Python and Jupyter Notebook tutorial

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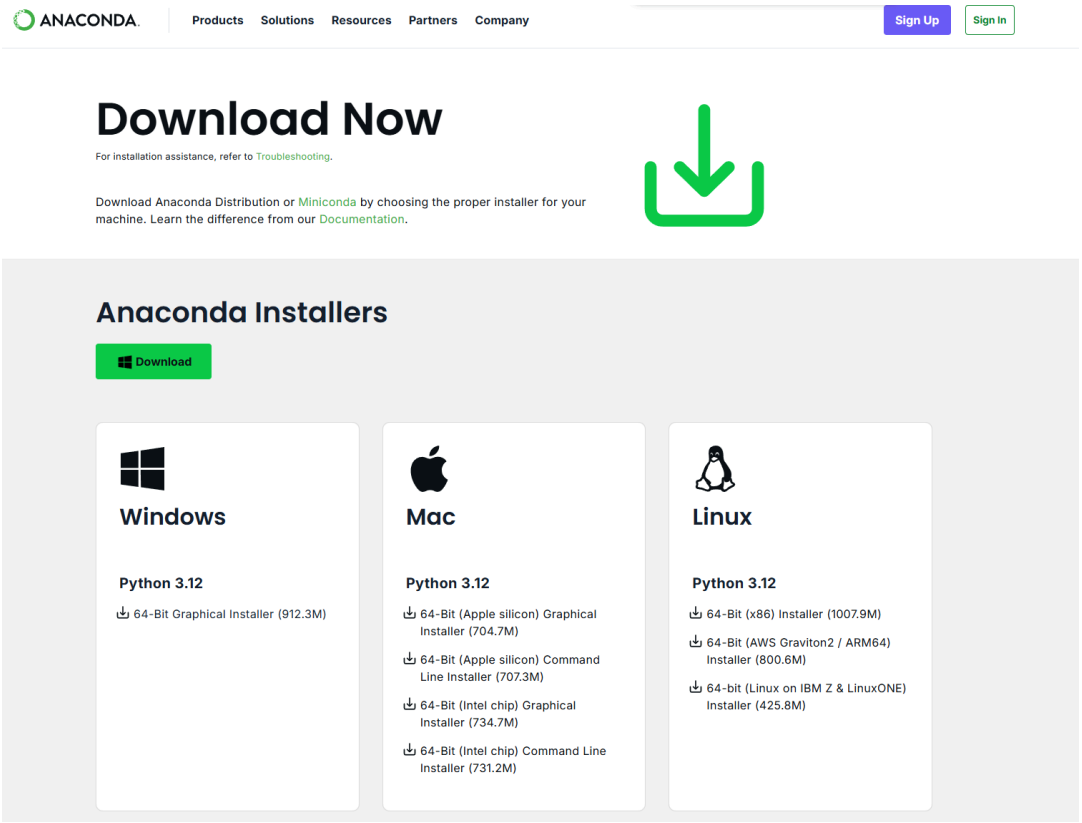
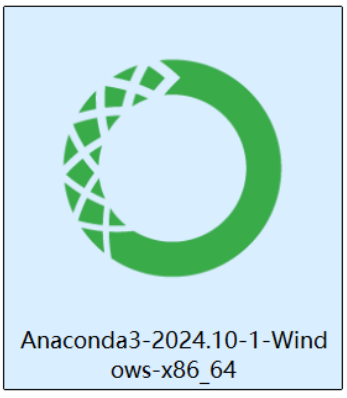
Brief introduction:

In this course, we will mainly utilize the **Anaconda** platform, which is an integrated platform with multiple function tools available.

