

# Object – Oriented Programming

---

LAB #1. ECLIPSE

# Contents

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- 1) Introduction
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- 3) Install Eclipse
- 4) GitLab

# Introduction

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- ❖ Assistant : 김재하
- ❖ Lab : IT/BT #402-2
- ❖ E-mail : jehakim22oct@hanyang.ac.kr

# Schedule

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Week	Lecture	Lab
1	Course Overview	Eclipse IDE
2	Getting Started (ch. 1) Console Input and Output (ch. 2)	Flow of Control(ch.3)
3	Defining Classes I (ch. 4)	Git & GitLab
4	Defining Classes II (ch. 5)	UML
5	Defining Classes II (ch. 5)	
6	Arrays (ch. 6)	
7	Inheritance (ch. 7)	Quiz 1
8	Midterm exam	

# Schedule

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Week	Lecture	Lab
9	Polymorphism and Abstract Classes (ch. 8)	
10	Exception Handling (ch. 9)	File I/O
11	Interface and Inner Classes (ch. 13)	Java Thread
12	Generics and the ArrayList Class (ch. 14)	Quiz 2
13	Design Patterns: Intro, Singleton	
14	Design Patterns: Observer, Decorator	
15	Final Exam	

# Install JDK and Eclipse

# Install JDK

← → ↻ 🔒 jdk.java.net/17/

**jdk.java.net**

**GA Releases**

JDK 17  
JMC 8

**Early-Access Releases**

JDK 19  
JDK 18  
Loom  
Metropolis  
Panama  
Valhalla

**Reference**

**Implementations**

Java SE 17  
Java SE 16  
Java SE 15  
Java SE 14  
Java SE 13  
Java SE 12  
Java SE 11  
Java SE 10  
Java SE 9  
Java SE 8  
Java SE 7

**Feedback**

Report a bug

**Archive**

## OpenJDK JDK 17.0.2 General-Availability Release

This page provides production-ready open-source builds of the Java Development Kit, version 17, an implementation of the [Java SE 17 Platform](#) under the [GNU General Public License, version 2, with the Classpath Exception](#).

Commercial builds of JDK 17.0.2 from Oracle, under a [non-open-source license](#), can be found at the [Oracle Technology Network](#).

### Documentation

- [Features](#)
- [Release notes](#)
- [API Javadoc](#)

### Builds

<b>Linux/AArch64</b>	<a href="#">tar.gz</a> (sha256)	185776417 bytes
<b>Linux/x64</b>	<a href="#">tar.gz</a> (sha256)	187033144
<b>macOS/AArch64</b>	<a href="#">tar.gz</a> (sha256)	182209404
<b>macOS/x64</b>	<a href="#">tar.gz</a> (sha256)	184480668
<b>Windows/x64</b>	<a href="#">zip</a> (sha256)	186216309

### Notes

- The Alpine Linux build previously available on this page was removed as of the first JDK 17 release candidate. It's not production-ready because it hasn't been tested thoroughly enough to be considered a GA build. Please use the [early-access JDK 18 Alpine Linux](#) build in its place.
- If you have difficulty downloading any of these files please contact [jdk-download-help\\_ww@oracle.com](mailto:jdk-download-help_ww@oracle.com).

설치 링크!

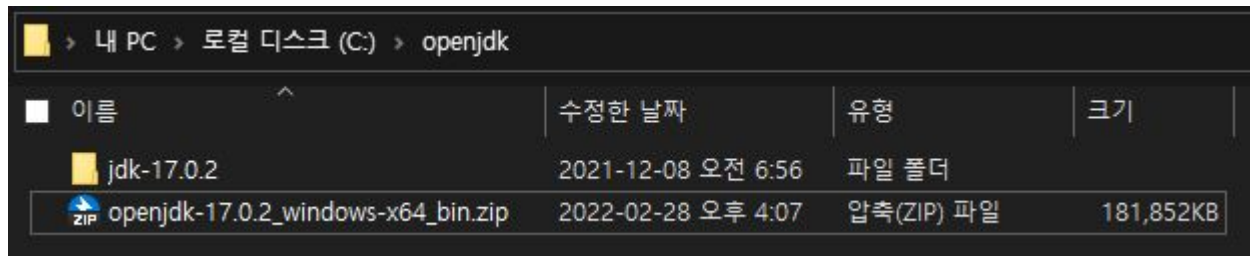
<https://jdk.java.net/17/>

링크 접속 후 zip 파일 설치

# Install JDK

---

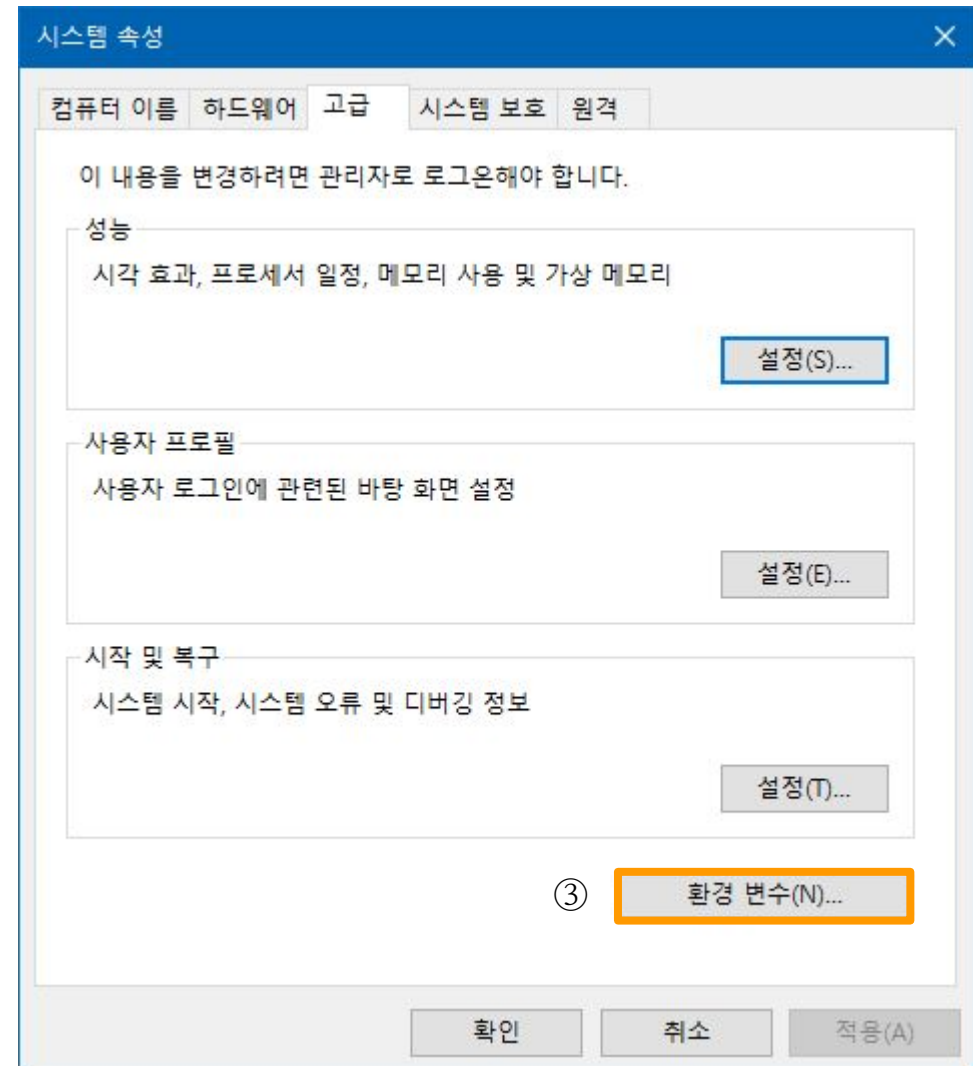
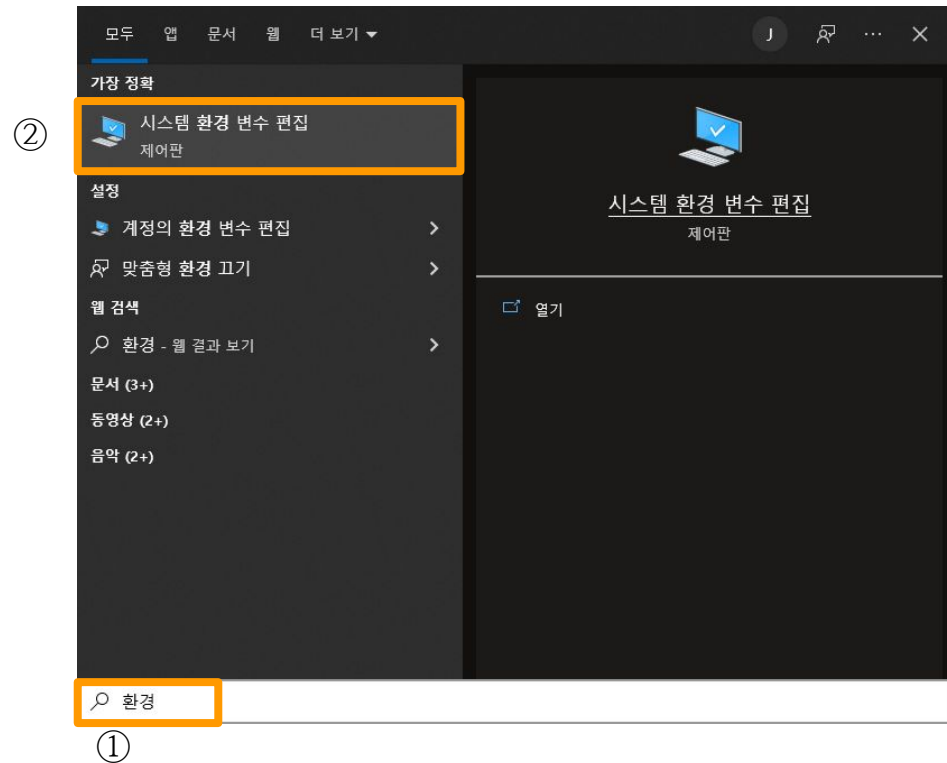
내PC > C드라이브 > 새폴더 생성 (이름 아무거나 상관없음 e.g. openjdk)





