Purpose of the Document

1. Establish one AI development SW environment in the local PC
2. Install Python development environment
3. Install Tensorflow and Pytorch AI development environment

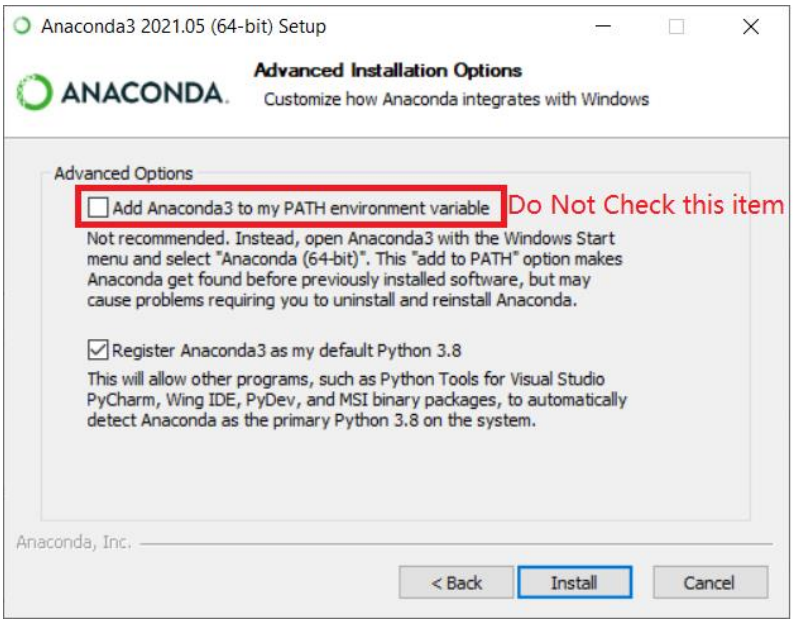
Anaconda Installation – AI Development Environment by Python

1. **Download Anaconda based on your requirement.**

   https://www.anaconda.com/pricing

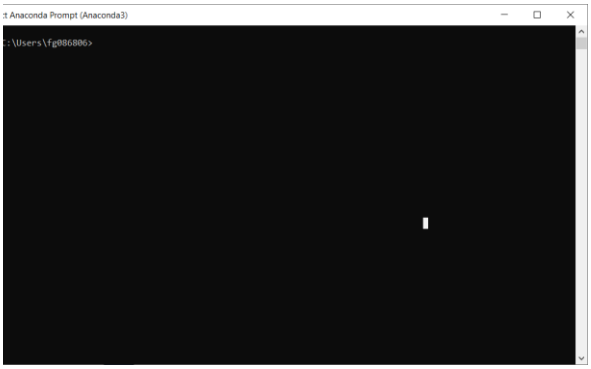
   please select the corresponding version based on your OS system.

2. **Install the Anaconda environment, pay attention to the following setting**

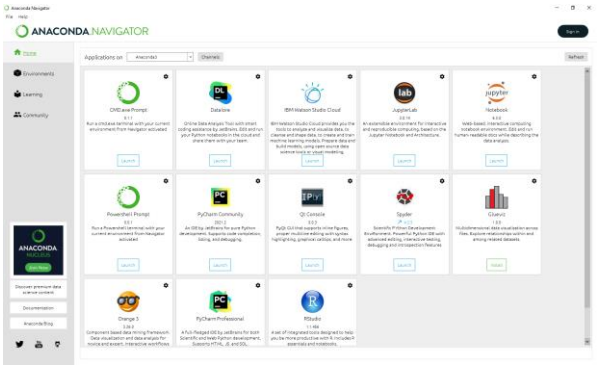


3. **Anaconda Prompt vs. Anaconda Navigator**

   We can access Anaconda through Anaconda **Prompt** or Anaconda **Navigator**. **Prompt** is command-line-based entry for experienced programmer. **Navigator** provides the graphical user interface



Anaconda Prompt

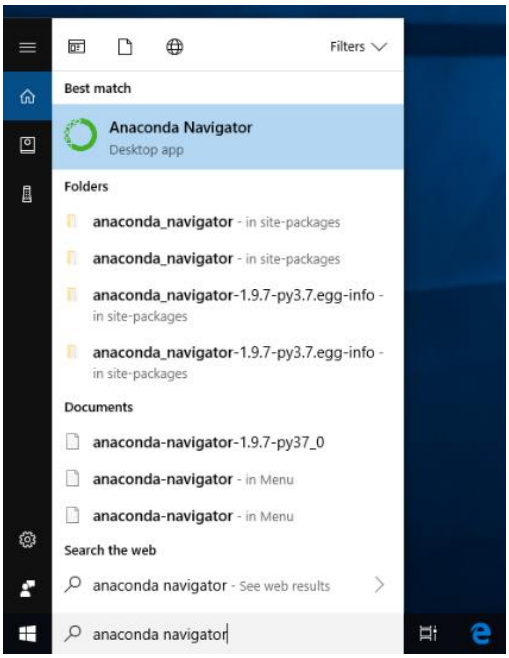


Anaconda Navigator

4. **Start Anaconda Navigator**

   Windows

   From the Start menu, click the **Anaconda Navigator** desktop app.

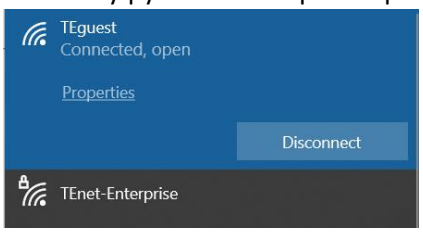


macOS

Open Launchpad, then click the Anaconda Navigator icon.

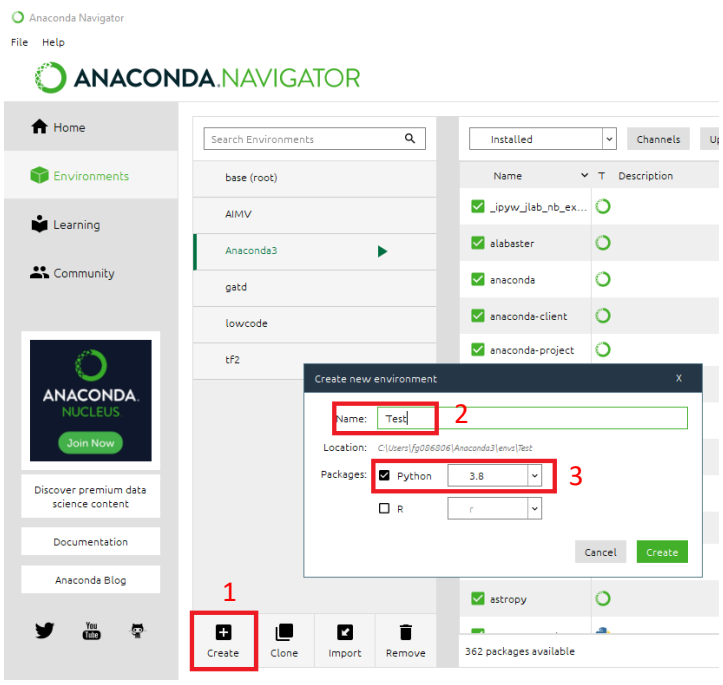
5. Switch Network

If you are using TE network, please switch to **TEguest** network, or else you can not download any necessary python development package.

