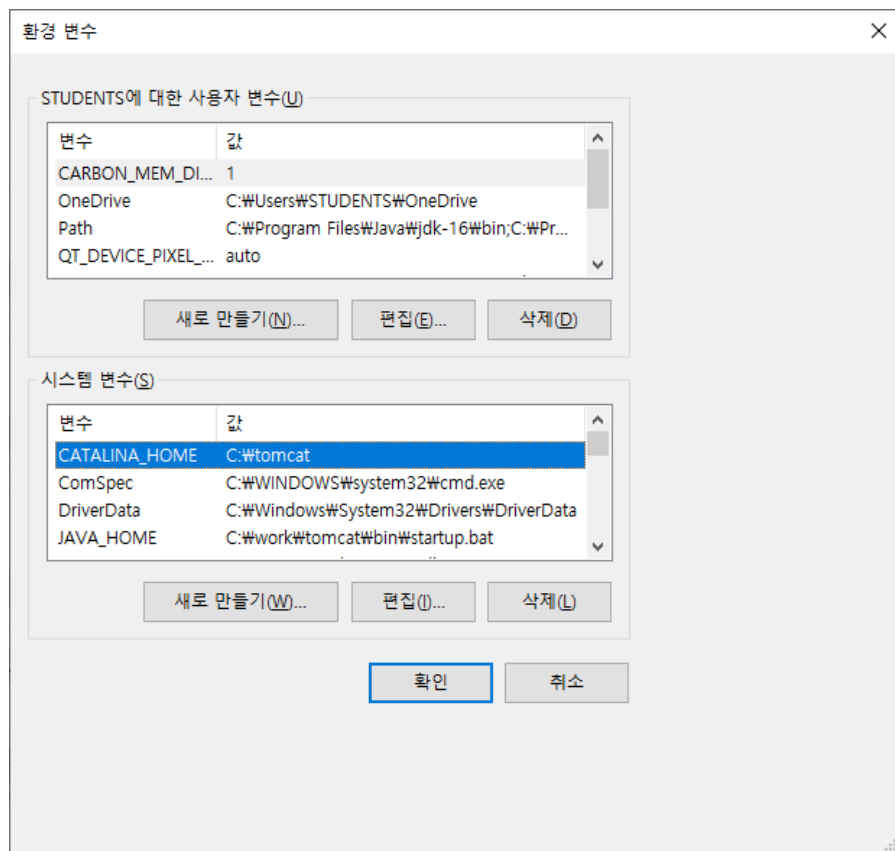
C:\tomcat\webapps\ROOT폴더로 이동
해당 폴더에 hello.txt파일 생성 후 내용 작성

Hello.txt

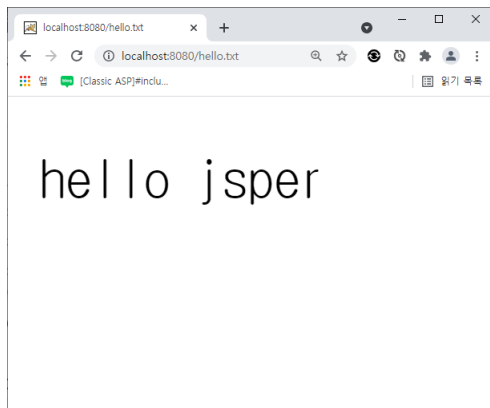
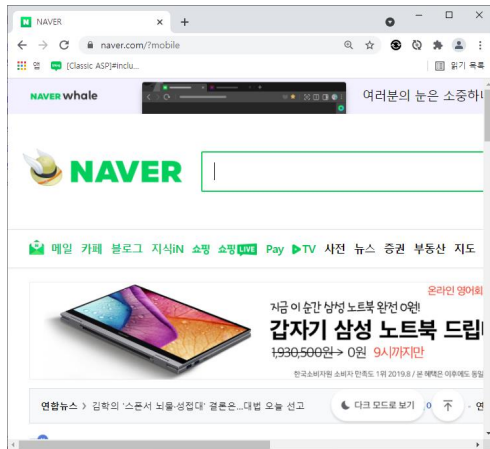
Hello jsper

오류가 발생했을 때 확인사항

오류사항을 확인하고 포트번호, startup.bat, 환경변수를 확인해 볼 것



웹서버가 제공하는 단순 기능



C:\w\omcat\wwebapps\wROOT\whello.txt

http://localhost:8080/hello.txt

REQUEST

RESPONSE

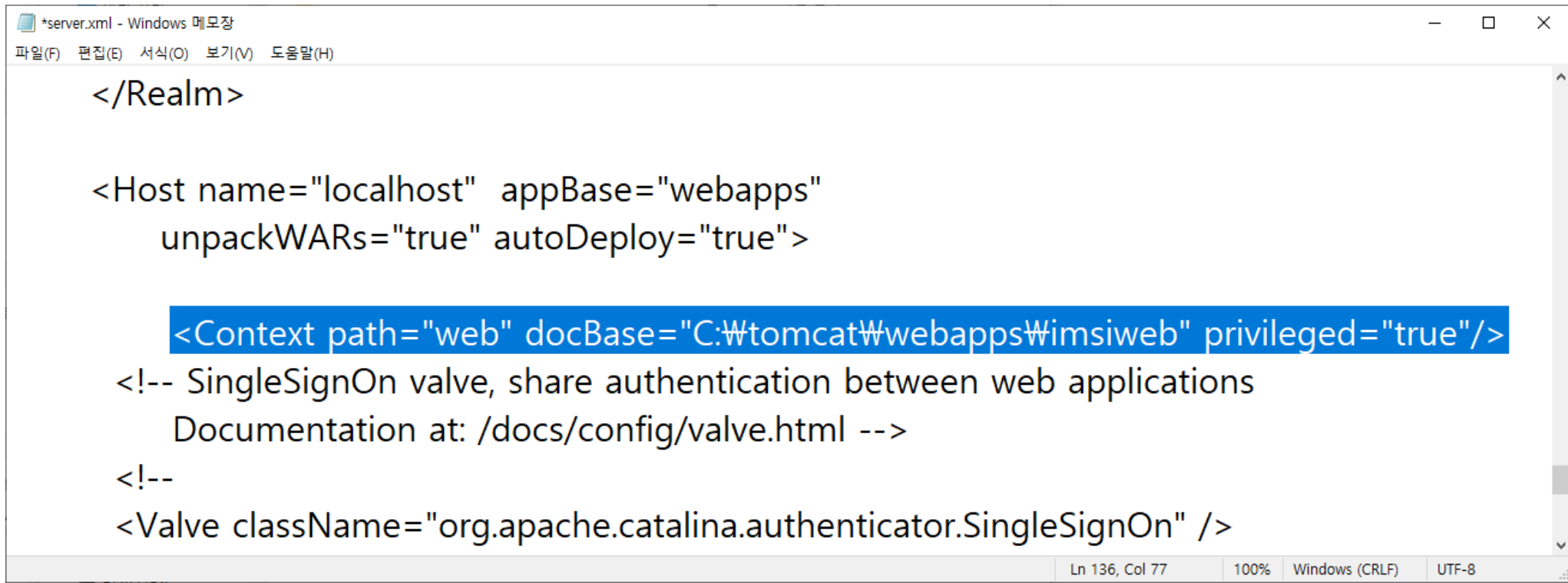
hello.txt



웹의 경로 변경하기(SERVER.XML)

CONTEXT경로는 웹의 경로는 설정하는 것으로
웹의 폴더를 root폴더가 아닌 곳에 별도로 설정이 가능함.

```
<Context path="/web" docBase="C:\tomcat\webapps\wmsiweb" privileged="true"/>
```



```
*server.xml - Windows 메모장
파일(F) 편집(E) 서식(O) 보기(V) 도움말(H)

</Realm>

<Host name="localhost" appBase="webapps"
    unpackWARs="true" autoDeploy="true">

    <Context path="/web" docBase="C:\tomcat\webapps\wmsiweb" privileged="true"/>


    <!-- SingleSignOn valve, share authentication between web applications
        Documentation at: /docs/config/valve.html -->
    <!--
    <Valve className="org.apache.catalina.authenticator.SingleSignOn" />

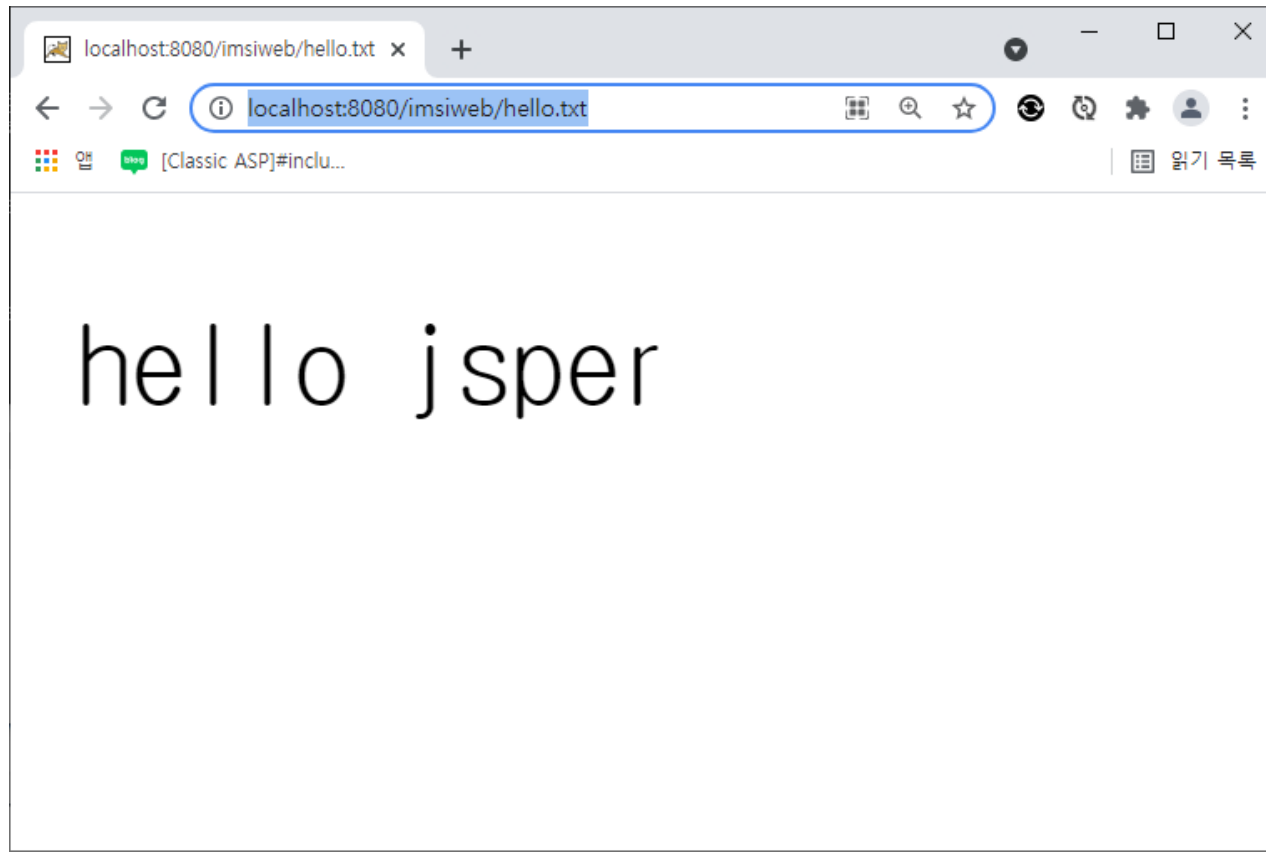
Ln 136, Col 77    100%    Windows (CRLF)    UTF-8
```