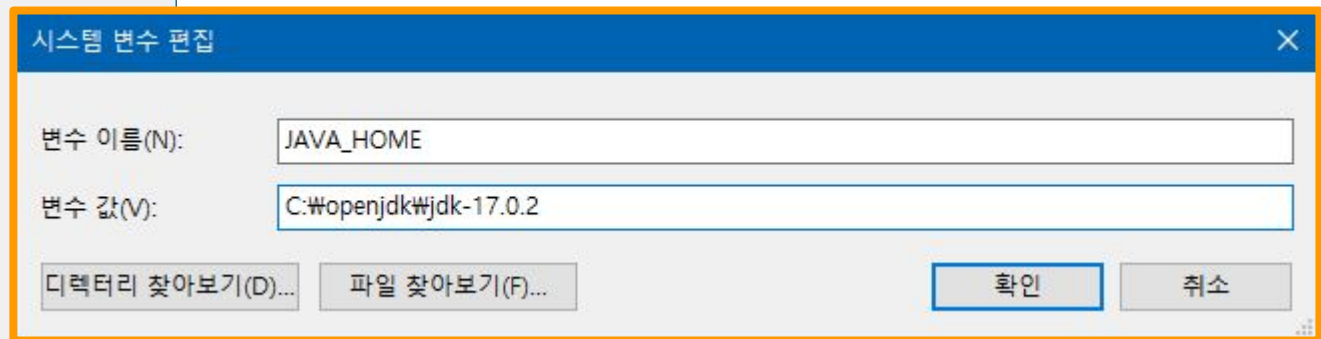
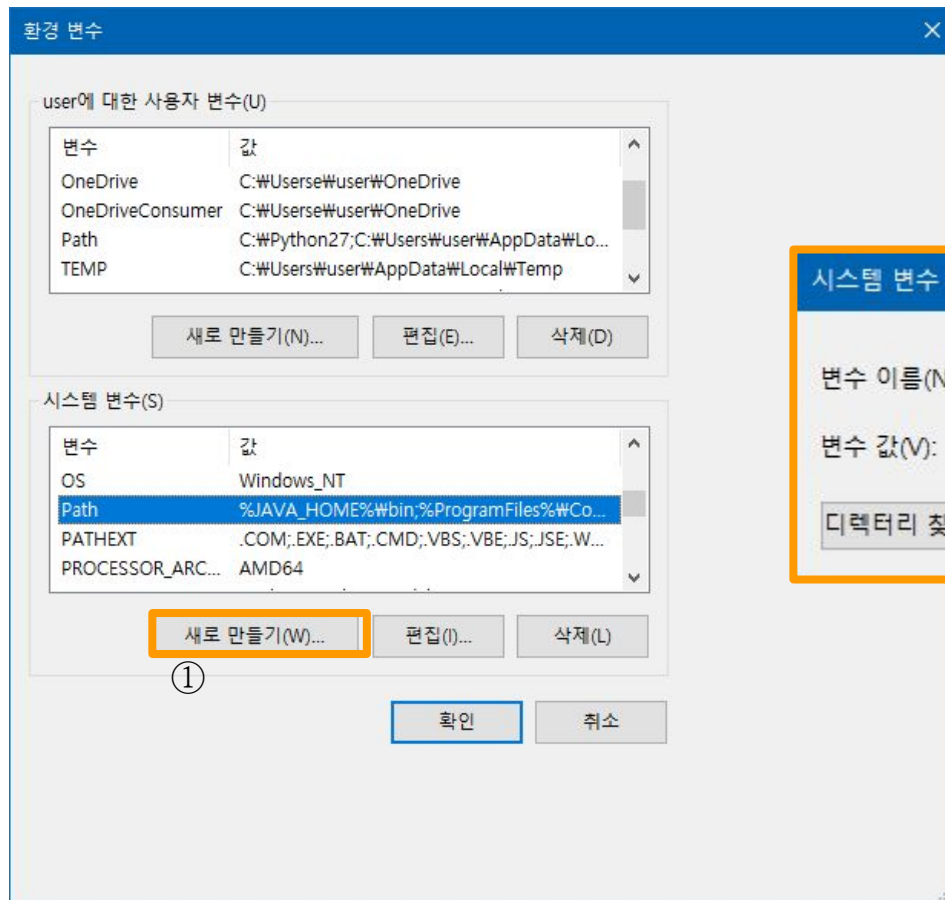
# Install JDK

윈도우 검색(田키) > “환경” 검색 > 시스템 환경 변수 편집



# Install JDK

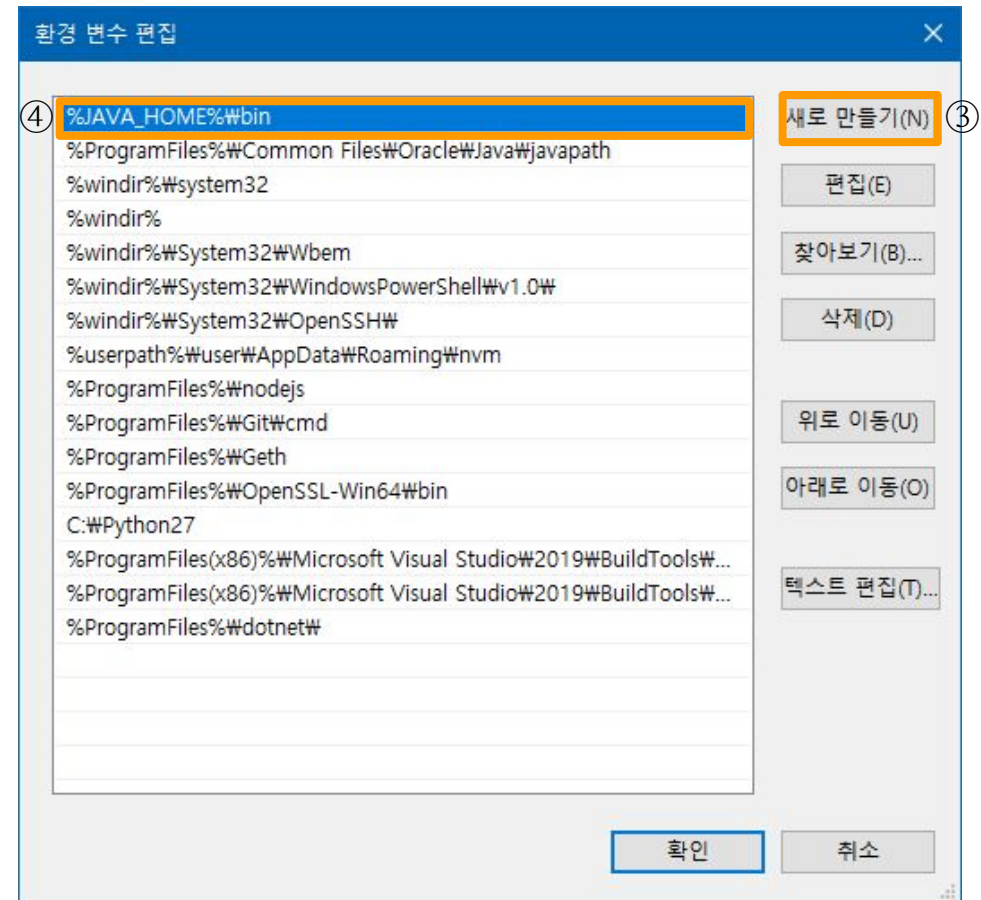
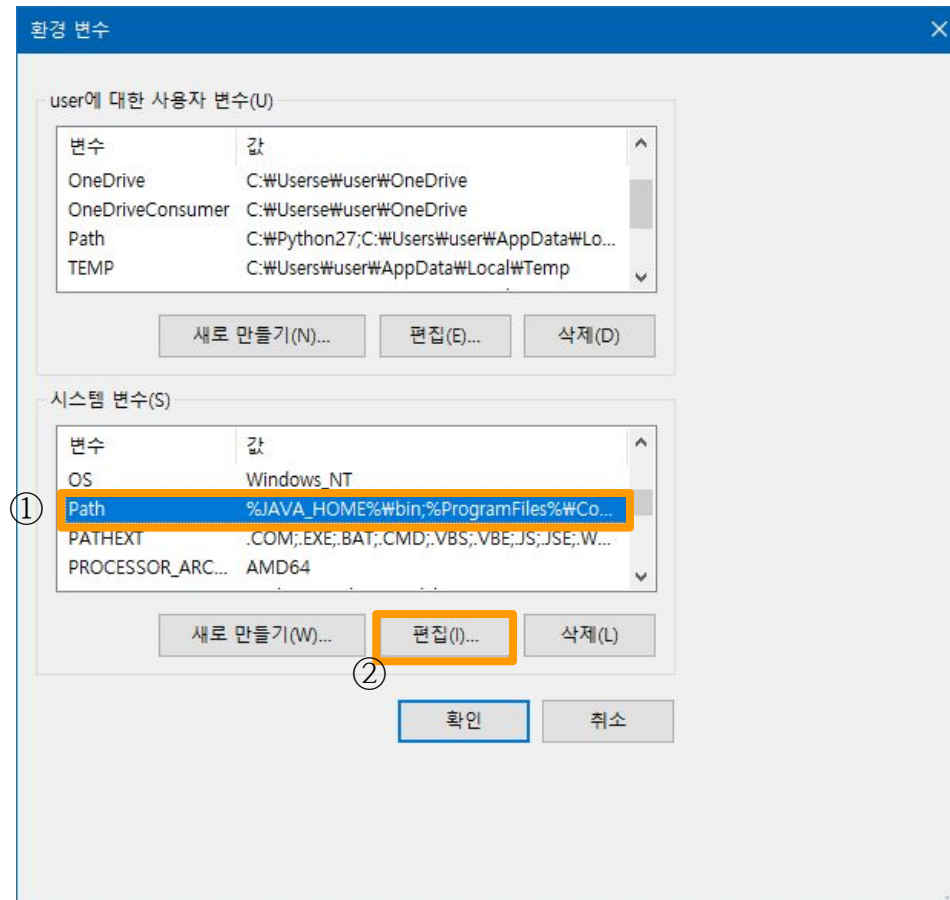
새로 만들기(시스템 변수) > ②처럼 작성(JAVA\_HOME) > 확인



- **JAVA\_HOME :**  
C:\openjdk\jdk-17.0.2
- **Path :**  
%JAVA\_HOME%\bin

# Install JDK

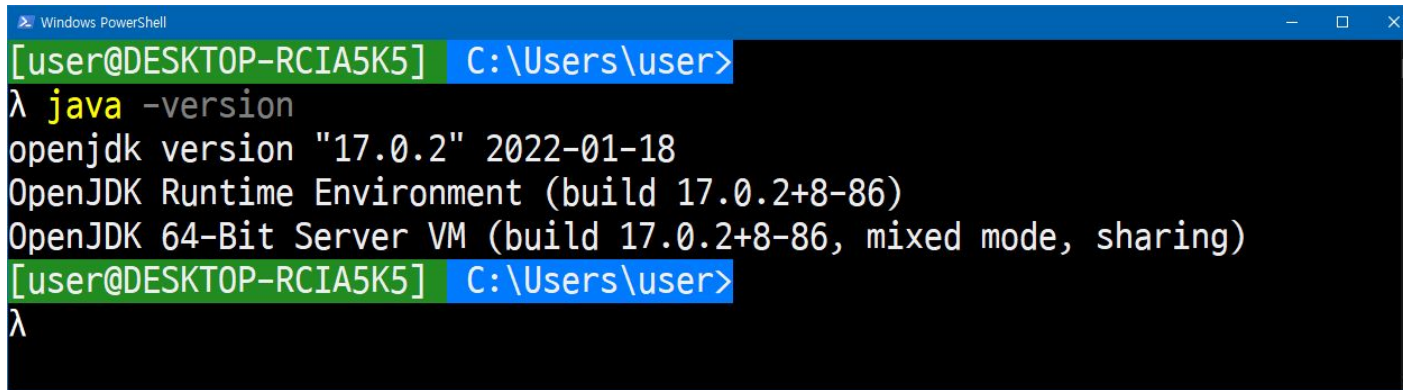
시스템 변수 중에서 Path 찾기 > 더블 클릭 또는 편집 > 새로 만들기 > %JAVA\_HOME%\bin > 확인



# Install JDK

---

Windows Powershell > java -version 엔터 > 아래 그림과 같이 나오면 OK, 안되면 질문!



```
Windows PowerShell
[user@DESKTOP-RCIA5K5] C:\Users\user>
λ java -version
openjdk version "17.0.2" 2022-01-18
OpenJDK Runtime Environment (build 17.0.2+8-86)
OpenJDK 64-Bit Server VM (build 17.0.2+8-86, mixed mode, sharing)
[user@DESKTOP-RCIA5K5] C:\Users\user>
λ
```

## 참고링크

<https://medium.com/hgmin/openjdk-설치-603ee649cb1c>

(윈도우에서 환경 변수 설정)

<https://life-of-panda.tistory.com/41>

(맥에서 환경 변수 설정)

<https://devpouch.tistory.com/125>

(리눅스에서 환경 변수 설정)

# Install Eclipse

The screenshot shows the Eclipse Foundation website's download page. At the top, the Eclipse Foundation logo is on the left, and navigation links for 'Projects', 'Working Groups', 'Members', and 'More' are on the right. A 'Log in' link and 'Manage Cookies' button are also present. The main heading reads 'Download Eclipse Technology that is right for you'. Below this, a yellow box contains the URL 'https://www.eclipse.org/downloads/' and the Korean text '링크 접속 후 다운로드 클릭' (Click the link and then click download). A blue arrow points from this text to the 'Download x86\_64' button under the 'Eclipse IDE Tools' section. The 'Eclipse IDE Tools' section includes the Eclipse logo, the text 'Get Eclipse IDE 2021-12', 'Install your favorite desktop IDE packages.', and the 'Download x86\_64' button. Below the button are links for 'Download Packages' and 'Need Help?'. To the right, the 'OpenJDK Runtimes' section features the Temurin logo, a description of the project, and a 'Download Now' button with a 'Learn More' link below it. A 'Sponsored Ad' for Fraunhofer FOKUS is visible on the right side of the page.

