Lab1 Objectives

- Installing required JDK and an Integrated Development Environment (IDE) for Java
- Going through Ed and Blackboard for course content and submissions

- Submitting a screenshot of your running setup to Blackboard

Setting up your personal computers

To start compiling and running Java programs you need to have a JDK (Java Development Kit) installed and an IDE (Interactive Development Environment) for writing code.

Installing JDK

1- Download Java JDK

Go to https://www.oracle.com/java/technologies/javase/jdk11-archive-downloads.html -- this webpage contains links to download previous versions of Java.

We will be using version 11.0.9 in this course to be compatible with the version on Java some subsequent courses use – this is a stable release and avoids constantly having to update our environment. Unfortunately, **Oracle has recently changed how they allow downloads of older versions of Java to now require that you register an account with them.** You can either do that today (they will need you to verify your email order to download the file), or, if you do not want to register, you can download the most recent version of Java without that step – just be aware you will likely need to reinstall an older version of Java in a future class, and the class examples we run this semester may not be compatible with your version.

Scroll down to the section "Java SE Development Kit 11.0.9"

Download the appropriate installer for your operating system; be sure to download the installer, not the compressed archive

NOTE: Steps 3-6 pertain to WINDOWS ONLY. If you have a Mac, please move forward to Step 7 on page 4.

2- For Windows Users, run the installer and make a note of what folder on your computer it will install Java as it prompts you to install the software. **Copy the path location** for the generated \jdk-11.0.2 folder – we will need it later. The folder path will look something like **C:\Program Files\Java\jdk-11.0.9** for example.

On Windows, the folder path will likely be the one listed above; just verify this is the case during your installation.

Notify a TA if you get stuck at any point!

3- We will need to point the operating system to where the Java libraries have been downloaded and installed – to do so, we'll be editing the environment variables o your operating system.

Click on the Start icon (bottom left of your screen) and type "environment variables", then select "Edit the system environment variables".
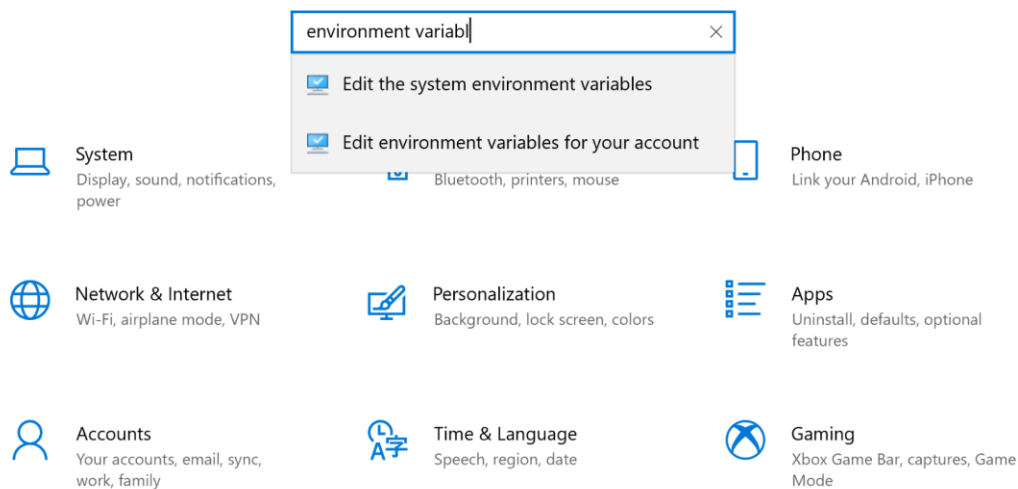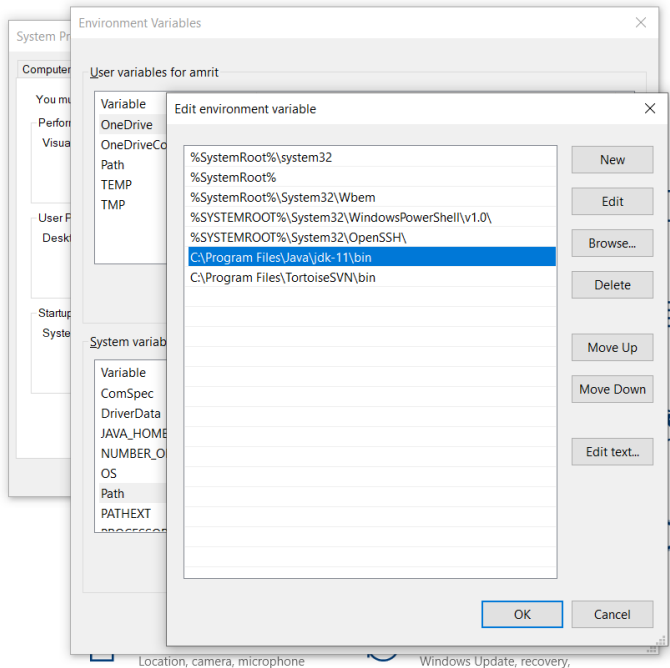

