

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.

 [Download](#) [Developer Resources](#) [Help](#)

Help Resources

- [What is Java?](#)
- [Remove older versions](#)
- [Disable Java](#)
- [Error messages](#)
- [Troubleshoot Java](#)
- [Other help](#)

64-bit Java for Windows

Version 8 Update 341 (filesize: 83.46 MB) [Why is Java 8 recommended?](#)
Release date: July 19, 2022


Important Oracle Java License Information

The Oracle Java License changed for releases starting April 16, 2019.
The Oracle Technology Network License Agreement for Oracle Java SE is substantially different from prior Oracle Java licenses. This license permits certain uses, such as personal use and development use, at no cost -- but other uses authorized under prior Oracle Java licenses may no longer be available. Please review the terms carefully before downloading and using this product. An FAQ is available [here](#).

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Help Resources

- [Mac FAQ](#)

Download Java for macOS

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[Download Java](#)

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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.

Linux	macOS	Solaris	Windows
Product/file description		File size	Download
x86 Installer		159.66 MB	 jdk-8u341-windows-i586.exe
x64 Installer		173.16 MB	 jdk-8u341-windows-x64.exe

You must accept the [Oracle Technology Network License Agreement for Oracle Java SE](#) to download this software. ✕

☒ I reviewed and accept the Oracle Technology Network License Agreement for Oracle Java SE
Required

You will be redirected to the login screen in order to download the file.

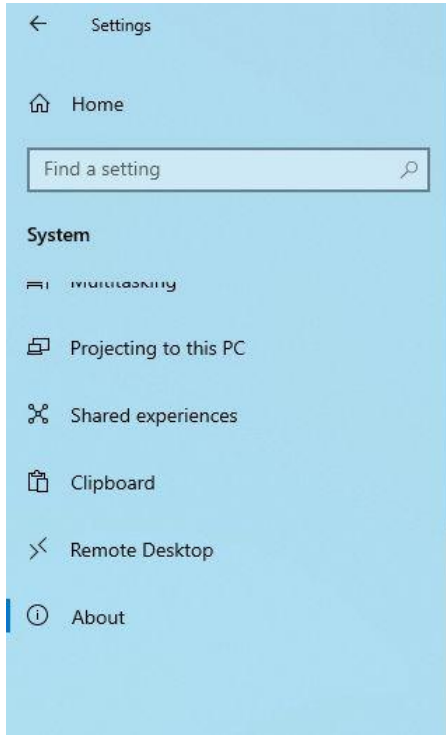
Download [jdk-8u341-windows-x64.exe](#) 

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



About

Your PC is monitored and protected.

[See details in Windows Security](#)

Device specifications

Device name	DESKTOP-NTSDR8V
Processor	Intel(R) Core(TM) i5-7400 CPU @ 3.00GHz 3.00 GHz
Installed RAM	16.0 GB (15.9 GB usable)
Device ID	4F6EF602-9176-4829-A3B8-045F262FD8E4
Product ID	00331-10000-00001-AA522
System type	64-bit operating system, x64-based processor
Pen and touch	No pen or touch input is available for this display

Copy

Rename this PC

This page has a few new settings

Some settings from Control Panel have moved here, and you can copy your PC info so it's easier to share.

Related settings

[BitLocker settings](#)

[Device Manager](#)

[Remote desktop](#)

[System protection](#)

[Advanced system settings](#)

[Rename this PC \(advanced\)](#)

2. Click Advanced
system settings

System Properties

Computer Name Hardware Advanced System Protection Remote

You must be logged on as an Administrator to make most of these changes.

Performance

Visual effects, processor scheduling, memory usage, and virtual memory

Settings...

User Profiles

Desktop settings related to your sign-in

Settings...

Startup and Recovery

System startup, system failure, and debugging information

Settings...

3. Click Environment
Variables

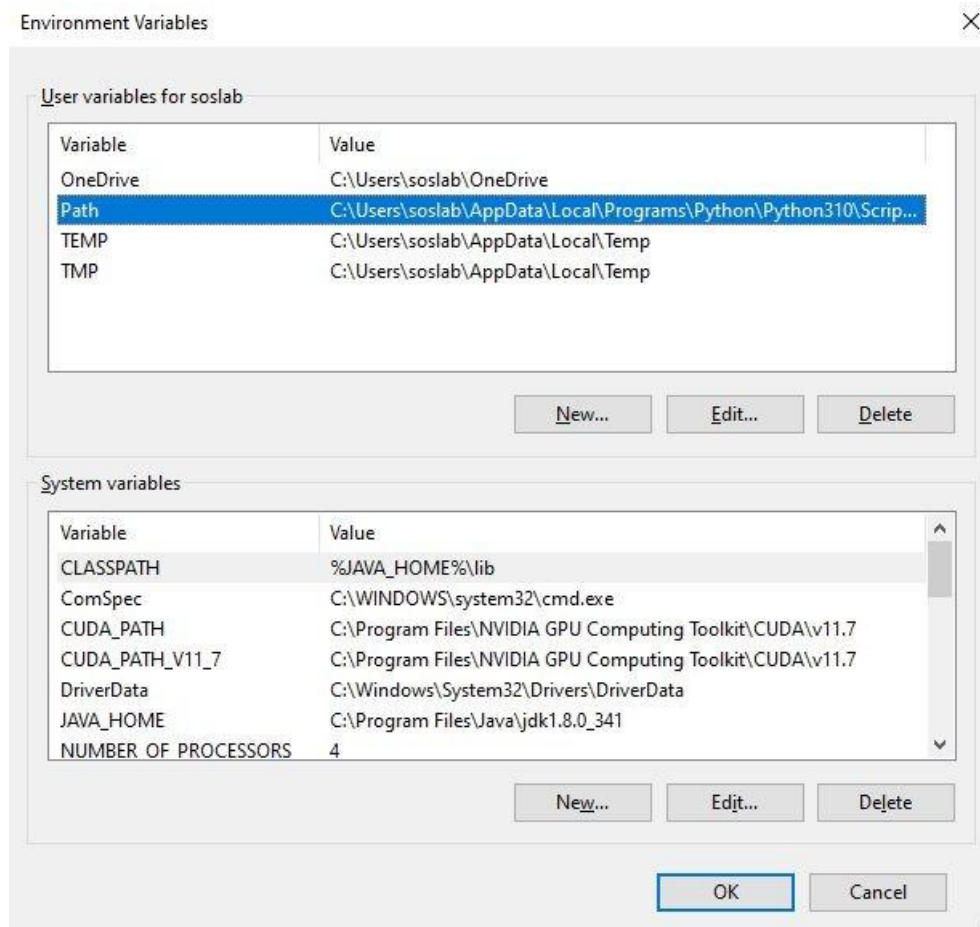
Environment Variables...

