Setting up Java Development Environment

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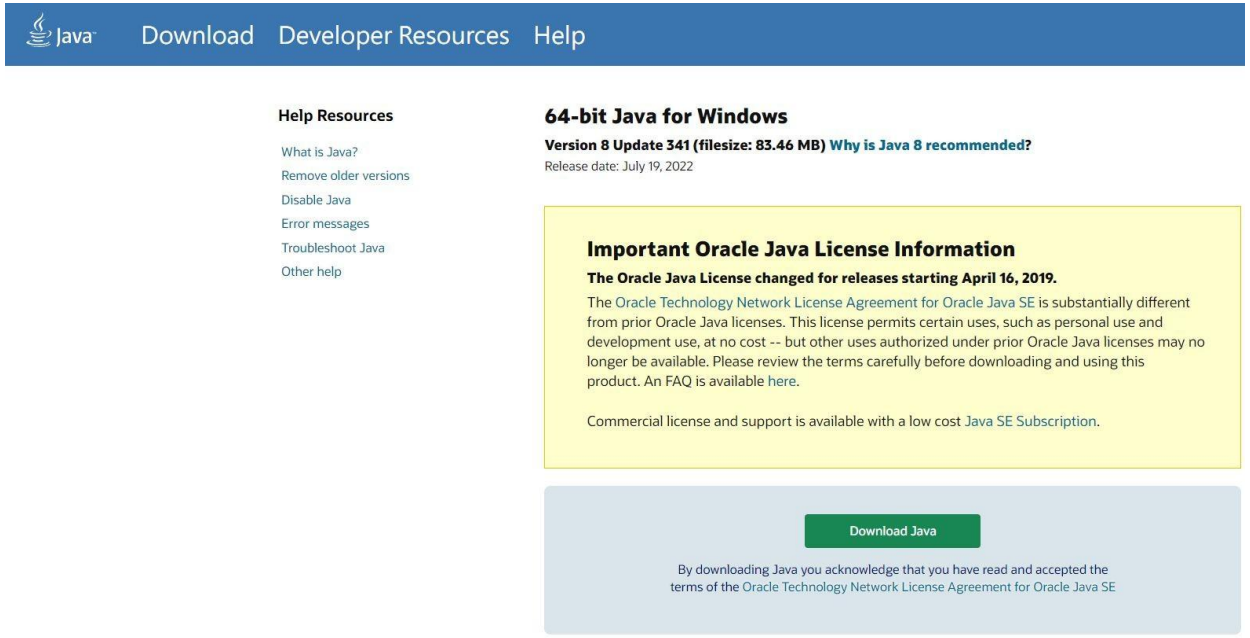
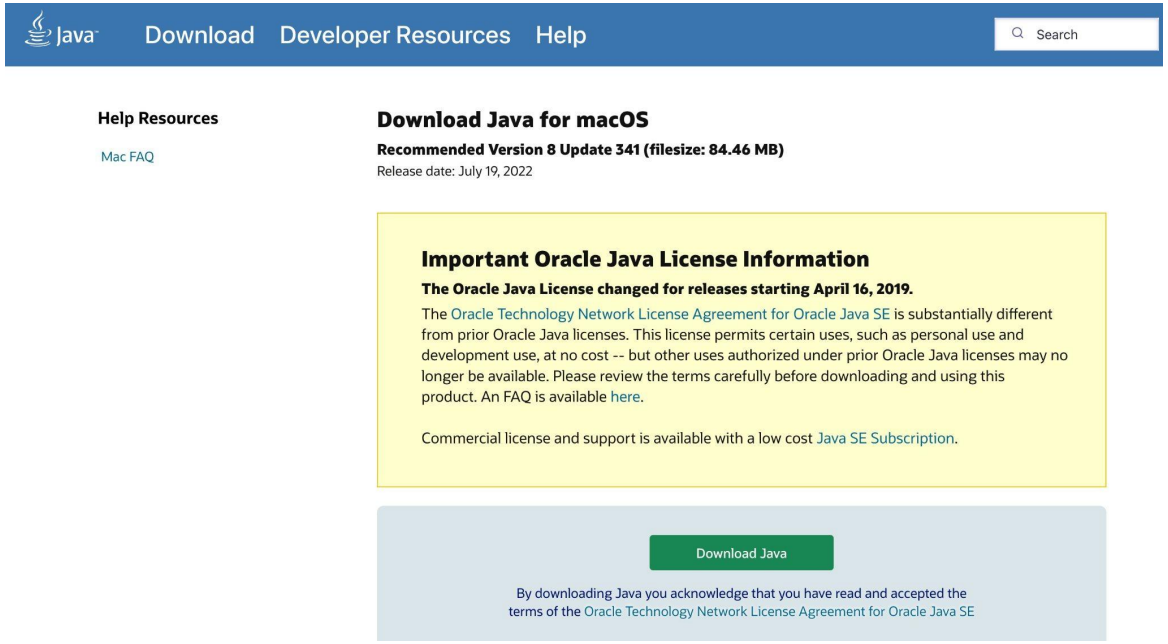
Steps

1. Install JRE (JAVA RUNTIME ENVIRONMENT):
   https://www.java.com/en/download/
2. Install JDK (JAVA SDK):
   https://www.oracle.com/java/technologies/javase/javase-jdk8-downloads.html
3. Set Environment Variables:
   JAVA_HOME: jdk root
   CLASSPATH: jdk root/lib
   Path: jdk root/bin
4. Install Eclipse IDE:
   http://www.eclipse.org/downloads/
5. Install Git
   https://git-scm.com/

Install JRE (JAVA RUNTIME ENVIRONMENT)

- https://www.java.com/en/download/
- After download, keep clicking ”Next” to install.





Install JDK (JAVA DEVELOPMENT KIT)

- https://www.oracle.com/java/technologies/javase/javase-jdk8-downloads.html
- Need to login oracle to download. After download, keep clicking ”Next” to install.

Set Environment Variables

- Notice: You don’t need to set environment variables on MAC OS.

- Environment Variables are the common variables in OS. Therefore, to let the OS know where we install JDK and JRE, we will set the following three environment variables:

1. JAVA_HOME:

   Location of the installation directory of JAVA

2. CLASSPATH:

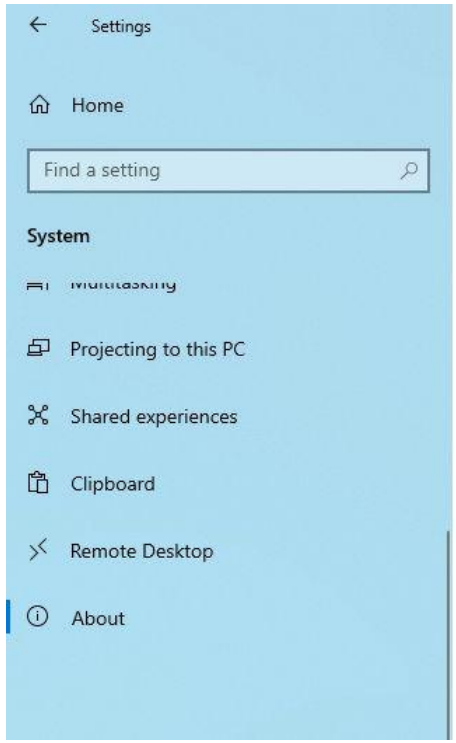
   Location of the library of JAVA developer tool