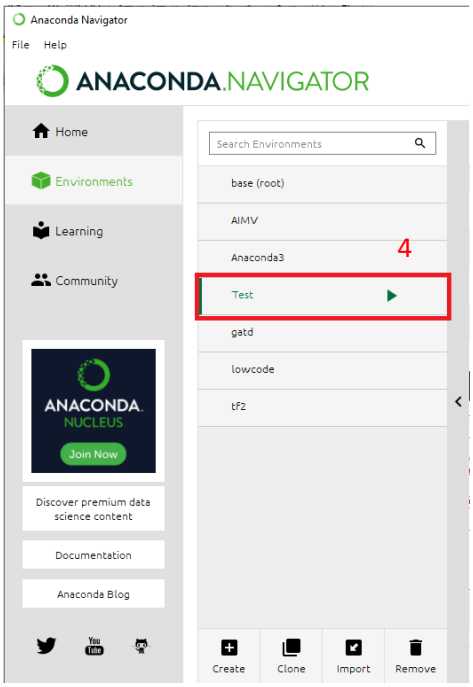


6. Create one New Anaconda Environment

Click **Create** to create one environment named **Test** with **Python 3.X** version. After a while, one **Test** environment is established



Create Test Environment



Test Environment is Created

7. Config Python Package Distribution Source (Optional)

During the usage of Python, we need to download some Python packages. If the download speed is pretty slow, you can config Python package distribution source as follows

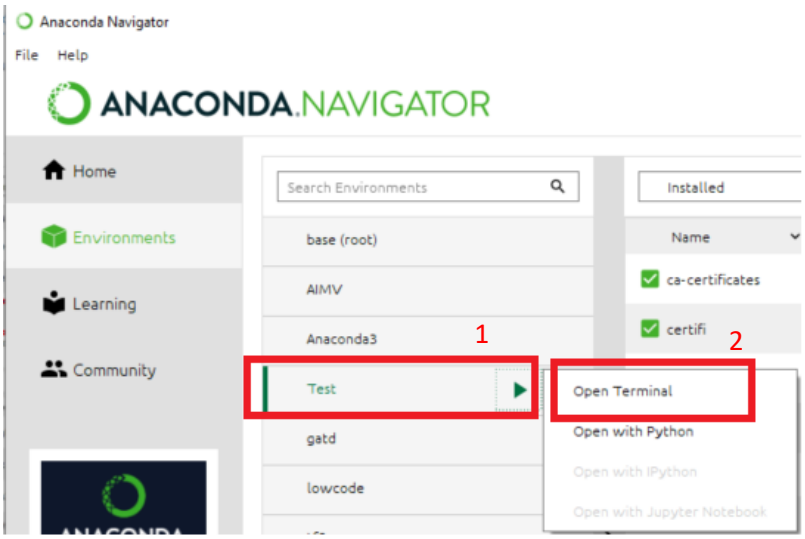
Step 1: Click **Test**

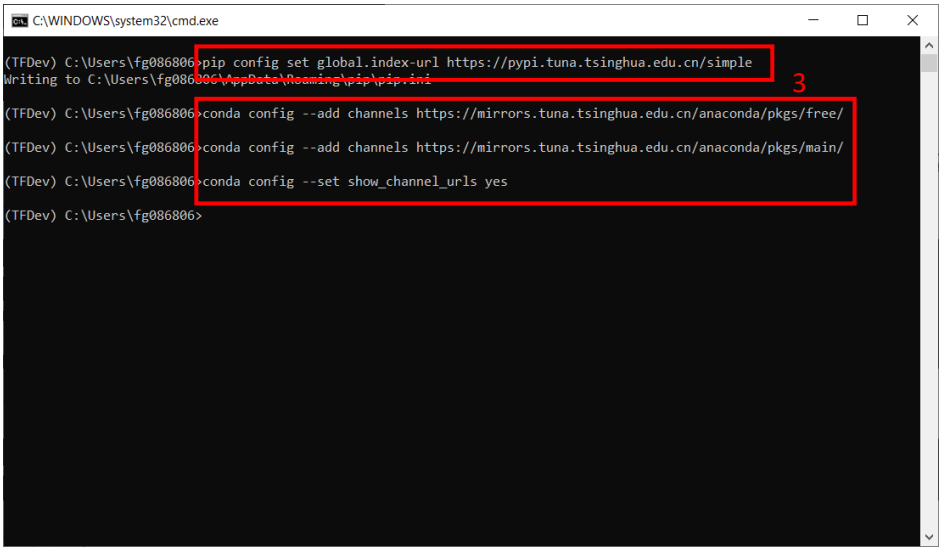
Step 2: Click **Open Terminal**

Step 3: Paste following command in **Terminal**, then press **Enter**

```
pip config set global.index-url https://pypi.tuna.tsinghua.edu.cn/simple
conda config --add channels https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free/
conda config --add channels https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/main/
conda config --set show_channel_urls yes
```

