



통계특강 with Python

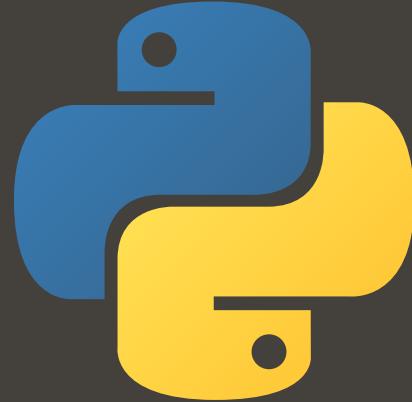
Python 소개 및 설치

김 현 성

중앙대학교 응용통계학과

July 1, 2021

파이썬 (Python) 이란?





파이썬 (Python)

- 1991년에 귀도 반 로섬(Guido van Rossum)이 개발한 대화형 프로그래밍 언어
- 쉽고 간결하다.
- 빠른 개발 속도
- 오픈소스이며 활발한 생태계를 구축



Python으로 무얼 할 수 있을까?



- 개발 (웹, 게임, GUI 등)
- 웹 크롤링
- 데이터 분석 / 통계 분석
- 머신러닝 / 딥러닝
- 구글 (Google), 인스타그램 (Instagram), 넷플릭스 (Netflix) 등 다양한 기업에서 파이썬을 활용하고 있음

아나콘다 (Anaconda) 란?





아나콘다 (Anaconda)

- Python 기본 패키지에 각종 수학 / 과학 라이브러리들을 같이 패키징해서 배포하는 버전
- 대표적으로 pandas, numpy, scipy, sklearn, matplotlib 등이 포함
- conda라는 강력한 패키지 관리자가 존재
- 손쉽게 가상환경을 만들어 개발 환경 및 패키지를 분리하여 관리가 가능





Anaconda 설치

- <https://www.anaconda.com/products/individual>

ANACONDA Products Pricing Solutions Resources Blog Company Get Started



Individual Edition

Your data science toolkit

With over 25 million users worldwide, the open-source Individual Edition (Distribution) is the easiest way to perform Python/R data science and machine learning on a single machine. Developed for solo practitioners, it is the toolkit that equips you to work with thousands of open-source packages and libraries.

Anaconda Individual Edition

Download For MacOS Python 3.8 • 64-Bit Graphical Installer • 440 MB

Get Additional Installers

Windows | Mac | Linux

Anaconda 설치





Anaconda 설치

Anaconda3 2021.05 (64-bit) Setup

License Agreement

Please review the license terms before installing Anaconda3 2021.05 (64-bit).

Press Page Down to see the rest of the agreement.

=====
End User License Agreement - Anaconda Individual Edition
=====

Copyright 2015-2021, 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 2021.05 (64-bit).

Anaconda, Inc.

< Back **I Agree** Cancel



Anaconda 설치

Anaconda3 2021.05 (64-bit) Setup

Select Installation Type
Please select the type of installation you would like to perform for Anaconda3 2021.05 (64-bit).

Install for:

Just Me (recommended)

All Users (requires admin privileges)

Anaconda, Inc.

< Back **Next >** Cancel



Anaconda 설치

Anaconda3 2021.05 (64-bit) Setup

Choose Install Location
Choose the folder in which to install Anaconda3 2021.05 (64-bit).

Setup will install Anaconda3 2021.05 (64-bit) in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.

Destination Folder

Space required: 2.9GB
Space available: 879.0GB

Anaconda, Inc.

< Back Cancel



Anaconda 설치

Anaconda3 2021.05 (64-bit) Setup

ANACONDA. Advanced Installation Options
Customize how Anaconda integrates with Windows

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 3.8
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 설치

Anaconda3 2021.05 (64-bit) Setup

Installing
Please wait while Anaconda3 2021.05 (64-bit) is being installed.

Setting up the package cache ...

Show details

Anaconda, Inc.