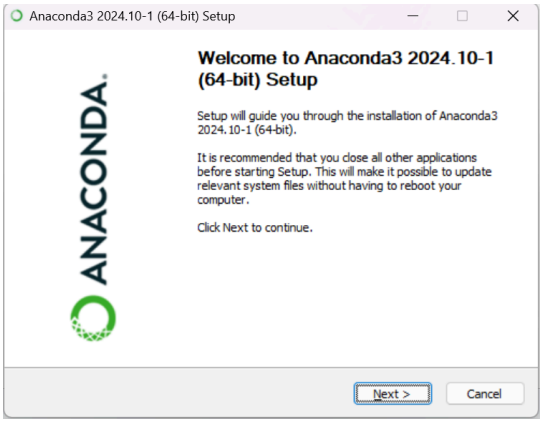
- Downloading the software **Anaconda** from the official website: https://www.anaconda.com/
  Pick the version that is fitted with your personal computer operating system such as Windows/Mac/Linux

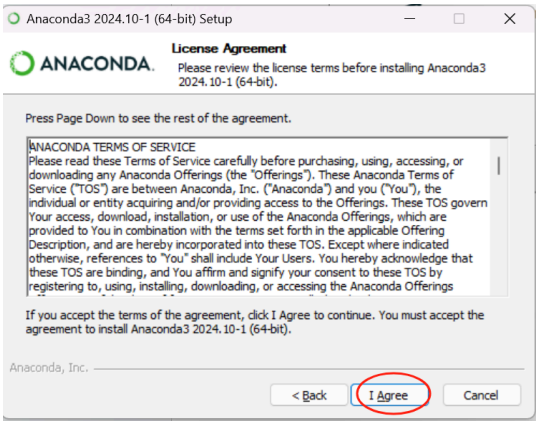


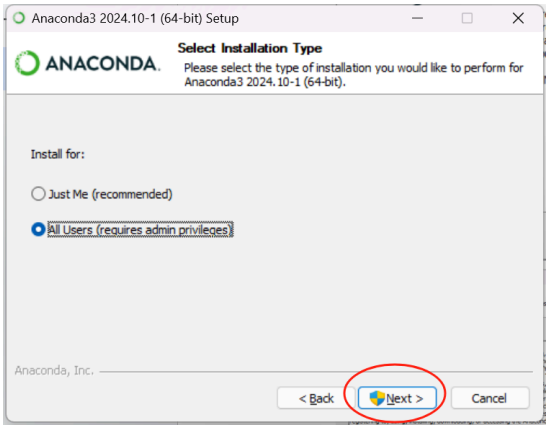
- Install the software **Anaconda** using the downloaded package.

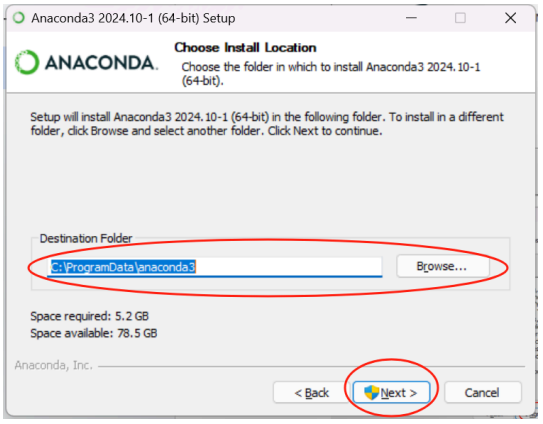


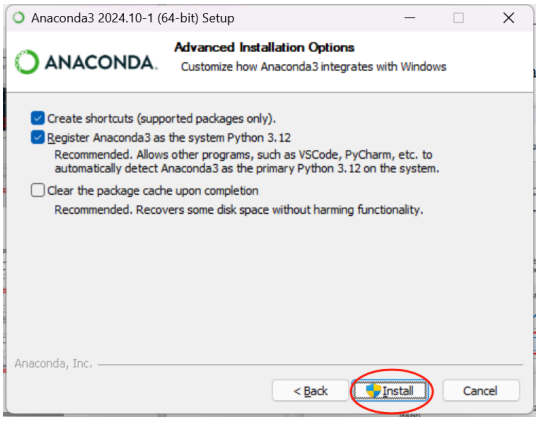
- Then, begin to install the Anaconda3 setup software.