CONTEXT 경로 변경 확인

<Context path="web" docBase="C:\tomcat\webapps\imsiweb" privileged="true"/>

 http://localhost:8080/web/hello.txt

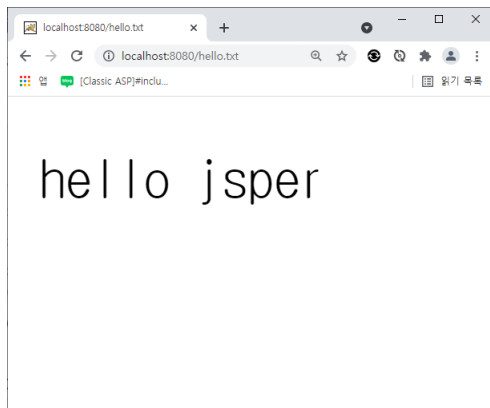
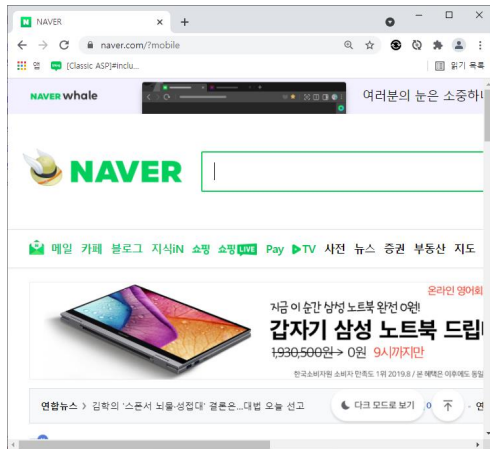
 http://localhost:8080/imsiweb/hello.txt



두 경로 모두 사용 가능함

Path="/"로 설정할 경우
주소는 <http://localhost:8080/hello.txt>
사용이 가능함.

서블릿 만들기



REQUEST

RESPONSE



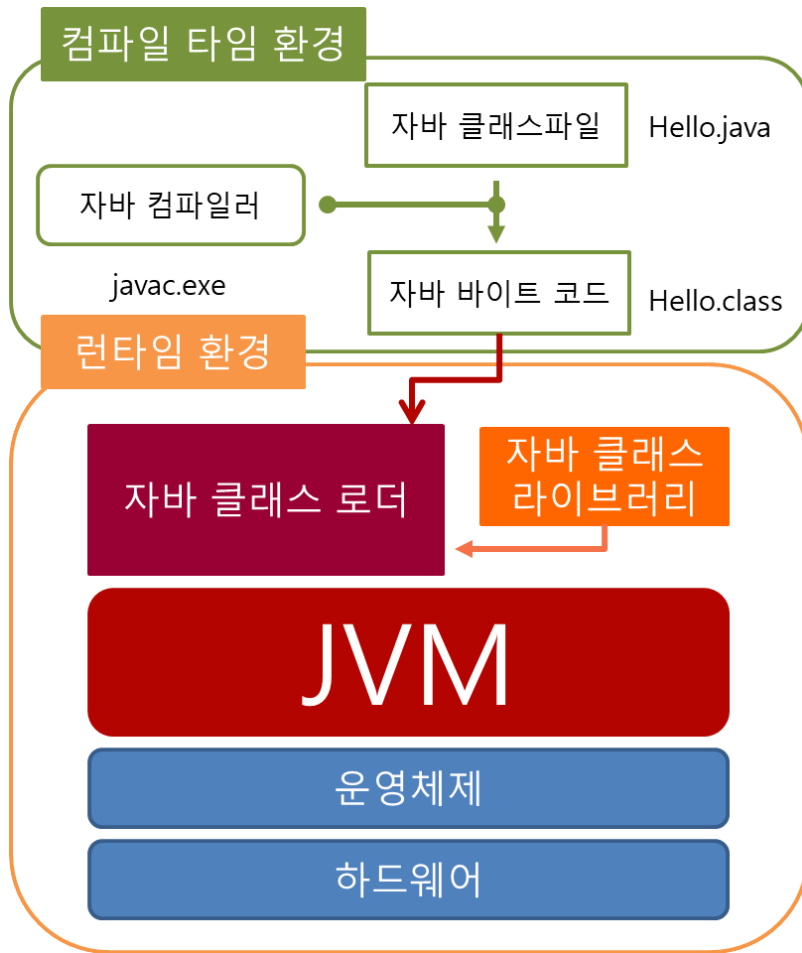
WEB서버

```
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        String value = scan.nextLine();
        System.out.printf(value);
    }
}
```

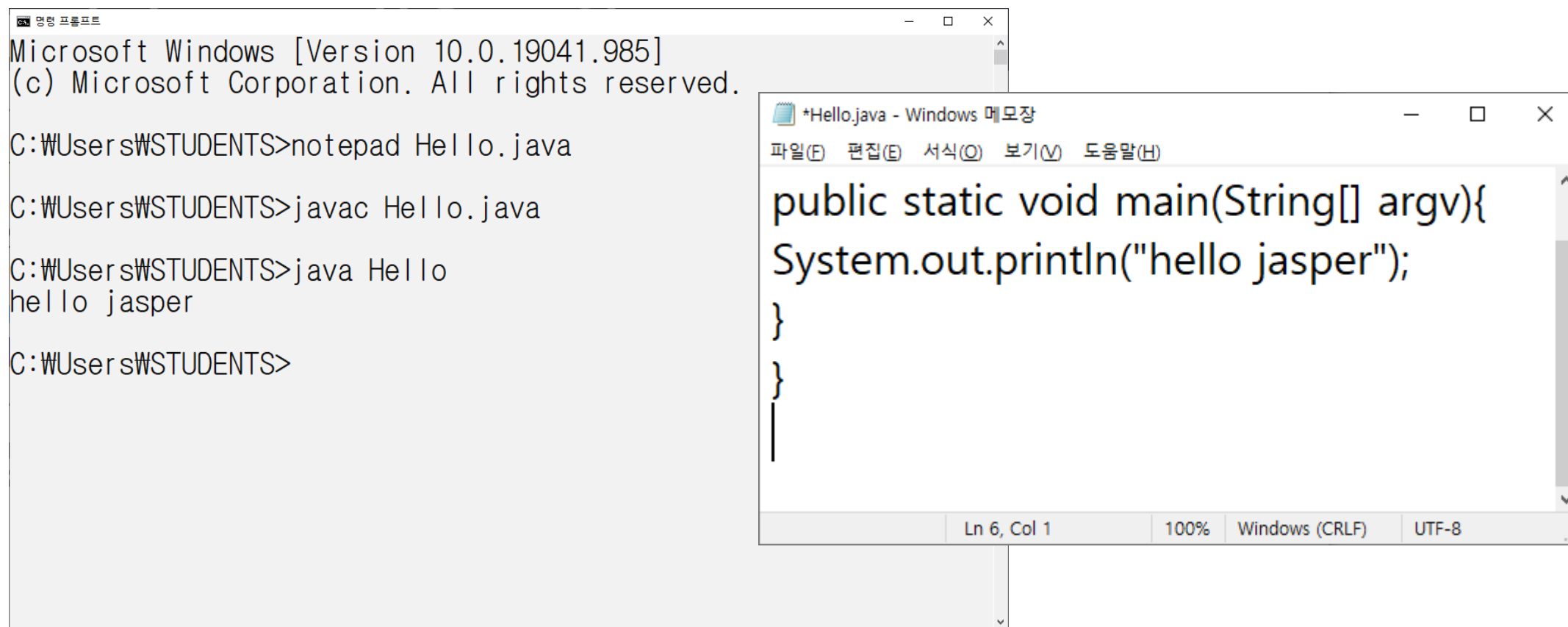
서버에서 자바파일을
이용하여 데이터로
제공하고 싶어요!!!

