Python Training Workshop 2019

An introduction course to Python

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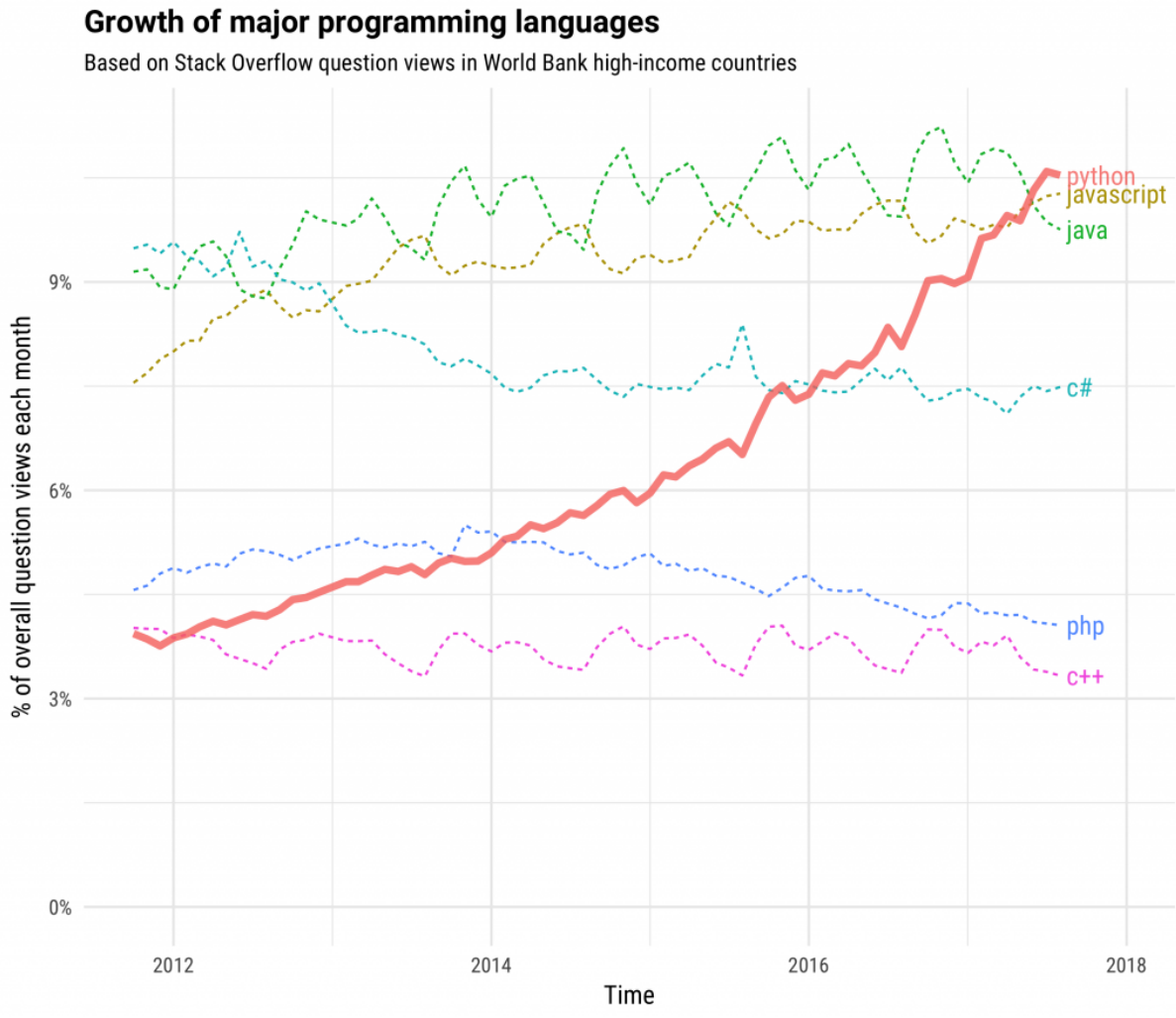
Please go to

`https://tinyurl.com/y6wzrkl5 (introduction)`
`https://tinyurl.com/ybz69nux (hands-on materials)`
`https://tinyurl.com/ybz69nux (Download all notebooks)`

Python: a very fast-growing language



A new era of computing

- Varieties of programming languages
- Multi-core CPU and GPU support
- Easily-accessible cloud computing
- Cloud microservices

Python: a versatile language

- high-level
- object-oriented, and
- Interpreted

programming language.

Python: a "High-level language"

- "Low level language": C, Fortran, Basic
- **Level** means the accessiblity to system resources.
- **High Level** :
  - care less about memory management or proper declaration of variables
  - less abstract than low-level language
  - less time to write and compile
  - relatively slower running time than some low-level language (not always true).