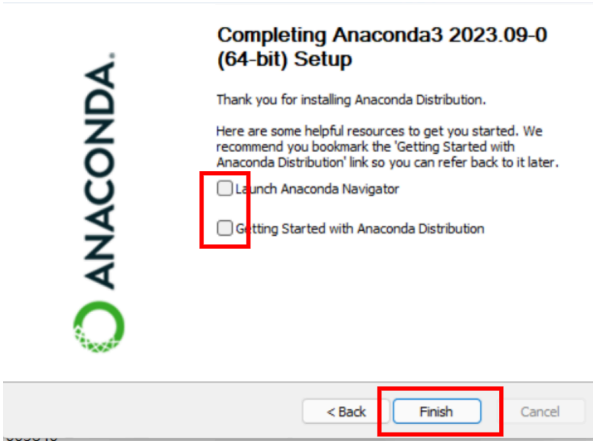




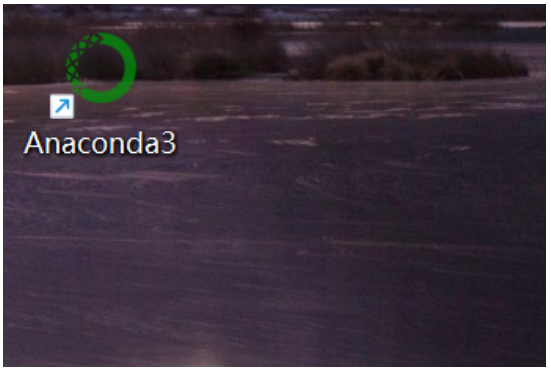




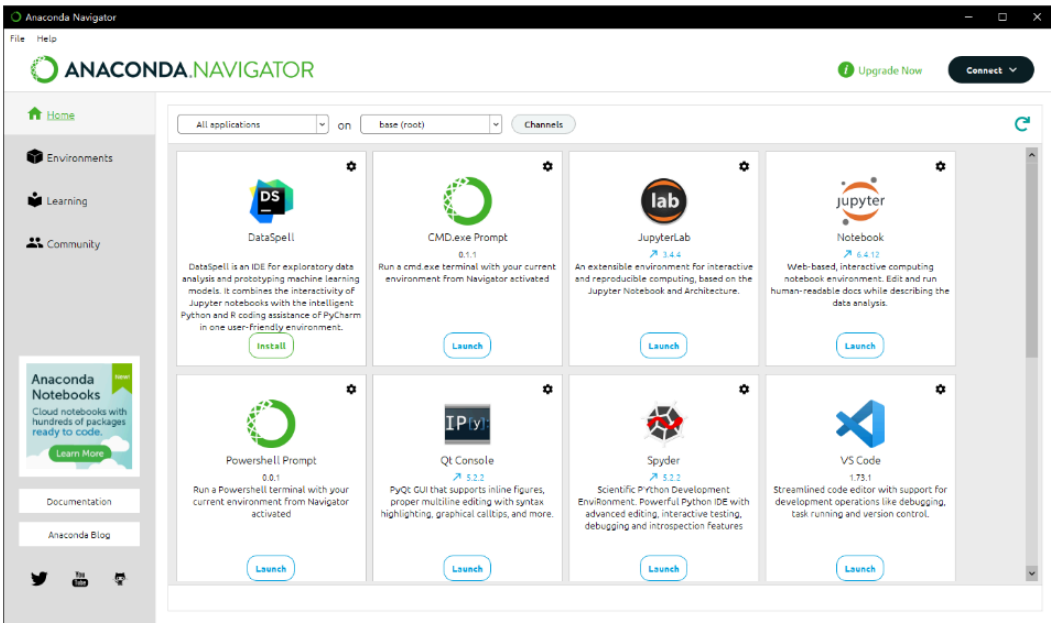
Then, after installing Anaconda3, make sure you tick the two options shown below:



