LAB1 - PYTHON練習

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2021, Fall Semester

Anaconda

Anaconda是目前最受歡迎的Python數據科學平台。

適用於Windows、Linux和MacOS 不同作業系統環境下的conda軟件包(package)和虛擬環境管理器。

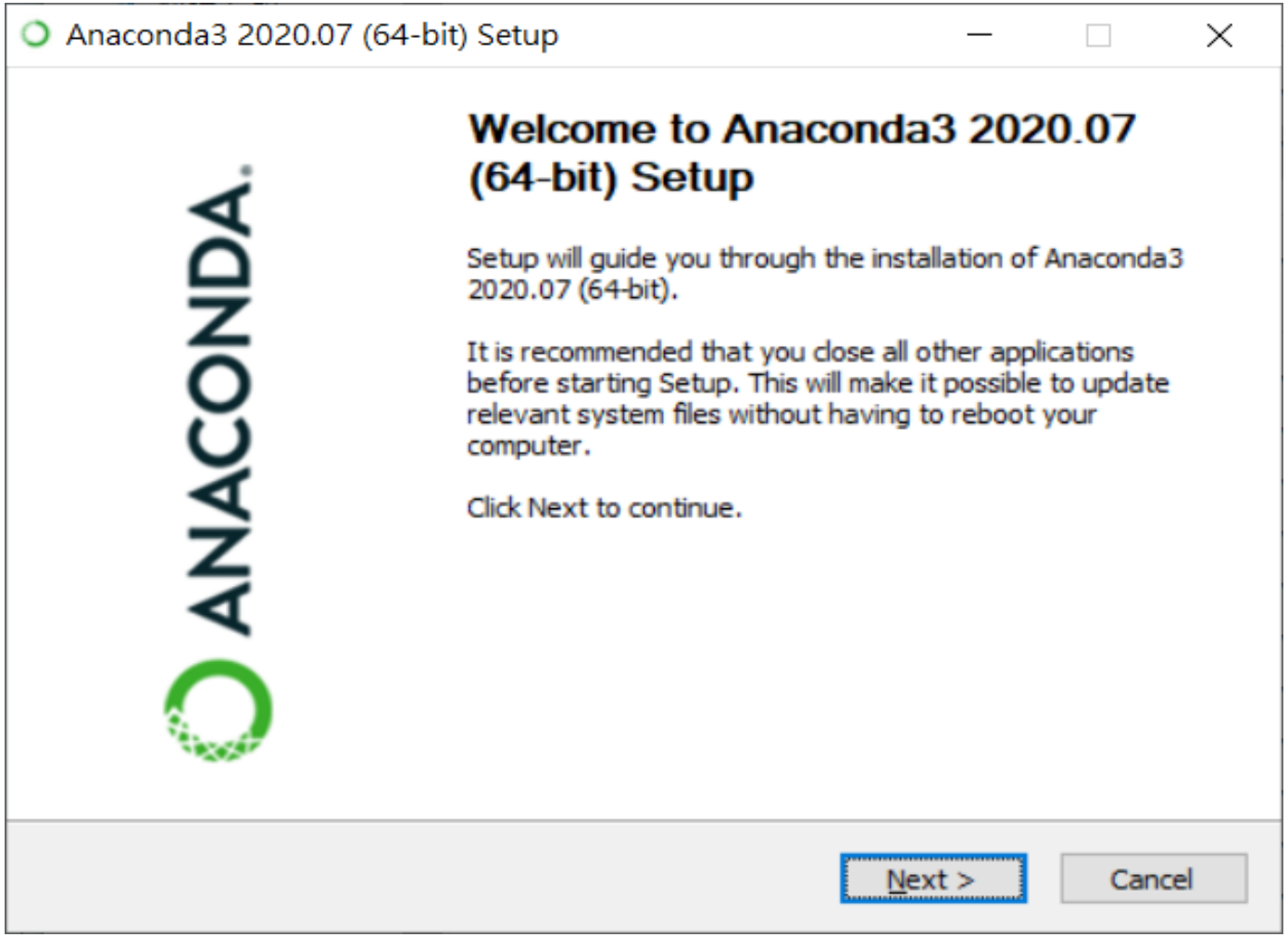
對於在安裝、執行及升級複雜的數據科學(Data Science)及機器學習(Machine Learning)環境上變得簡單快速。

Anaconda

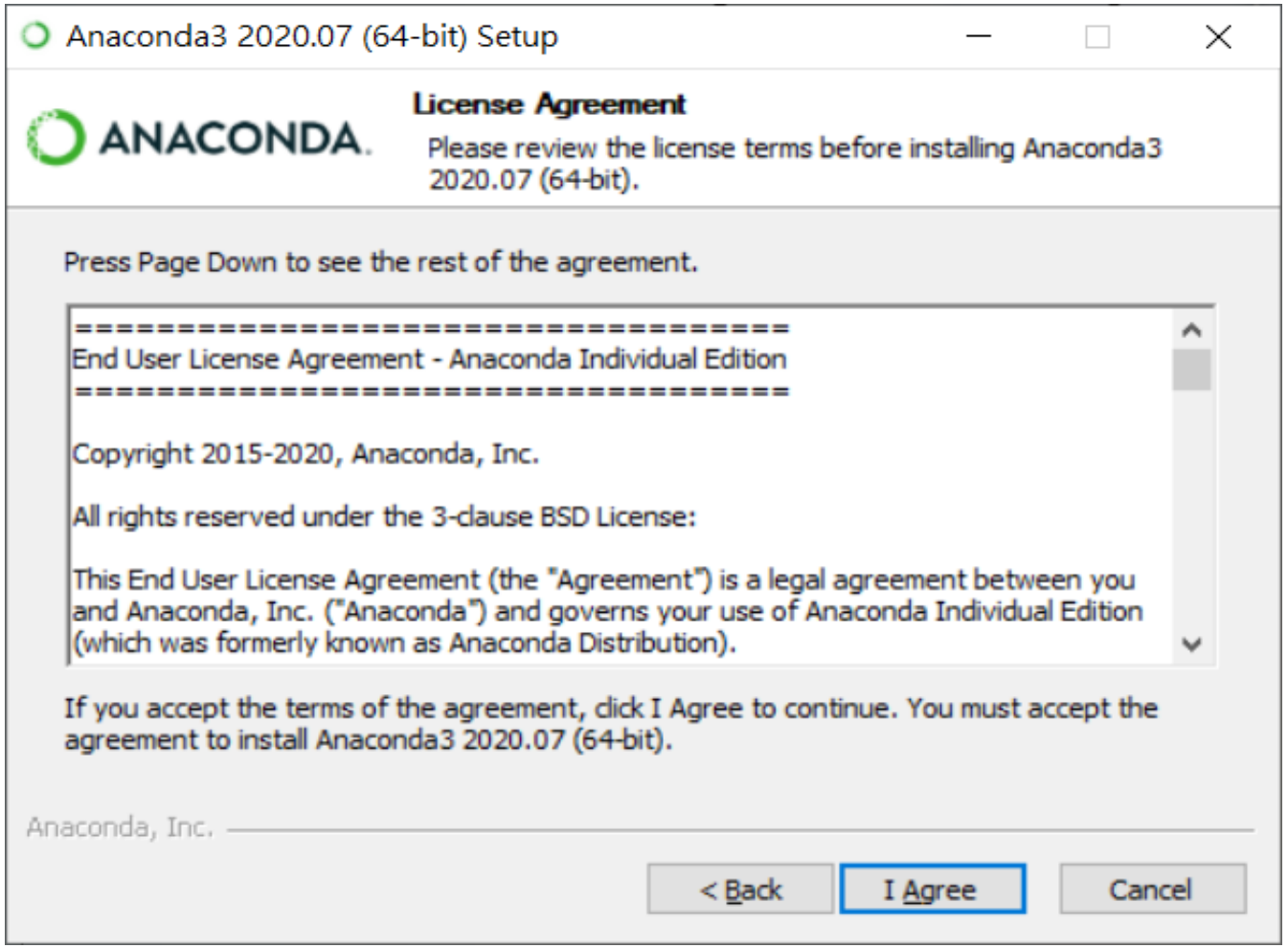
Anaconda官網https://www.anaconda.com/download/