Community of Python users

- Web backend developers
- Data science
- Machine learning

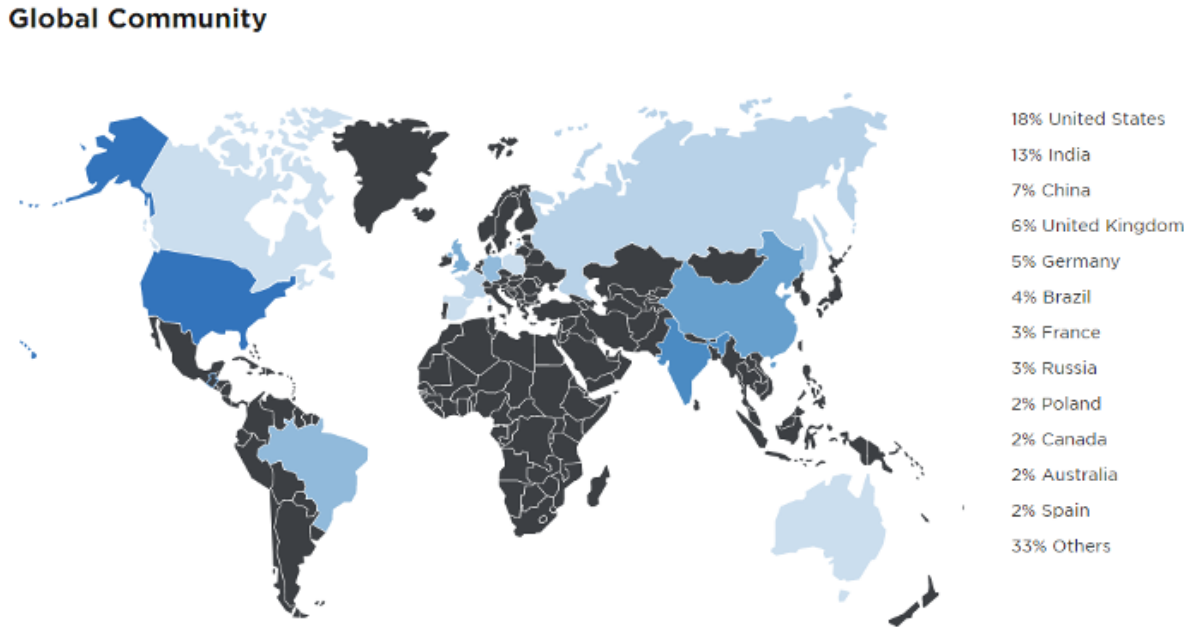
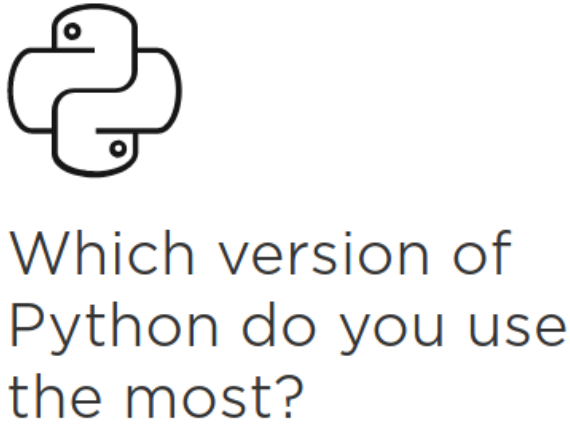


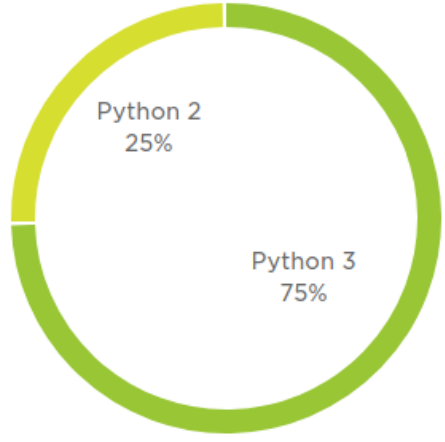
Image courtesy of the Python Developers Survey 2017 Results website