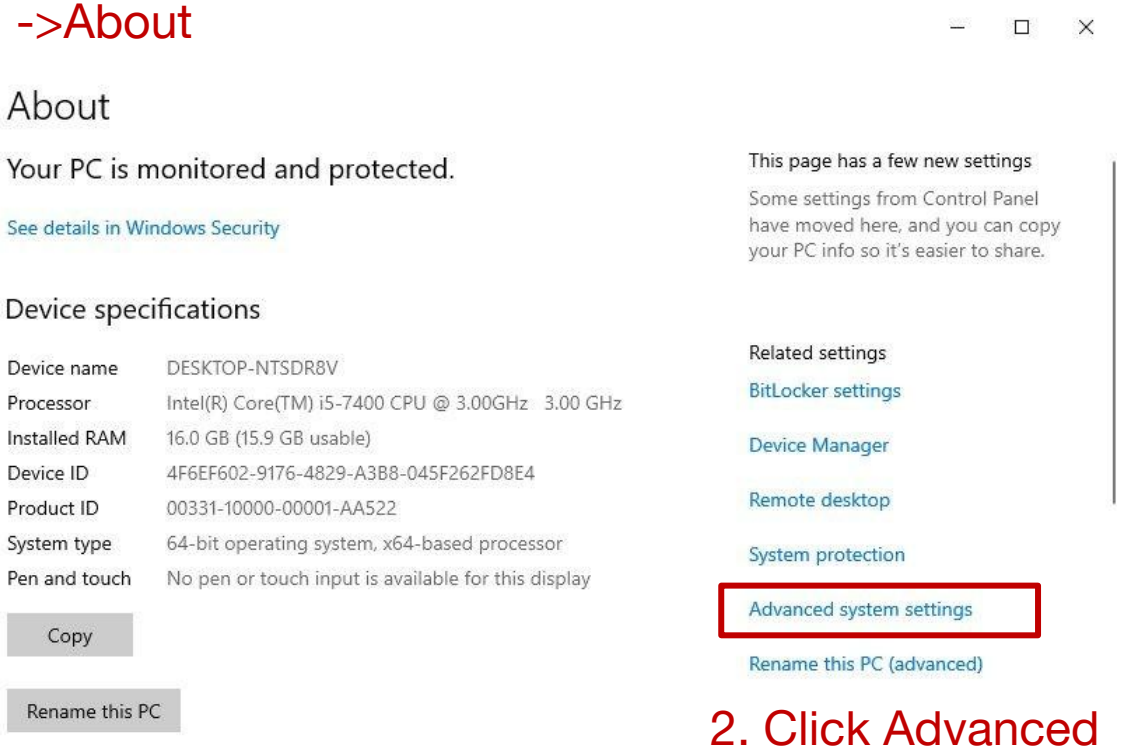
3. PATH:

   Add JAVA-related commands to the system default search location

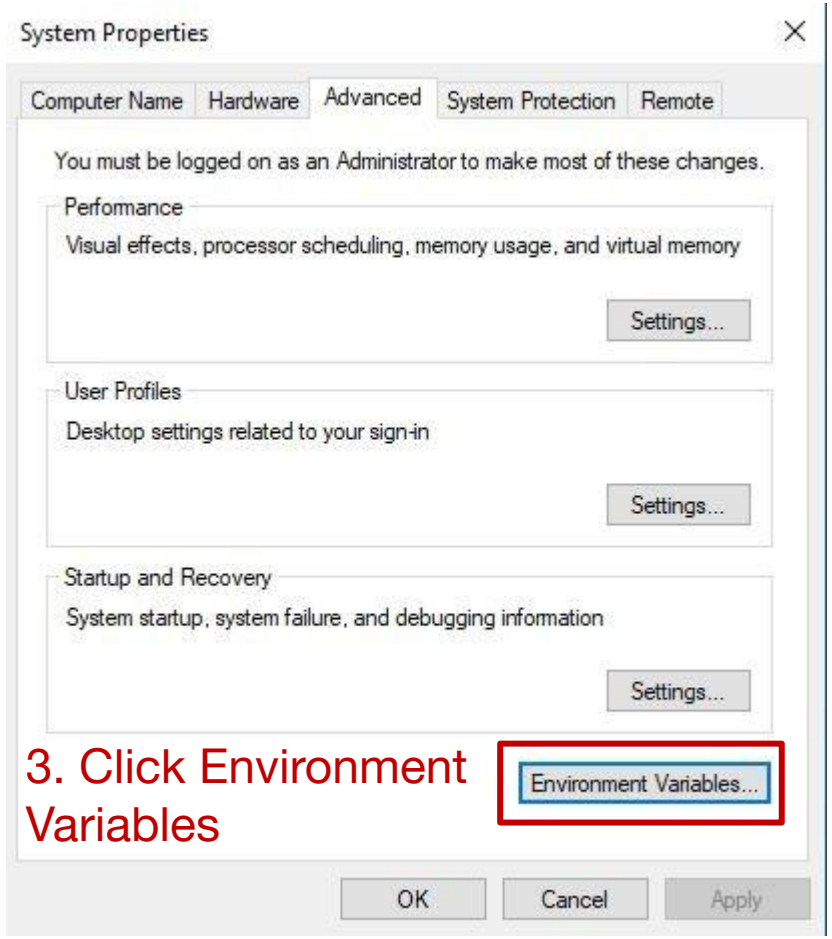
Set Environment Variables

1. Settings -> System ->About



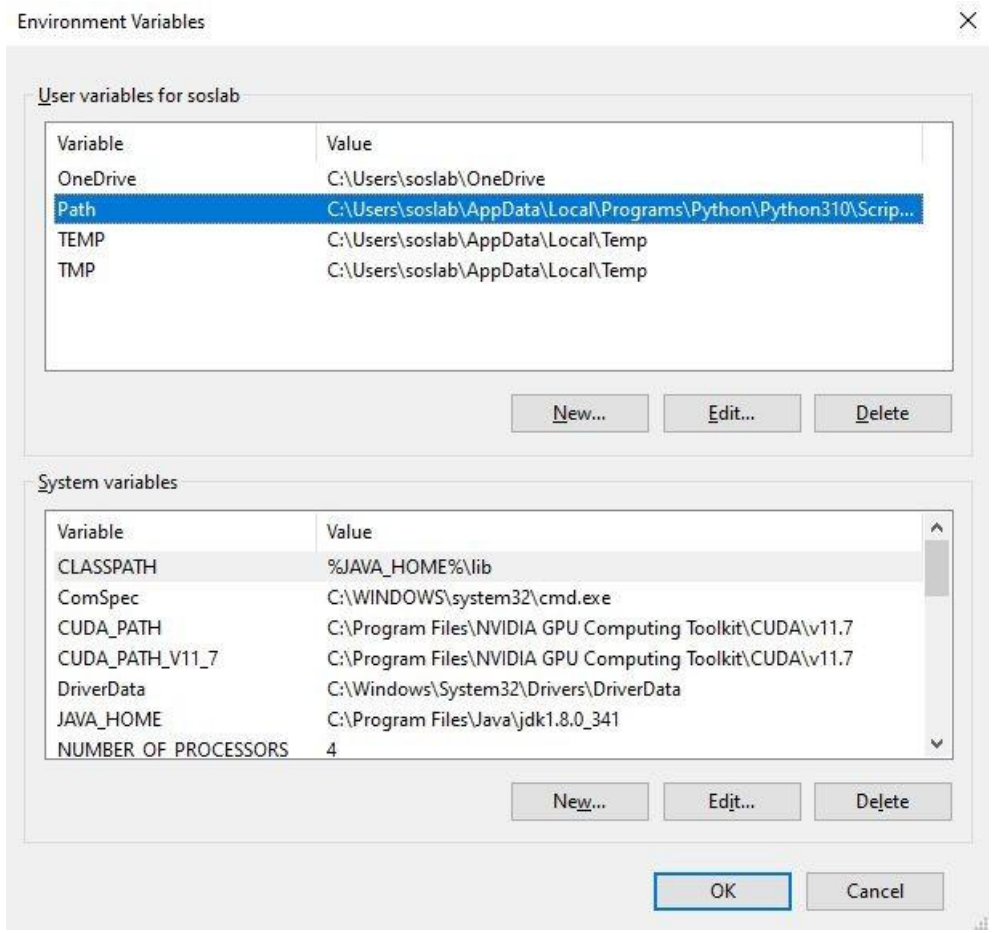


2. Click Advanced system settings



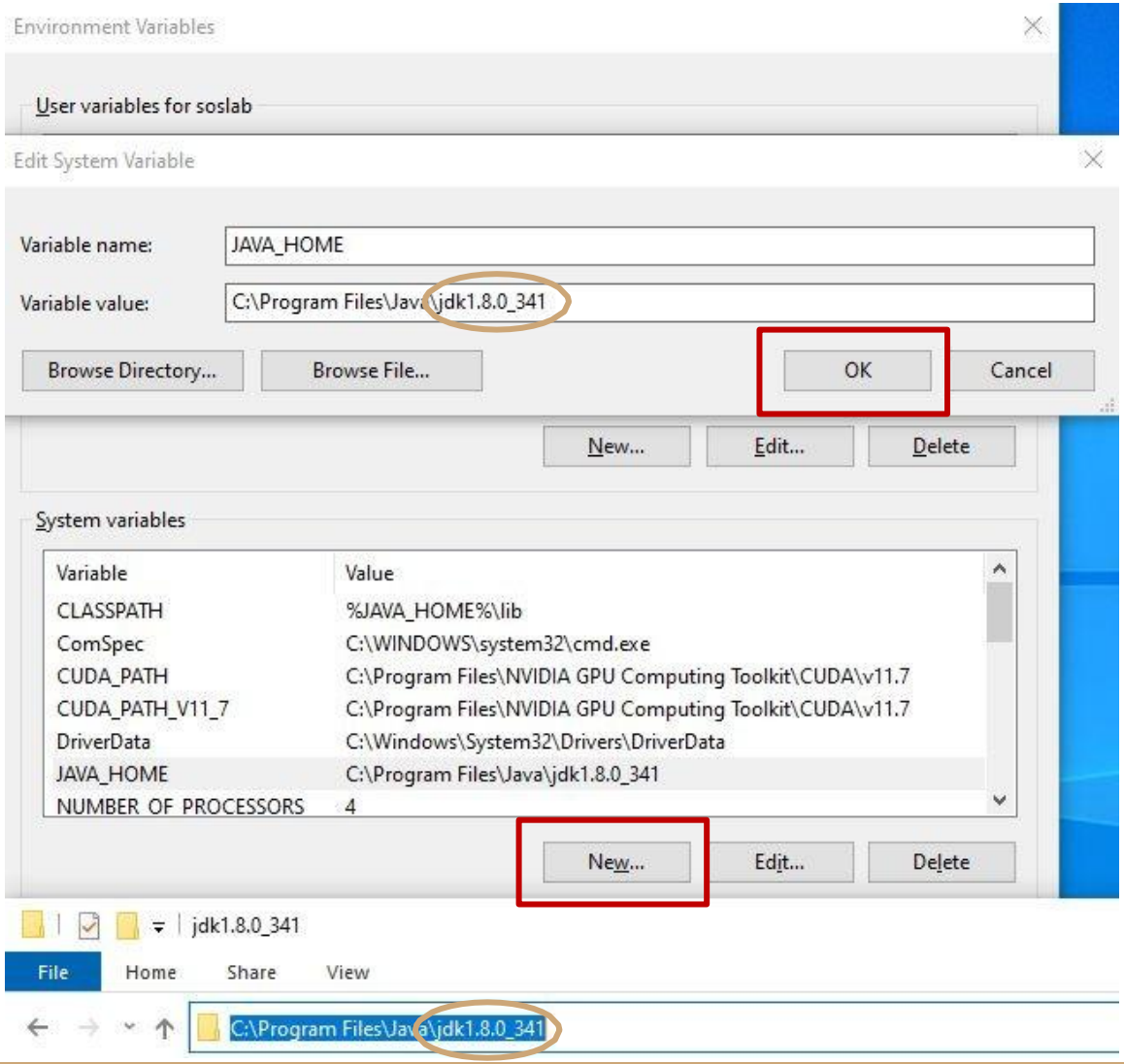
3. Click Environment Variables

Set Environment Variables



- If we set environment variables in the upper section (User variables for *XXX*), it means our setting only works when *XXX* login Windows.
- If we set environment variables on bottom section (System variables), it works when any user login.
- Recommend that you use the bottom (System variables) to set environment variables.

Set Environment Variables JAVA_HOME



1. Click “New”
   - Variable name: JAVA_HOME
   - Variable value: installation directory of JDK

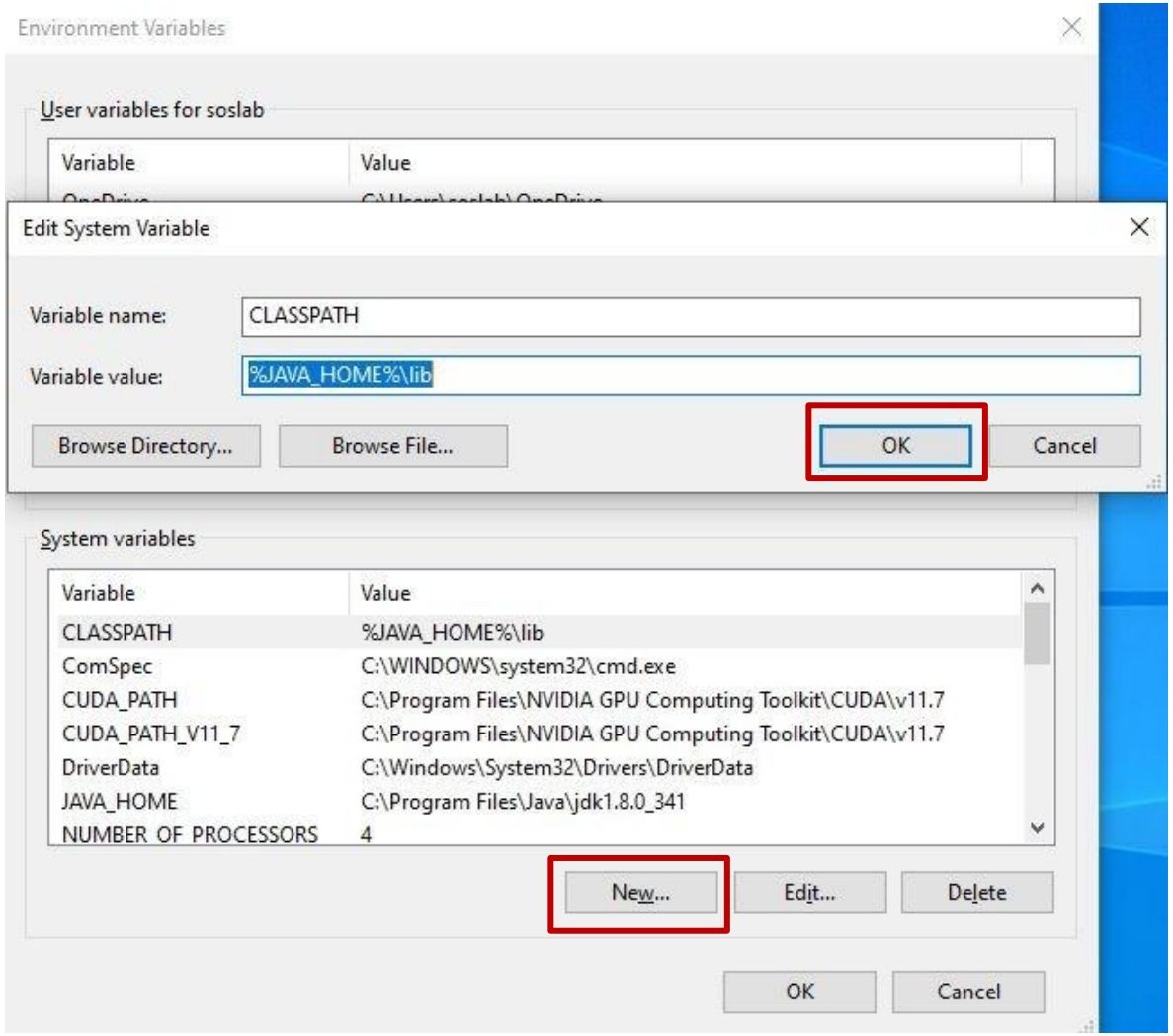
     X64 windows usually is:
     C:\ProgramFiles\Java\jdkXXXXXX

     X X86 windows usually is:

     C:\Program Files(x86)\Java\jdkXXXXXXX
   - The red part depends on the version; please check whether the directory exists and set the environment variables.

