

Environment Setup

The open-source Anaconda Distribution is the easiest way to perform Python/R data science and machine learning on Linux, Windows, and Mac OS X. We are going to use it throughout our course. But first we're going to install it:

Step 1: Go to the official link (<https://www.anaconda.com/distribution/>) to download Anaconda Distribution. Anaconda Distribution include Python with either 2.7 or 3.7 version but we're going to download "Python 3.7 version". Next, you can select 64-Bit Graphical Installer or 32-Bit Graphical Installer based on your operating system (OS) architecture.

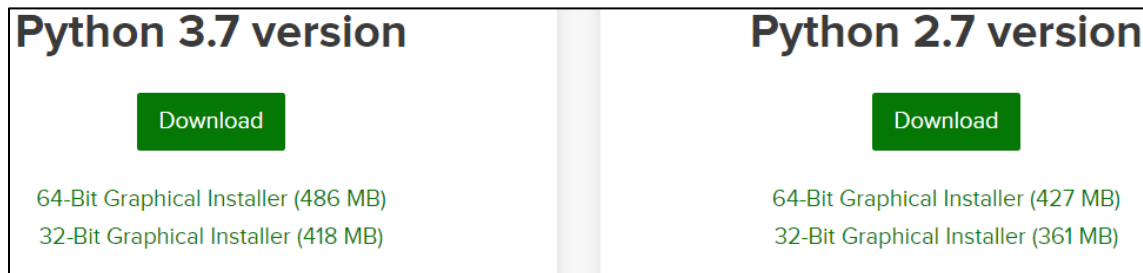


Figure 1: versions of the Anaconda Distribution

To know which version of OS you use, write click on "This PC" and then "Properties" and then you should see the "system type"

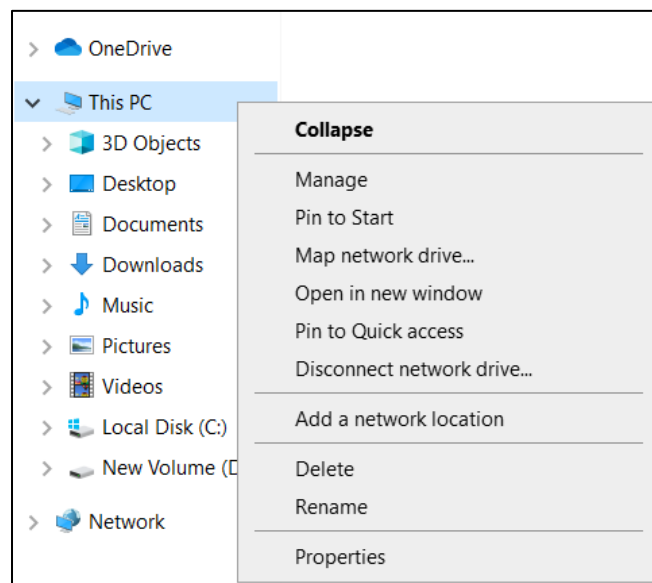


Figure 2: Determine the OS version step 1

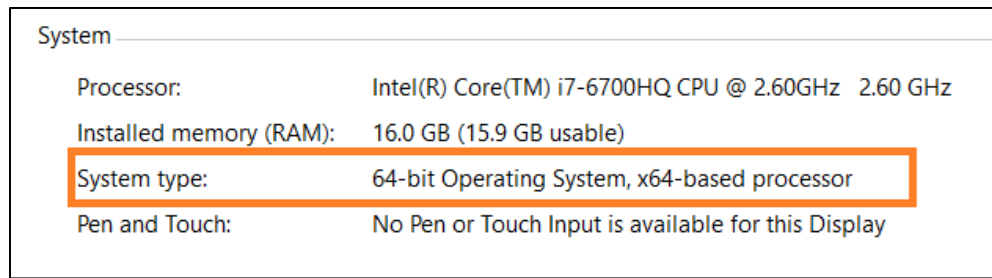


Figure 3: Determine the OS version step 2

Step 2: After Downloading Anaconda, just follow the default options by clicking “next” **except** on Advanced Options, select Add Anaconda to my PATH environment variable so the operating system can identify the Anaconda

