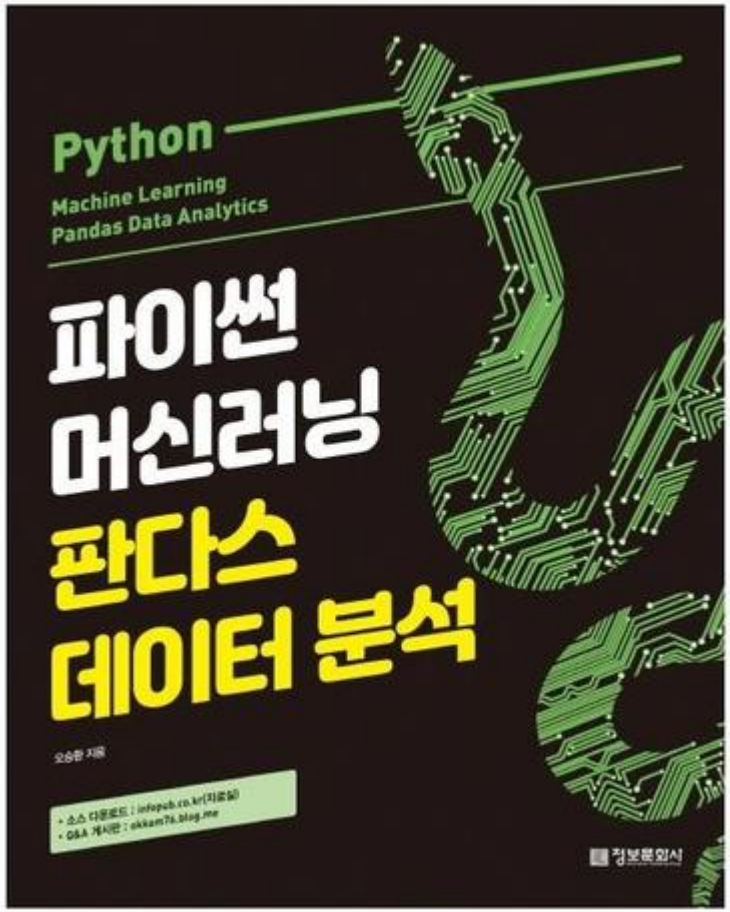
파이썬 머신러닝 판다스 데이터분석

Lecture (1)

Dr. Heesuk Kim

강의 교재 소개



출판 : 정보문화사
저자 : 오승환

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Part 0. 개발환경 준비

1. 아나콘다(Anaconda) 배포판 설치
2. 스파이더(Spyder) 사용법

1. 아나콘다(Anaconda) 배포판 설치

- **아나콘다 배포판이란?**

1) 판다스, 넘파이, 맷플롯립 등 데이터 분석 라이브러리, Spyder 등 개발 도구(IDE)를 통합 지원.
2) 버전 관리와 패키지 업데이트가 편리.
3) 윈도우, 맥OS, 리눅스 모두 지원.

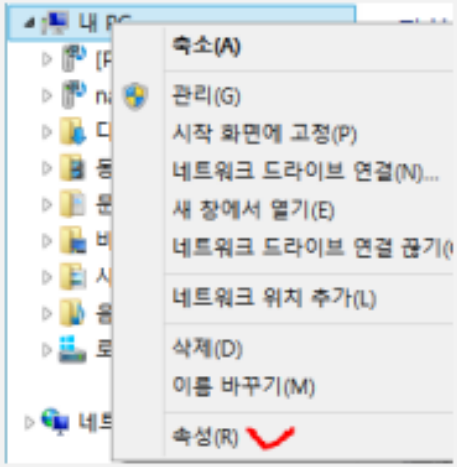
구 분	Anaconda	ActivePython	WinPython
개발자	Anaconda (미국)	ActiveState (캐나다)	WinPython 개발팀
비용	유료/무료	유료/무료	무료(오픈소스)
출시연도	2012년	2006년	2014년
운영체제	윈도우/맥/리눅스	윈도우/맥/리눅스/기타	윈도우
특징	Conda 패키지 관리 그래픽 환경(GUI)	Win32 API 지원 IDLE	WPPM 패키지 관리

[표 0-2] 파이썬 배포판의 종류

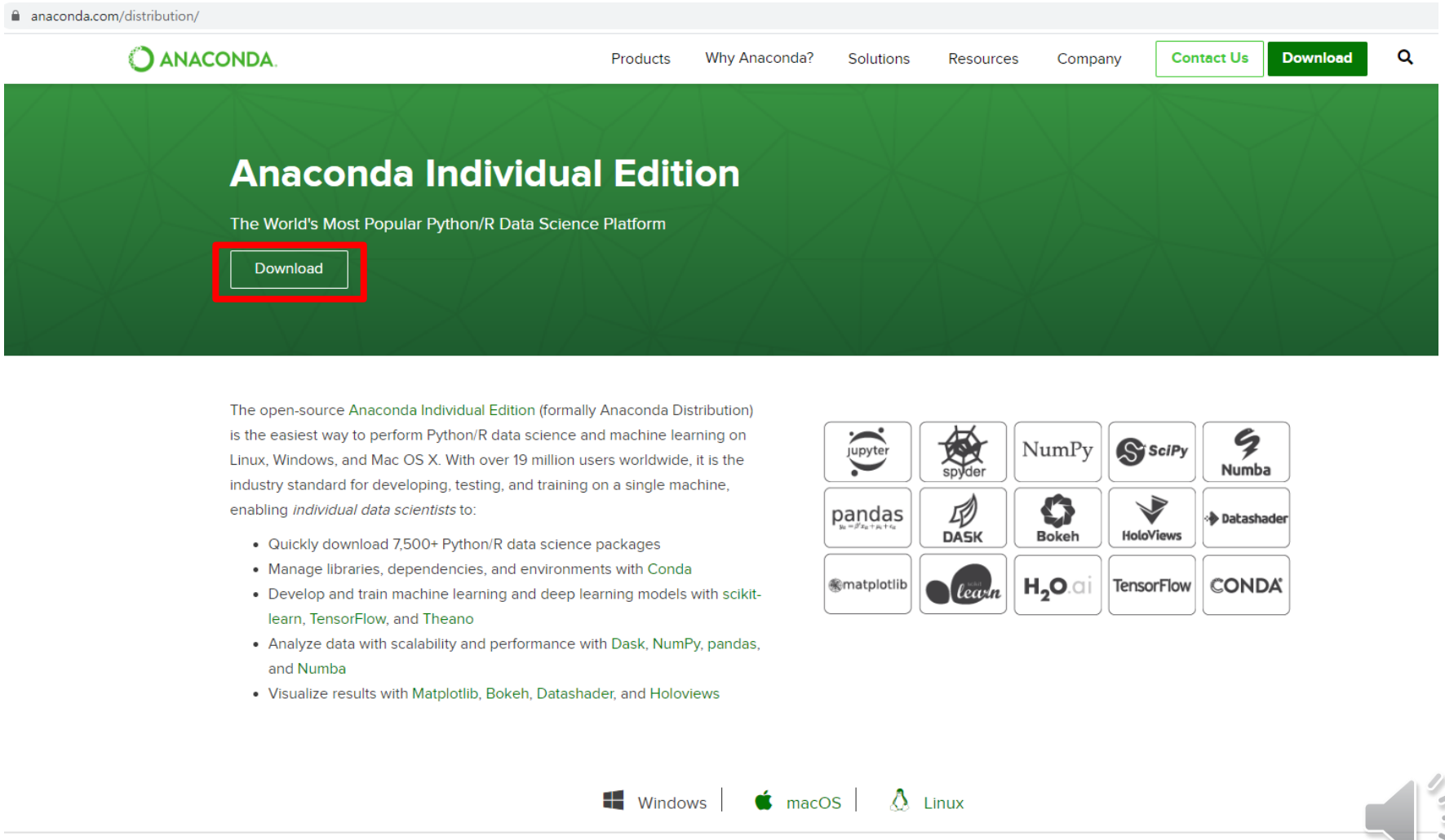
- Checklist before installing Anaconda

- 내 컴퓨터 운영체계 확인: Mac / Windows / Linux
- 운영체계 bit 확인: Mac/Linux → 64bit,
  Windows* → 64bit or 32bit

※ 윈도우 탐색기 → 내PC 우클릭 → 속성 → 시스템 종류



https://www.anaconda.com/distribution/



https://www.anaconda.com/distribution/

Windows | macOS | Linux

Anaconda 2020.02 for Windows Installer

Python 3.7 version

Download

64-Bit Graphical Installer (466 MB)

32-Bit Graphical Installer (423 MB)

Python 2.7 version

Download

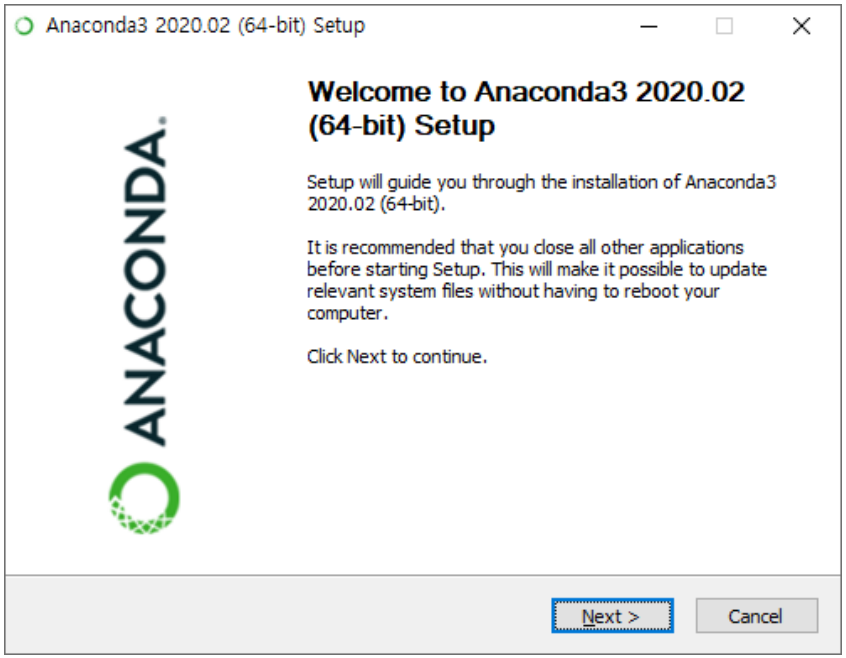
64-Bit Graphical Installer (413 MB)

32-Bit Graphical Installer (356 MB)