Python 2 vs Python 3

Results are quoted from

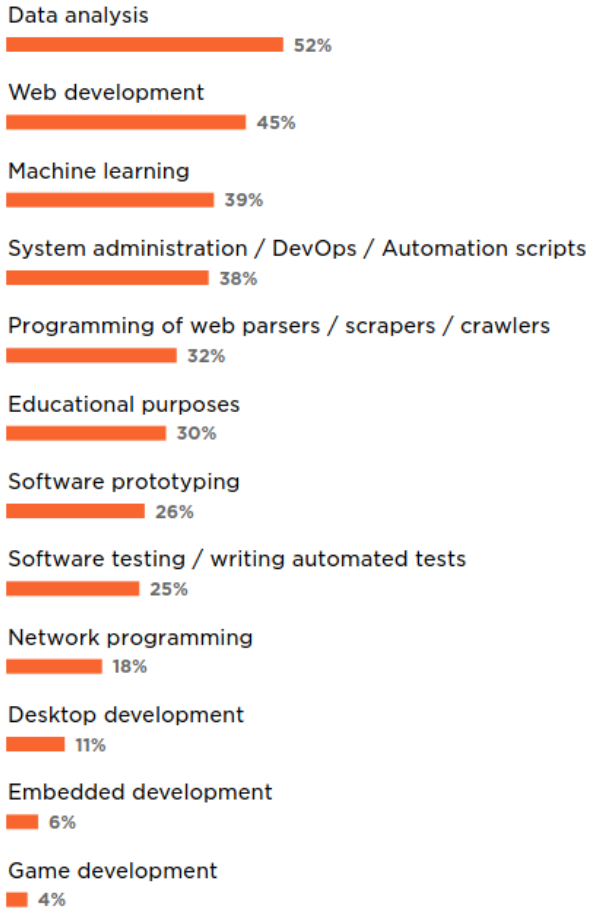
https://www.jetbrains.com/research/devecosystem-2018/python/



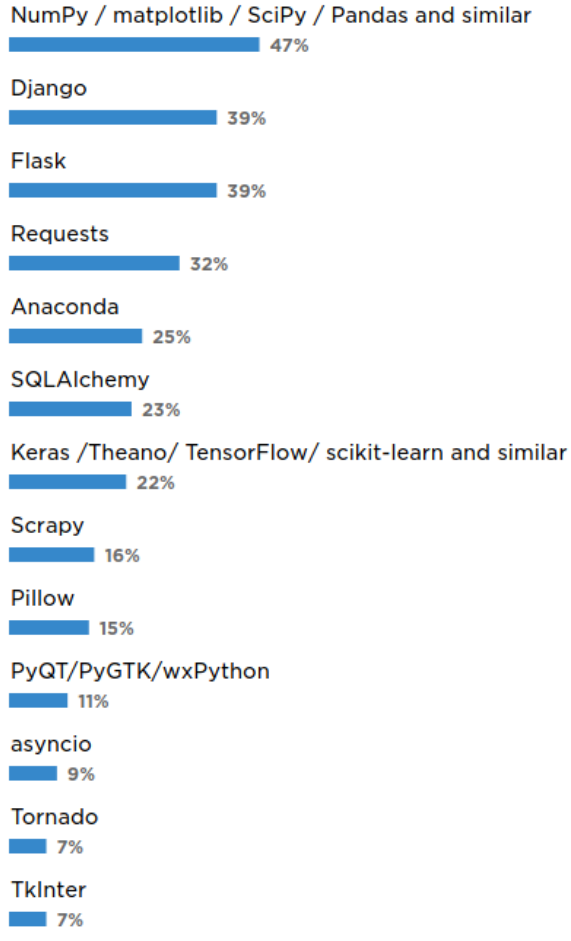


Python Usages

What do you use Python for?



What libraries and/or frameworks do you use in addition to Python, if any?



Installation

- Refer to another guide
- Recommendation:
  - Anaconda
  - Google colab

Install packages (with anaconda)

- `conda search xxxxxx`
- `conda install xxxxxx`

Install packages (with `pip`)