자바 컴파일 과정



.class 파일만 사용해서 웹서비스 제공

일반적인 자바 파일 작성 및 실행



The image shows a Windows command prompt window and a Notepad window. The command prompt window displays the following commands and output:

```
Microsoft Windows [Version 10.0.19041.985]
(c) Microsoft Corporation. All rights reserved.

C:\Users\WSTUDENTS>notepad Hello.java

C:\Users\WSTUDENTS>javac Hello.java

C:\Users\WSTUDENTS>java Hello
hello jasper

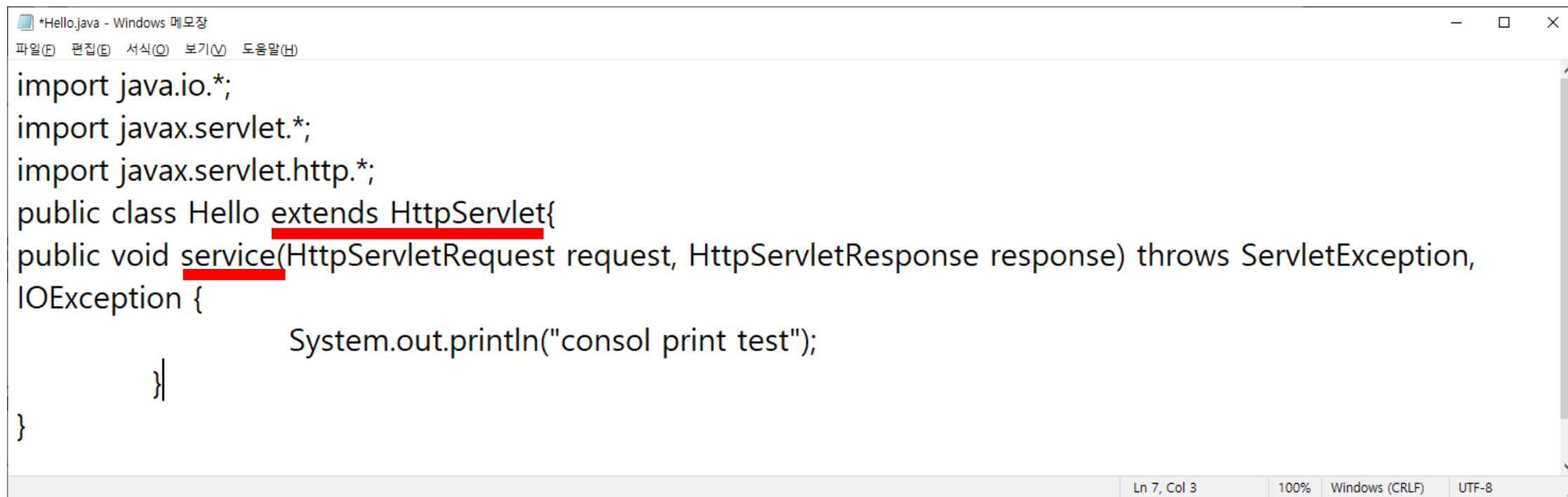
C:\Users\WSTUDENTS>
```

The Notepad window, titled "*Hello.java - Windows 메모장", contains the following Java code:

```
public static void main(String[] argv){
System.out.println("hello jasper");
}
}
```

The status bar at the bottom of the Notepad window indicates "Ln 6, Col 1", "100%", "Windows (CRLF)", and "UTF-8".

웹에서 사용 가능한 서블릿 파일 작성 및 실행



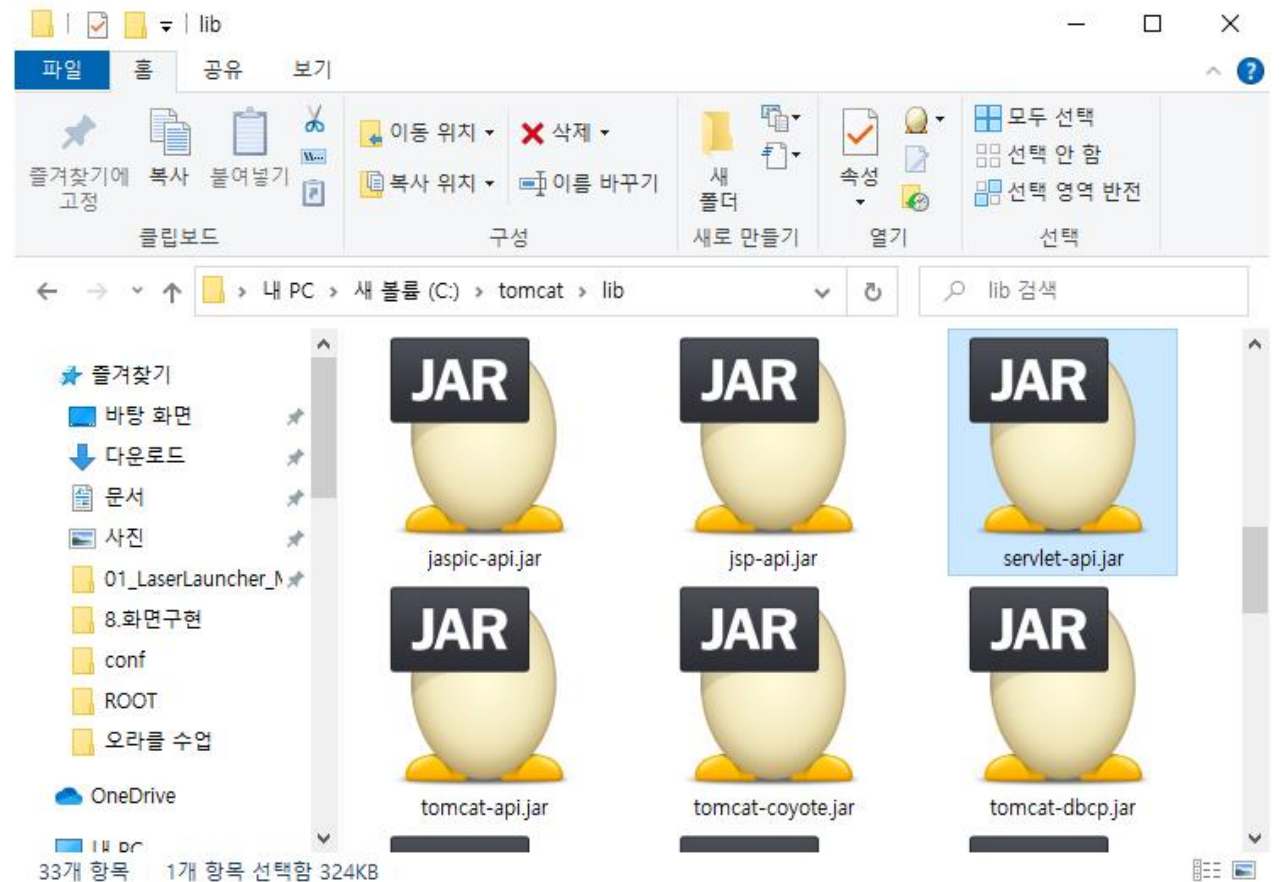
```
*Hello.java - Windows 메모장
파일(F) 편집(E) 서식(O) 보기(V) 도움말(H)

import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
public class Hello extends HttpServlet{
public void service(HttpServletRequest request, HttpServletResponse response) throws ServletException,
IOException {
    System.out.println("consol print test");
}
}
```

Ln 7, Col 3 | 100% | Windows (CRLF) | UTF-8

서블릿 컴파일 오류

```
C:\Users\WSTUDENTS>javac Hello.java
Hello.java:4: error: cannot find symbol
public class Hello extends HttpServlet{
                        ^
  symbol: class HttpServlet
Hello.java:5: error: cannot find symbol
public void service(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
                        ^
  symbol:   class HttpServletRequest
  location: class Hello
Hello.java:5: error: cannot find symbol
public void service(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
                                                         ^
  symbol:   class HttpServletResponse
  location: class Hello
Hello.java:5: error: cannot find symbol
```

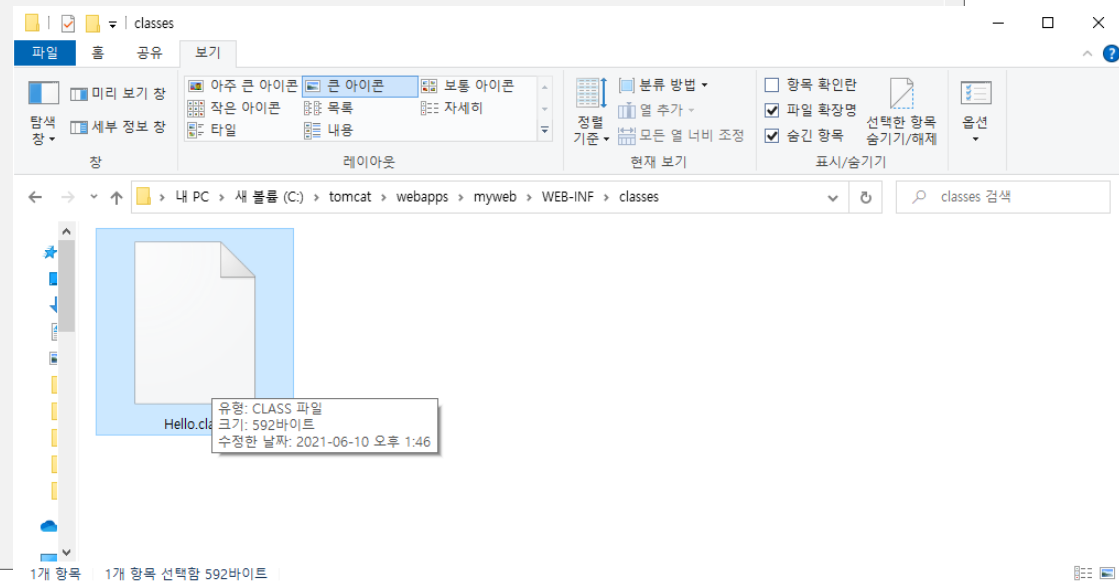


C:\tomcat\lib\servlet-api.jar

```
C:\Users\WSTUDENTS>javac -cp C:\work\Wtomcat\lib\Wservlet-api.jar Hello.java

C:\Users\WSTUDENTS>javac -cp C:\Wtomcat\lib\Wservlet-api.jar Hello.java

C:\Users\WSTUDENTS>
```



