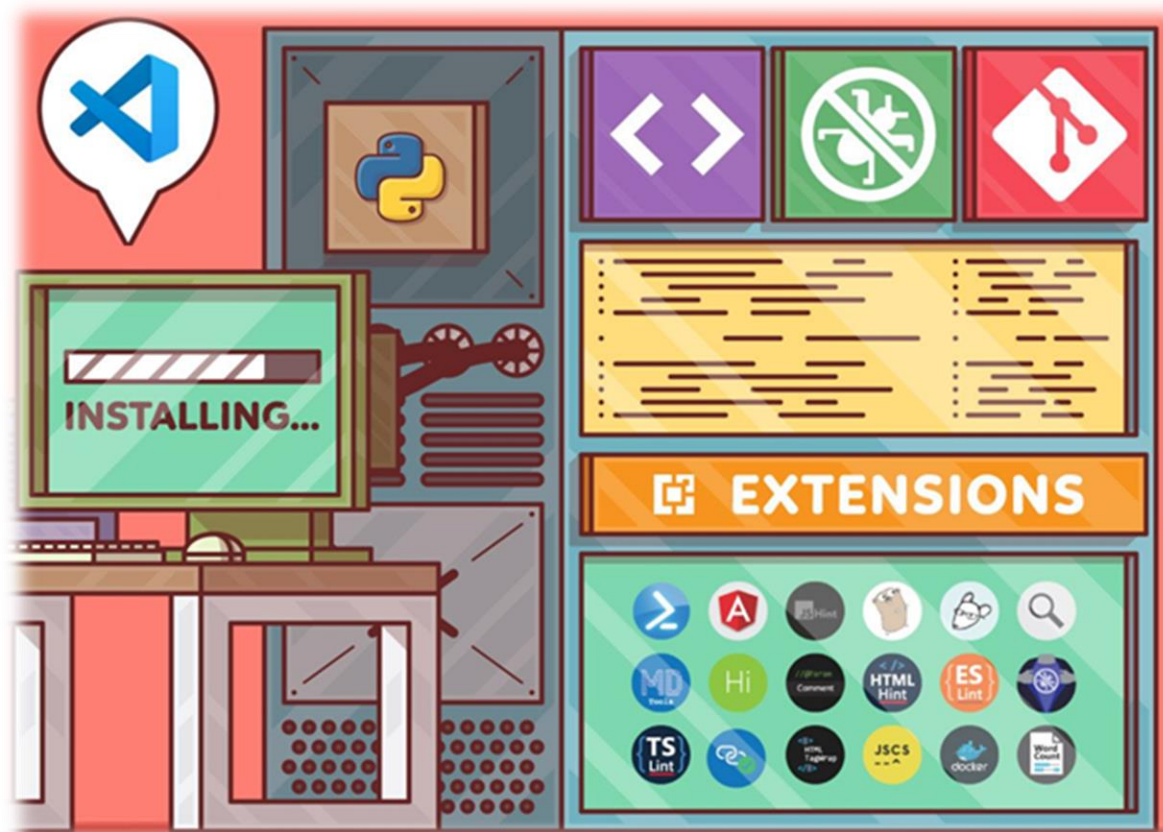


개발환경 구성



개발환경

PC



Visual Studio Code



Cursor(AI Code Editor)