`pip` is a package management system in Python

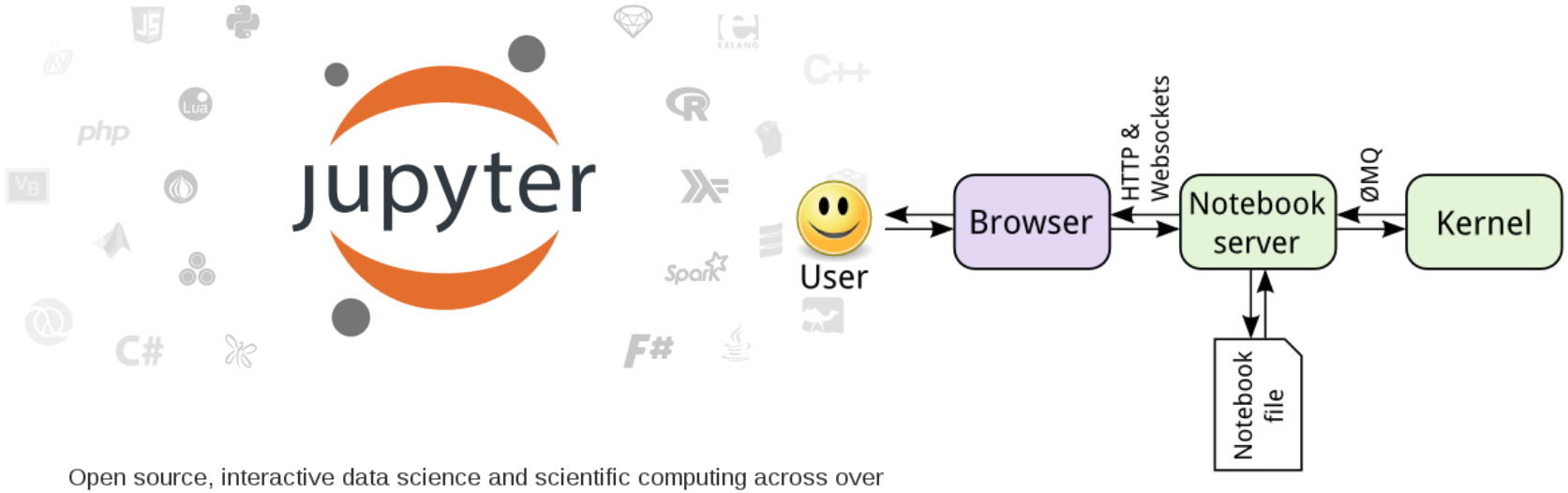
To search/install packages:

- Search package : `pip search xxxxxx`
- Install package : `pip install xxxxxx`
- Upgrade package : `pip install --upgrade xxxxxx`
- Uninstall package : `pip uninstall xxxxxx`
- Install wheel package : `pip install xxxxxx.whl`

Jupyter Notebook

You may want to run a Jupyter notebook when:

- You want to try out a new experiment or analysis with an existing Jupyter notebook from someone.
- You want to develop an algorithm that run on a large software.
- You have only ten minutes to download a data, plot a graph and send the email to your supervisor in a neat format.