서블릿을 만들기 위해 HTTPServlet 상속(다음 코드에서 구현)

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;

import jakarta.servlet.*;    //톰캣은 다음으로 임포트해줌
import jakarta.servlet.http.*;

public class Test extends HttpServlet{
    public void service(HttpServletRequest req, HttpServletResponse res) throws ServletException, IOException {
        System.out.println("consol print test");
    }
}
```

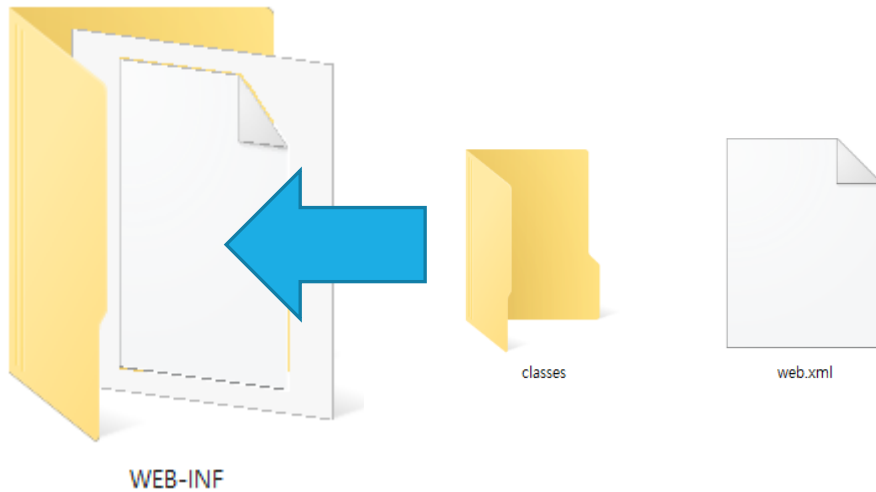
오류발생

외부 라이브러리 이용

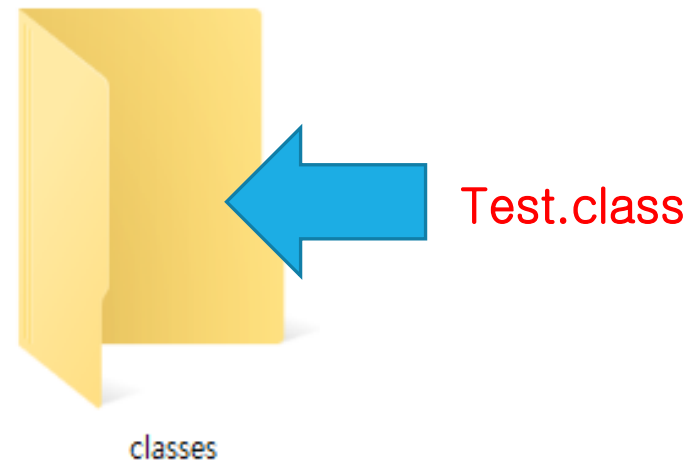
자바 컴파일 ➡ `javac Test.java` ➡ `javac -cp C:\tomcat\lib\servlet-api.jar Test.java` ➡ `Test.class`

서비스를 제공하기 위해 파일 이동

C:\tomcat\webapps\ROOT\WEB-INF\

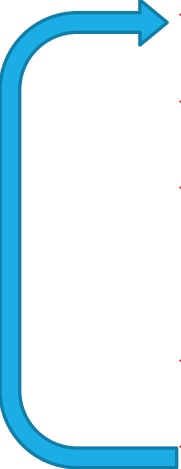


Web.xml 복사
Classes폴더생성



컴파일한 .class파일을 classes폴더에 복사

서블릿 등록(설정-WEB.XML)



```
<servlet>  
  <servlet-name>③servletTest</servlet-name>  
  <servlet-class>④Test</servlet-class>  
</servlet>  
  
<servlet-mapping>  
  <servlet-name>②servletTest</servlet-name>  
  <url-pattern>/servlet</url-pattern> ①  
</servlet-mapping>
```

확인하기

웹서버 재 구동하기

주소로 접속하기 : localhost:8080/servlet

HTML에서 출력하는 서블릿 파일(STREAM 1 BYTE)

```
import java.io.*;
```

```
import jakarta.servlet.*;
```

```
import jakarta.servlet.http.*;
```

```
public class Hello extends HttpServlet{
```

```
    public void service(HttpServletRequest request, HttpServletResponse response) throws  
ServletException, IOException {
```

```
        System.out.println("consol print test");
```

```
        OutputStream os=response.getOutputStream();
```

```
        PrintStream out=new PrintStream(os,true);
```

```
        out.println("hello servlet<br>");
```

```
    }
```

```
}
```

HTML에서 출력하는 서블릿 파일(2BYTE)

```
import java.io.*;
```

```
import jakarta.servlet.*;
```

```
import jakarta.servlet.http.*;
```

```
public class Hello extends HttpServlet{
```

```
    public void service(HttpServletRequest request, HttpServletResponse  
response) throws ServletException, IOException {
```

```
        PrintWriter out=request.getWriter();
```

```
        out.println("hello servlet<br>");
```

```
    }
```

```
}
```


전송되는 글자 확인 처리

웹브라우저에 표시되는 문자

Hello servlet

위의 html태그는 브라우저가 html임을 인식하지 못해 문자 그대로 출력됨.

이를 해결하는 방법, 만약 한글을 전송할 경우 깨지는 문제도 해결함.

```
response.setContentType("text/html;charset=utf-8");
```

한글 깨짐을 해결하기 못할 경우 다음코드추가

```
response.setCharacterEncoding("utf-8");
```

JSP파일

```
<%@ page session="false" pageEncoding="UTF-8" contentType="text/html; charset=UTF-8" %>
```

```
<html>
```

```
<head> </head>
```

```
<body>
```

```
<h1>구구단</h1>
```

```
<%
```

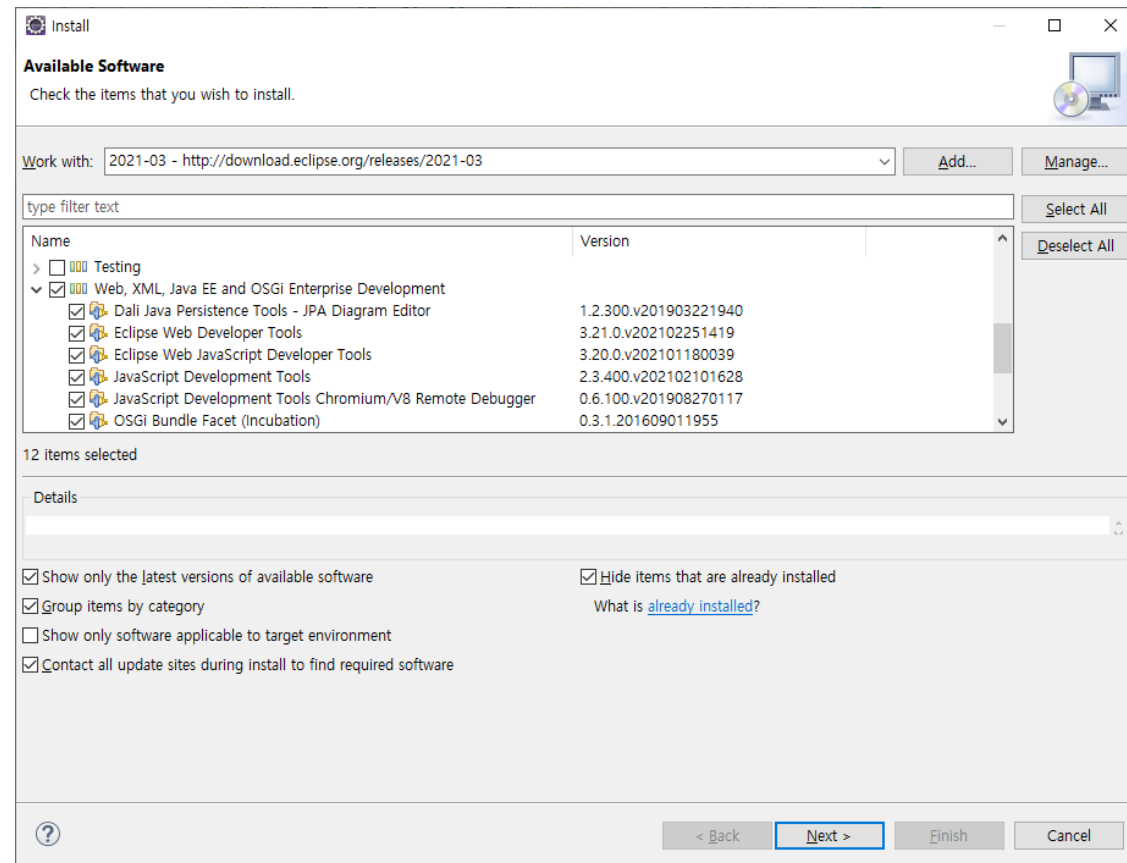
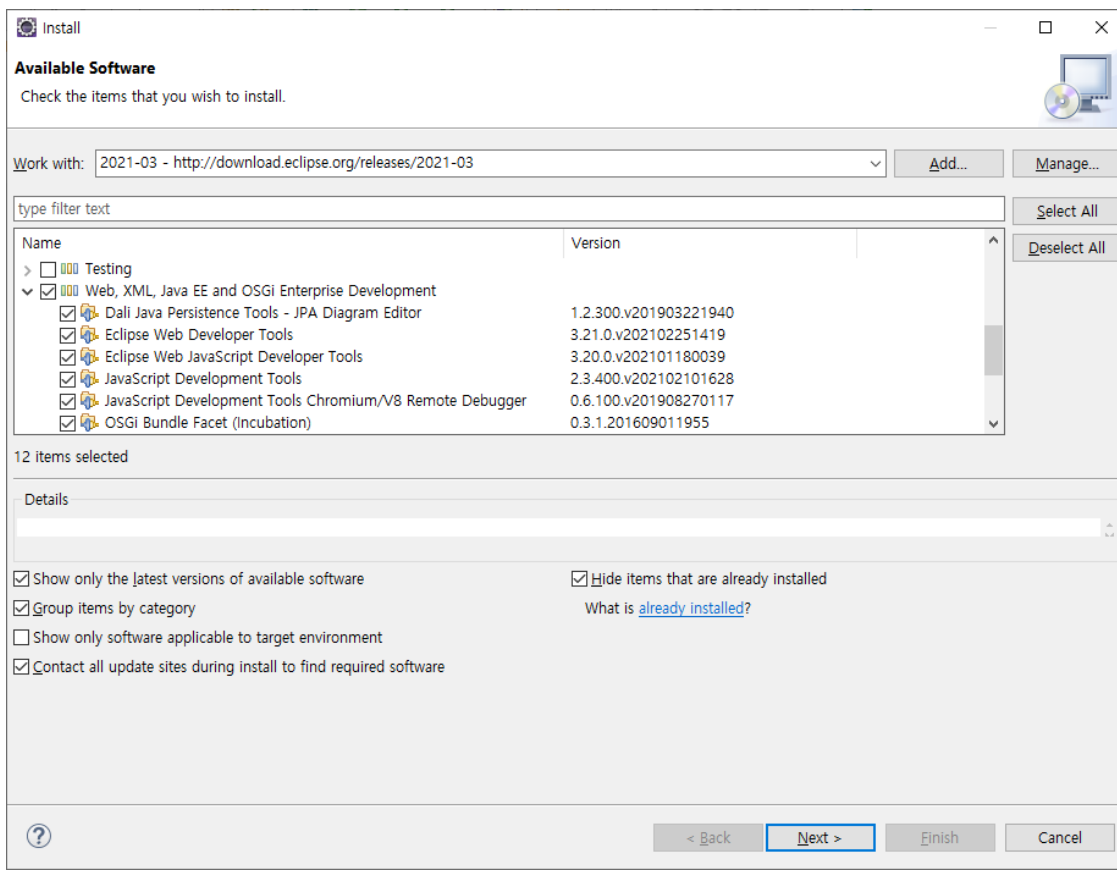
```
for(int i=0;i<10;i++){
```

