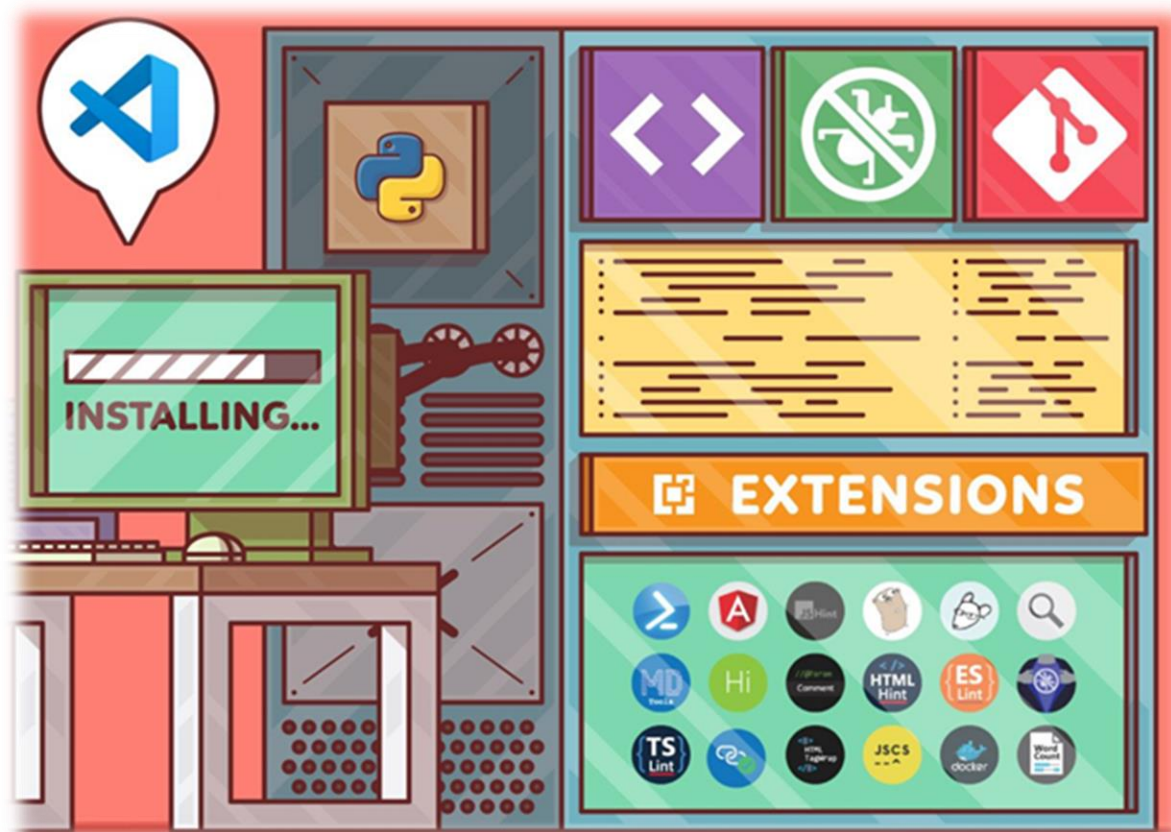


개발환경 구성



개발환경

PC



Visual Studio Code



Sublime Text



Jupyter Notebook



Jupyter Lab



웹

colab

<https://colab.research.google.com/>

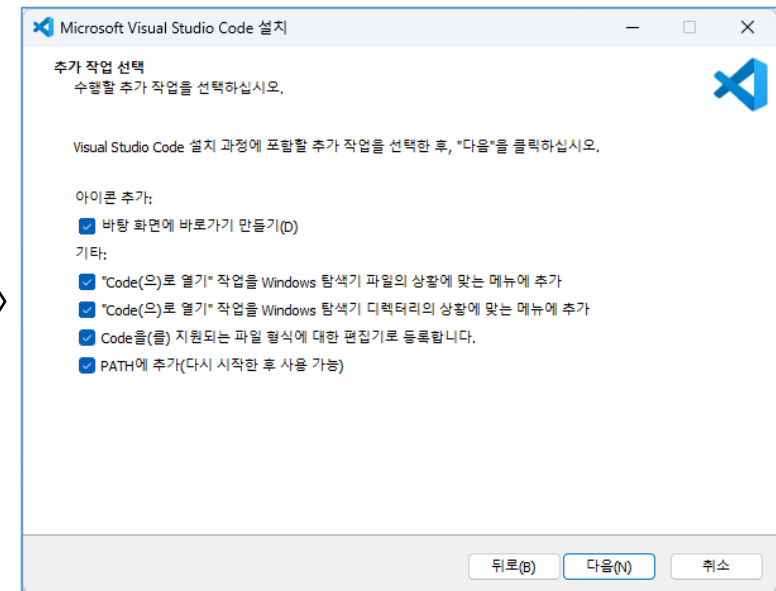
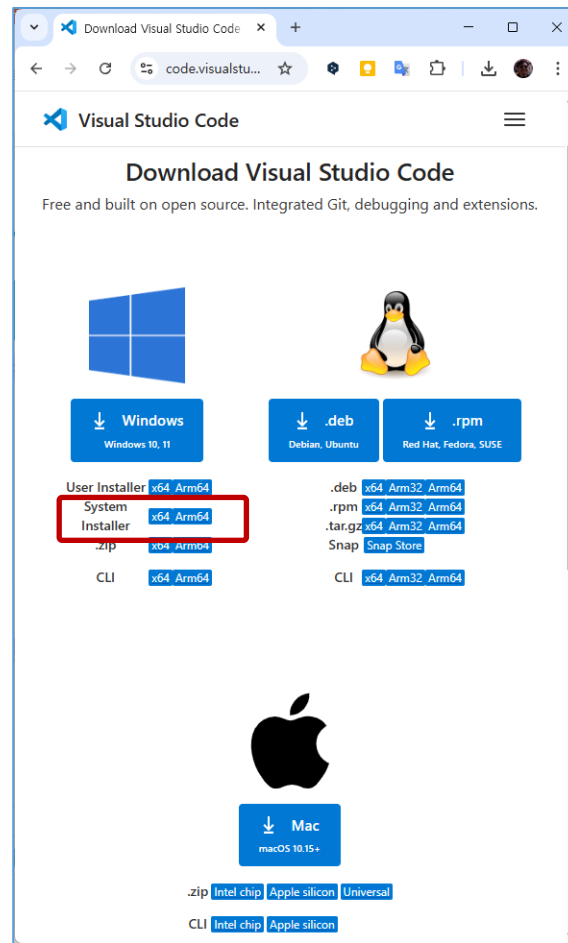
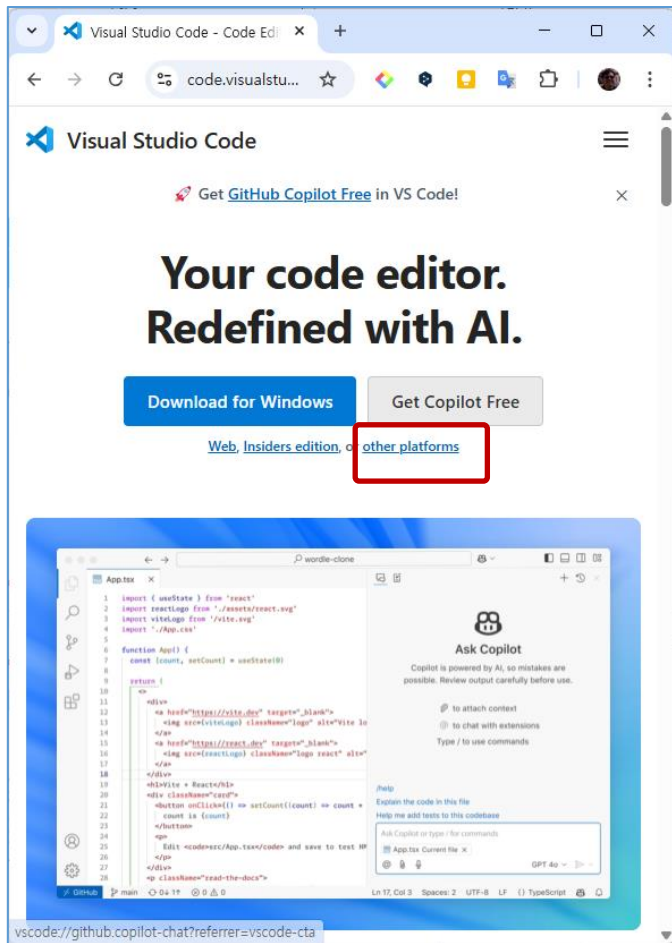
kaggle