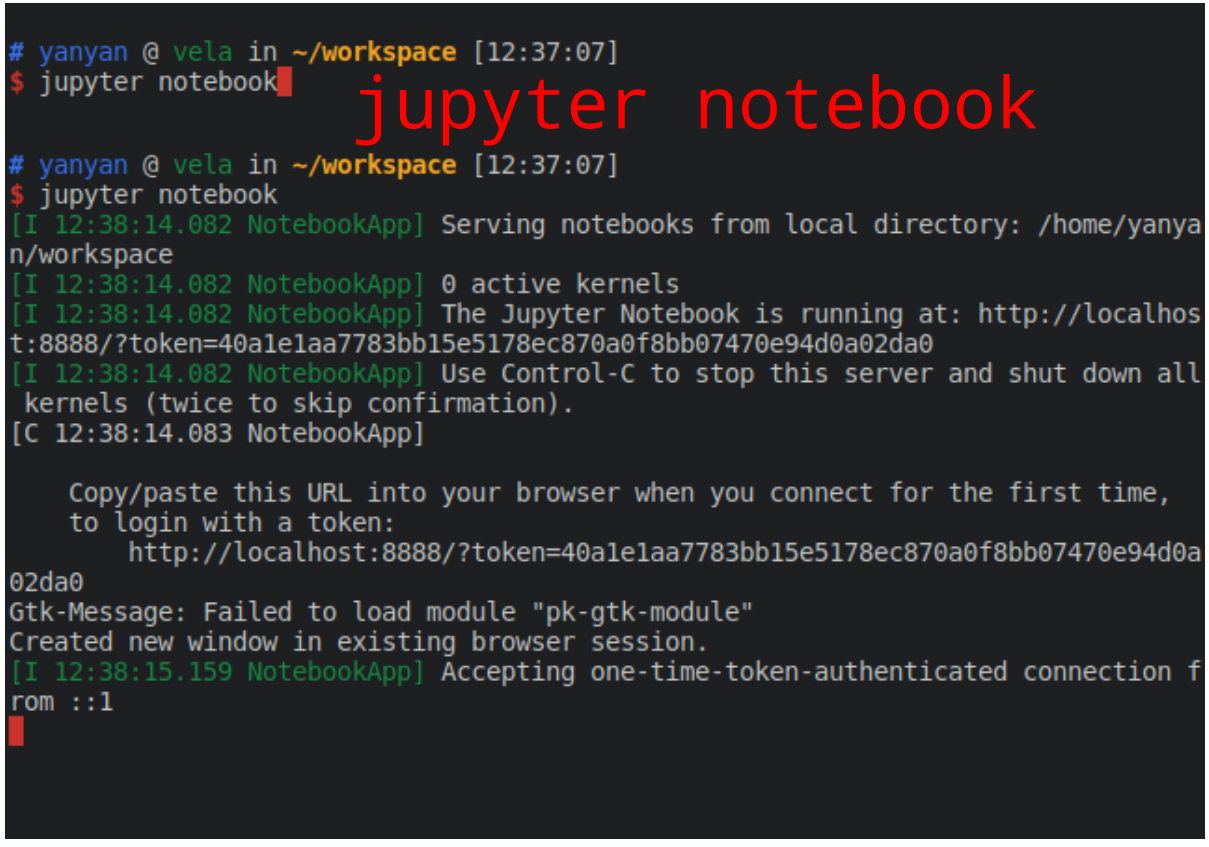


Open source, interactive data science and scientific computing across over 40 programming languages.

Open Jupyter in Linux/MacOS

Type

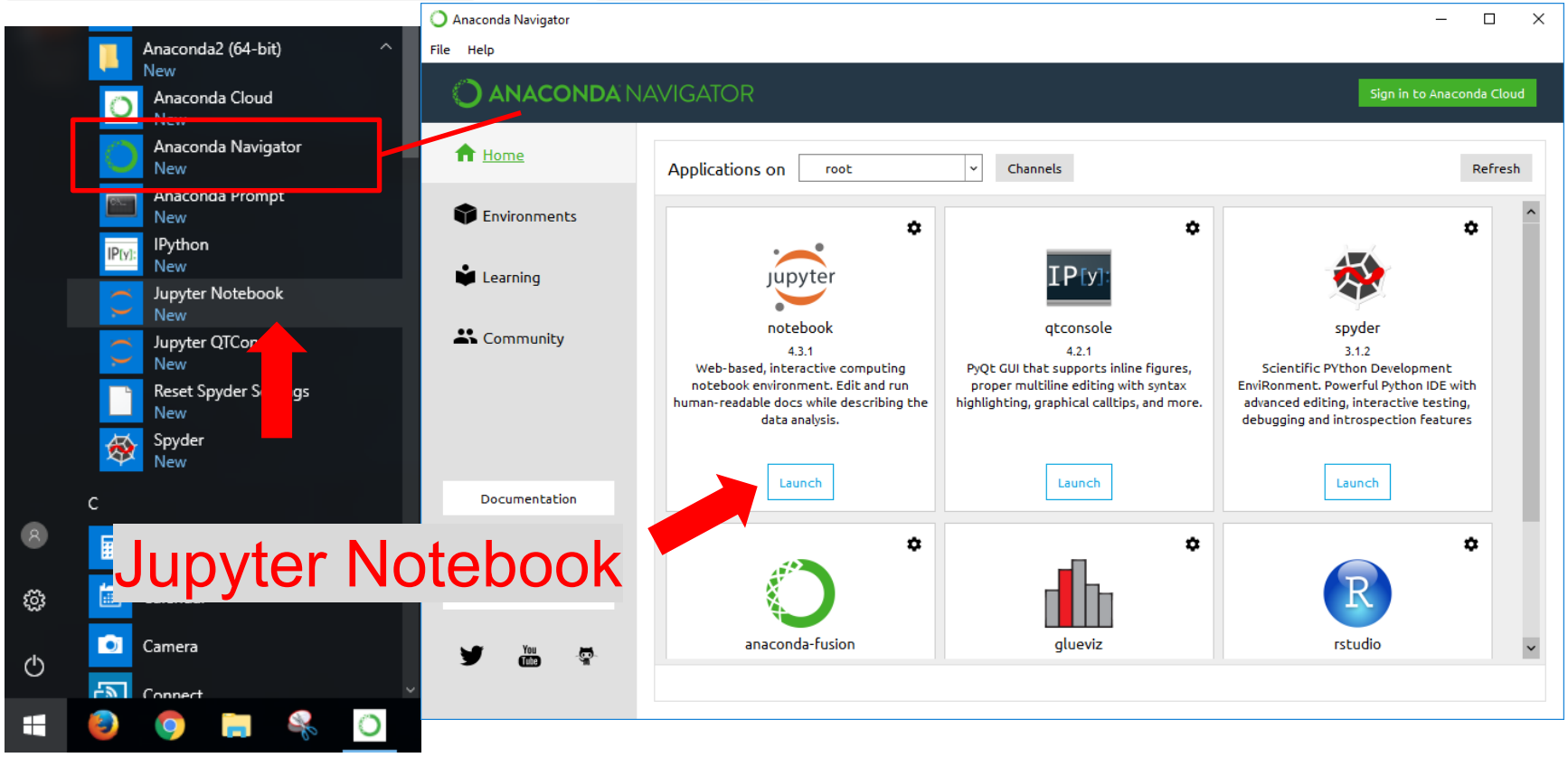
```
jupyter notebook
```



Open Jupyter in Windows

Open your Start menu, goes to `Anaconda` Folder,

Click the `Jupyter Notebook` shortcut (Recommended). Or start the `Anaconda Navigator` and `Launch`



Hand's on Session

The hand's on session requires a working python installations with Jupyter installed. The following links are read-only, they do not run calculations in your computer.