```
out.println("2*"+i+"="+2*i);
```

```
}%> </body> </html>
```

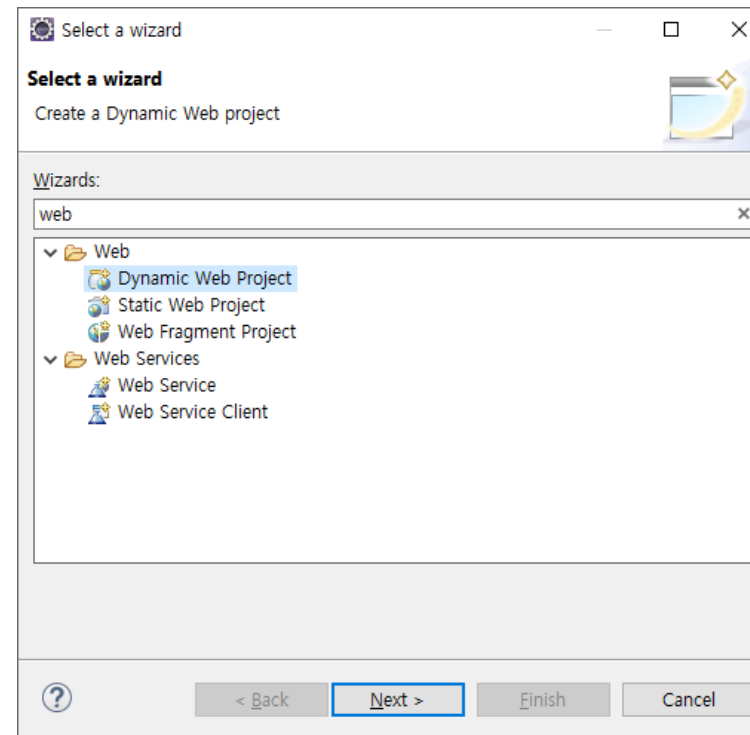
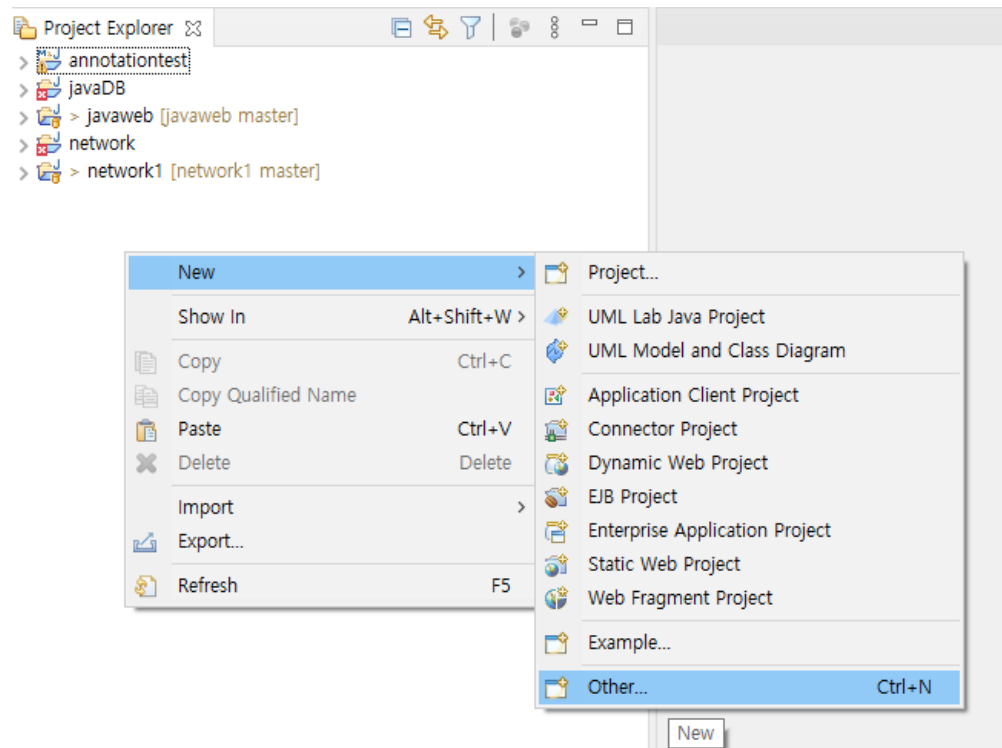
이클립스 WEB PROJECT 설치

해당 프로젝트가 없을 경우



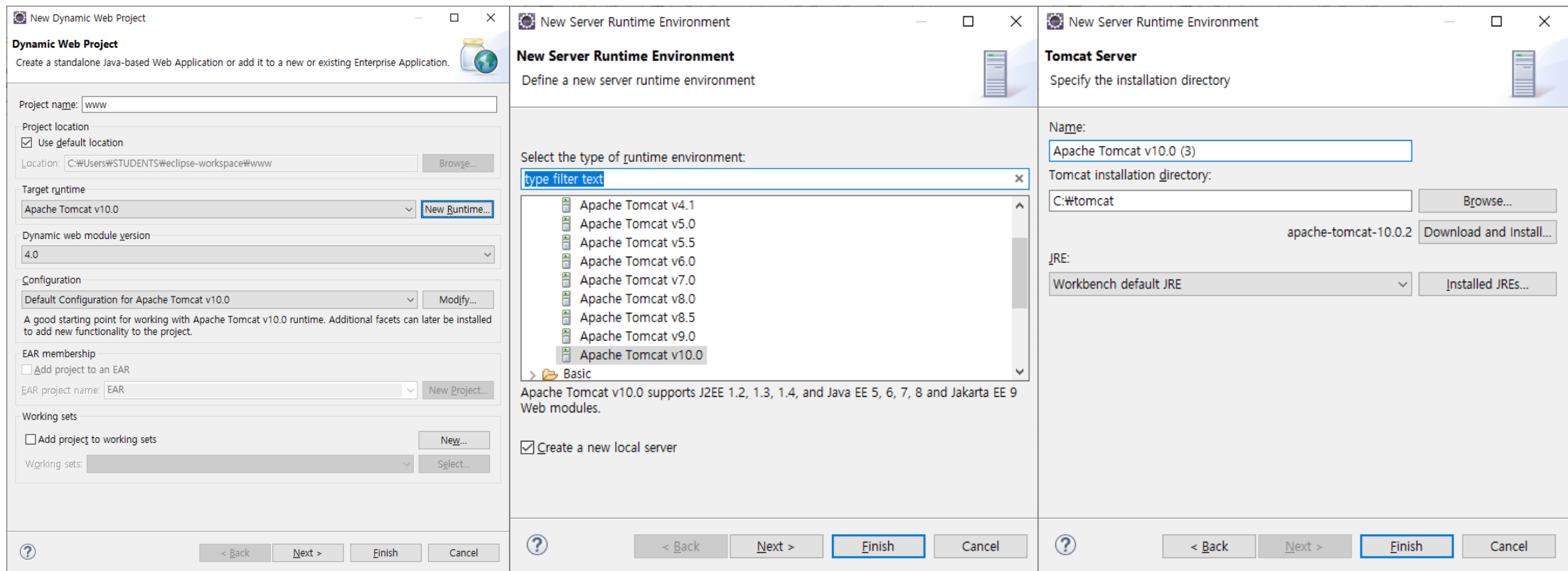
웹프로젝트 생성

웹프로젝트를 다음과 같이 선택하여 생성합니다.

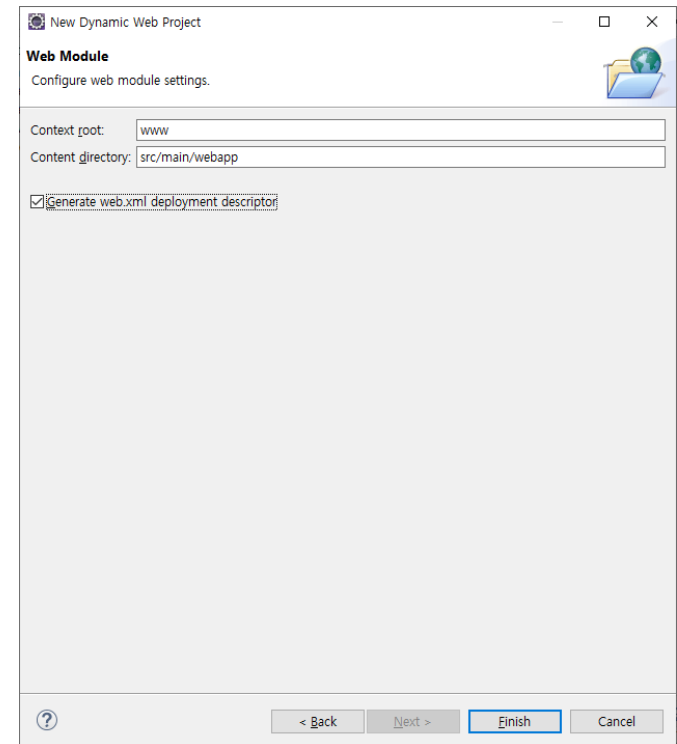
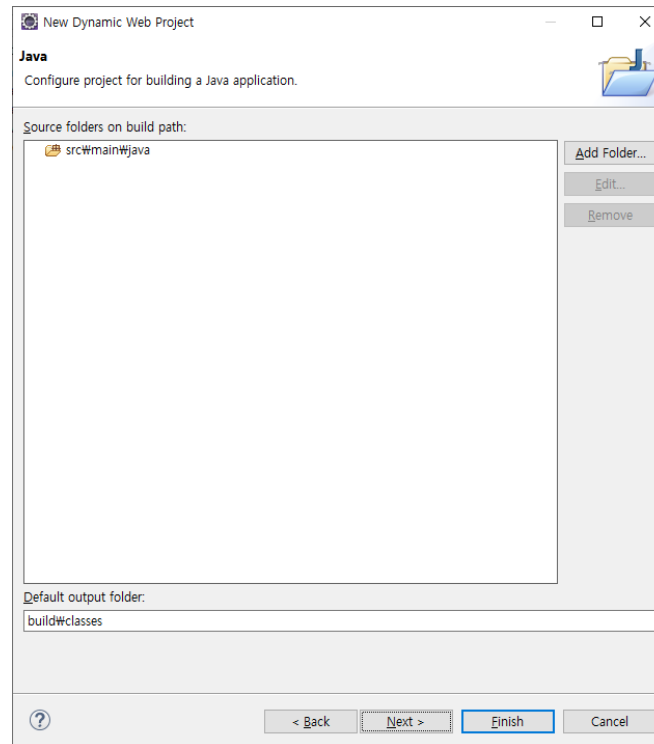
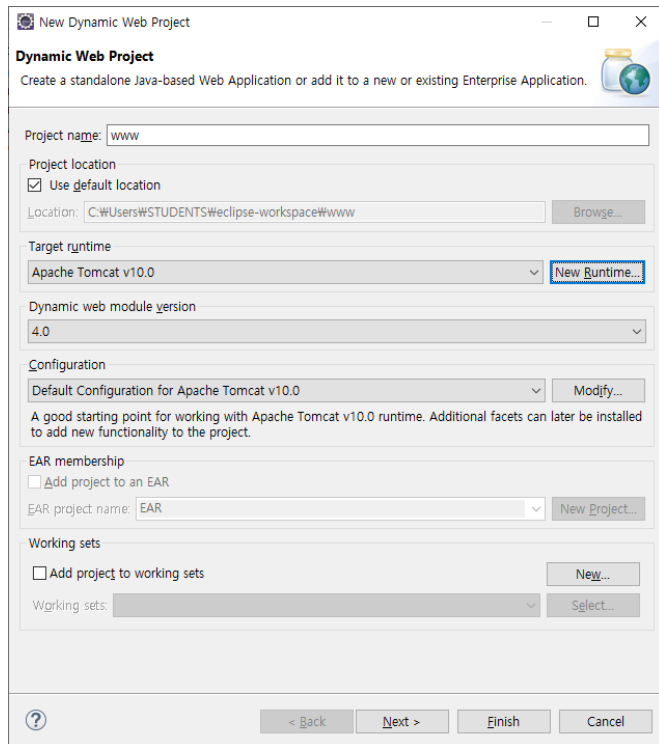


서버 설정

New runtime을 클릭하여 타겟 서버를 설정하는 동시에 서버도 생성함



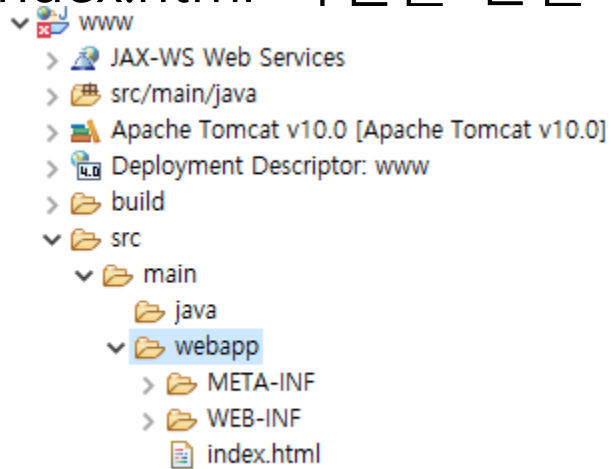
Nuw runtime을 완료하면 서버는 자동으로 생성됨
마법사를 계속 진행하여 프로젝트 설정을 완료함.



파일 생성 및 실행