<https://www.kaggle.com/>

VS Code 설치 - Windows

■ 설치 프로그램

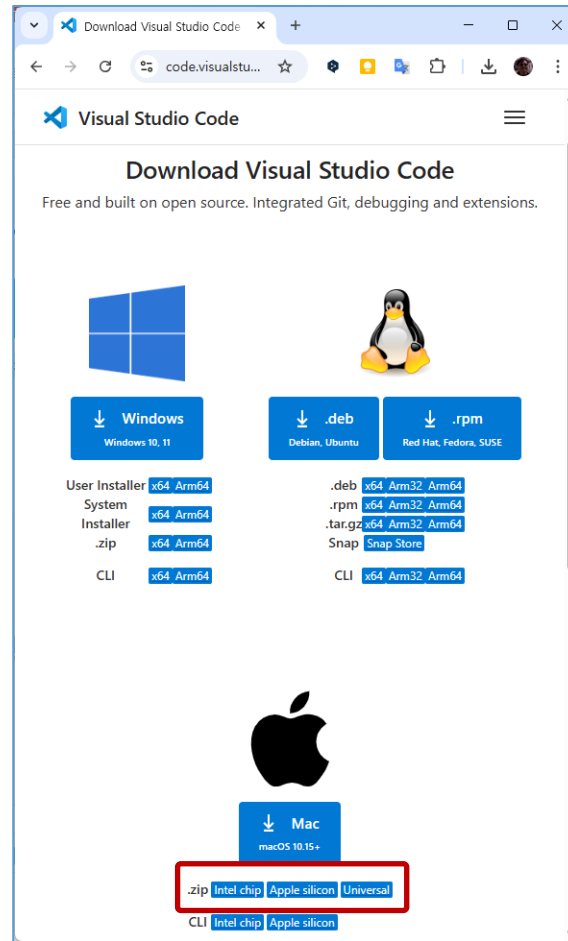
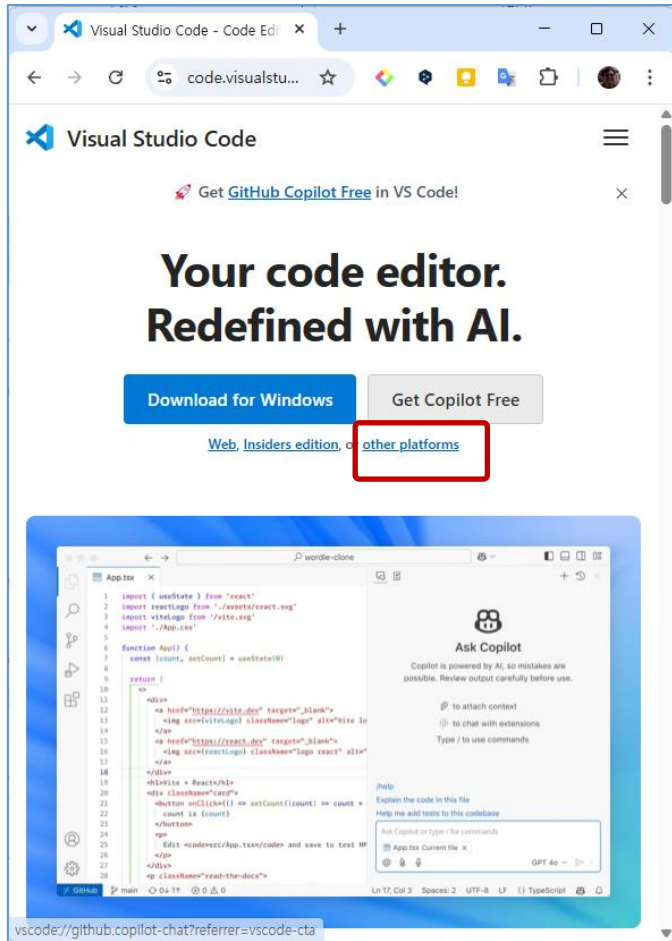
<https://code.visualstudio.com/>