下載所需作業系統(有Windows、macOS和 Linux可選擇)的Anaconda版本

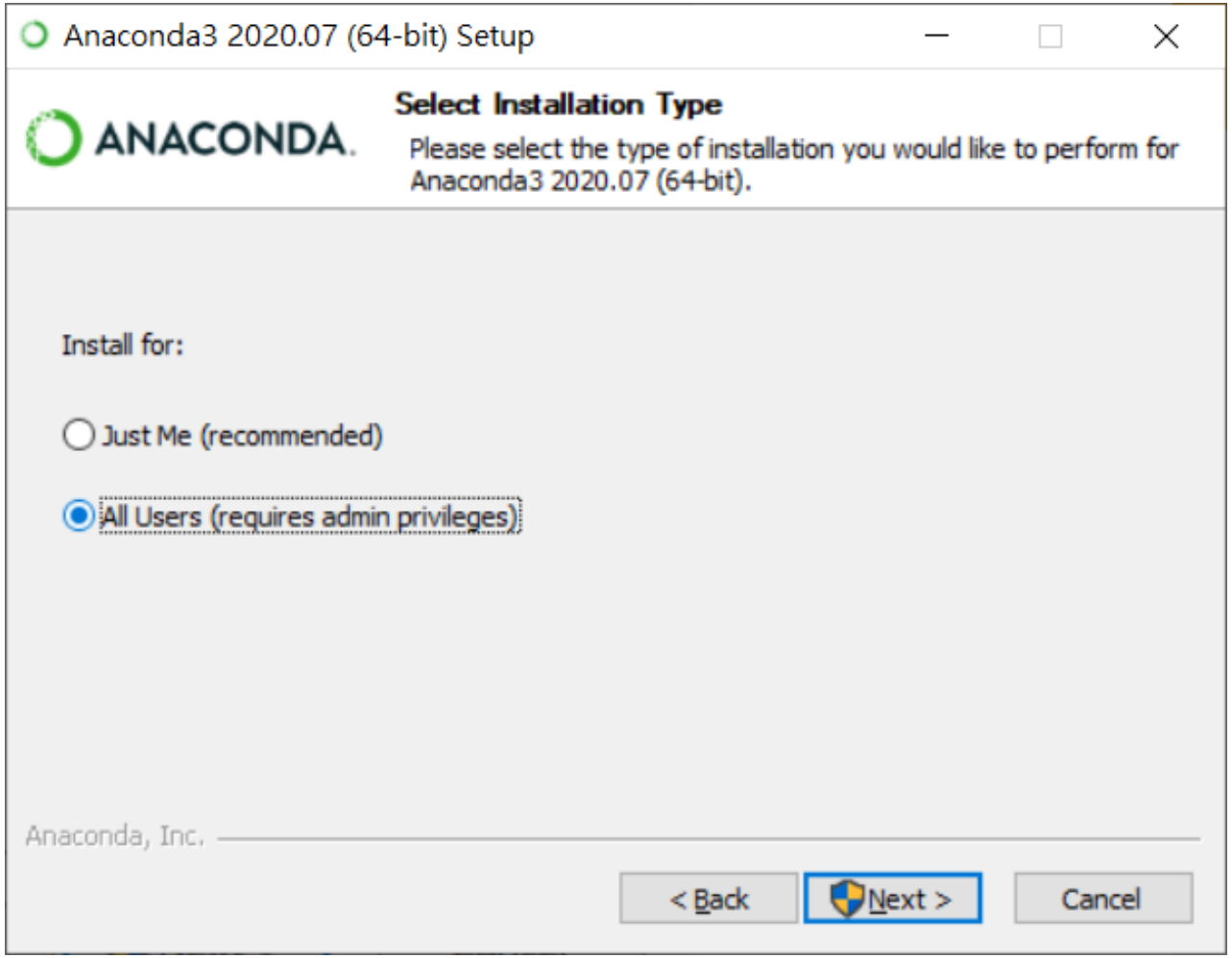
Anaconda


Anaconda3 2020.07 (64-bit) Setup
ANACONDA.
Welcome to Anaconda3 2020.07 (64-bit) Setup
Setup will guide you through the installation of Anaconda3 2020.07 (64-bit).
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
Next >
Cancel