Sublime Text



Jupyter Notebook



Jupyter Lab



웹

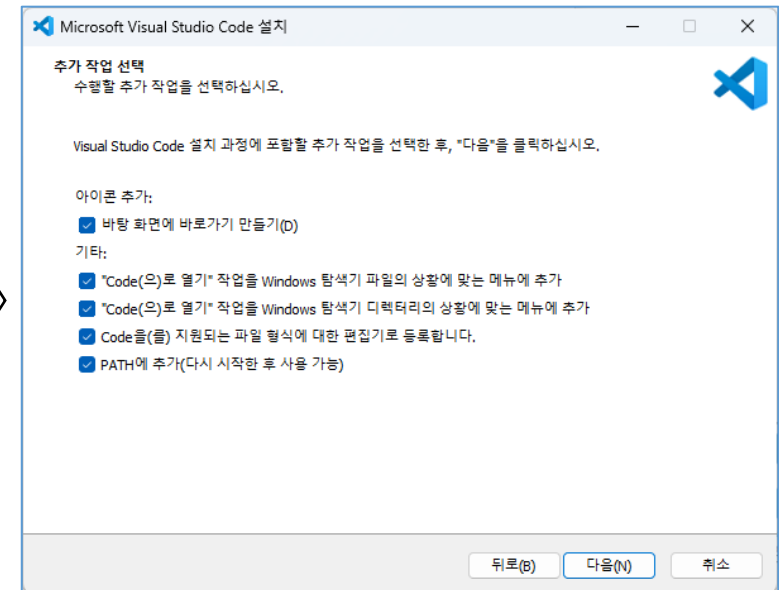
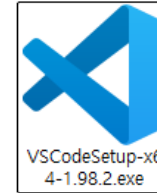
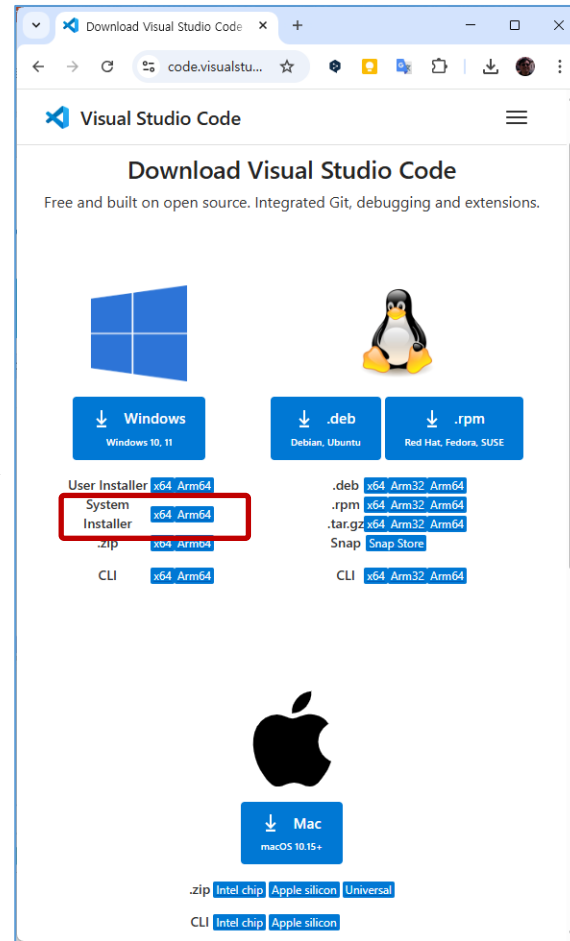
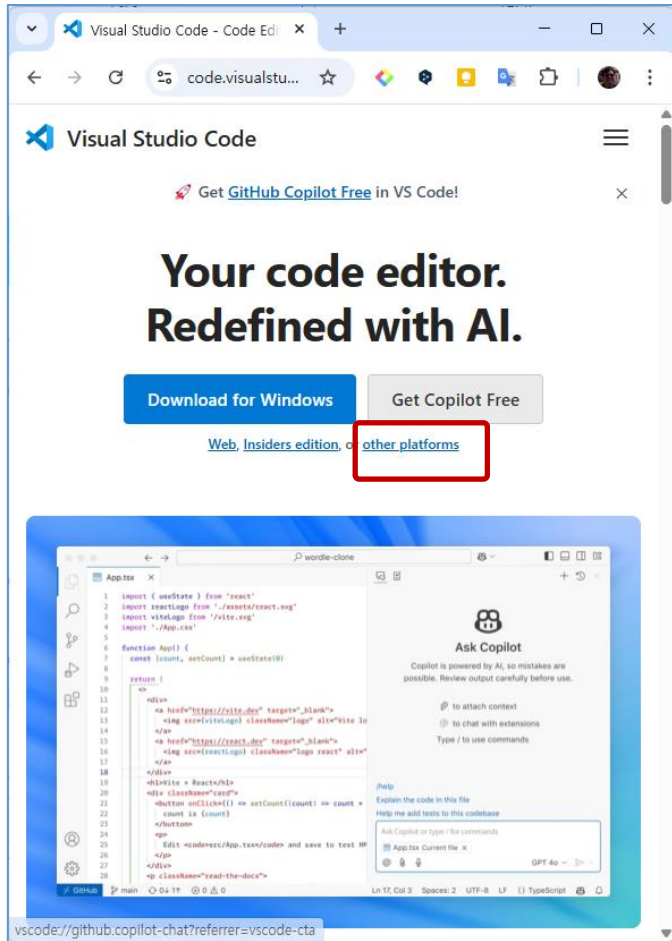


