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

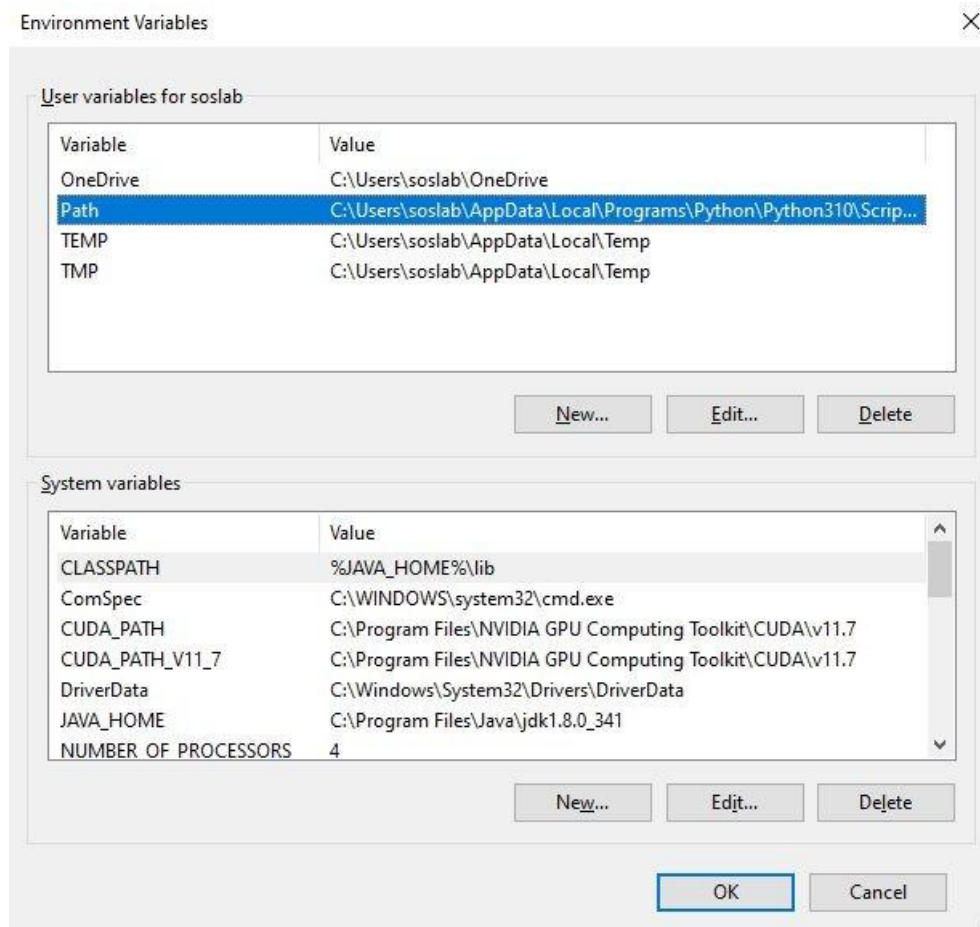3. Click Environment Variables

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
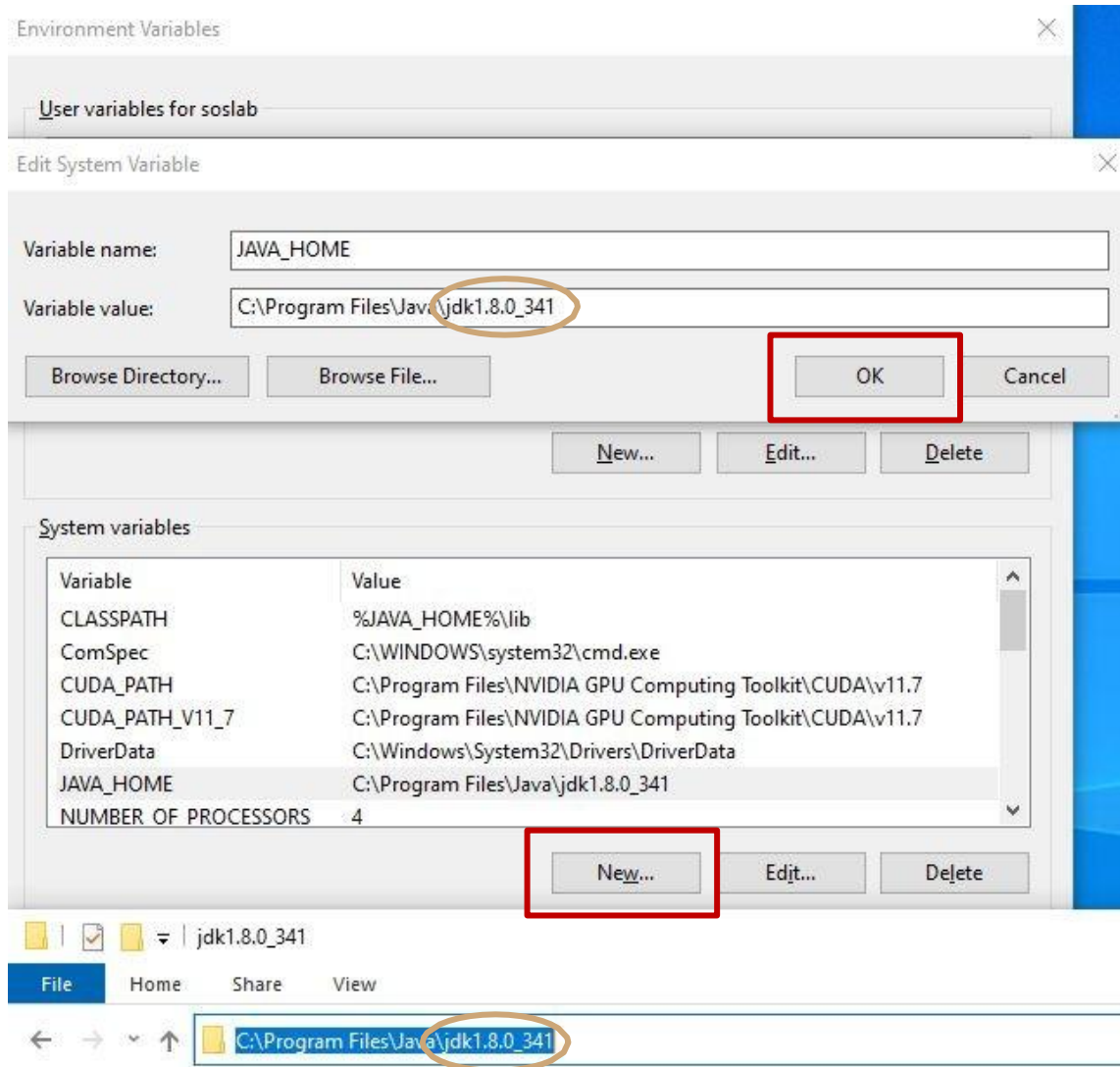
1. Click "New"
   - Variable name: JAVA_HOME
   - Variable value: installation directory of JDK