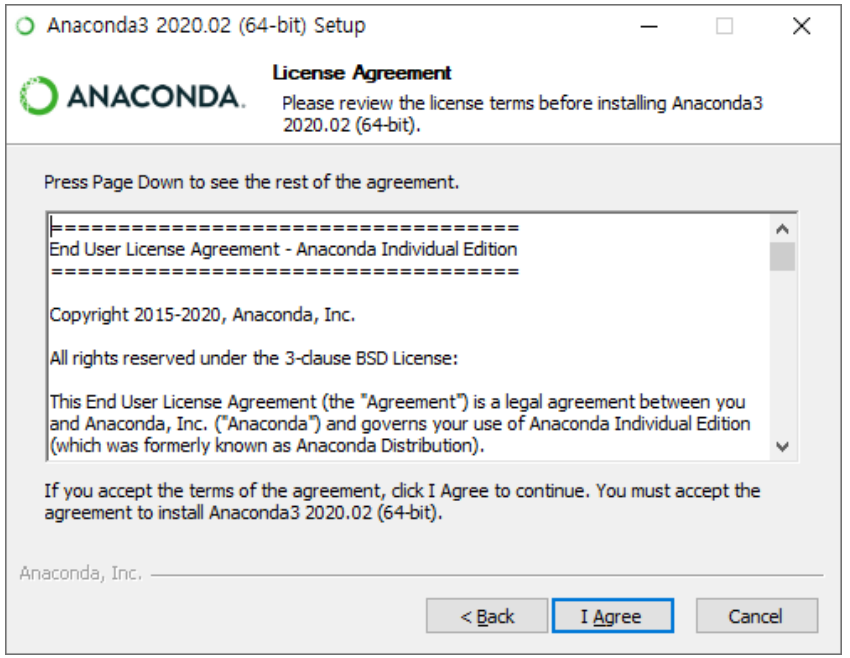
1


Anaconda3-2020.02-Windows-x86.exe
2020-03-24 오후...
응용 프로그램
477,450KB

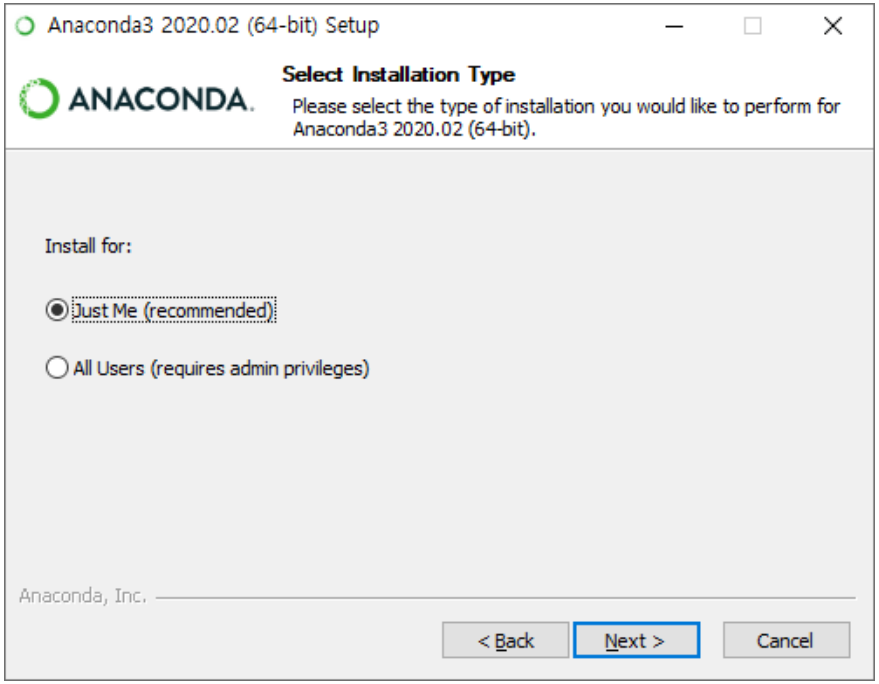
2


Anaconda3 2020.02 (64-bit) Setup
ANACONDA.
Welcome to Anaconda3 2020.02 (64-bit) Setup
Setup will guide you through the installation of Anaconda3 2020.02 (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

3


Anaconda3 2020.02 (64-bit) Setup
ANACONDA.
License Agreement
Please review the license terms before installing Anaconda3 2020.02 (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 2020.02 (64-bit).
Anaconda, Inc.
< Back
I Agree
Cancel

4


Anaconda3 2020.02 (64-bit) Setup
ANACONDA.
Select Installation Type
Please select the type of installation you would like to perform for Anaconda3 2020.02 (64-bit).
Install for:
Just Me (recommended)
All Users (requires admin privileges)
Anaconda, Inc.
< Back
Next >
Cancel

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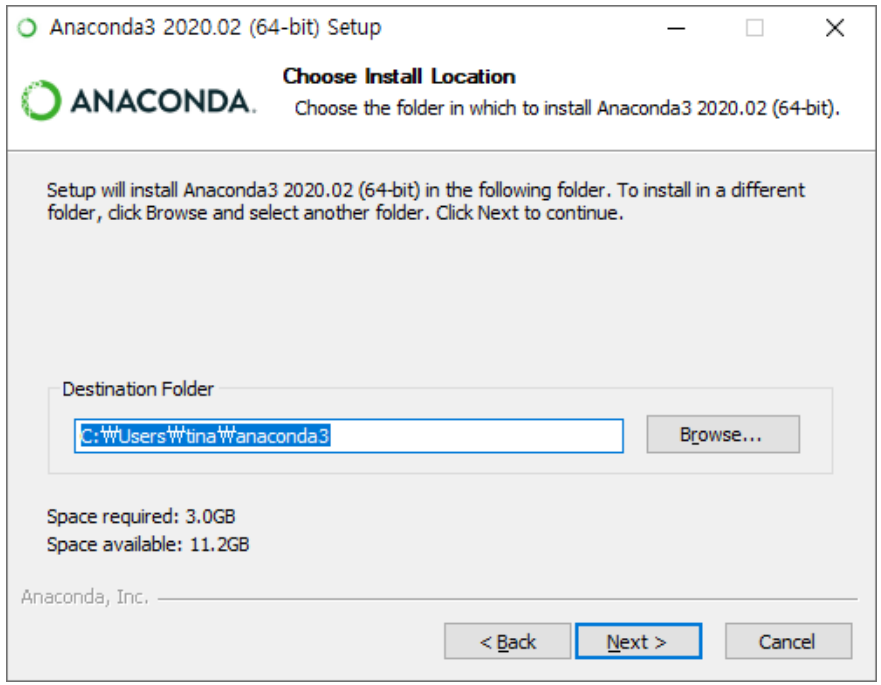
Anaconda3 2020.02 (64-bit) Setup
ANACONDA.
Choose Install Location
Choose the folder in which to install Anaconda3 2020.02 (64-bit).
Setup will install Anaconda3 2020.02 (64-bit) in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.
Destination Folder
C:₩Users₩tina₩anaconda3
Browse...
Space required: 3.0GB
Space available: 11.2GB
Anaconda, Inc.
< Back
Next >
Cancel

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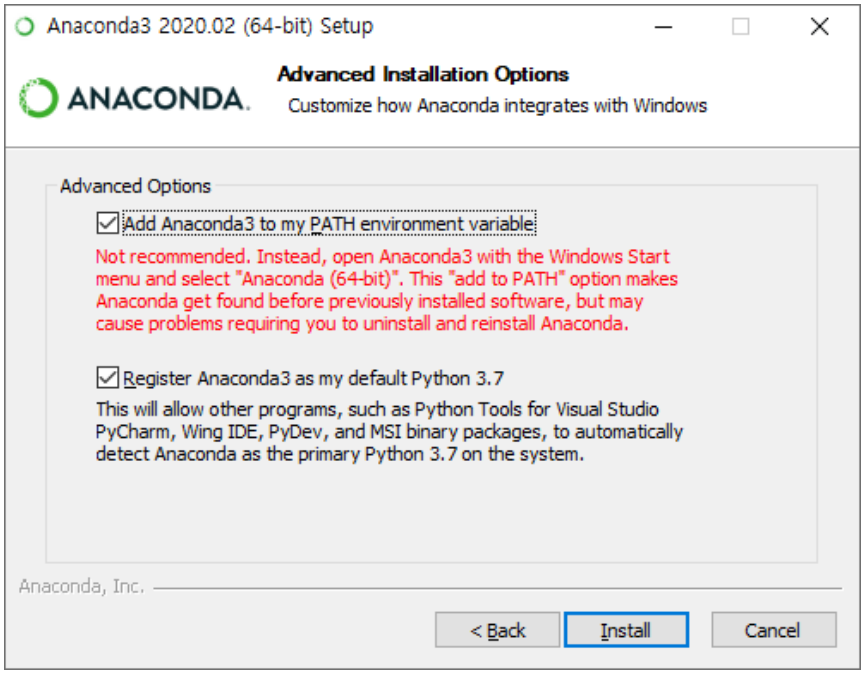
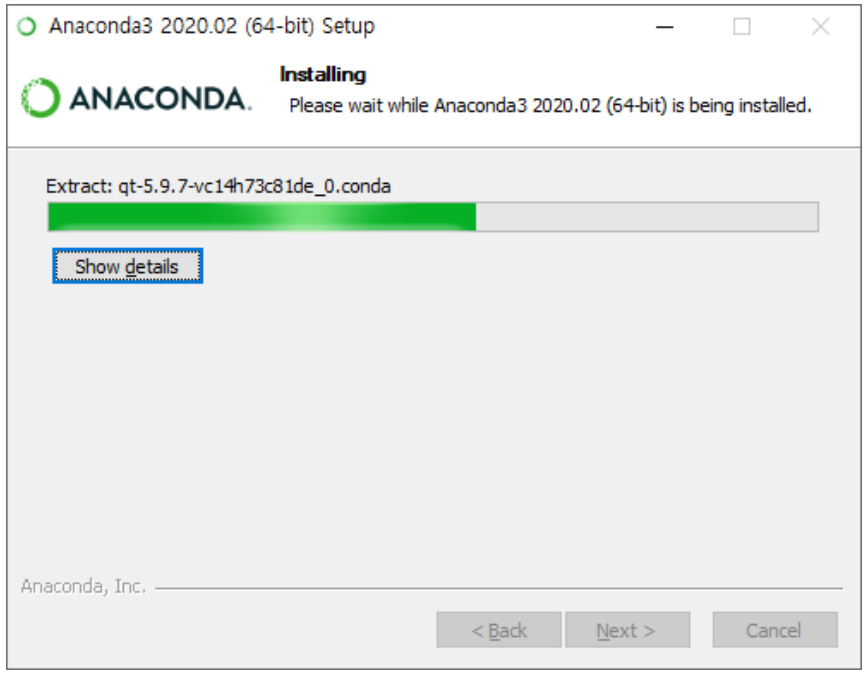

