Python That Helps For Data People

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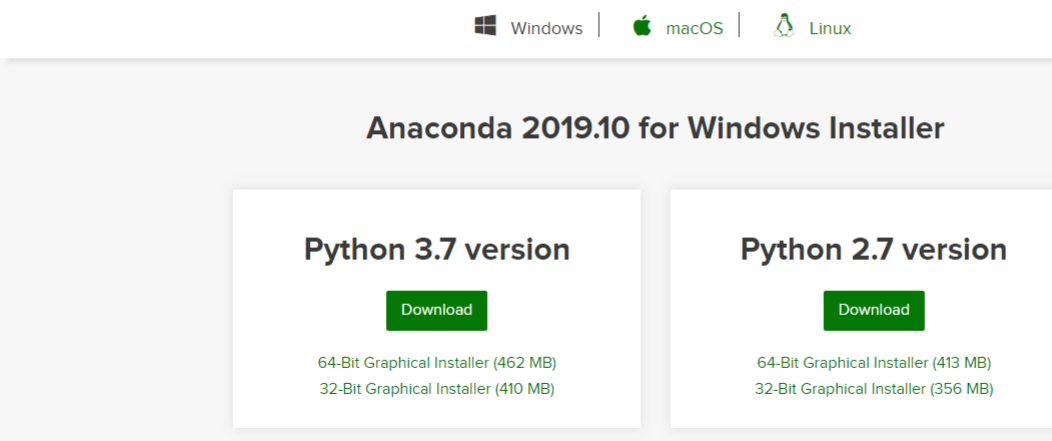
Chapter 01: Getting Started: What is Anaconda?

This chapter will be about getting started with Anaconda, a cool environment with many data packages included.

Downloading Anaconda

Go to www.anaconda.com/distribution/#download-section

You'll be presented with this screen:

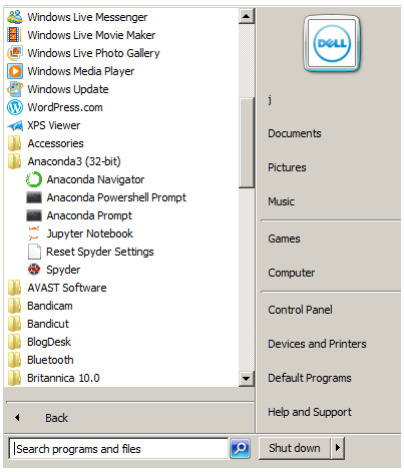


Python 2.x or 3.x?

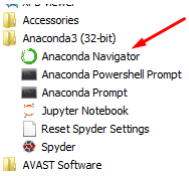
Python 2.0 is approching it's EOL (End Of Life) in 2020 and the Python Software Foundation recommends to switch to Python 3. So we'd be better off downlading Python 3.7

A Tour of Anaconda

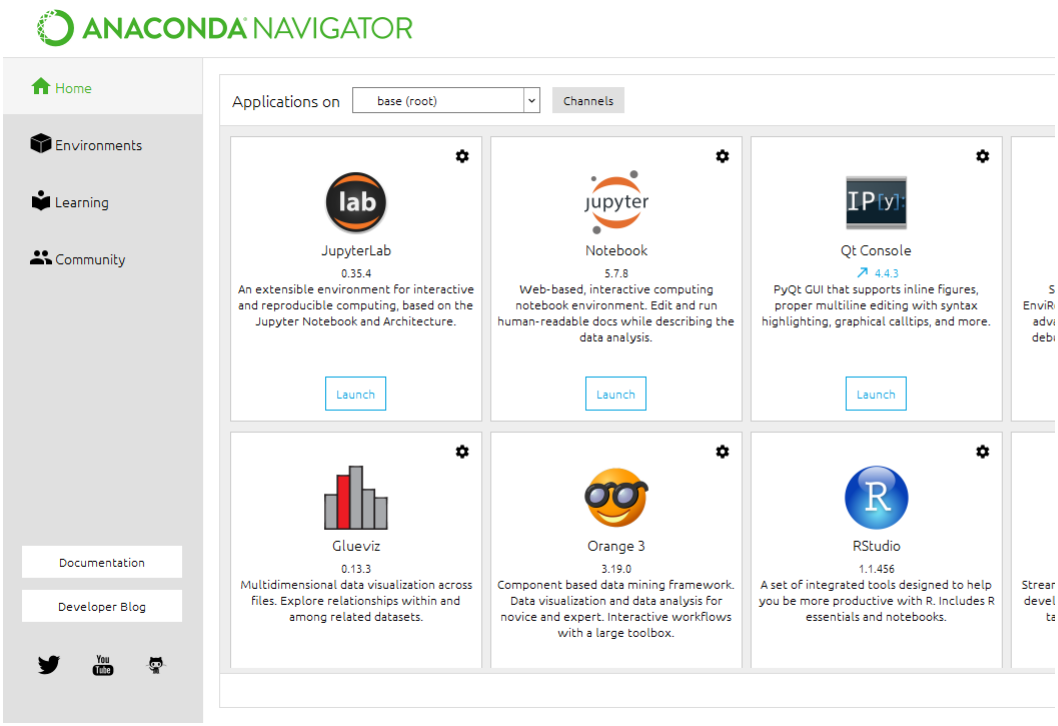
After installing Anacondas, if you are on windows, you'll see menus appear like this:



