QMI Programming Environment Setup

Before we jump right into the curriculum there are several programs you need to install. Many of these installations are operating system dependent and you may have some of these installed so feel free to skip around.

STEP 0: Terms

This guide uses several programming terms so if you are not familiar, I would watch these videos (on 2x speed):

What is the Terminal?

Windows Command Line: https://www.youtube.com/watch?v=MBBWVgE0ewk

MacOS Terminal: https://www.youtube.com/watch?v=x3YfYVVTYvw

What is Python?

https://www.youtube.com/watch?v=Y8Tko2YC5hA

STEP 0.5: For Windows Users, set up the Windows Subsystem for Linux: https://docs.microsoft.com/en-us/windows/wsl/install-win10

This will allow you to use the same "bash-y" commands as your pals on Unix-like OSes

STEP 1: Install Git

Git is a decentralized version control tool that can help you keep track of the different versions of your code as you develop.

Follow the guide linked here: https://git-scm.com/book/en/v2/Getting-Started-Installing-Git

Once you believe you have installed git open terminal (command line for Windows) and type the following

```
git --version
```

you should get an output like below if you installed correctly

```
git version 2.23.0.windows.1
```

STEP 2: Install Python

A majority of the coding we do during this semester will be done in a programming language called Python 3, so let's install that next.

(If you prefer to use an Anaconda version of python that works too, but if you are installing python for the first time its best to follow the guide below)

Follow the guide to do so here: https://realpython.com/installing-python/

Be sure to click your operating system in the table of contents so you are following the right instructions

NOTE: if you also have python 2.7 install which comes default in most linux and iOS distributions you have to type python3 instead.

Check you successfully installed by typing in the terminal:

```
python
```

you should get an output like below if you installed correctly:

```
Python 3.8.5 (v3.8.5:580fbb018f, Jul 20 2020, 12:11:27)
[Clang 6.0 (clang-600.0.57)] on Darwin
Type "help", "copyright", "credits" or "license" for more information.

>>>
```

You can type quit() and then hit enter or press control-z to exit

STEP 3: Install Java

So our first internal competition this semester uses a java as a dependency for the python library (don't ask me why this is) so let's go ahead and install that too. We notably want the JDK version instead of JRE and there is a link on how to install the JDK below.

Guide: https://www.wikihow.com/Install-the-Java-Software-Development-Kit

Once you believe you have installed java, open terminal (command line for Windows) and type the following

```
java --version
```

you should get an output like below if you installed correctly

```
java 12.0.2 2019-07-16
```

Java(TM) SE Runtime Environment (build 12.0.2+10)

Java HotSpot(TM) 64-Bit Server VM (build 12.0.2+10, mixed mode, sharing)

STEP 4: Install a Text-Editor

It's essential for any developer to be able to write code in a fancy color-coded environment. Thus, lets install a text editor to edit the Python code we write. (If you would prefer to use an IDE that's fine too) There are many text editors, but this guide goes over how to install Atom.

https://flight-manual.atom.io/getting-started/sections/installing-atom/

For bonus points, after you install try downloading a community theme and editing colors to find what you like best. (I like Apex)

Another good option for a text editor is Sublime.

STEP 5: Install virtual environment support for Python

Most packages or libraries of code you will need can be installed through python's package manager called **pip**. For starters lets install a package called **virtualenv** which allows you to create virtual environments which makes it easier to separate different projects.

To get started, install virtualenv by running this command

```
python -m pip install virtualenv
```

which should allow you to install virtualenv (note that in most cases you can just type pip install)

If you are feeling daring, go ahead and read this guide here on how to set up a virtual environment and what the purpose of doing so is.

https://towardsdatascience.com/virtual-environments-104c62d48c54

STEP 6: Install jupyter notebook for Python

To get started, install virtualenv by running this command

```
python -m pip install jupyter
```

Then test your install by typing

```
jupyter notebook
```

which should open a window in your internet browser, and spit out some mumbo jumbo

if that works, you are good to go just close the terminal and the window to end the session.

STEP 8: Make a Github Account

Create an account on github by following the process here:
https://github.com/join?source=header-home

STEP 9: Congrats you managed to get your environment set up correctly, give yourself a pat on the back. Go treat yourself to a tall glass of water. Hydration is important

BONUS STEP: Trick out your terminal ☺

Some potential inspiration:

Windows: https://medium.com/@lemmusm/cool-windows-terminal-with-oh-my-zsh-8d2c1c759805

MacOS: https://iterm2.com/ (maybe check this out)