     X64 windows usually is:
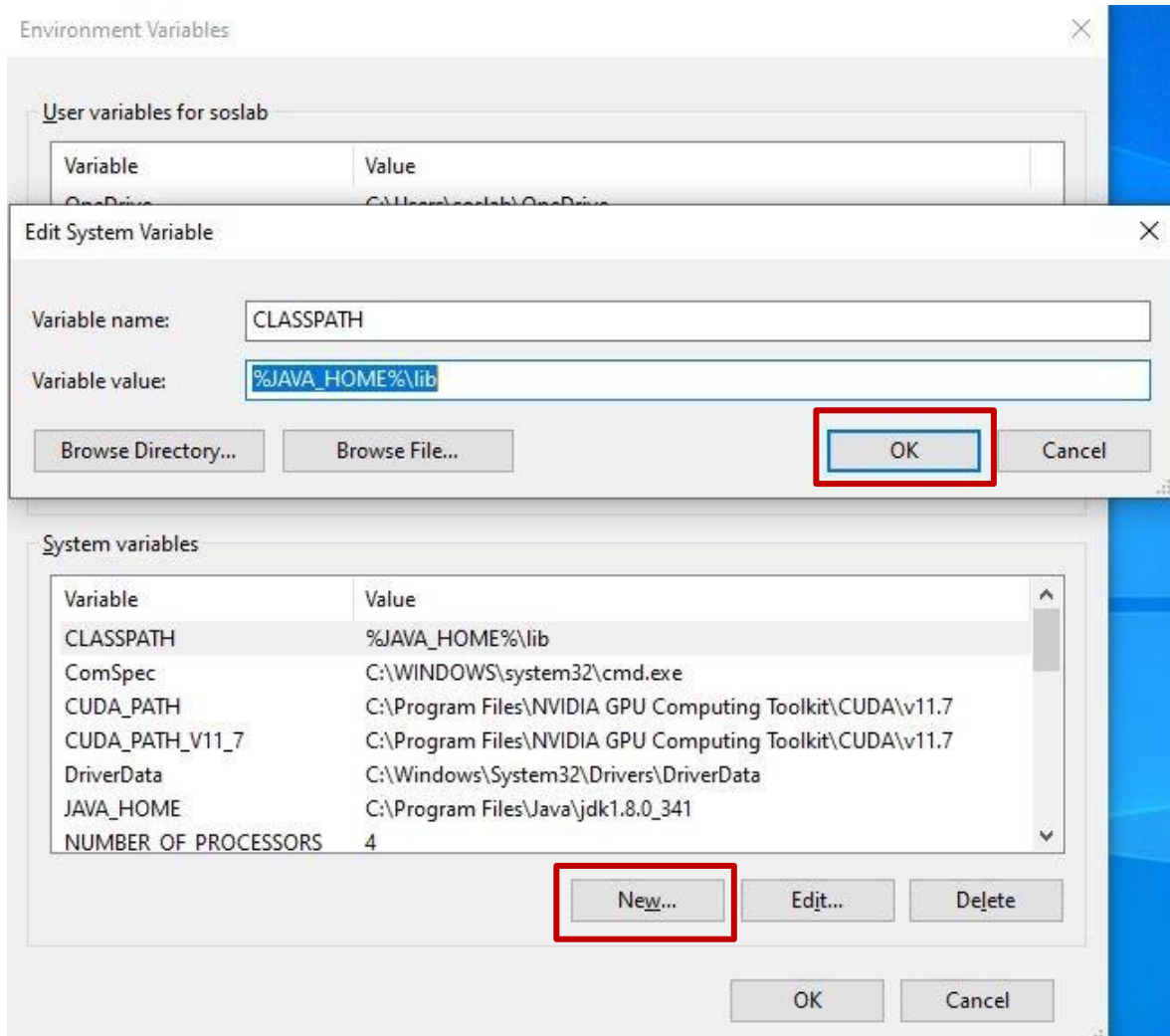   C:\ProgramFiles\Java\jdkXXXXXX
     X X86 windows usually is:
     C:\Program Files(x86)\Java\jdkXXXXXXX
   - The red part depends on the version; please check whether the directory exists and set the environment variables.