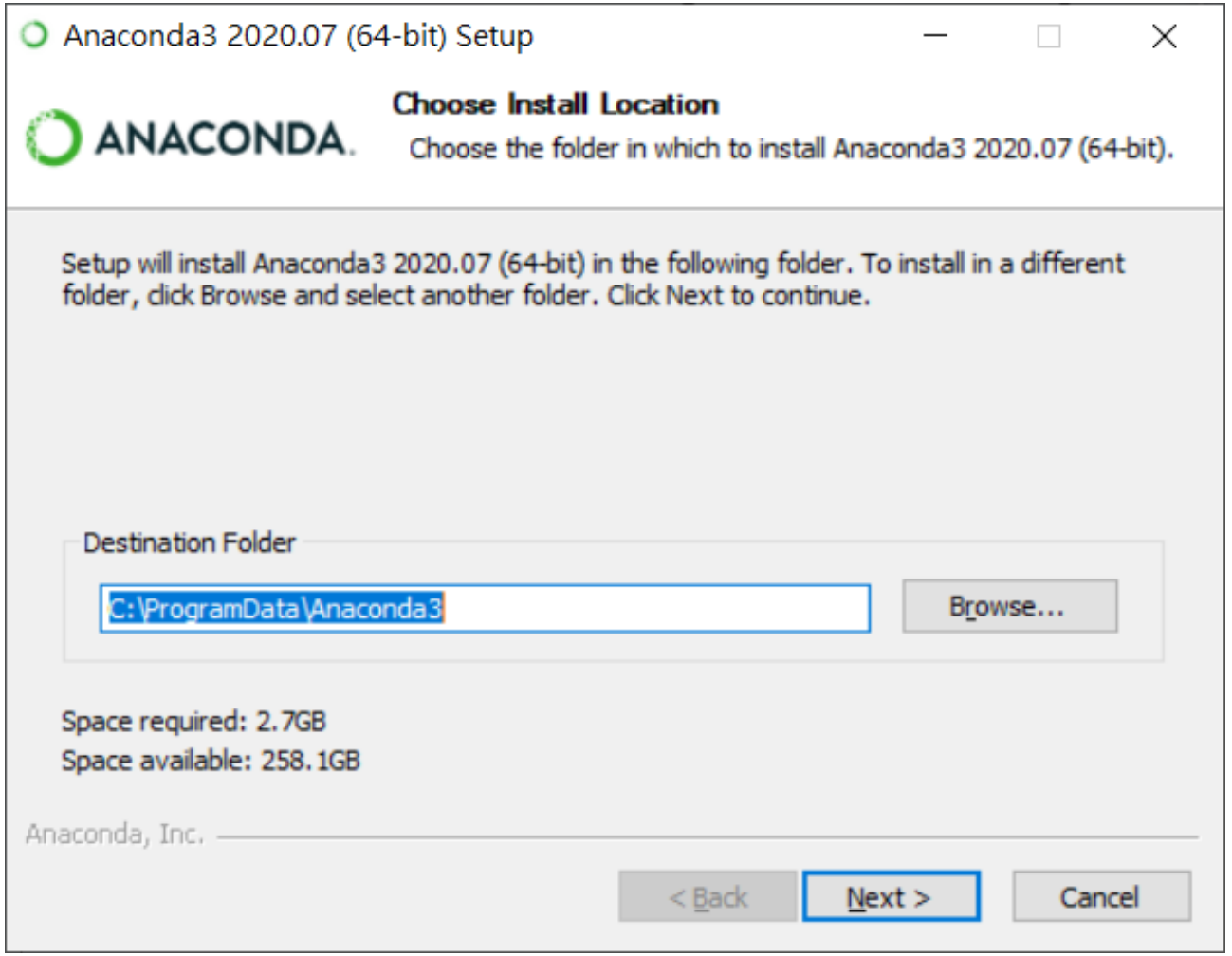
Anaconda


Anaconda3 2020.07 (64-bit) Setup
ANACONDA.
License Agreement
Please review the license terms before installing Anaconda3 2020.07 (64-bit).
Press Page Down to see the rest of the agreement.
==========
End User License Agreement - Anaconda Individual Edition
==========
Copyright 2015-2020, Anaconda, Inc.
All rights reserved under the 3-clause BSD License:
This End User License Agreement (the "Agreement") is a legal agreement between you and Anaconda, Inc. ("Anaconda") and governs your use of Anaconda Individual Edition (which was formerly known as Anaconda Distribution).
If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install Anaconda3 2020.07 (64-bit).
Anaconda, Inc.
< Back
I Agree
Cancel

Anaconda


Anaconda3 2020.07 (64-bit) Setup
ANACONDA.
Select Installation Type
Please select the type of installation you would like to perform for Anaconda3 2020.07 (64-bit).
Install for:
Just Me (recommended)
All Users (requires admin privileges)
Anaconda, Inc.
< Back
Next >
Cancel