Anaconda3 2020.02 (64-bit) Setup
ANACONDA.
Advanced Installation Options
Customize how Anaconda integrates with Windows
Advanced Options
Add Anaconda3 to my PATH environment variable
Not recommended. Instead, open Anaconda3 with the Windows Start menu and select "Anaconda (64-bit)". This "add to PATH" option makes Anaconda get found before previously installed software, but may cause problems requiring you to uninstall and reinstall Anaconda.
Register Anaconda3 as my default Python 3.7
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 3.7 on the system.
Anaconda, Inc.
< Back
Install
Cancel

7


Anaconda3 2020.02 (64-bit) Setup
ANACONDA.
Installing
Please wait while Anaconda3 2020.02 (64-bit) is being installed.
Extract: qt-5.9.7-vc14h73c81de_0.conda
Show details
Anaconda, Inc.
< Back
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Cancel

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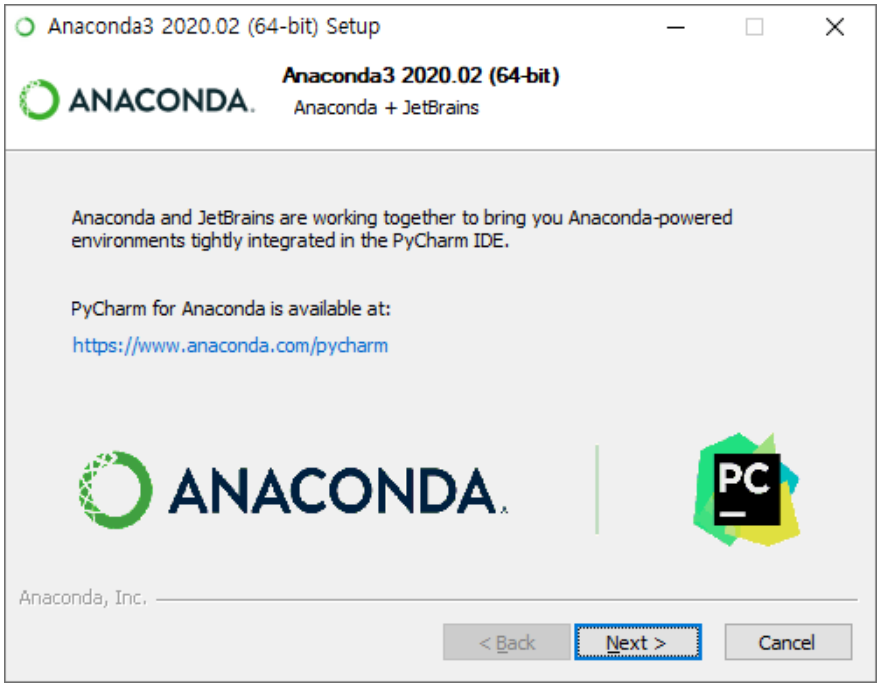
Anaconda3 2020.02 (64-bit) Setup
ANACONDA.
Anaconda3 2020.02 (64-bit)
Anaconda + JetBrains
Anaconda and JetBrains are working together to bring you Anaconda-powered environments tightly integrated in the PyCharm IDE.
PyCharm for Anaconda is available at:
https://www.anaconda.com/pycharm
ANACONDA.
PC
Anaconda, Inc.
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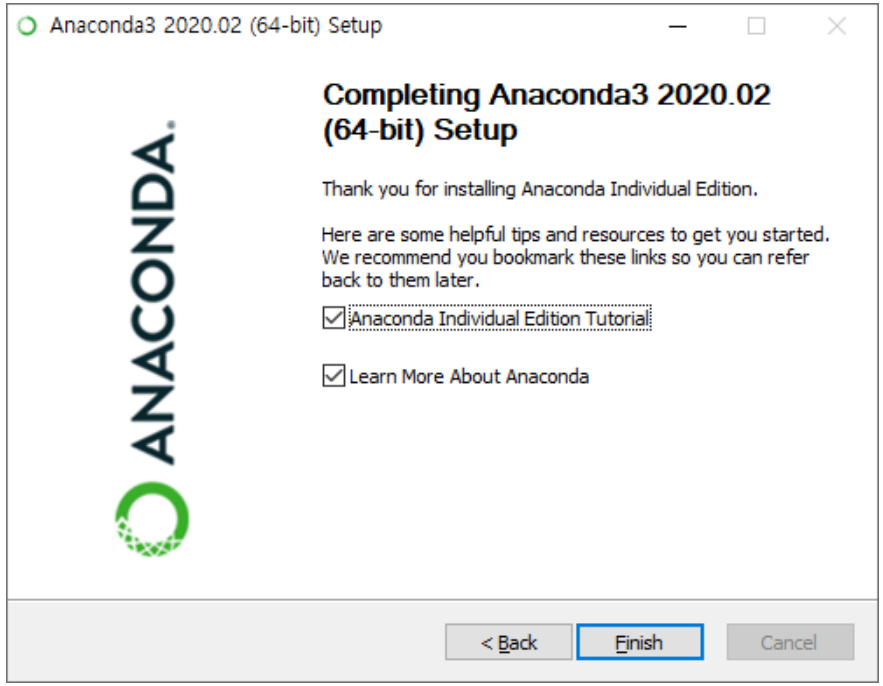
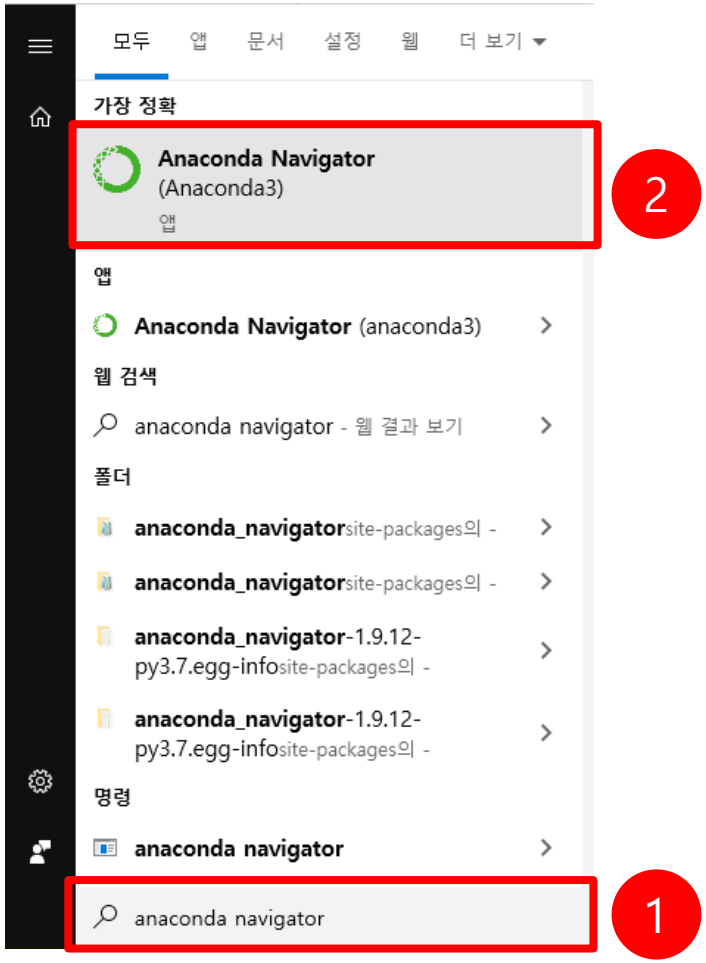
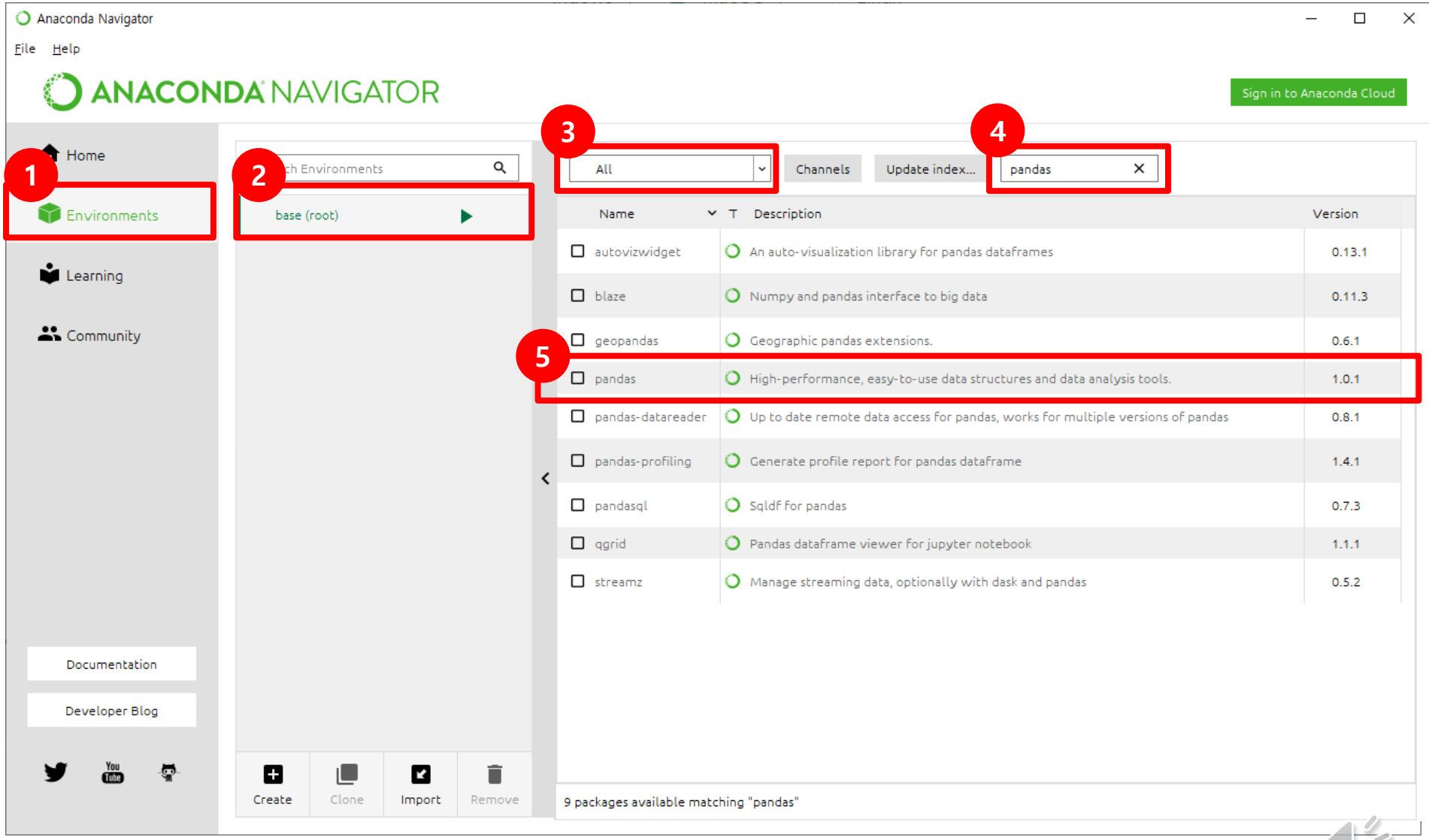