1. Click "OK" to save.
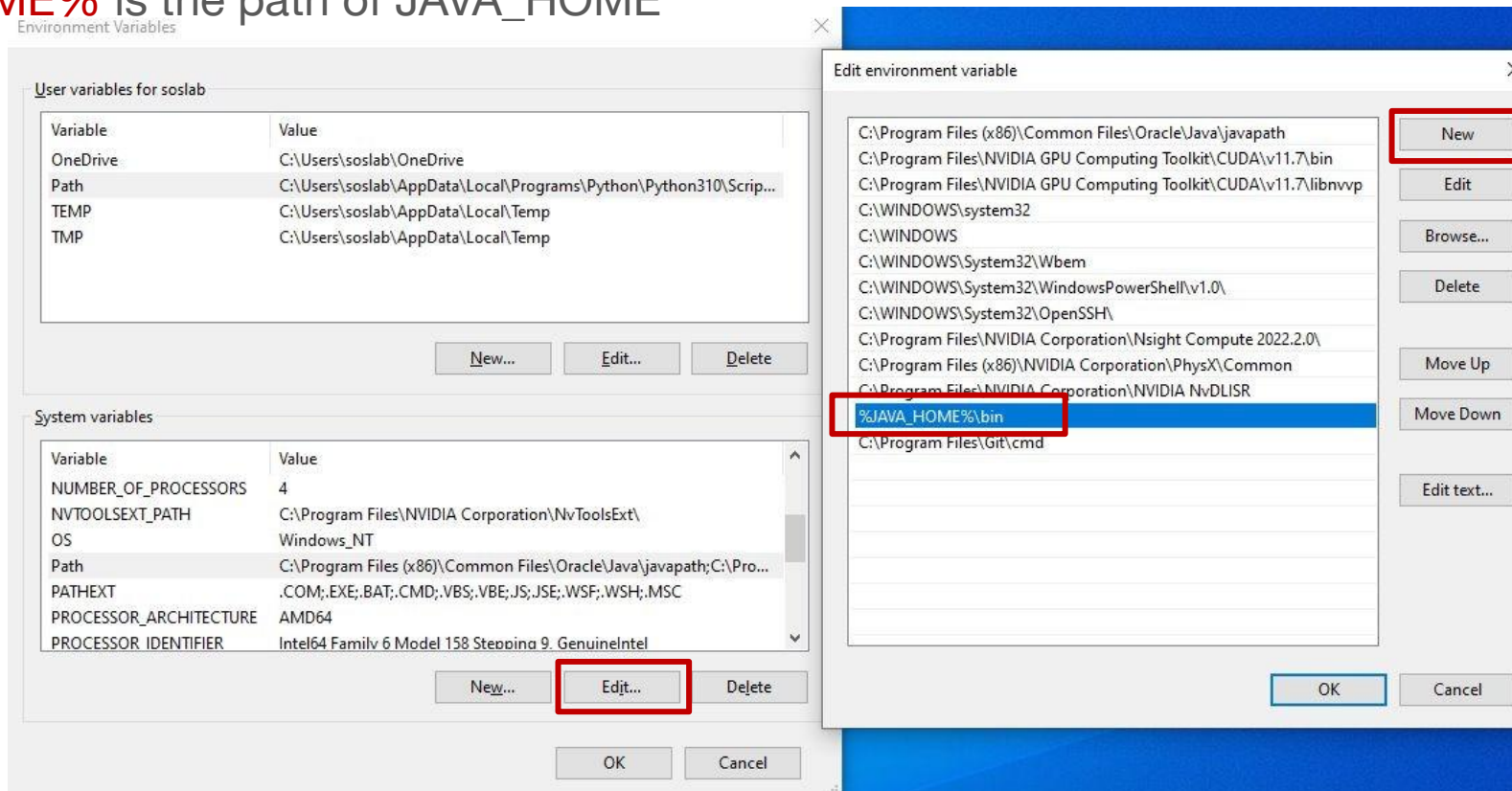
Set Environment Variables CLASSPATH

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