Launching the navigator by clicking on the navigator icon,



which opens up:

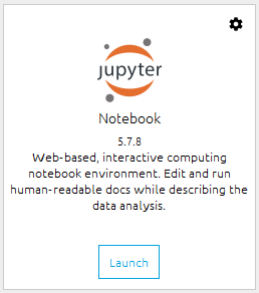


gives us an idea what Anaconda offers. We see even R tools.

For Python we are interested in 3 tools namely:

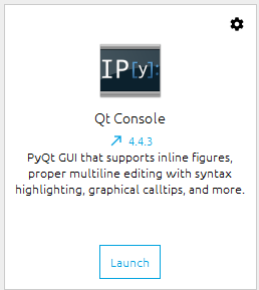
- Jupyter
- iPython
- Spyder

Jupyter



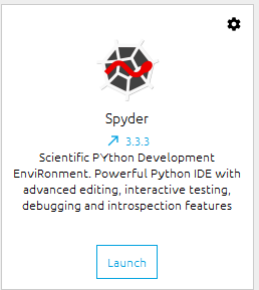
Jupyter is a web-based interactive notebook with markdown support for notes.

iPython



iPython is the GUI version of Jupyter

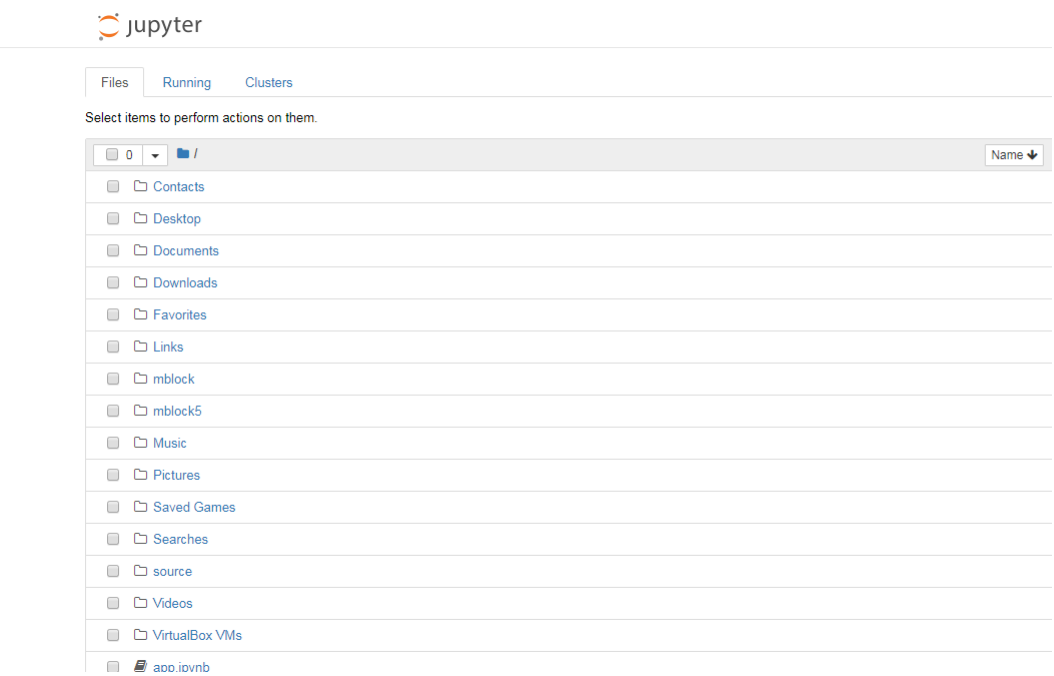
Spyder



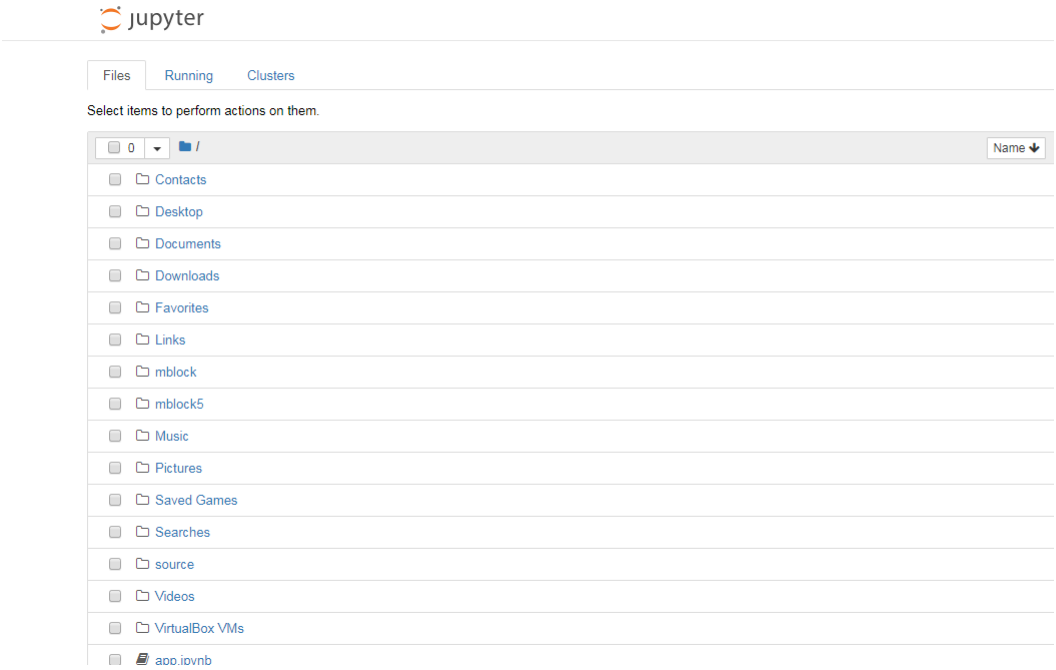
Spyder is a regular IDE

About Jupyter

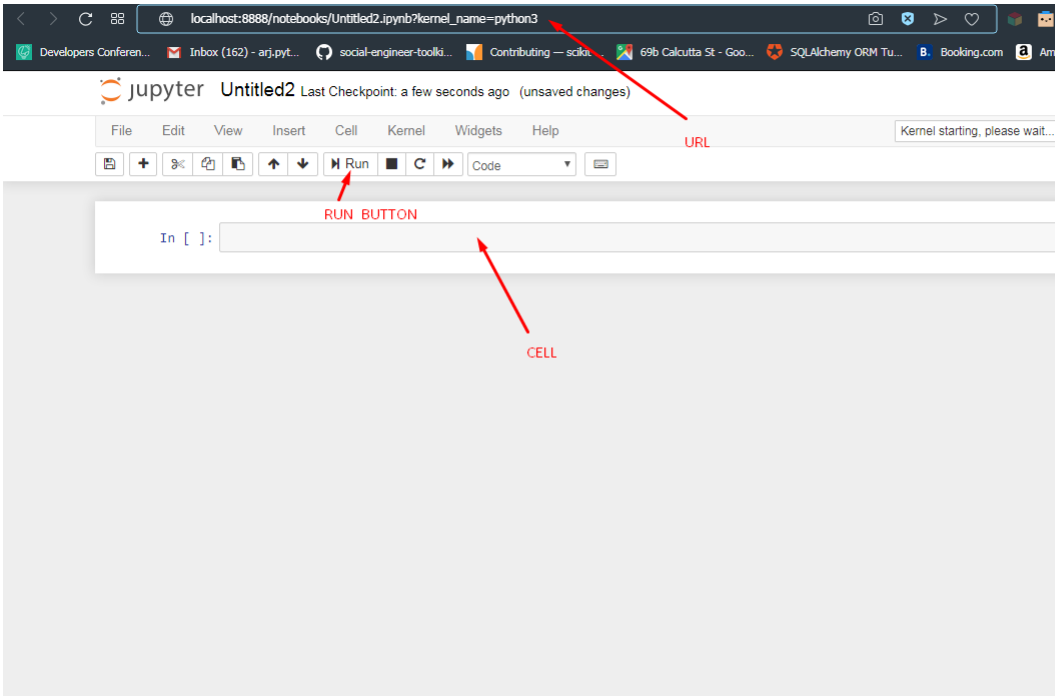
Jupyter upon launching opens up a tab in your browser. Here is the default screen.