OK

Cancel

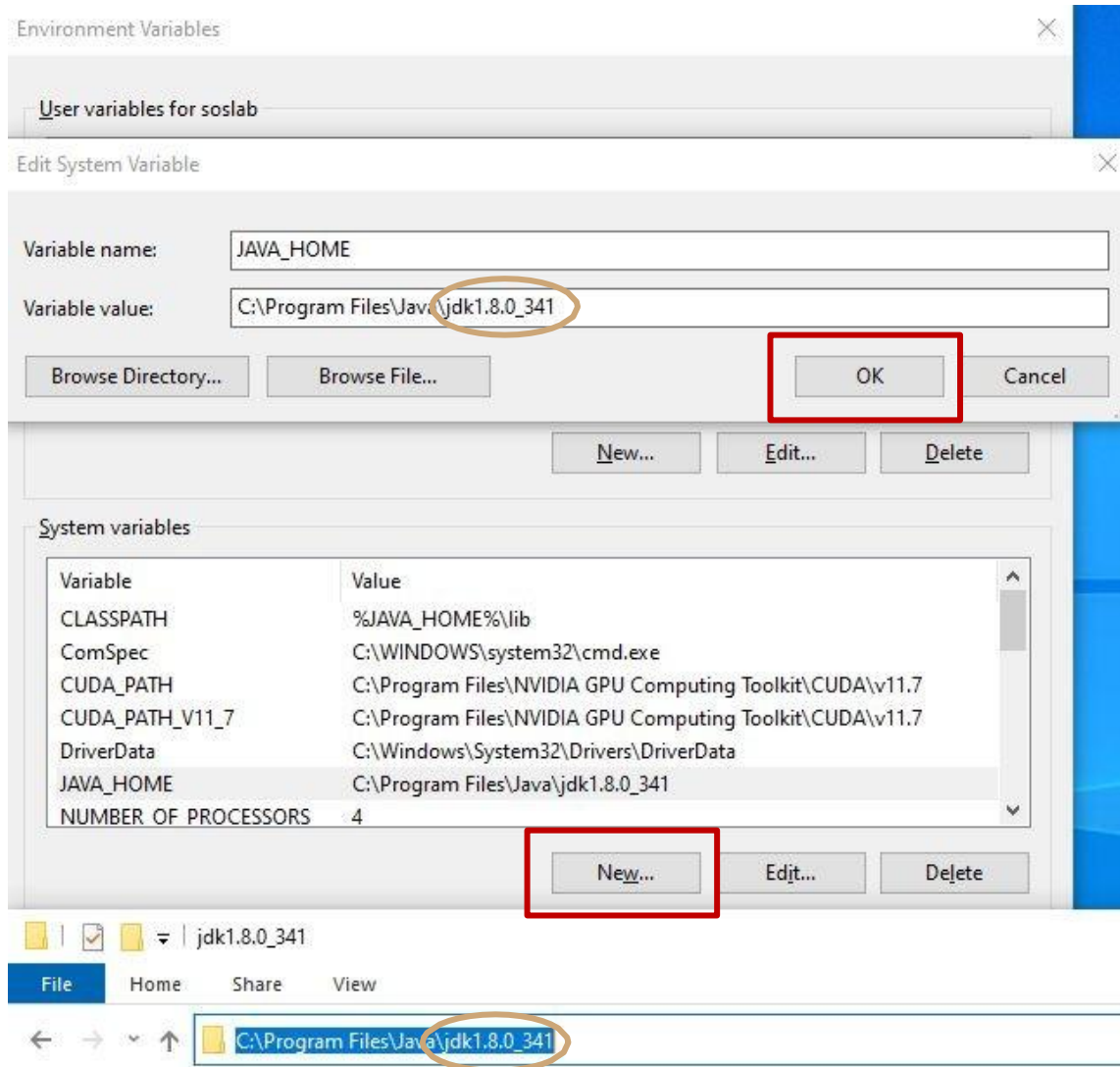
Apply

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

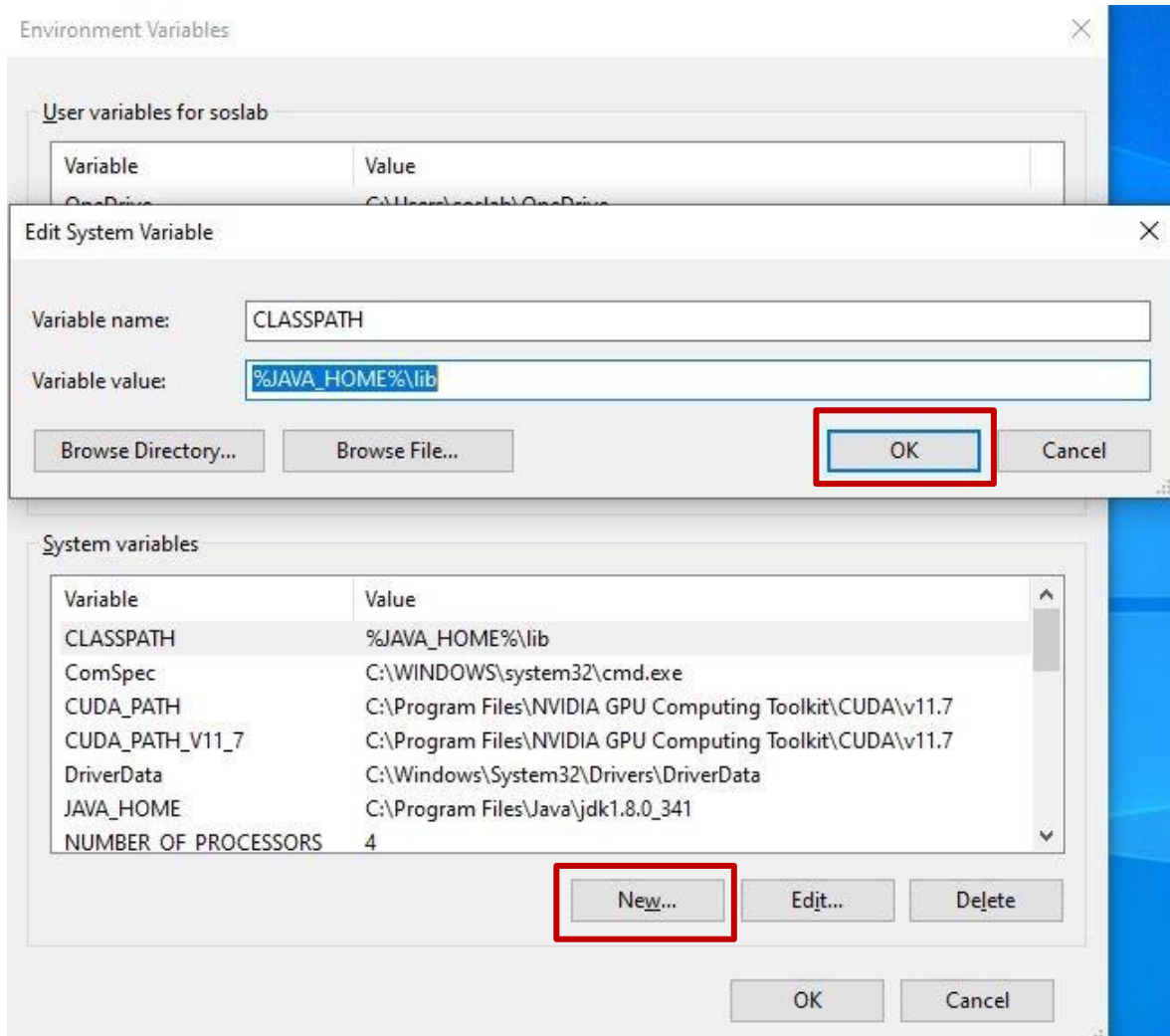
X X86 windows usually is:

