

# 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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[Download Java](#)

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### Help Resources

- [Mac FAQ](#)

## Download Java for macOS

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[Download Java](#)

By downloading Java you acknowledge that you have read and accepted the terms of the Oracle Technology Network License Agreement for Oracle Java SE

# 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.

<a href="#">Linux</a>	macOS	Solaris	Windows
Product/file description		File size	Download
x86 Installer		159.66 MB	 <a href="#">jdk-8u341-windows-i586.exe</a>
x64 Installer		173.16 MB	 <a href="#">jdk-8u341-windows-x64.exe</a>

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.*

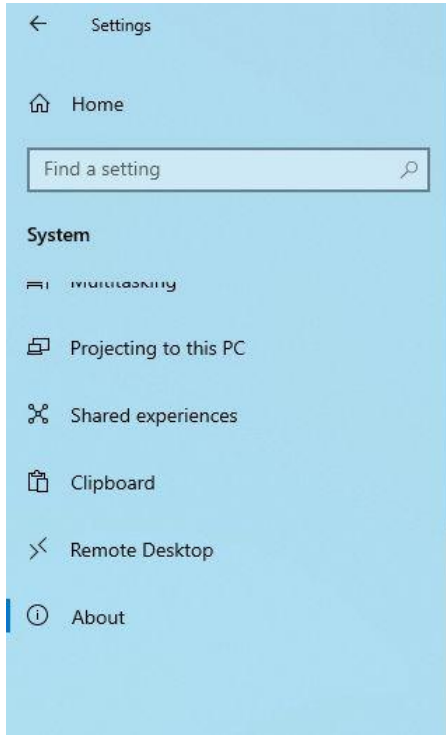
Download [jdk-8u341-windows-x64.exe](#) 

# 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

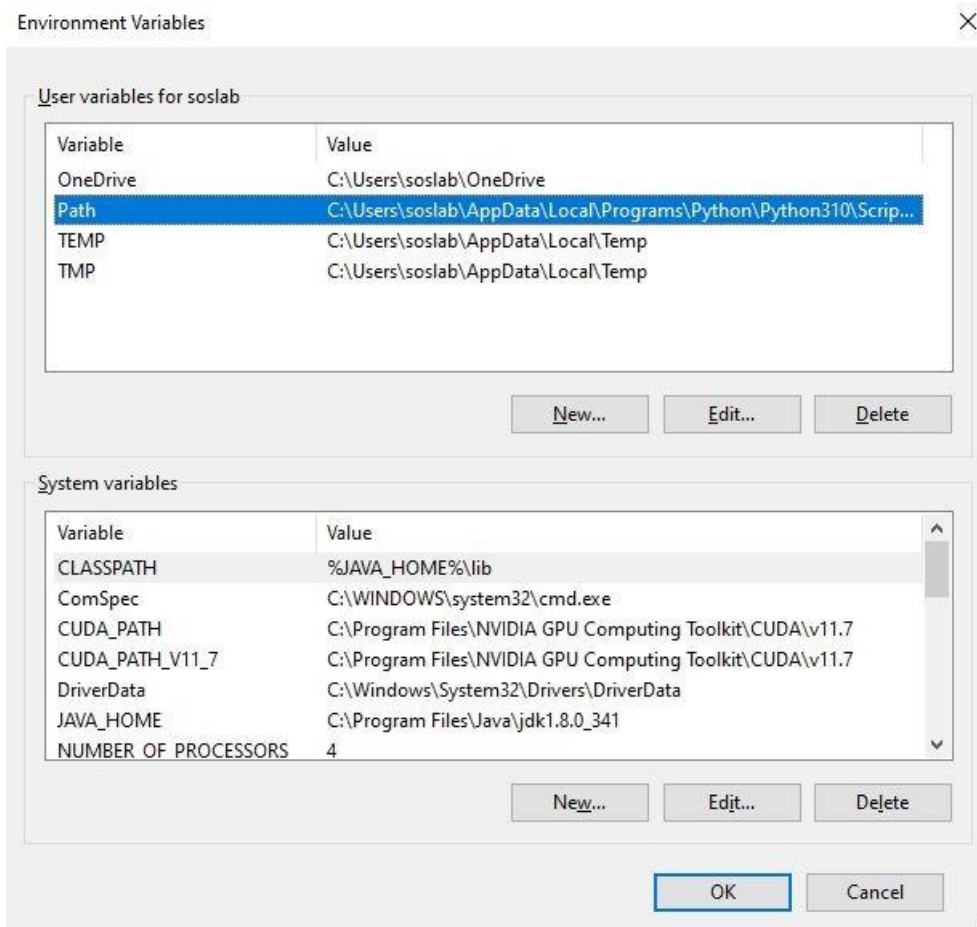
Environment Variables...