First Session:

- Python Syntax
- Python Data Structures
- Python Numpy Array

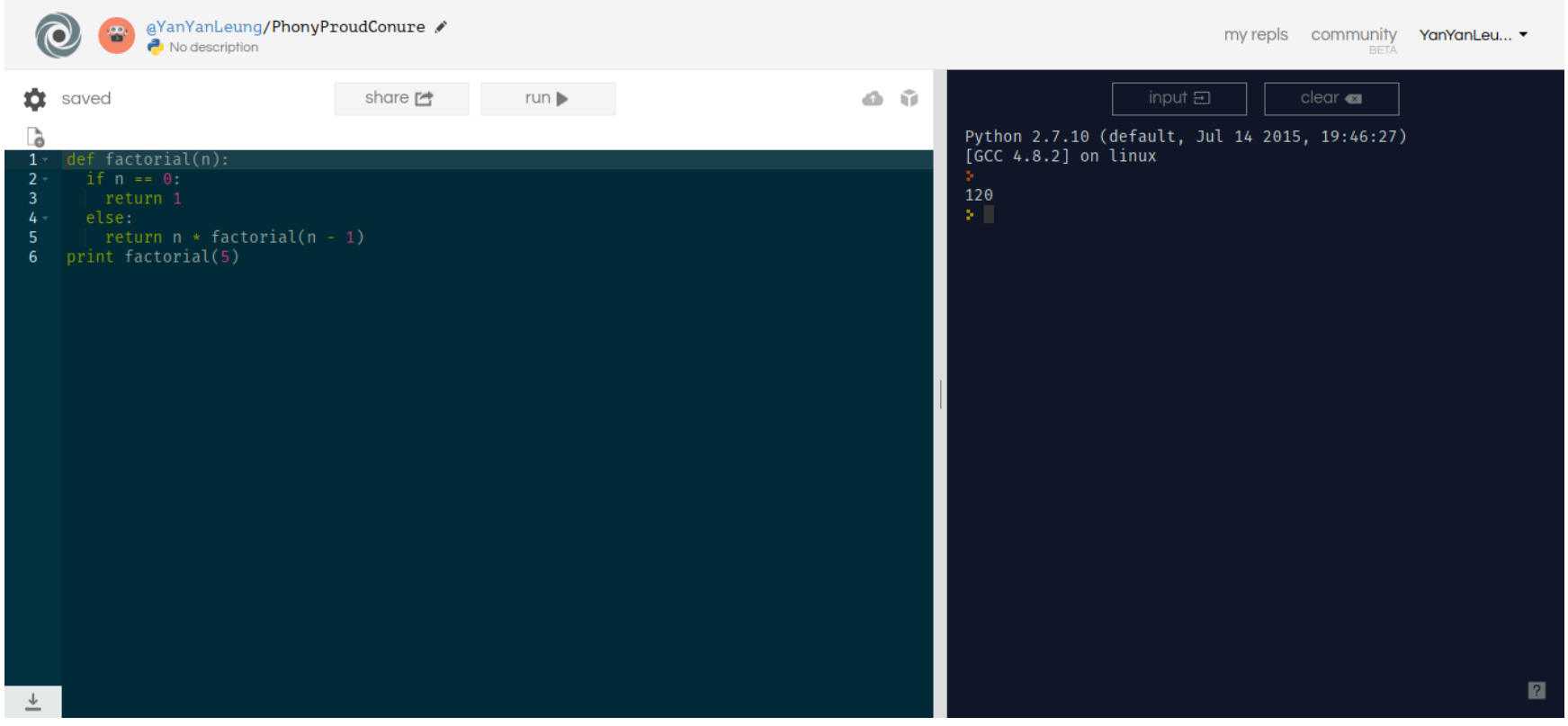
Second Session:

- Introduction to Pandas
- Python Functions and Class
- Python Matplotlib
- Python plotting with Astropy and AplPy