C:\Program Files(x86)\Java\jdkXXXXXXXX

- 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

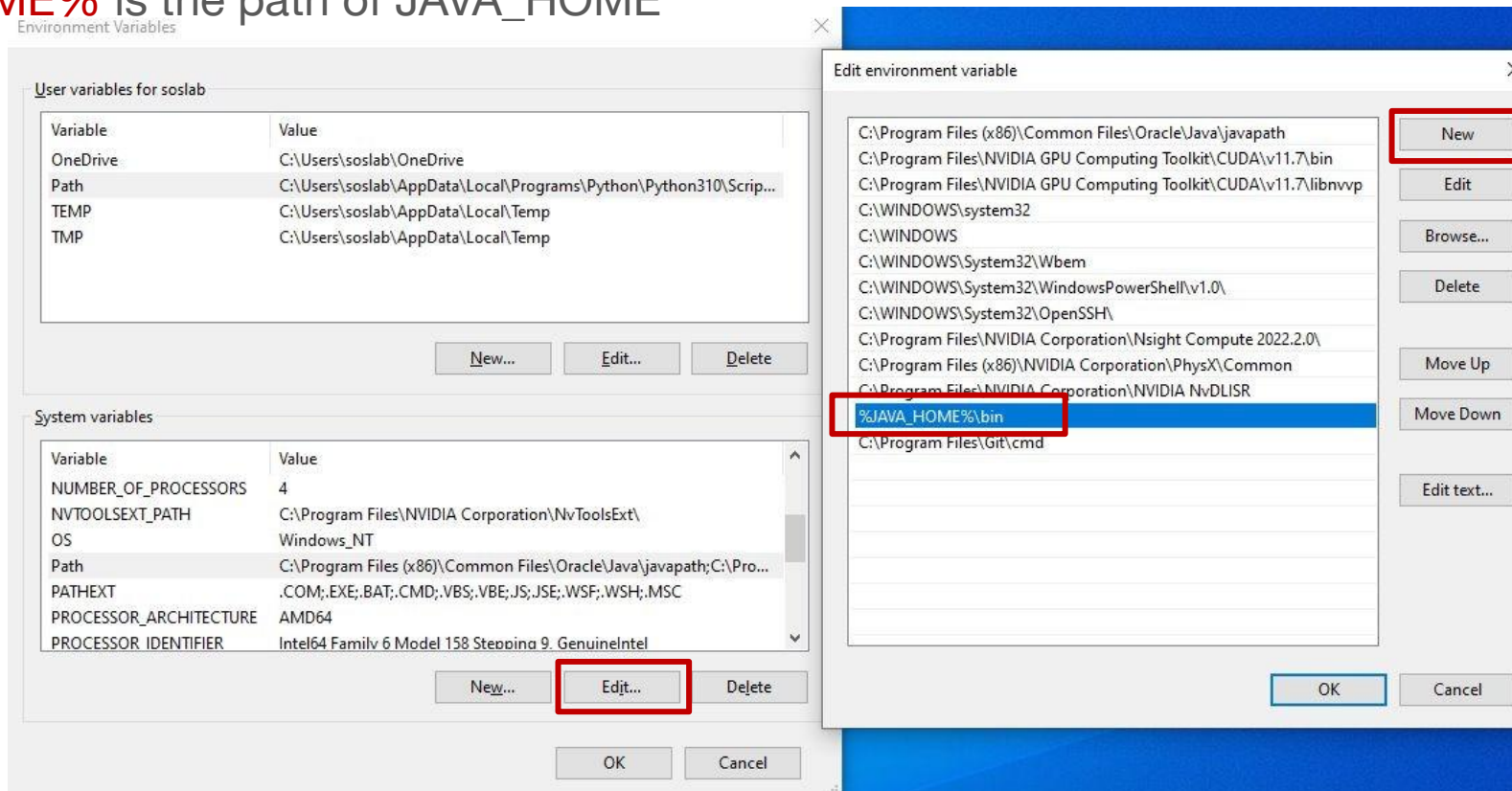


1. Click “New”
 - Variable name: CLASSPATH
 - Variable value: **%JAVA_HOME%\lib**
installation directory of JDK
 - **%JAVA_HOME%** is the path of **JAVA_HOME**
 - If you alter the Java JDK version in the future, only need to change the environment variables of JAVA_HOME, and don't need to change others.

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/>

The Eclipse Installer 2022-06 R now includes a JRE for macOS, Windows and Linux.



Get **Eclipse IDE 2022-06**
Install your favorite desktop IDE packages.

[Download x86_64](#)

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All downloads are provided under the terms and conditions of the [Eclipse Foundation Software User Agreement](#) unless otherwise specified.

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An Open-Source Strategy

[Download](#)