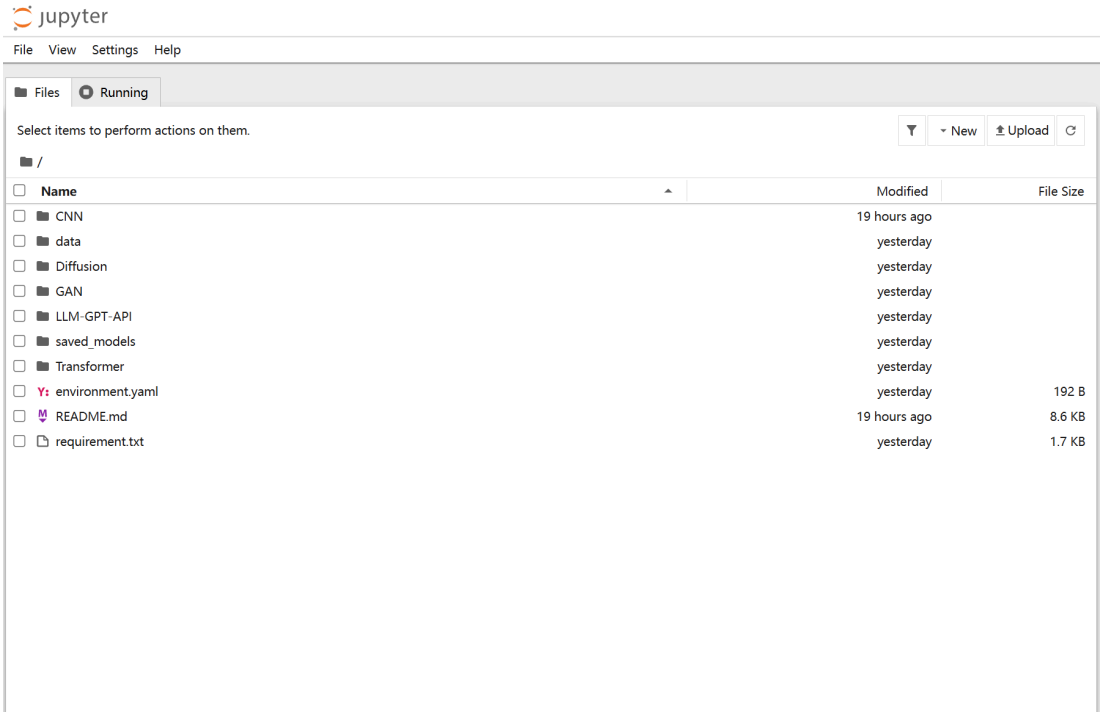
- You will be able to see the Anaconda Navigator, Anaconda Prompt on your system start page or desktop



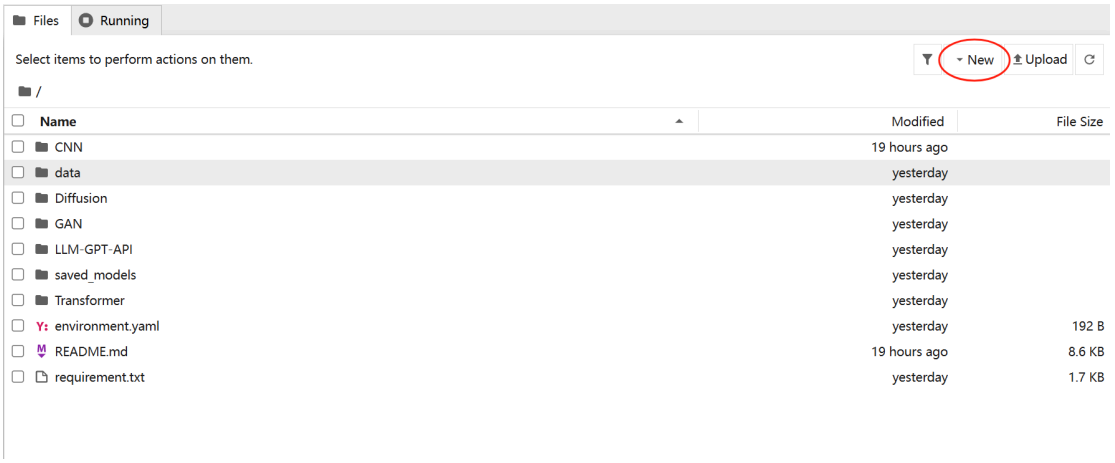
Then, open up the Anaconda Navigator or double click the green icon Anaconda3. We can enter the Navigator software and install Jupyter Notebook, which is similar to a word document app but in code content.
Once Jupyter Notebook is installed, you can launch it right within the Anaconda Navigator by clicking the button launch.