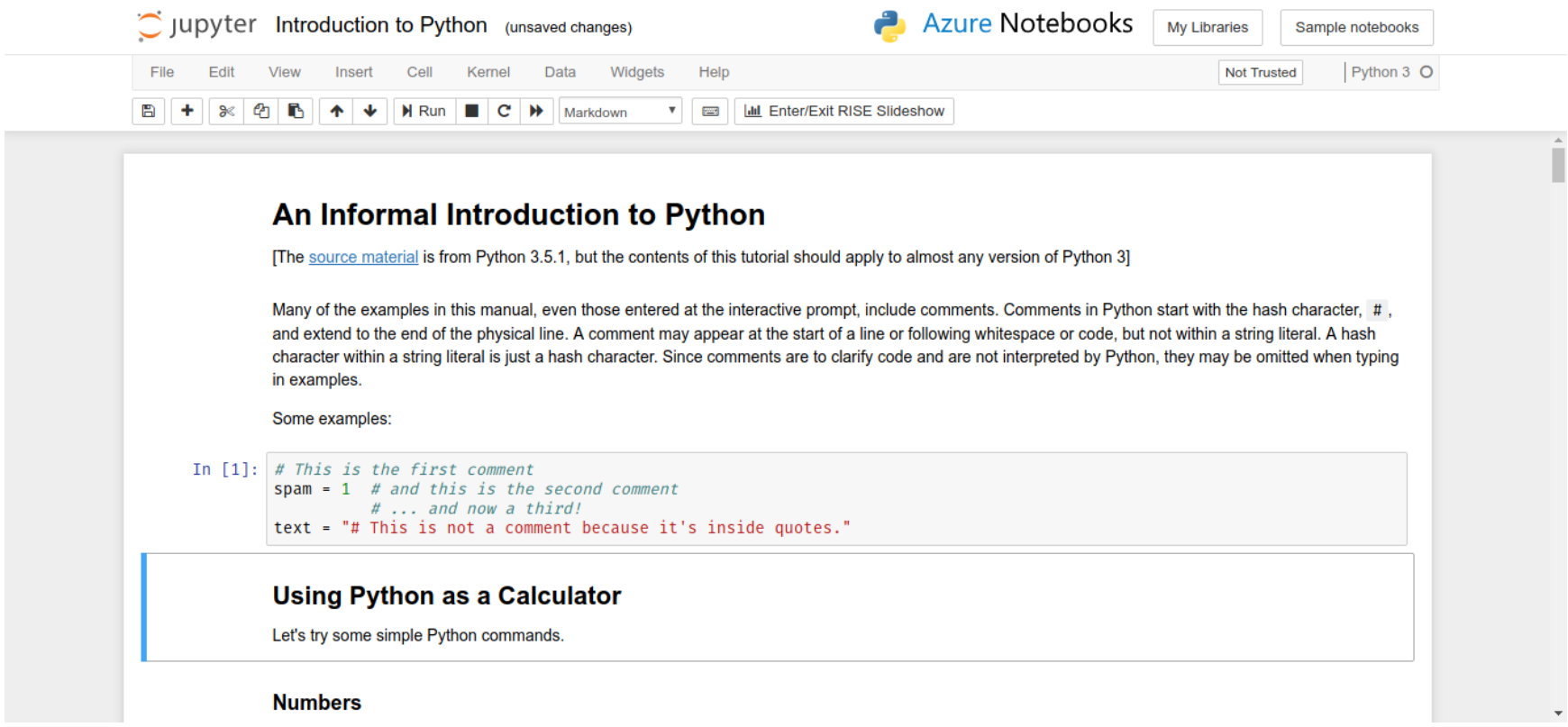
Online Platforms

Here are some online Python platform that are quite good indeed.