← → ↻ [eclipse.org/downloads/](https://www.eclipse.org/downloads/) Log in Manage Cookies

**ECLIPSE**  
FOUNDATION

Projects Working Groups Members More ▾

Download Eclipse Technology  
that is right for you

<https://www.eclipse.org/downloads/>  
링크 접속 후 다운로드 클릭

Sponsored Ad

**Fraunhofer**  
FOKUS

We connect  
everything

Advertise Here

Eclipse IDE Tools

Get **Eclipse IDE 2021-12**  
Install your favorite desktop IDE packages.

**Download x86\_64**

Download Packages | Need Help?

OpenJDK Runtimes


**TEMURIN**  
BY ADOPTION

The Eclipse Temurin™ project provides high-quality, TCK  
certified OpenJDK runtimes and associated technology for  
use across the Java™ ecosystem.

**Download Now**

Learn More

# Install Eclipse




ProjectsWorking

Home / Downloads / Eclipse downloads - Select a mirror

All downloads are provided under the terms and conditions of the Eclipse Foundation Software User Agreement unless otherwise specified.

다운로드 클릭



Download from: Japan - Yamagata University (https)

File: eclipse-inst-jre-win64.exe SHA-512

>> Select Another Mirror

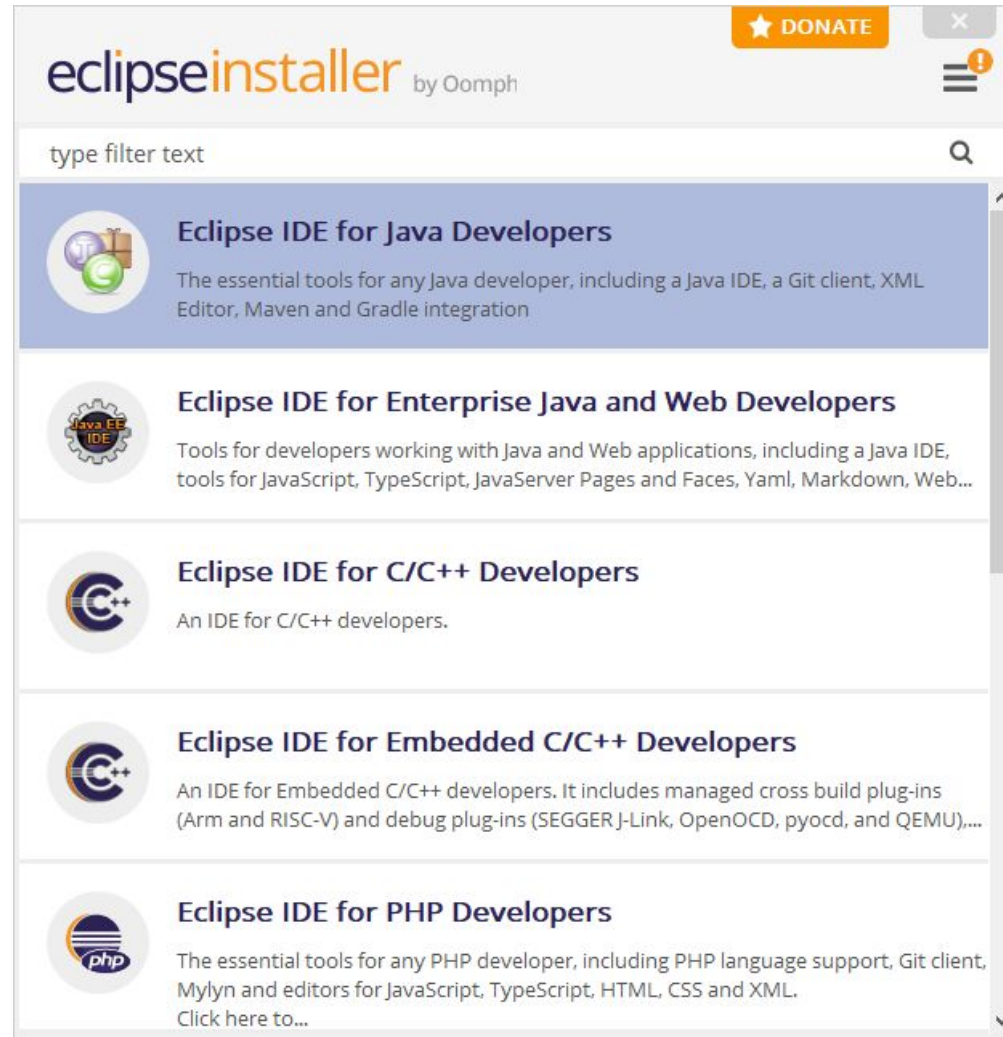
- (참고) 프로그램 해시값 구하기  
[https://emn178.github.io/online-tools/sha512\\_file\\_hash.html](https://emn178.github.io/online-tools/sha512_file_hash.html)

# Install Eclipse

---






# Install Eclipse






# Install Eclipse

by Oomph





**Eclipse IDE for Java Developers**[details](#)

The essential tools for any Java developer, including a Java IDE, a Git client, XML Editor, Maven and Gradle integration.

**경로 설정 주의!**

Java 11+ VM


C:\openjdk\jdk-17.0.2


Installation Folder


C:\Users\user\eclipse\java-2021-12



☐ create start menu entry


☐ create desktop shortcut

 **INSTALL**

 **BACK**

by Oomph





**Eclipse IDE for Java Developers**[details](#)

The essential tools for any Java developer, including a Java IDE, a Git client, XML Editor, Maven and Gradle integration.