1. Click “OK” to save.

Set Environment Variables CLASSPATH



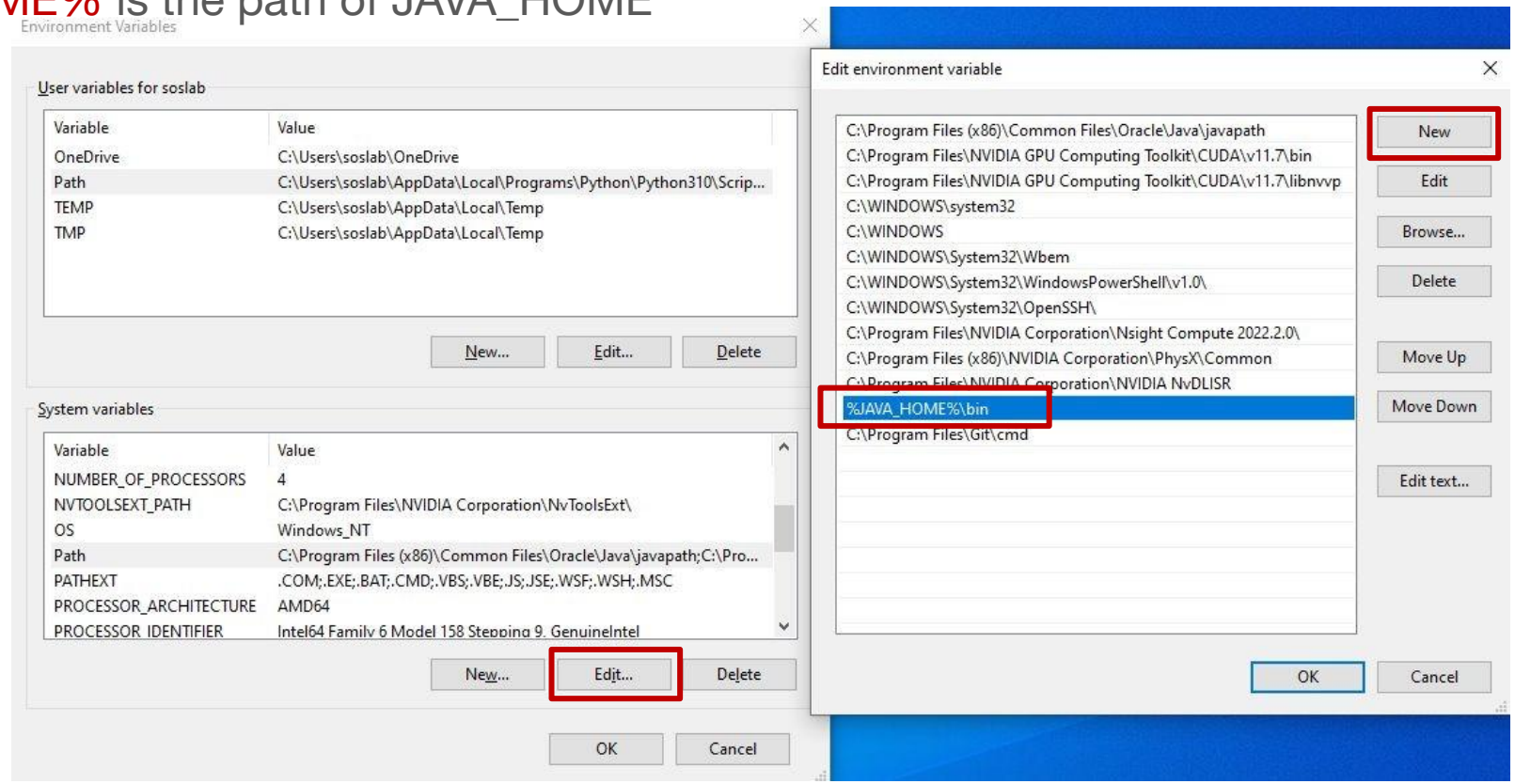
1. Click “New”
   - Variable name: CLASSPATH
   - Variable value: **%JAVA_HOME%\lib**

     installation directory of JDK
   - %JAVA_HOME% is the path of JAVA_HOME
   - If you alter the Java JDK version in the future, only need to change the environment variables of JAVA_HOME, and don’t need to change others.

1. Click “OK” to save.

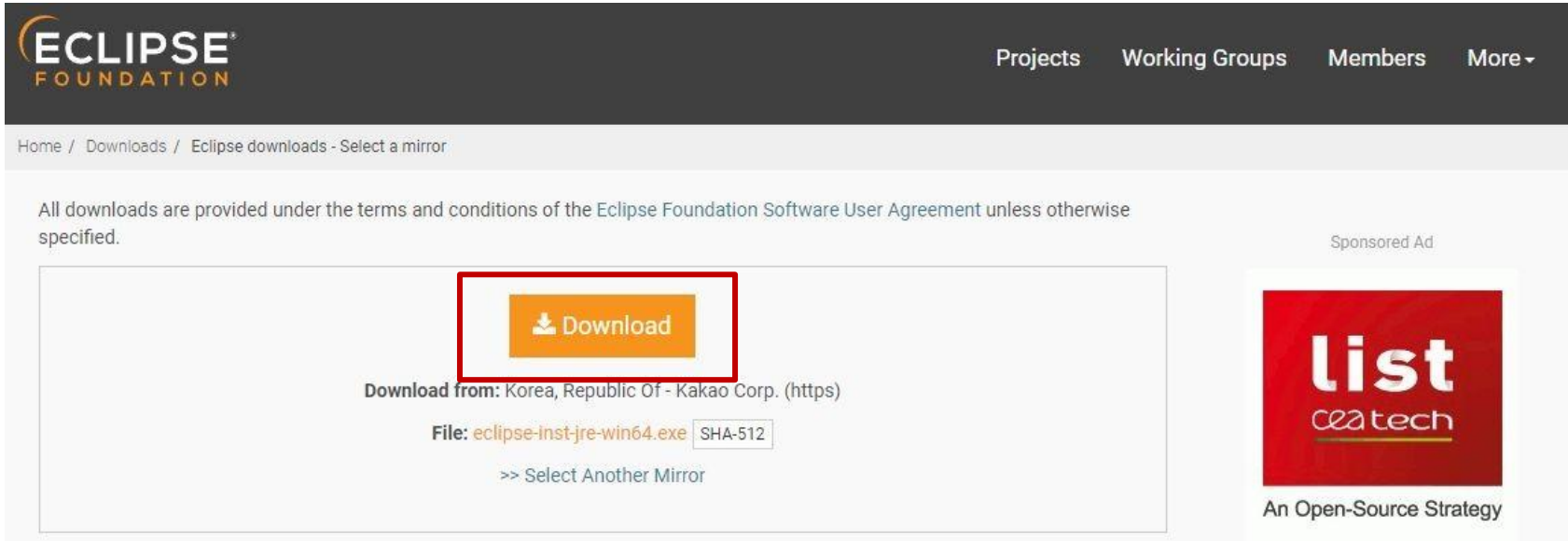
Set Environment Variables PATH

- PATH variable usually has other values, so instead of adding this, we need to find the “PATH” variable in the list and **click “Edit”**.
- PATH contains lots of paths; **click “New”** and then input **%JAVA_HOME%\bin**
- %JAVA_HOME% is the path of JAVA_HOME