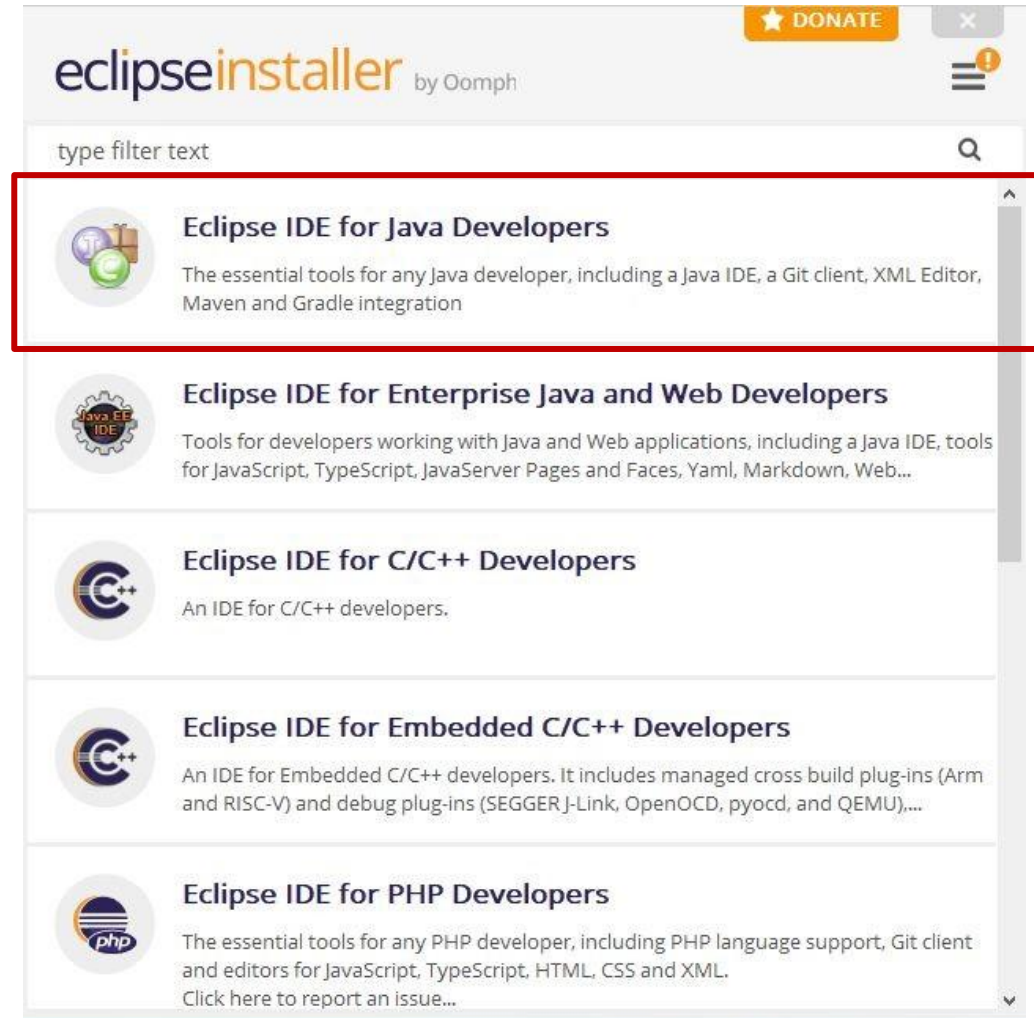
Download from: Korea, Republic Of - Kakao Corp. (https)

File: [eclipse-inst-jre-win64.exe](#) SHA-512

>> [Select Another Mirror](#)

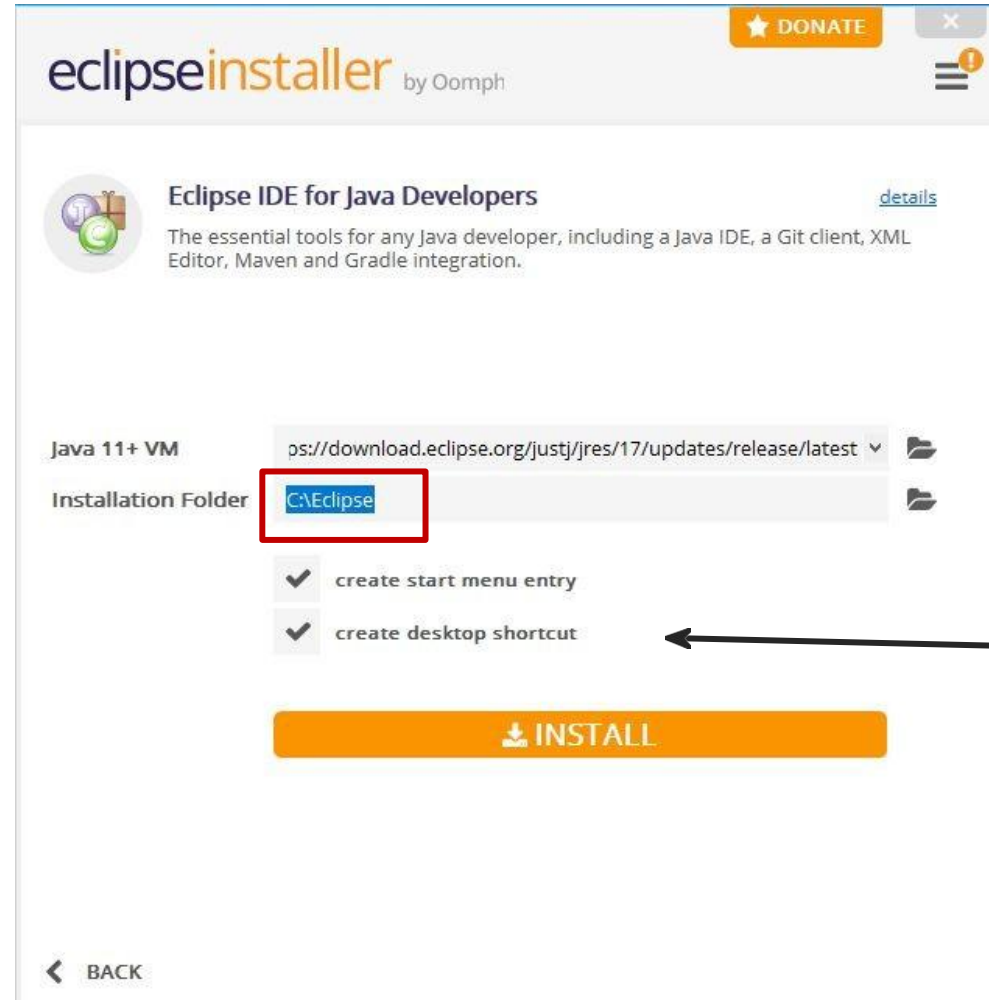
Install Eclipse IDE

- 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.