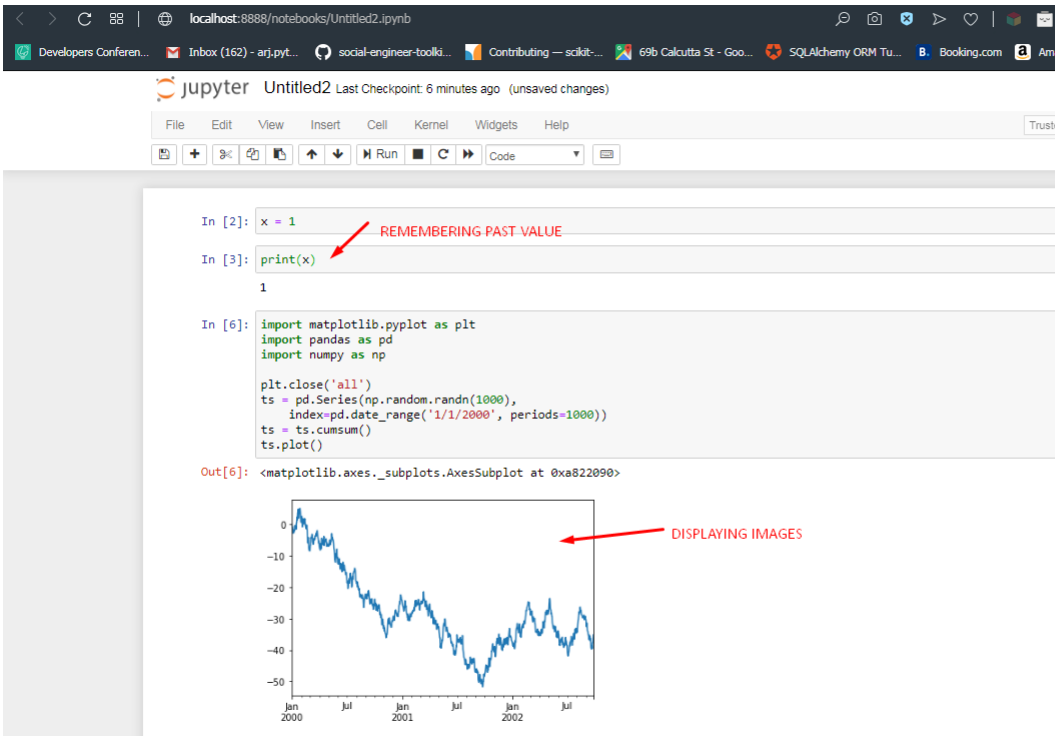
To create a new notebook, press new



It opens a new notebook as follows:

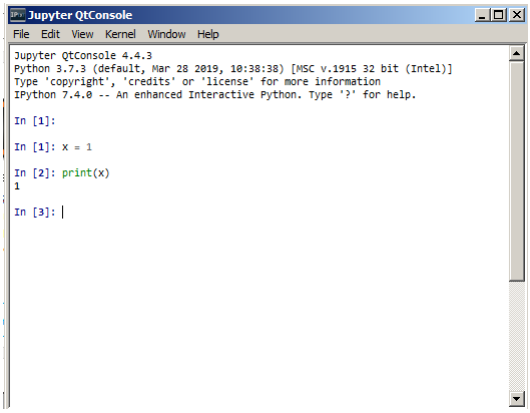


When running codes, you can even display images inline.