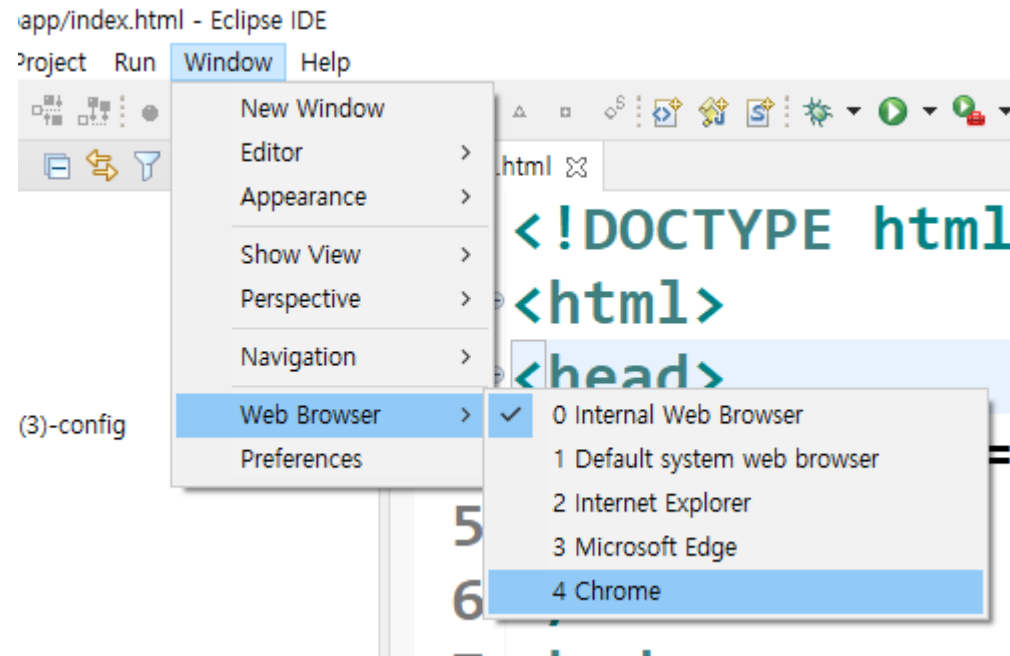
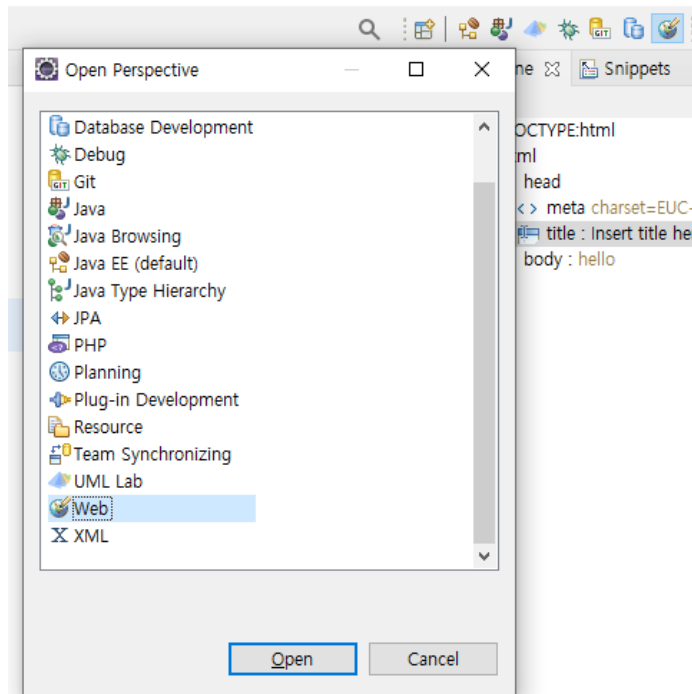
Html 파일의 시작 위치는 webapp폴더임

Index.html 파일을 만들고 실행(웹페이지를 실행할 때 ctrl+f11)



실행 브라우저 바꾸기

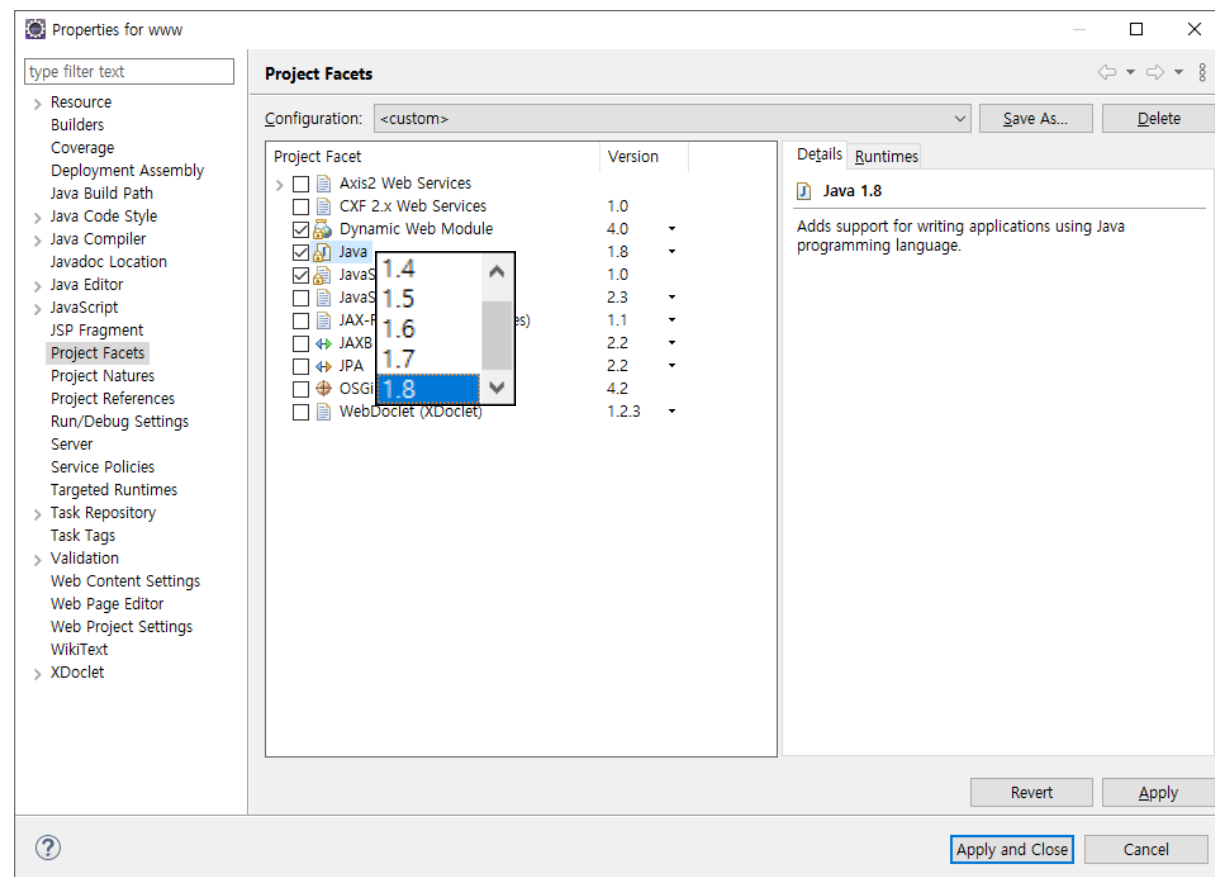
퍼스펙티브 web을 추가하여 화면 변경
실행브라우저 선택



프로젝트 오류사항

Project facets 1.8버전으로 선택

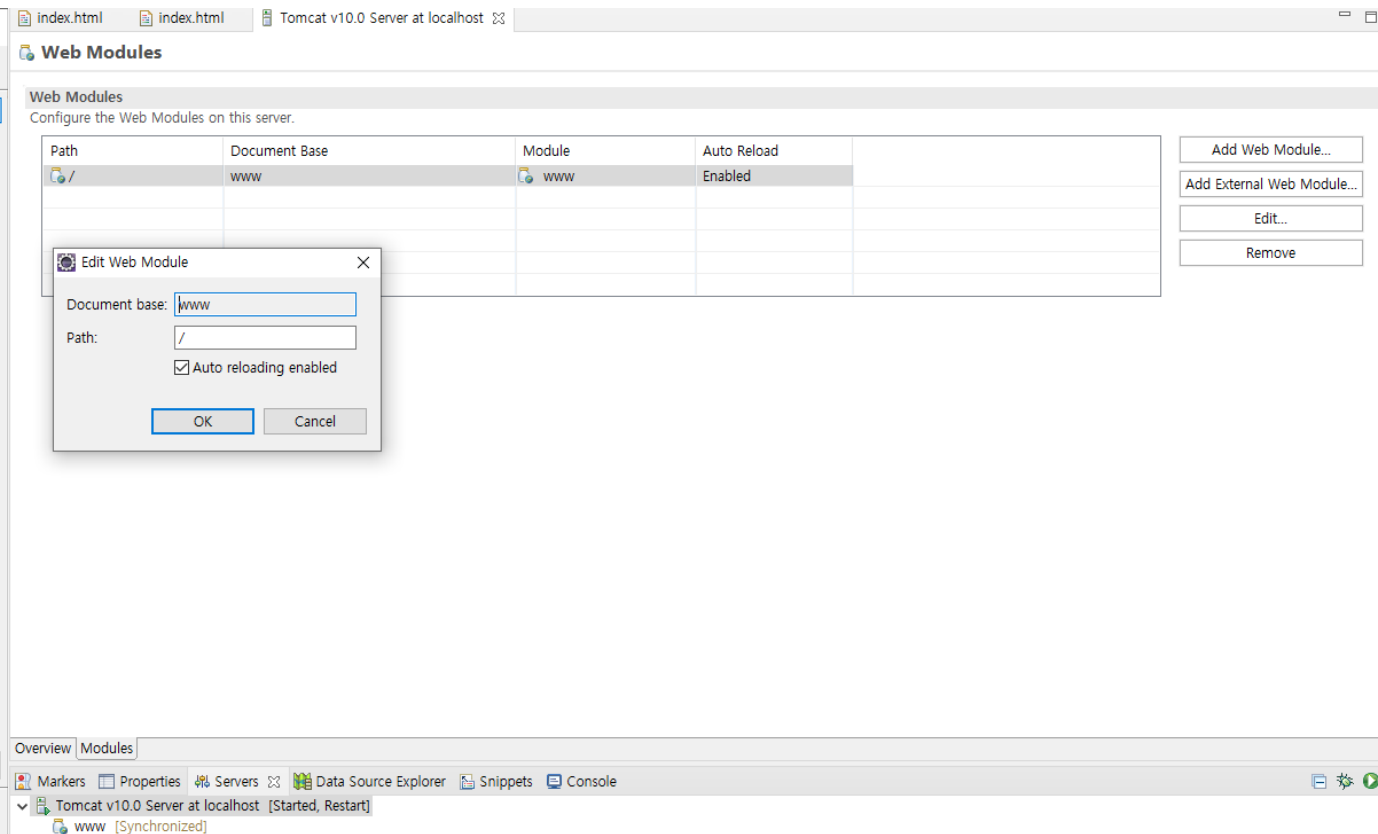
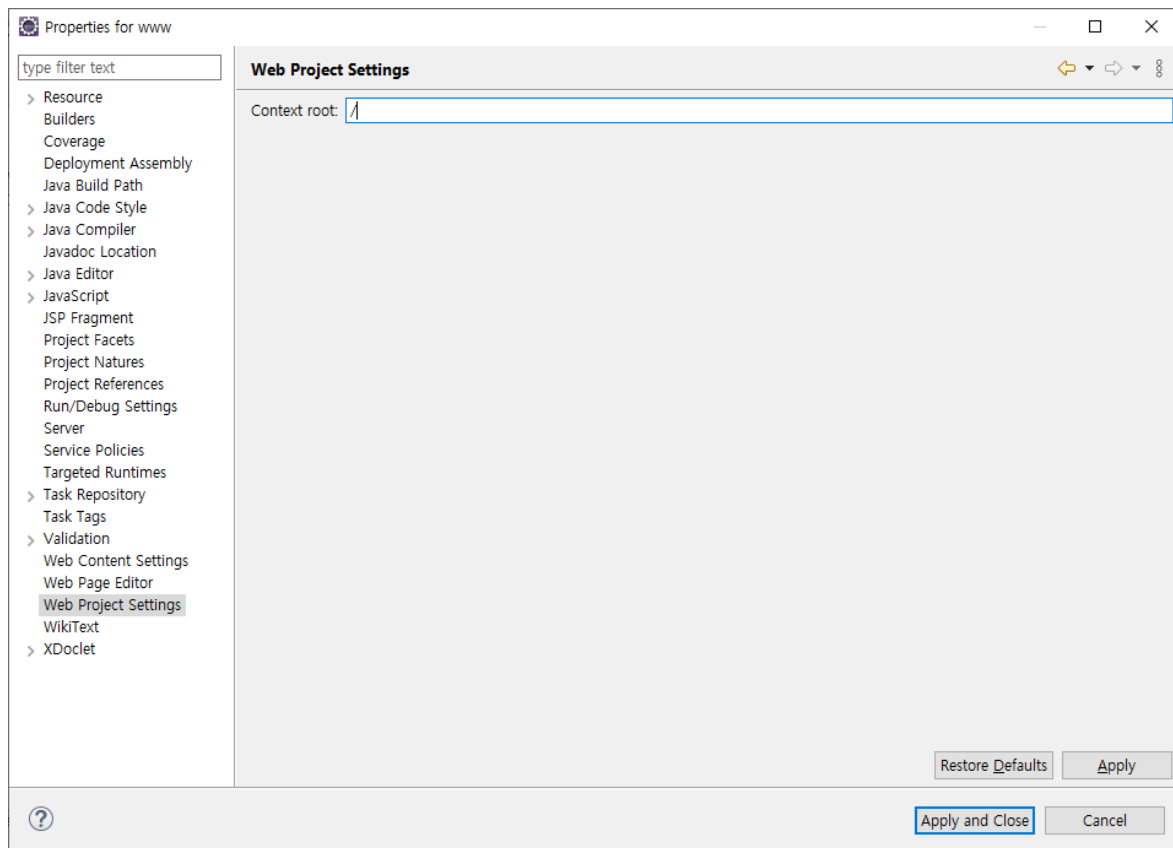
Problems Servers Properties Console	
11 errors, 251 warnings, 0 others (Filter matched 141 of 292 items)	
Description	Resource
Map cannot be resolved to a type	Main.java
MessagePack cannot be resolved to a type	Main.java