Step 4: Close **Terminal**





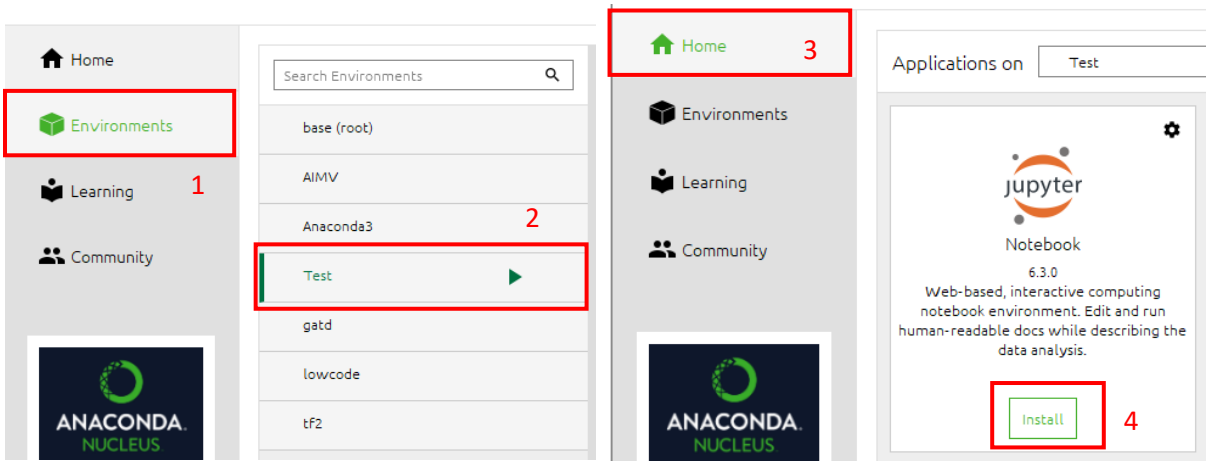
8. Install Jupyter Notebook

Step 1: Switch to **Environment** tab

Step 2: Click **Test** environment for activation

Step 3: Switch to **Home** tab

Step 4: find **jupyter notebook** and click **Install**



9. “Hello World” by Python in Jupyter Notebook

Step 1: Switch to **Environment** tab

Step 2: Click **Test** environment for activation

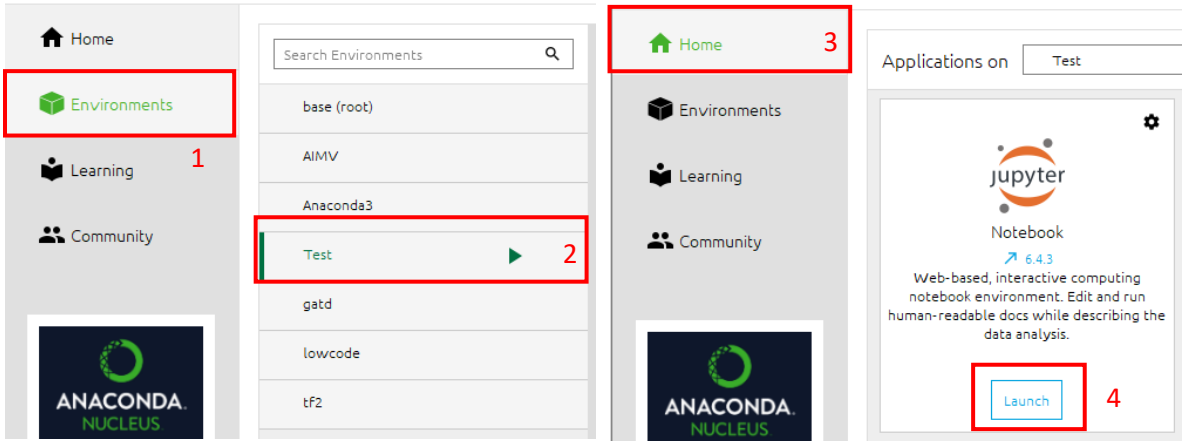
Step 3: Switch to **Home** tab

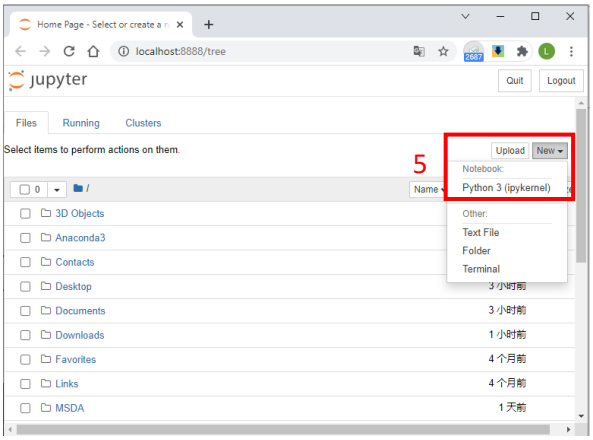
Step 4: find **jupyter notebook** and click **Launch,** one jupyter notebook will be opened in the browser

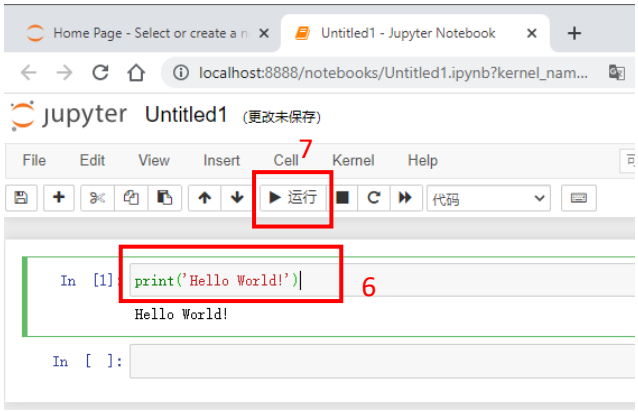
Step 5: Click **New** -> **Python 3 (ipykernel)** to create one new notebook

Step 6: Write down **print('Hello World!')** in the notebook

Step 7: Click Run, **Hello World!** will be printed by Python







Extended Reading:

Usage of Anaconda: https://docs.anaconda.com/

Python Tutorial: https://docs.python.org/3.8/tutorial/index.html

Usage of Jupyter Notebook: https://jupyter.org/documentation

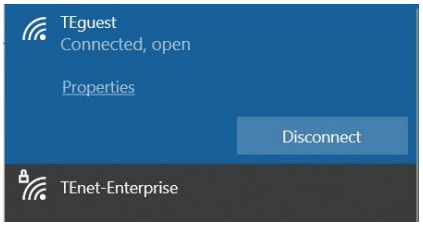
Tensorflow Installation

1. Preparation

1) Anaconda is installed correctly
2) Please use the Tensorflow CPU version if your PC doesn't have one NVIDIA GPU
3) Please use the Tensorflow GPU version if your PC has one NVIDIA GPU
4) NVIDIA GPU is recommended to accelerate the speed of AI processing, please upgrade your NVIDIA GPU driver to the latest version

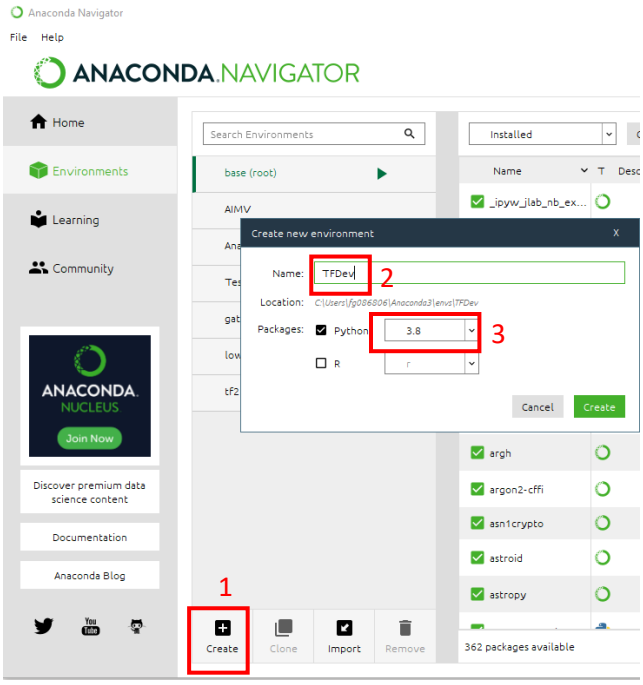
2. Switch Network

If you are using TE network, please switch to **TEguest** network, or else you can not download any necessary python development package.