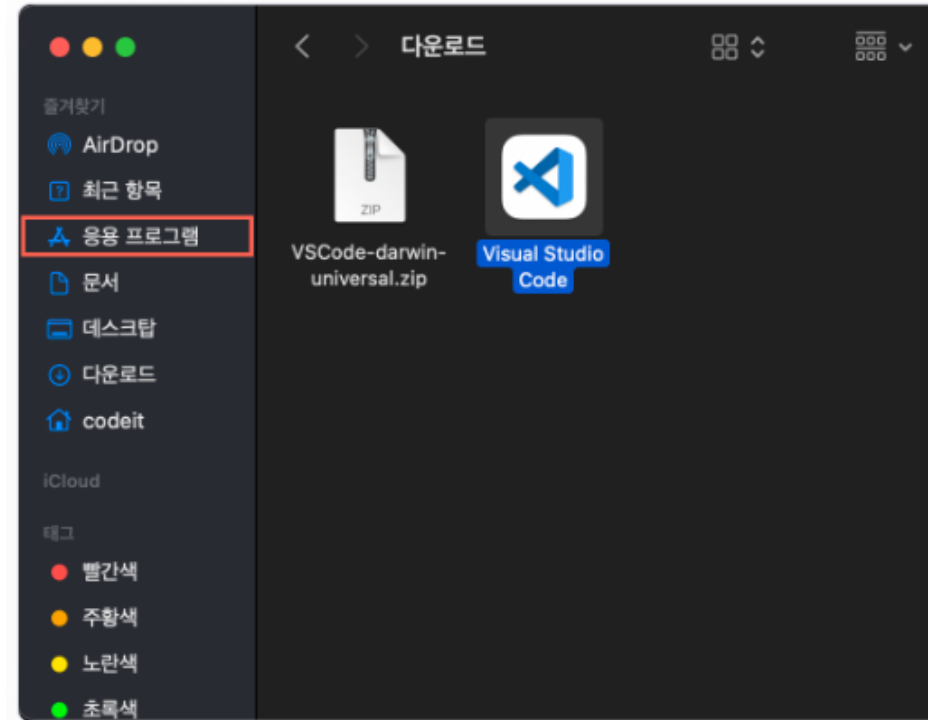
VS Code 설치 – macOS

■ 설치 프로그램

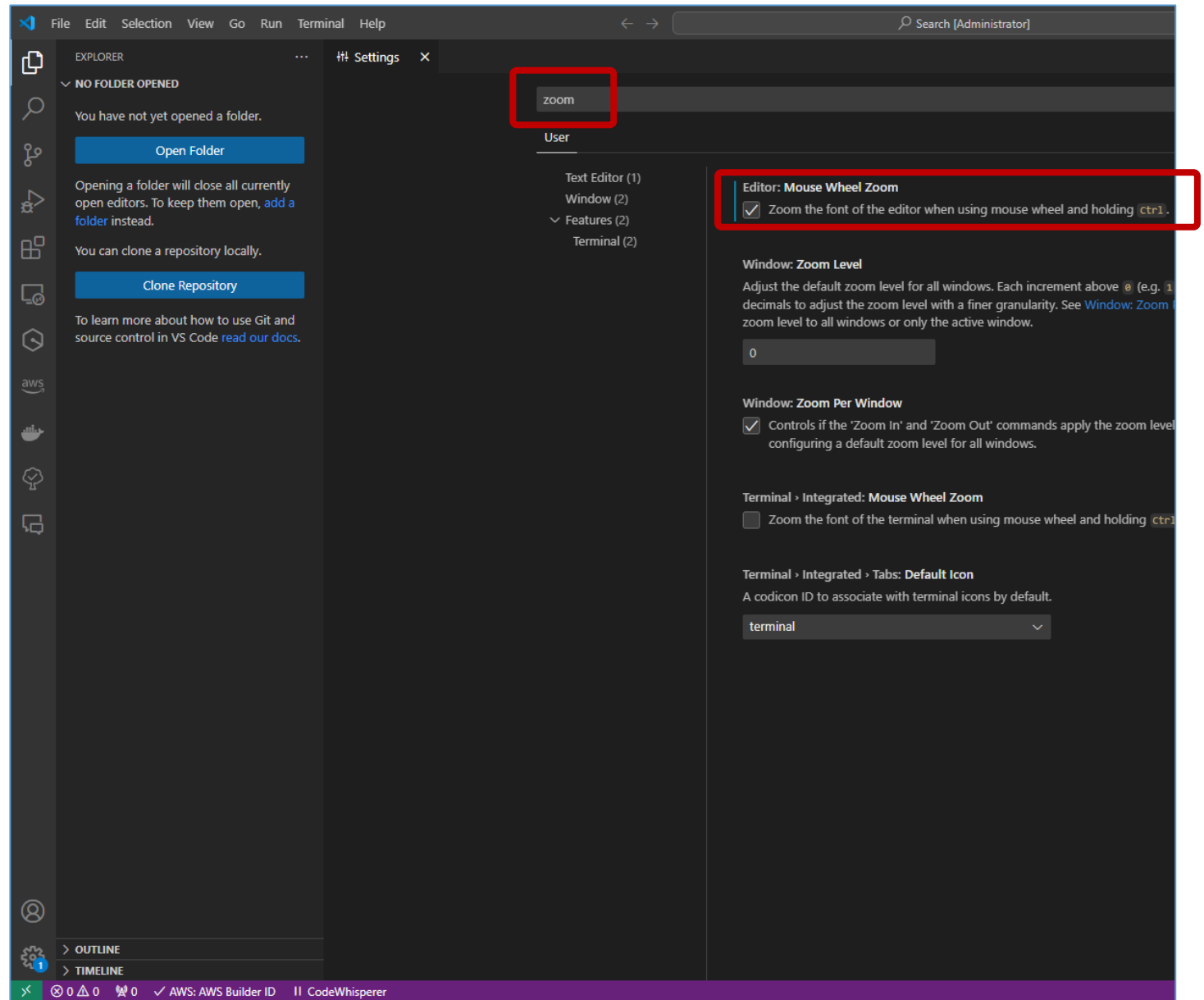
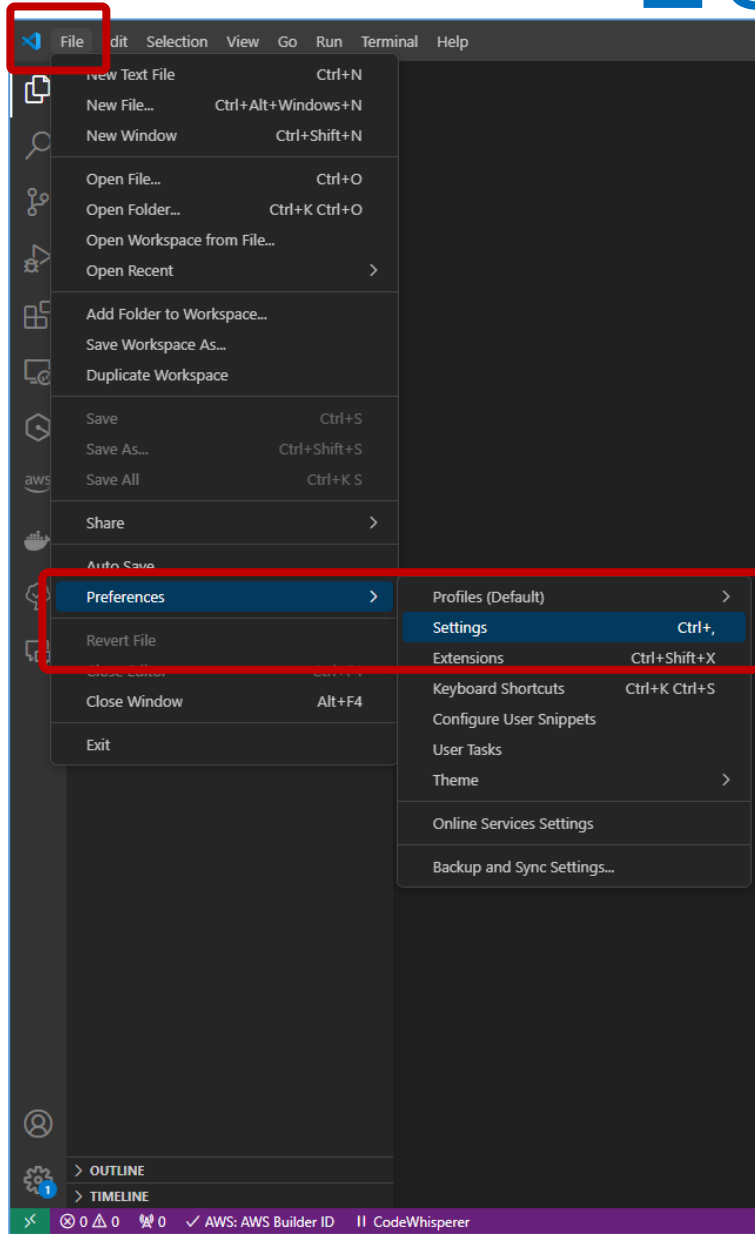
<https://code.visualstudio.com/>



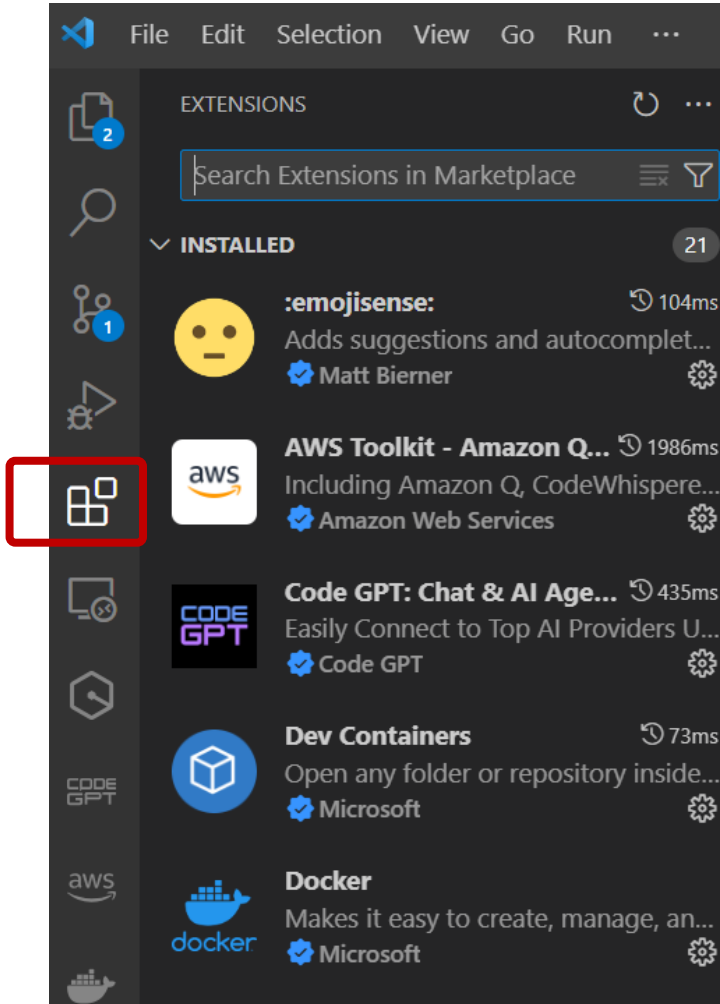
Visual Studio Code를
응용 프로그램(Applications)
폴더로 옮겨 주세요.