Anaconda3 2020.02 (64-bit) Setup
ANACONDA.
Completing Anaconda3 2020.02 (64-bit) Setup
Thank you for installing Anaconda Individual Edition.
Here are some helpful tips and resources to get you started. We recommend you bookmark these links so you can refer back to them later.
Anaconda Individual Edition Tutorial
Learn More About Anaconda
< Back
Finish
Cancel

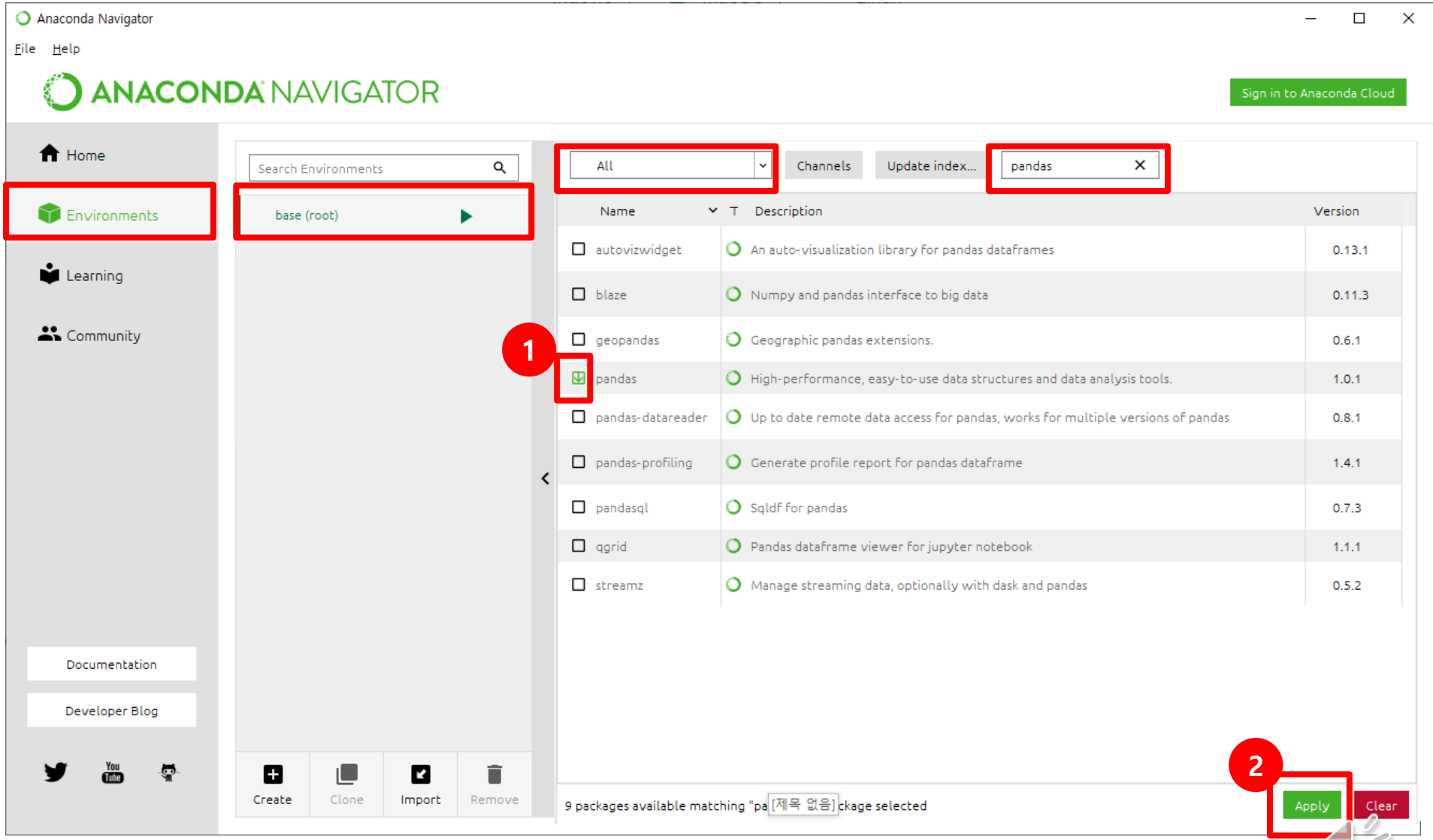
- Anaconda install & library 확인



Part 0. 개발환경 준비



Part 0. 개발환경 준비



Part 0. 개발환경 준비

Anaconda Navigator

File Help

ANACONDA NAVIGATOR

Sign in to Anaconda Cloud

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Community

Documentation

Developer Blog

Search Environments

base (root)

All | Channels | Update index... | pandas

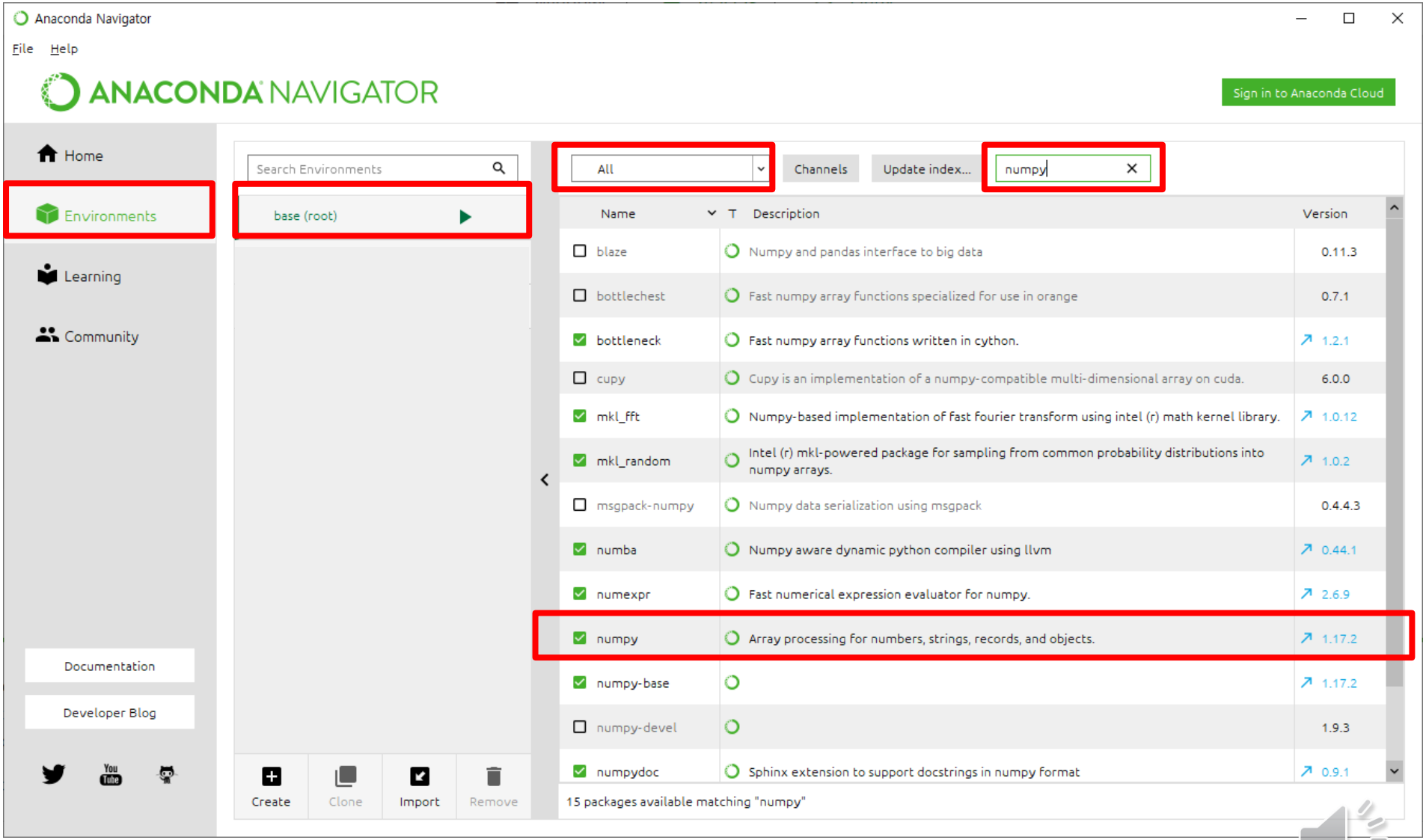
	Name	T	Description	Version
☐	autovizwidget		An auto-visualization library for pandas dataframes	0.13.1
☐	blaze		Numpy and pandas interface to big data	0.11.3
☐	geopandas		Geographic pandas extensions.	0.6.1
☑	pandas		High-performance, easy-to-use data structures and data analysis tools.	0.24.2
☐	pandas-datareader		Up to date remote data access for pandas, works for multiple versions of pandas	0.8.1
☐	pandas-profiling		Generate profile report for pandas dataframe	1.4.1
☐	pandasql		Sqldf for pandas	0.7.3
☐	qgrid		Pandas dataframe viewer for jupyter notebook	1.1.1
☐	streamz		Manage streaming data, optionally with dask and pandas	0.5.2

