Data Science Development Tools

January 24,2022

1 Introduction

Anaconda + Python3.7 + IDEA(PyCharm or Spyder or Jupyter Notebook).

2 Anaconda

Anaconda is a Python integration toolkit specifically designed for environment and packages management. We can create different environments in Anaconda without worrying about version conflicts.

2.1 Anaconda download and installation

- Download link: https://www.anaconda.com/products/individual.
- Double-click to open Anaconda and install it (Fig.1).
- Check whether the installation is successful in the terminal (Fig.2).

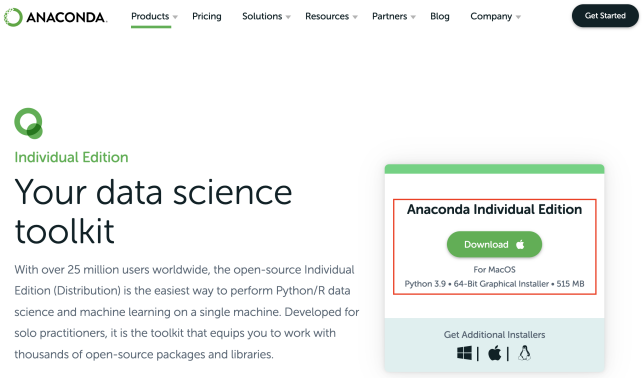

Figure 1: Download Anaconda.

Figure 2: Installation successful.

2.2 Create an environment and specify Python versions

- Create an Anaconda environment in the terminal:

```
conda create -n name python=3.7
```

'*name*': give the environment a name you like.

'*python* = 3.7': specify python version as 3.7 (the stable version).

- Delete an Anaconda environment in terminal (careful):

```
conda remove -n name --all
```

'*name*': the name of the environment you want to delete.

- List all the environments you have created:

```
conda env list
```

2.3 Install various packages in the terminal

- We can install packages easily in the terminal with Anaconda. Firstly, we need to choose an environment to install:

```
conda activate name
```

'*name*': the name of the environment you want to choose.

- Install packages, Numpy, for instance (Fig.3):

```
conda install numpy
```

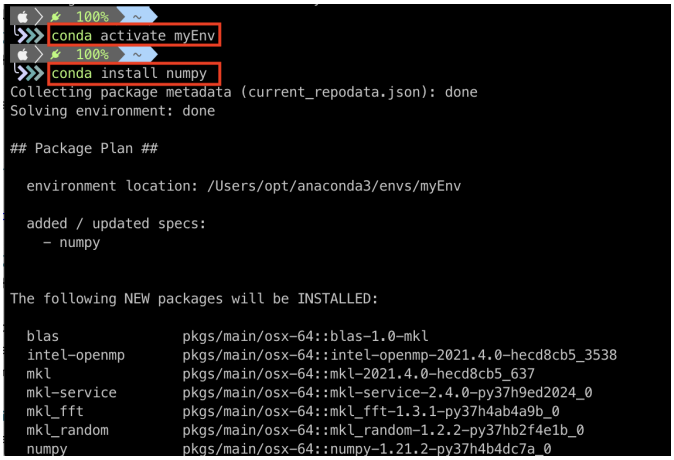

Figure 3: Conda environment configuration.

3 Connect PyCharm with Anaconda

Up to now, we have Python3.7 installed, along with other packages (Numpy, Matplotlib, Scipy). Next, we need to configure them in PyCharm.

- Open the 'Preferences' window and add a new 'Python Interpreter' (Fig.4).
- Select 'Conda Environment' and choose the conda environment we just created under the tag 'Existing environment' (Fig.5).

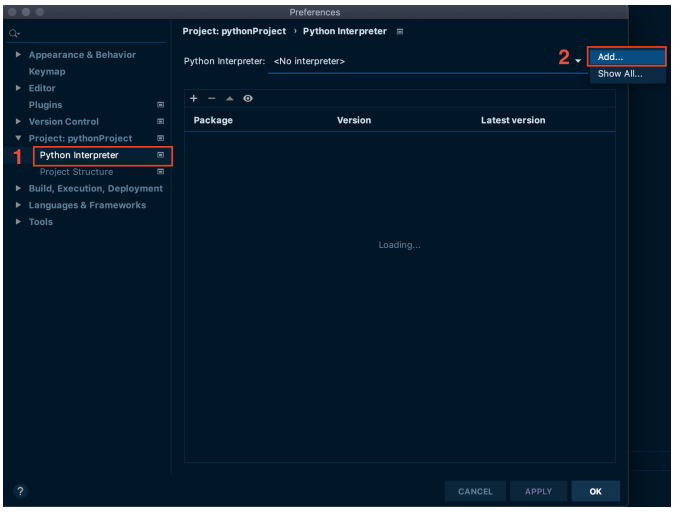

Figure 4: Add Python Interpreter.