< Back Next > Cancel

A screenshot of the Anaconda 2021.05 (64-bit) Setup window. The title bar says "Anaconda3 2021.05 (64-bit) Setup". The main area shows the Anaconda logo and the word "Installing". Below that, it says "Please wait while Anaconda3 2021.05 (64-bit) is being installed." A progress bar is shown, with most of it filled in green and a small portion at the end in grey. Below the progress bar is a button labeled "Show details". At the bottom, it says "Anaconda, Inc." and has buttons for "< Back", "Next >", and "Cancel".



Anaconda 설치

Anaconda3 2021.05 (64-bit) Setup

Anaconda3 2021.05 (64-bit)
Anaconda + JetBrains

Working with Python and Jupyter notebooks is a breeze with PyCharm Pro, designed to be used with Anaconda. Download now and have the best data tools at your fingertips.

<https://www.anaconda.com/pycharm>

ANACONDA

PC

Anaconda, Inc.

< Back **Next >** Cancel

A screenshot of the Anaconda 2021.05 (64-bit) Setup window. The window title is "Anaconda3 2021.05 (64-bit) Setup". The main header features the Anaconda logo and the text "Anaconda3 2021.05 (64-bit)" and "Anaconda + JetBrains". Below the header, there is a promotional message about PyCharm Pro. A link to the PyCharm website is provided. The Anaconda logo is prominently displayed on the left, and a stylized "PC" logo is on the right. At the bottom, there is copyright information for Anaconda, Inc. and navigation buttons: "< Back", "**Next >**" (which is highlighted with a red border), and "Cancel".



Anaconda 설치

Anaconda3 2021.05 (64-bit) Setup

Completing Anaconda3 2021.05 (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

Getting Started with Anaconda

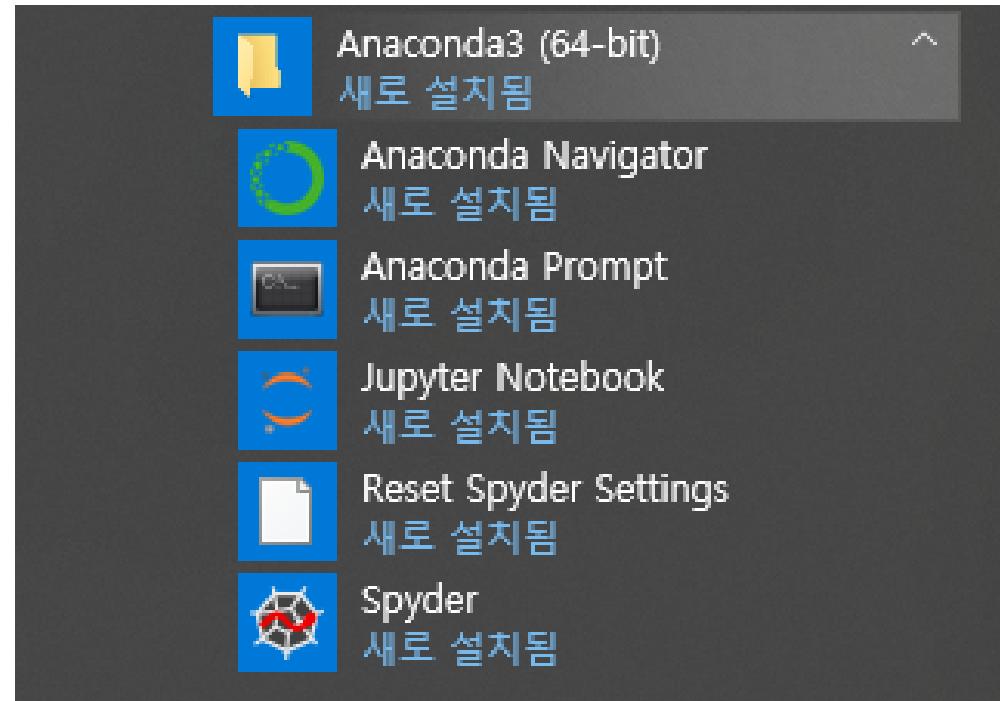
< Back Finish Cancel

The Anaconda logo, consisting of a green circle with a textured pattern inside, followed by the word "ANACONDA" in a bold, sans-serif font with a registered trademark symbol.