.
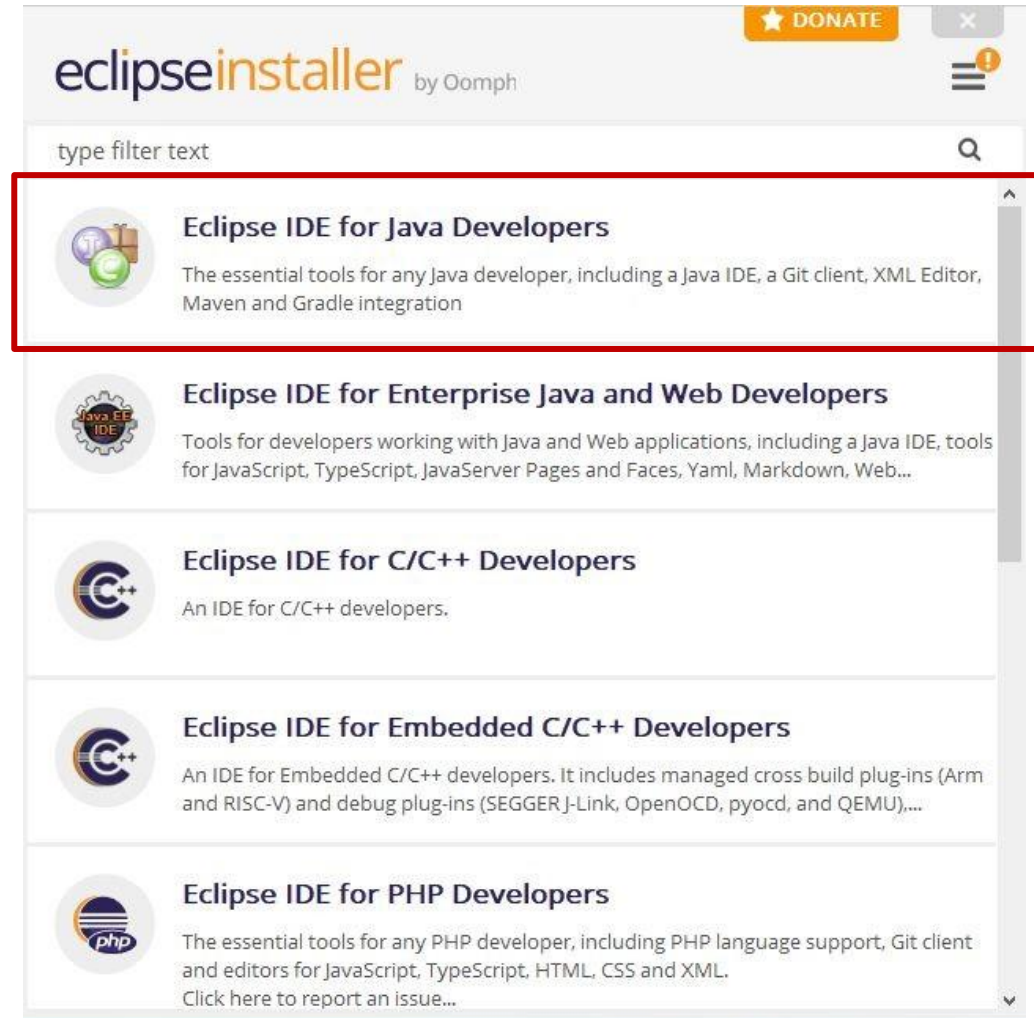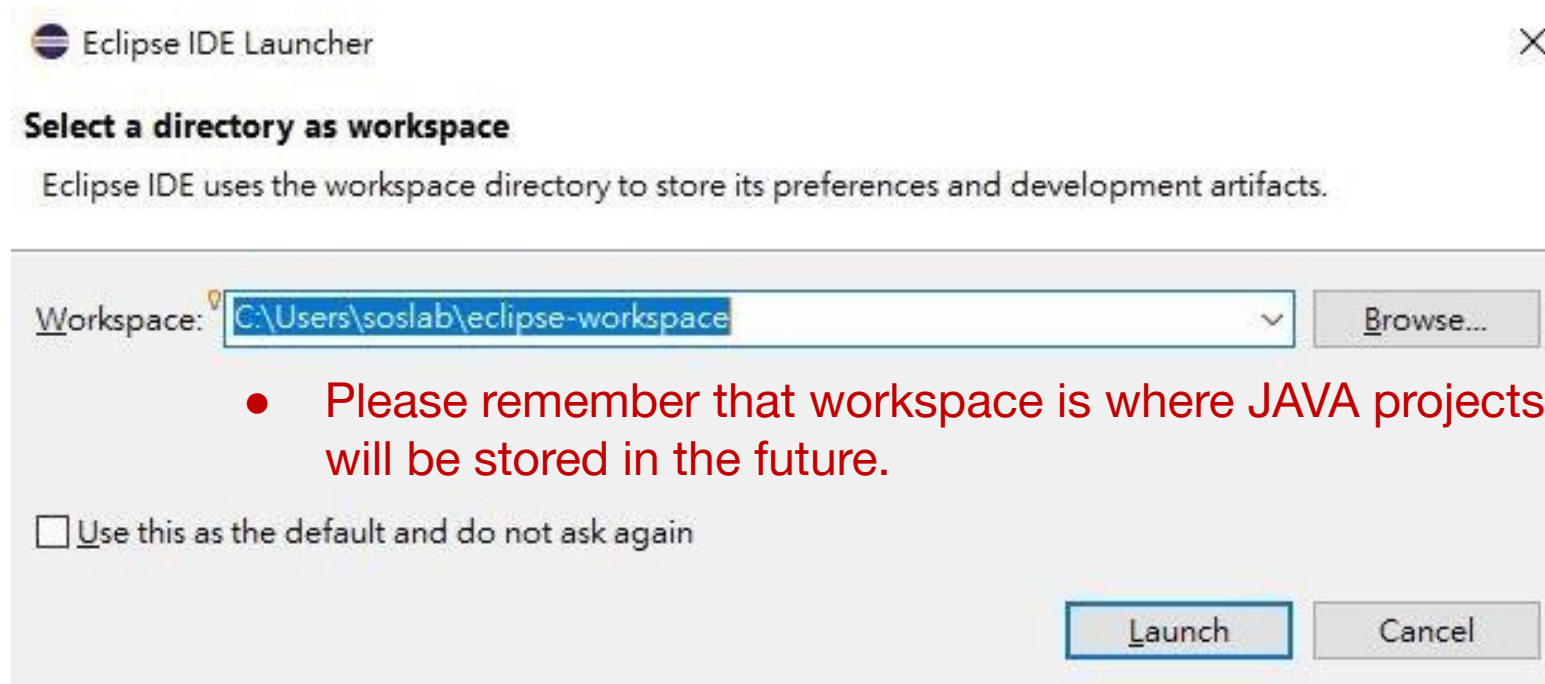
Install Eclipse IDE