VS Code Zoom 설정



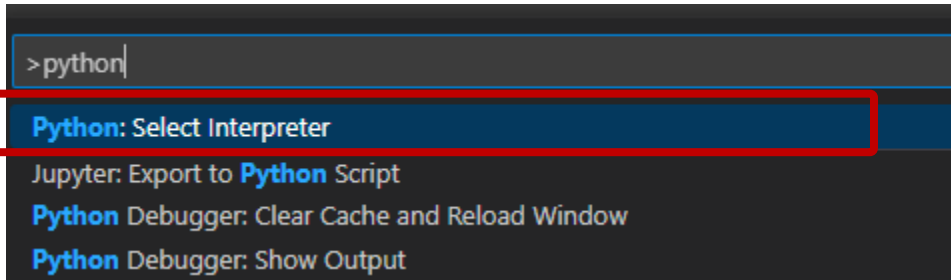
VS Code Extension 설치



- **Python** : 파이썬에 대한 풍부한 지원 제공, IntelliSense(Pylance), Linting, 디버깅, 코드 탐색 등의 기능을 제공
- **Jupyter** : Jupyter 노트북 지원
- **Black Formatter** : Python 파일에 대한 포매팅 지원 제공
- **vscode-icons** : Visual Studio Code용 아이콘
- **TODO Highlight** : 코드 내에서 TODO, FIXME 및 기타 주석을 강조 표시
- **Todo Tree** : TODO, FIXME와 같은 주석 태그를 빠르게 검색하고
활동 표시줄의 트리 보기에 표시
- **Path Intellisense** : 파일 이름 자동 완성
- **Live Preview** : 웹페이지 미리 보기
- **REST Client** : REST 클라이언트

VS Code 단축키 및 코딩 지원 기능

Command Pallate : Ctrl + Shift+ P, ⌘ + ⇧ + P



터미널 : Ctrl + `

파일 찾기 : Ctrl + P

행 삭제 : Ctrl + X

행 복사 : Ctrl + C

행 붙여넣기 : Ctrl + V

위에 행 복사 추가 : Shift + Alt + Down

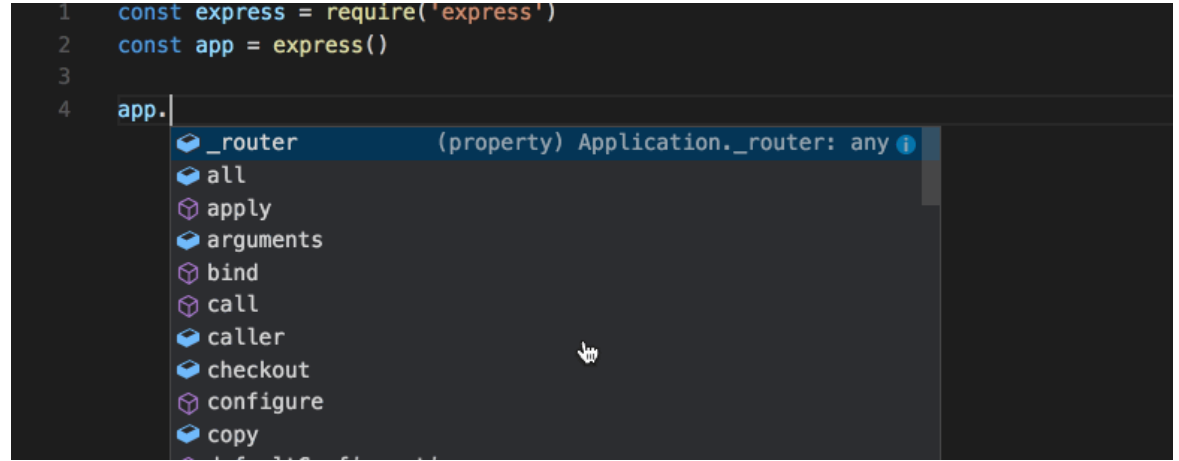
아래에 행 복사 추가 : Shift + Alt + Up

행을 아래로 이동 : Alt + Down

행을 위로 이동 : Alt + Up

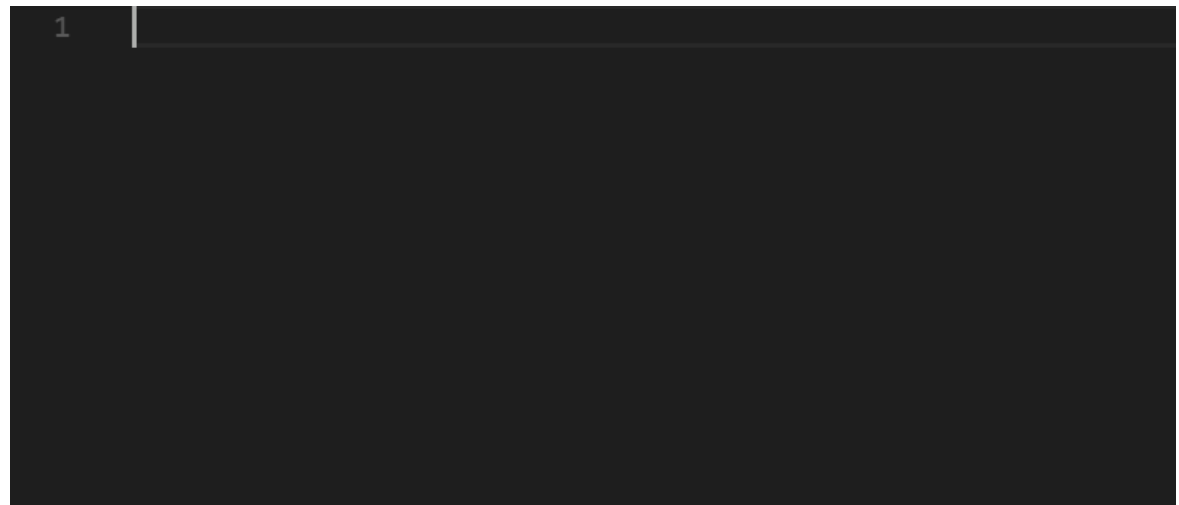
화면 크기를 조정 : Ctrl + '+' 또는 Ctrl + '-'

인텔리센스(IntelliSense) : 코드 완성



<https://code.visualstudio.com/docs/editor/intellisense>

코드 스니펫 : 반복되는 코드 패턴을 입력하기 쉽게 해주는 템플릿

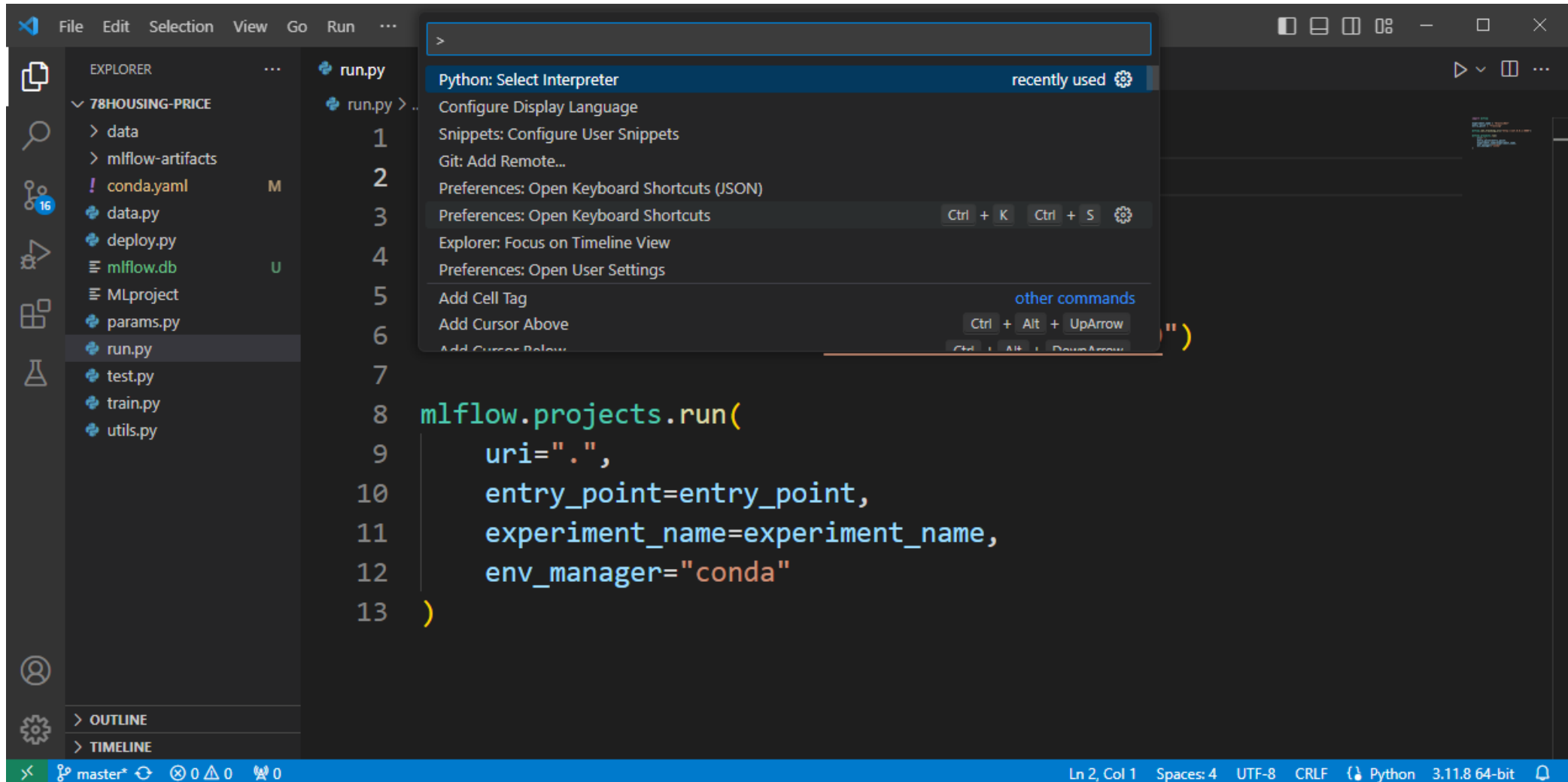


<https://code.visualstudio.com/docs/editor/userdefinedsnippets>

VS Code : Python 선택

- Windows : **Ctrl + Shift + P**
Python : Select Interpreter

- macOS : **⌘ + ⇧ + P**
Python : Select Interpreter
Shell Command : Install 'code' command in PATH