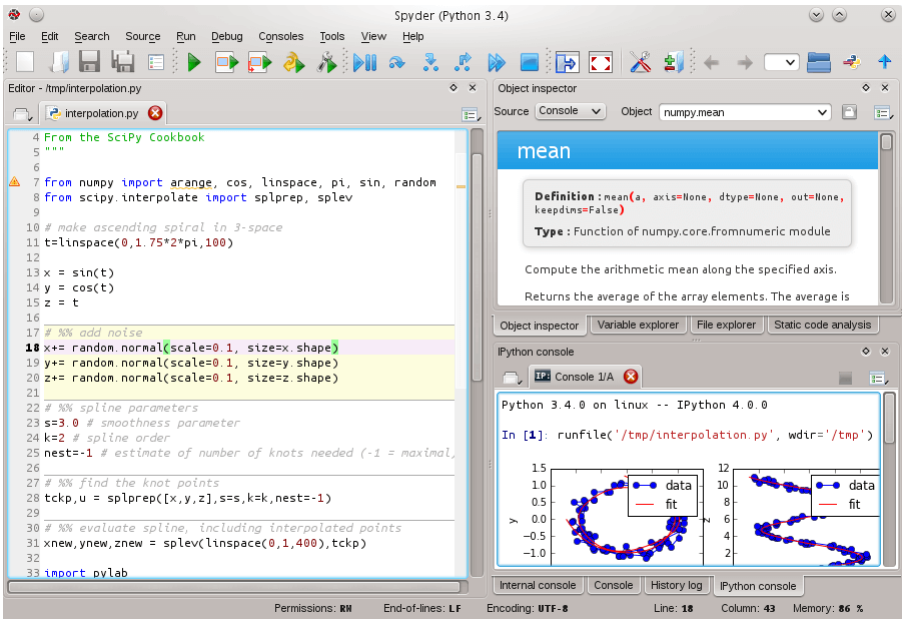
About iPython

iPython is the same as Jupyter, just in GUI form



About Spyder

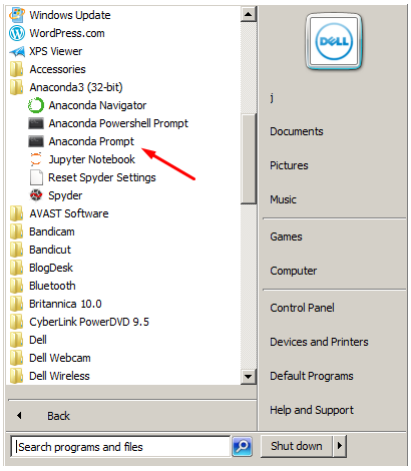
Spyder is an IDE. IDE means Integrated Development Environment, which provides tools and features (like syntax highlighting, auto code-completion, …) for easy programming


Spyder (Python 3.4)
File Edit Search Source Run Debug Consoles Tools View Help
Editor - /tmp/interpolation.py
interpolation.py
From the SciPy Cookbook
"""
from numpy import arange, cos, linspace, pi, sin, random
from scipy.interpolate import splprep, splev
# make ascending spiral in 3-space
t=linspace(0,1.75*2*pi,100)
x = sin(t)
y = cos(t)
z = t
# %% add noise
x+= random.normal(scale=0.1, size=x.shape)
y+= random.normal(scale=0.1, size=y.shape)
z+= random.normal(scale=0.1, size=z.shape)
# %% spline parameters
s=3.0 # smoothness parameter
k=2 # spline order
nest=-1 # estimate of number of knots needed (-1 = maximal)
# %% find the knot points
tckp,u = splprep([x,y,z],s=s,k=k,nest=-1)
%% evaluate spline, including interpolated points
xnew,ynew,znew = splev(linspace(0,1,400),tckp)
import pylab
Object inspector
Source Console Object numpy.mean
mean
Definition : mean(a, axis=None, dtype=None, out=None, keepdims=False)
Type : Function of numpy.core.fromnumeric module
Compute the arithmetic mean along the specified axis.
Returns the average of the array elements. The average is
Object inspector Variable explorer File explorer Static code analysis
IPython console
Console 1/A
Python 3.4.0 on linux -- IPython 4.0.0
In [1]: runfile('/tmp/interpolation.py', wdir='/tmp')
data
fit
data
fit
Internal console Console History log IPython console
Permissions: RW End-of-lines: LF Encoding: UTF-8 Line: 18 Column: 43 Memory: 86 %