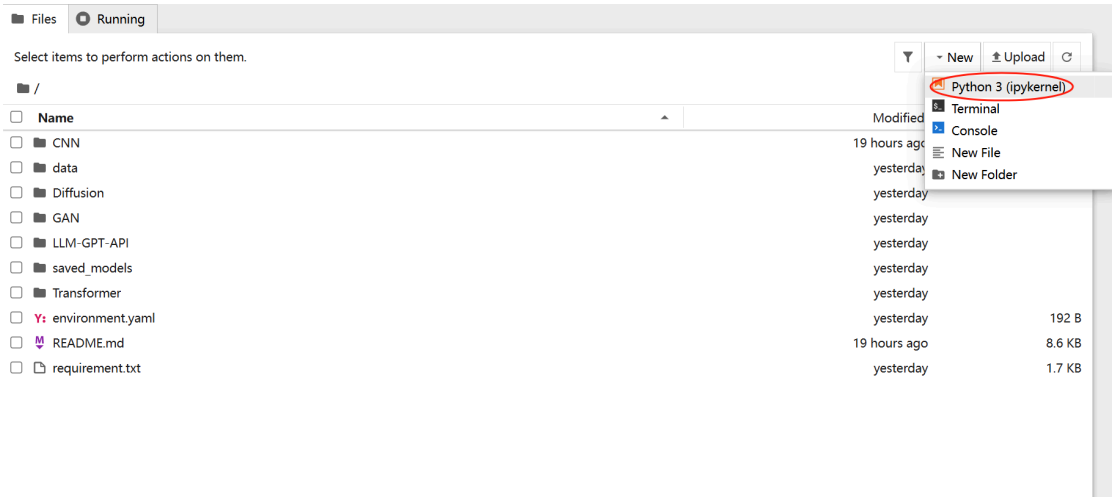


- Jupyter Notebook is a lightweight script editor, where you can easily edit, modify, and execute your code within the notebook. After launching the notebook, you shall be able to see the layout of the Notebook editor.（Take our course code as example）