<https://colab.research.google.com/>

VS Code 설치 – Windows

■ 설치 프로그램

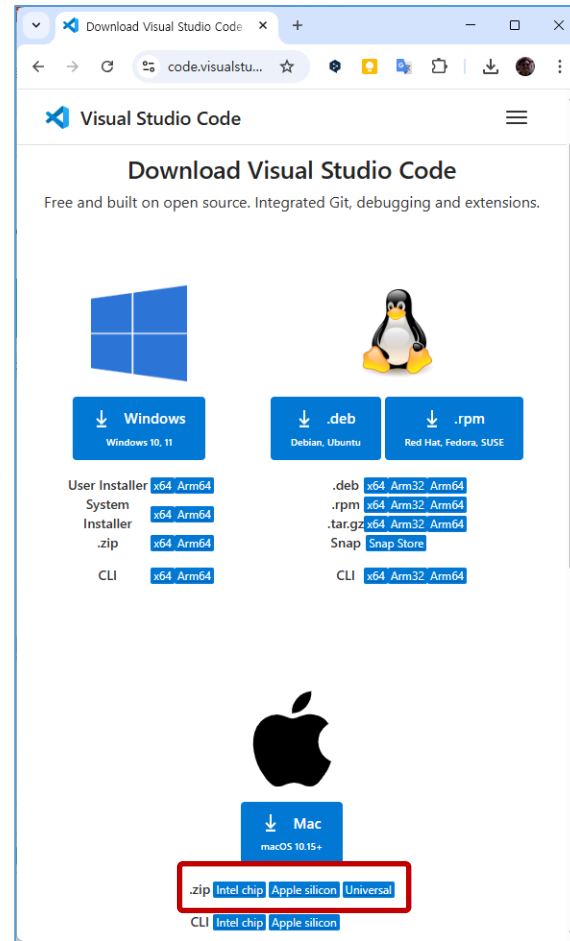
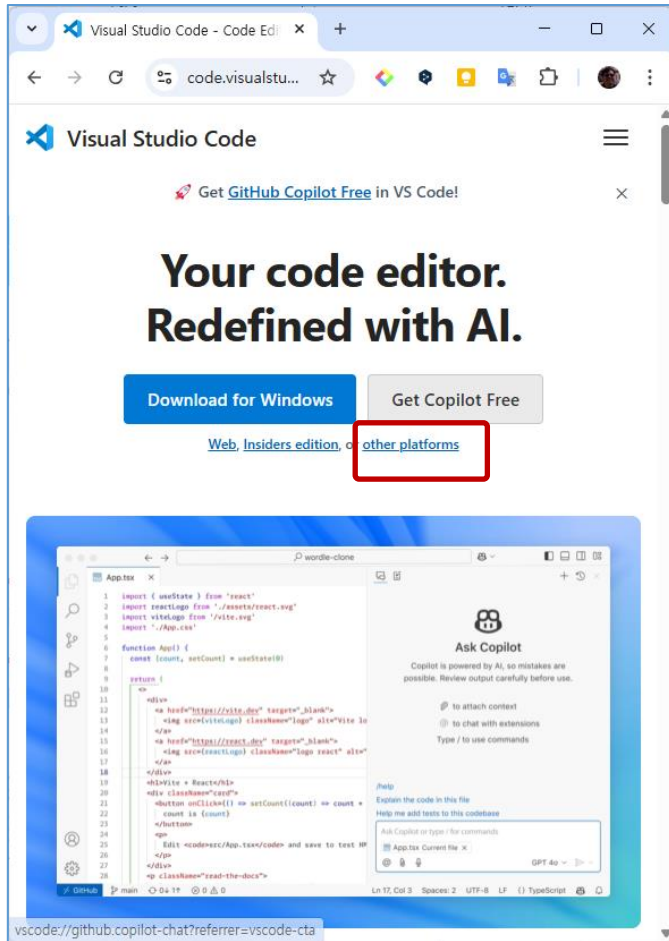
<https://code.visualstudio.com/>