- Recommend adding a new folder (ex: Eclipse) in driver C, and select the folder you just created here.
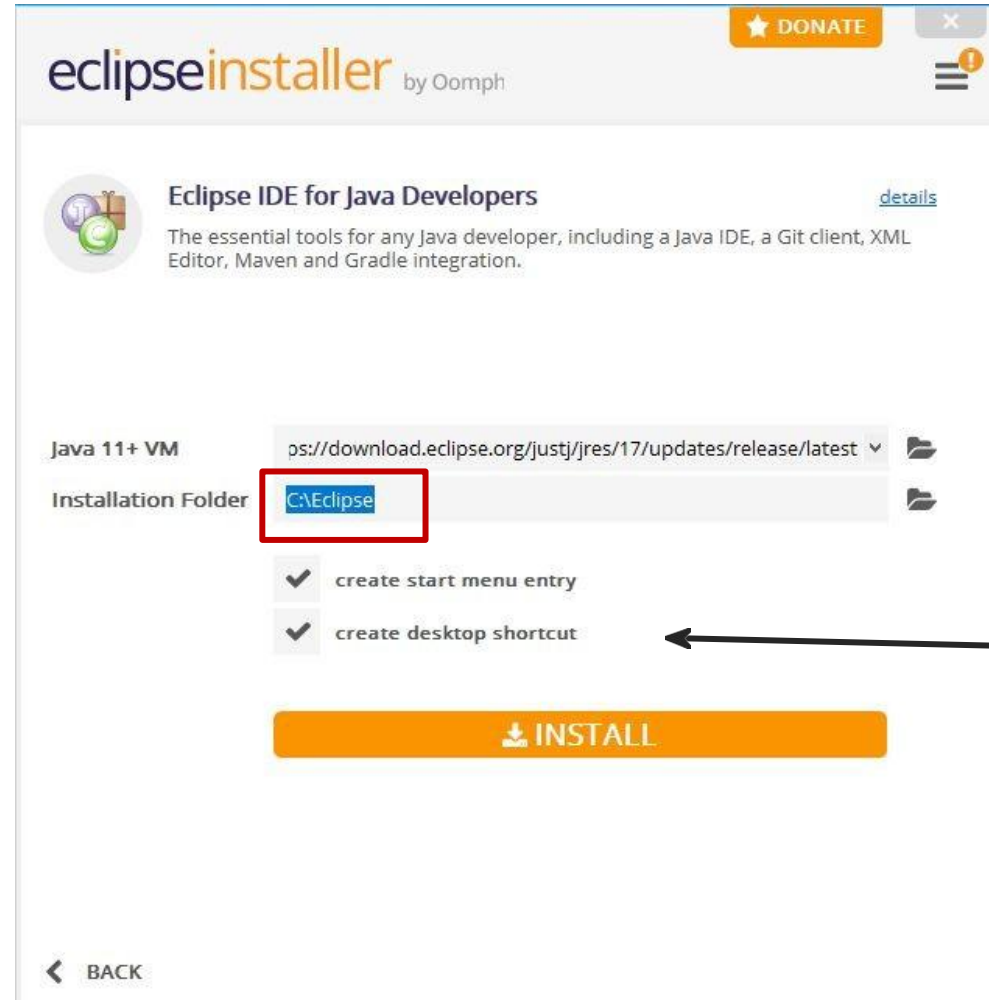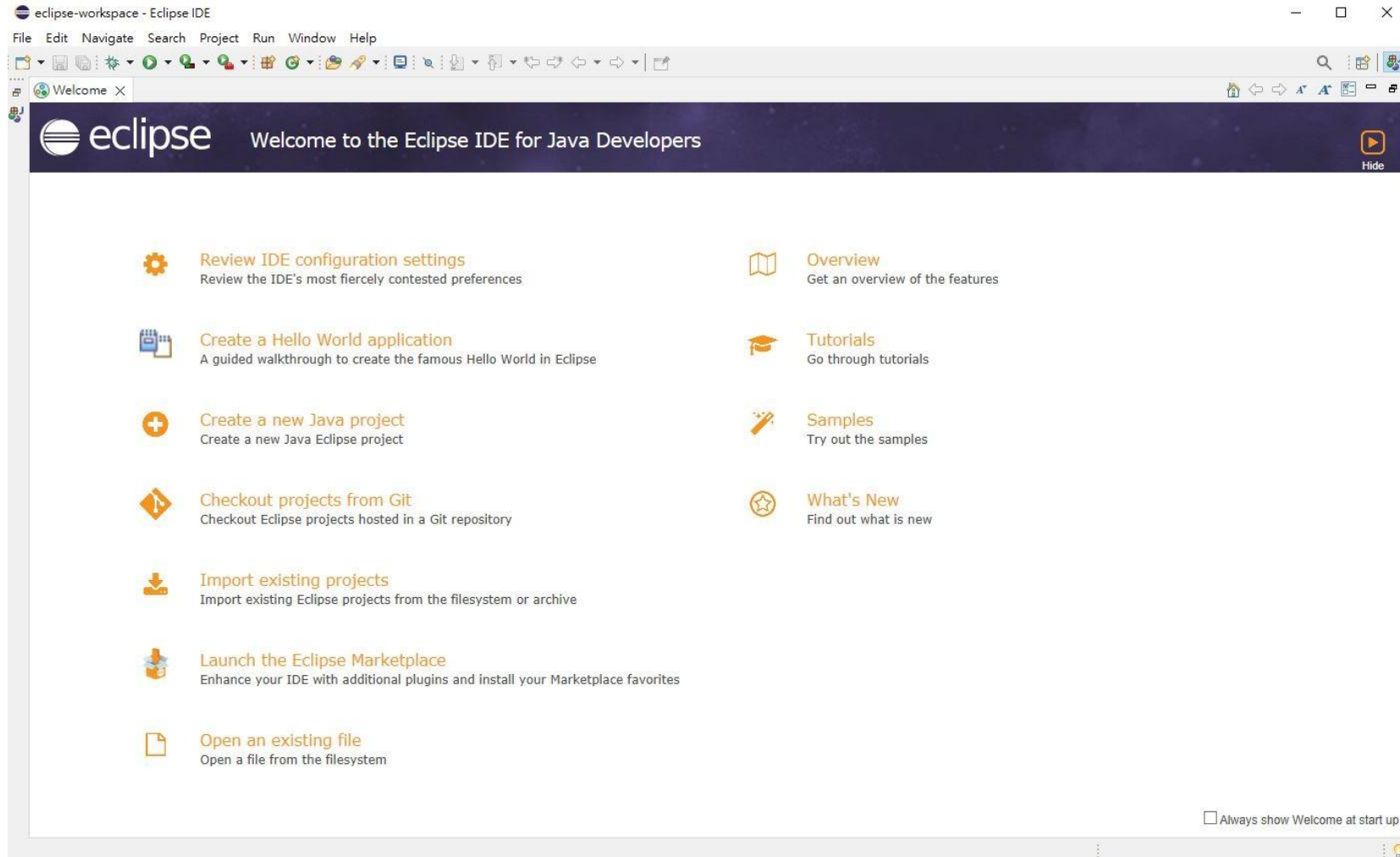
- Recommend everyone put a shortcut of Eclipse on the desktop, it will be easier to find in the future!

