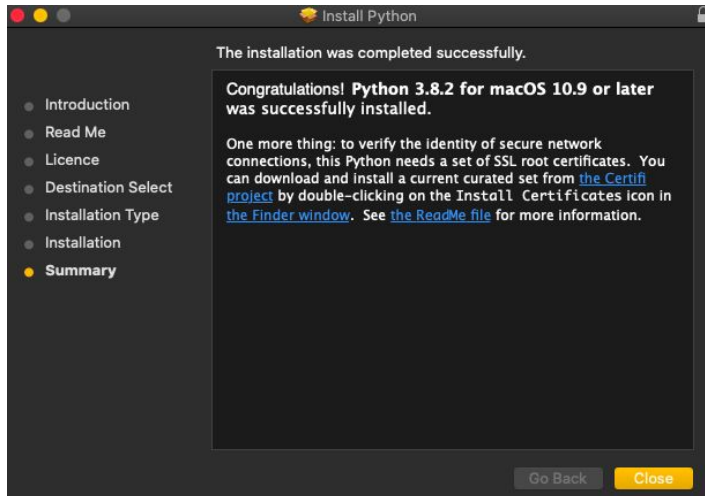


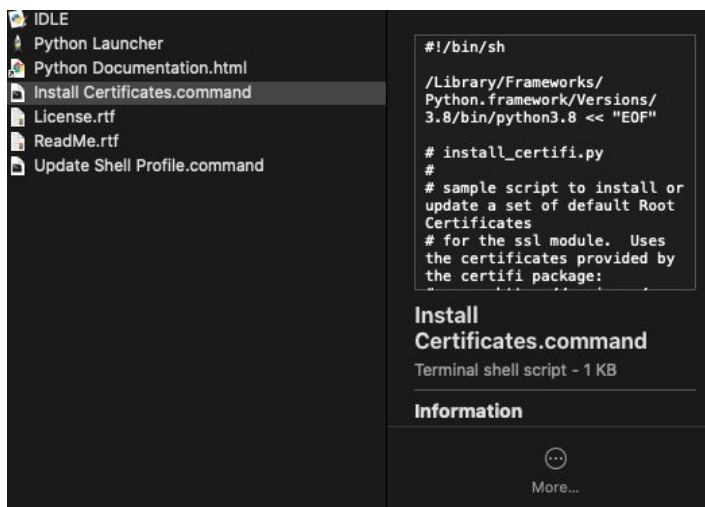
Installing Python

Instructions for a MAC OS user

Install the latest version of Python from this link: <https://www.python.org/downloads/>



Pay particular attention to the Installation Instructions – particularly the last step which asks you to download the Certificates as their needed to register your computer's identity as a having a secure network connection.



This is the screenshot inside the folder where Python was just installed.

Once you are done, close the installation window. Next step is to check if Python has been installed properly using the Terminal.

How to open Terminal?

Press *cmd* and the *spacebar*, type Terminal and press *enter*. The terminal will open, type *python 3 --version* and press enter. You should see the it returns Python 3.8.2

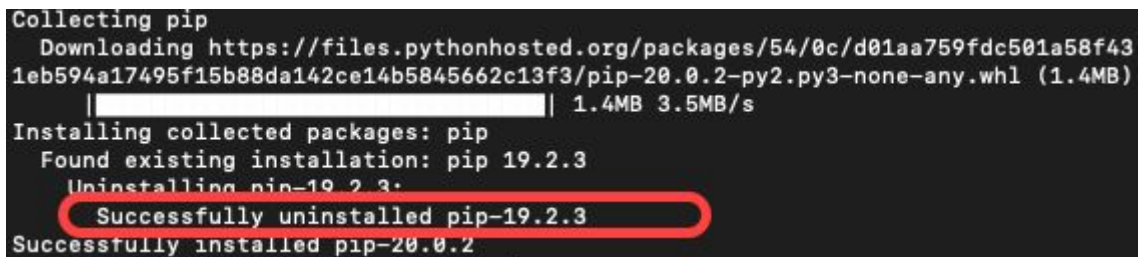
You are all set!

Installing Jupyter Notebooks

Instructions for a MAC OS user

Let's install this application using the Terminal. Don't be afraid. You will open a door into computer science you thought you might never encounter.

- Open the Terminal
- Type *pip3 install --upgrade pip*
- Press enter and wait for a message that confirms the installation.