Python(파이썬)

Python Libraries for Generative AI



TensorFlow



PyTorch



Transformers



Weight and Biases



JAX



LangChain



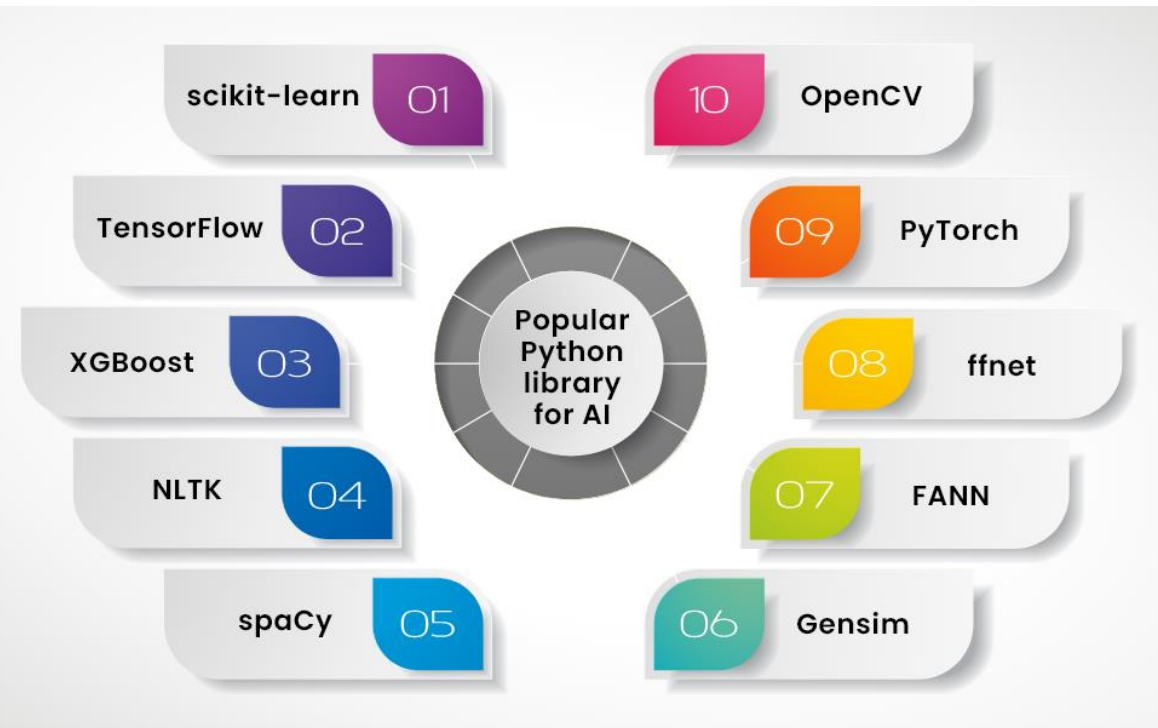
Llama Index



Diffusers



Acme



Python 설치

■ 파이썬 다운로드

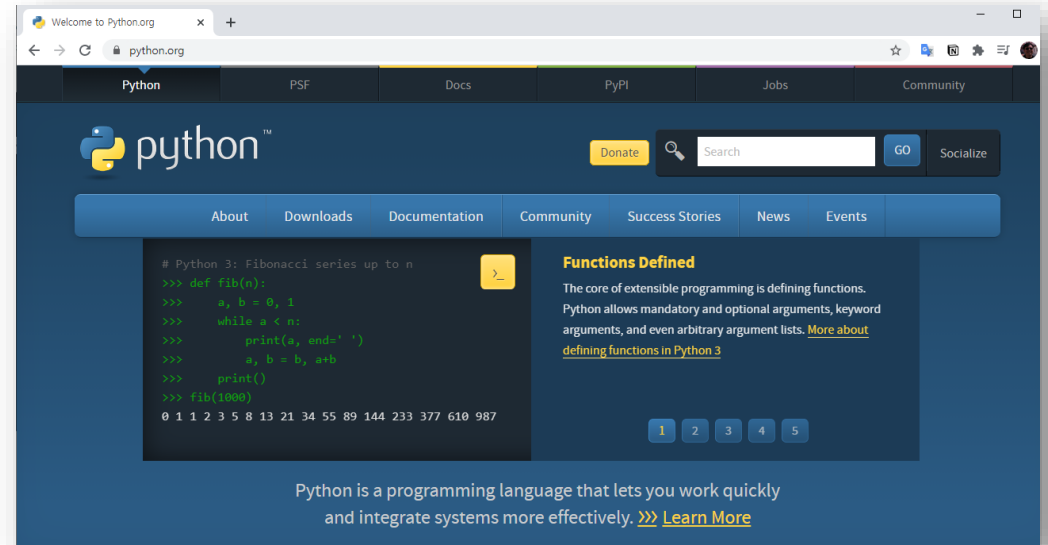
<https://www.python.org/downloads/windows/>

- [Python 3.13.2 - Feb. 4, 2025](#)
- Note that Python 3.13.2 *cannot* be used on Windows 7 or earlier.
 - Download [Windows installer \(64-bit\)](#)
 - Download [Windows installer \(32-bit\)](#)
 - Download [Windows installer \(ARM64\)](#)
 - Download [Windows embeddable package \(64-bit\)](#)
 - Download [Windows embeddable package \(32-bit\)](#)
 - Download [Windows embeddable package \(ARM64\)](#)

