# Appendix A: Installing Java and NetBeans (Windows Only)

## Background

For those who are more visually oriented there are several good videos on youtube that take you through the steps. This one is pretty good:  
  
<https://www.youtube.com/watch?v=vt7_6HwCFOU>  
  
 There are a couple of differences. The first is that it uses Oracle’s Java version 12 but in order to maintain compatibility with the lab we’re specifying version 11.1 of the OpenJDK. (The lab uses 11.0 but this version comes with an installation script). The OpenJDK is free and so is Oracle’s version for personal (ie: student) use but as an institution, going forward, our using Oracle’s would require license fees, which wasn’t the case in the past. Nothing we’re doing requires high performance, the extra features of version 12 or outside technical support so the earlier free version is good enough.  
  
The other difference is that the Oracle version of Java uses a script to self-install in **the c:\Program Files** directory which means you also need to get a (free) Oracle account which takes a bit more time. Currently the OpenJDK version just gives you the necessary files and you need to manually extract the files and then move them using your system’s Administrator privileges to the Program Files directory.

The NetBeans IDE is a separate program from the Apache foundation. In order for the installation script to run you need to install Java first.

## The Install Procedure

1. Click on the Windows symbol on the bottom left of the screen. Start typing in **Env**  and select **Edit the system environment variables**. Click on **Environment Variables,** select the System variable **Path** in the lower part of the window, select **Edit** and then on the next available line add: **C:\Program Files*\*java-11\bin** then use **Move Up**  to move it to the top, or at least above any other reference to Java you currently have set up if you’ve previously installed a program that used Java.   
     
   Click **OK** then use **New…** to create a new system environment variable JAVA\_HOME. Set the value to **c:\Program Files\java-11**

1. Use the Chrome browser to navigate to <https://jdk.java.net/java-se-ri/11>. Click on the link [Windows/x64 Java Development Kit](https://download.java.net/openjdk/jdk11/ri/openjdk-11+28_windows-x64_bin.zip) ([sha256](https://download.java.net/openjdk/jdk11/ri/openjdk-11+28_windows-x64_bin.zip.sha256)) . The java compiler and associated files will download and appear as a **zip** file in the status bar of the browser.   
   Right click on the zip file. A new window will open up. Select **Extract**. Set the directory name **to c:\Users\*your name\*Downloads** and then click **OK.** Close the window.
2. Select the Windows icon at the bottom left of your screen. Start typing in **Command**. Right click on **Command Prompt** and select **Run as administrator**. You should see a black screen with Windows command shell prompt. (Note: This has to be done AFTER you’ve set up your environment variables, otherwise the changes won’t be there.)   
   Type in the commands:  
    **cd c:\Users\***your account name****\*Downloads   
    move jdk-11 “C:\Program Files\java-11”**Test the installation by typing: **java -version**It should respond: Java version “1.11.0\_xxxx”   
     
   If this doesn’t work, double check the steps you followed.
3. Go to <https://netbeans.apache.org/download/nb111/nb111.html> and select the Installer for Windows and then click on the suggested mirror site. When the download completes click on Apache-NetBeans exe file in the status bar and agree to the install. Several clicks later you’re ready to run the NetBeans IDE. Start it up and try to write a Hello World program. (See Chapter 1)