Java 11+ VM


C:\openjdk\jdk-17.0.2

Installation Folder

C:\Users\user\eclipse\java-2021-123

☐ create start menu entry


☐ create desktop shortcut

 **LAUNCH**

☐ show readme file

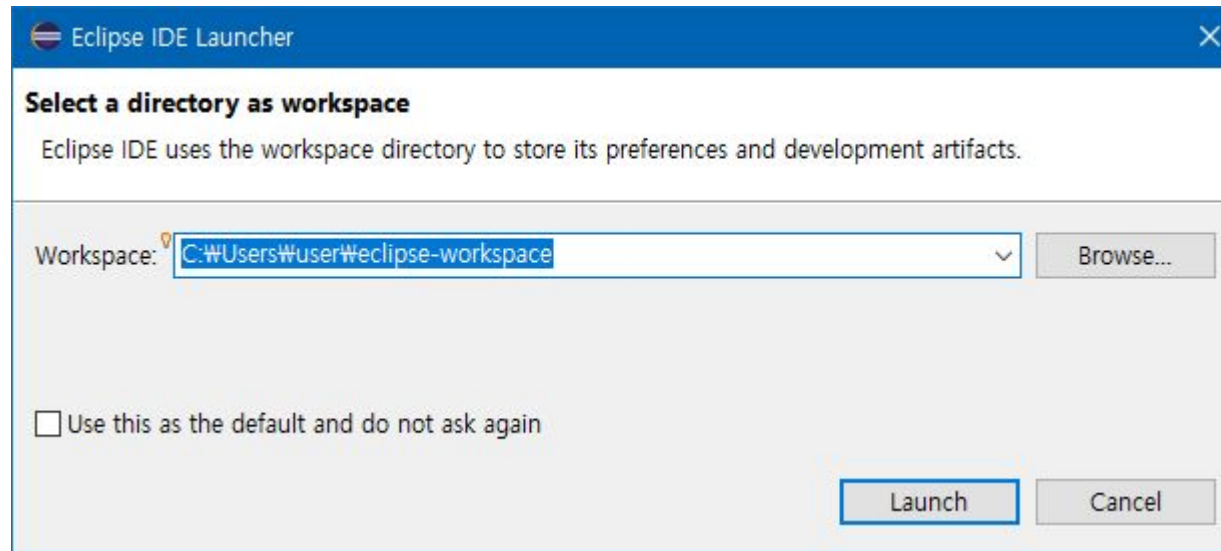
☐ open in system explorer

☐ keep installer

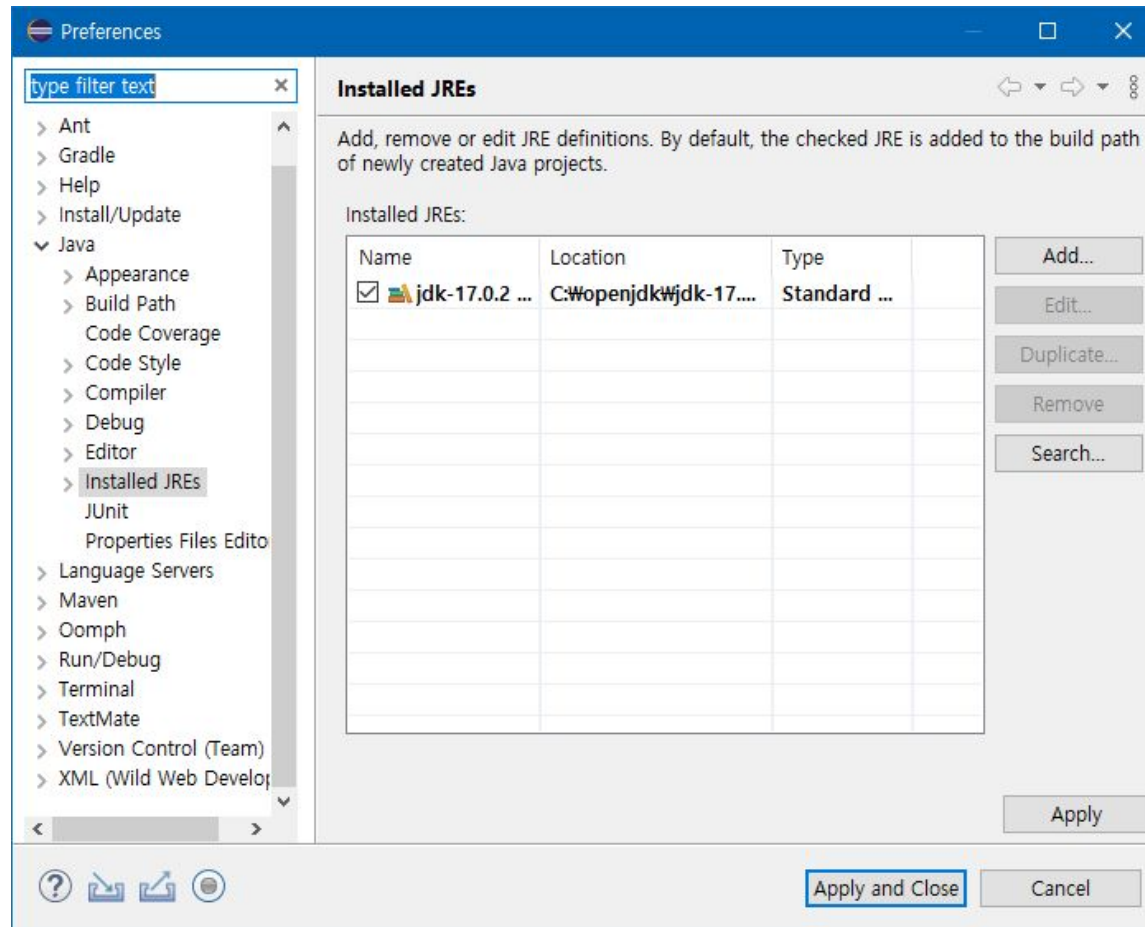
 **BACK**

# Install Eclipse

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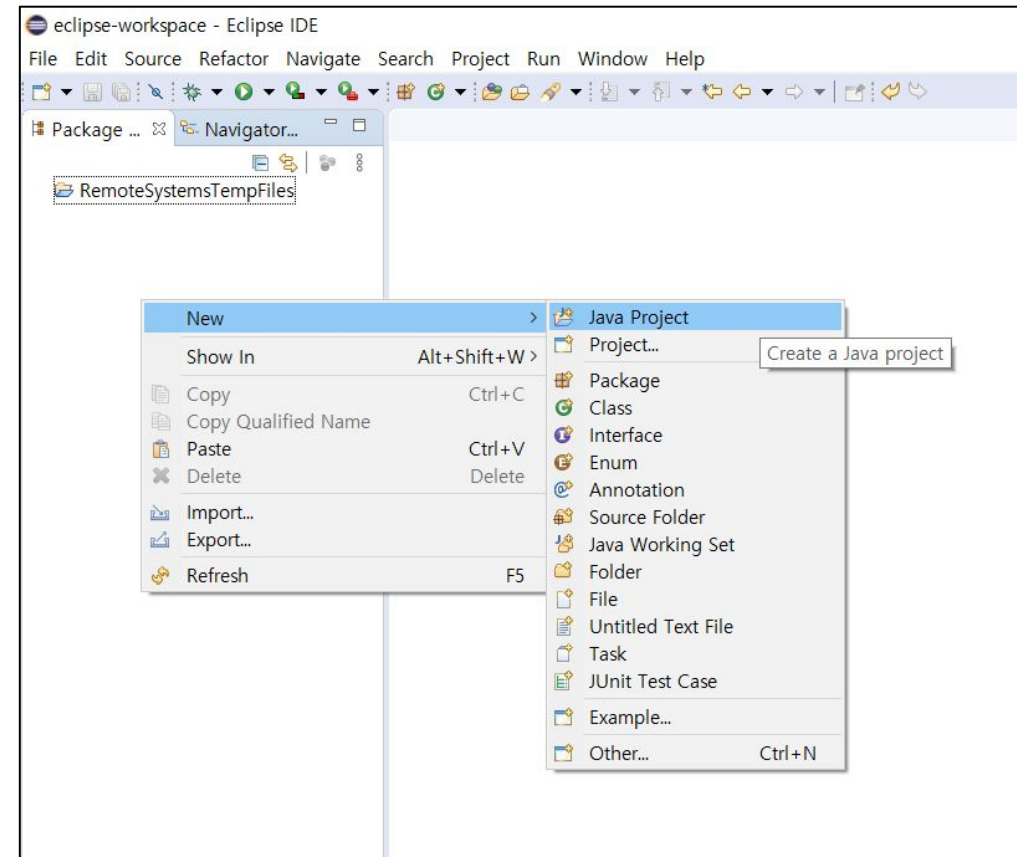
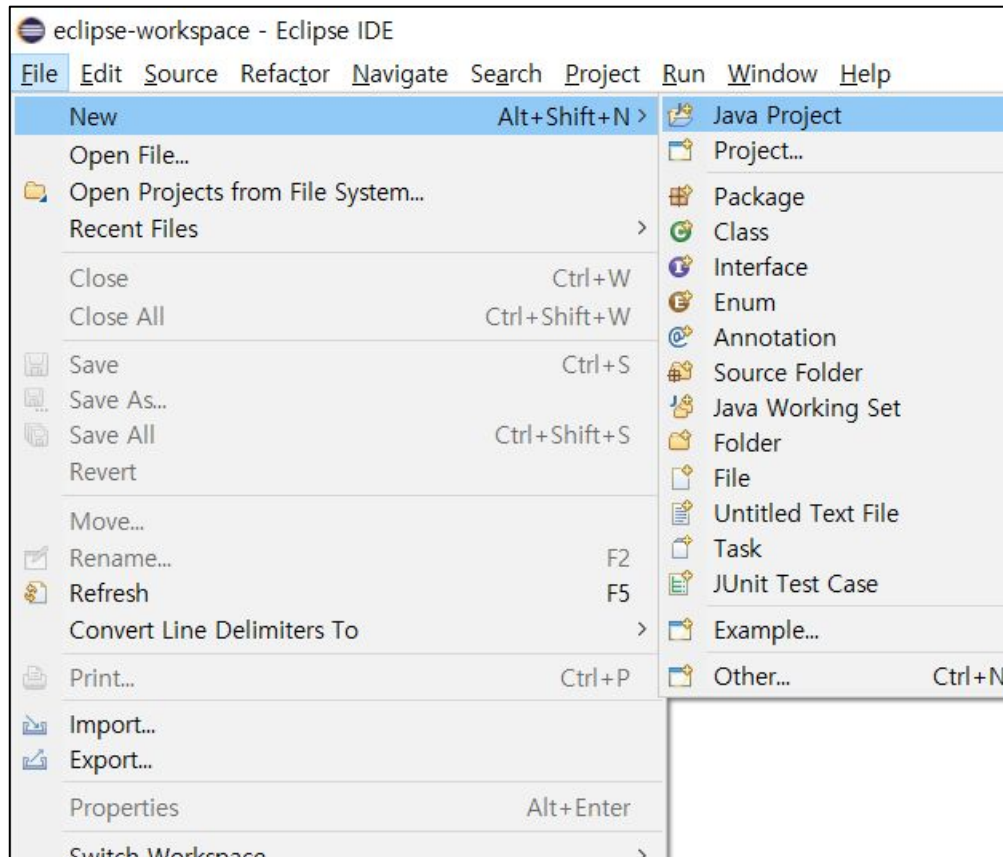