<https://www.python.org/downloads/macros/>

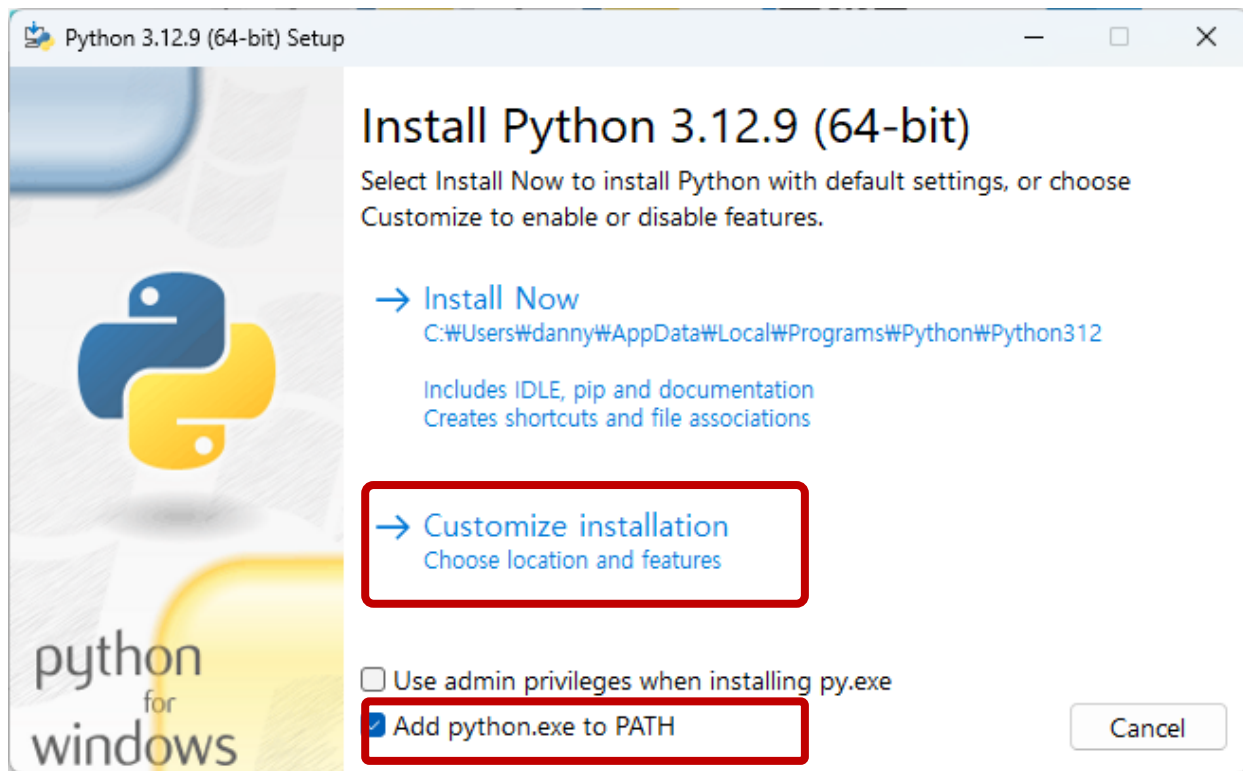
Stable Releases

- [Python 3.12.9 - Feb. 4, 2025](#)
 - Download [macOS 64-bit universal2 installer](#)



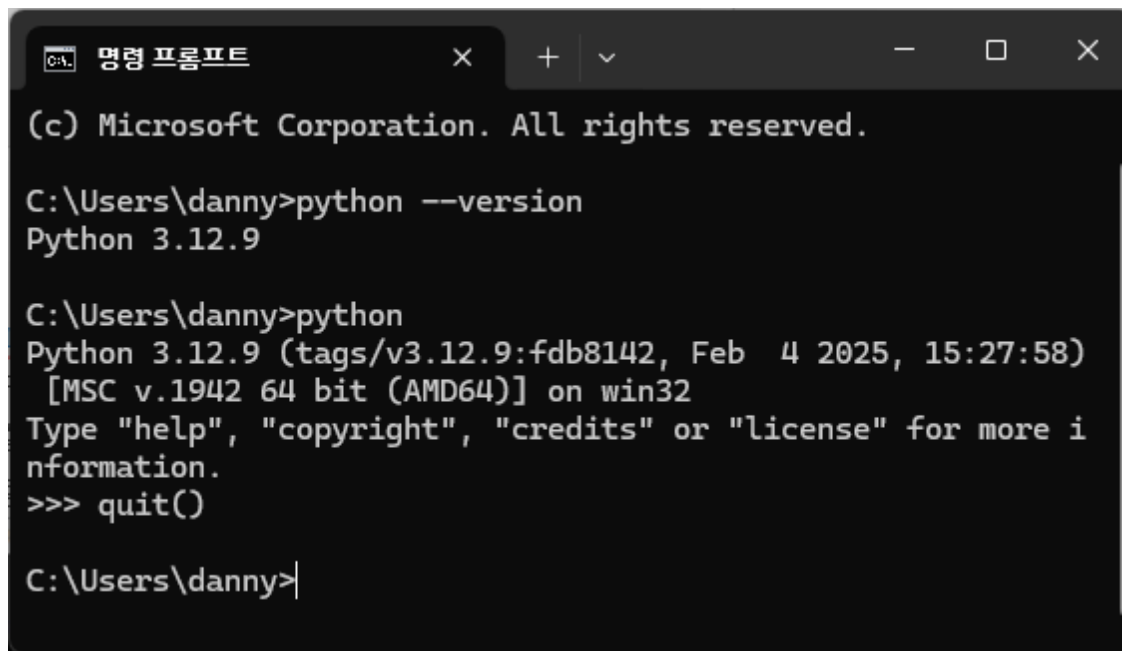
Python 설치

■ 파이썬 설치



■ 파이썬 실행

- 버전 확인 : `python --version`
- 실행 : `python`
- 종료 : `quit()`



Python 가상환경 설치 - Windows

프로젝트별로 독립된 파이썬 실행 환경을 사용할 수 있는 가상 환경(Virtual Environment) 구성을 권장합니다.

- 가상환경 생성 : `python -m venv venv`
- 가상환경 실행 : `venv\Scripts\activate.bat`
- 파이썬 패키지 설치 : `pip install jupyterlab notebook openai`
 - Jupyter Lab 실행 : `jupyter lab`
 - Jupyter Notebook 실행 : `jupyter notebook`
- 패키지 목록파일 만들기
`pip freeze > requirements.txt`
- 패키지 목록파일로 패키지 설치 하는 방법
`pip install -r requirements.txt`
- 파이썬 패키지 삭제 : `pip uninstall 패키지명`

Python 가상환경 설치 - macOS/Linux

프로젝트별로 독립된 파이썬 실행 환경을 사용할 수 있는 가상 환경(Virtual Environment) 구성을 권장합니다.

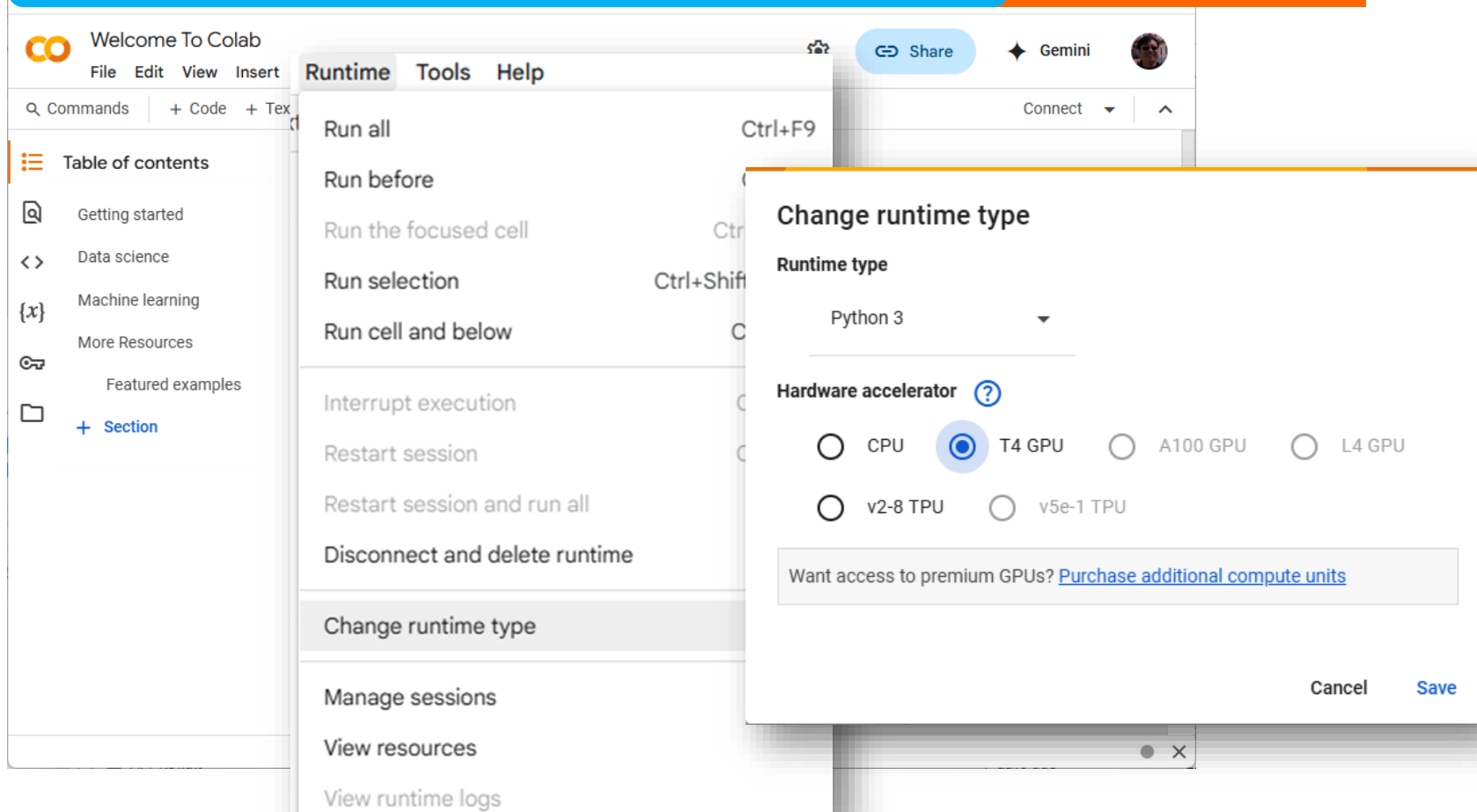
- 가상환경 생성 : `python3 -m venv venv`
- 가상환경 실행 : `source venv/bin/activate`
- 파이썬 패키지 설치 : `pip3 install jupyterlab notebook openai`
 - Jupyter Lab 실행 : `jupyter lab`
 - Jupyter Notebook 실행 : `jupyter notebook`
- 패키지 목록파일 만들기
`pip3 freeze > requirements.txt`
- 패키지 목록파일로 패키지 설치 하는 방법
`pip3 install -r requirements.txt`
- 파이썬 패키지 삭제 : `pip3 uninstall jupyterlab`