4- Choose Environment Variables, then Edit.
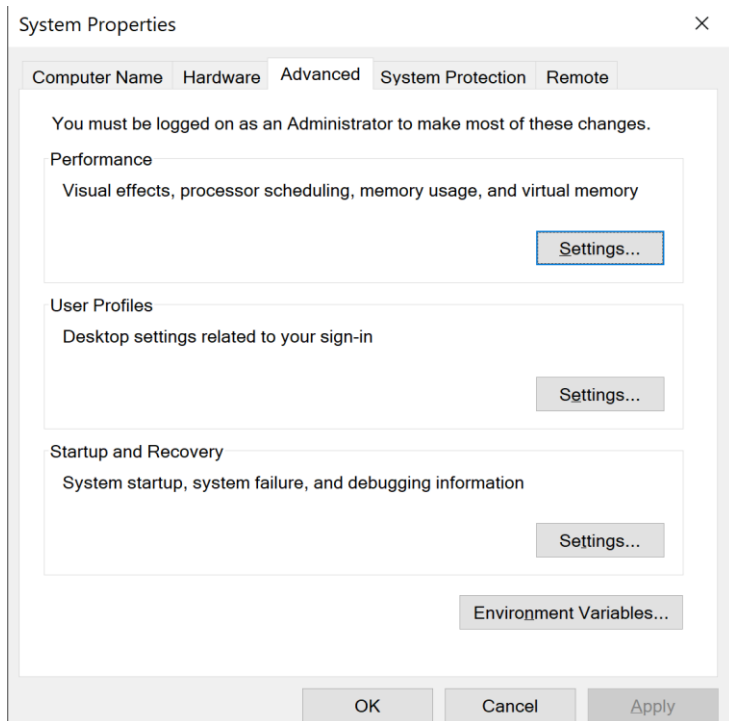
5- Add the bin to the path folder obtained in step 3, for example: **C:\Program Files\Java\jdk-11.0.9\bin**

Next, as shown in the window below, click New and copy in the path – this will add that path to the other paths.

Click OK through all the windows to save your changes.

6- Let's check your installation.

On Windows, click on the Start icon and type "command prompt", then open the Command Prompt. On Mac, open the Terminal – use the search bar to find it if you need to.

We'll be using the command prompt all semester to allow us to run our Java code. To check correct installation, type

```
javac --version
```

in the command prompt, and it should respond with the version of Java we just installed. If you get an error message, let a TA know and we will help you!

Next, type

```
java --version
```

and verify that it also doesn't raise an error. If it does, let a TA know and we will help you! If everything works, proceed now to the next section ("Installing and IDE")

7- Mac Users Only: Let's check your installation.

If this is the first time that you have downloaded java on your computer, it is very likely that your setup process is complete! Open "Terminal" on your computer.

type

```
javac --version
```

If the command line returns "javac 11.0.9," then you are good to go! Type

```
java --version
```

to verify that 11.0.9 is installed and there is no error.

If the command line returns some version other 11.0.9, continue to step 7. If there appears to be an error at any point, let a TA know.

8 [optional]- Mac Users Only, if you already had a version of Java installed before class: Redefining your default JDK

In Terminal, copy, paste, and run the following command in the terminal (if it doesn't work, try changing `~./bash_profile` to `~./zprofile` in the command below)

```
echo "export JAVA_HOME=\`/usr/libexec/java_home -v 11.0.9\`" >> ~/.bash_profile
```

After you have ran the command, close the terminal and open it up again. This will refresh the terminal.

Type

```
javac --version
```

If the command line returns "javac 11.0.9," then you are good to go! Type

```
java --version
```

to verify that 11.0.9 is installed and there is no error. Then, proceed to the next section ("Installing and IDE")

If the command line still returns some version other 11.0.9, ask a TA for assistance.

Installing an IDE: VSCode

You will want a program this semester to write your Java code – something like Word will not work, and Notepad is too hard to read. There are many options, and you can use anything that makes you comfortable!

For beginners, we recommend VSCode, and you can follow the instructions here to download and install it: https://code.visualstudio.com/

You are also welcome to use IntelliJ, Eclipse, Sublime, vim, emacs, or anything else that suits you, if you already have a preferred text editor for code.

Please let a TA know if you need help installing an IDE.

BlackBoard and Ed discussion board

Blackboard

You can login to Blackboard to find the course lectures, labs and submit your assignments. Please confirm that you can see the class on blackboard and notify a TA if not.

Ed

We are using Ed for online course discussion and questions. Please make sure to activate the account that was emailed to you.
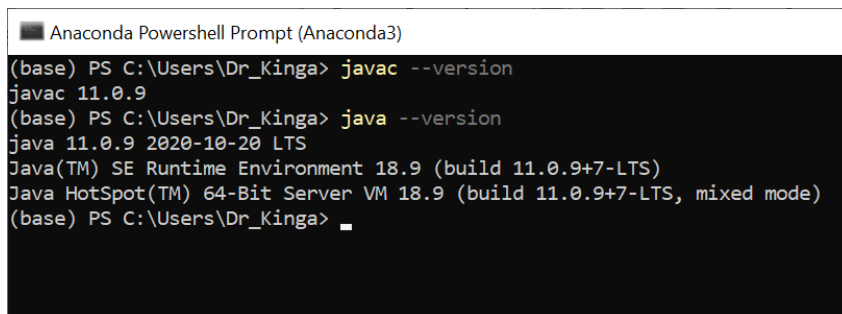Some helpful features of Ed include:
- Anonymous posts
- Private posts
- Customizable notifications
- Quicker response time

Submitting your work to Blackboard:
due Tuesday 11/24 at 11:59 am (noon)

When you have finished this lab, you should login to Blackboard to upload a screenshot of your work.

First, take a screenshot of your terminal that shows that `javac --version` and `java --version` have both run successfully. You can re-type the commands if you need to. Your screenshot should look similar to:

You can take a screenshot on Windows by pressing the PrtSc (Print-Screen) button, which will save an image of the screen to the clipboard; you can then paste the clipboard contents into a program like MSPaint.

On a Mac, pressing the Shift+Command+3 keys together will take a screenshot and automatically save it as an image file to your Desktop.

You can crop the image you saved (like we did above) before submitting it so you don't have to show other programs that were open at the same time.

Once you have your screenshot saved as an image file, please upload it to Blackboard under the appropriate link before the due date. Remember to **Submit** your upload to make sure it gets graded.