- Window □ Preferences



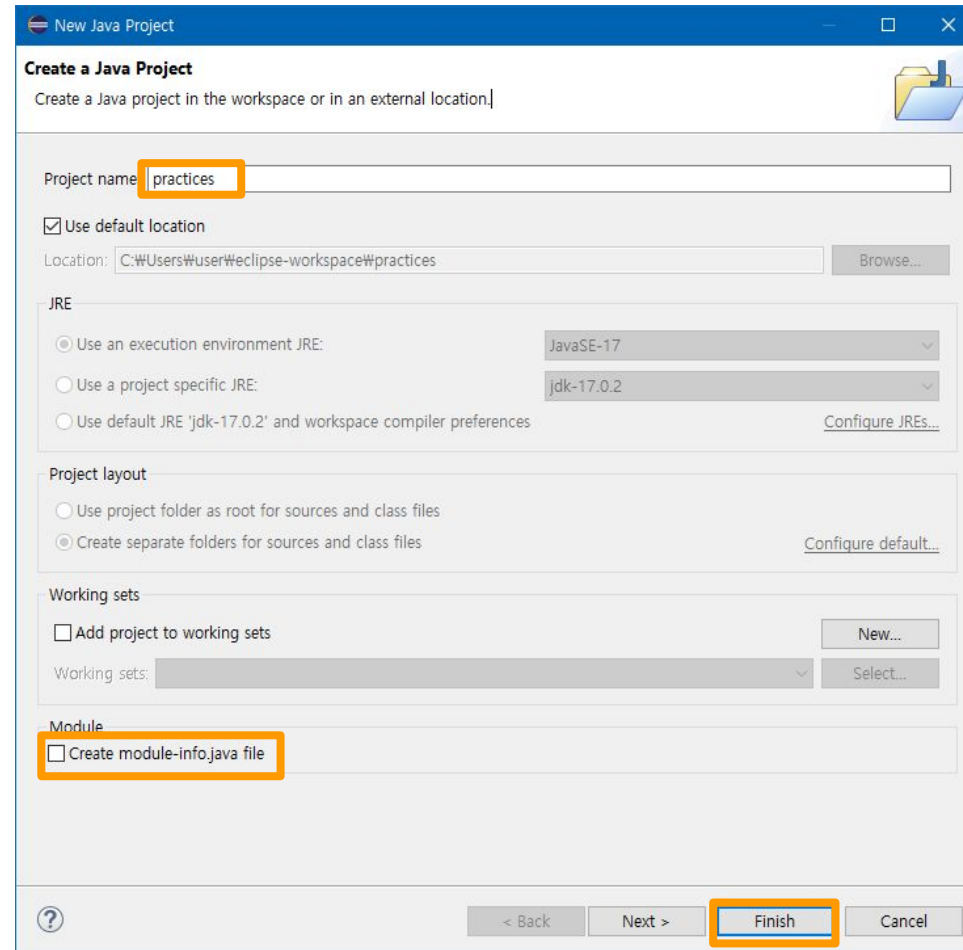
# Running Eclipse

## – Create Project



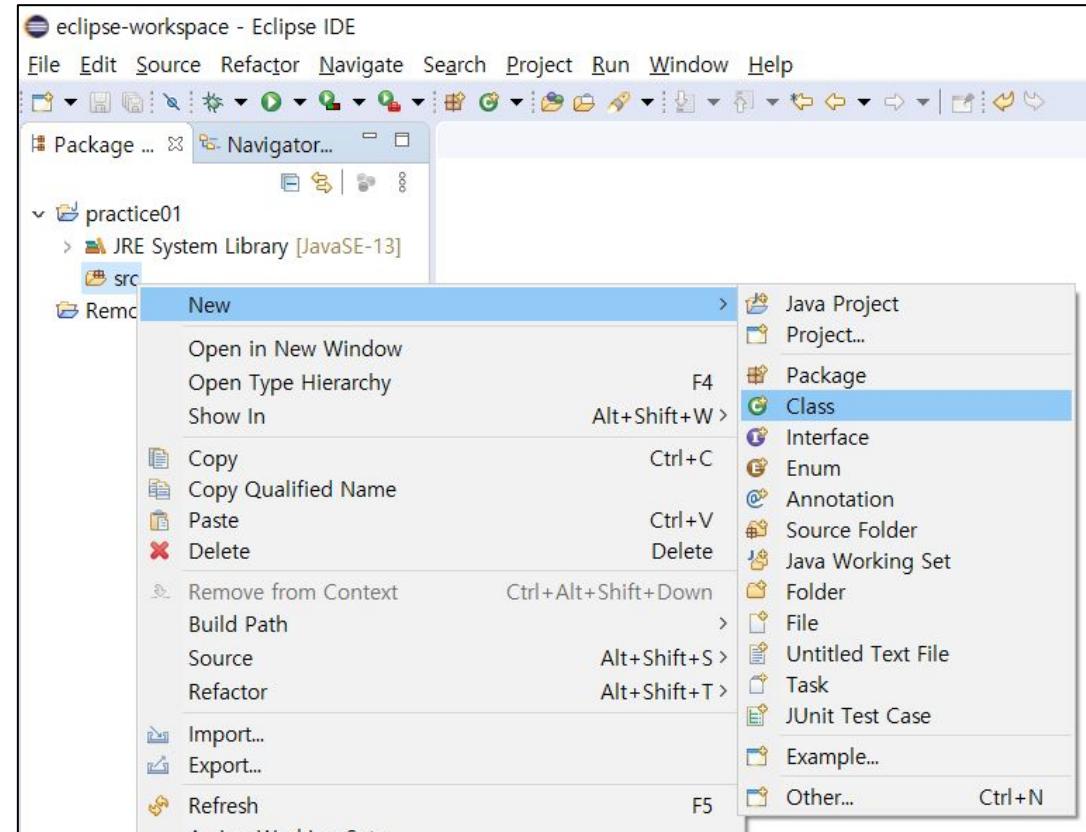
# Running Eclipse

## – Create Project



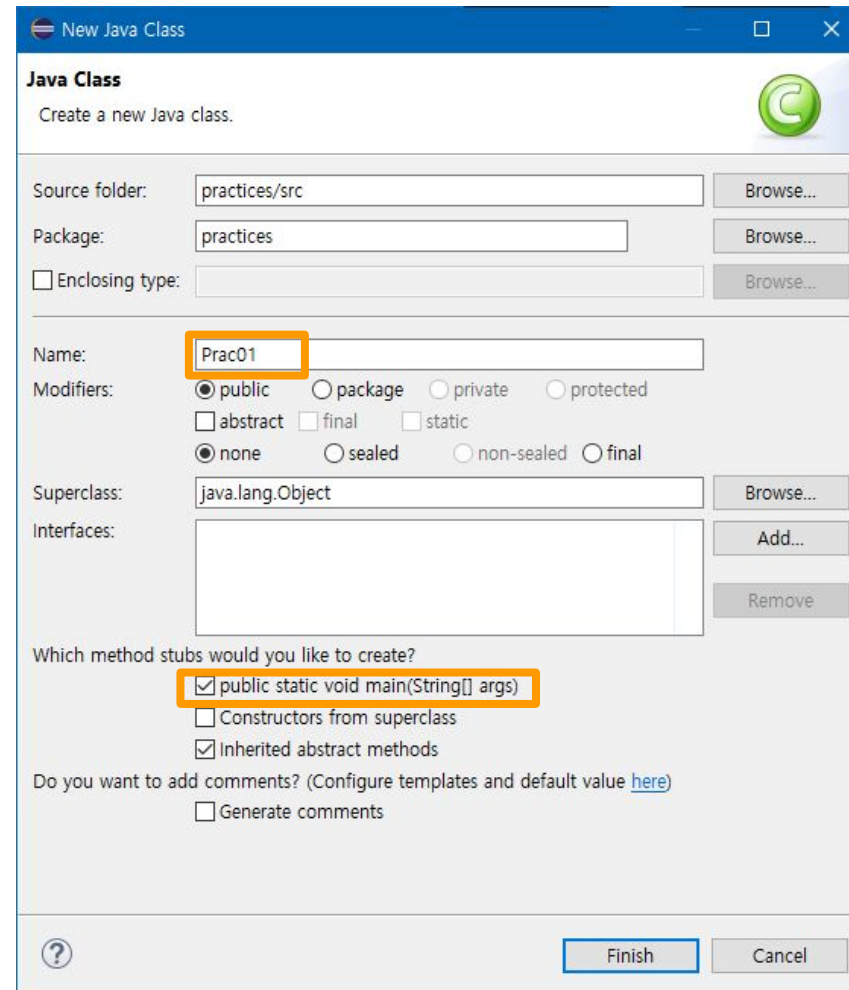
# Running Eclipse

## – Create Project



# Running Eclipse

## – Create Project



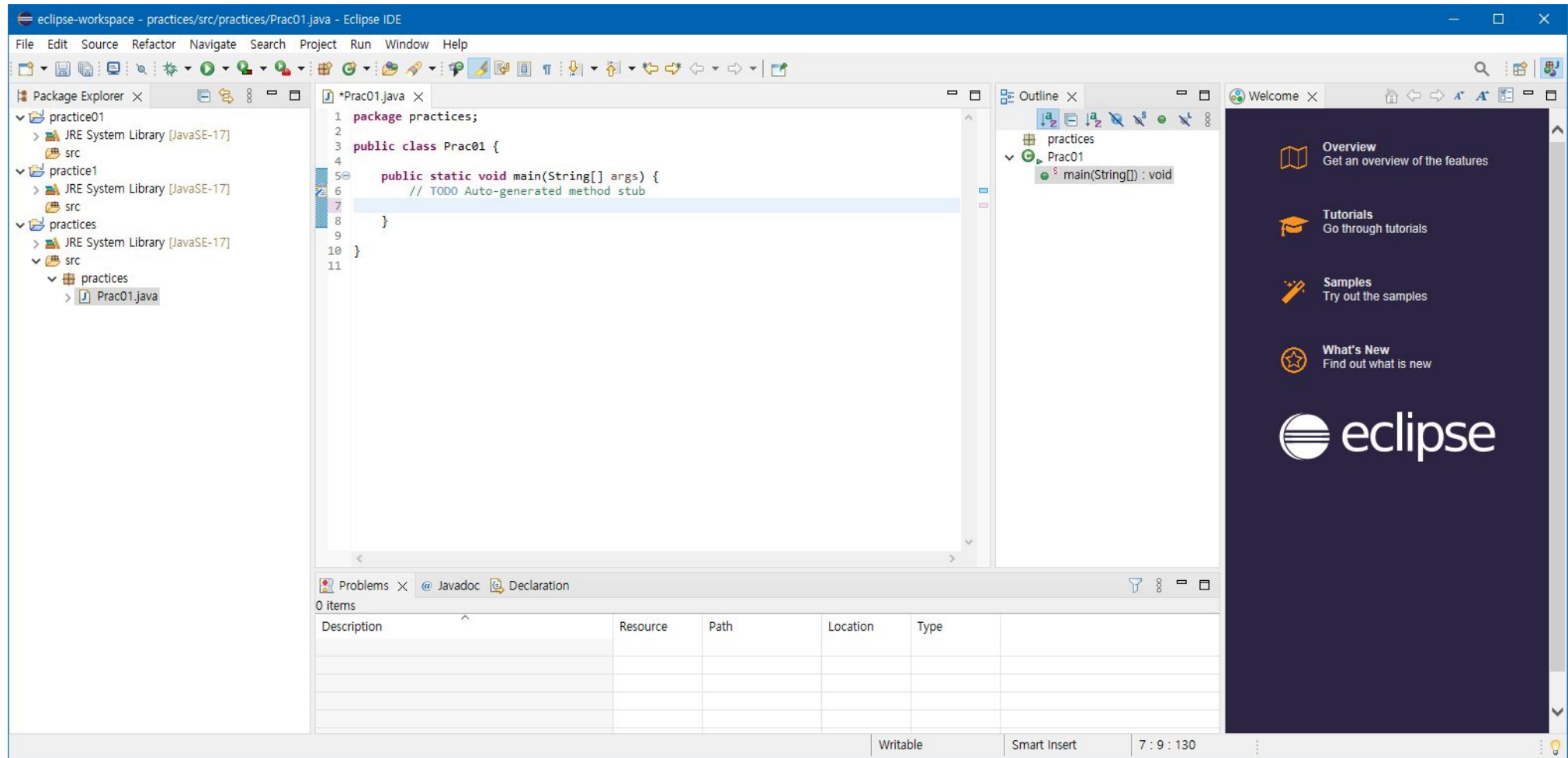
The screenshot shows the 'New Java Class' dialog box in the Eclipse IDE. The dialog has a title bar 'New Java Class' and a subtitle 'Java Class' with the instruction 'Create a new Java class.' and the Eclipse logo. The fields and options are as follows:

- Source folder: practices/src (with a 'Browse...' button)
- Package: practices (with a 'Browse...' button)
- Enclosing type: (empty field with a 'Browse...' button)
- Name: Prac01 (highlighted with an orange box)
- Modifiers:
  - ☒ public, ☐ package, ☐ private, ☐ protected
  - ☐ abstract, ☐ final, ☐ static
  - ☒ none, ☐ sealed, ☐ non-sealed, ☐ final
- Superclass: java.lang.Object (with a 'Browse...' button)
- Interfaces: (empty list with 'Add...' and 'Remove' buttons)
- Which method stubs would you like to create?
  - ☒ public static void main(String[] args) (highlighted with an orange box)
  - ☐ Constructors from superclass
  - ☒ Inherited abstract methods
- Do you want to add comments? (Configure templates and default value [here](#))
  - ☐ Generate comments

At the bottom, there is a help icon (?), a 'Finish' button, and a 'Cancel' button.