Anaconda


Anaconda3 2020.07 (64-bit) Setup
ANACONDA.
Choose Install Location
Choose the folder in which to install Anaconda3 2020.07 (64-bit).
Setup will install Anaconda3 2020.07 (64-bit) in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.
Destination Folder
C:\ProgramData\Anaconda3
Browse...
Space required: 2.7GB
Space available: 258.1GB
Anaconda, Inc.
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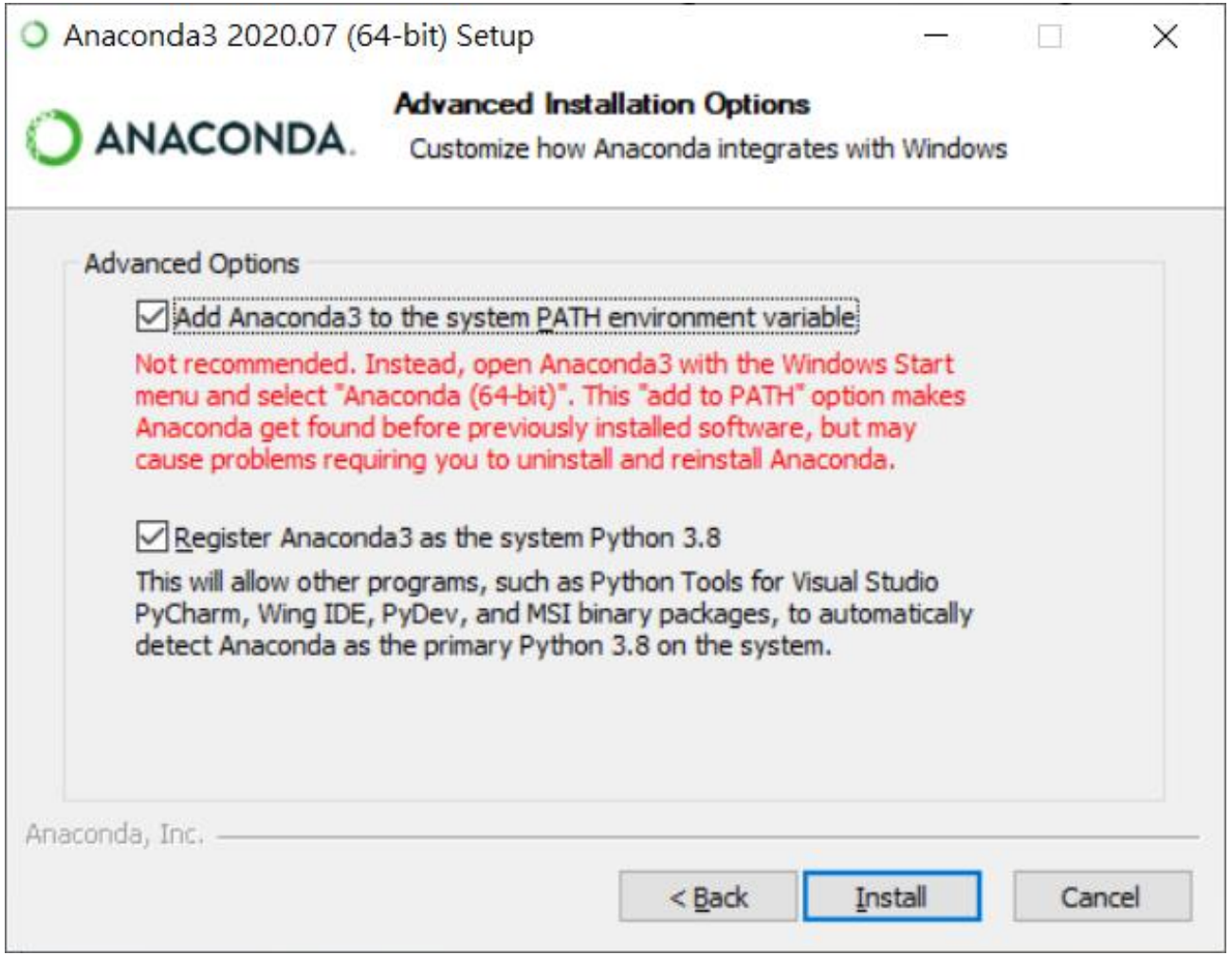
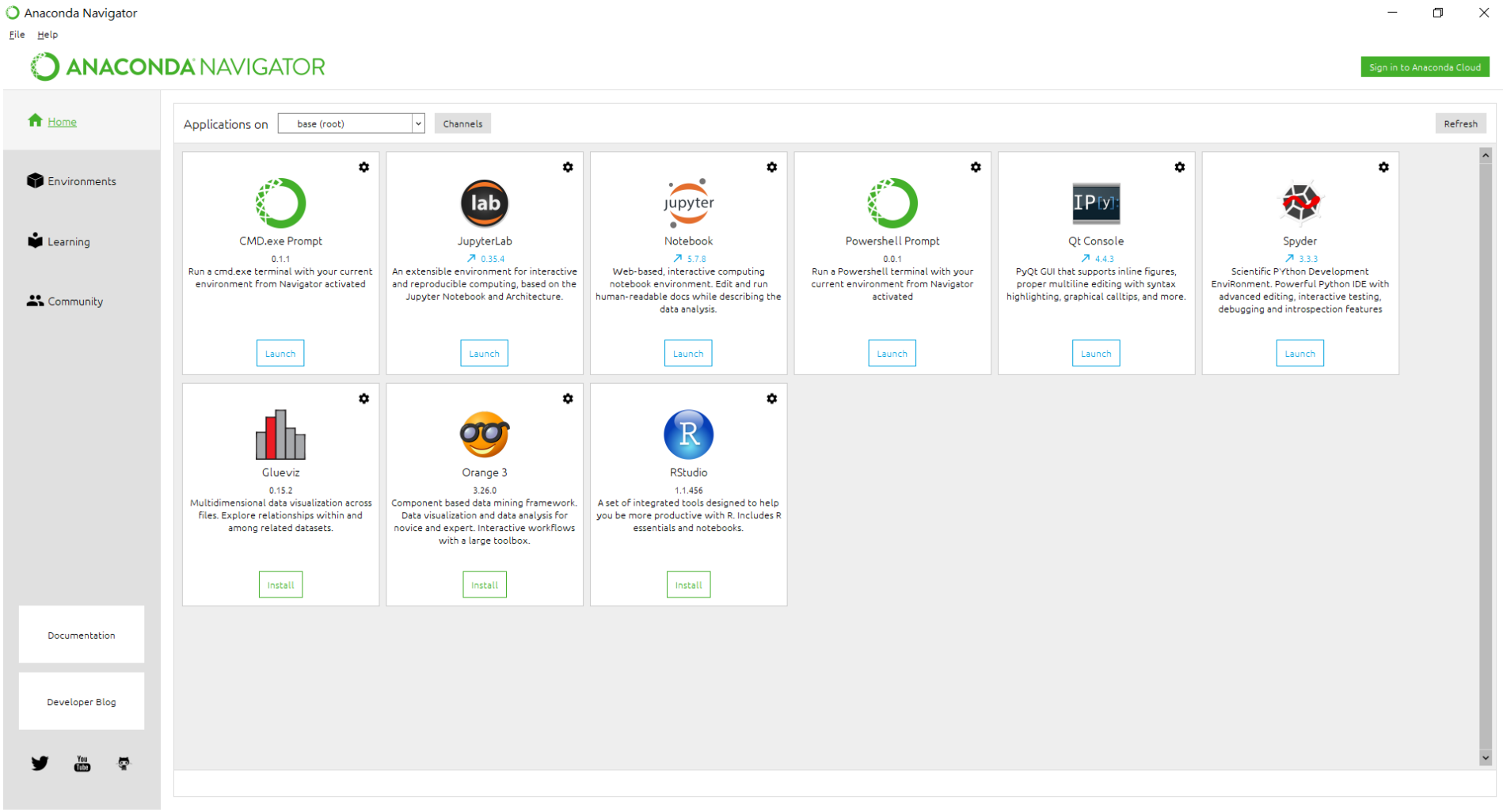
Cancel

Anaconda


Anaconda3 2020.07 (64-bit) Setup
ANACONDA.
Advanced Installation Options
Customize how Anaconda integrates with Windows
Advanced Options
Add Anaconda3 to the system PATH environment variable
Not recommended. Instead, open Anaconda3 with the Windows Start menu and select "Anaconda (64-bit)". This "add to PATH" option makes Anaconda get found before previously installed software, but may cause problems requiring you to uninstall and reinstall Anaconda.
Register Anaconda3 as the system Python 3.8
This will allow other programs, such as Python Tools for Visual Studio PyCharm, Wing IDE, PyDev, and MSI binary packages, to automatically detect Anaconda as the primary Python 3.8 on the system.
Anaconda, Inc.
< Back
Install
Cancel