Anaconda 설치 확인

- 시작메뉴에서 **Anaconda Prompt** 실행



<그림출처: <https://wonderbout.tistory.com/22>>



Anaconda 설치 확인

- Anaconda Prompt에서 다음을 한 줄씩 실행
- 한 줄씩 실행할 때마다 오류 발생하지 않는지 확인!

```
python --version  
python  
print("Hello world")
```

The screenshot shows the Anaconda Prompt window titled "Anaconda Prompt (Anaconda3) - python". It displays the following command-line session:

```
(base) C:\Users\MMVSTAT>python --version  
Python 3.8.8  
(base) C:\Users\MMVSTAT>python  
Python 3.8.8 (default, Apr 13 2021, 15:08:03) [MSC v.1916 64 bit (AMD64)] :: Anaconda, Inc. on win32  
Type "help", "copyright", "credits" or "license" for more information.  
>>> print("Hello world")  
Hello world  
>>>
```

Jupyter Lab





Jupyter Lab

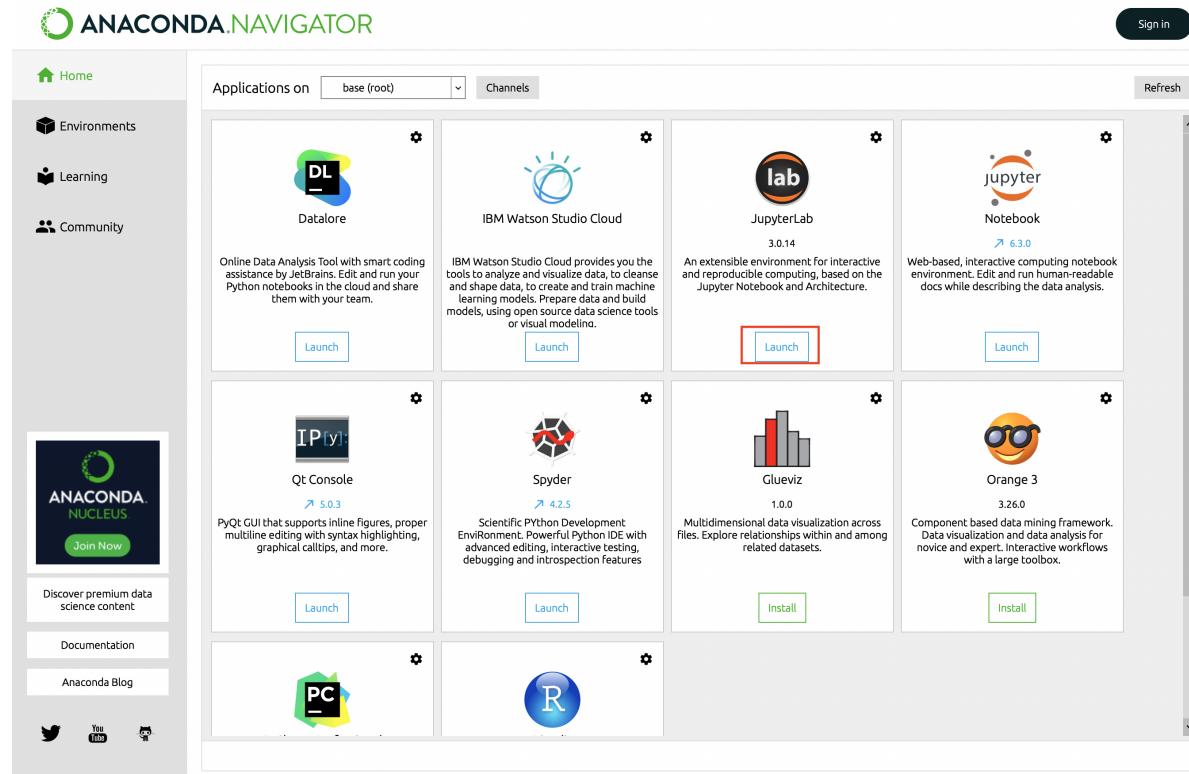
- 앞으로 실습에서 사용할 파이썬 개발 환경
- 파이썬을 활용한 데이터 분석에서 널리 사용되고 있음
- 코드블럭마다 실행결과를 확인할 수 있어 리포트처럼 보기에 좋음