A terminal window with a dark background showing the output of the command 'pip3 install --upgrade pip'. The text is as follows: 'Collecting pip', 'Downloading https://files.pythonhosted.org/packages/54/0c/d01aa759fdc501a58f431eb594a17495f15b88da142ce14b5845662c13f3/pip-20.0.2-py2.py3-none-any.whl (1.4MB)', a progress bar, '1.4MB 3.5MB/s', 'Installing collected packages: pip', 'Found existing installation: pip 19.2.3', 'Uninstalling pip-19.2.3:', and 'Successfully uninstalled pip-19.2.3'. The last line is circled in red. The final line is 'Successfully installed pip-20.0.2'.

```
Collecting pip
  Downloading https://files.pythonhosted.org/packages/54/0c/d01aa759fdc501a58f431eb594a17495f15b88da142ce14b5845662c13f3/pip-20.0.2-py2.py3-none-any.whl (1.4MB)
    |████████████████████| 1.4MB 3.5MB/s
Installing collected packages: pip
  Found existing installation: pip 19.2.3
    Uninstalling pip-19.2.3:
      Successfully uninstalled pip-19.2.3
Successfully installed pip-20.0.2
```

- Type *pip3 install notebook*
- Press enter and wait for the installation to complete.

You are all set!

Translating terminology from the above:

What is *pip*?

It is a common command used to install and manage software packages.

What is a *package*?

All computer programs need a collection of resources to execute commands, these are called modules – a module being a library. These modules may include configuration data, documentation, pre-written code, etc. For example, when we installed Python3 above, the installation contained a set of modules that were downloaded as they are required to install Python 3 on your computer. Python can use many libraries to execute different operations – for reference, Python has 250+ libraries.

You can read more [here](#) – but you'll soon find yourself down a rabbit hole.

What are the common python libraries for data science? You can find more about them [here](#).

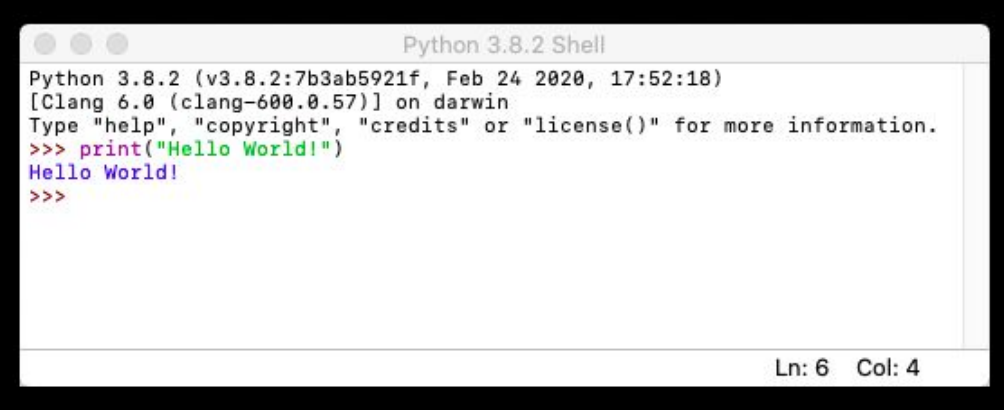
Where on my computer can I program in Python?

Python is a programming language that needs a specific environment in order to execute its commands. To put it simply, you would not use a Word Document if your intention is to calculate how much you earned this month; you would use an Excel Document instead. The same logic applies to Python.

In the folder where Python was installed, you will see an application called IDLE (Integrated Development and Learning Environment) this is the default environment.

Let's test it to see how it works!

Navigate to the folder where Python was downloaded, and open IDLE. A white screen – “Shell” in computer science terms – will open. Type `print("Hello World")` and press enter.