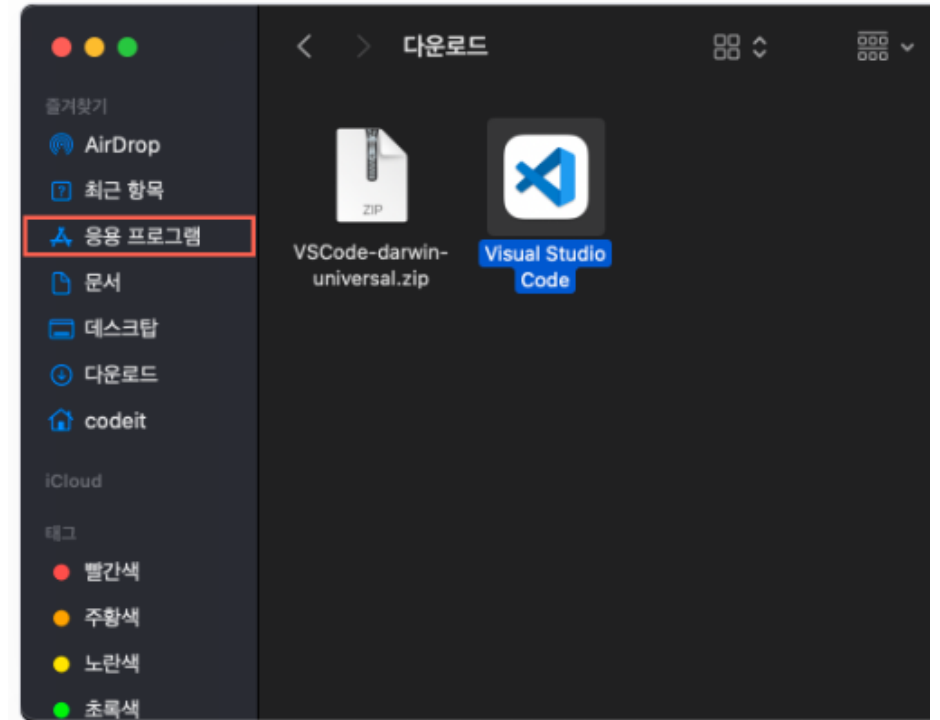
VS Code 설치 - macOS

■ 설치 프로그램

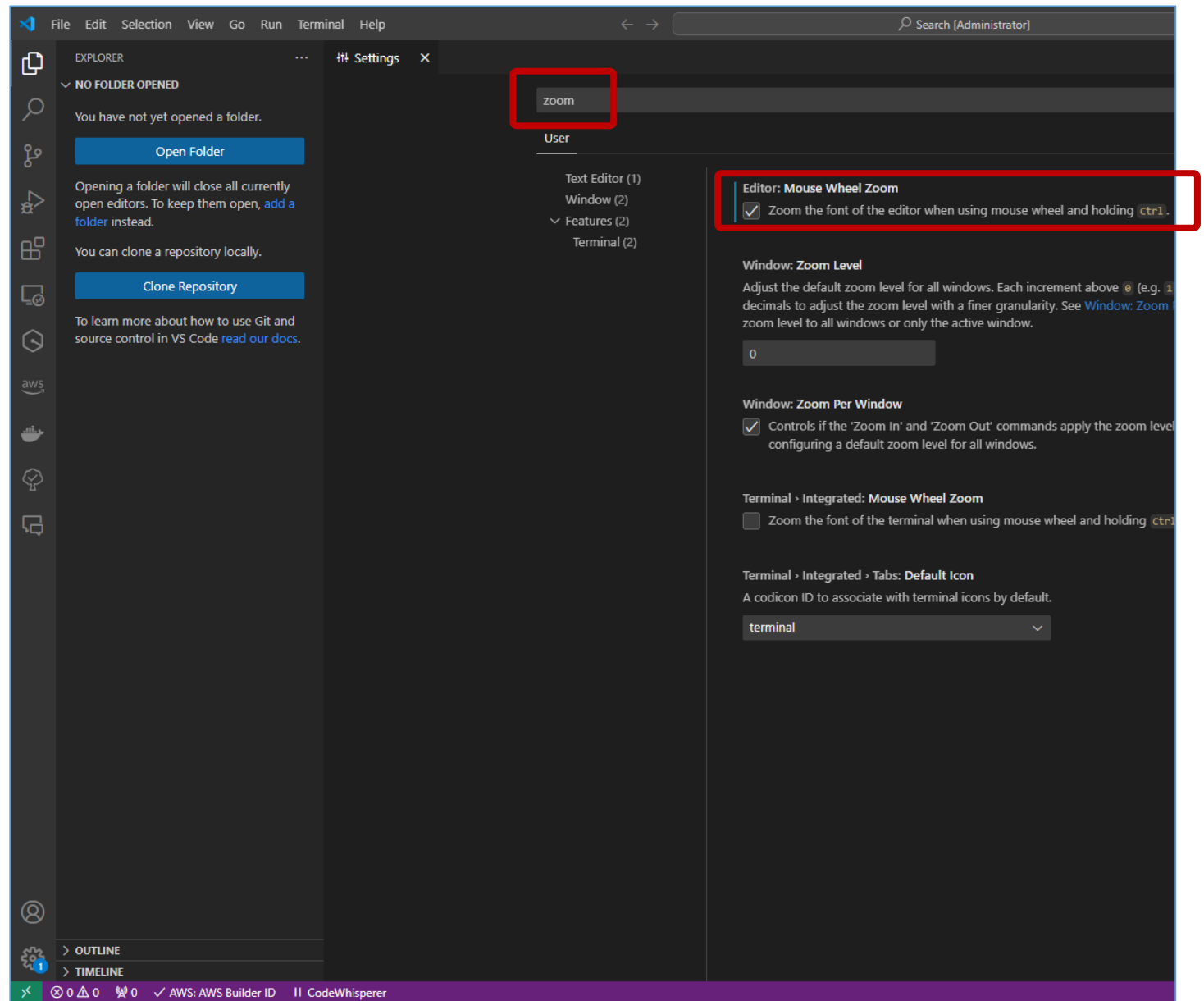