OK

Cancel

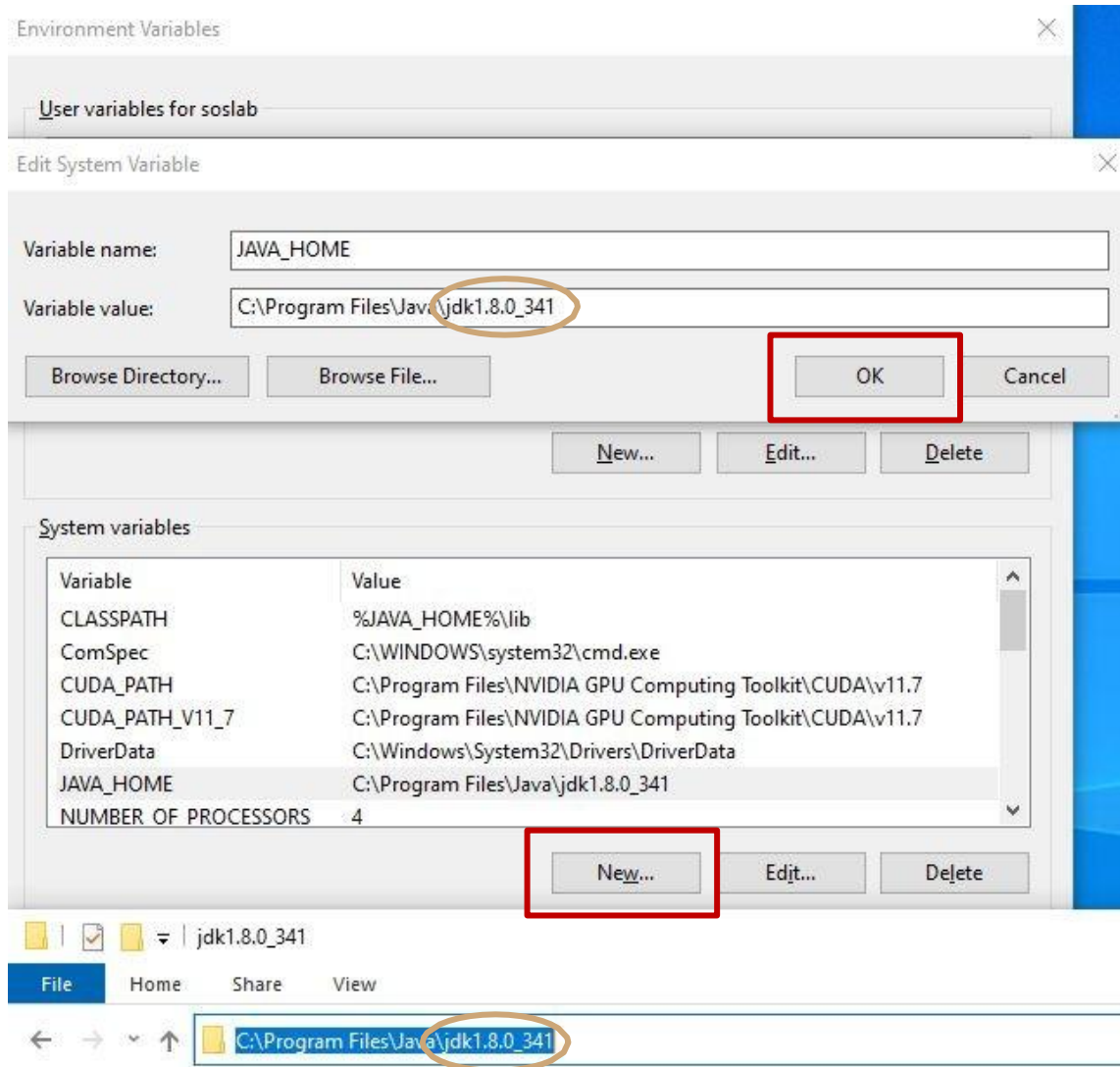
Apply

# 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:

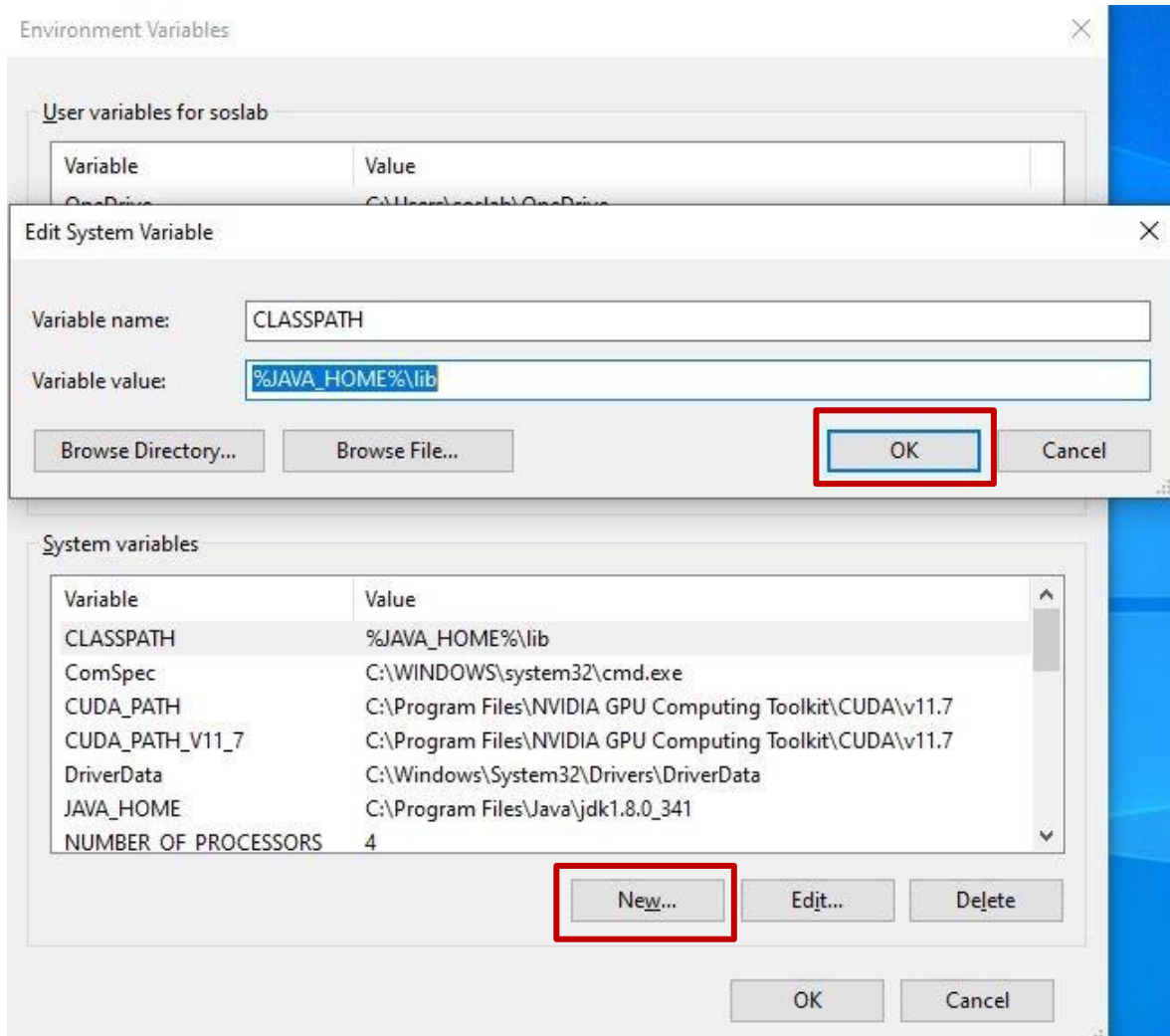
C:\Program Files(x86)\Java\jdkXXXXXXXX

- 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

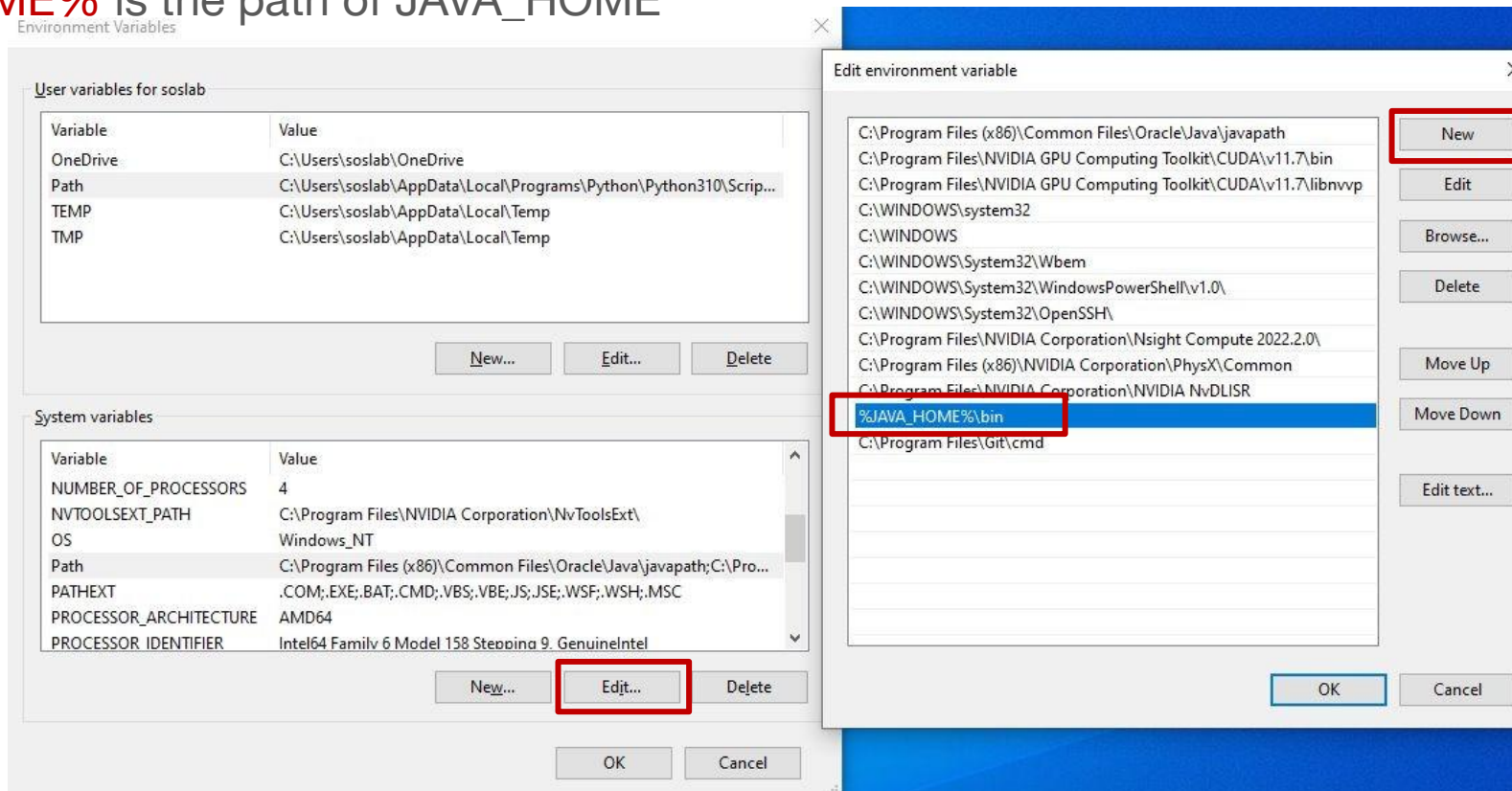


1. Click “New”
  - Variable name: CLASSPATH
  - Variable value: **%JAVA\_HOME%\lib**  
installation directory of JDK
  - **%JAVA\_HOME%** is the path of **JAVA\_HOME**
  - If you alter the Java JDK version in the future, only need to change the environment variables of JAVA\_HOME, and don't need to change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

[Download Packages](#) | [Need Help?](#)

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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.


[Download](#)

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

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

>> [Select Another Mirror](#)