Install Eclipse IDE

- https://www.eclipse.org/downloads/

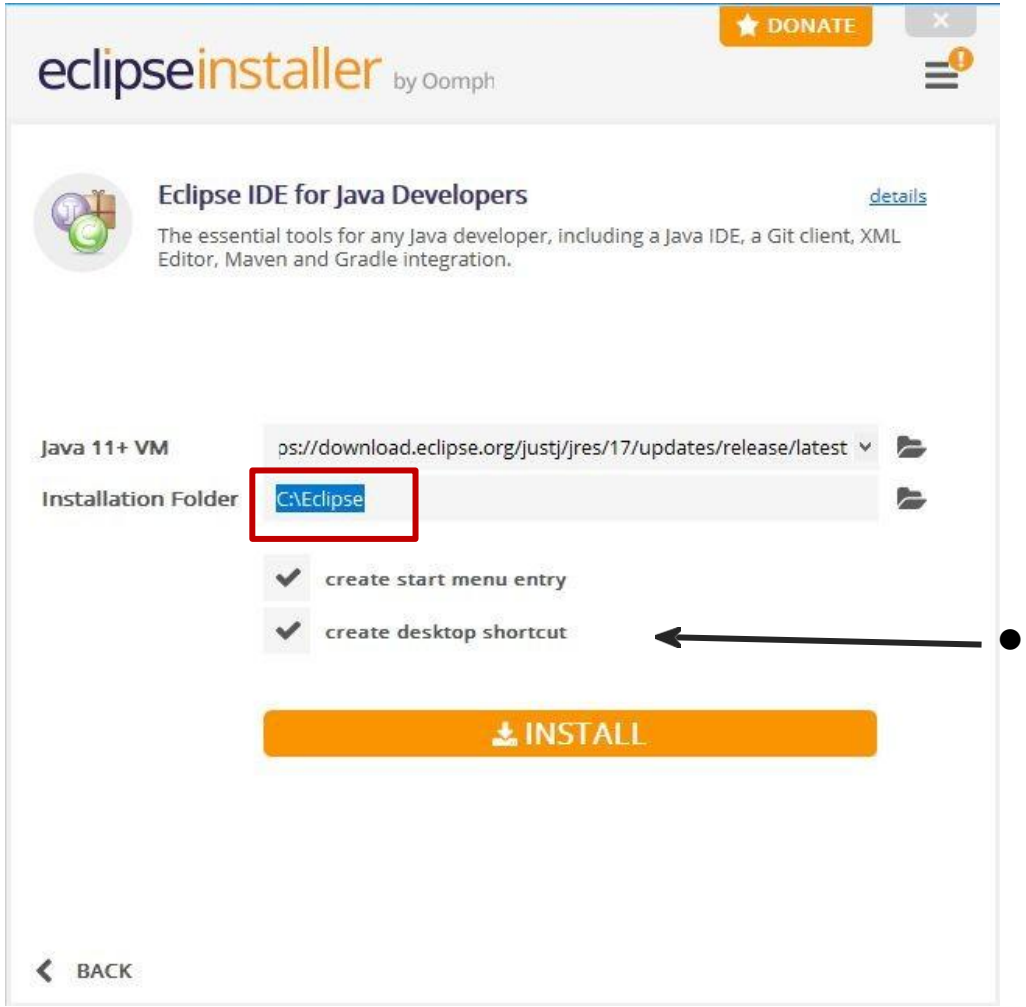


Install Eclipse IDE

- You can download the basic Java SE (first one) for usual, and use Java EE(Enterprise) for the final.
- Eclipse is the tool for coding in the future, so please put the unzipped folder in a suitable place (ex C:\), don't put it in the folder like "Download" to avoid losing it in the future.

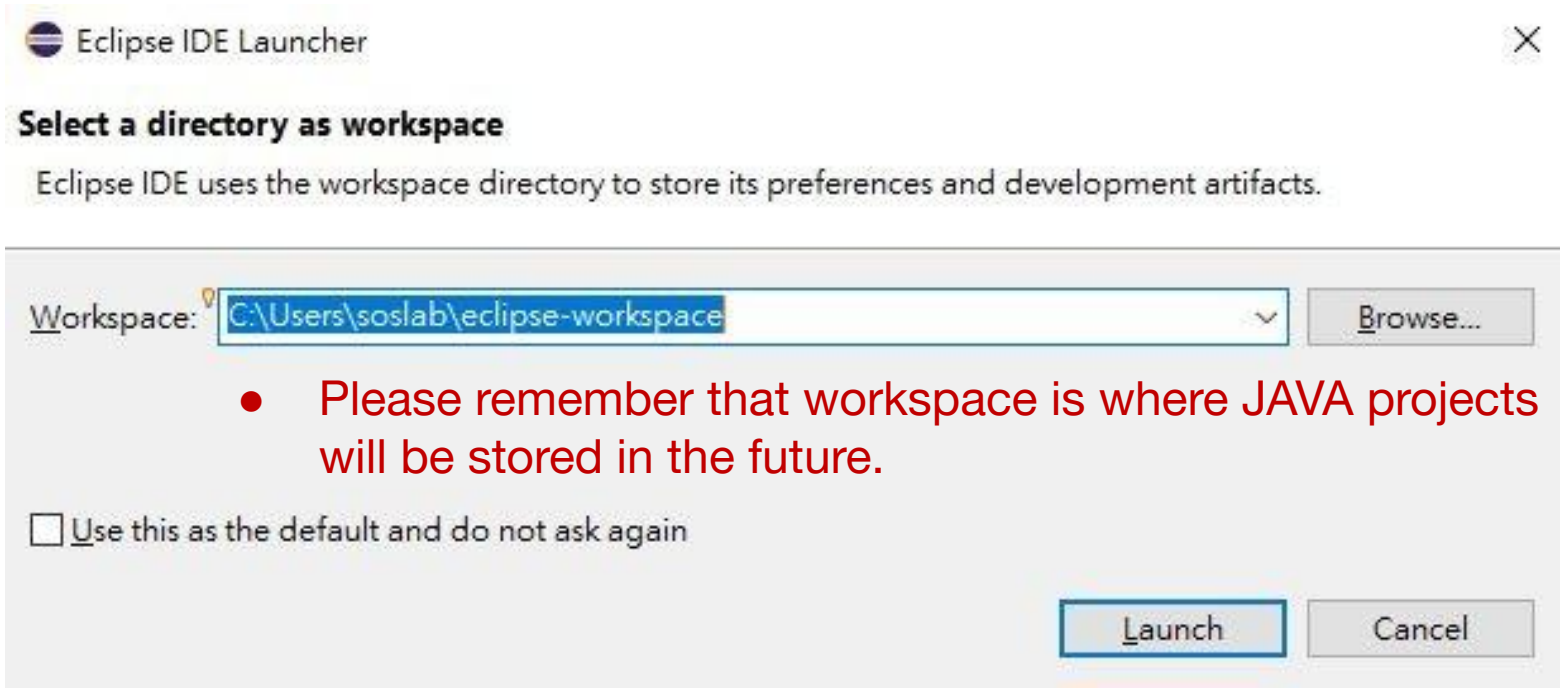
Install Eclipse IDE

- Recommend adding a new folder (ex: Eclipse) in driver C, and select the folder you just created here.