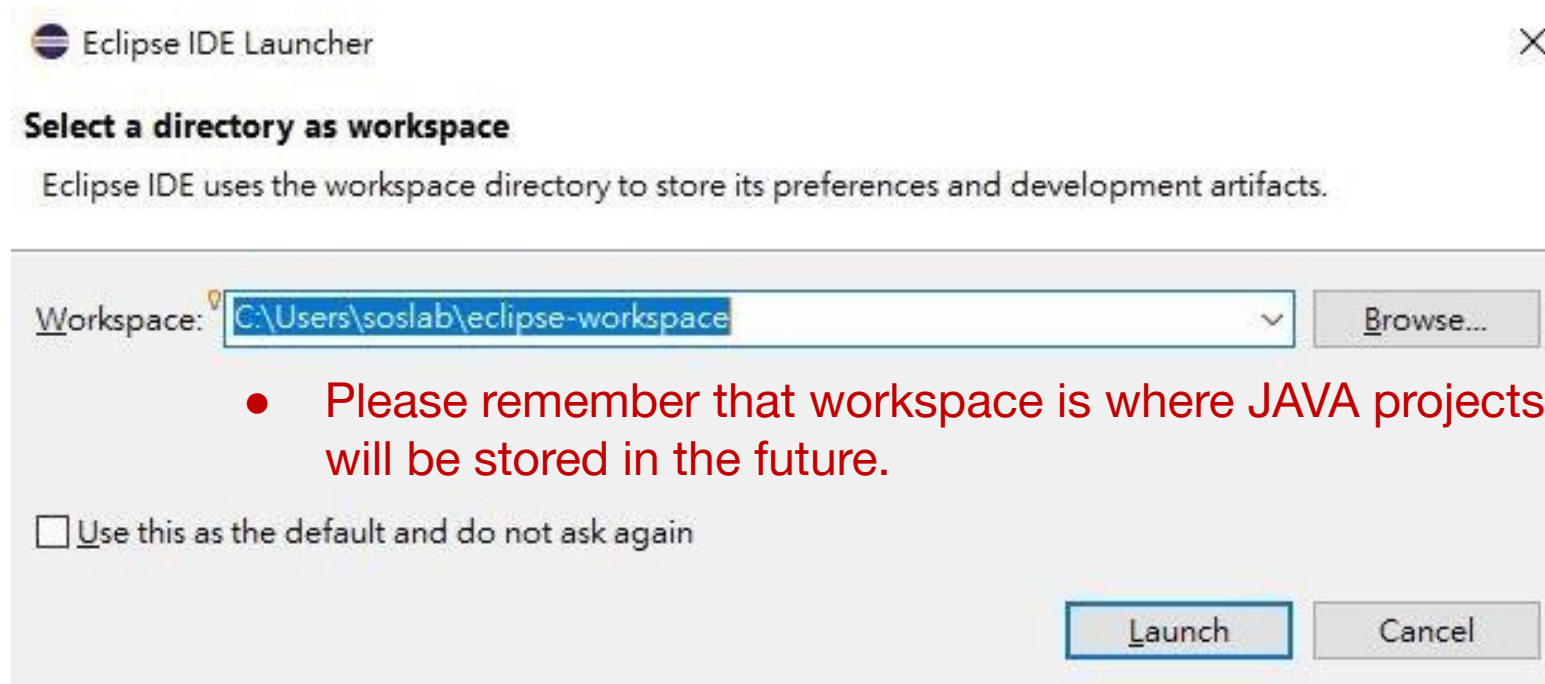
Install Eclipse IDE

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

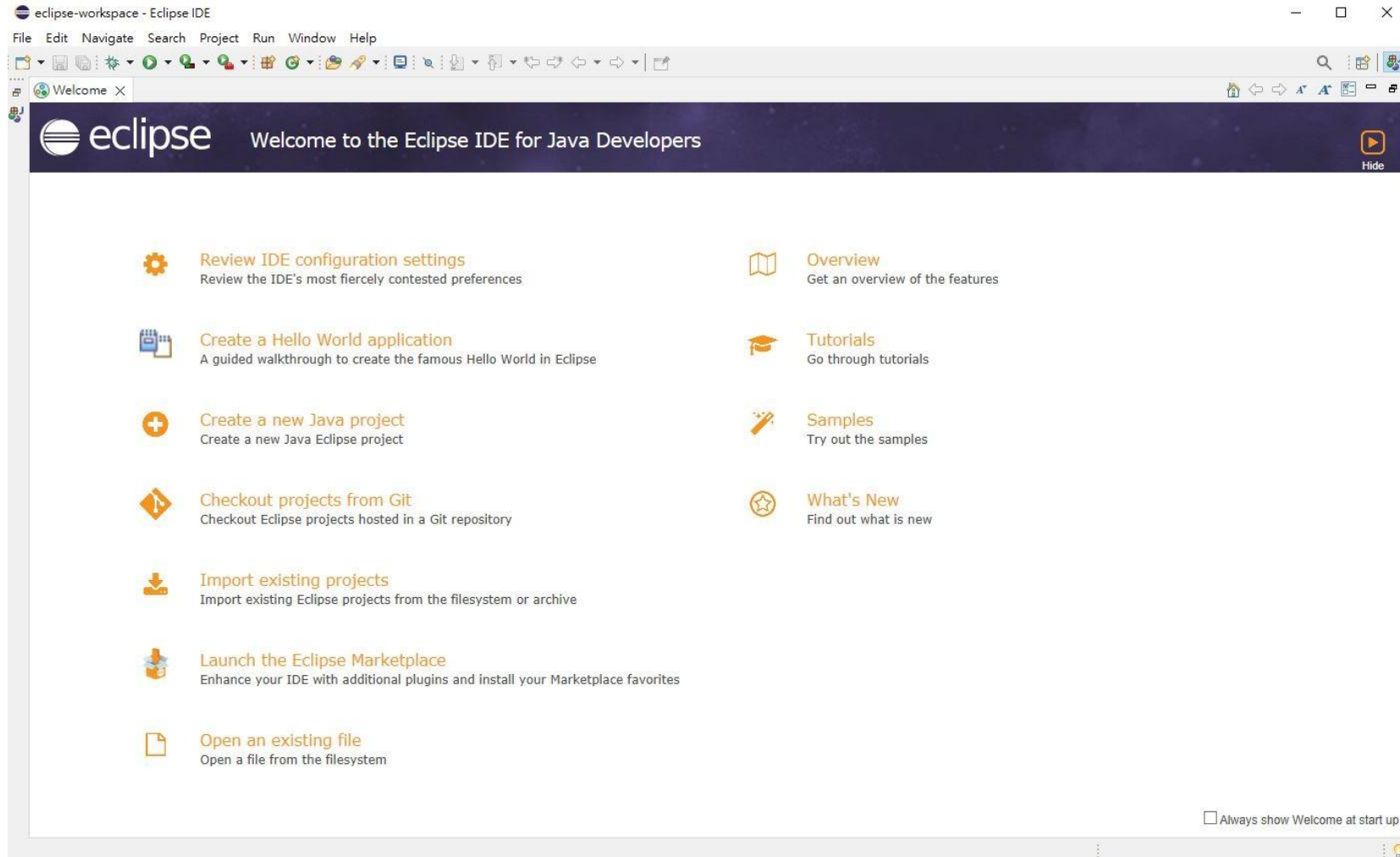


- Recommend everyone put a shortcut of Eclipse on the desktop, it will be easier to find in the future!

Open Eclipse IDE



Finish!