MessagePack cannot be resolved to a type	Main.java
MessagePack cannot be resolved to a type	Main.java
OutputStreamWriter cannot be resolved to a type	ChatServer.java
Project facet Java 16 is not supported by target runtime Apache Tomcat v10.0.	www
ServerSocket cannot be resolved to a type	ChatServer.java
ServerSocket cannot be resolved to a type	ChatServer.java
Socket cannot be resolved to a type	ChatServer.java



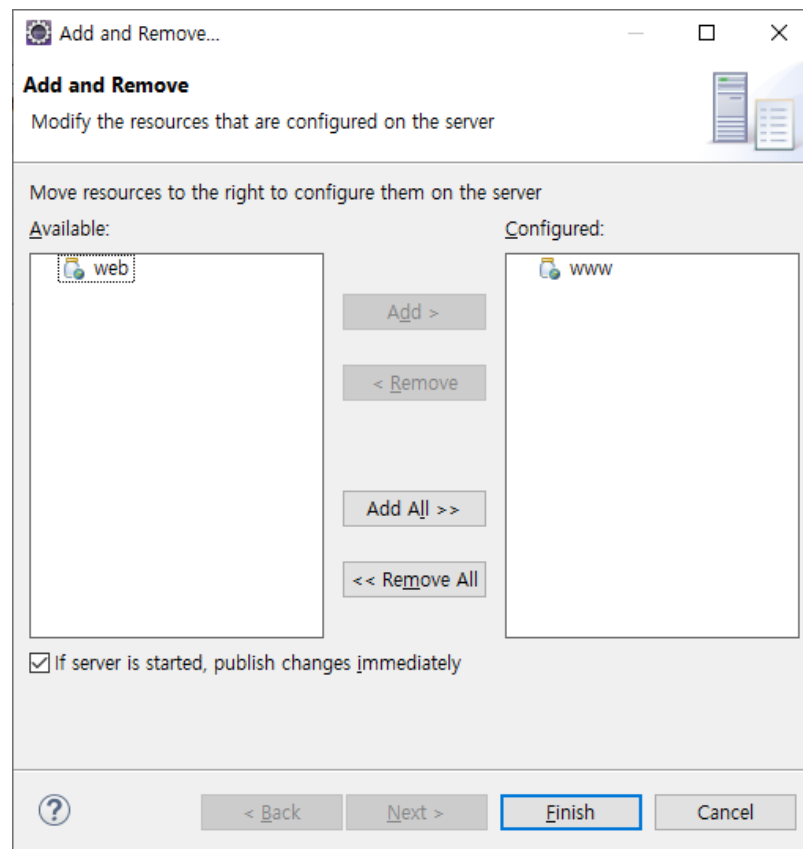
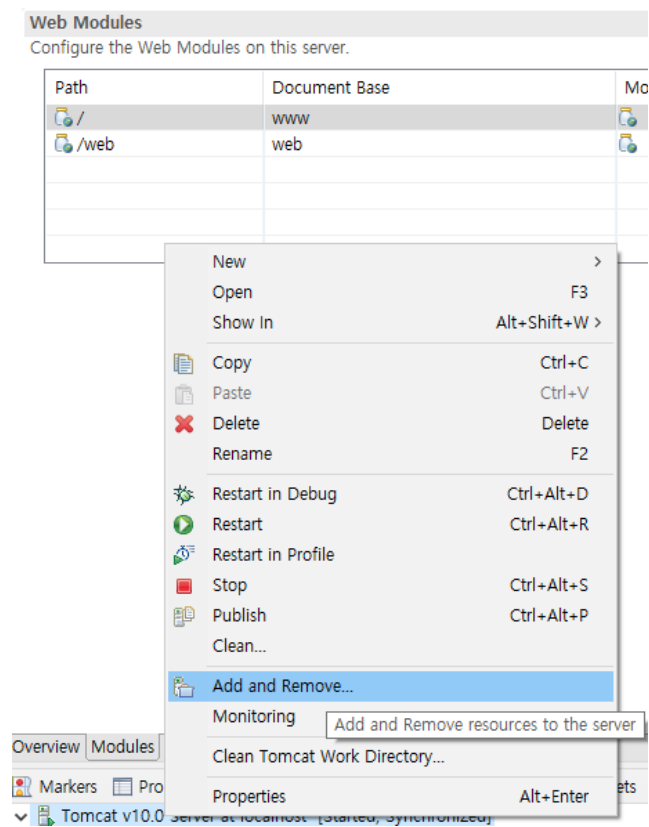
CONTEXT 경로 설정 2가지 방법

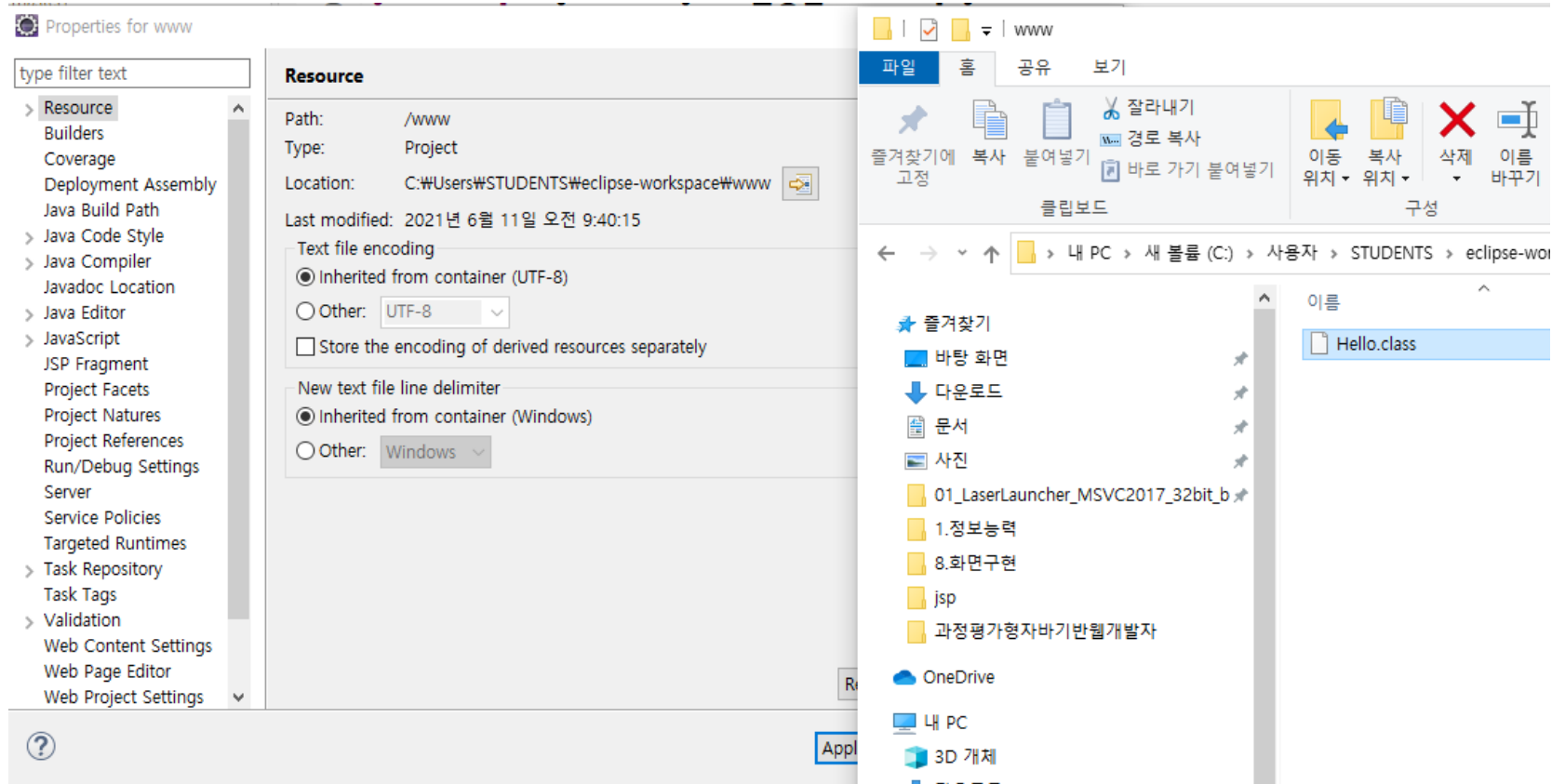
프로젝트의 properties에서 변경

서버의 설정에서 변경



실행중인 서버 추가 제거





서블릿이용해서 클래스만들기

Select a wizard

Create a new Servlet

Wizards:
serv

Server

Web

Servlet

Web Services

Web Service

Web Service Client

< Back

Next >

Finish

Create Servlet

Specify class file destination.

Project: www

Source folder: /www/src/main/java

Java package: www

Class name: Gugudan

Superclass: javax.servlet.http.HttpServlet

☐ Use an existing Servlet class or JSP

Class name: Gugudan

< Back

Next >

Finish

Cancel

URL Mappings

Pattern: /gugudan

OK

Cancel

새로 만드는 파일을 UTF-8로 변경