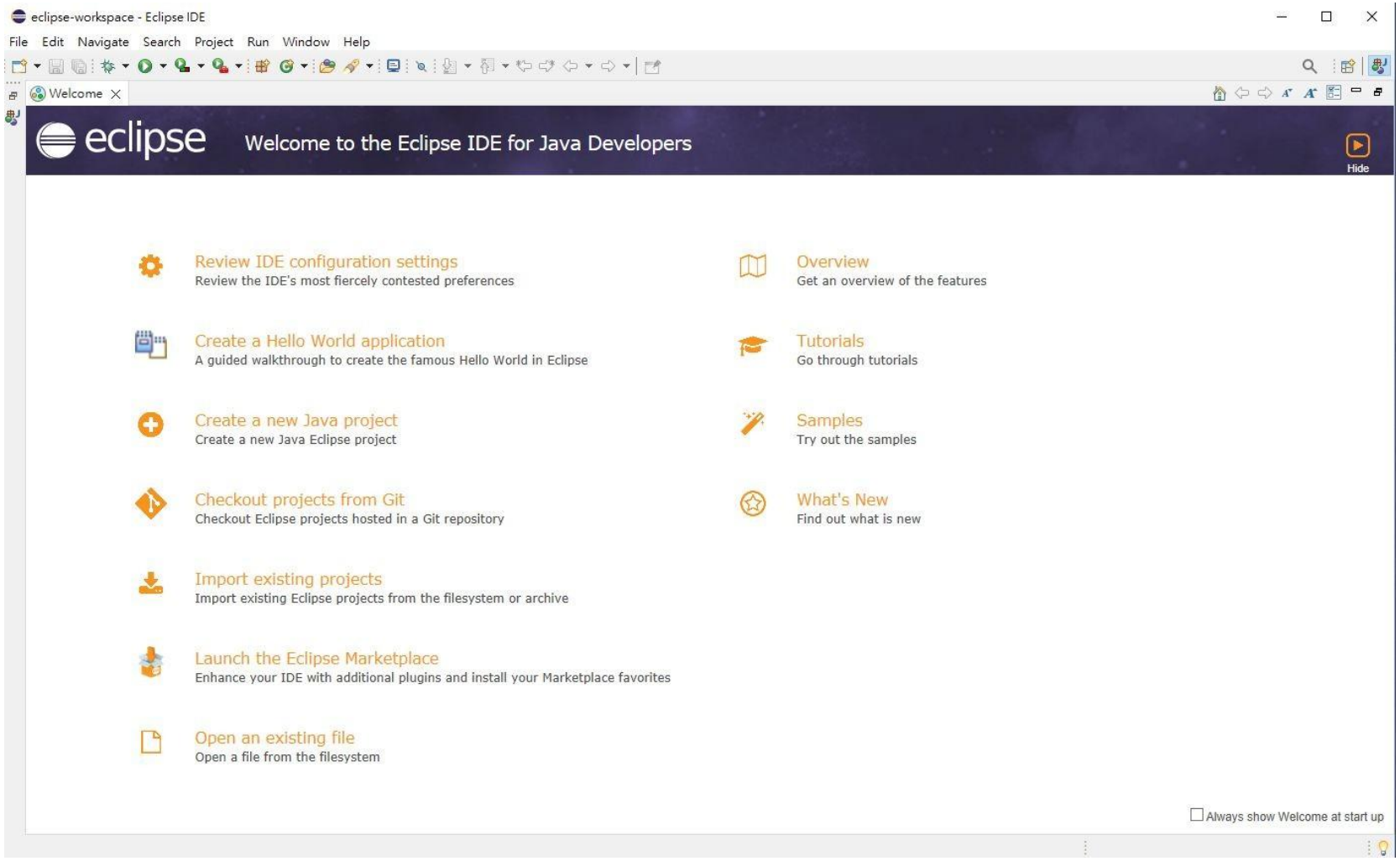
- Recommend everyone put a shortcut of Eclipse on the desktop, it will be easier to find in the future!

Open Eclipse IDE



- Please remember that workspace is where JAVA projects will be stored in the future.

Finish!


eclipse-workspace - Eclipse IDE
File Edit Navigate Search Project Run Window Help
Welcome
eclipse
Welcome to the Eclipse IDE for Java Developers
Hide
Review IDE configuration settings
Review the IDE's most fiercely contested preferences
Overview
Get an overview of the features
Create a Hello World application
A guided walkthrough to create the famous Hello World in Eclipse
Tutorials
Go through tutorials
Create a new Java project
Create a new Java Eclipse project
Samples
Try out the samples
Checkout projects from Git
Checkout Eclipse projects hosted in a Git repository
What's New
Find out what is new
Import existing projects
Import existing Eclipse projects from the filesystem or archive
Launch the Eclipse Marketplace
Enhance your IDE with additional plugins and install your Marketplace favorites
Open an existing file
Open a file from the filesystem
Always show Welcome at start up

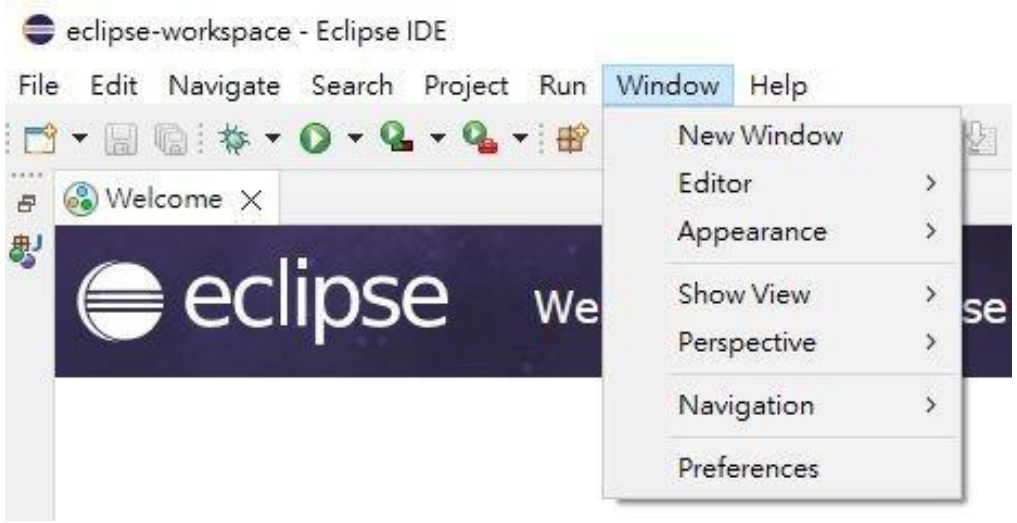
- Students who have used commercial development environments, such as Visual Studio, will feel difficult to adapt when they are new to Eclipse. However, Eclipse is a high-end free development environment; the function of Visual Studio can also be used on Eclipse with a little setting.