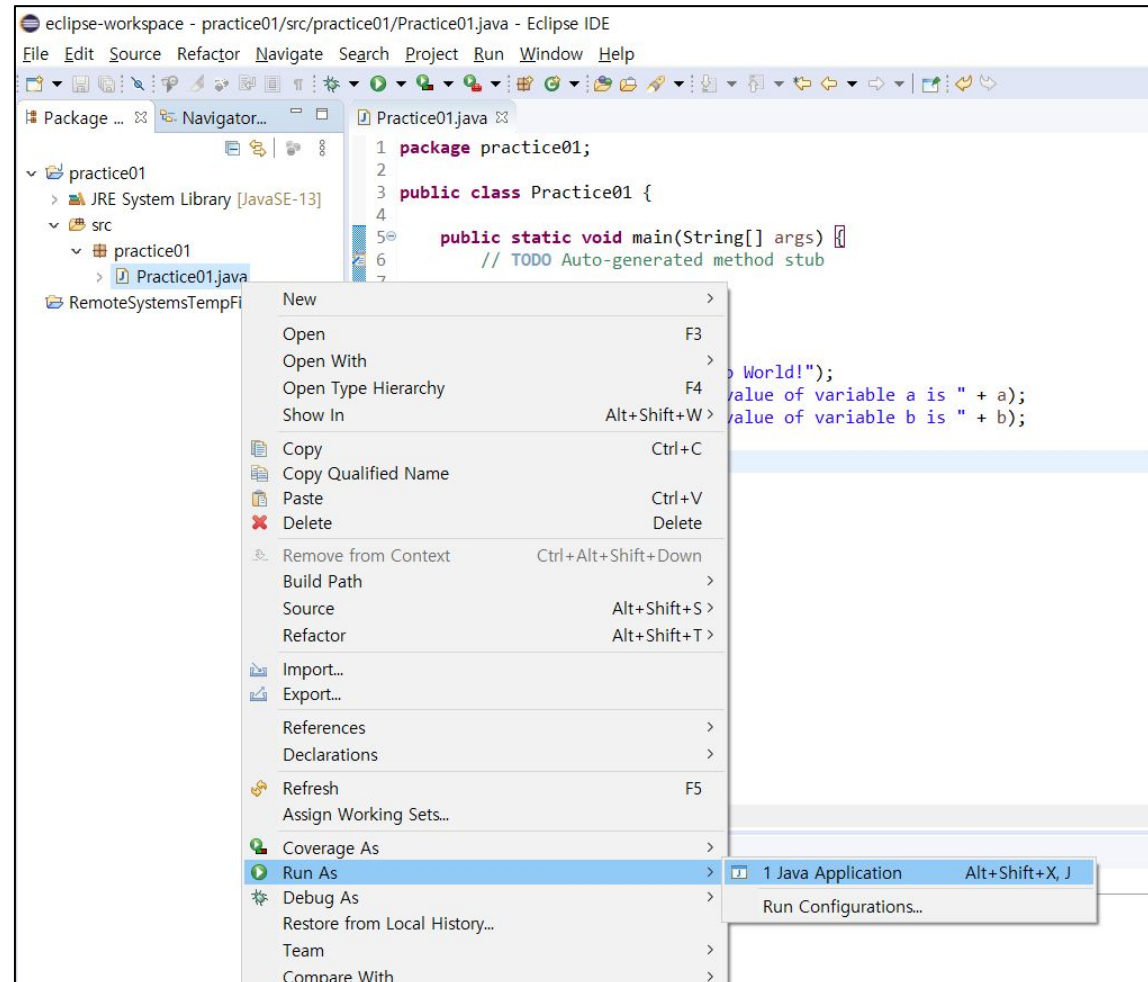


# Running Eclipse

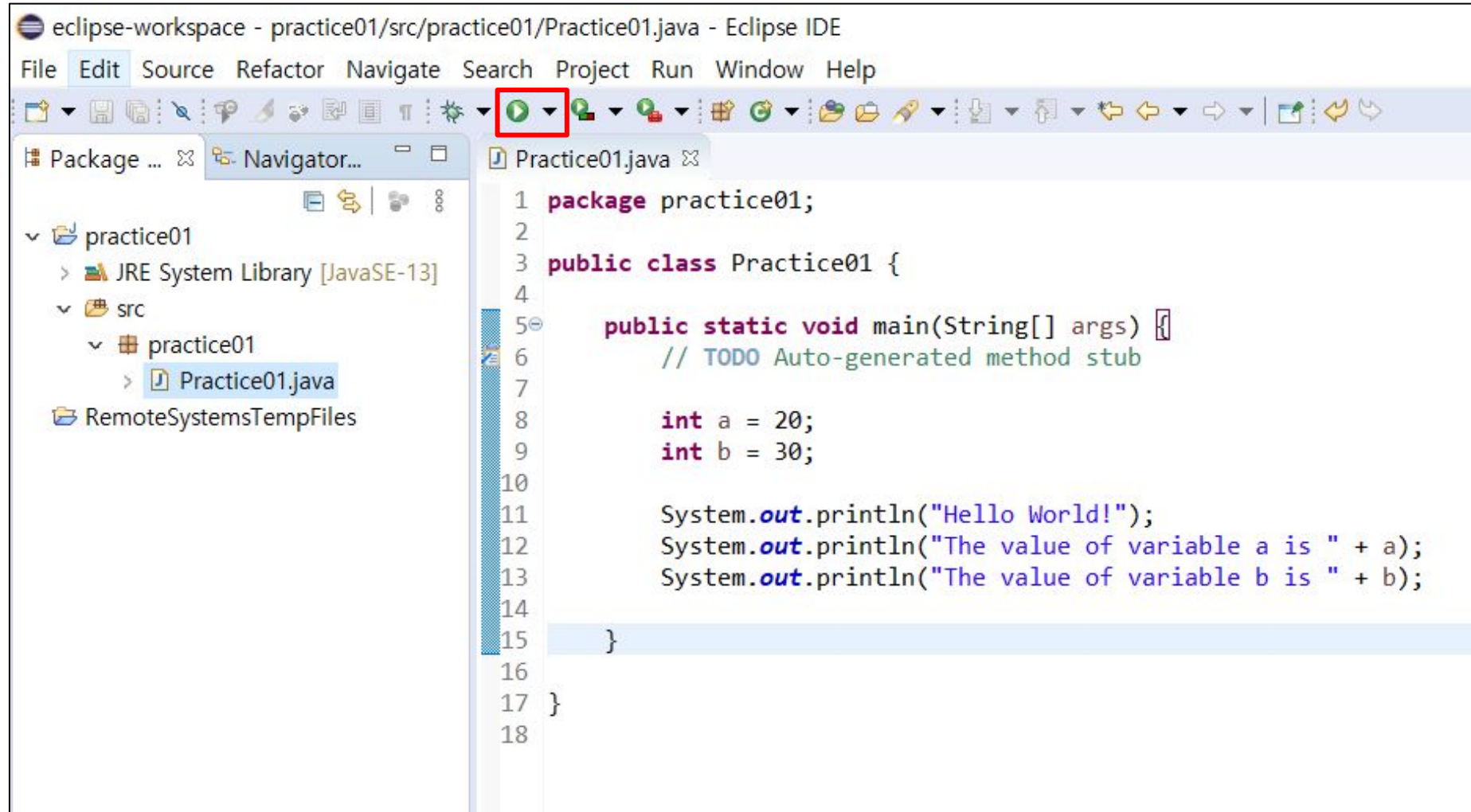




# Running Eclipse



# Running Eclipse



# Running Eclipse

---

- Console Output(System.out.println)

```
int a = 20;  
int b = 30;
```

```
System.out.println("Hello World!");  
System.out.println("The value of variable a is " + a);  
System.out.println("The value of variable b is " + b);
```

```
Hello World!  
The value of variable a is 20  
The value of variable b is 30
```

# Example Compilation Error

패키지 및 클래스 오류

오류 구문 라인 표시 및 해결 방법

오류나는 항목

모든 프로젝트에 대한 오류를 표 형식으로 표시

```
package edu.umbc.dhood2;

public class HelloWorld {

    /**
     * @param args
     */
    public static void main(String[] args) {

        System.out.println("Hello World!");

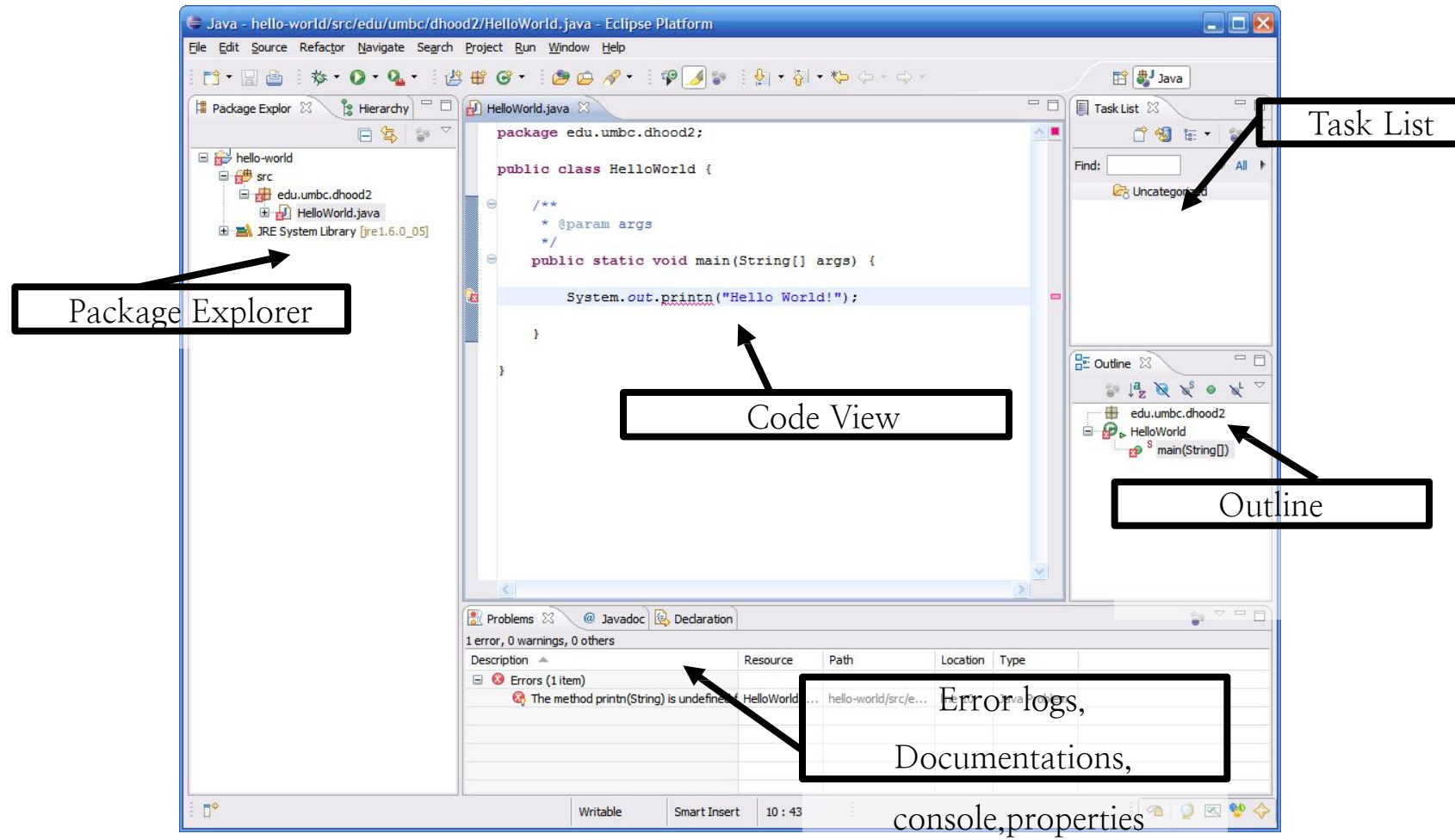
    }

}
```

Description	Severity	Location	Type
The method println(String) is undefined for the type HelloWorld	Error	hello-world/src/edu/umbc/dhood2/HelloWorld.java line 10	Java Problem

