Eclipse

- Eclipse is an integrated development environment (IDE) used in computer programming.
- **Brief Note:**

Developer(s)	Eclipse Foundation
Initial release	1.0/7 November 2001
Stable release	4.14(2019-12 release)
Preview release	4.14(2019-12 release
Written in	C and Java
Operating system	Linux, macOS, Solaris, Windows
Platform	Java SE, Standard widget Toolkit, x86-64
Available in	44 languages.
License	Eclipse Public License
Website	www.eclipse.org

- It is the most widely used Java IDE, but it also supports C/C++, PHP and JavaScript.
- Eclipse got started in 2001 when IBM donated three million lines of code from its Java tools to develop an open source integrated development environment.
- There are also loads of plugins available that bring code quality, version control and other capabilities to the integrated development environment.
- According to Lee Nackman, Chief Technology Officer of IBM's Rational division (originating in 2003) at that time, the name "Eclipse" (dating from at least 2001) was not a wordplay on Sun Microsystems, as the product's primary competition at the time of naming was Microsoft Visual Studio, which *Eclipse* was to eclipse.

How to Install Eclipse on Windows

Step 0: Install JDK

To use Eclipse for Java programming, you need to first install Java Development Kit (JDK). Read "How to Install JDK for Windows".

Step 1: Download

Download Eclipse from https://www.eclipse.org/downloads. Under "Get Eclipse IDE 2019-12" ⇒ Click "Download Packages". For beginners, choose the "Eclipse IDE for Java Developers" and "Windows 64-bit" (e.g., "eclipse-java-2019-12-R-win32-x86_64.zip" - about 201MB) ⇒ Download.

Step 2: Unzip

To install Eclipse, simply unzip the downloaded file into a directory of your choice (e.g., "c:\myProject").

I prefer the zip version, because there is no need to run any installer. Moreover, you can simply delete the entire Eclipse directory when it is no longer needed (without running any un-installer). You are free to move or rename the directory. You can install (unzip) multiple copies of Eclipse in the same machine.

How to Install Eclipse on macOS

To use Eclipse for Java programming, you need to first install JDK. Read "How to install JDK for macOS".

To install Eclipse:

1. Go to http://www.eclipse.org/downloads/. Under "Get Eclipse IDE 2019-12" ⇒ Click "Download Packages". For beginners, select "Eclipse IDE for Java Developers" and "Mac Cocoa 64-bit". You will receive a DMG file (e.g., "eclipse-java-2019-12-R-macosx-cocoa-x86_64.dmg").
2. Double-click the downloaded Disk Image (DMG) file. Follow the screen instructions to install Eclipse. Eclipse will be installed under "/Applications/eclipse".

Writing your First Java Program in Eclipse

Step 0: Launch Eclipse

1. Launch Eclipse by running "eclipse.exe" from the Eclipse installed directory.
2. Choose an appropriate directory for your *workspace*, i.e., where you would like to save your files (e.g., c:\myProject\eclipse for Windows) ⇒ Launch.
3. If the "Welcome" screen shows up, close it by clicking the "close" button next to the "Welcome" title.

Step 1: Create a new Java Project

For each Java application, you need to create a *project* to keep all the source files, classes and relevant resources.

To create a new Java project:

1. Choose "File" menu ⇒ "New" ⇒ "Java project" (or "File" ⇒ "New" ⇒ "Project" ⇒ "Java project").
2. The "New Java Project" dialog pops up.
    a. In "Project name", enter "FirstProject".
    b. Check "Use default location".
    c. In "JRE", select "Use default JRE (currently 'JDK11.0.x')". But make sure that your JDK is 1.8 and above.
    d. In "Project Layout", check "Use project folder as root for sources and class files".

    Push "Finish" button.
3. In "Create module-info.java" dialog, Click "Don't Create". (Note: For easier version of Eclipse, you need to use the "Next" Button in the previous step, and uncheck "Create module-info.java file").

Step 2: Write a Hello-world Java Program

1. In the "Package Explorer" (left pane) ⇒ Right-click on "FirstProject" (or use the "File" menu) ⇒ New ⇒ Class.
2. The "New Java Class" dialog pops up.
    a. In "Source folder", keep the "FirstProject".
    b. In "Package", delete the content if it is not empty.
    c. In "Name", enter "Hello".
    d. Check "public static void main(String[] args)".
    e. Don't change the rest.

    Push "Finish" button.
3. The source file "Hello.java" opens on the editor panel (the center pane). Enter the following codes:

```
4. public class Hello {
5.    public static void main(String[] args) {
6.       System.out.println("Hello, world!");
7.    }
}
```

Step 3: Compile & Execute the Java Program

1. There is no need to *compile* the Java source file in Eclipse explicitly. It is because Eclipse performs the so-called *incremental compilation*, i.e., the Java statement is compiled as and when it is entered.
2. To run the program, right-click anywhere on the source file "Hello.java" (or choose "Run" menu) ⇒ Run As ⇒ Java Application.
3. The output "Hello, world!" appears on the Console panel (the bottom pane).

NOTES:

- You should create a NEW Java project for EACH of your Java application.
- Nonetheless, Eclipse allows you to keep more than one programs in a project, which is handy for writing toy programs (such as your tutorial exercises). To run a particular program, open and right-click on the source file ⇒ Run As ⇒ Java Application.
- Clicking the "Run" button (with a "Play" icon) runs the recently-run program (based on the previous configuration). Try clicking on the "down-arrow" besides the "Run" button.