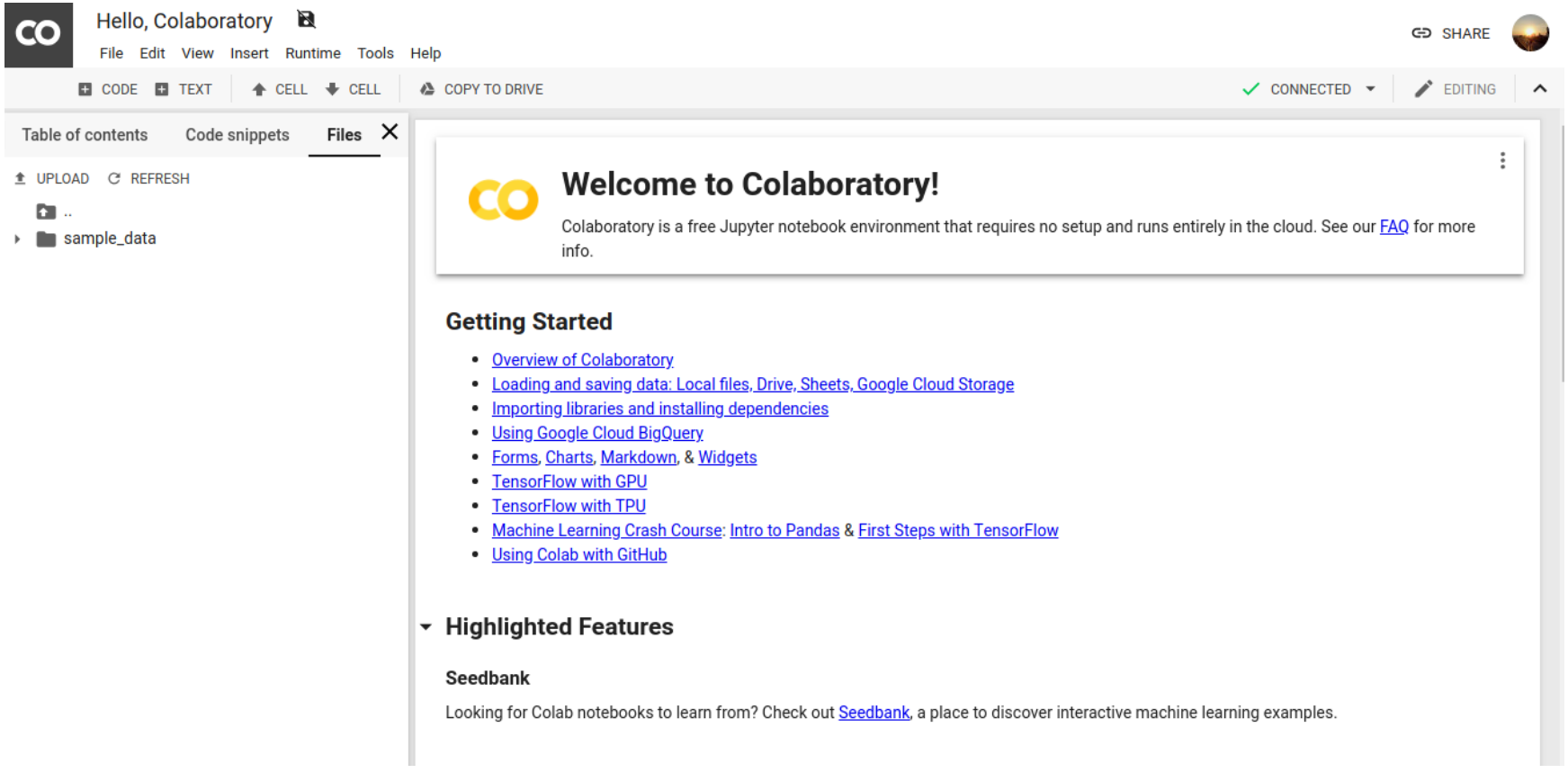
- c9.io
- repl.it
- Microsoft Azure Notebooks
- Google Colab


@YanYanLeung/PhonyProudConure
No description
my repls
community
BETA
YanYanLeu...
saved
share
run
input
clear
def factorial(n):
if n == 0:
return 1
else:
return n * factorial(n - 1)
print factorial(5)
Python 2.7.10 (default, Jul 14 2015, 19:46:27)
[GCC 4.8.2] on linux
120

repl.it



Azure Notebook



Google Colab

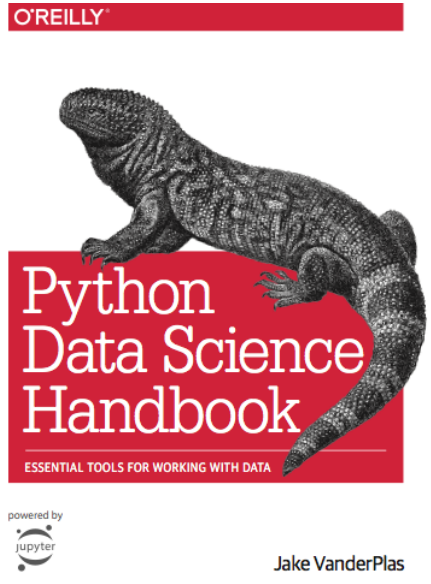
Online Judge

- Sphere Online Judge (SPOJ)
- HackerRank
- CodeAcademy
- Aizu Online Judge (AOJ)

Good Reference Material

- stackoverflow.com

- https://github.com/jakevdp/PythonDataScienceHandbook



- Book: Python for Astronomers

Credits

This tutorial have referenced the following materials:

- Unidata's online-python-training
- Anaconda Installation Guide
- And thanks Sandy Chan and Stephen Ng