1

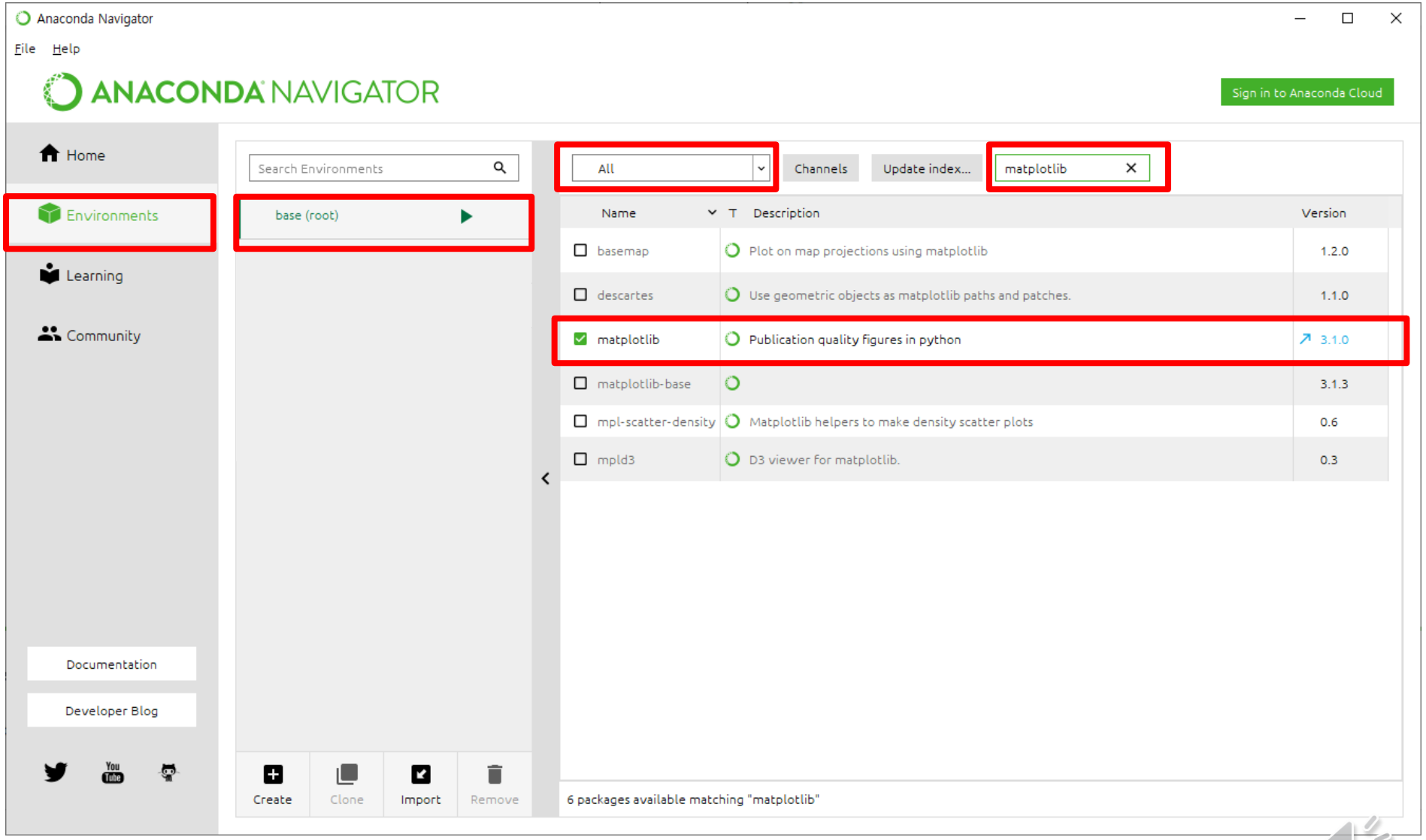
Create | Clone | Import | Remove

9 packages available matching "pandas"

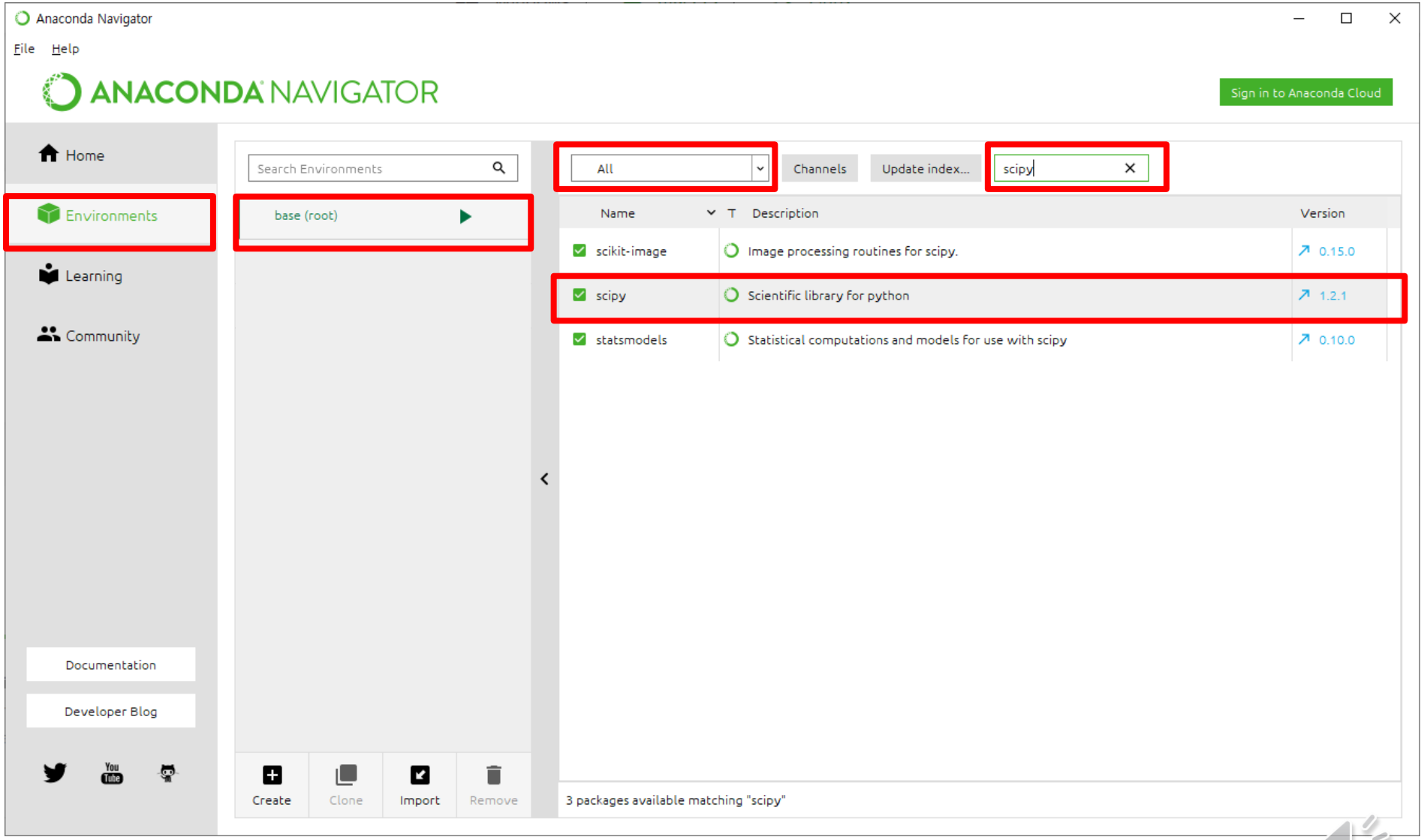
Part 0. 개발환경 준비



Part 0. 개발환경 준비



Part 0. 개발환경 준비



Part 0. 개발환경 준비

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Developer Blog

Search Environments

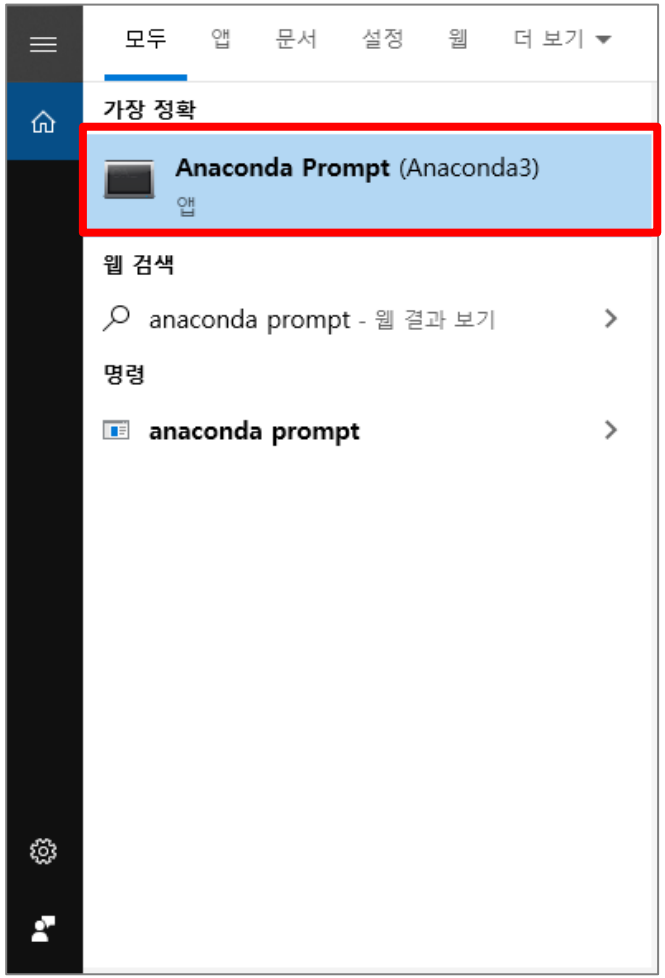
base (root)

All | Channels | Update index... | scikit

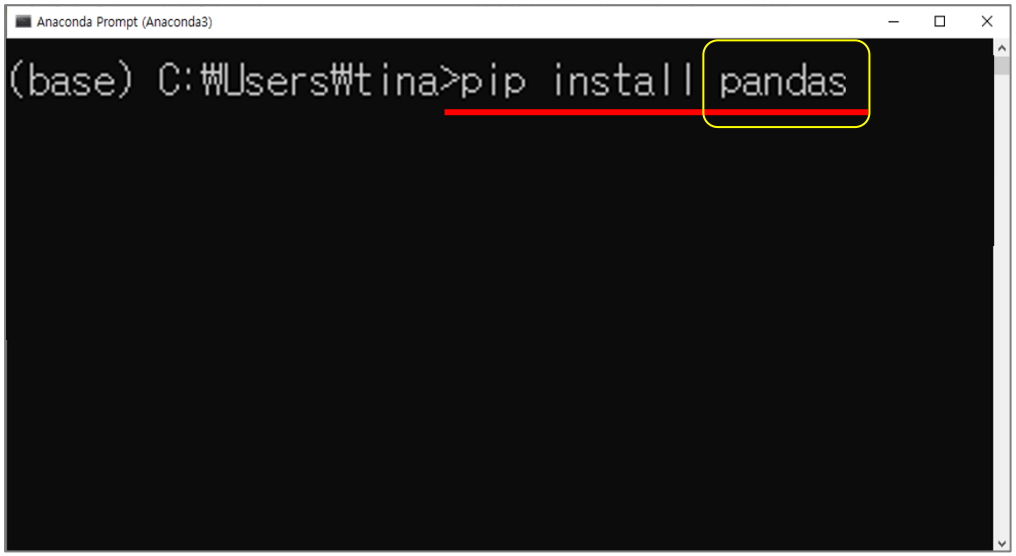
Name	T	Description	Version
dask-searchcv		Tools for doing hyperparameter search with scikit-learn and dask	0.2.0
scikit-image		Image processing routines for scipy.	0.15.0
scikit-learn		A set of python modules for machine learning and data mining	0.21.2
scikit-rf		Object oriented microwave engineering.	0.14.9