Open Eclipse IDE

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

Finish!

- 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…"
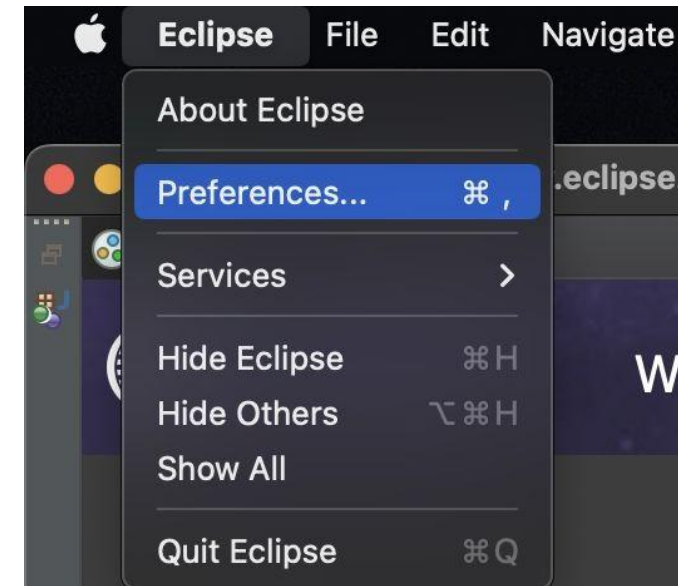
How to open Preferences…