Colab(코랩)

개발툴 설치없이 웹상에서 파이썬 프로그램을 할수 있는 환경으로 딥러닝에 필요한 GPU를 사용할 수 있습니다.

<https://colab.research.google.com>

구글 계정 필요



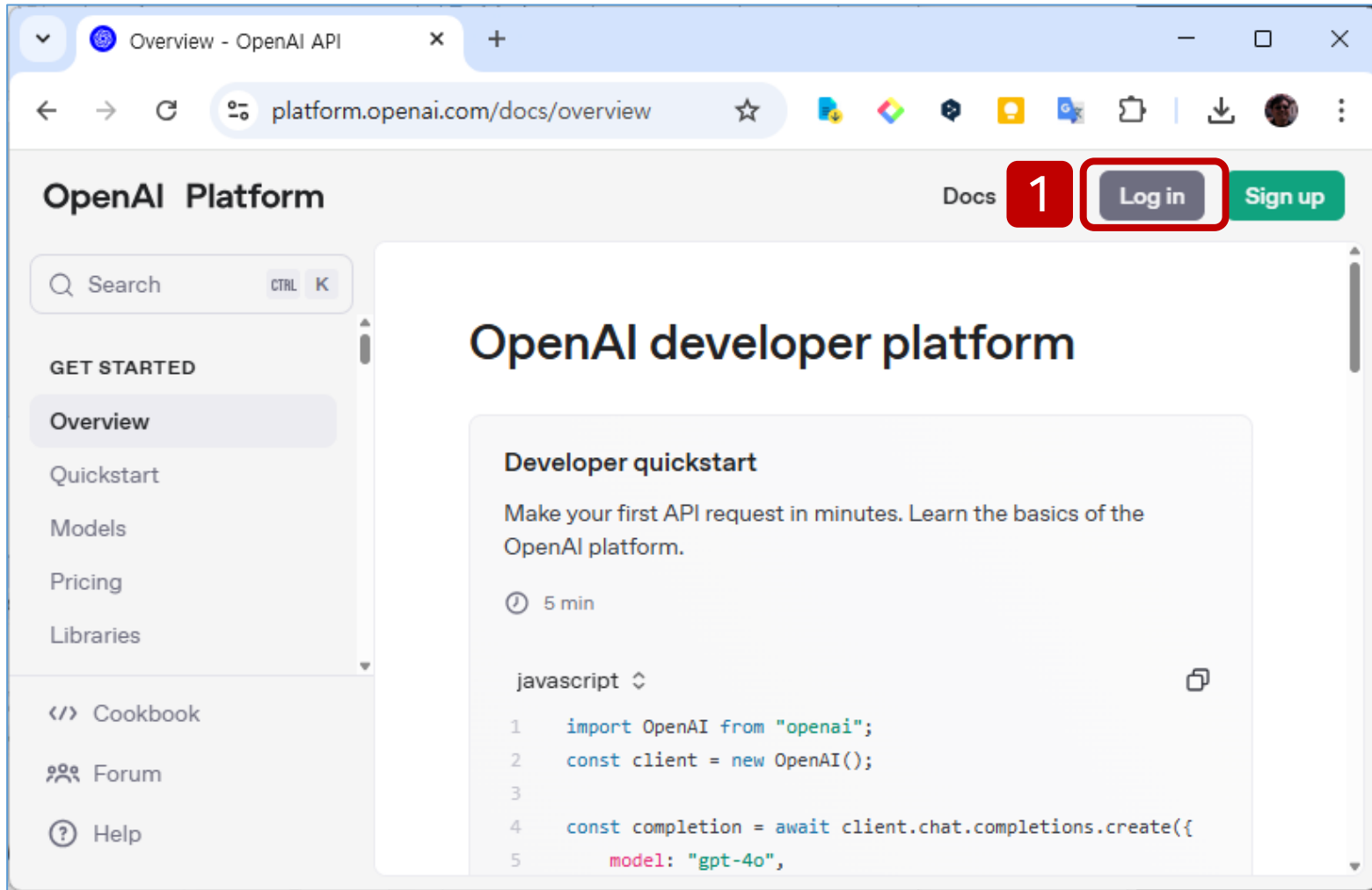
고성능GPU(Graphics Processing Unit)



OpenAI API 사용

<https://platform.openai.com/>

SIGN UP

The screenshot shows the OpenAI Platform Overview page. The browser address bar displays `platform.openai.com/docs/overview`. The page header includes the "OpenAI Platform" logo, a "Docs" link, and a red box with the number "1" next to the "Log in" button. The "Sign up" button is also visible. The main content area is titled "OpenAI developer platform" and features a "Developer quickstart" section. This section includes a "5 min" timer and a code snippet in JavaScript for making an API request. The left sidebar contains a search bar and a "GET STARTED" menu with links to Overview, Quickstart, Models, Pricing, Libraries, Cookbook, Forum, and Help.

OpenAI Platform

Docs 1 Log in Sign up

Search CTRL K

GET STARTED

- Overview
- Quickstart
- Models
- Pricing
- Libraries

</> Cookbook

Forum

Help

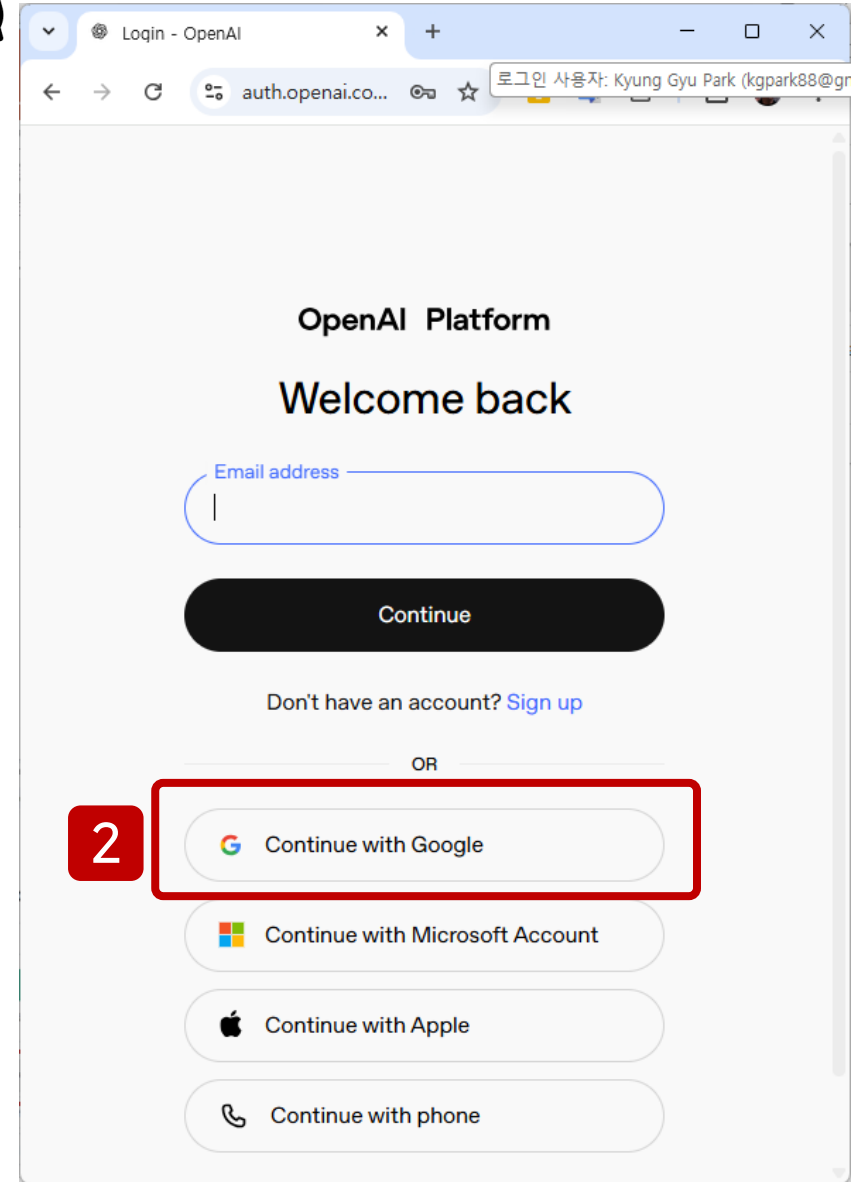
OpenAI developer platform

Developer quickstart

Make your first API request in minutes. Learn the basics of the OpenAI platform.