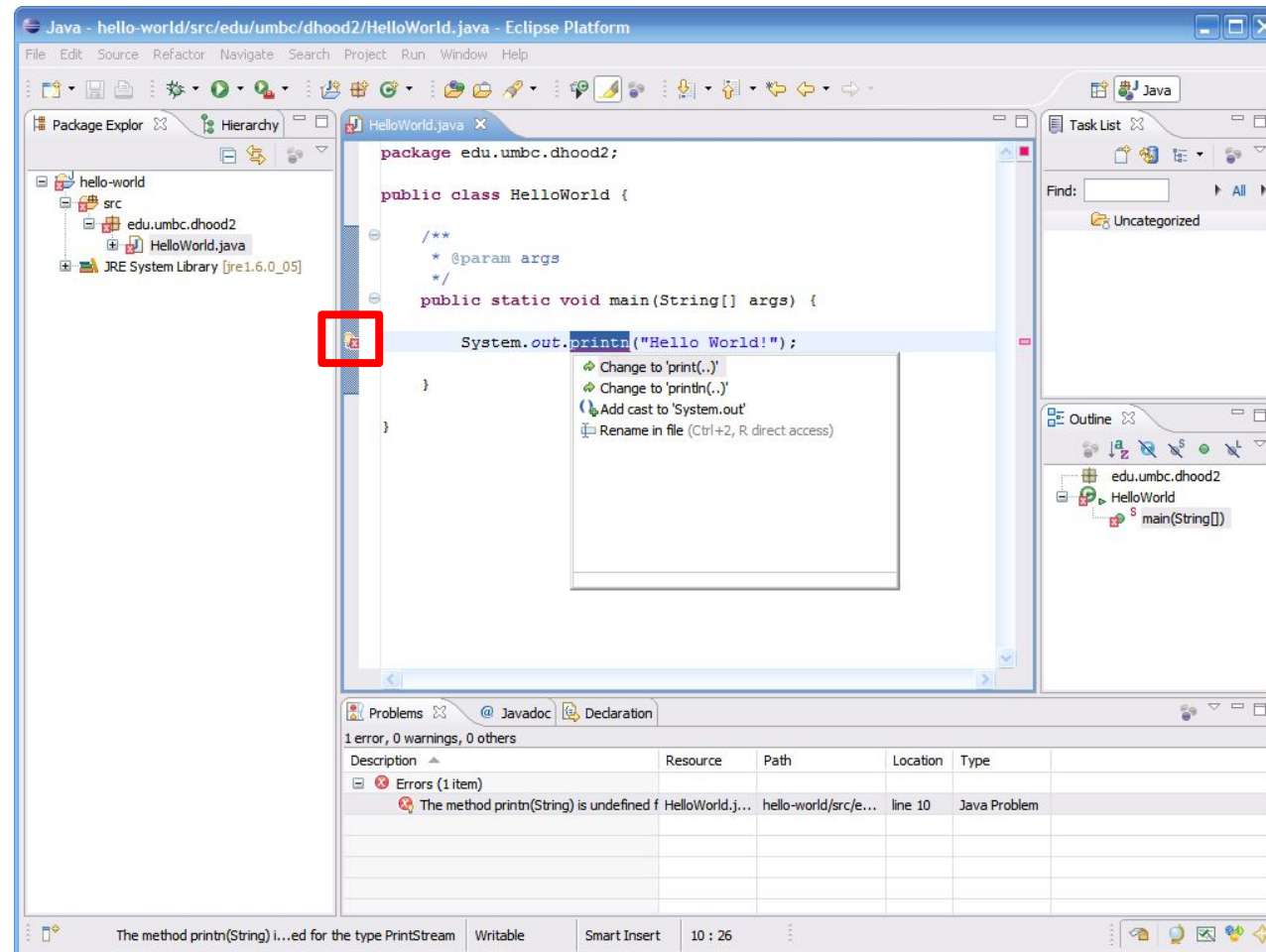
20

# Running Eclipse



# Example Compilation Error

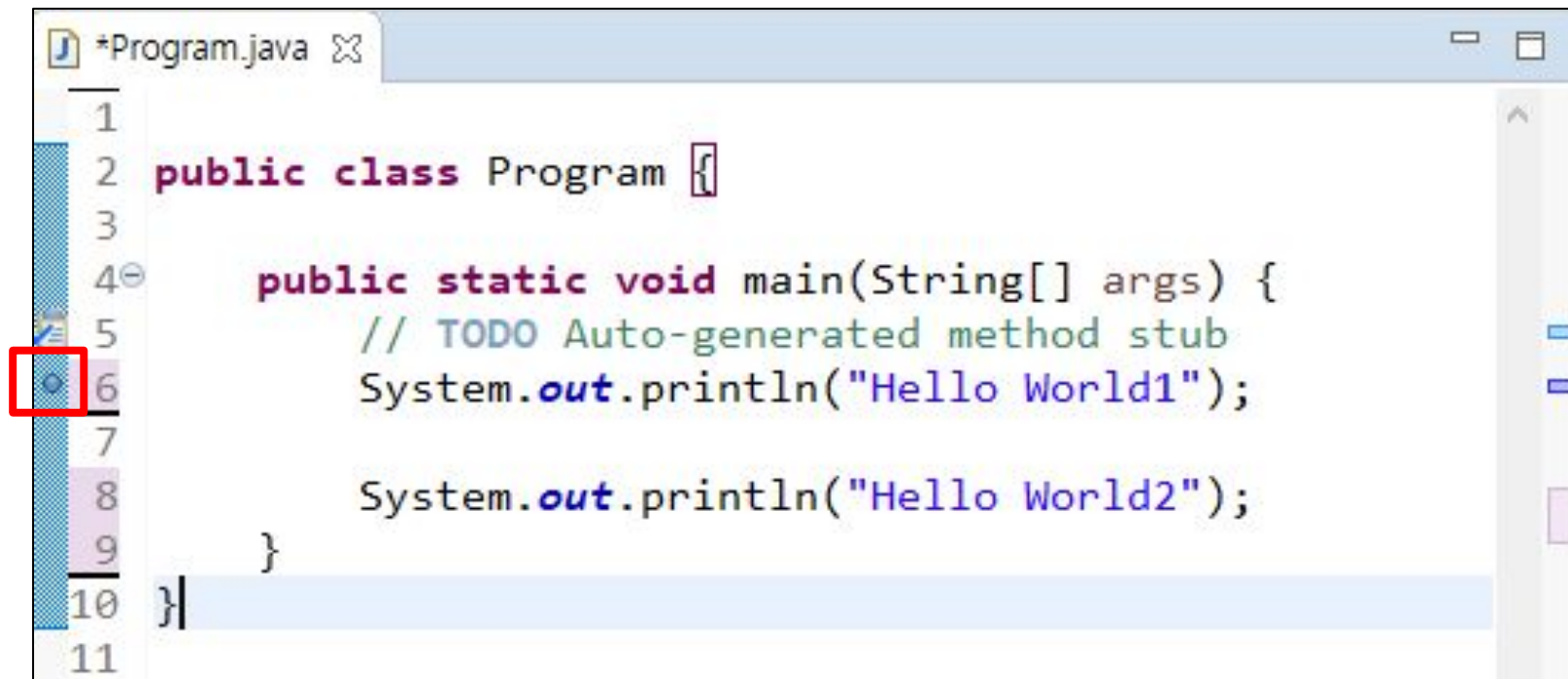
- 전구 버튼을 눌러 해결방법을 확인





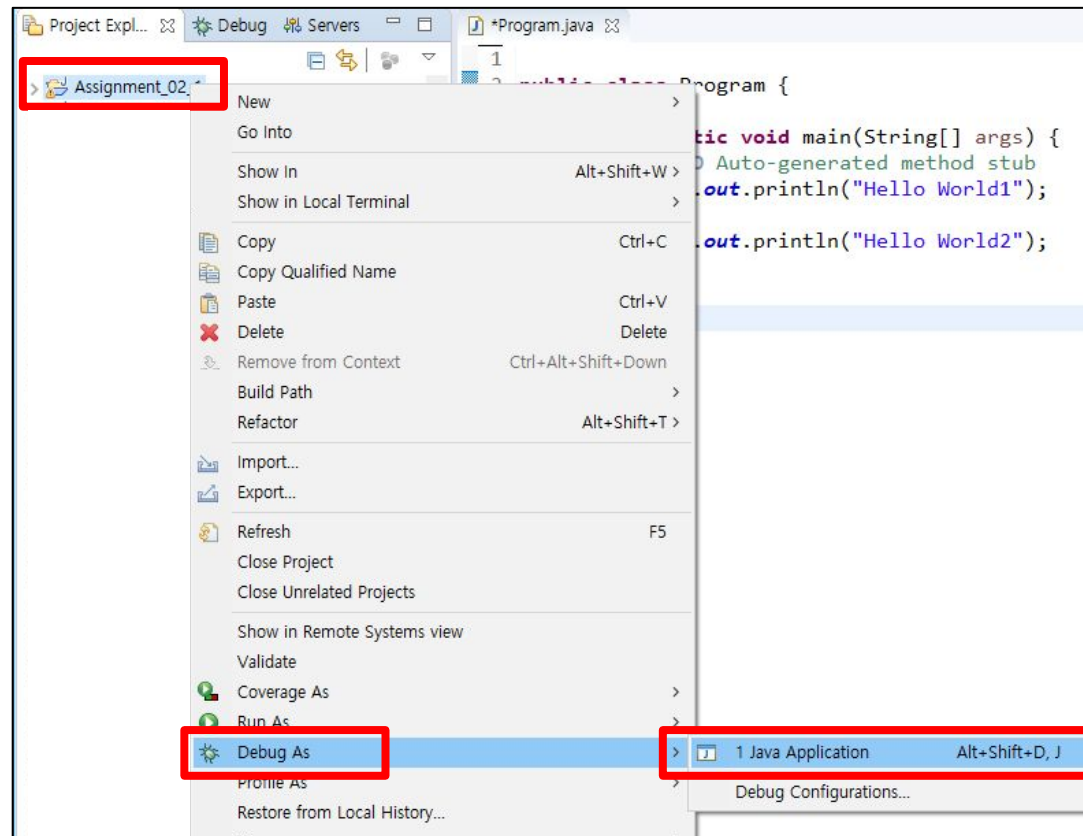
# Debugging Code

- 원하는 Line의 왼쪽을 더블 클릭하여 Break Point 생성



# Debugging Code

- 프로젝트 우클릭 - [Debug As] - [Java Application] 클릭





# Debugging Code

BreakPoints  
리스트

현재 실행 중인  
소스 코드

범위 내의 현재  
변수 값 확인

```
1 public class Program {  
2  
3  
4 public static void main(String[] args) {  
5 // TODO Auto-generated method stub  
6  
7  
8 System.out.println("Hello" + i);  
9  
10 }  
11 }  
12
```

Name	Value
no method return value	
args	String[0] (id=19)
i	0

Program (18) [Java Application] C:\Program Files\Java\jdk-10.0.2\bin\javaw.exe (2019. 2. 28. 오후 4:04:49)

GitLab

# GitLab 로그인 및 초기 설정

1. <https://hconnect.hanyang.ac.kr> 접속 후 Sign in with Hanyang 버튼 클릭



## GitLab Community Edition

### Open source software to collaborate on code

Manage Git repositories with fine-grained access controls that keep your code secure. Perform code reviews and enhance collaboration with merge requests. Each project can also have an issue tracker and a wiki.

Sign in

Register

Username or email

Password

☐ Remember me

[Forgot your password?](#)

Sign in

Sign in with

Hanyang

☐ Remember me



# GitLab 로그인 및 초기 설정

## 2. 한양인 계정으로 로그인



### 한양대학교 | 로그인

고객님의 정보에 접근하기 위하여 인증이 필요합니다.  
한양대학교 포털 한양인(HY-in)계정으로 로그인 하시기 바랍니다.

Portal Login

---

ID	<input type="text" value="아이디를 입력하세요"/>	<div>로그인</div>
Password	<input type="password" value="비밀번호를 입력하세요"/>	

# GitLab 로그인 및 초기 설정

## 3. 정보 제공 동의

**한양대학교 | 개인정보의 제 3자 제공동의 요청**

한양대학교 OPEN API는 아래와 같은 개인정보를 온라인 소프트웨어 교육 지원 시스템 - Real 에 제공합니다.

**제공 받는자**

커넥트재단 (온라인 소프트웨어 교육 지원 시스템 - REAL)

**제공 목적**

웹상에서 학생 실습코드를 저장하고 빌드 하며 채점, 코드 리뷰를 수행하는 시스템 입니다.

실습 코드 저장은 GITLABCE를 활용할 예정이고  
코드 리뷰는 REVIEW BOARD, 빌드 및 채점은 JENKINS를 사용할 예정입니다.

한양대 도메인을 통해 서비스 하고 한양대 학생 인증을 적용할 예정입니다.

**\*\* 실제 서비스를 사용자가 사용하는 환경 입니다.**

**제공 항목**

모든 항목에 동의하셔야만 이용 가능합니다.

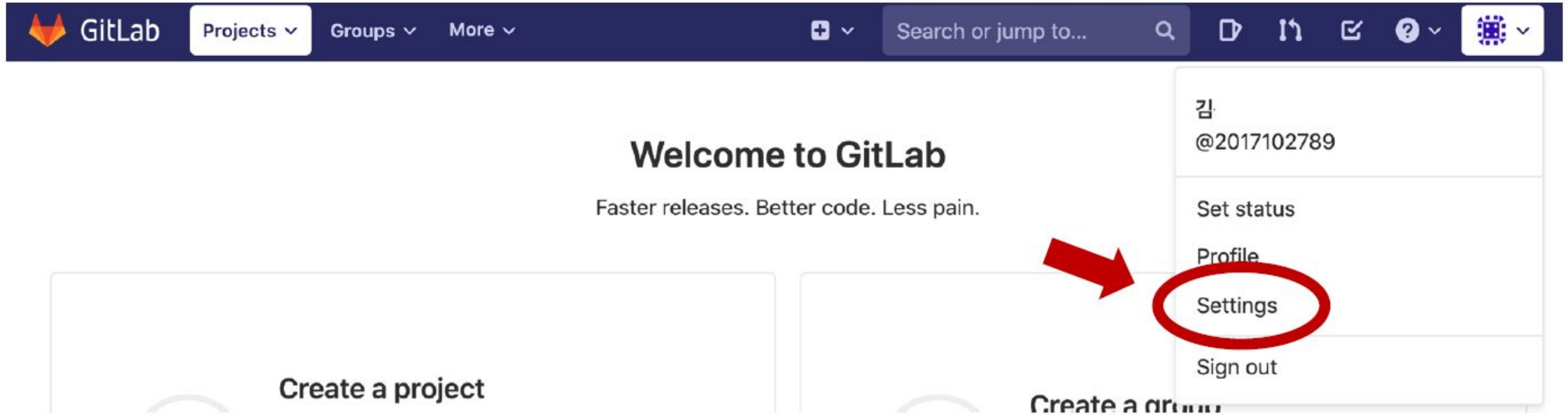
**로그인사용자 정보조회**

[포털에서 설정한 대표 신분 정보]  
로그인한 사용자의 성명, 사용자ID, 학번(개인번호), 제학(제직) 여부, 소속대학, 소속명, 소속코드, 소속ID, 사용자구분명의 정보를 제공합  
니다.

