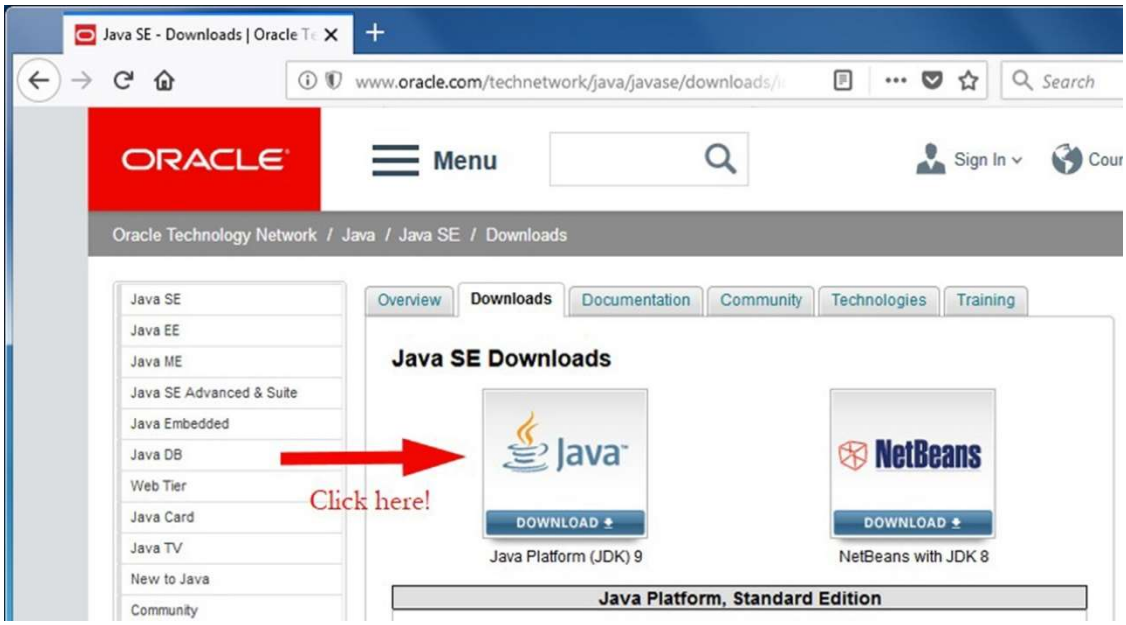
Installation of JDK and Eclipse

In this class, we will use Eclipse as a platform to write Java code and to run Java programs. To do so, we need two pieces of software: JDK and Eclipse.

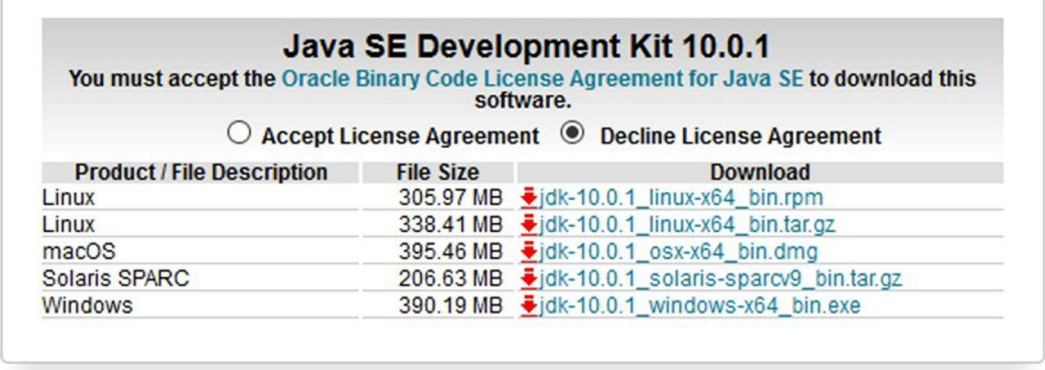
JDK

The Java Development Kit (JDK) allows us to develop and test Java programs. The JDK contains a Java Runtime Environment (JRE) and other libraries and tools, including compilers and debuggers. The JRE contains the Java Virtual Machine (JVM), which ensures that Java programs can run on different types of computers.

JDK can be downloaded at www.oracle.com. Simply search for "JDK" online and you will get a download site that looks similar to this:



Click on the "Java DOWNLOAD" link and a list of JDKs on different machines will be shown. Choose the version that fits your computer after you click on the button "Accept License Agreement".