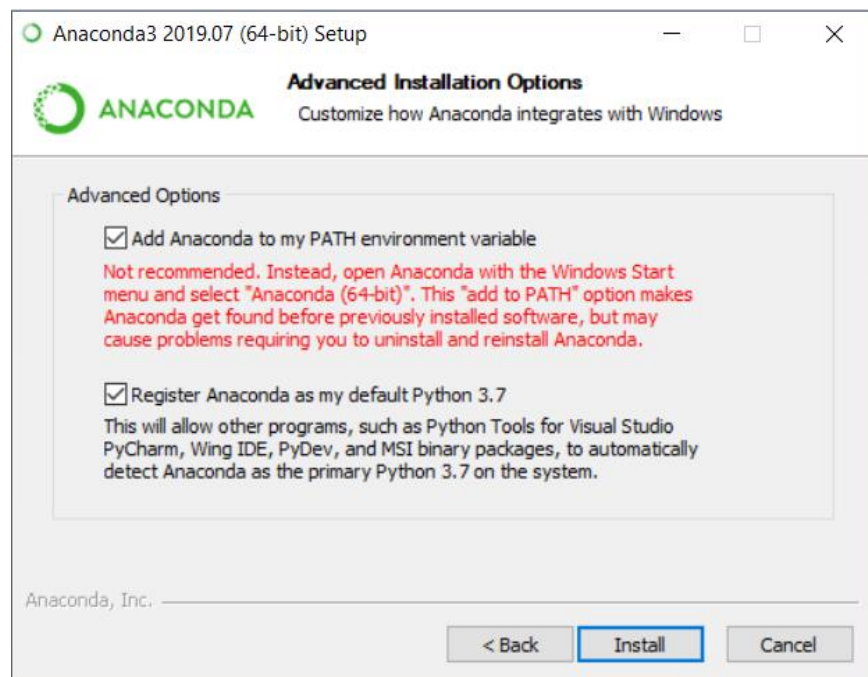


Figure 4: Setup Advanced Options

Anaconda Applications

Anaconda Distribution comes with several applications: JupyterLab, Jupyter Notebook, QtConsole, Spyder, Glueviz, Orange, Rstudio, and Visual Studio Code. But we are going to use Spyder mainly. Spyder is an open source cross-platform integrated development environment (IDE) for scientific programming in the Python language. The IDEs, generally, includes: source code editor, build automation tools, a debugger, and a compiler or interpreter, or both.