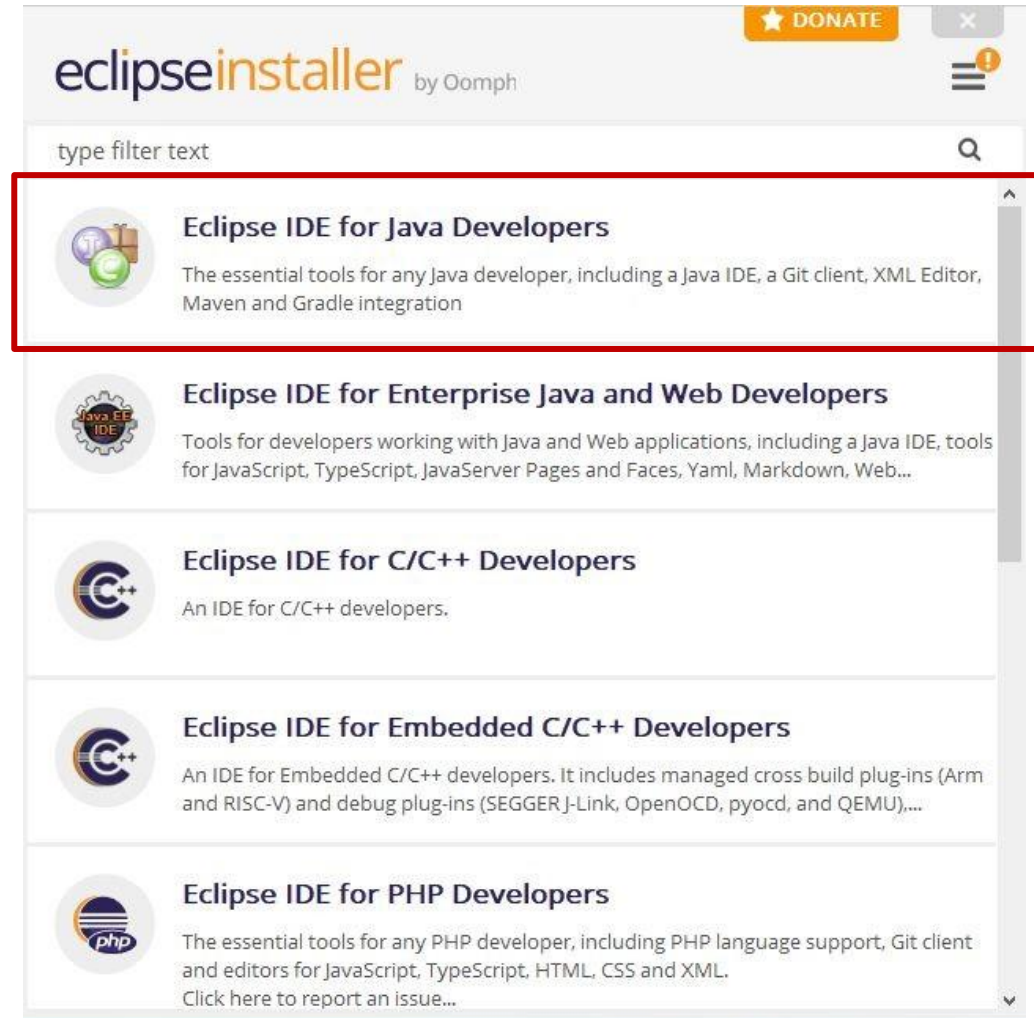
Sponsored Ad



An Open-Source Strategy

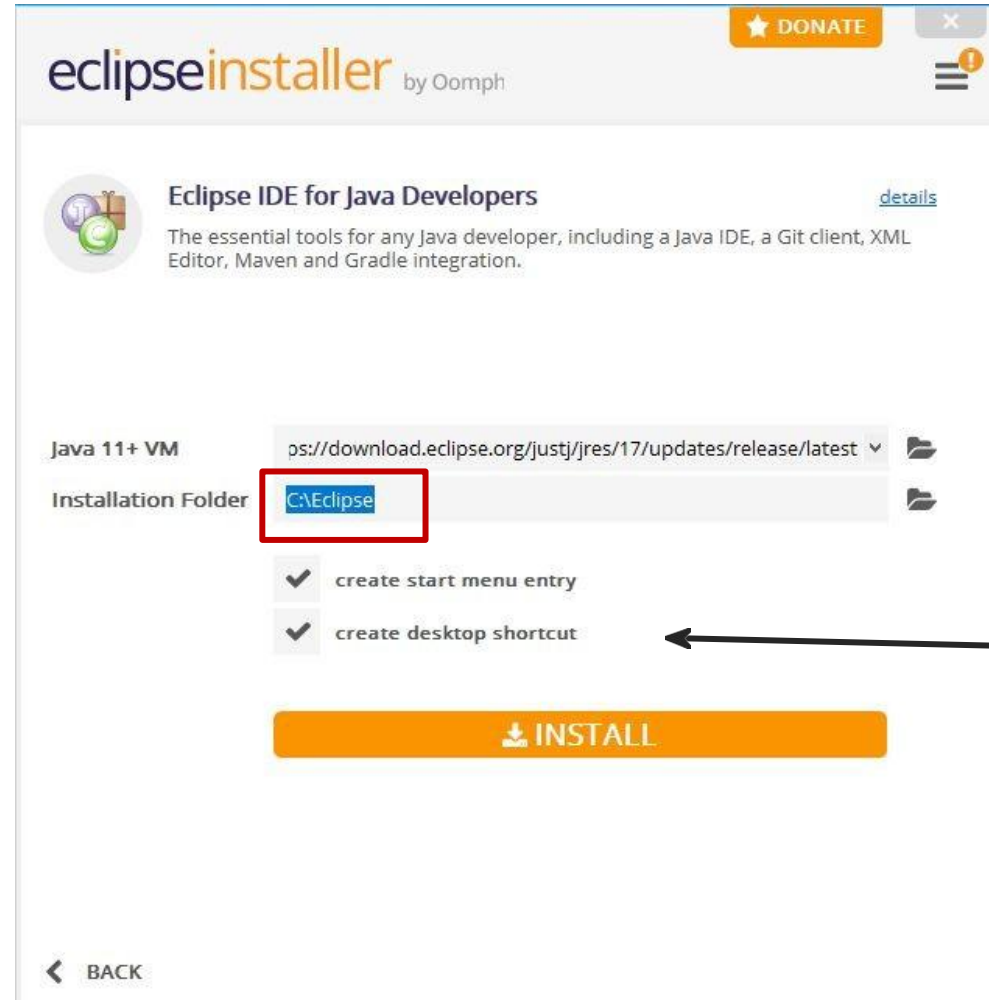
# Install Eclipse IDE

- 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.