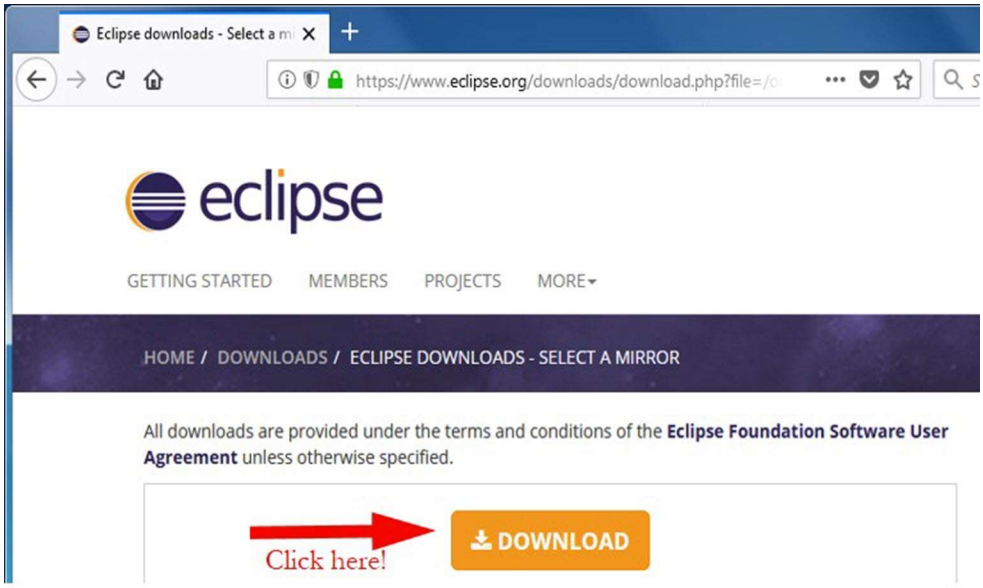


You can then install JDK to your computer following the instructions on the screen.

Eclipse is an integrated development environment (IDE) in which we can create, edit, compile, and run programs. Without an IDE, the compilation and execution of the programs are usually run through command lines. As we will focus on algorithm development in USACO, we will adopt the Eclipse IDE to encapsulate the details of compilation and execution. In addition, we will have a user-friendly editor.

Eclipse

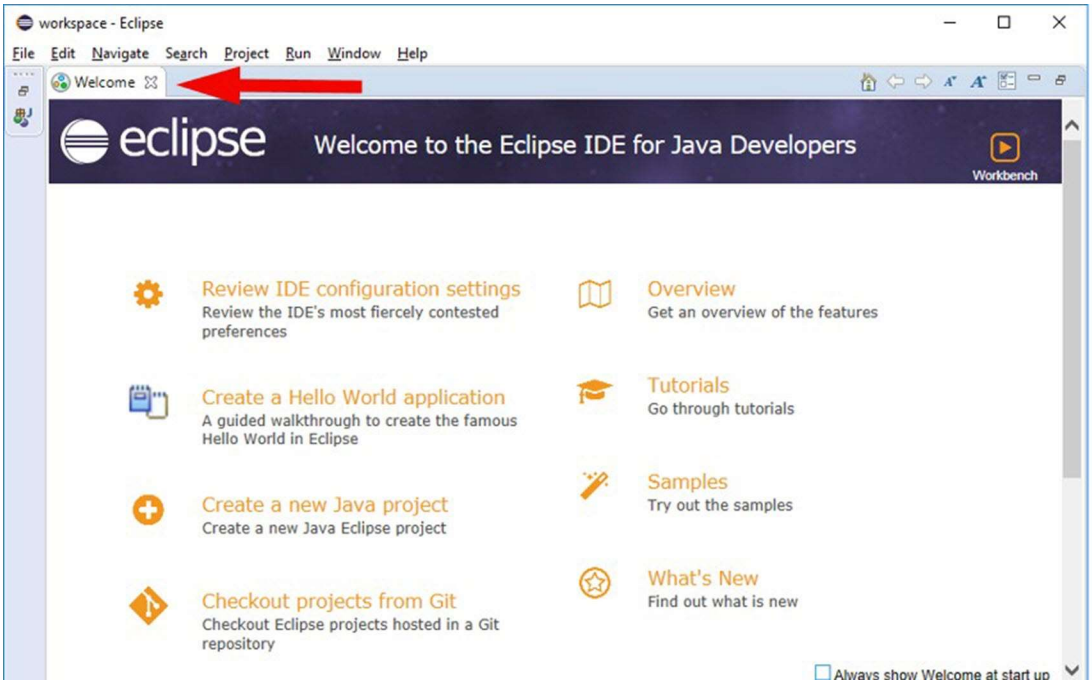
Eclipse can be downloaded at www.eclipse.org. Again, simply search for "eclipse" or "eclipse java" and you will get a download site that looks similar to this:



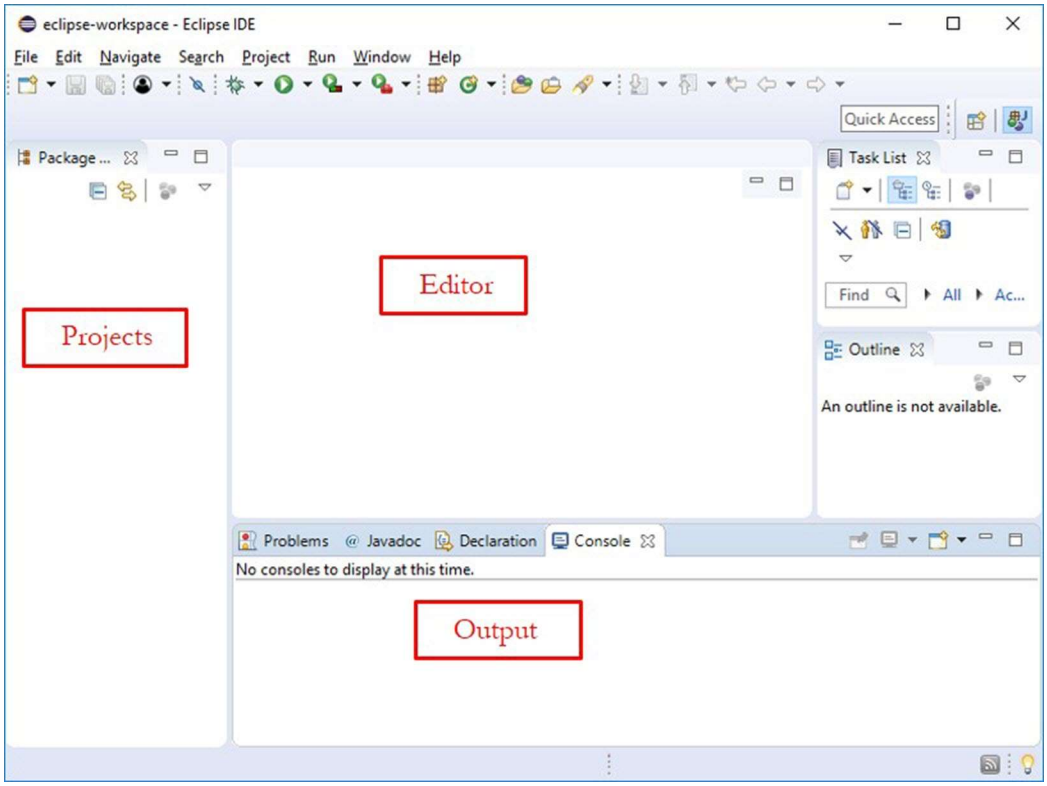
You may get a different version depending on your computer architecture. Download the file and install Eclipse on your computer by following the instructions on the screen.

You are now ready to write programs in Java!

When you first run Eclipse, you will get a welcome window that looks like this. Depending on the version of Eclipse you have, the welcome page may look different.



Close the "Welcome" page and you will see the following configuration.