Anaconda


Anaconda Navigator
File Help
ANACONDA NAVIGATOR
Sign in to Anaconda Cloud
Home
Environments
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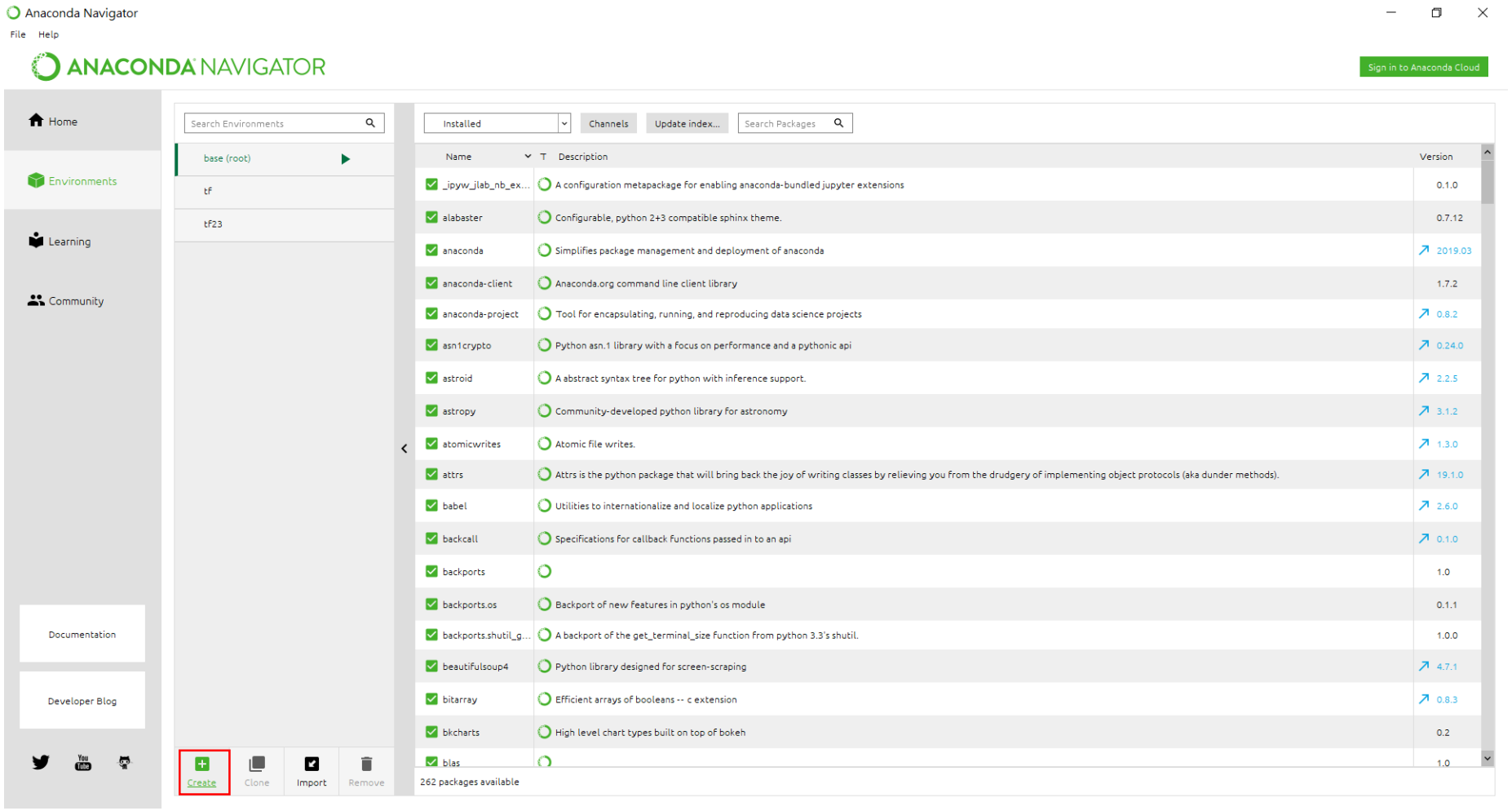
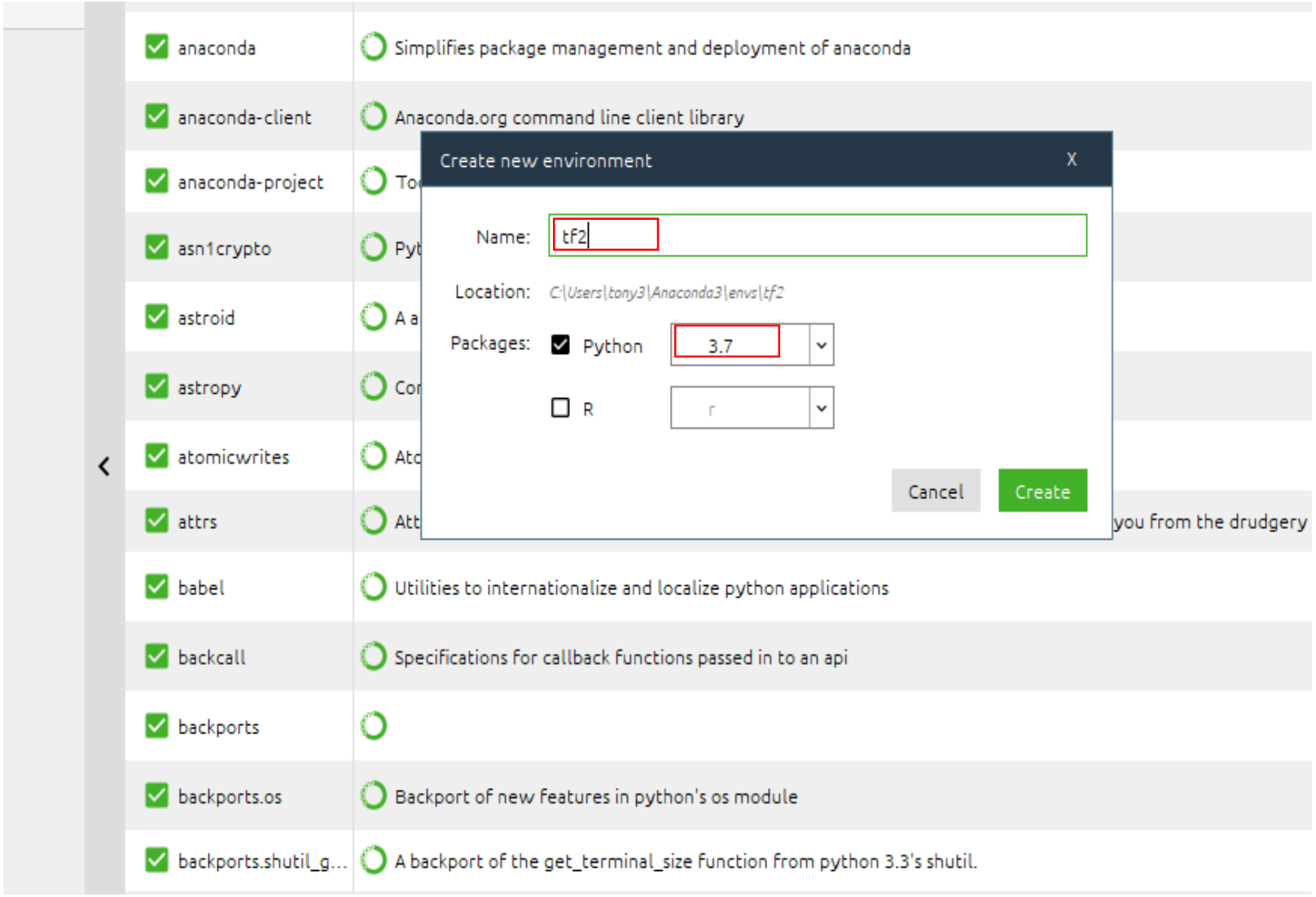
Documentation
Developer Blog
Applications on
base (root)
Channels
Refresh
CMD.exe Prompt
0.1.1
Run a cmd.exe terminal with your current environment from Navigator activated
Launch
JupyterLab
0.35.4
An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.
Launch
Notebook
5.7.8
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.
Launch
Powershell Prompt
0.0.1
Run a Powershell terminal with your current environment from Navigator activated
Launch
Qt Console
4.4.3
PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.
Launch
Spyder
3.3.3
Scientific PYthon Development EnviRonment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features
Launch
Glueviz
0.15.2
Multidimensional data visualization across files. Explore relationships within and among related datasets.
Install
Orange 3
3.26.0
Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.
Install
RStudio
1.1.456
A set of integrated tools designed to help you be more productive with R. Includes R essentials and notebooks.
Install