3. Create Anaconda Environment

Click **Create** to create one environment named **TFDev** with **Python 3.X** version. After a while, one **TFDev** environment is established



4. Config Python Package Distribution Source (Optional)

During the usage of Python, we need to download some Python packages. If the download speed is pretty slow, you can config Python package distribution source as follows

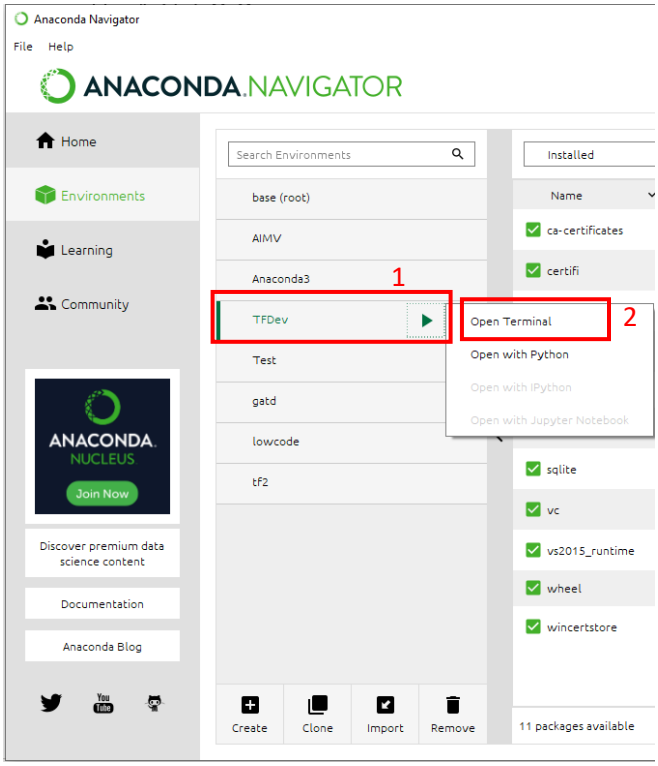
Step 1: Click **TFDev**

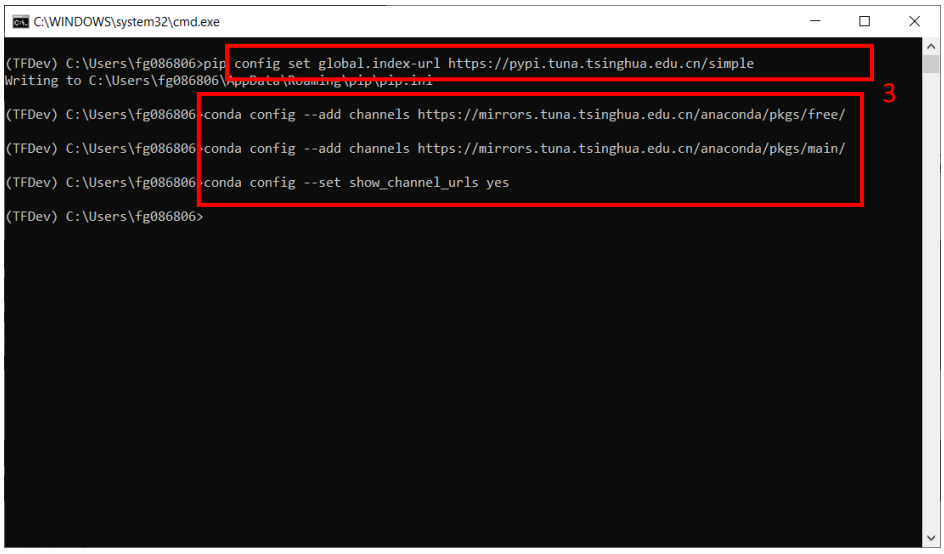
Step 2: Click **Open Terminal**

Step 3: Paste following commands one by one in **Terminal**, then press **Enter**

```
pip config set global.index-url https://pypi.tuna.tsinghua.edu.cn/simple
conda config --add channels https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free/
conda config --add channels https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/main/
conda config --set show_channel_urls yes
```

Step 4: Close **Terminal**





5. Check the Available Tensorflow Version

Step 1: Click **TFDev**

Step 2: Click **Open Terminal**

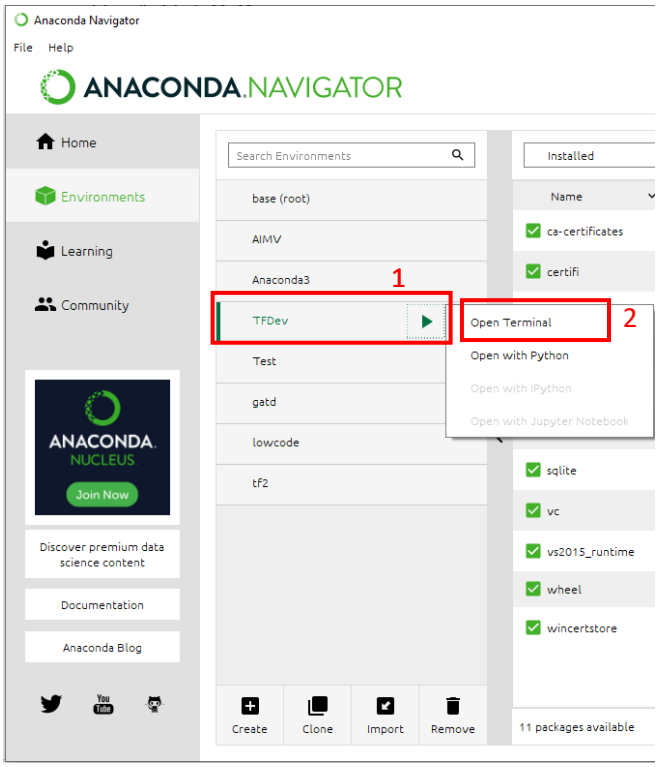
Step 3 for Tensorflow CPU Version: Paste following command in **Terminal**, then press Enter