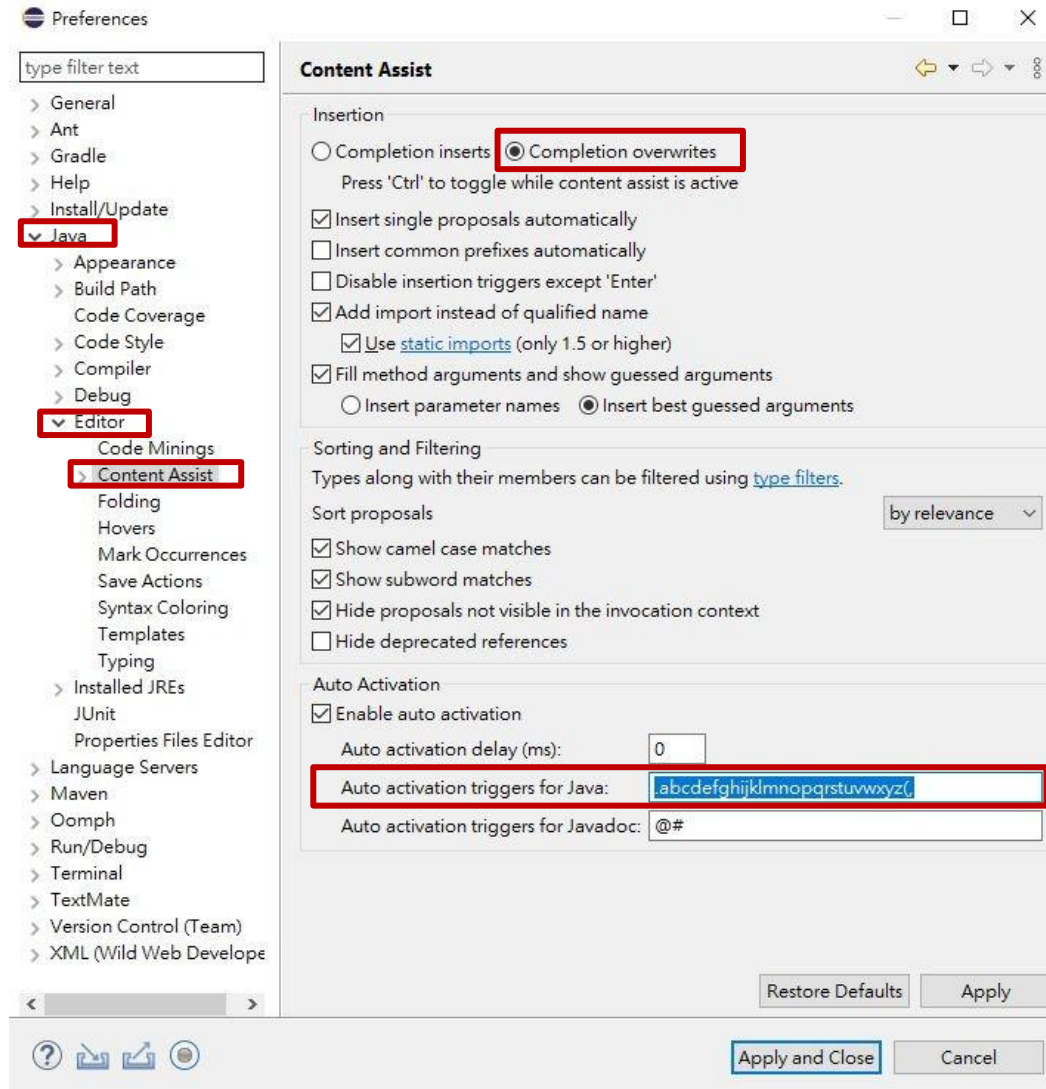- Windows

  The top menu of Eclipse "Window" ➔ "Preferences…"
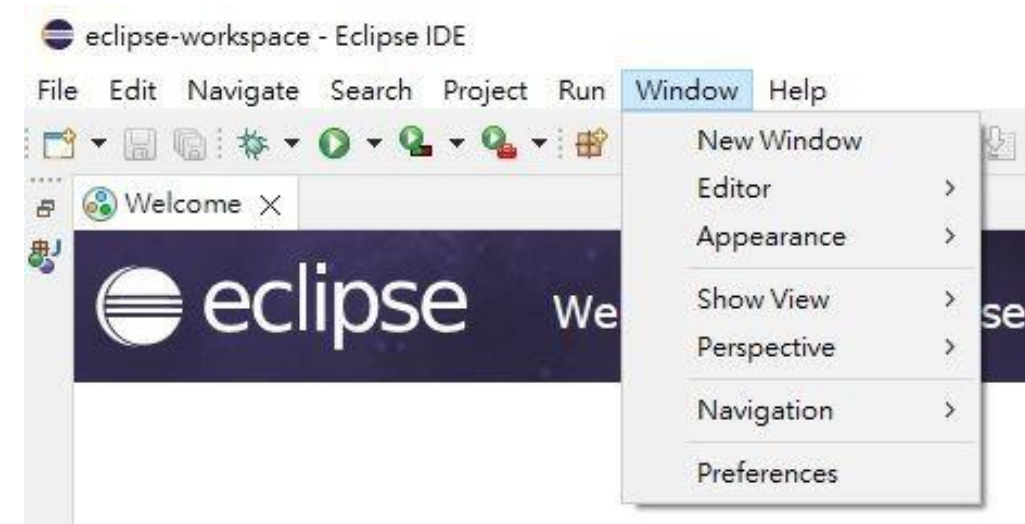
- MAC

  The top menu of Eclipse "Eclipse" ➔ "Preferences…"

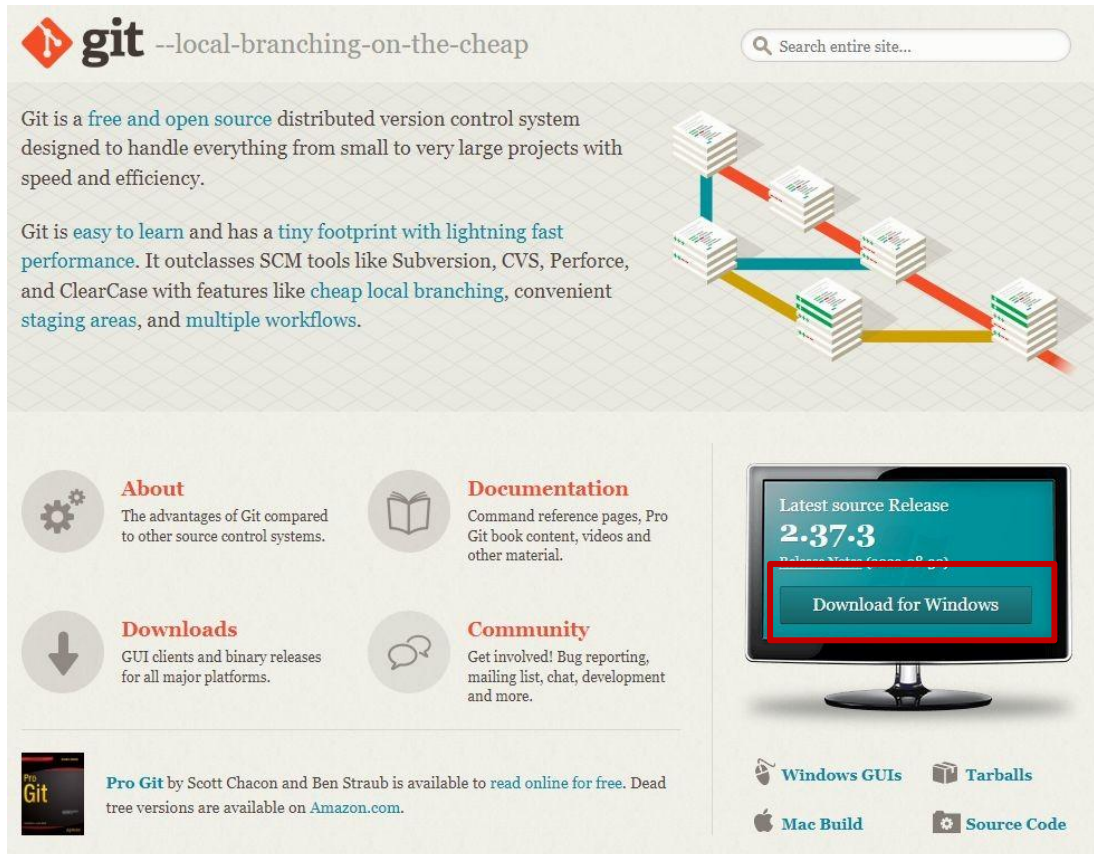# Code auto completion

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

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.