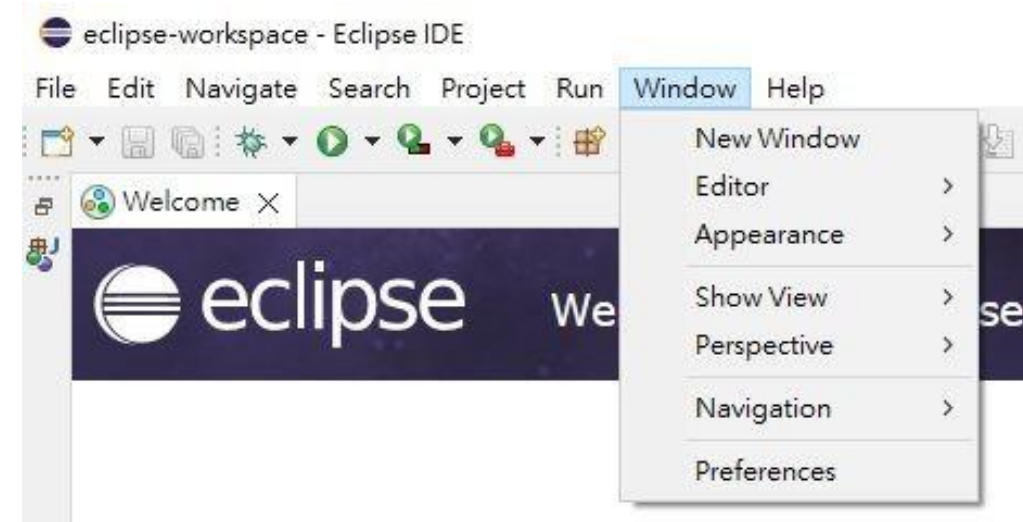


- Students who have used commercial development environments, such as Visual Studio, will feel difficult to adapt when they are new to Eclipse. However, Eclipse is a high-end free development environment; the function of Visual Studio can also be used on Eclipse with a little setting.
- Following will teach everyone set the code auto completion function via “Preference...”

How to open Preferences...

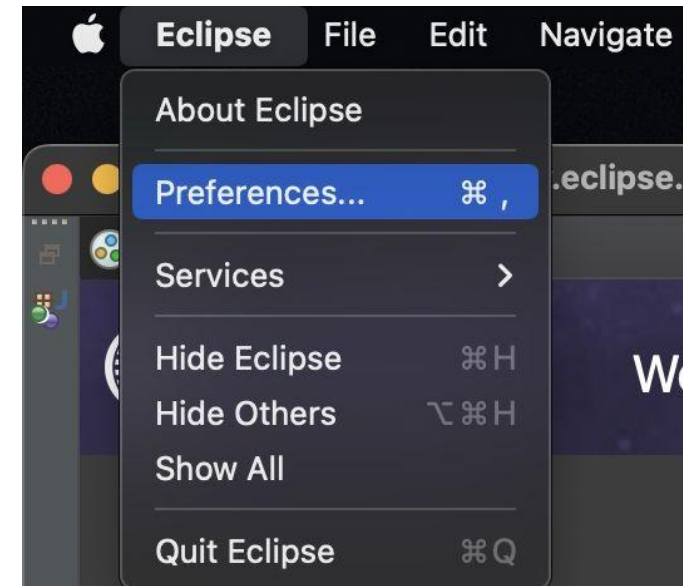
- Windows

The top menu of Eclipse “Window” → “Preferences...”

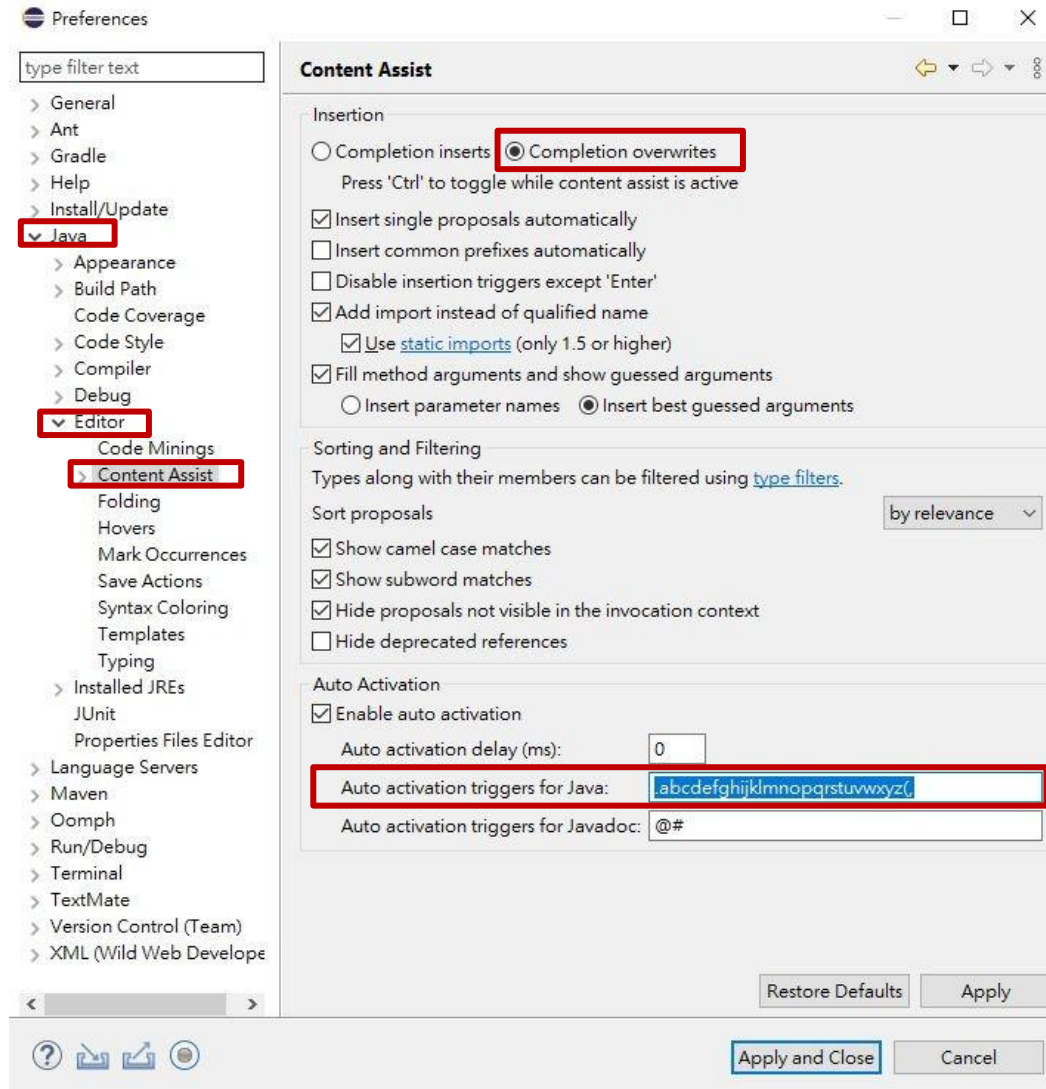


- MAC

The top menu of Eclipse “Eclipse” → “Preferences...”