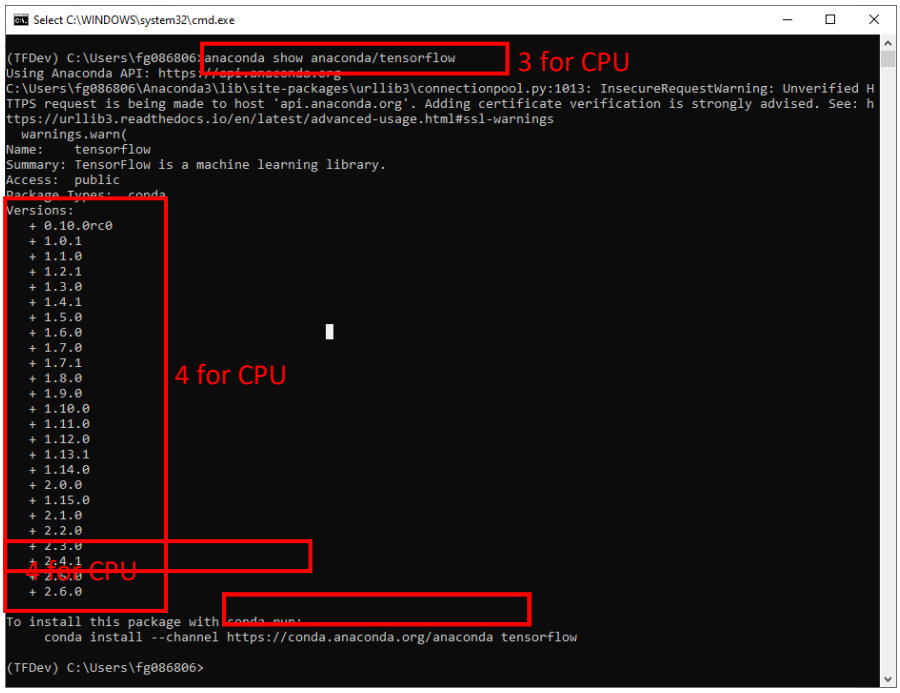
anaconda show anaconda/tensorflow

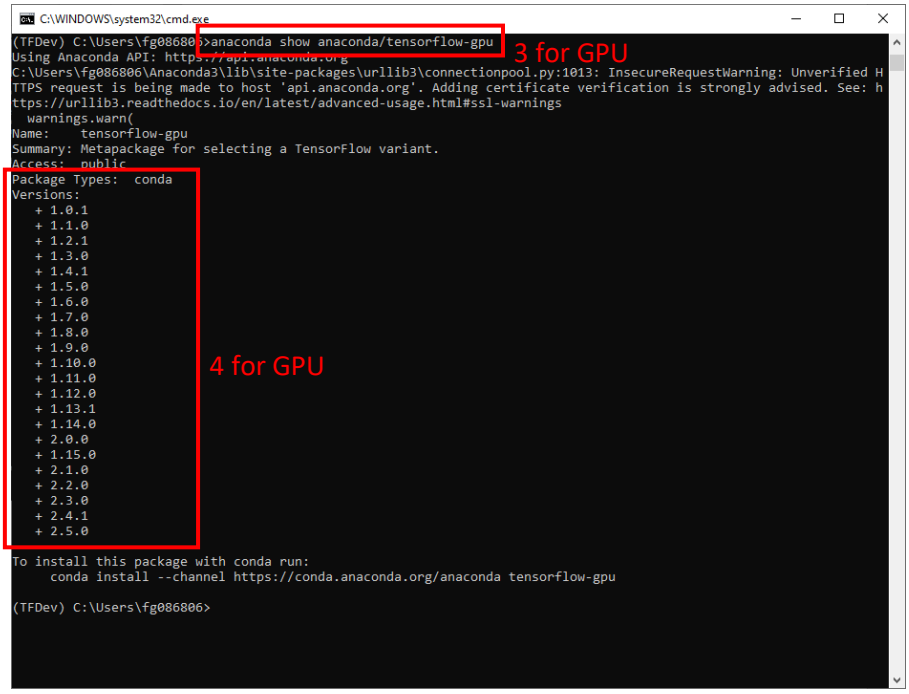
Step 3 for Tensorflow GPU Version: Paste following command in **Terminal**, then press Enter

anaconda show anaconda/tensorflow-gpu

Step 4: All the available tensorflow package will be shown in the **Terminal**, if the available versions are not shown, please check your network connection







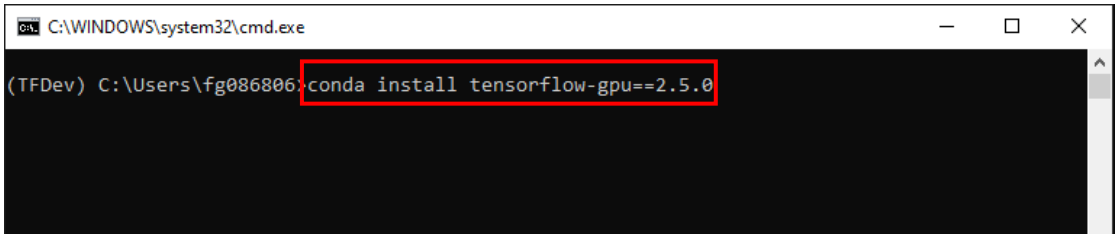
6. Install the Available Tensorflow Version

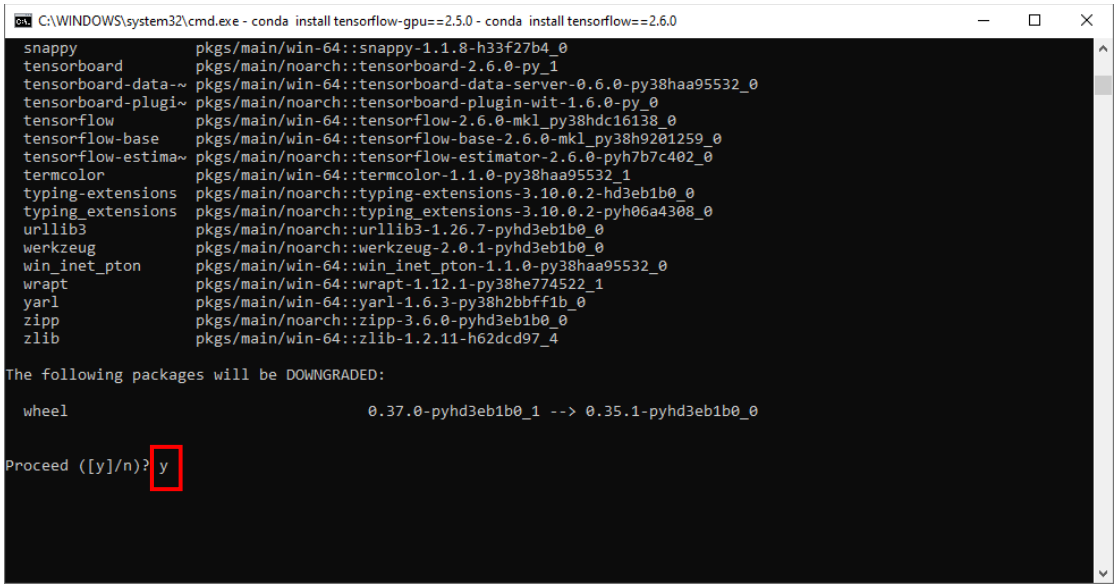
- Tensorflow CPU Version: Paste following command in **Terminal**, then press **Enter**, 2.6.0 can be replaced by any available version listed above. After a while, input **Y** to approve the installation

  conda install tensorflow==2.6.0

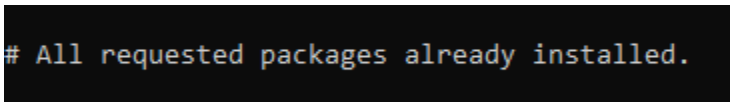
- Tensorflow GPU Version: Paste following command in **Terminal**, then press **Enter**, 2.5.0 can be replaced by any available version listed above. After a while, input **Y** to approve the installation

  conda install tensorflow-gpu==2.5.0





- Make sure “All requested packages already installed” is shown, if not, please check your network connection and retry to run the command above