☒ 전체 동의합니다. ☐ 동의합니다.

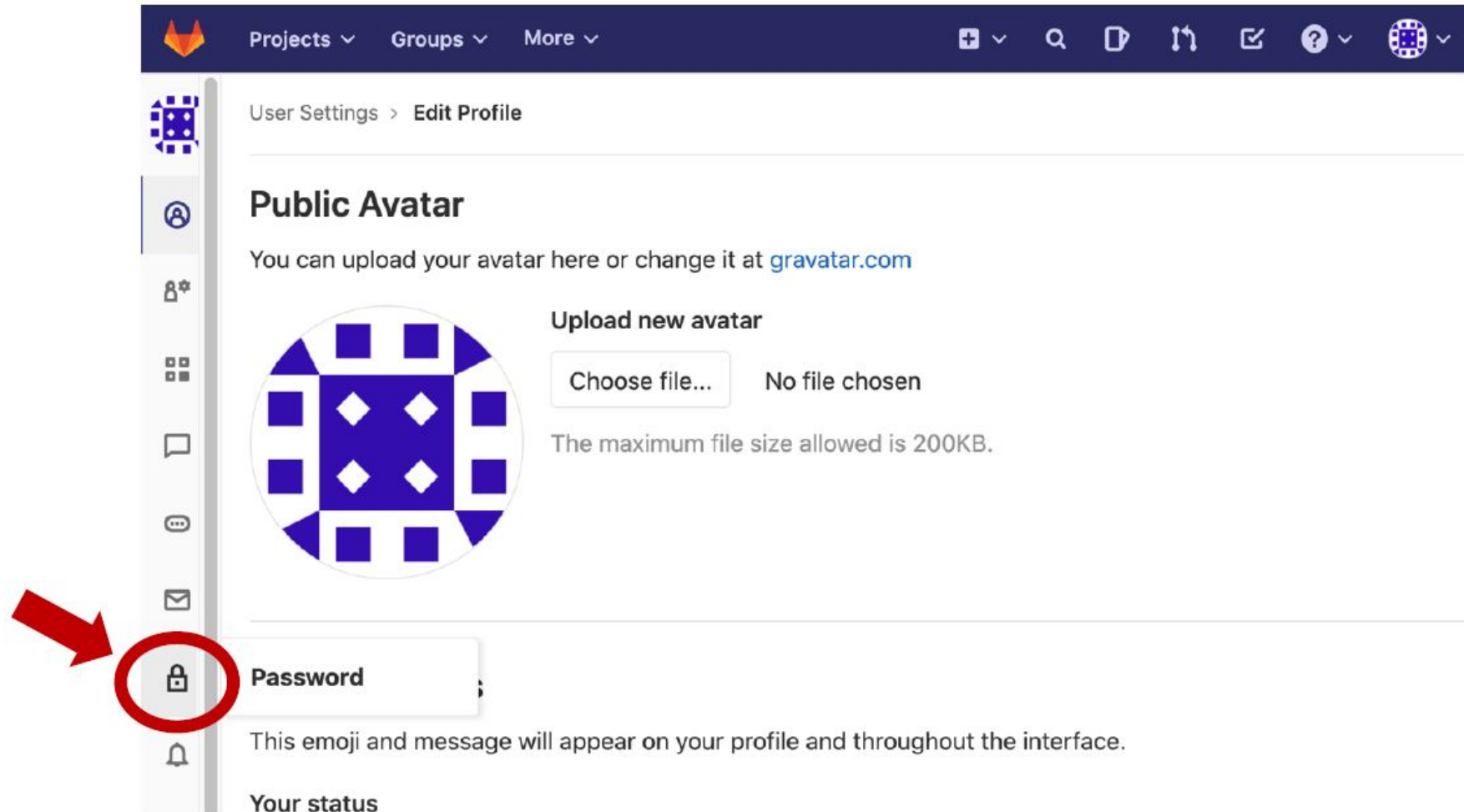
# GitLab 로그인 및 초기 설정

## 4. Password 설정



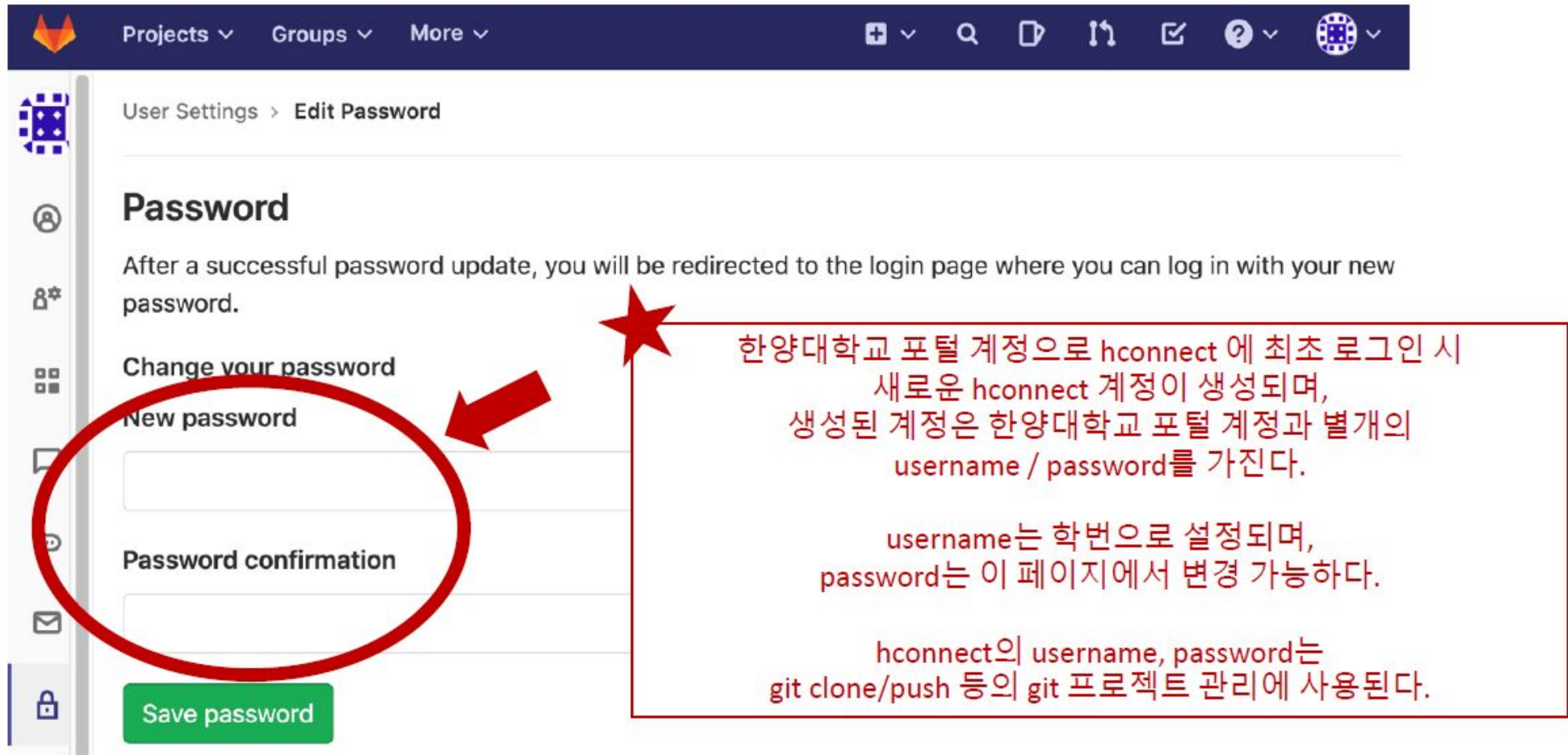
# GitLab 로그인 및 초기 설정

## 4. Password 설정



# GitLab 로그인 및 초기 설정

## 4. Password 설정



The screenshot shows the GitLab 'Edit Password' page. The page title is 'User Settings > Edit Password'. The main heading is 'Password'. Below it, a message states: 'After a successful password update, you will be redirected to the login page where you can log in with your new password.' The section 'Change your password' contains two input fields: 'New password' and 'Password confirmation'. These fields are circled in red. A red arrow points from a text box on the right to the 'New password' field. The text box contains the following Korean text:

한양대학교 포털 계정으로 hconnect 에 최초 로그인 시  
새로운 hconnect 계정이 생성되며,  
생성된 계정은 한양대학교 포털 계정과 별개의  
username / password를 가진다.

username는 학번으로 설정되며,  
password는 이 페이지에서 변경 가능하다.

hconnect의 username, password는  
git clone/push 등의 git 프로젝트 관리에 사용된다.

At the bottom of the form is a green button labeled 'Save password'.



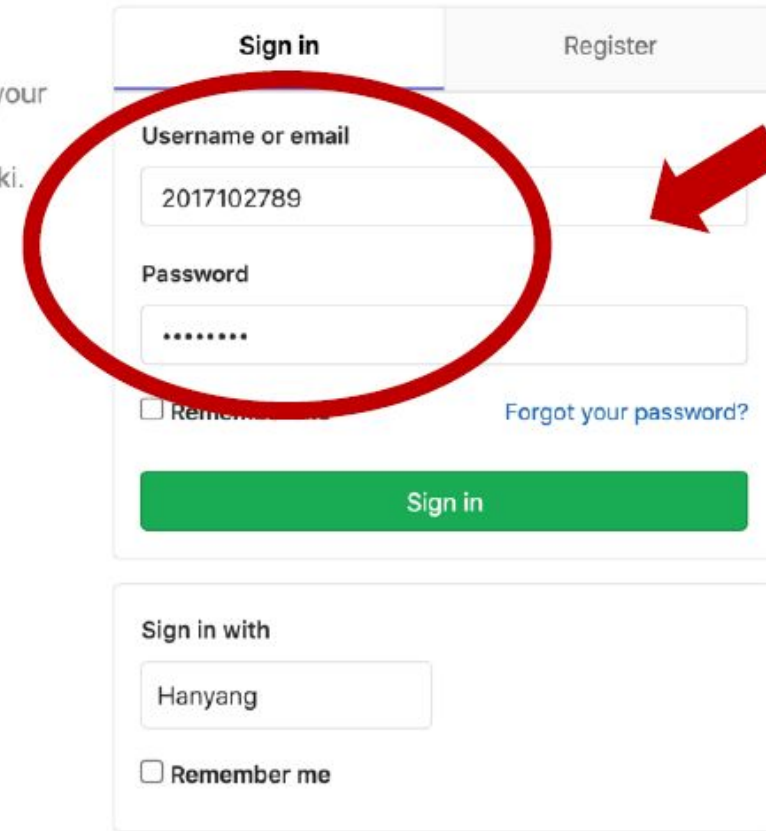
# GitLab 로그인 및 초기 설정

5. 이후, 로그인은 학번과 변경한 password로 가능

## GitLab Community Edition

### Open source software to collaborate on code

Manage Git repositories with fine-grained access controls that keep your code secure. Perform code reviews and enhance collaboration with merge requests. Each project can also have an issue tracker and a wiki.



Sign in Register

Username or email

2017102789

Password

.....

☐ Remember me [Forgot your password?](#)

Sign in

Sign in with

Hanyang

☐ Remember me

# 과제

---

1) JDK 및 Eclipse 설치

2) GitLab 가입

Q & A

# (번외)이클립스 단축키

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1. Ctrl + 3  
메뉴 검색, 실수로 창 닫았으면  
Properties, Explorer, Console, Variables 등등 검색해보기
2. Ctrl + Space  
자동완성 추천  
sysout 쓰고 Ctrl + Space 하면 자동 완성 됩니다.  
더 알고 싶다면 메뉴 검색해서 Templates 찾아보세요!