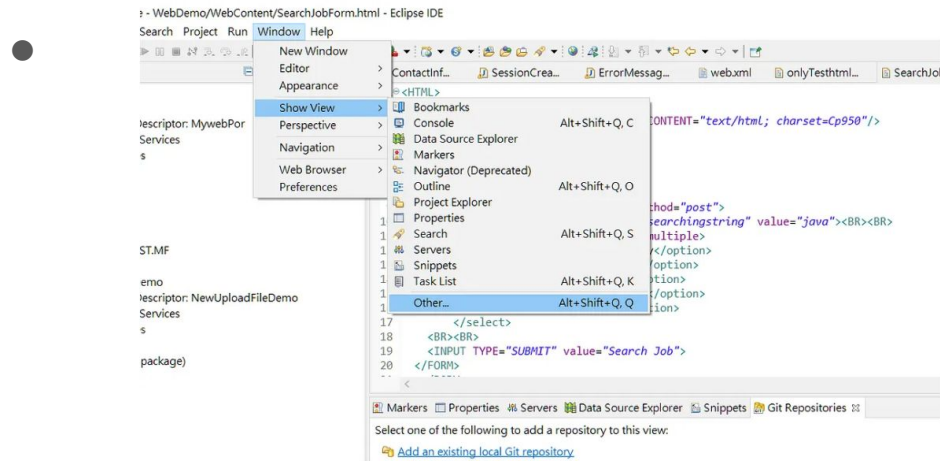- Type *git --version* in Terminal and enter.

- 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.
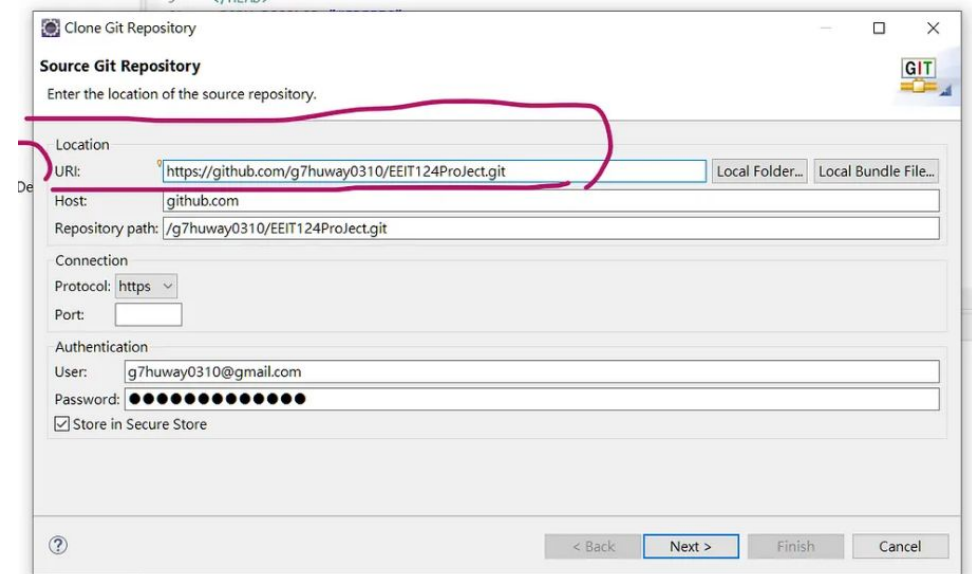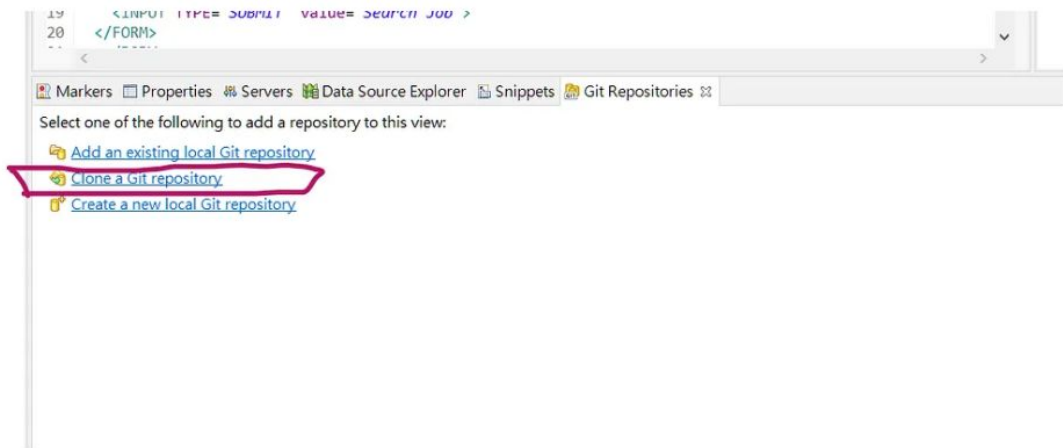
Eclipse connection to Github

- 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!