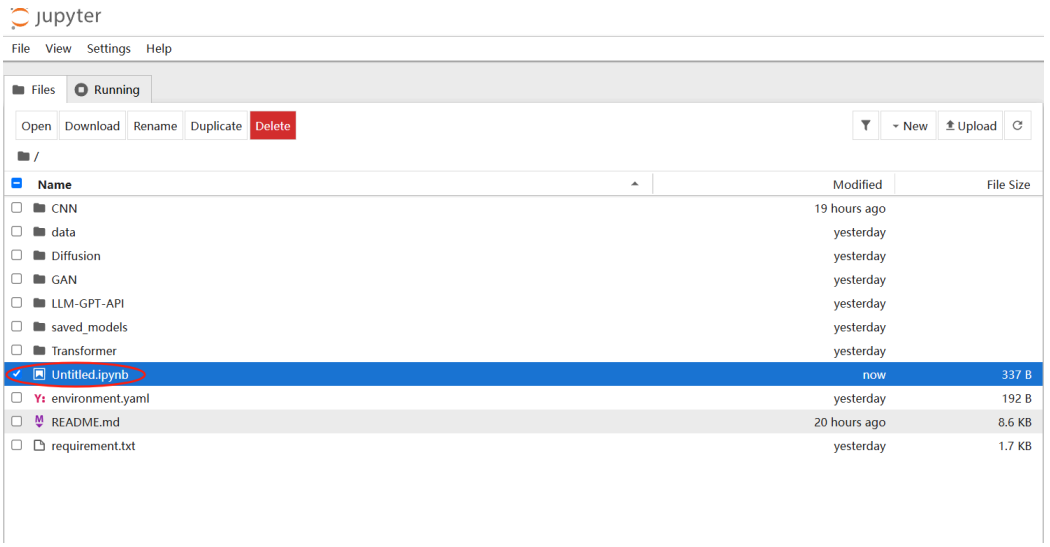


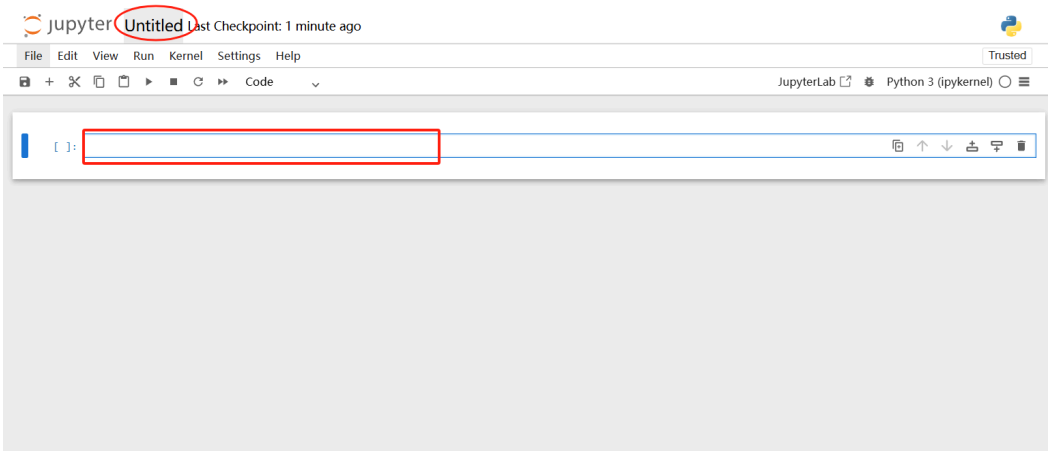
Then you can create a new Jupyter Notebook by clicking New and select the Python 3



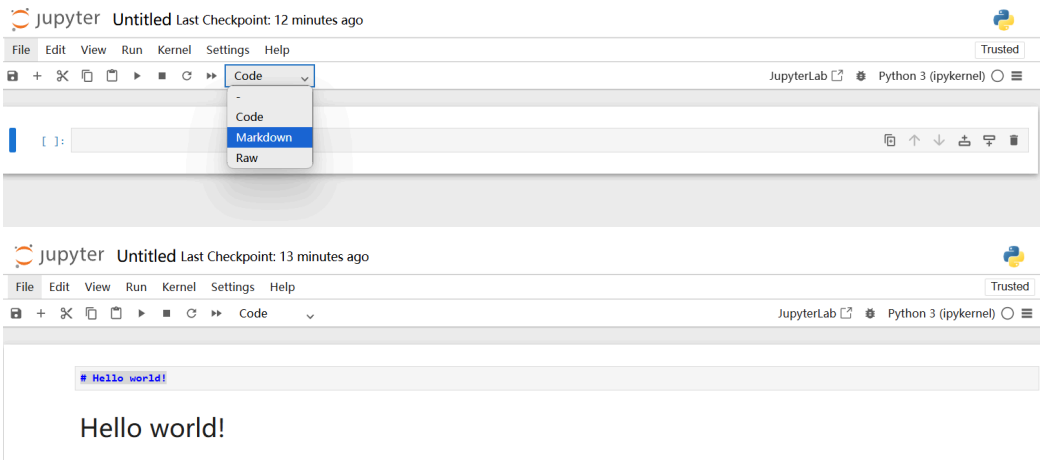


A new notebook file normally named untitled will be created for you to use. You can revise the name, code, and others of the new pop-up jupyter notebook page.





- There is code and markdown selection for each cell. If you want to take some notes and briefly introduce some background about the code, you can switch the code mode to markdown mode for you to use.



Once you finish the code or markdown notes, you can use the shortcut "**shift**" & "**enter**" to execute the cell.

