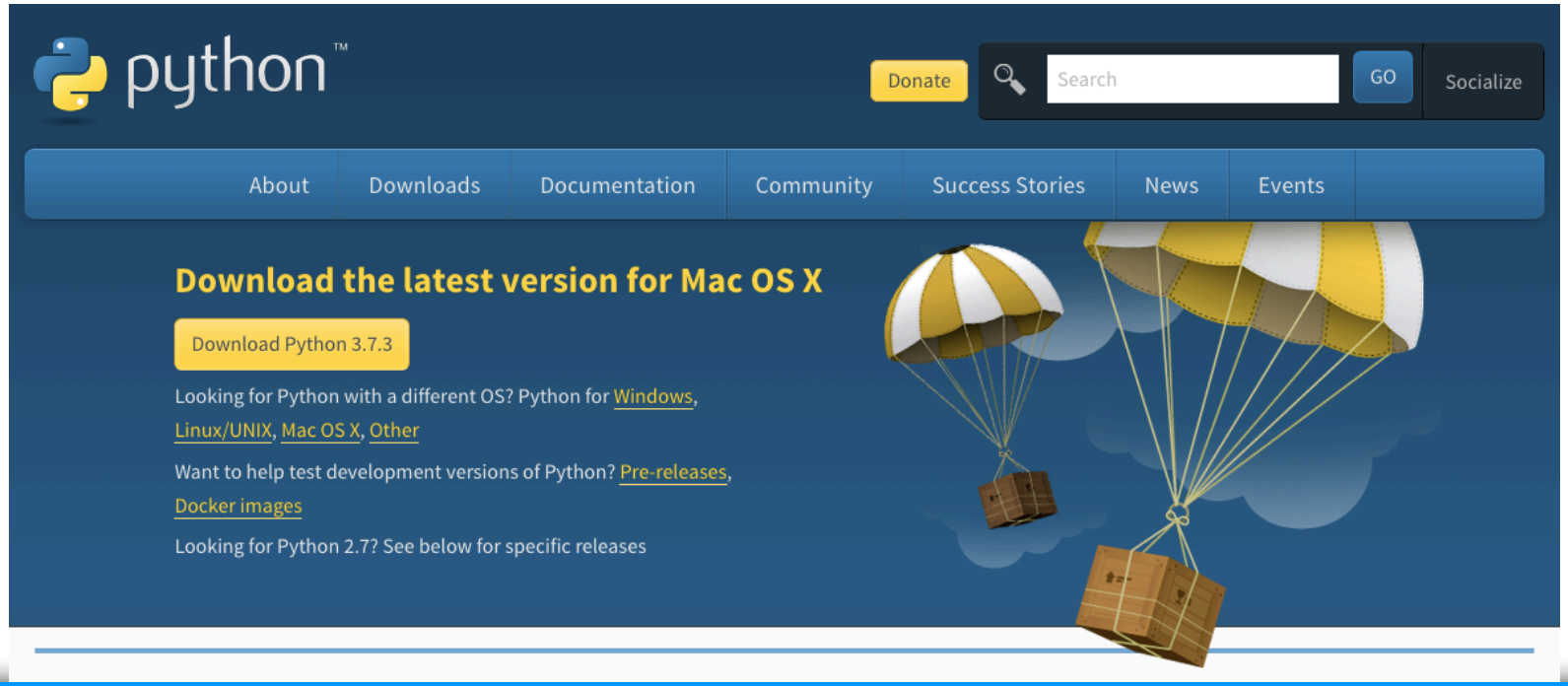
# Python Environment Setup

Installing
- Python (3.7.2)
- Python libraries
- PyCharm (Community Edition)
- Jupyter

# Steps to install Python

- **Download Python** from https://www.python.org/downloads/.
- Run the installer to install Python in your computer.
- Open terminal or command prompt.
- Type ‘python3’. Press enter to check if Python is installed in your computer.
- You may have to add installation directory to PATH variable, if you see error.