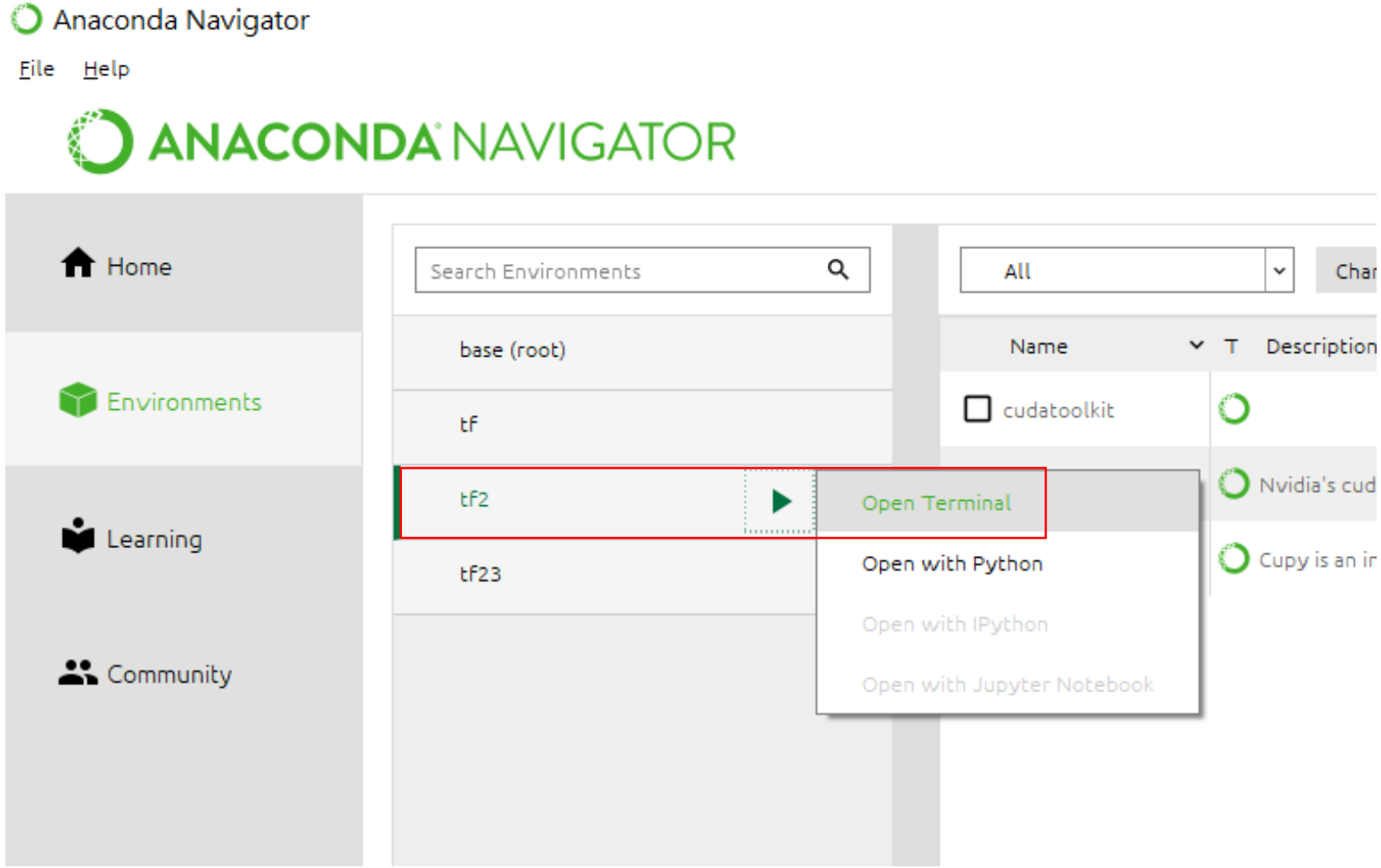
Anaconda


Anaconda Navigator
File Help
ANACONDA NAVIGATOR
Sign in to Anaconda Cloud
Home
Environments
Learning
Community
Documentation
Developer Blog
Search Environments
base (root)
tf
tf23
Installed
Channels
Update index...
Search Packages
Name
T
Description
Version
_ipyw_jlab_nb_ex... A configuration metapackage for enabling anaconda-bundled jupyter extensions 0.1.0
alabaster Configurable, python 2+3 compatible sphinx theme. 0.7.12
anaconda Simplifies package management and deployment of anaconda 2019.03
anaconda-client Anaconda.org command line client library 1.7.2
anaconda-project Tool for encapsulating, running, and reproducing data science projects 0.8.2
asn1crypto Python asn.1 library with a focus on performance and a pythonic api 0.24.0
astroid A abstract syntax tree for python with inference support. 2.2.5
astropy Community-developed python library for astronomy 3.1.2
atomicwrites Atomic file writes. 1.3.0
attrs Attrs is the python package that will bring back the joy of writing classes by relieving you from the drudgery of implementing object protocols (aka dunder methods). 19.1.0
babel Utilities to internationalize and localize python applications 2.6.0
backcall Specifications for callback functions passed in to an api 0.1.0
backports 1.0
backports.os Backport of new features in python's os module 0.1.1
backports.shutil_g... A backport of the get_terminal_size function from python 3.3's shutil. 1.0.0
beautifulsoup4 Python library designed for screen-scraping 4.7.1
bitarray Efficient arrays of booleans -- c extension 0.8.3
bkcharts High level chart types built on top of bokeh 0.2
blas 1.0
Create
Clone
Import
Remove
262 packages available