- Following will teach everyone set the code auto completion function via “Preference…”

How to open Preferences…

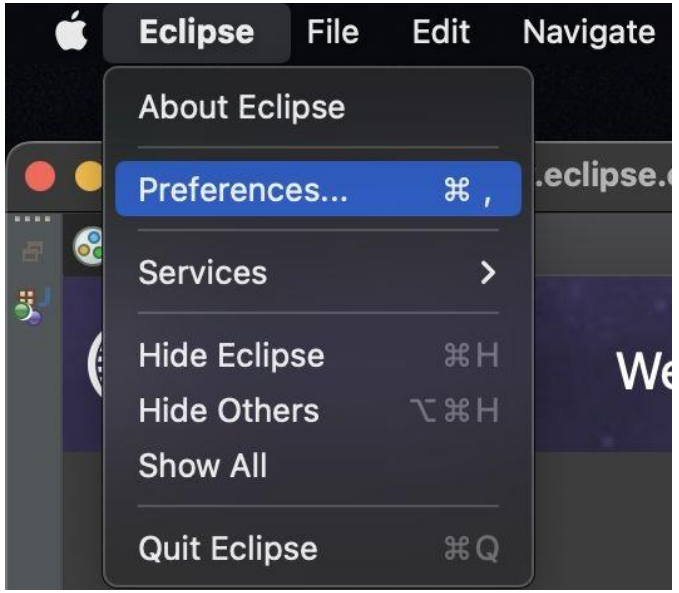
- Windows

  The top menu of Eclipse “Window” ➔ “Preferences…”

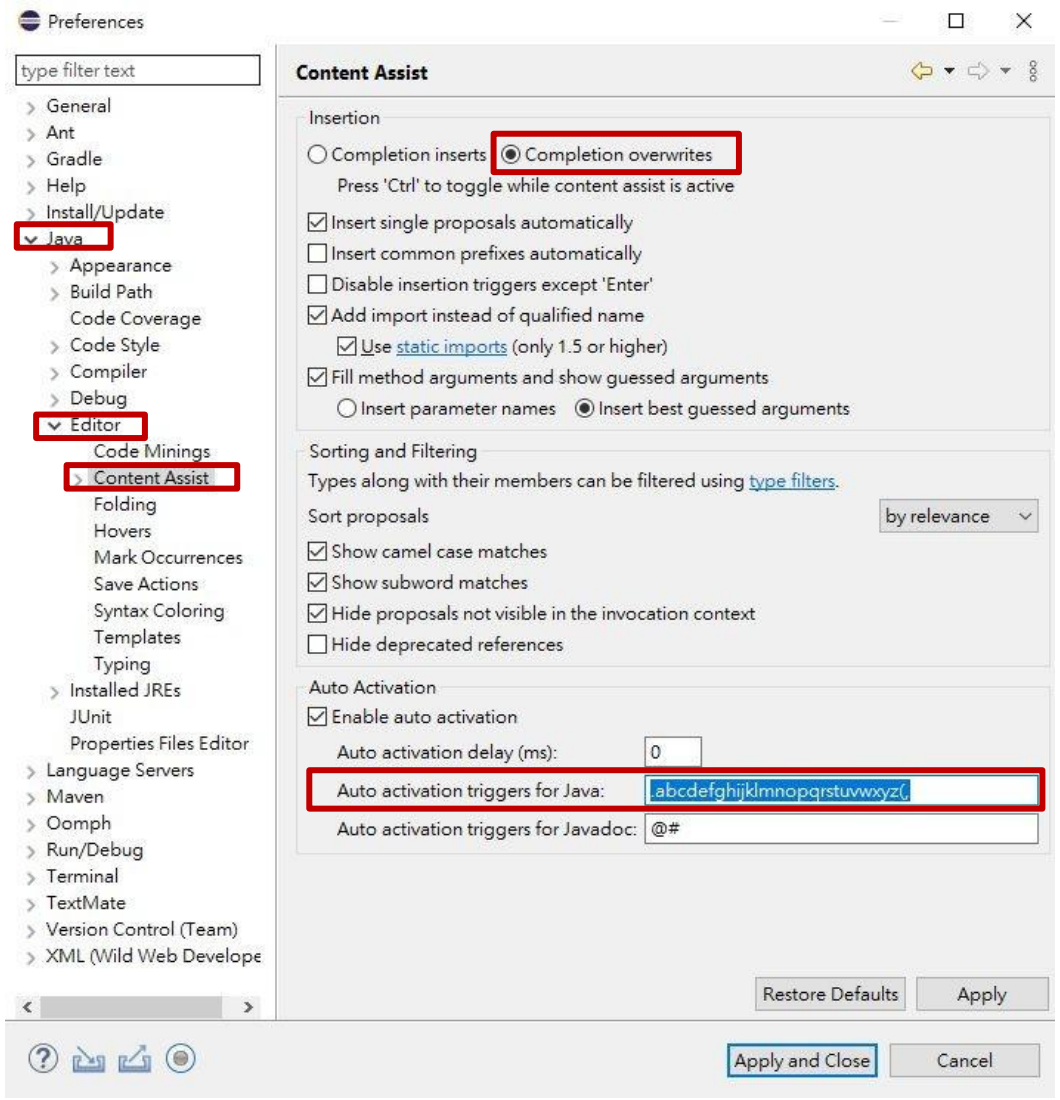


- MAC

  The top menu of Eclipse “Eclipse” ➔ “Preferences…”



Code auto completion



1. Open “Preferences…”

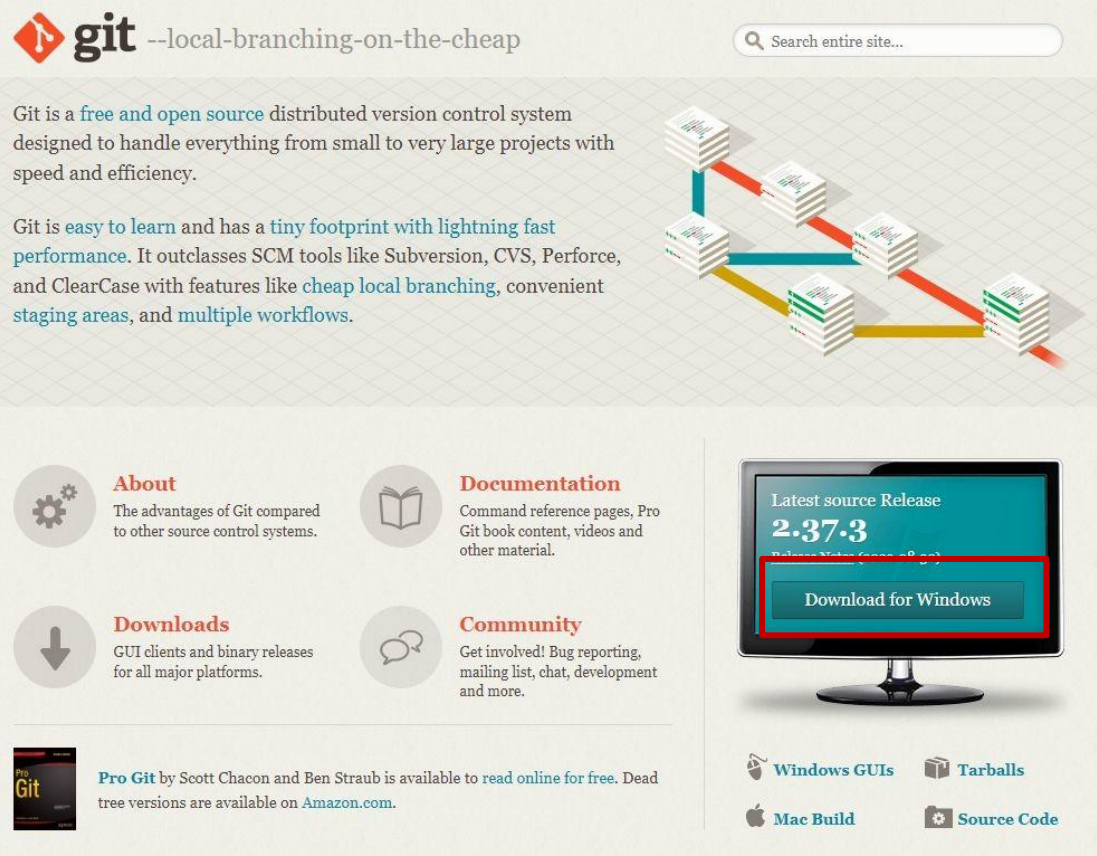
1. Preferences select “Java”➔ “Editor” ➔ “Content Assist” on the left side.

3. Choose “Completion overwrites” on the right side.

3. Change “Auto activation triggers for java” value to **.abcdefghijklmnopqrstuvwxyz(,**

Install git

- https://git-scm.com/



Install git

git --distributed-is-the-new-centralized

Search entire site...