# Steps to install PyCharm

- **Download PyCharm** from https://www.jetbrains.com/pycharm/download/
- Download Community edition and run the installer.


## Download PyCharm

Windows macOS Linux

Version: 2019.1.2
Build: 191.7141.48
Released: May 8, 2019

System requirements
Installation Instructions
Previous versions

### Professional

For both Scientific and Web Python development. With HTML, JS, and SQL support.

DOWNLOAD

Free trial

### Community

For pure Python development

DOWNLOAD

Free, open-source

# Steps to install Jupyter notebook

Installing Jupyter notebook from terminal.

- Run the following command in terminal (or command prompt) to install Jupyter.

  *(sudo) pip3 install jupyter*

# Install NumPy

Command to install NumPy: pip3 install –U numpy

NumPy is the fundamental package for scientific computing with Python. It contains among other things:

- a powerful N-dimensional array object
- sophisticated functions
- tools for integrating C/C++ and Fortran code
- useful linear algebra, Fourier transform, and random number capabilities

Besides its obvious scientific uses, NumPy can also be used as an efficient multi-dimensional container of generic data. Arbitrary data-types can be defined. This allows NumPy to seamlessly and speedily integrate with a wide variety of databases.

# Install Pandas

Command to install Pandas: pip3 install -U pandas

Pandas is an open source, library providing high-performance, easy-to-use data structures and data analysis tools for the python programming language. Python with Pandas is used in a wide range of domain finance, economics, statistics, analytics, etc.

Some key features of pandas include the following:

- It can process a variety of data sets in different formats: time series, tabular heterogeneous, and matrix data.
- It facilitates loading/importing data from varied sources such as CSV and DB/SQL.
- It can handle a myriad of operations on data sets: sub-setting, slicing, filtering, merging, group-by, re-ordering, and re-shaping.
- It can deal with missing data according to rules defined by the user/ developer: ignore, convert to 0, and so on.
- It can be used for parsing and munging (conversion) of data as well as modelling and statistical analysis.

# Install Matplotlib

Command to install Matplotlib: pip3 install -U matplotlib

Matplotlib is a standard Python library used by every data scientist for creating 2D plots and graphs. It's pretty low-level, meaning it requires more commands to generate nice-looking graphs and figures and you can make any kind of graph you want with Matplotlib. You can build diverse charts, from histograms and scatterplots to non-Cartesian coordinates graphs.

# Install scikit-learn

Command to install scikit-learn: pip3 install -U scikit-learn

This is one the most basic and popular ML libraries. It supports many supervised and unsupervised learning algorithms. Examples include linear and logistic regressions, decision trees, clustering, k-means and so on.
It adds a set of algorithms for common machine learning and data mining tasks, including clustering, regression and classification. Even tasks like transforming data, feature selection and ensemble methods can be implemented in a few lines.

# Install TensorFlow

Command to install TensorFlow: pip3 install -U tensorflow (tensorflow-gpu)

If you are in the world of machine learning, you have probably heard about, tried or implemented some form of deep learning algorithm. One intersting point about Tensorflow is that when you write a program in Python, you can compile and run on either your CPU or GPU. So we don't have to write at the C++ or CUDA level to run on GPUs.
It uses a system of multi-layered nodes that allows you to quickly set up, train, and deploy artificial neural networks with large datasets.

This is what allows Google to identify objects in photos or understand spoken words in its voice-recognition app.

# Install Keras

Command to install Keras: pip3 install -U keras

Keras is a high-level neural networks API, written in Python and capable of running on top of TensorFlow and some other machine learning library
Use Keras whenever we need a deep learning library that:

- Allows for easy and fast prototyping.
- Supports both convolutional networks and recurrent networks, as well as combinations of the two.
- Runs seamlessly on CPU and GPU.

# Few charts from gallery