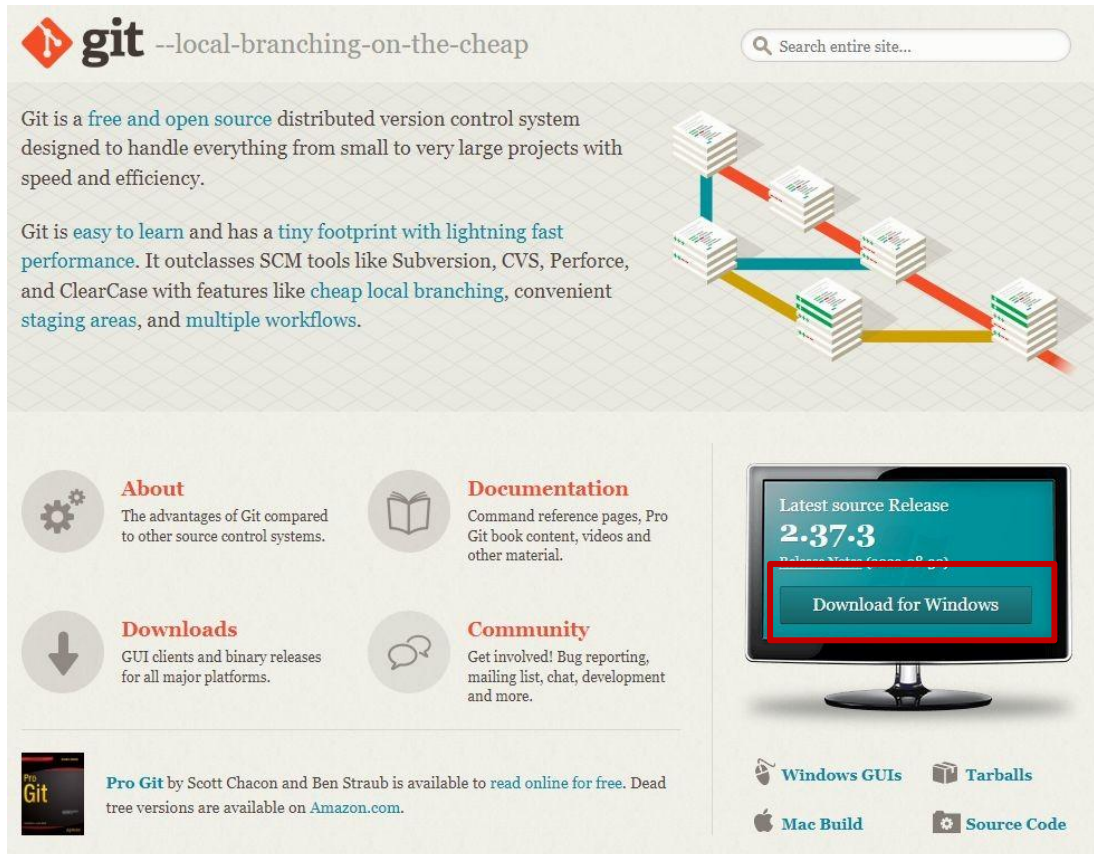
Code auto completion



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/>



The image shows the Git website homepage. At the top left is the Git logo with the tagline "--local-branching-on-the-cheap". To the right is a search bar. Below the logo, there's a paragraph describing Git as a free and open source distributed version control system. To the right of this text is a diagram showing a branching model with stacks of code blocks connected by lines. Below the description, there are four circular icons with text: 'About' (advantages), 'Documentation' (command reference), 'Downloads' (GUI clients), and 'Community' (bug reporting). At the bottom left is a book cover for 'Pro Git'. At the bottom right is a monitor displaying the 'Latest source Release 2.37.3' and a 'Download for Windows' button, which is highlighted with a red box. Below the monitor are links for 'Windows GUIs', 'Tarballs', 'Mac Build', and 'Source Code'.

git --local-branching-on-the-cheap

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](#).

Latest source Release
2.37.3
Released 2022-08-30

Download for Windows

Windows GUIs **Tarballs**
Mac Build **Source Code**

Download for Windows

[Click here to download](#) the latest (**2.37.3**) **64-bit** version of **Git for Windows**. This is the most recent **maintained build**. It was released **5 days ago**, on 2022-08-30.

Other Git for Windows downloads

Standalone Installer

[32-bit Git for Windows Setup.](#)

[64-bit Git for Windows Setup.](#)

Portable ("thumbdrive edition")

[32-bit Git for Windows Portable.](#)

[64-bit Git for Windows Portable.](#)