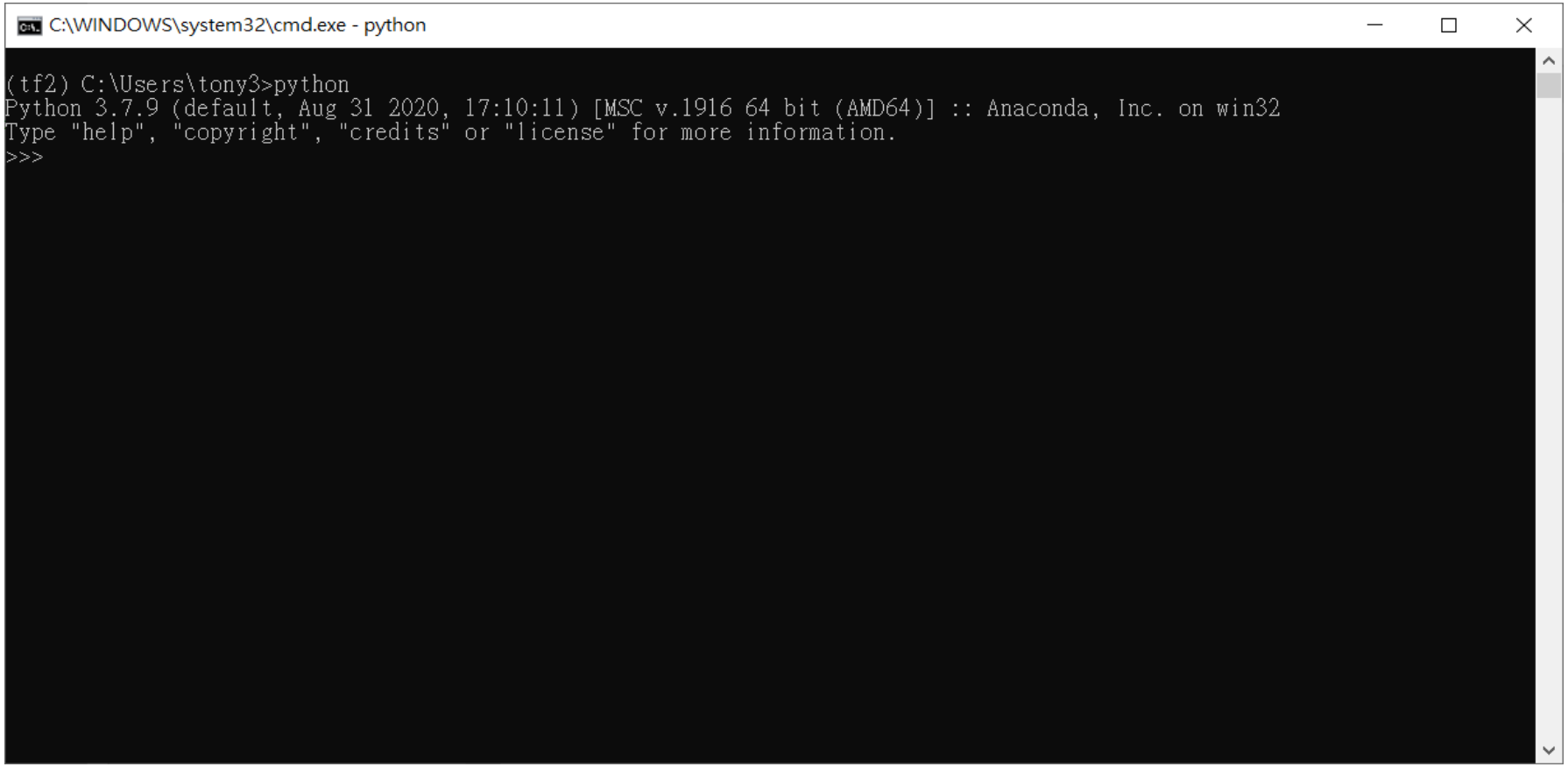
Anaconda


anaconda
Simplifies package management and deployment of anaconda
anaconda-client
Anaconda.org command line client library
anaconda-project
asn1crypto
astroid
astropy
atomicwrites
attrs
babel
Utilities to internationalize and localize python applications
backcall
Specifications for callback functions passed in to an api
backports
backports.os
Backport of new features in python's os module
backports.shutil_g...
A backport of the get_terminal_size function from python 3.3's shutil.
Create new environment
X
Name:
tf2
Location:
C:\Users\tony3\Anaconda3\envs\tf2
Packages:
Python
3.7
R
Cancel
Create

Anaconda


Anaconda Navigator
File Help
ANACONDA NAVIGATOR
Home
Environments
Learning
Community
Search Environments
base (root)
tf
tf2
tf23
All
Name
T
Description
cudatoolkit
Nvidia's cud
Cupy is an ir
Open Terminal
Open with Python
Open with IPython
Open with Jupyter Notebook

Anaconda

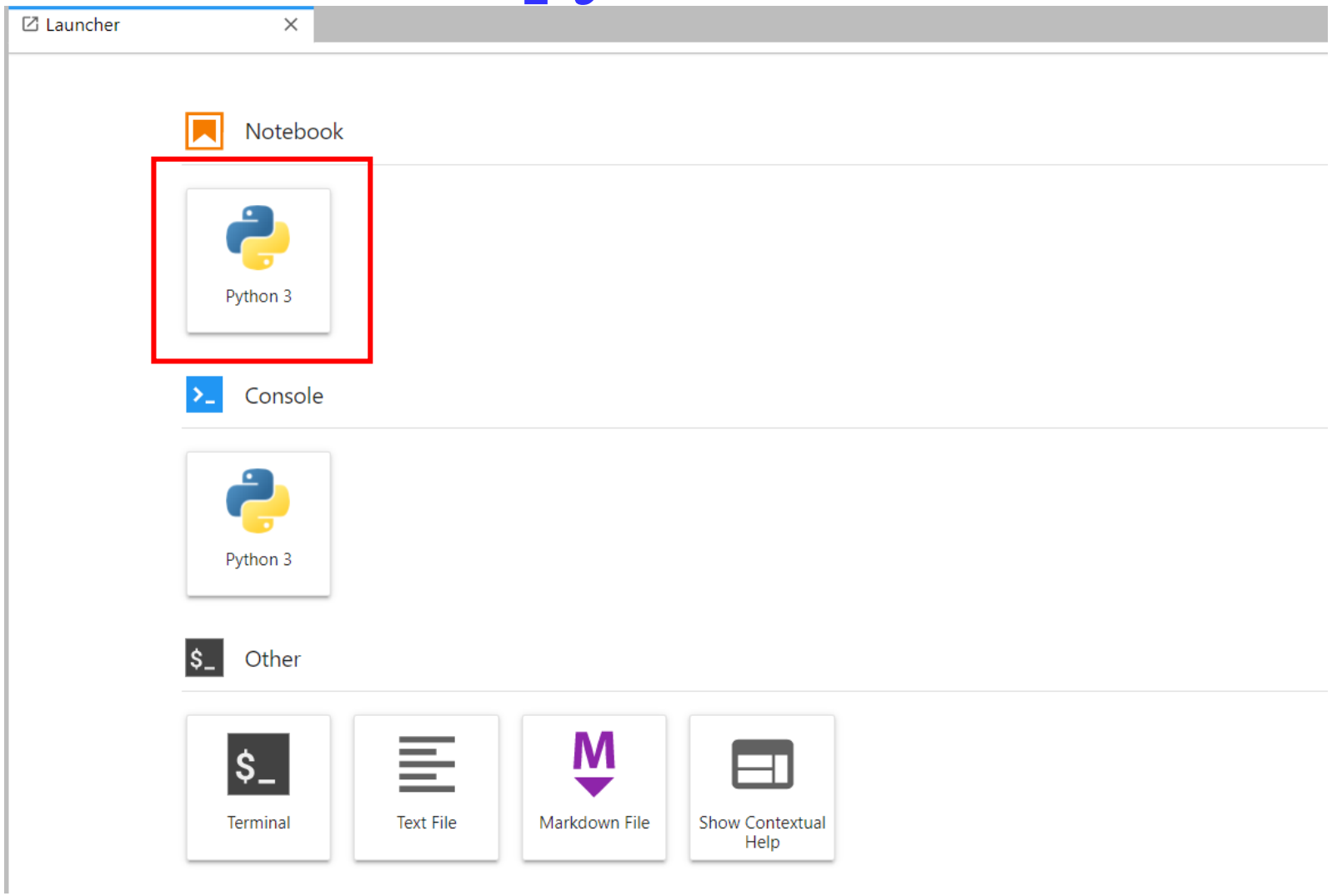


START!!!