5 min

```
javascript
1 import OpenAI from "openai";
2 const client = new OpenAI();
3
4 const completion = await client.chat.completions.create({
5   model: "gpt-4o",
```



The screenshot shows the OpenAI Platform login page. The browser address bar displays `auth.openai.co...`. The page header includes the "OpenAI Platform" logo and the text "Welcome back". Below this is an "Email address" input field and a "Continue" button. A link for "Don't have an account? Sign up" is also present. The page is divided by an "OR" separator. Below the separator, there are five buttons for social login: "Continue with Google" (highlighted with a red box and the number "2"), "Continue with Microsoft Account", "Continue with Apple", and "Continue with phone".

OpenAI Platform

Welcome back

Email address

Continue

Don't have an account? [Sign up](#)

OR

2 Continue with Google

Continue with Microsoft Account

Continue with Apple

Continue with phone

OpenAI API 구매

<https://platform.openai.com/settings/organization/billing/overview>

The screenshot shows the OpenAI API billing overview page. The left sidebar contains a 'SETTINGS' menu with 'Billing' highlighted. The main content area shows the 'Billing' overview with a credit balance of \$10 and an 'Add to credit balance' button. Two modal windows are open: 'Add payment method' and 'Add to credit balance'.

Billing Overview

- Pay as you go**
- Credit balance ⓘ: **\$10**
- Add to credit balance** (highlighted)
- Cancel plan**
- Auto recharge is off ⓘ: When your credit balance reaches \$0, your API requests will automatically keep your credit balance topped up. **Enable auto recharge**
- Payment methods** ⓘ (highlighted): Add or change payment method
- Preferences** ⓘ: Manage billing information
- Pricing** ⓘ: View pricing and FAQs

Add payment method

Add your credit card details below. This card will be saved to your account and can be removed at any time.

Card information

Card number MM / YY CVC

Name on card

Billing address

Country

Address line 1

Address line 2

City Postal code

State, county, province, or region

☐ Set as default payment method

Cancel **Add payment method**

Add to credit balance

Amount to add

Enter an amount between \$5 and \$900 Model pricing

Payment method

+ Add payment method

Cancel **Continue**

OpenAI API 구매

<https://platform.openai.com/settings/organization/billing/overview>

The screenshot shows the 'Billing settings' page on the OpenAI platform. The left sidebar contains navigation links: Playground, Assistants, Fine-tuning, API keys, Files, Usage, Settings, Organization, Team, Limits, **Billing** (highlighted), Profile, Documentation, Help, All products, and Personal. The main content area is titled 'Billing settings' and includes tabs for Overview, Payment methods, Billing history, and Preferences. Under the 'Overview' tab, a 'Free trial' section shows 'Credit remaining' as '\$0.00'. Below this are buttons for 'Add payment details' and 'View usage'. A note states: 'Note: This does not reflect the status of your ChatGPT account.' To the right, a section titled 'What best describes you?' offers options for 'Individual' (I'm an individual) and 'Company' (I'm working on behalf of a company). At the bottom of the main area are four tiles: 'Payment methods' (Add or change payment method), 'Billing history' (View past and current invoices), 'Usage limits' (Set monthly spend limits), and 'Pricing' (View pricing and FAQs). A modal titled 'Add payment details' is open on the right, prompting the user to add credit card information. It includes fields for 'Card information' (card number, MM / YY, CVC), 'Name on card', and 'Billing address' (Country, Address line 1, Address line 2, City, Postal code, State, county, province, or region). The modal has 'Cancel' and 'Continue' buttons at the bottom.

Anthropic API 사용 <https://console.anthropic.com/>

The image shows two overlapping browser windows from the Anthropic Console. The left window is the login page, and the right window is the 'Settings/Plans' page.

Left Window (Login Page):

- URL: `console.anthropic.com/login?returnTo=%2F...`
- Header: ANTHROPIC
- Section: Build with Claude
- Text: Sign in or create a developer account to use the Anthropic API
- Buttons: Continue with Google, OR, Enter your personal or work email, Continue with email
- Footer: By continuing, you agree to Anthropic's Commercial Policy and acknowledge their Privacy Policy

Right Window (Settings/Plans Page):

- URL: `console.anthropic.com/settings/plans`
- Header: ANTHROPIC | Dashboard | Workbench | Settings | Docs | DP
- Left Sidebar: Your Organization, Members & Invites, Plans & Billing (selected), API Keys, Logs, Usage
- Main Content:

 - Your Plan:** Evaluation. You have limited access right now. Please select a plan to use Claude in commercial applications. [Select Plan](#)
 - Credit Balance:** Your credit balance will be consumed with API and Workbench usage. You can add funds directly or set up auto-reload thresholds.
 - Remaining Balance:** US\$4.78 (highlighted with a yellow box)
 - Add More Funds:** Upgrade from the Evaluation plan to add funds. [Upgrade](#)
 - Invoice History:**
 - Mar 05 - Apr 01, 2024 (UTC) [DRAFT]: \$0.00 USD
 - Mar 5, 2024 (UTC) [ISSUED]: \$0.00 USD
 - Mar 31, 2024 (UTC) [DRAFT]:**
 - START:** Mar 5, 2024 12:00 AM (UTC)
 - END:** Apr 1, 2024 12:00 AM (UTC)
 - ISSUED:** Apr 2, 2024 12:00 AM (UTC)(This section is highlighted with a yellow box)
 - Claude Instant Usage:** No charges with usage for this product

Cohere API 사용

<https://cohere.com/>



The World's Leading AI Platform

cohere.com

Introducing Command A: Max Performance, Minimal Compute [Learn more](#)

cohere Platform Solutions Research Resources Company Sign in [Request a demo](#)

The all-in-one platform for private and secure AI

Cohere brings you cutting-edge multilingual models, advanced retrieval, and an AI workspace tailored for the modern enterprise — all within a secure platform.

[Request a demo](#) [Try the playground](#)

API key	Production keys		Trial keys
	Rate limit: 10,000 calls/min		Rate limit: 100 calls/min
Model	Default	Custom	Default + Custom
Generate	\$2.50 /1,000 Generations	\$5.00 /1,000 Generations	Free
Embed	\$1.00 /1,000 Embeddings	\$2.00 /1,000 Embeddings	Free
Classify	\$2.00 /1,000 Classifications	\$2.00 /1,000 Classifications	Free

Python 기초

■ 변수 할당(Variable Assignment)

```
x = 2
y = 3
z = x + y
```

```
x = 'hello'
x = "hello"
X
[Out] 'hello'
```

Single Quotation
작은 따옴표

Double
Quotation
쌍 따옴표

■ 출력

```
print(x)
[Out] 'hello'
```

■ 리스트(List)

```
[1, 2, 3]
['a', 'b', 'c']
my_list = [1, 2, 'apple', True]
my_list.append(100)
my_list[0]
my_list[:-1]
my_list[-1]
```

Bracket
대괄호

■ 딕셔너리(Dictionary)

```
d = {'key1': 'item1', 'key2': 'item2'}
d['key1']
[Out] 'item1'
```

Brace
중괄호

Python 실습



PythonEssence.ipynb



colab



Thank you 😊