Create | Clone | Import | Remove

4 packages available matching "scikit"

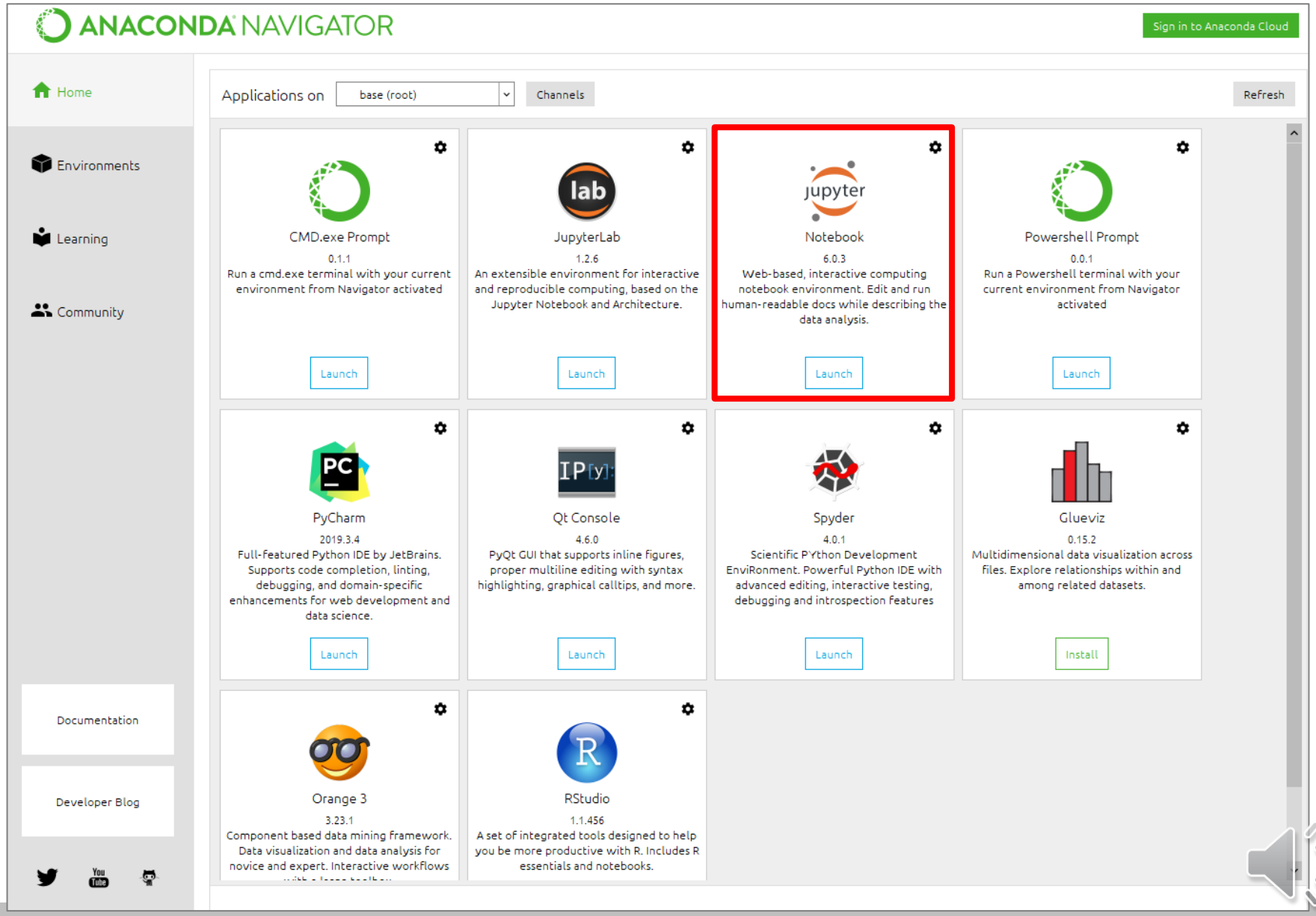


참고

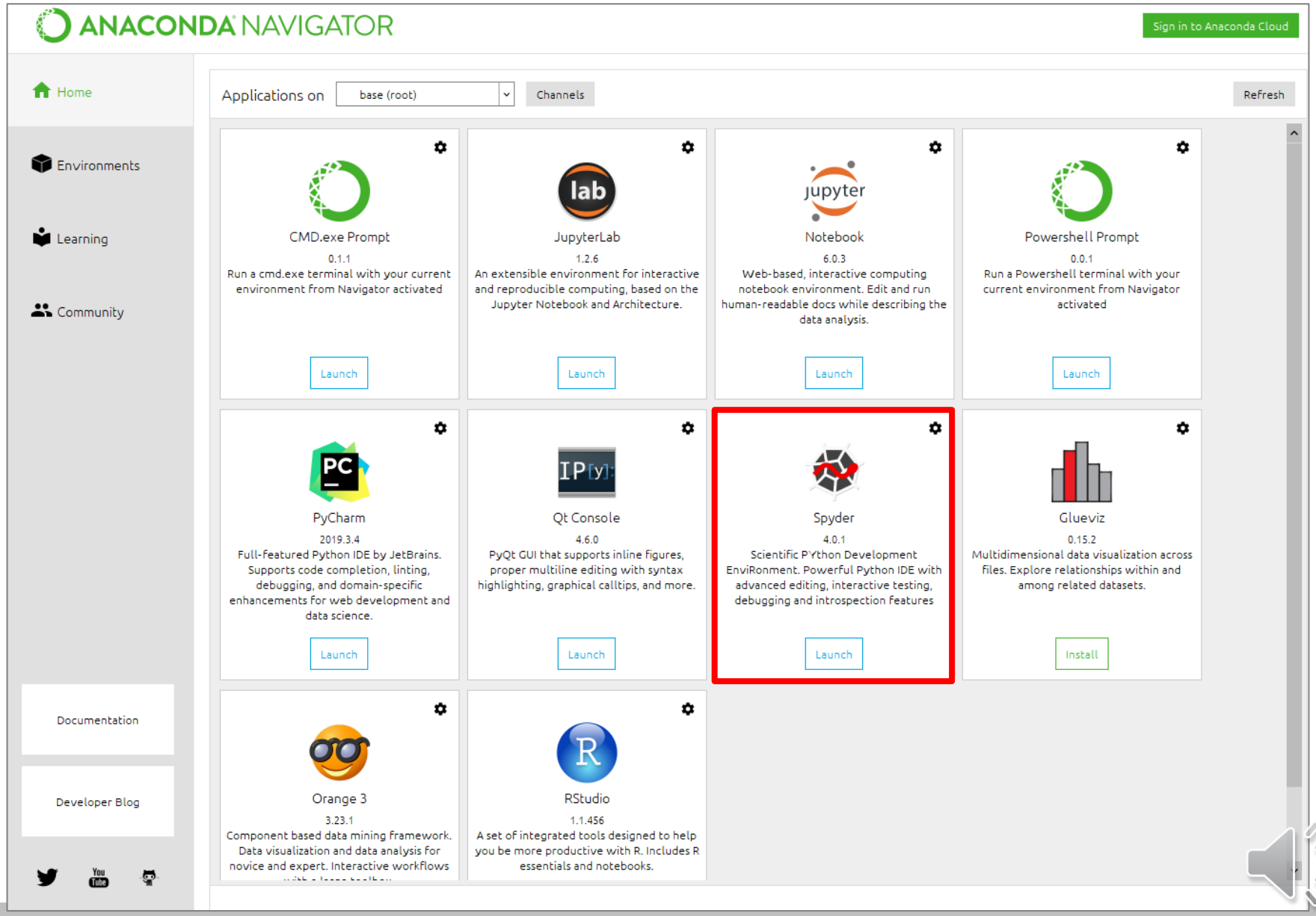


pip install pandas
pip install numpy
pip install matplotlib
pip install scipy
pip install –U scikit-learn