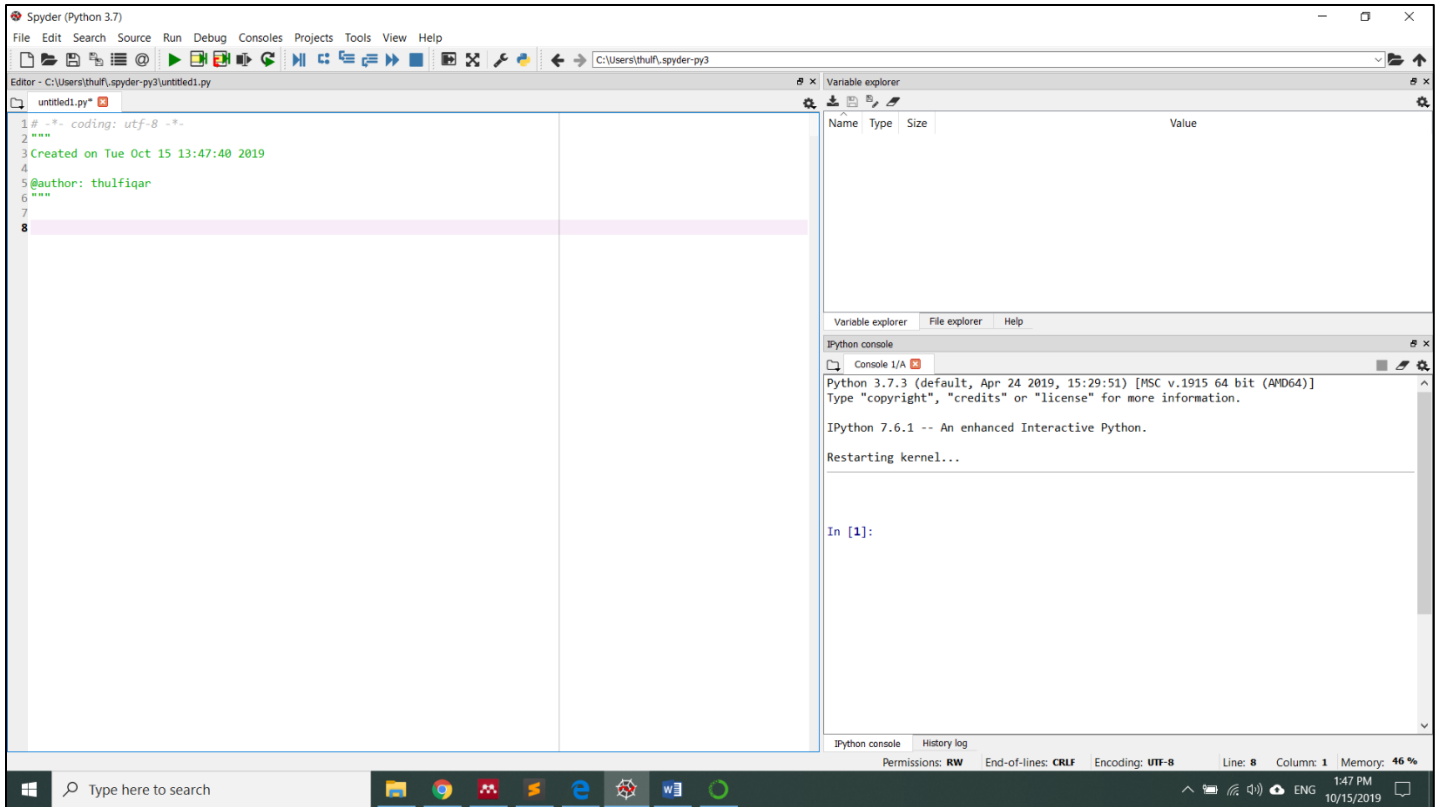


Figure 5: Spyder IDE.

Installing Packages

A module is a file consisting of Python code. A module can define functions, classes and variables. A module can also include runnable code. While a package is a collection of modules in directories that give a package hierarchy. We are going to need plenty of functions throughout the course from some packages. You can install packages either online or offline if the internet connection isn't available.

To install packages online you can use Conda package management system by first, opening either Anaconda Powershell Prompt or Anaconda Prompt and then type:

```
conda install package_name
```

or use Python package installer (PIP)

```
pip install package_name
```

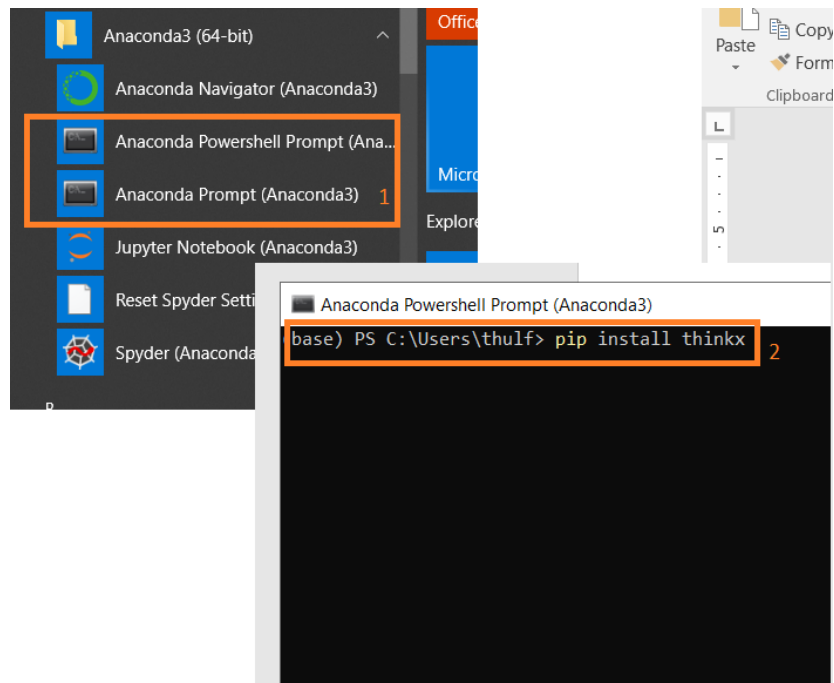


Figure 6: Installing Packages online.

to install packages offline, first, download the packages and their dependencies by:

1. create new folder >> write a list of package that you want to install in a text file and name it “requirements.txt”, for example the package thinkx.
2. shift + right click >> “open PowerShell window here”

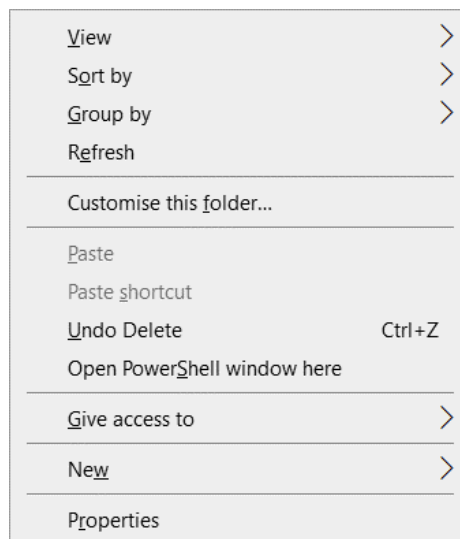


Figure 7: Installing Packages offline (1/2)

3. Type and run

`pip download -r requirements.txt`



Figure 8: Installing Packages offline (2/2).

4. Install the downloaded packages

`pip install --no-index --find-links ./ -r requirements.txt`