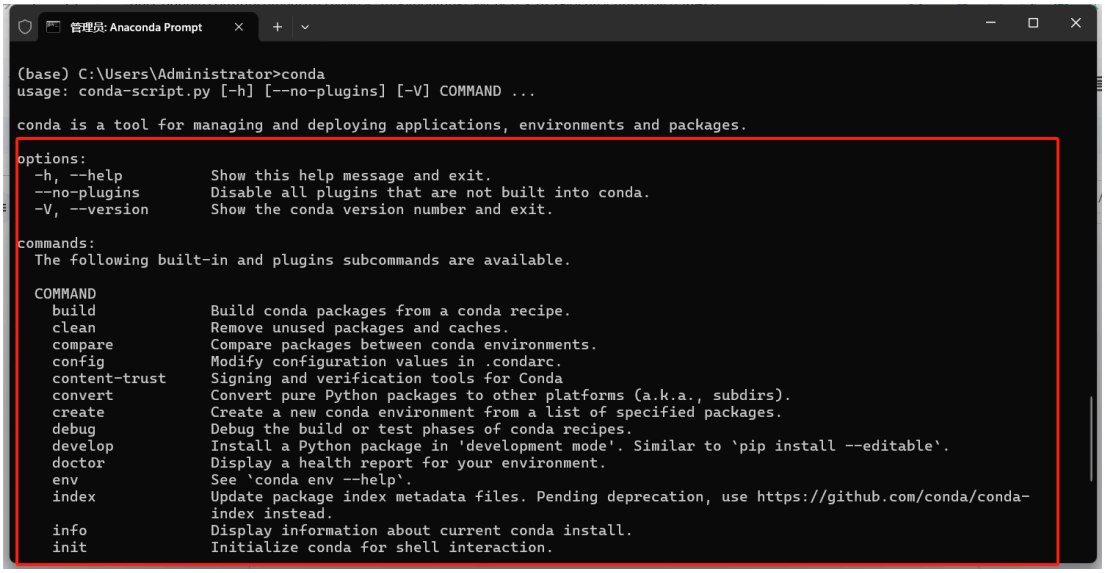
- **Creating your own virtual environment.**
  The above Jupyter Notebook together with all other packages you installed will be automatically installed on the default local environment named **base.**
  You can even create your own virtual coding environment such as CIVL3141. How to do this? Firstly, you can recall the **Anaconda Prompt** in the start page of Windows. Cick Anaconda Prompt and you can enter the base environment right now.

Once entering the virtual environment, you can create your own environment by using the command below:

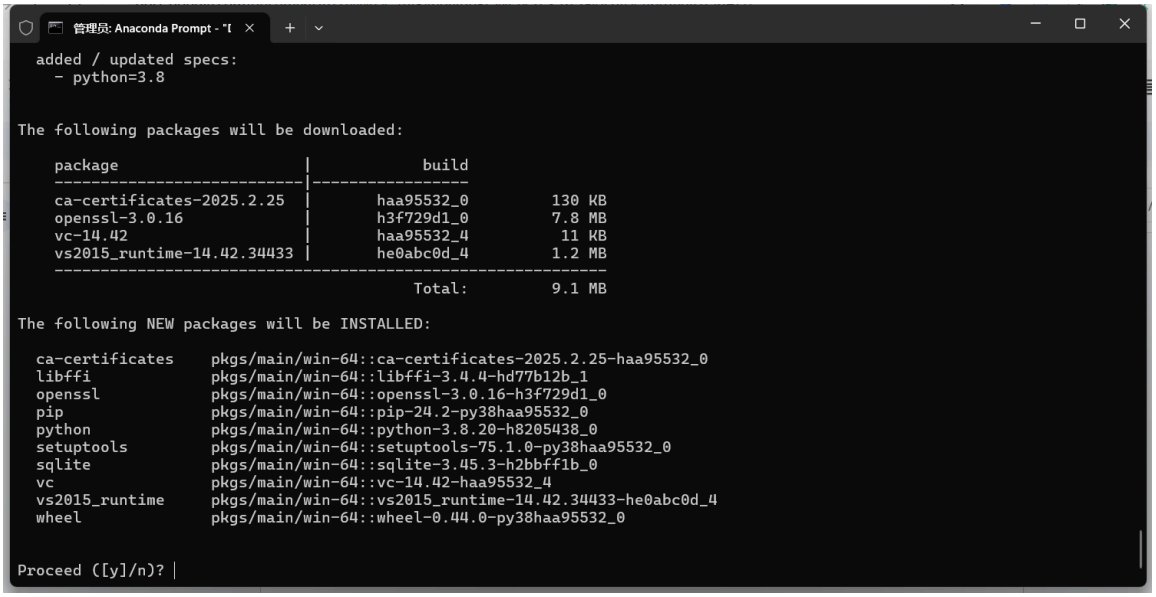
conda create -n CIVL3141 python=3.8

The above command can be illustrated as using conda to create an environment named CIVL3141 with the specific Python version equal to 3.8. For more details, please check by typing the command:

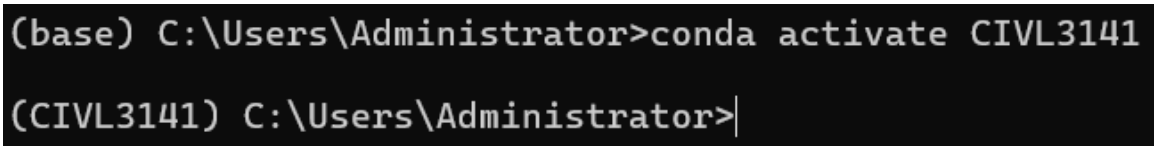
conda or **conda -h**



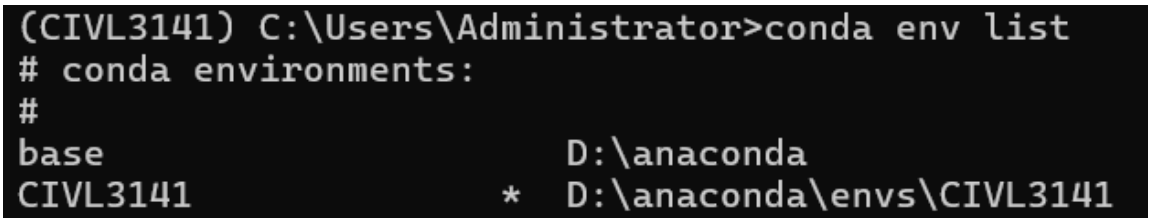
Then after enter the command **conda create -n CIVL3141 python=3.8**, you can type **Y** to agree the installation of default packages together with the specific python version.



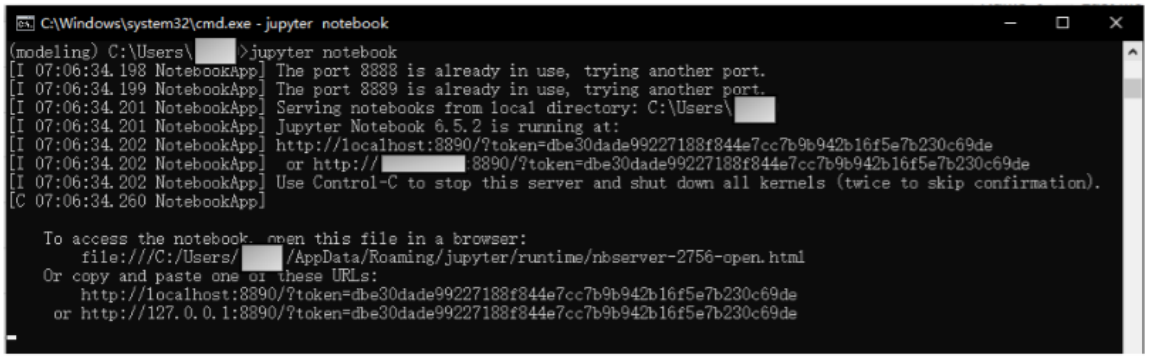
- To use the new virtual environment, you need to use the command below to enter your environment:
  conda activate CIVL3141



After entering the environment, you can install packages such as Jupyter Notebook by typing the command below:
pip install jupyter
python -m ipykernel install –name=CIVL3141 –user
then, press enter to finish the installation.
Now you can use **conda env list** to check the envs that you have already installed.



Then you can start the Jupyter Notebook under this environment by using command
jupyter notebook
You should be able to obtain the commands below:



You can access the notebook by opening the file in a browser or copy and paste the URLs that were provided.
Now you can obtain the Jupyter Notebook layout page similar to your previous one.