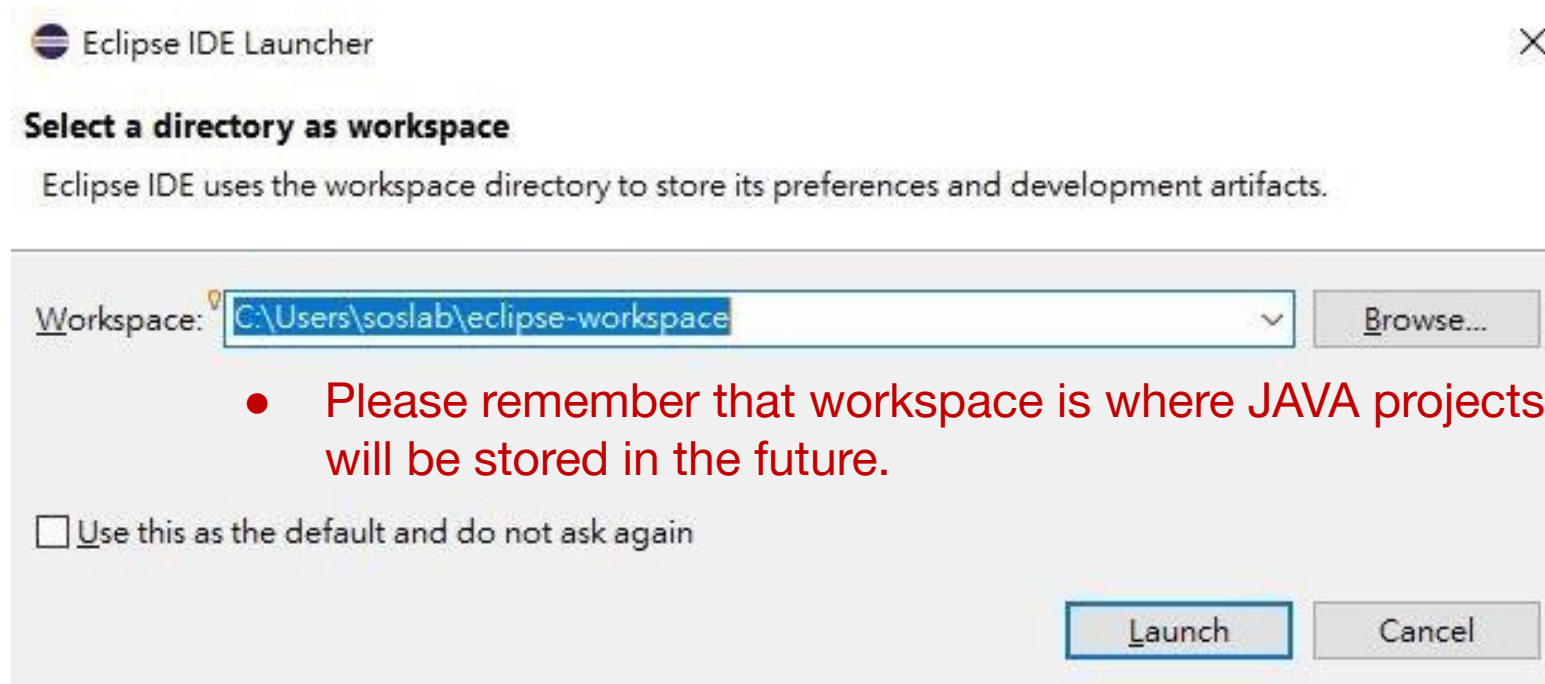
# Install Eclipse IDE

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



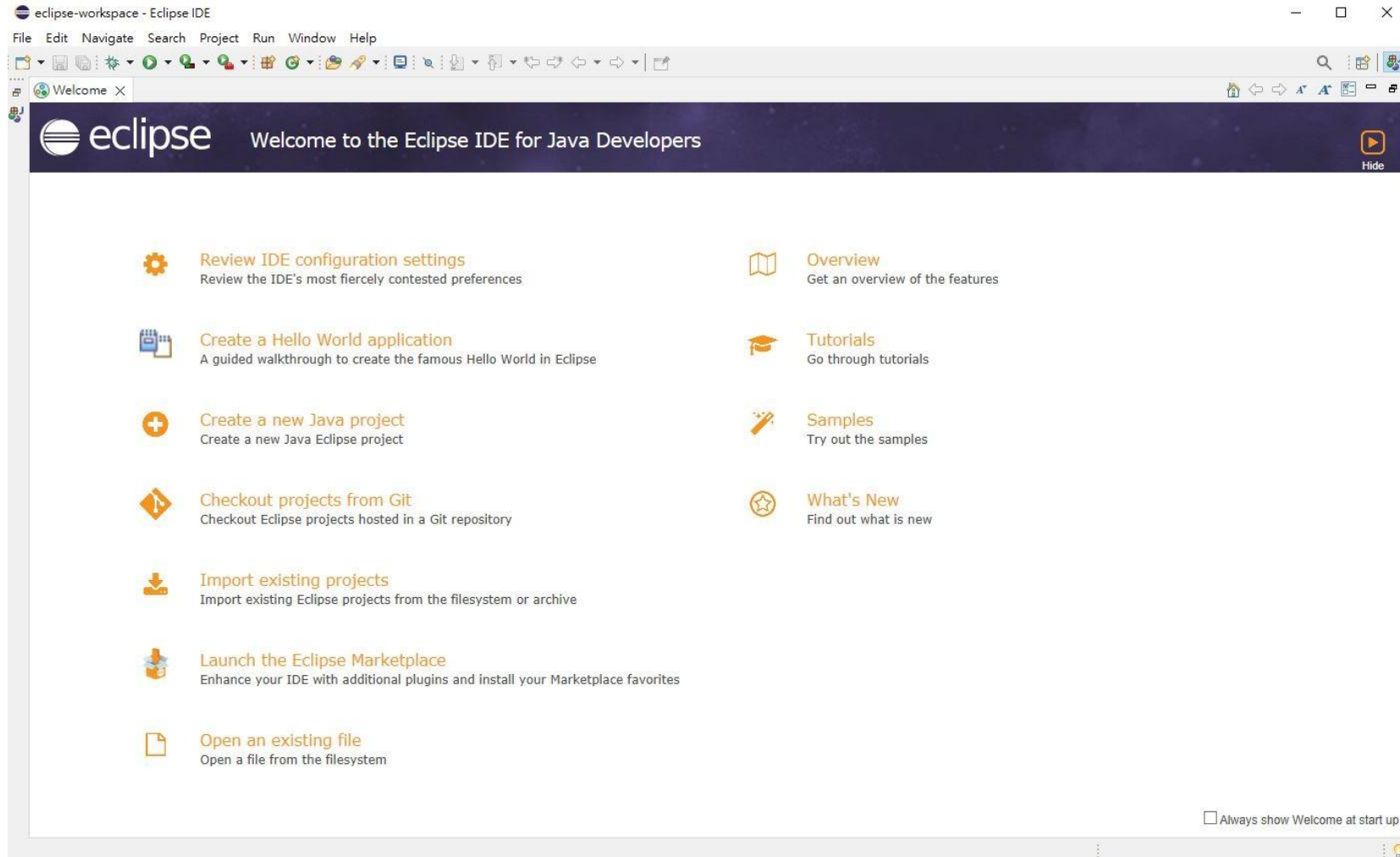
- Recommend everyone put a shortcut of Eclipse on the desktop, it will be easier to find in the future!

# Open Eclipse IDE





# Finish!



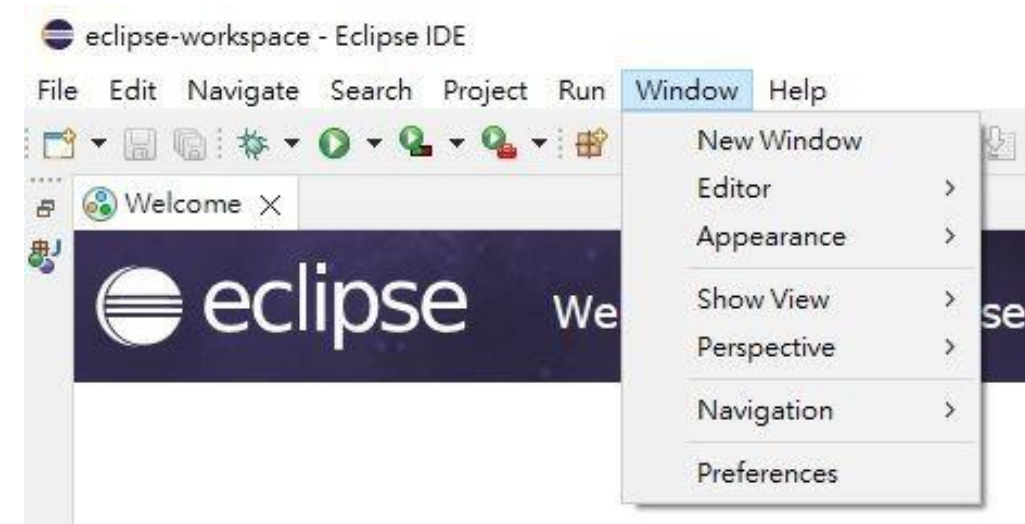
- Students who have used commercial development environments, such as Visual Studio, will feel difficult to adapt when they are new to Eclipse. However, Eclipse is a high-end free development environment; the function of Visual Studio can also be used on Eclipse with a little setting.
- Following will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



