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>>> Introduction to Data Science with Python
>>> DS101
```

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>>> Why learn Python?



- \* Open.
- \* Easy to learn.
- \* Fast prototyping.
- \* Great Community.
- \* Used in different areas (Web, Games, Research, IOT, etc.).
- \* Can communicate easily with other Languages (C/C++, fortran, R, Java).



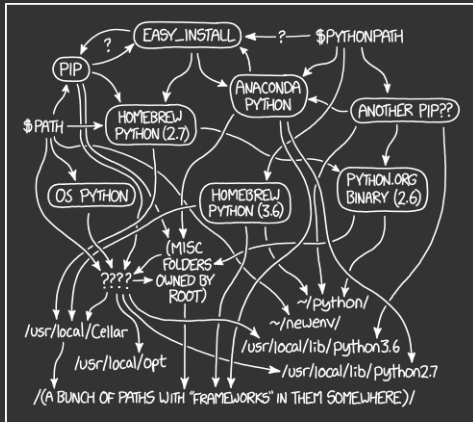
>>> How to install Python?

- \* There are two major versions of Python:
  - \* Legacy python (2.7)
  - \* Python 3.7
- \* Python can be downloaded from [python.org](https://python.org) for Windows, Linux and MacOS.
- \* Anaconda is the most popular Python distribution that requires the least effort to install software that depends on non python things (C/C++ compiles).



>>> How to install libraries?

- \* Python comes with a tool called pip that lets you
  - \* search
  - \* install
  - \* uninstall
  - \* freeze
  - \* list
- \* We use pip to install third party software that is not available in Python built in standard library.



MY PYTHON ENVIRONMENT HAS BECOME SO DEGRADED  
THAT MY LAPTOP HAS BEEN DECLARED A SUPERFUND SITE.



```
>>> What is a virtualenv?
```

- \* Using pip is great, but you can easily run into problems:
  - \* In Linux you won't be able to install packages into the system
  - \* ...and if you do, you can break the system
  - \* You can easily lose track of what's really needed in your project
  - \* ...and your software only runs in your machine :(
- \* There are several tools to provide environments, we'll focus in the most simple one, a standard library module called **venv**.



```
>>> Using venv
```

- \* Example of virtual environment

```
$ python -m venv cool_project  
$ . cool_project/bin/activate  
(cool_project) $ pip install tweepy
```

- \* Listing the contents of our environment?

```
$ pip freeze  
certifi==2018.11.29  
chardet==3.0.4  
idna==2.8  
oauthlib==3.0.0  
requests==2.21.0  
requests-oauthlib==1.2.0  
tweepy==0.1  
urllib3==1.24.1
```



>>> Virtualenvs distribution

- \* How can we save this information to replicate our project dependencies?

```
$ pip freeze > requirements.txt
```

...now all we care about is our python files and the requirements.txt

- \* We can search for libraries with pip too (although your search engine may be your best ally):

```
$ pip search mpesa
```

```
mpesa (0.0.1)          - a pip installable mpesa package
```

```
mpesa-api (0.1.8)     - Mpesa B2C, C2B, ....
```

```
python-mpesa (0.1.10) - M-Pesa API G2 Python adapter
```

```
mpesa-api-sdk (0.1)   - M-Pesa API SDK
```



```
>>> What is a jupyter notebook?
```

- \* Jupyter is a cell based Python web based execution environment.
- \* Jupyter can be installed with pip in a virtual environment ;).
- \* Jupyter will run by default in `http://localhost:8888` and you will need a web browser to use it.
- \* Jupyter is widely used in the industry and can be executed in the cloud thanks to:
  - \* `https://jupyter.org/try`
  - \* Google Drive Colaboratory





```
>>> Starting with Jupyter
```

```
$ pip install jupyter
```

```
$ jupyter notebook
```

```
http://localhost:8888/?token=fd580144ed9c47
```

about:se...nrestore x Home +

localhost:8888/tree

jupyter Logout

Files Running Clusters

Select items to perform actions on them.

Upload New

	Name	Last Modified
0 /		
	Intro_Python.ipynb	21 minutes ago
	README.md	21 minutes ago

jupyter Logout

Files Running Clusters

Select items to perform actions on them.

Upload New

- Notebook
  - Python 2
  - Python 3
- Other
  - Text File
  - Folder
  - Terminal

# >>> Starting with Python



JupyterLab Alpha Preview

localhost:8889/lab

File Notebook Editor Terminal Console Help

Files

Search: kc

Running

Commands

Tabs

TUTORIAL

Random `xkcd`

HELP

Markdown Reference

Notebook Reference

NOTEBOOK OPERATIONS

Restart Kernel & Clear Outputs

Change Kernel

Clear All Outputs

Close and Shutdown

Create Console for Notebook

Reconnect To Kernel

Enter Command Mode ^ M

Run All Cells

Export To Executable Script

Export To ReStructured Text

NOTEBOOK CELL OPERATIONS

Change to Markdown Cell Type M

Change to Code Cell Type Y


Change to Heading 1

Change to Heading 2

Change to Heading 3

xkcd.com

I'd rather show this  
in a Notebook



I HAVE BEEN PREPARING FOR THIS MOMENT MY WHOLE LIFE.



## >>> Exercises

**Enviroments** Create a virtualenv in your machine.

**Console** Run python code in the console.

**Jupyter** Create first ipython notebook.



>>> Things to explore & Gracias!

- \* Code & slides <https://kutt.it/0Zf68d>
- \* PEP-8 <https://www.python.org/dev/peps/pep-0008/>
- \* Nairobi Python Meetup  
<https://www.meetup.com/Python-Nairobi/>
- \* ♥GNU/Linux (guilty!) <http://linuxchixar.org/>  
<https://www.linuxchix.org/>