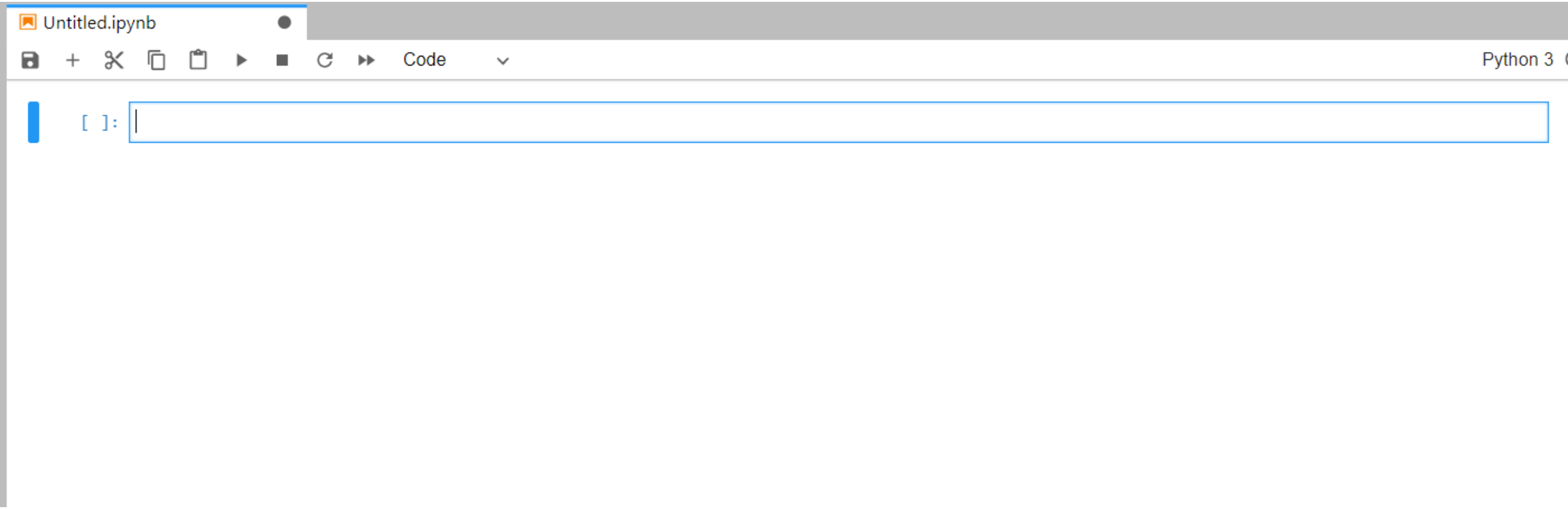
Jupyter lab

- 安裝輸入>pip install jupyterlab
- 執行>jupyter lab

Jupyter lab


Launcher
Notebook
Python 3
Console
Python 3
Other
Terminal
Text File
Markdown File
Show Contextual Help

Jupyter lab



START!!!

Python

for迴圈

```
for i in range(0,10,2):
    print('i=',i)
```

```
i= 0
i= 2
i= 4
i= 6
i= 8
```

Python

for迴圈

```
for i in range(0,10,2):
    print('i=',i,end='')
```

```
i= 0i= 2i= 4i= 6i= 8
```

```
for i in range(2,101,2):
    print('i={:3d}'.format(i),end=' | ')
    if (i%10 == 0):
        print("")
```

```
i=  2 | i=  4 | i=  6 | i=  8 | i= 10 |
i= 12 | i= 14 | i= 16 | i= 18 | i= 20 |
i= 22 | i= 24 | i= 26 | i= 28 | i= 30 |
i= 32 | i= 34 | i= 36 | i= 38 | i= 40 |
i= 42 | i= 44 | i= 46 | i= 48 | i= 50 |
i= 52 | i= 54 | i= 56 | i= 58 | i= 60 |
i= 62 | i= 64 | i= 66 | i= 68 | i= 70 |
i= 72 | i= 74 | i= 76 | i= 78 | i= 80 |
i= 82 | i= 84 | i= 86 | i= 88 | i= 90 |
i= 92 | i= 94 | i= 96 | i= 98 | i=100 |
```

練習:九九乘法表

利用for迴圈

顯示出

```
-------------------------------------------------------------------------------
| 1*1= 1 | 1*2= 2 | 1*3= 3 | 1*4= 4 | 1*5= 5 | 1*6= 6 | 1*7= 7 | 1*8= 8 | 1*9= 9 |
| 2*1= 2 | 2*2= 4 | 2*3= 6 | 2*4= 8 | 2*5=10 | 2*6=12 | 2*7=14 | 2*8=16 | 2*9=18 |
| 3*1= 3 | 3*2= 6 | 3*3= 9 | 3*4=12 | 3*5=15 | 3*6=18 | 3*7=21 | 3*8=24 | 3*9=27 |
| 4*1= 4 | 4*2= 8 | 4*3=12 | 4*4=16 | 4*5=20 | 4*6=24 | 4*7=28 | 4*8=32 | 4*9=36 |
| 5*1= 5 | 5*2=10 | 5*3=15 | 5*4=20 | 5*5=25 | 5*6=30 | 5*7=35 | 5*8=40 | 5*9=45 |
| 6*1= 6 | 6*2=12 | 6*3=18 | 6*4=24 | 6*5=30 | 6*6=36 | 6*7=42 | 6*8=48 | 6*9=54 |
| 7*1= 7 | 7*2=14 | 7*3=21 | 7*4=28 | 7*5=35 | 7*6=42 | 7*7=49 | 7*8=56 | 7*9=63 |
| 8*1= 8 | 8*2=16 | 8*3=24 | 8*4=32 | 8*5=40 | 8*6=48 | 8*7=56 | 8*8=64 | 8*9=72 |
| 9*1= 9 | 9*2=18 | 9*3=27 | 9*4=36 | 9*5=45 | 9*6=54 | 9*7=63 | 9*8=72 | 9*9=81 |
-------------------------------------------------------------------------------
```

練習:打印星號

利用for迴圈
顯示出

```
for i in range(1, 5):
    for x in range(5-i):
        print(" ", end = '')
    for y in range(2*i-1):
        print("*", end = '')
    print('')
```

```
    *
   ***
  *****
 *******
```

練習:打印星號

利用for迴圈
顯示出

End