# How to open Preferences...

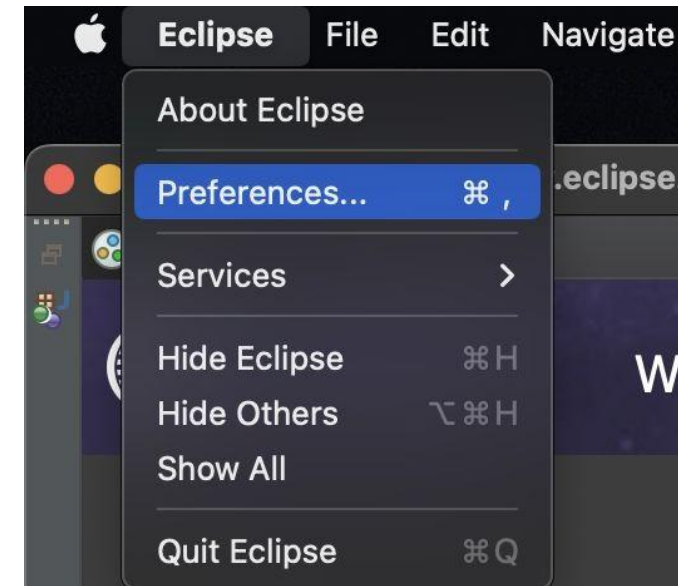
- Windows

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

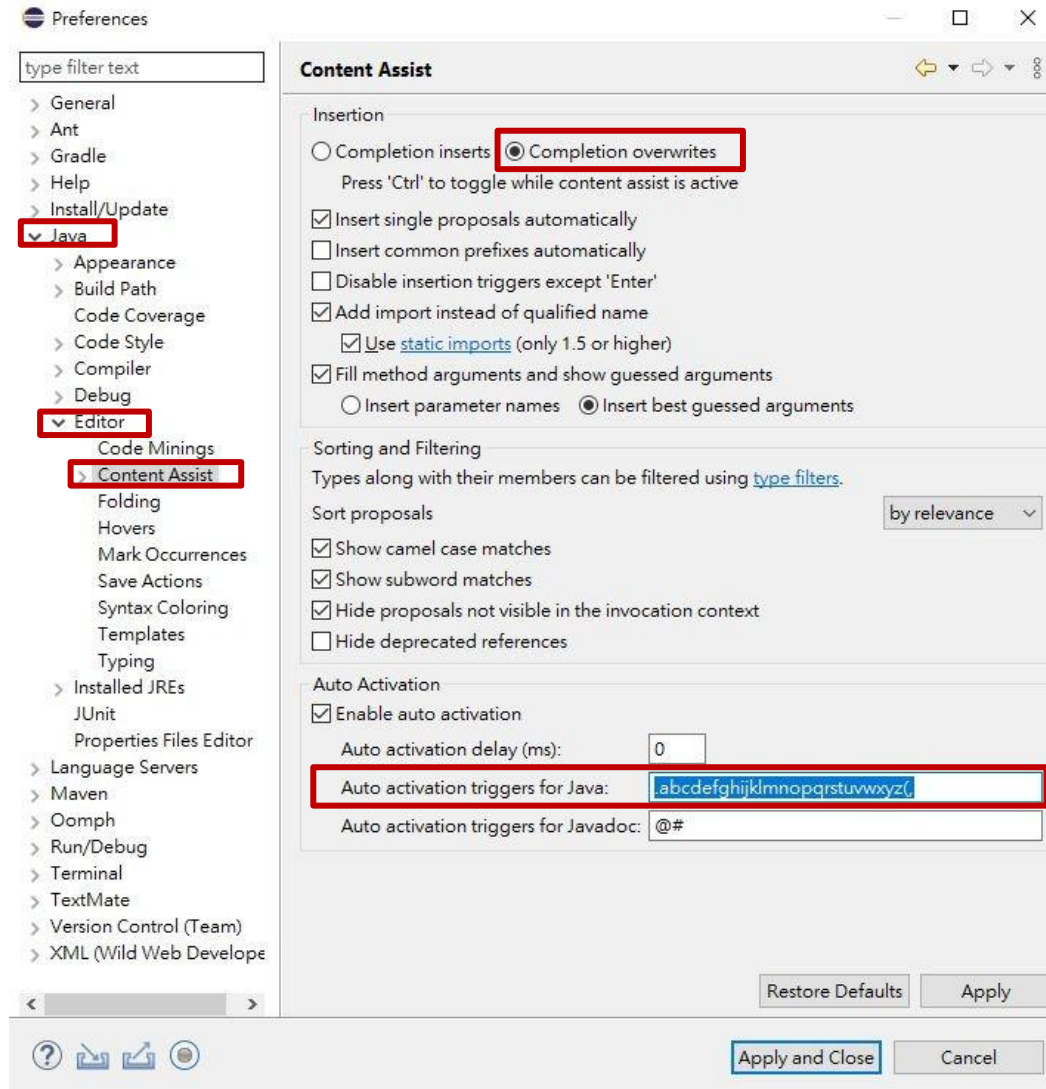


- MAC

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



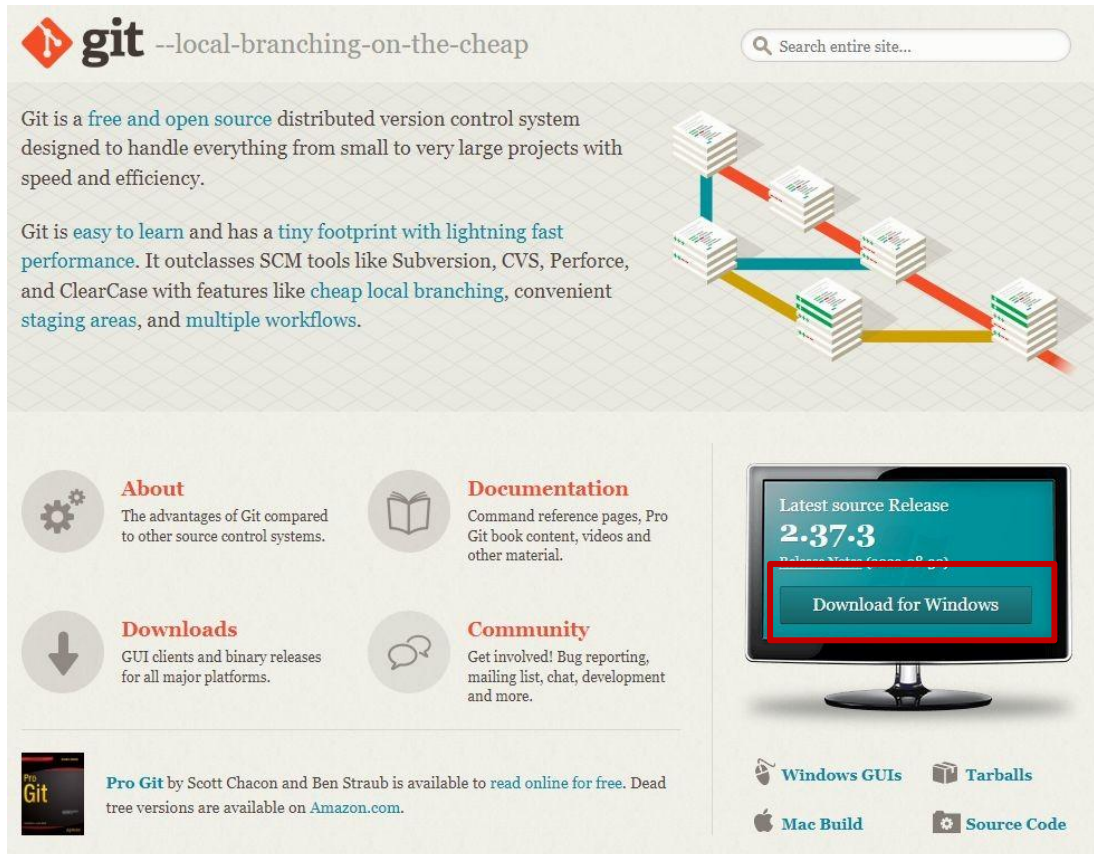
# Code auto completion



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, there's a navigation bar with the Git logo and the tagline "--local-branching-on-the-cheap". Below this, there's a search bar. The main content area features a large illustration of a branching model with multiple stacks of code blocks connected by lines. To the left of this illustration, there's text describing Git as a free and open source distributed version control system. Below this, there's a section titled "Git is easy to learn" with a list of features. At the bottom, there are four circular icons representing different sections: About, Documentation, Downloads, and Community. To the right of these icons is a monitor displaying the latest source release (2.37.3) and a button to download for Windows. At the very bottom, there 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.

**Latest source Release**  
**2.37.3**  
Released 2022-08-30  
**Download for Windows**

**Pro Git** by Scott Chacon and Ben Straub is available to [read online for free](#). Dead tree versions are available on [Amazon.com](#).

**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

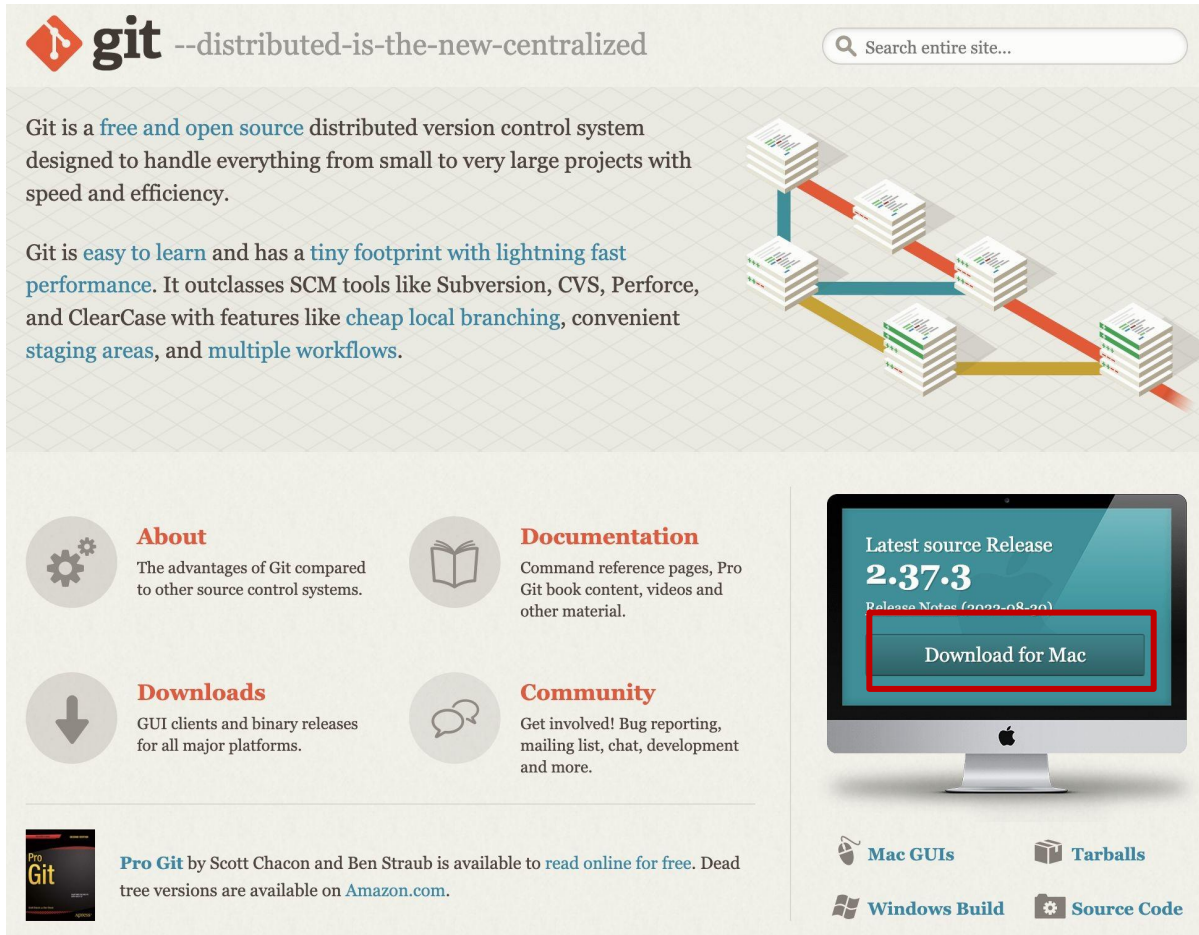
