Instructions on setting up a new machine for SMaPP code/tools/access

0. Install required development libraries - REQUIRED

[Mac] Simply download and install the XCode development environment. Online: https://developer.apple.com/xcode/ or through the AppStore application on your machine. After installing XCode, you will need to restart your machine.

Note that after installing XCode, you must also run it once to finish the installation. Simply open it as with any other application and let it finish installation.

[Linux] Use your package management tools to install common development libraries, such as latest GCC compilers, etc. (Do not worry too much about this. When installing tools in further steps, if that tool requires a library, install it as needed).

[Windows] The software packages for Windows for mongodb, python, etc generally include all their requirements. No installation necessary here.

1. Install Python (Anaconda Python) - REQUIRED

Your machine will probably come with some version of Python already installed (except on Windows). We will not use this version, as it is easier to set up a fresh, more updated version.

We will be using **Anaconda Python**, a version of python that comes packaged with many pre-built and optimised libraries for scientific computing. Anaconda contains almost all the libraries we will use.

[Mac/Linux/Windows] Anaconda is found here: https://store.continuum.io/cshop/anaconda/ Click on the 'Download Anaconda' link, and follow instructions for your type of machine (mac/linux/windows).

Make sure you get the correct file for your machine. Generally, if it is a new computer, you'll want the 64-bit file. For Macs, make sure you get the file corresponding the your Mac OS version.

For most installations, you will simply run the downloader install file (.pkg on Mac). This will takes you through a few configuration steps. I recommend using the default settings. (You may have to choose *where* to install Anaconda. Unless you specifically do not want other users on your machine to have access to it, just install to your local hard-drive).

2. Install further Python packages - REQUIRED

There are a few more packages we'll need for running SMaPP code. Luckily, the python package manager **pip** is installed with Anaconda, so it will be easy.
[mac/linux]

1. Open a Terminal. (the Terminal app on macs, on linux… a terminal.)

2. Type 'which python' and hit enter (you're *executing* a *command* in the terminal).

    The output should be a single line of text, and should include 'anaconda' somewhere in the name. EG: '/anaconda/bin/python"

    If this is not the case (you get a line without 'anaconda', such as '/usr/bin/python'), quit and re-open the terminal application and try again. If you still do not get a line with 'anaconda' in it, restart your computer and try again. If that fails, re-install the Anaconda package (step 1).

3. Install **pymongo**, the python package for interfacing with MongoDB databases (where we store all our data). In a terminal, run 'pip install pymongo'

    If this results in an error, try restarting the terminal program. If the error persists, try restarting the computer. If it still persists, make sure you've run XCode at least once.

    A success message such as "Successfully installed pymongo" will appear if everything worked.

4. Install **tweepy**, the python package for accessing the Twitter API. In a terminal, run 'pip install tweepy'

3. Test your python installation - A GOOD IDEA

It is a good idea at this point to test your install of Python and various libraries. Open a terminal. In the terminal, type the following (excluding the [TERMINAL] tag):

```
[TERMINAL] python --version
```

This should give you a line describing your version of Python. Something like:

```
Python 2.7.6 :: Anaconda 1.9.1 (x86_64)
```

Next, in the same terminal window, open a Python shell. This will run python commands directly in your terminal. I'll indicate that we're in the python shell with the [PYTHON >>>] tag:

```
[TERMINAL] python
[PYTHON >>>]
```

Now import some python modules:

```
[PYTHON >>>] import pymongo
[PYTHON >>>] pymongo.version
'2.6.3'
[PYTHON >>>] import tweepy
[PYTHON >>>] tweepy.__version__
'2.2'
```

We have just "imported" the functionality of pymongo and tweepy into our interactive Python shell. Version numbers may differ (no problem). If any of these commands result in errors, try re-installing pymongo and/or tweepy (step 2). Note that you can run any valid python code in the Python shell.

To exit the Python shell, back to the regular Terminal, type ctrl-d, or 'exit()' in the Python shell:

```
[PYTHON >>>] exit()
```

Once you've exited the Python shell, all progress (imports, variables, etc) up to that point will be gone.

4. Install a good code text editor - OPTIONAL

It is important when running and writing code to have a good text editor to edit and navigate files. **Sublime Text 2** is one option. Download and install it from here: http://www.sublimetext.com/

Simple click the 'Download' button, and install by running the package downloaded.

5. Getting the SMaPP Code - OPTIONAL

All of our code is stored in the collaborative versioning system github, available on the web: https://github.com/SMAPPNYU

Here you will see our Public code repositories. For Private code access, email SMaPP.

There are a few different ways to get code from github. The first is to manually download it.

Manual Download

To get the **smappPy** python code repository, simply click on the smappPy package link on the github SMAPPNYU homepage (link above), or: https://github.com/SMAPPNYU/smappPy

Documentation of the code available is on the front smappPy front page.

To download all code, simply click the 'Download Zip' button on the right-bottom of the screen. This will save a zip file to your machine. Simply unzip this file, and you'll have a directory of the smappPy code.

To view code in the library, simply move into the directory and open the code files with Sublime Text or any other code-able text editor.

Macs - Mac Github client

Another option for getting and keeping the code is to use Github's real functionality, i.e. keep up to date with code changes and collaborative programming use a git client. To do this, you will need a github user account.

(Advanced note: git is a code versioning system, which basically means many people can work on the same code, with git keeping track of the changes, who changes what, etc, and then merging all files into a cohesive, single-version whole).

Github offers Mac users a client application that makes it easy to keep track of code. It is available here: http://mac.github.com/ (simply unzip the download file and move the application to your application directory).

Run the application once installed, and enter your github credentials (login and password). The program will take you through a few more setup steps. When it asks to add local repositories (none should appear), continue without adding anything.

When the program opens, you will see a list of accounts and repositories you have access to. Email SMAPP for access to their repositories. To "clone" (make a copy of) a code repository such as smappPy, simply click the SMaPP account and then click the 'Clone to Computer' button for the smappPy repository. You can choose which folder to store the repository in.

Note that the Mac Github client is not for editing code, just to keep it up to date with code on the github server (so, as changes are made and added to the server, your machine will track them!).

To actually see the code, open a Finder window and navigate to where the code is stored, opening it with Sublime Text.