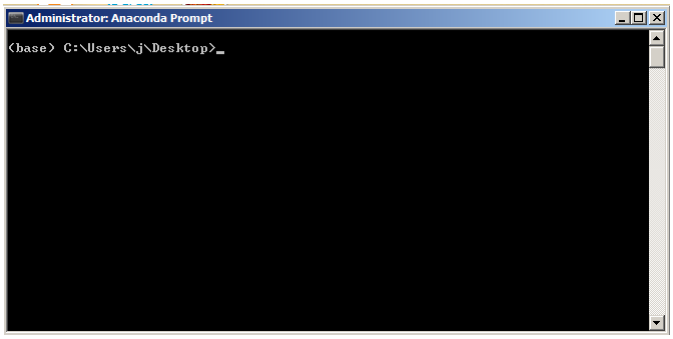
Chapter 02: The Anaconda command prompt and running files

Playing around with the prompt

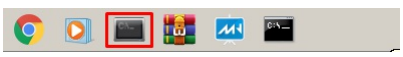
You open the prompt by clicking on it's icon:



You will see

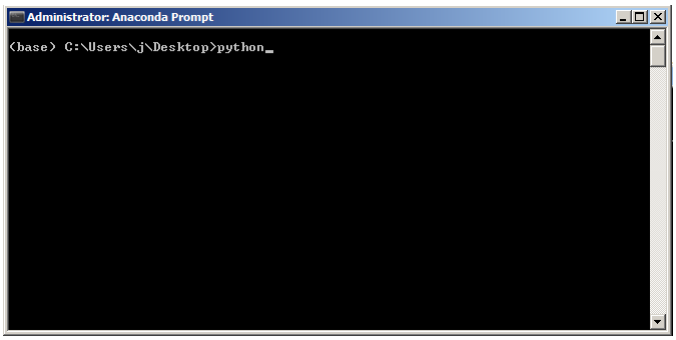


You can also pin it on the taskbar so that it shows

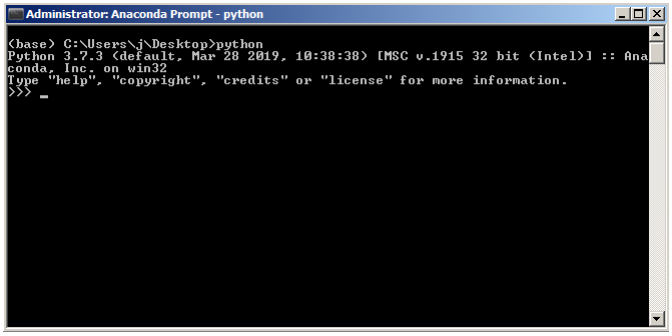


Interactive Shell On The Prompt

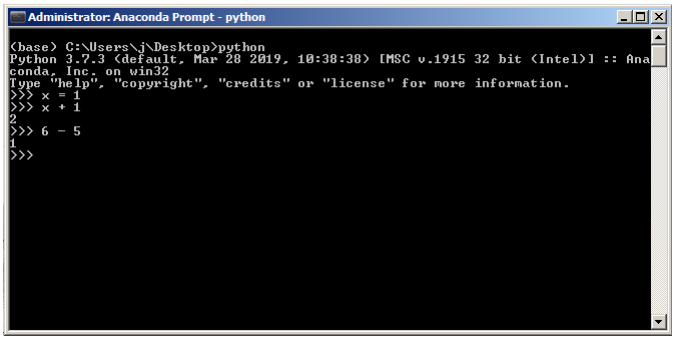
Typing only `python`



gives you an interactive shell



where you can try out Python commands. So, **if you want to test out simple Python commands**, use this one.



Python Files

Python files have a .py extention.

Write

```
x = 1
print(x)
```

and save it as `myfile.py`

to run type `python <filename>`