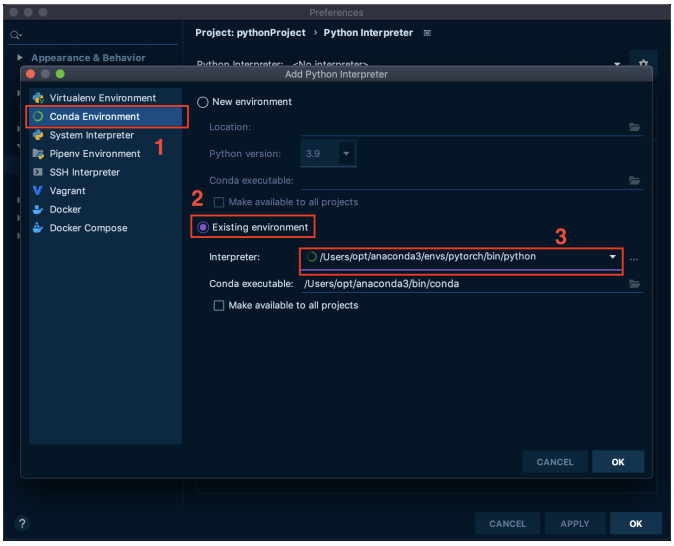

Figure 5: Select a conda environment.

4 Results

Finally, we can run Python code in PyCharm (Fig.6).

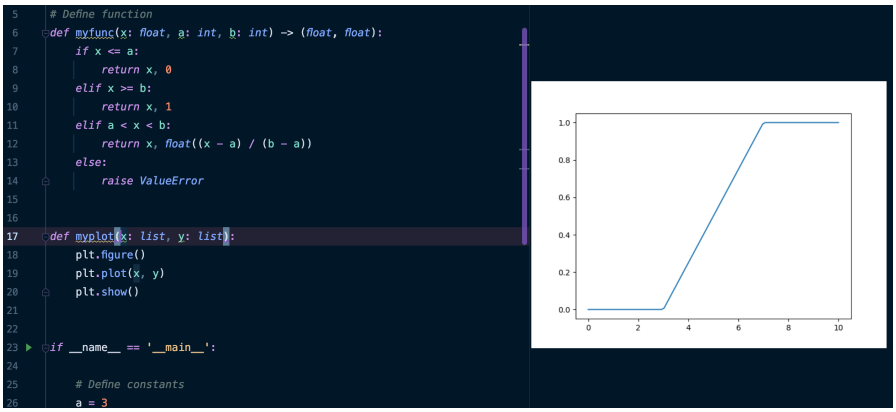

Figure 6: An example from FL class.

5 Programming with Jupyter Notebook

Jupyter Notebook is a good tool for coding and presentation. We can also write markdown code in Jupyter Notebook.

- Activate conda environment in the terminal:

```
conda activate myEnv
```

- Install ipykernel (Fig.7):

```
conda install ipykernel
```

- Configure kernel (Fig.8):

```
python –m ipykernel install ––user ––name=myEnv
```

- Launch Jupyter Notebook in Anaconda-Navigator.
- Select Jupyter kernel which we just created (Fig.9).

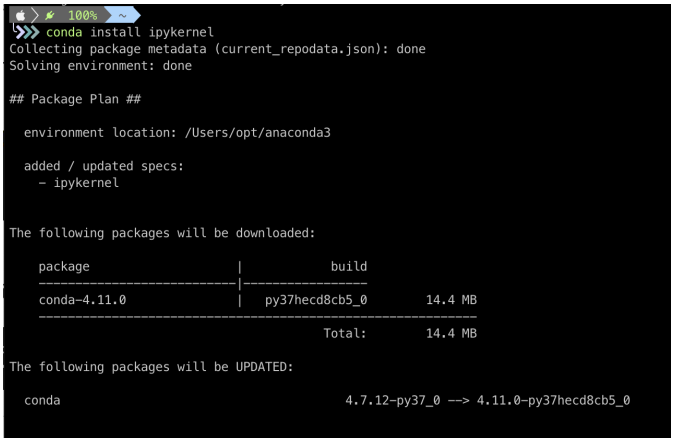

Figure 7: Launch Jupyter Notebook.

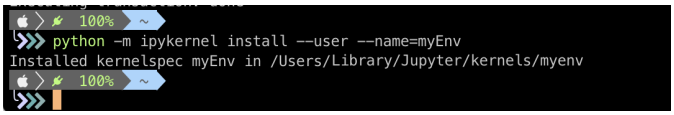

Figure 8: Configure kernel.

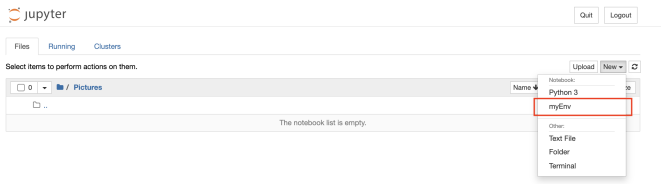

Figure 9: Set kernel.