7. “Hello Tensorflow” in Jupyter Notebook

Step 1: Switch to **Environment** tab

Step 2: Click **TFDev** environment for activation

Step 3: Switch to **Home** tab

Step 4: find **jupyter notebook** and click **Launch,** one jupyter notebook will be opened in the browser.
If jupyter notebook is not installed, firstly install it

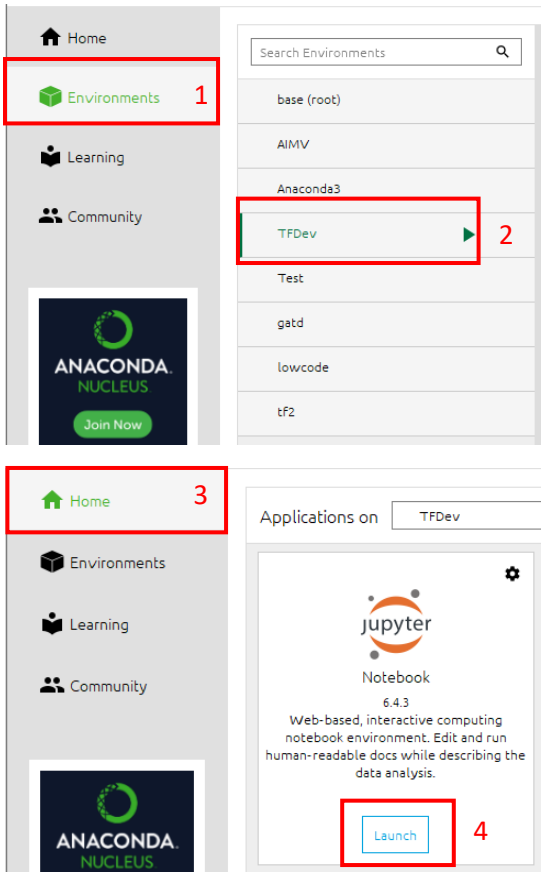
Step 5: Click **New** -> **Python 3 (ipykernel)** to create one new notebook

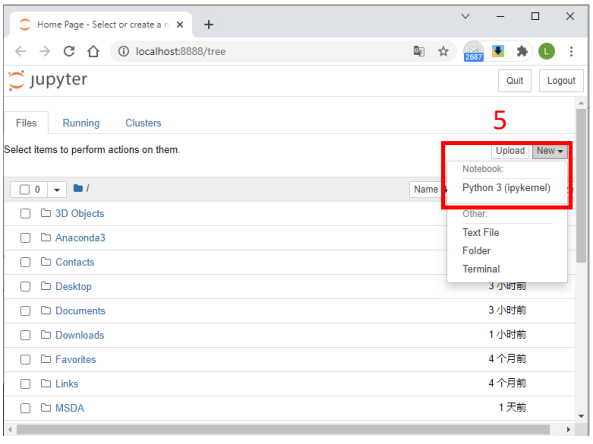
Step 6: Write down the following in the notebook

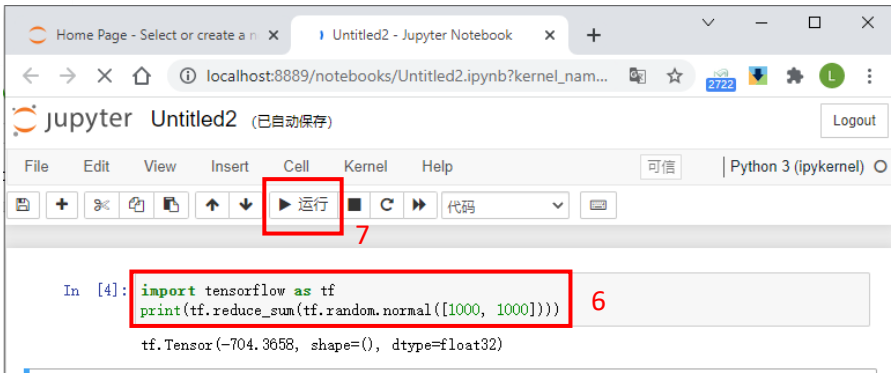
import tensorflow as tf

print(tf.reduce_sum(tf.random.normal([1000, 1000])))

Step 7: Click Run, one random value will be calculated by Tensorflow






Home Page - Select or create a n
Untitled2 - Jupyter Notebook
localhost:8889/notebooks/Untitled2.ipynb?kernel_nam...
jupyter Untitled2 (已自动保存)
Logout
File Edit View Insert Cell Kernel Help
可信
Python 3 (ipykernel)
运行
代码
7
In [4]:
import tensorflow as tf
print(tf.reduce_sum(tf.random.normal([1000, 1000])))
6
tf.Tensor(-704.3658, shape=(), dtype=float32)

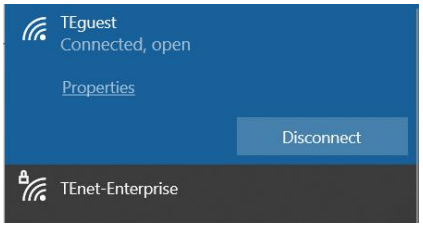
PyTorch Installation

1. Preparation

1) Anaconda is installed correctly
2) NVIDIA GPU is necessary for PyTorch environment, please upgrade your NVIDIA GPU driver to the latest version

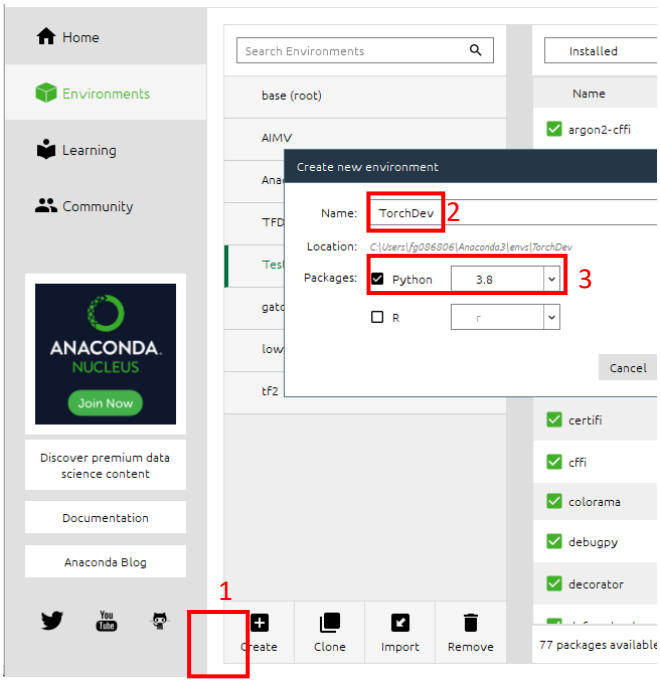
2. Switch Network

If you are using TE network, please switch to **TEguest** network, or else you can not download any necessary python development package.