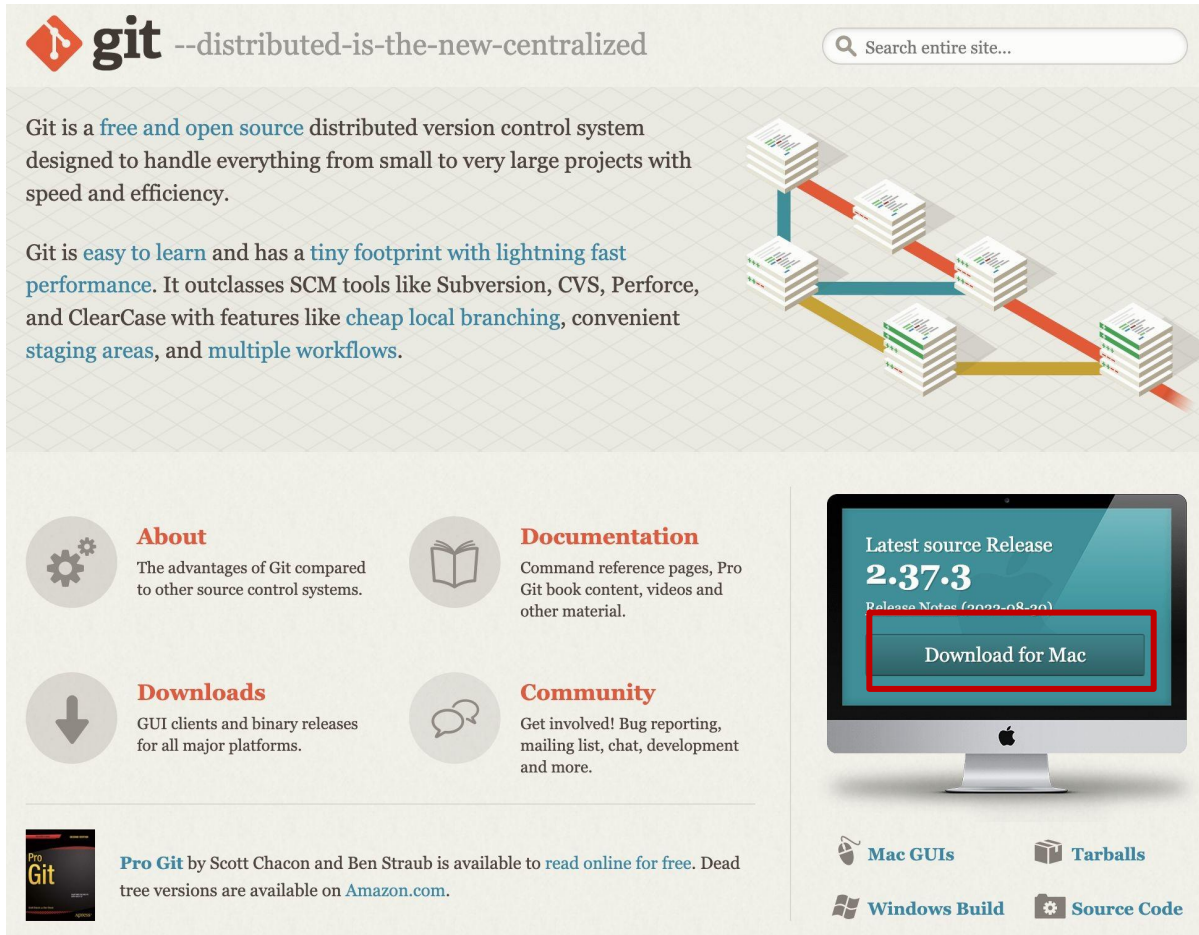
Using winget tool

Install **winget tool** if you don't already have it, then type this command in command prompt or Powershell.

```
winget install --id Git.Git -e --source winget
```

The current source code release is version **2.37.3**. If you want the newer version, you can build it from [the source code](#).

Install git



The banner features the Git logo and the slogan "--distributed-is-the-new-centralized". It includes a search bar and a diagram of a distributed version control system. Below the banner are four sections: About, Documentation, Downloads, and Community, each with an icon and a brief description. At the bottom left is a book cover for "Pro Git", and at the bottom right are links to "Mac GUIs", "Tarballs", "Windows Build", and "Source Code".

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

Search entire site...

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Latest source Release
2.37.3
Release Notes (2021-08-30)

[Download for Mac](#)

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.

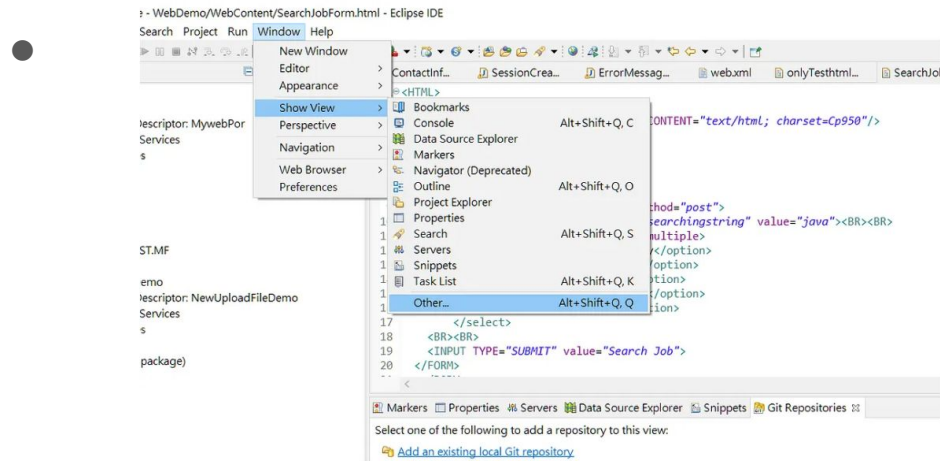
```
Command Prompt
Microsoft Windows [Version 10.0.19044.1889]
(c) Microsoft Corporation. All rights reserved.

C:\Users\soslab>git --version
git version 2.37.3.windows.1
```

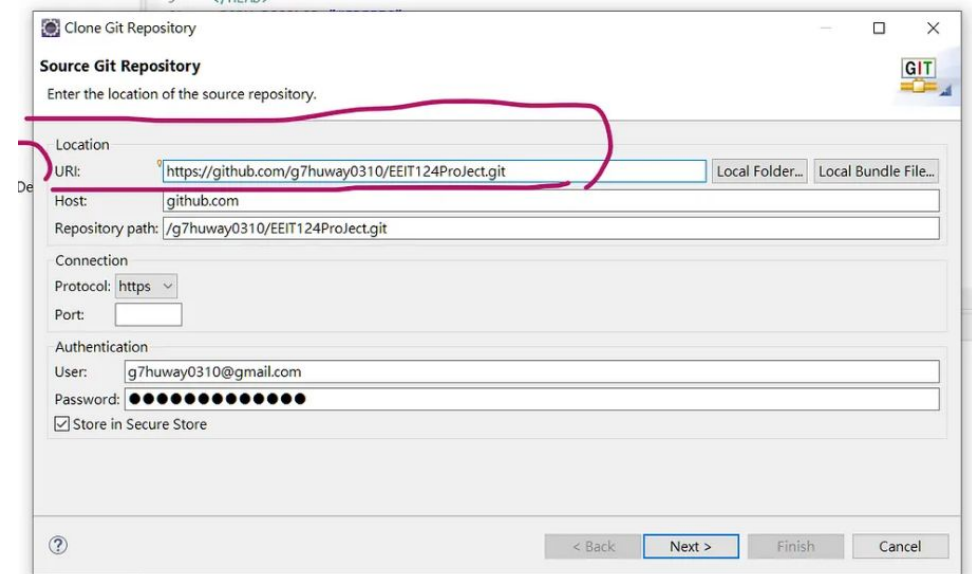
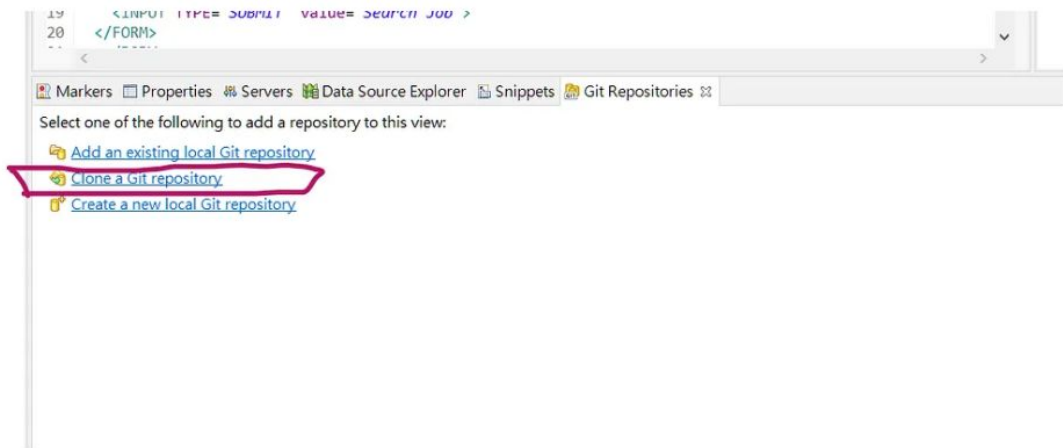
```
(base) [redacted]@MacBook ~ % git --version
git version 2.33.0
```

- 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!