Install **winget tool** if you don't already have it, then type this command in command prompt or Powershell.

```
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 image shows the Git website header and navigation menu. The header features the Git logo and the tagline "--distributed-is-the-new-centralized". Below this, there is a search bar and a description of Git as a free and open source distributed version control system. The navigation menu includes links for About, Documentation, Downloads, and Community. The About section describes the advantages of Git compared to other source control systems. The Documentation section provides links to command reference pages, the Pro Git book, and other materials. The Downloads section offers GUI clients and binary releases for various platforms. The Community section encourages bug reporting, mailing list participation, and more. At the bottom, there is a section for the Pro Git book and a footer with links to Mac GUIs, Tarballs, Windows Build, and Source Code.

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

Search entire site...

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**About**  
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**Documentation**  
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**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**  
Release Notes (2022-08-30)

[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.

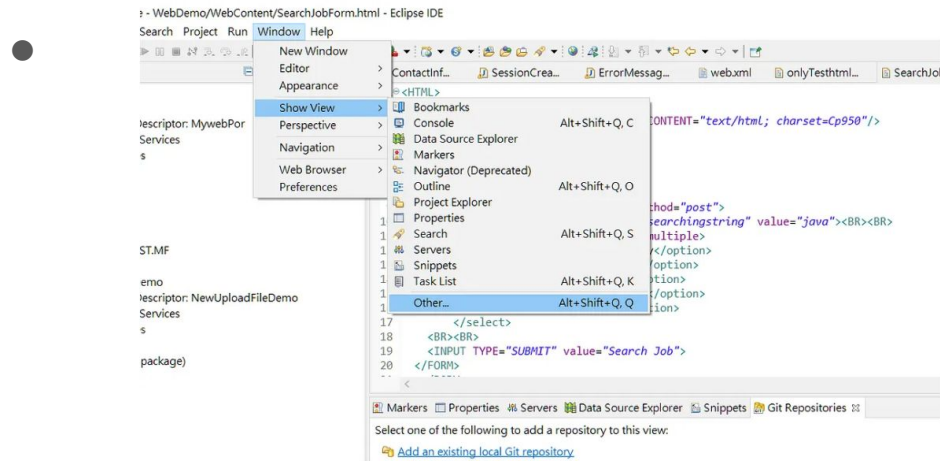
```
Command Prompt
Microsoft Windows [Version 10.0.19044.1889]
(c) Microsoft Corporation. All rights reserved.