A screenshot of a terminal window titled "Python 3.8.2 Shell". The window shows the following text: "Python 3.8.2 (v3.8.2:7b3ab5921f, Feb 24 2020, 17:52:18)", "[Clang 6.0 (clang-600.0.57)] on darwin", "Type 'help', 'copyright', 'credits' or 'license()' for more information.", followed by a prompt ">>>". The user has entered the command `print("Hello World")`, and the output "Hello World!" is displayed. The prompt ">>>" is shown again. At the bottom right of the window, it says "Ln: 6 Col: 4".

```
Python 3.8.2 (v3.8.2:7b3ab5921f, Feb 24 2020, 17:52:18)
[Clang 6.0 (clang-600.0.57)] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
>>> print("Hello World!")
Hello World!
>>>
```

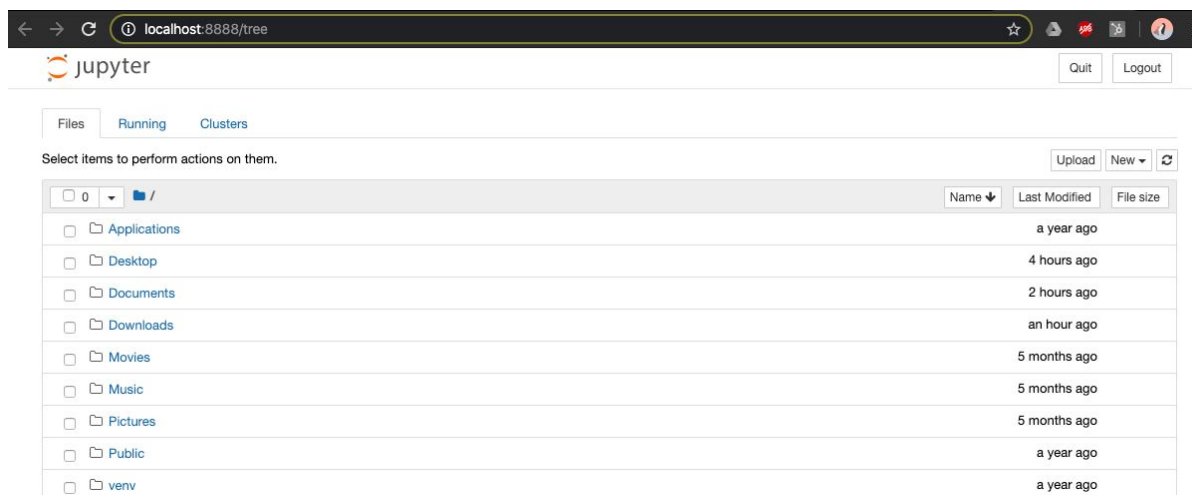
add a little story for why this command is so popular.

What are Jupyter Notebooks for?

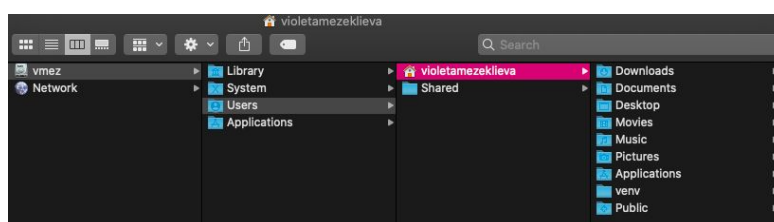
The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text. Read this [article](#) published in Nature to hear why is Jupyter so popular. There are alternative Apps that are useful to share data projects, for example Google Colaboratory - you can read a review [here](#) - and any others. At the end of the day, they work similar to each other and you'll have to learn to adapt. The benefits of Jupyter Projects is that it is an open-source tool whereas Google Colab is proprietary to Google, and you can only share your notebook with people who have an account.

Let's see what Jupyter Notebooks looks like!

Open your Terminal and type `jupyter notebook` > press enter and wait for a few seconds. A new window will open on your browser - called the Notebook Dashboard - and looks similar to this screenshot.



If you open Finder, and navigate to your user account in your system, you will see that Jupyter mimics the folders and the arrangement you have set up here:



Click through the folders to see how Jupyter Notebooks and your computer are linked.

This step is particularly important because it will

help you understand where you save your files, and will enable you to better understand how to manage the information on your computer.

To leave Jupyter Notebooks, you can press *Quit* on the top right corner or *log-out* first and then close the window on your browser and then quit the Terminal.

If you log-out it will ask you to create a password. If you choose this route, you will be asked to enter this password every time you open Jupyter Notebook. To set your password, you will be asked to provide the token - which you will find in the last line of the Terminal after <http://localhost:8888/?token=> or <http://127.0.0.1:8888/?token=>. Copy that number, and then type the password of your choice. Make sure you remember it! Otherwise it's a pain to reset it.

If you want to learn more about the Jupyter Project, go to their [website](#).

Ready to start coding?

Follow this link to find exercises you can do either on IDLE or Jupyter Notebook.