3. Create Anaconda Environment

Click **Create** to create one environment named **TorchDev** with **Python 3.X** version. After a while, one **TorchDev** environment is established



4. Config Python Package Distribution Source (Optional)

During the usage of Python, we need to download some Python packages. If the download speed is pretty slow, you can config Python package distribution source as follows

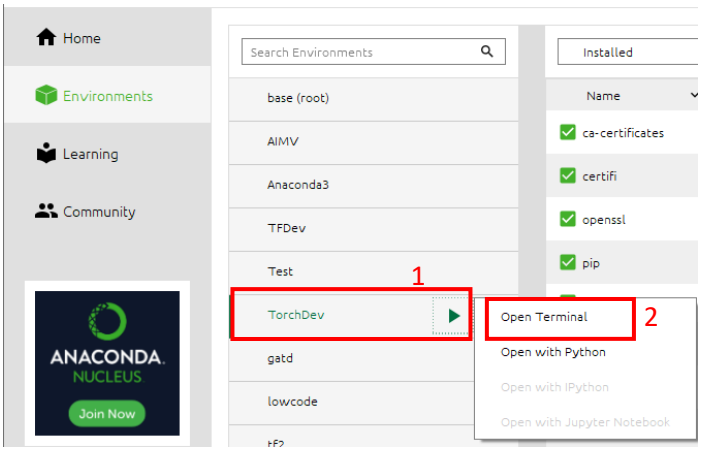
Step 1: Click **TorchDev**

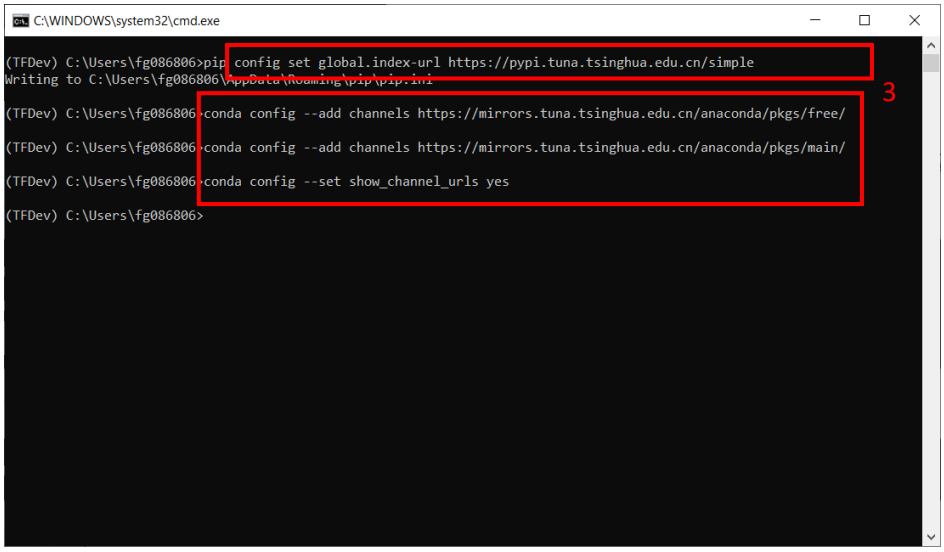
Step 2: Click **Open Terminal**

Step 3: Paste following commands one by one in **Terminal**, then press **Enter**

```
pip config set global.index-url https://pypi.tuna.tsinghua.edu.cn/simple
conda config --add channels https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free/
conda config --add channels https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/main/
conda config --set show_channel_urls yes
```

Step 4: Close **Terminal**



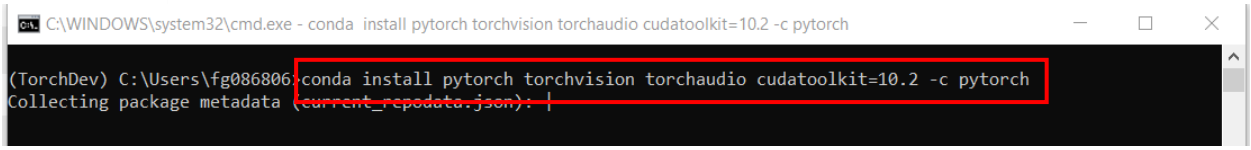


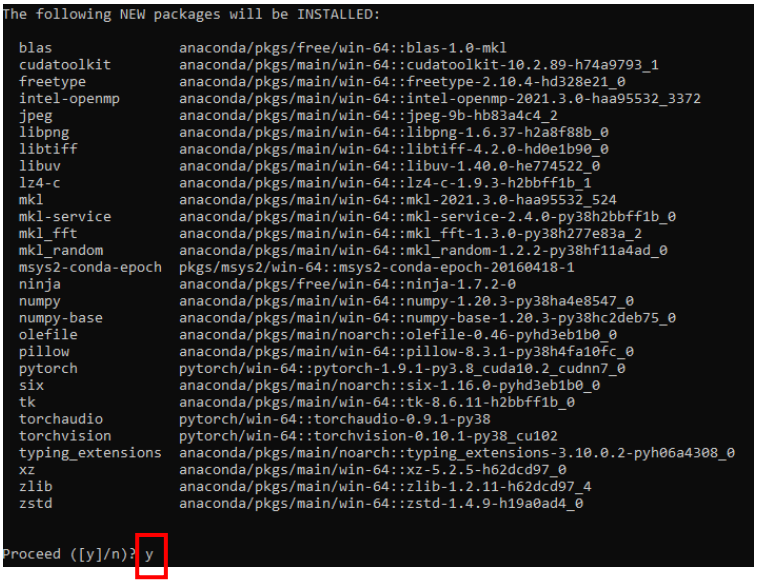
5. Install the Available PyTorch Version

- Paste following command in **Terminal**, then press **Enter**. After a while, input **Y** to approve the installation

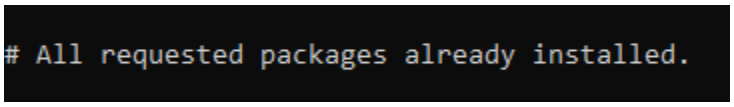
  conda install pytorch torchvision torchaudio cudatoolkit=10.2 -c pytorch

- For other available PyTorch Version, please find it in the website
  https://pytorch.org/get-started/locally/#windows-anaconda
  https://pytorch.org/get-started/previous-versions/