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

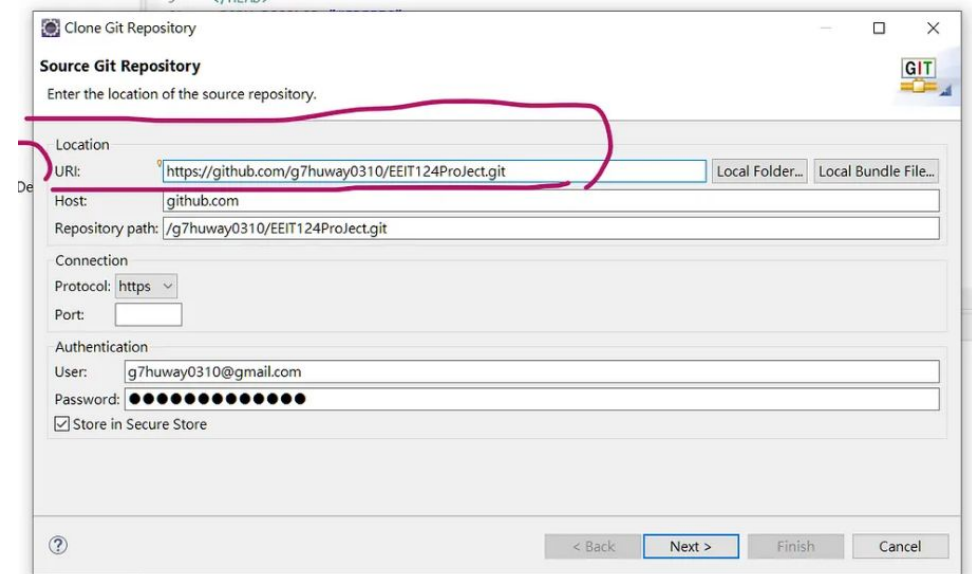
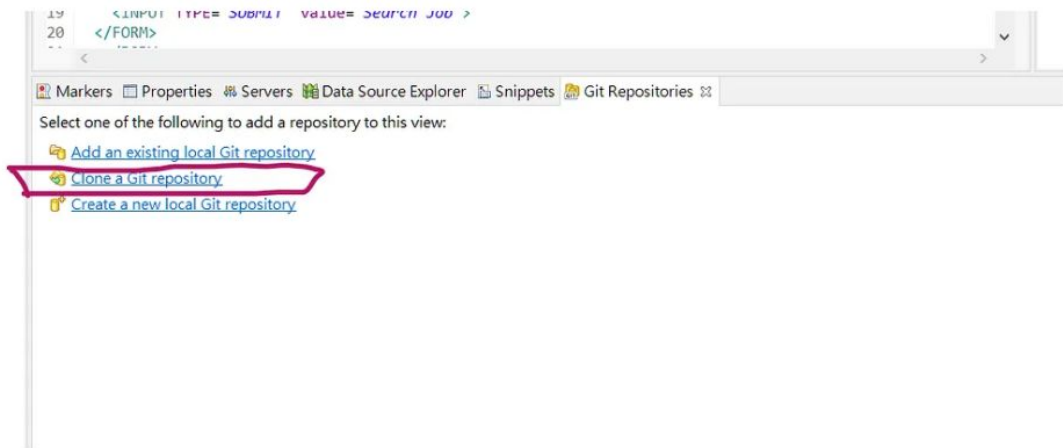
```
(base) [redacted]@MacBook ~ % git --version
git version 2.33.0
```

- 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!