Git is a free and open source distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Git is easy to learn and has a tiny footprint with lightning fast performance. It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like cheap local branching, convenient staging areas, and multiple workflows.

About
The advantages of Git compared to other source control systems.

Documentation
Command reference pages, Pro Git book content, videos and other material.

Downloads
GUI clients and binary releases for all major platforms.

Community
Get involved! Bug reporting, mailing list, chat, development and more.

Pro Git by Scott Chacon and Ben Straub is available to read online for free. Dead tree versions are available on Amazon.com.

Mac GUIs Tarballs

Windows Build Source Code

Download for macOS

There are several options for installing Git on macOS. Note that any non-source distributions are provided by third parties, and may not be up to date with the latest source release.

Homebrew

Install homebrew if you don't already have it, then:

```
$ brew install git
```

MacPorts

Install MacPorts if you don't already have it, then:

```
$ sudo port install git
```

Xcode

Apple ships a binary package of Git with Xcode.

Binary installer

Tim Harper provides an installer for Git. The latest version is 2.33.0, which was released about 1 year ago, on 2021-08-30.

Building from Source

If you prefer to build from source, you can find tarballs on kernel.org. The latest version is 2.37.3.

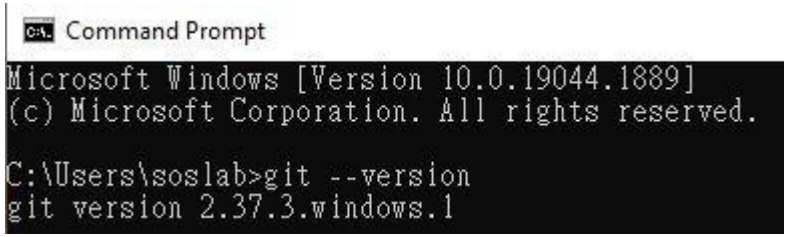
Installing git-gui

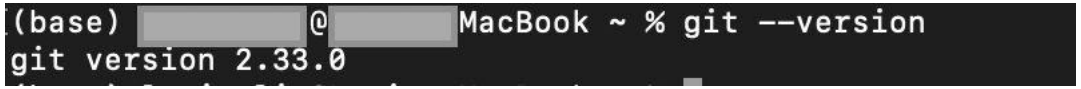
If you would like to install git-gui and gitk, git's commit GUI and interactive history browser, you can do so using homebrew

```
$ brew install git-gui
```

Check git installation

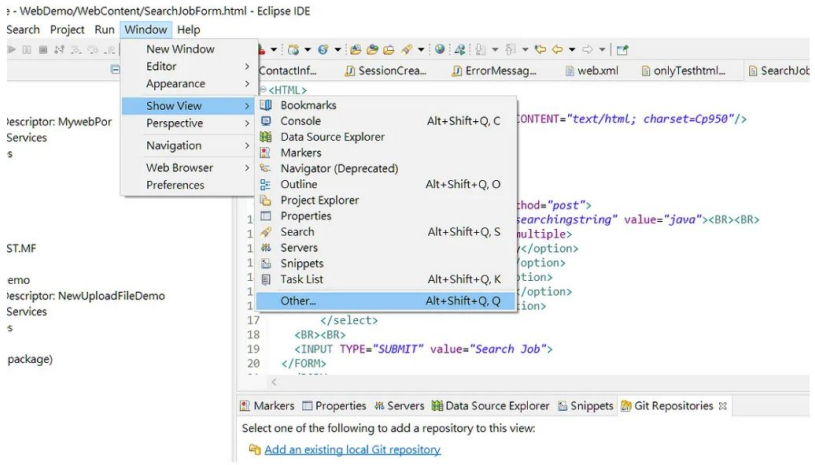
- Check whether the git installation is successful.
- Type *git --version* in Terminal and enter.

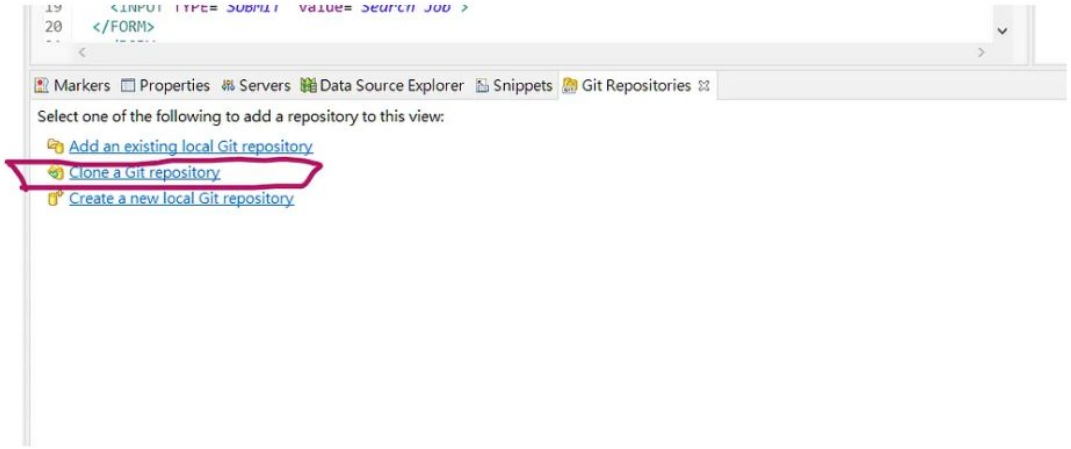




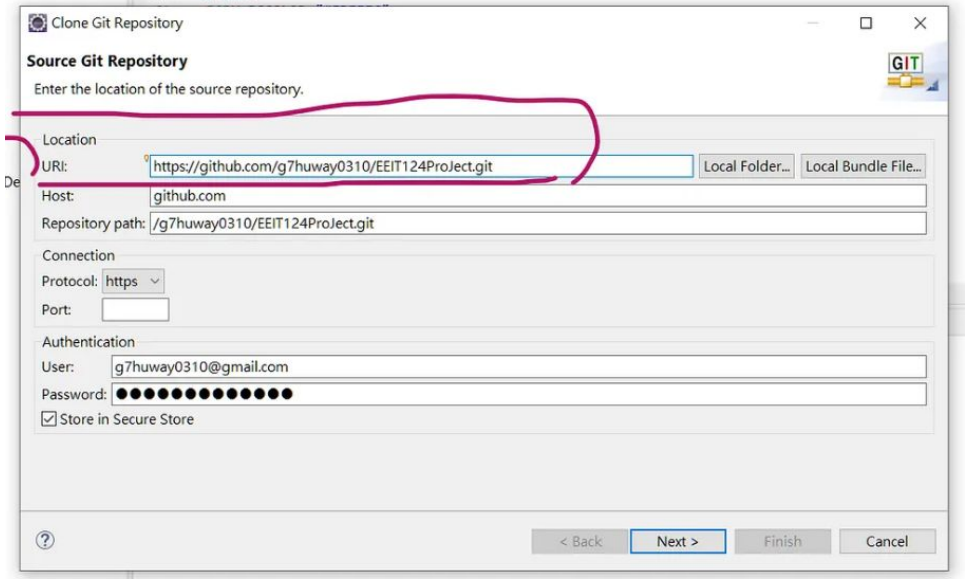
- It will show the version you installed, that means your installation is successful.

Eclipse connection to Github

- 

- 

- Window -> Show View -> Other
- One of your group members have to open a new repository first
- Clone the link and paste the URL.
-



Eclipse connection to Github

- Choose master as your branch
- initial branch: master
- Success!
- Branches-> remote tracking -> Checkout as new local checkout
- check https://b0444135.medium.com/git-eclipse-git-github-%E5%A4%9A%E4%BA%BA%E5%8D%94%E4%BD%9C-push-commit-18759164dff5 for picture

Done!