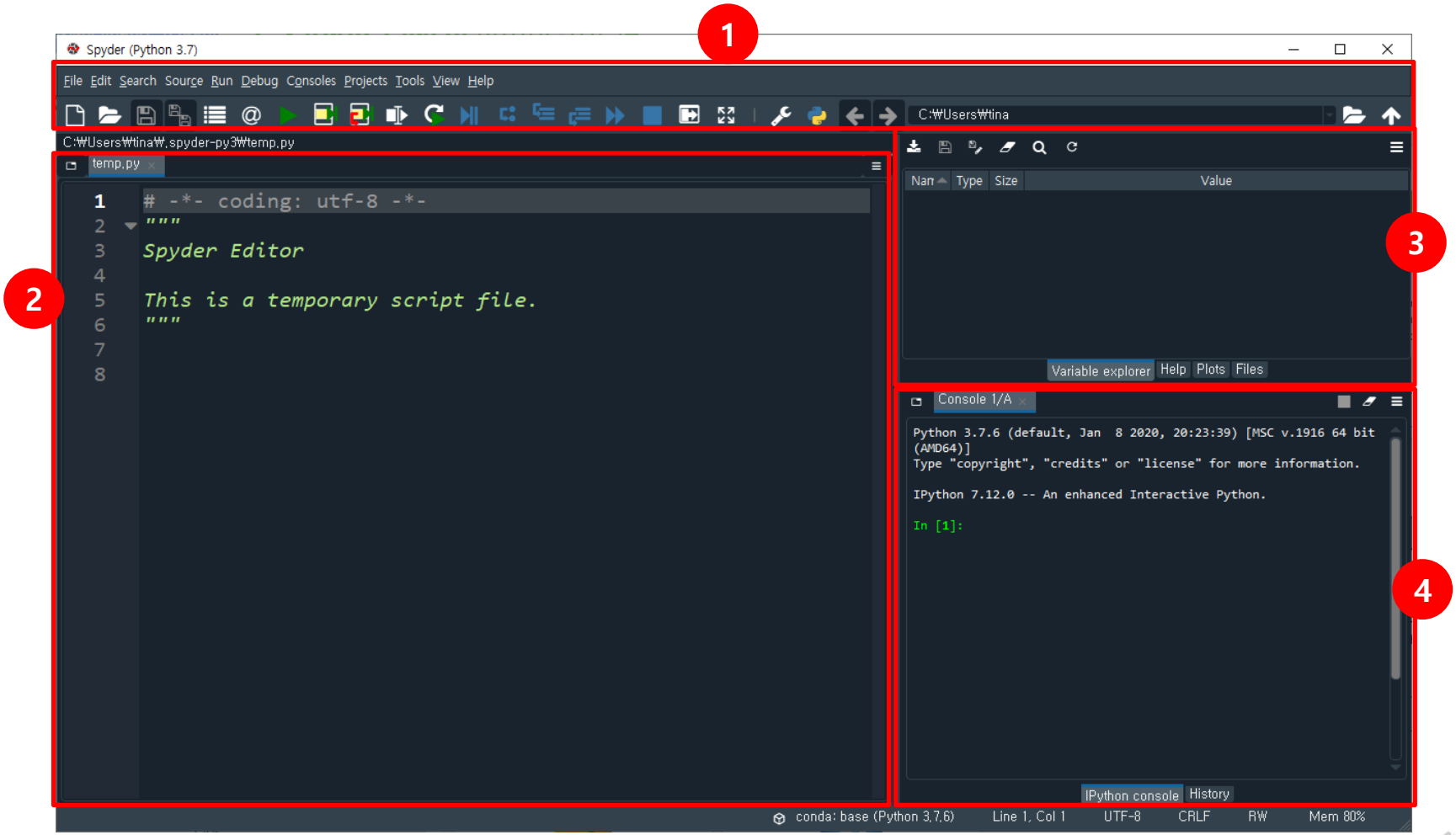
Part 0. 개발환경 준비

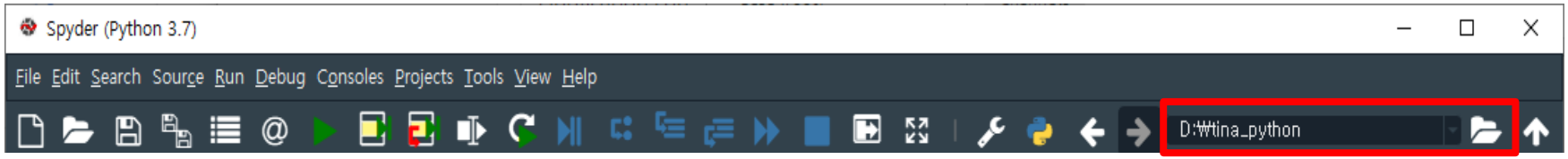


Part 0. 개발환경 준비



2. 스파이더(Spyder) 사용법



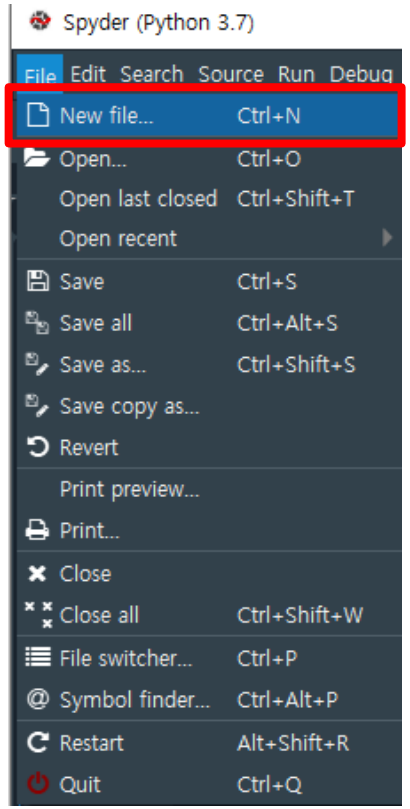


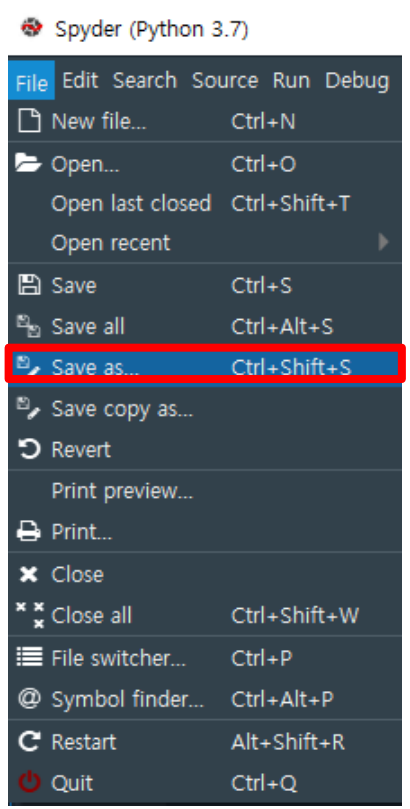
Homework

작업 폴더 밑에 "본인영어이름_python"으로 폴더 만든 후
Spyder 화면 캡처하여 제출

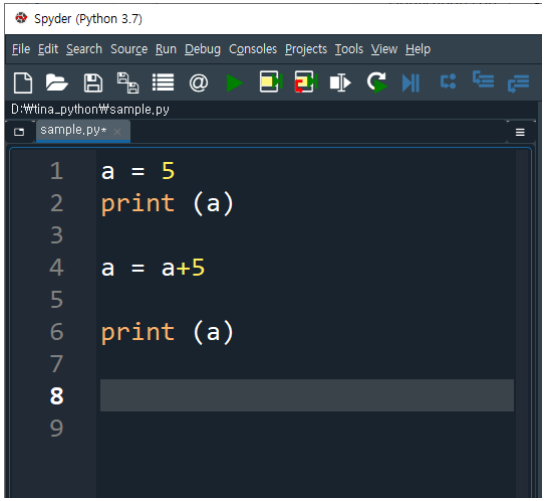
예) 홍길동
C:₩users₩gildong_python 또는 D:₩users₩gildong_python

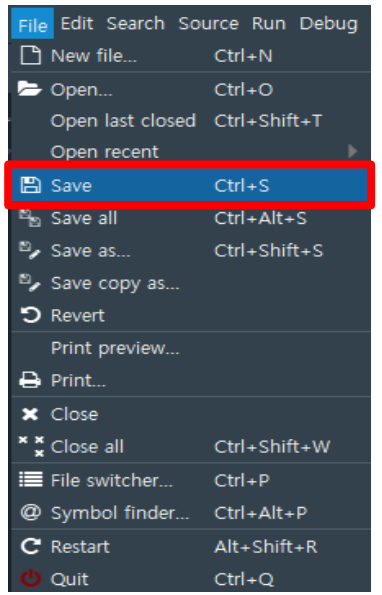
[File]–[New File]을 선택하면 새로운 파일이 만들어진다. 좌측에 있는 에디터 창에 입력한 코드를 실행하려면, 코드 작성 전에 반드시 파일명을 지정하여 저장해야 한다. [File]–[Save As]를 선택하고, 폴더를 지정하여 'sample.py'라는 이름으로 저장한다. 에디터 창에 다음과 같이 코드 를 입력하고, 상단 메뉴에서 [File]–[Save]를 선택하거나 저장 버튼(🖫)을 클릭하면 파일에 저장된다.



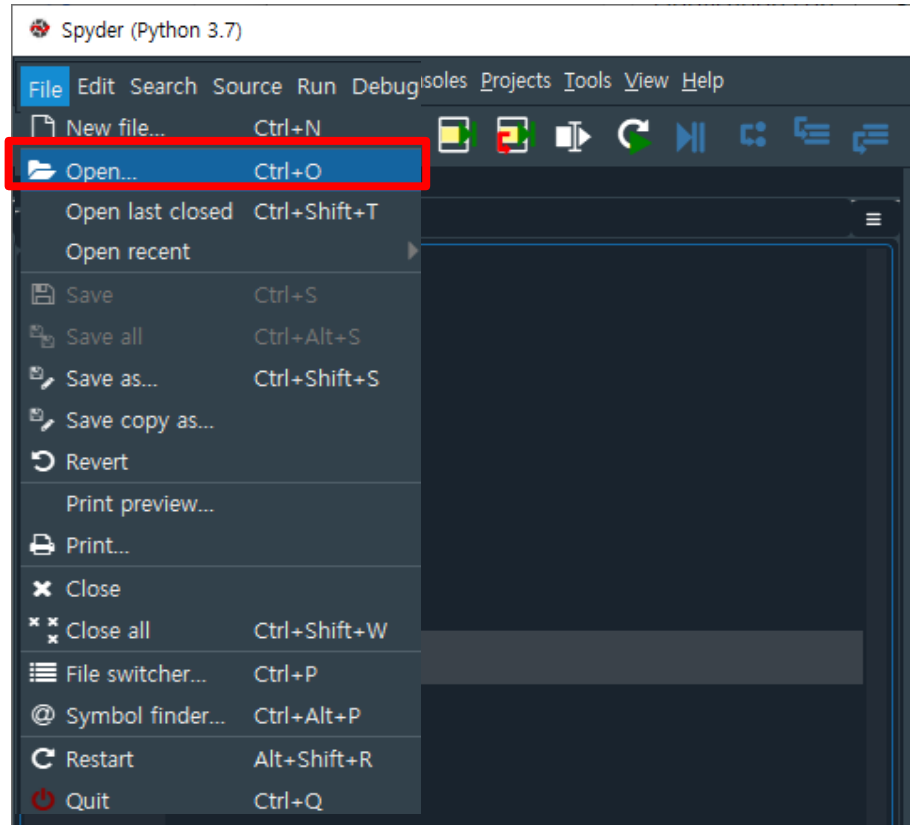


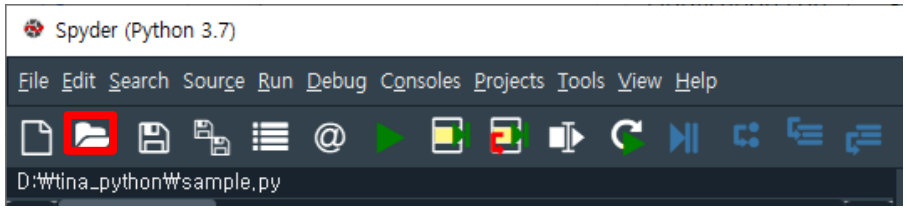
[File]–[New File]을 선택하면 새로운 파일이 만들어진다. 좌측에 있는 에디터 창에 입력한 코드를 실행하려면, 코드 작성 전에 반드시 파일명을 지정하여 저장해야 한다. [File]–[Save As]를 선택하고, 폴더를 지정하여 'sample.py'라는 이름으로 저장한다. 에디터 창에 다음과 같이 코드 를 입력하고, 상단 메뉴에서 [File]–[Save]를 선택하거나 저장 버튼(💾)을 클릭하면 파일에 저장된다.