- Make sure “All requested packages already installed” is shown, if not, please check your network connection and retry to run the command above



6. “Hello PyTorch” in Jupyter Notebook

Step 1: Switch to **Environment** tab

Step 2: Click **TorchDev** environment for activation

Step 3: Switch to **Home** tab

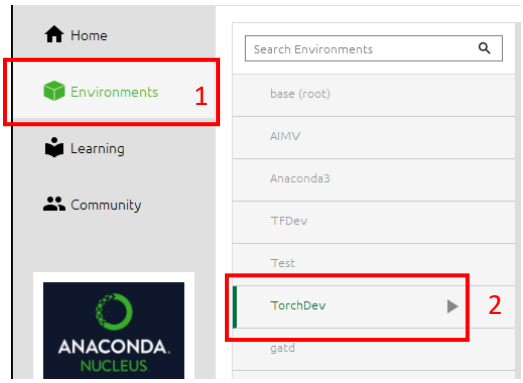
Step 4: find **jupyter notebook** and click **Launch,** one jupyter notebook will be opened in the browser.
If jupyter notebook is not installed, firstly install it

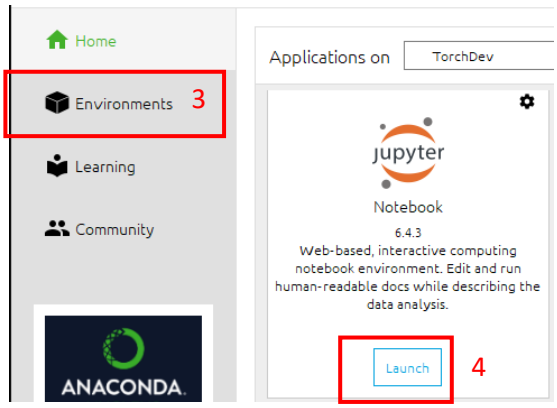
Step 5: Click **New** -> **Python 3 (ipykernel)** to create one new notebook

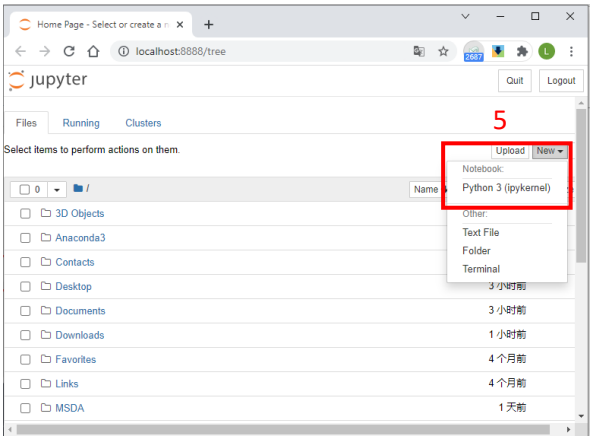
Step 6: Write down the following in the notebook

```
import torch
x = torch.rand(5, 3)
print(x)
```

Step 7: Click Run, one 5*3 matrix with random value will be calculated by PyTorch


Home
Environments
1
Learning
Community
ANACONDA.
NUCLEUS
Search Environments
base (root)
AIMV
Anaconda3
TFDev
Test
TorchDev
2
gatd


Home
Environments
3
Learning
Community
ANACONDA.
Applications on
TorchDev
jupyter
Notebook
6.4.3
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.
Launch
4


Home Page - Select or create a n
localhost:8888/tree
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Files
Running
Clusters
5
Select items to perform actions on them.
Upload
New
Notebook:
Python 3 (ipykernel)
Other:
Text File
Folder
Terminal
3D Objects
Anaconda3
Contacts
Desktop
Documents
Downloads
Favorites
Links
MSDA
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3 小时前
1 小时前
4 个月前
4 个月前
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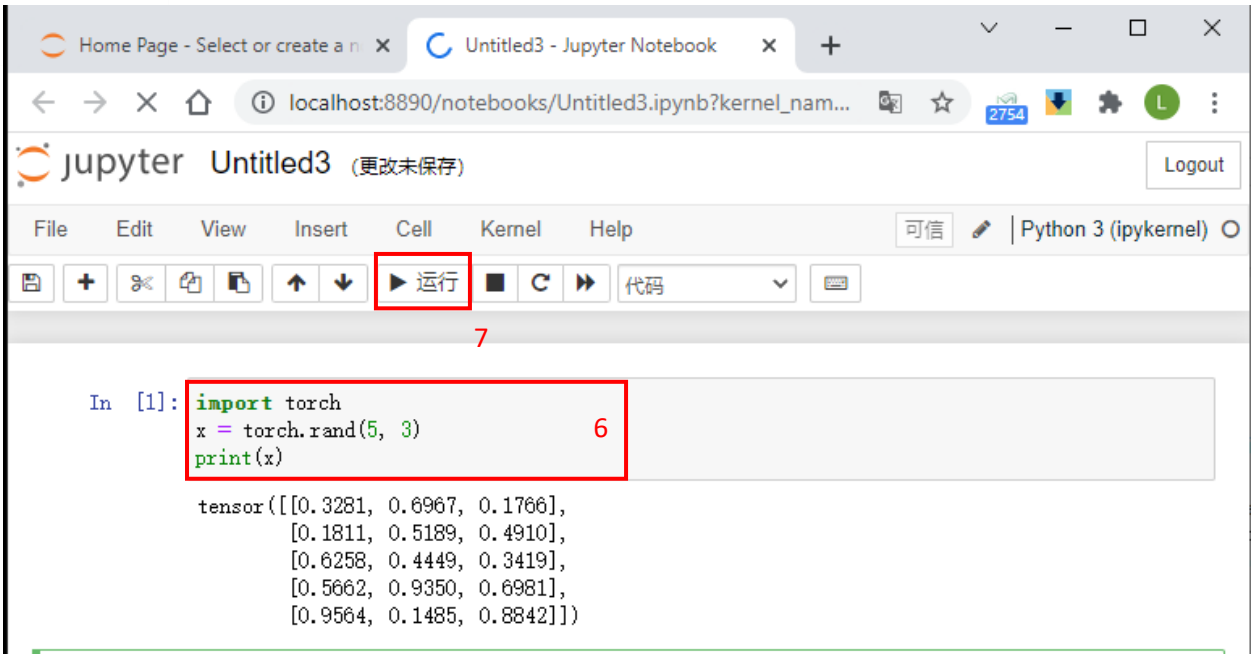
Home Page - Select or create a n
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Logout
File Edit View Insert Cell Kernel Help
可信
Python 3 (ipykernel)
运行
代码
7
In [1]:
import torch
x = torch.rand(5, 3)
print(x)
6
tensor([[0.3281, 0.6967, 0.1766],
[0.1811, 0.5189, 0.4910],
[0.6258, 0.4449, 0.3419],
[0.5662, 0.9350, 0.6981],
[0.9564, 0.1485, 0.8842]])