Jupyter Lab 실행 방법

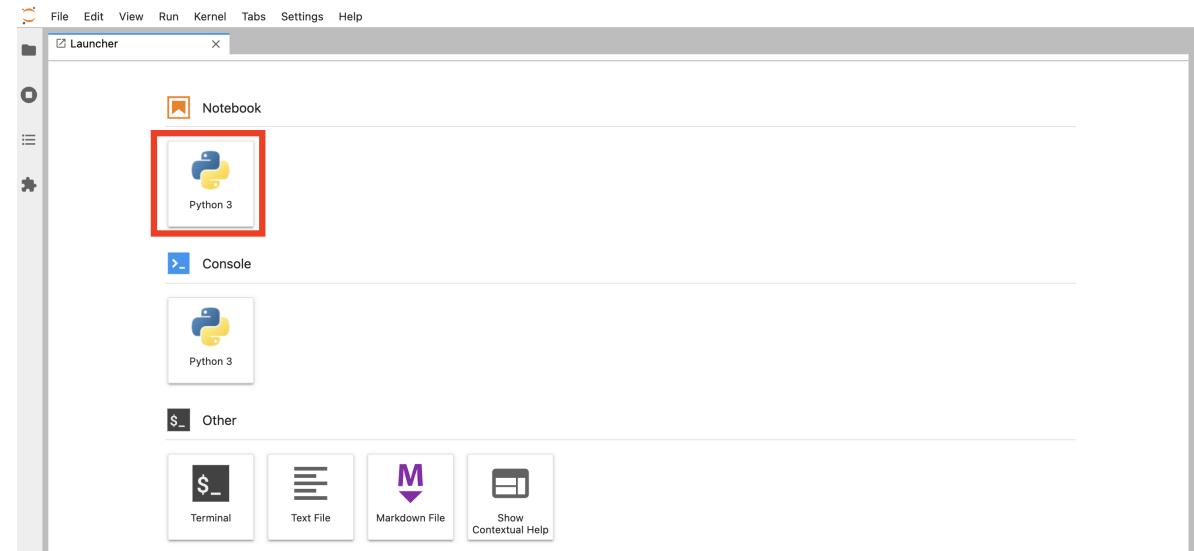
- 시작메뉴에서 **Anaconda Navigator** 실행
- **Jupyter Lab** 박스 밑에 **Launch** 클릭





Jupyter Lab 실행 화면

- 웹창이 열리게 되고 다음과 같은 화면이 나타남
- **Notebook**의 **Python3** 클릭





Jupyter notebook

- 다음과 같은 jupyter notebook 파일이 열리게 됨
- 아래 그림과 같이 한 줄씩 입력하여 실행되는지 확인
 - 실행은 shift+enter 또는 ctrl+enter
- 코드블럭 추가는 위에 + 기호를 누르면 됨

The screenshot shows a Jupyter Notebook interface with the following details:

- Toolbar:** File, Edit, View, Run, Kernel, Tabs, Settings, Help.
- Title Bar:** Untitled.ipynb
- Code Cell 1:** [1]: `1+1` → Output: 2
- Code Cell 2:** [2]: `print("Hello world")` → Output: Hello world
- New Cell:** A new cell is being created at the bottom, indicated by the '+' icon in the toolbar and the empty cell area.
- Kernel:** Python 3



Reference

- 점프 투 파이썬
- <https://wonderbout.tistory.com/22>
- <https://popooly.tistory.com/26>
- <https://bradbury.tistory.com/60>



감사합니다!