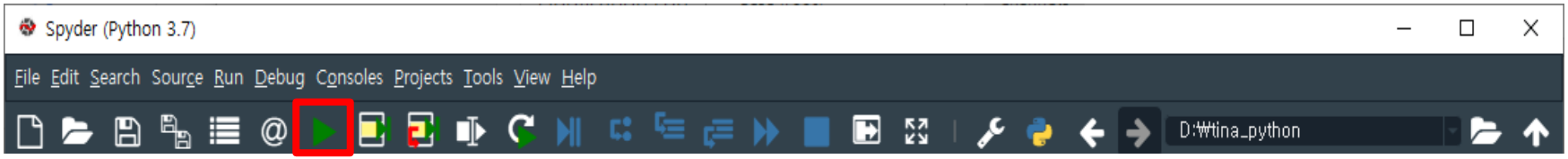




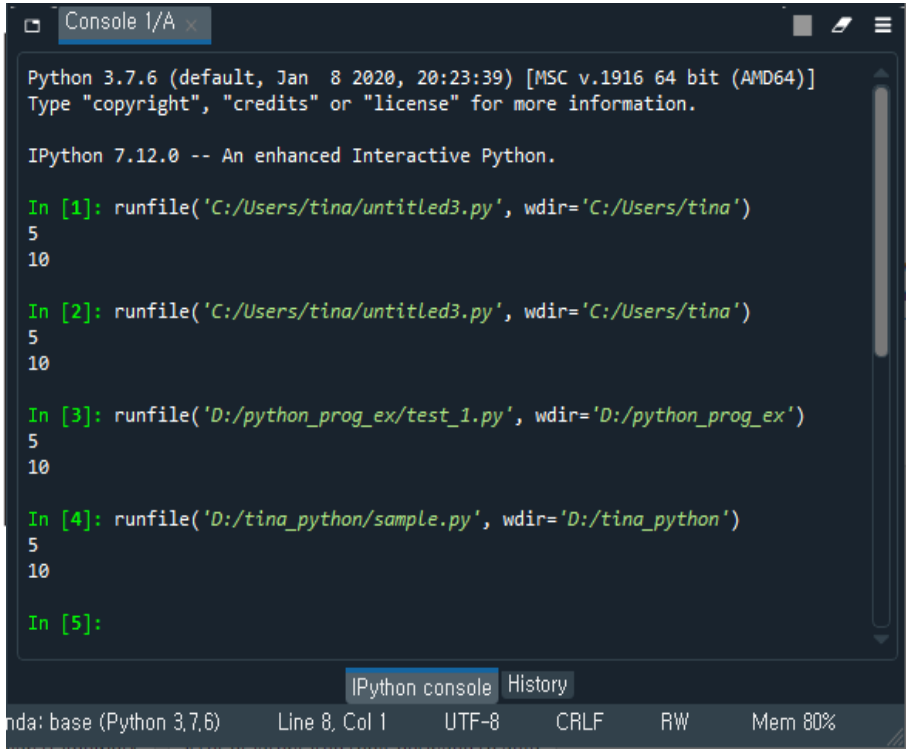
로컬 PC에 저장되어 있는 파이썬 파일을 열어서 에디터 창에서 편집하려면, 상단 메뉴 [File]-[Open]을 선택하거나 열기 버튼(📂)을 클릭한다. 또는 주소창 옆의 폴더 검색 버튼(📂)을 눌러서 폴더를 지정하고, 'File Explorer' 탭을 클릭하면 'sample.py'라는 파일명을 찾을 수 있다. 파일명을 더블클릭하면 파일이 열리면서 에디터 창이 활성화된다.



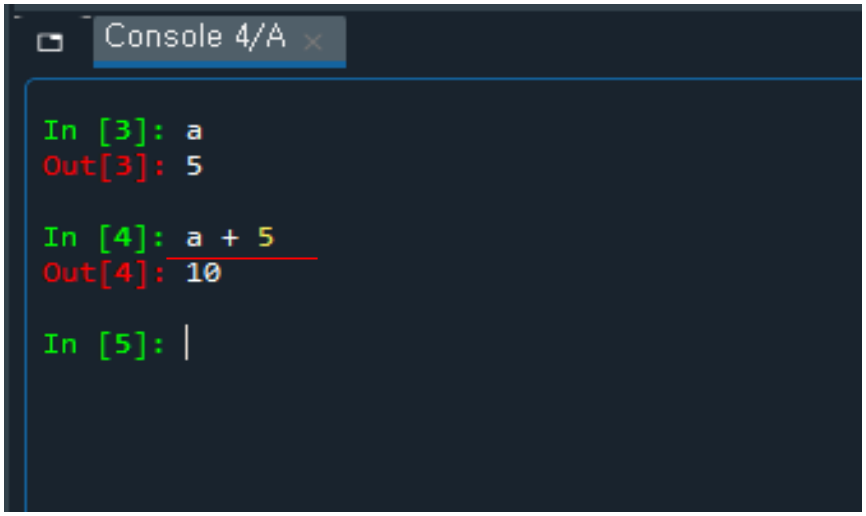




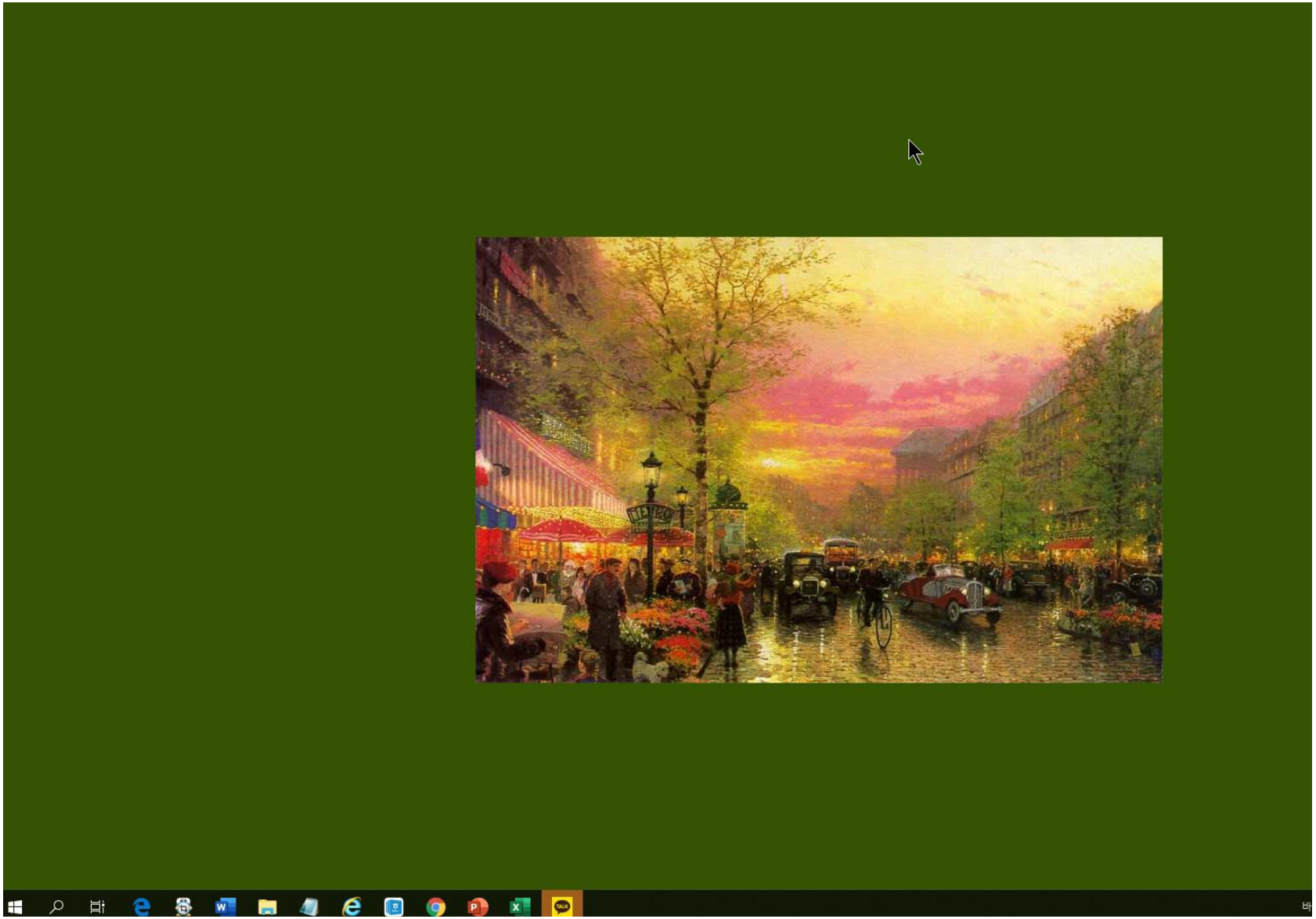
에디터 창에 입력하고 저장한 예제 코드('sample.py') 전체를 한번에 실행하려면, 상단 메뉴의 전부 실행 버튼(▶)을 클릭하거나 단축키 F5를 누른다. 우측 하단의 IPython 콘솔에 다음과 같이 실행 결과가 출력된다(변수 a에 저장된 값은 실행 순서에 따라 첫 줄에 5가 출력되고, 두 번째 줄에 다시 5가 더해진 10이 출력된다).



(IPython) 콘솔 모드



IPython 콘솔은 인터랙티브 실행 환경이다. 따라서 콘솔에 표시된 명령 프롬프트에 파이썬 코드를 직접 입력하면 바로 실행 결과가 출력된다. 다음 그림에서 "In [4]:" 오른쪽에 커서를 놓고 원하는 코드를 입력하면 'Out[4]:' 우측에 실행 결과가 출력된다. 변수 a(현재값 5)에 숫자 5를 더하는 식을 입력한 결과, 숫자 10이 출력된 것을 확인할 수 있다. 다음 줄에는 다음의 명령 입력을 위해 'In [5]:'와 같이 명령 프롬프트가 다시 나타난다.



Any Question?

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Thank you.