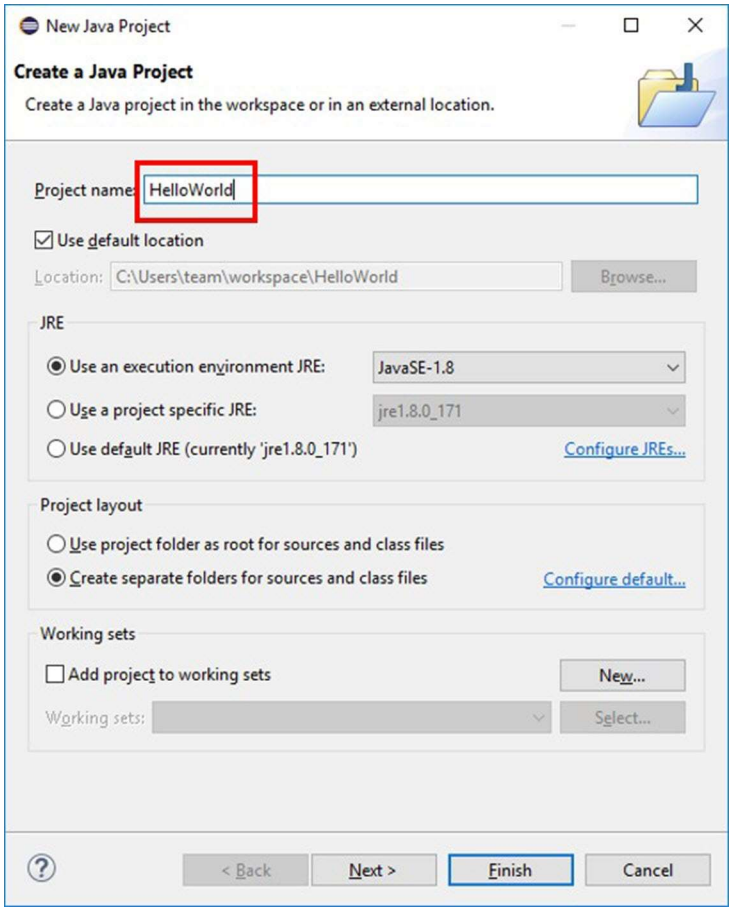


The left panel lists the projects in the current workspace. (The default workspace is a folder "workspace" in your root, or home, directory.) The panel in the middle is the "editor" where the source files will be created and edited. The output area is in the "console" window.

To create a new project, go to

File → New → Java Project

A pop-up window will allow us to fill the information of the new project. Here we create a project "HelloWorld".

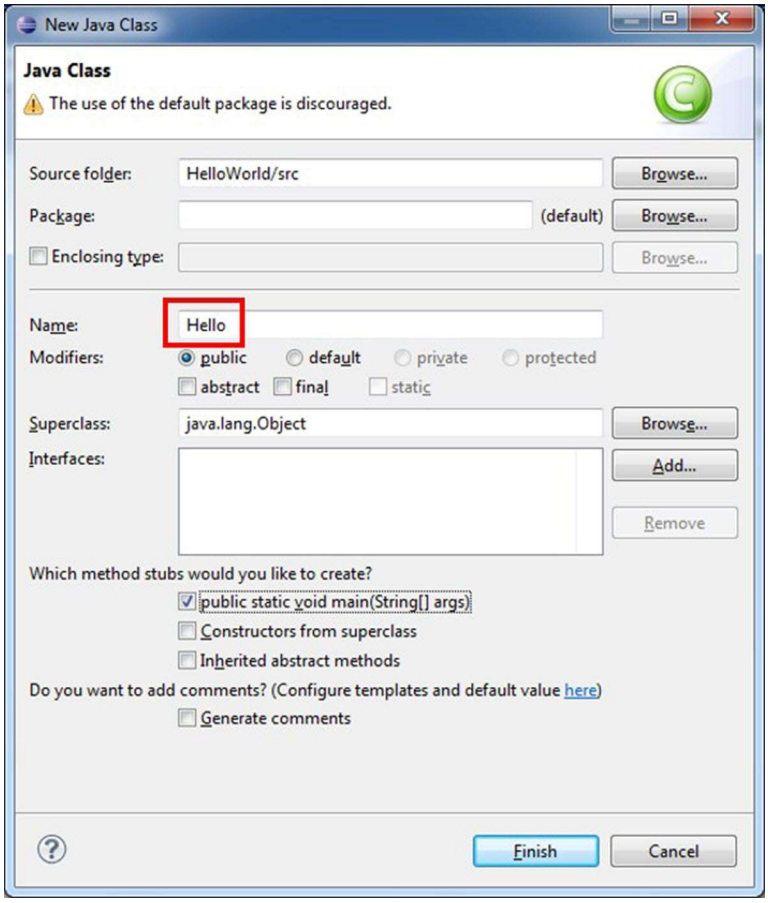


Most of the other information should be filled in automatically if the JDK and Eclipse have been installed correctly. We simply provide the project name and then click the "Finish" button.

Then we need to create the Java source code. In this example project, we will create the class "Hello.java". Go to

File → New → Class

A similar pop-up window will allow us to fill the information for the class:



Again, simply provide the class name and check the box in front of the method "`public static void main(String[] args)`", and click "Finish".

You may see a warning message "The use of the default package is discouraged" at the top of the window. Usually, the use of the default package is discouraged in Eclipse. But the submission to USACO server doesn't allow a package, so we will ignore the warning message and leave the package field empty. Then click "Finish" and the file "Hello.java" will be created with the following content:

```
public class Hello {
    public static void main(String[] args) {

    }
}
```

We can now add Java statements in the "Hello" class.

To run the code, simply click "Run" from the menu. The output of the program is displayed in the "Console" window. If the Console window is not visible, click "Window → Show View → Console", then the console window will appear.