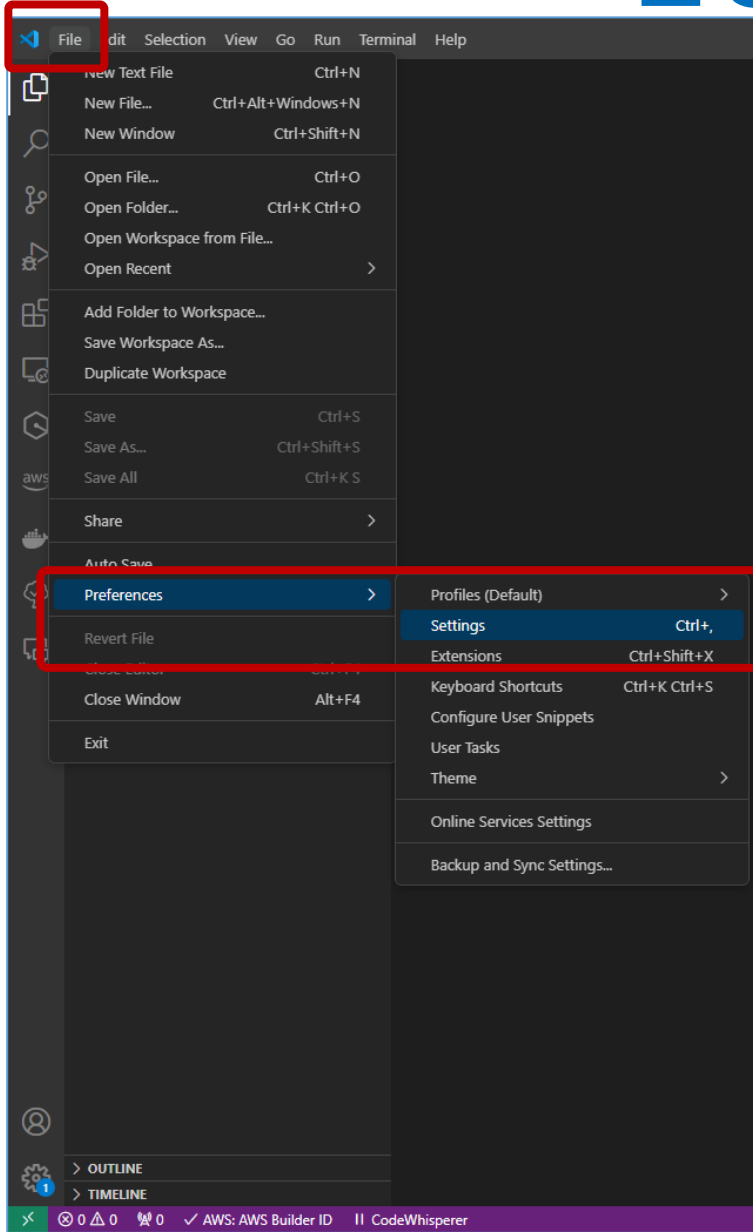
<https://code.visualstudio.com/>



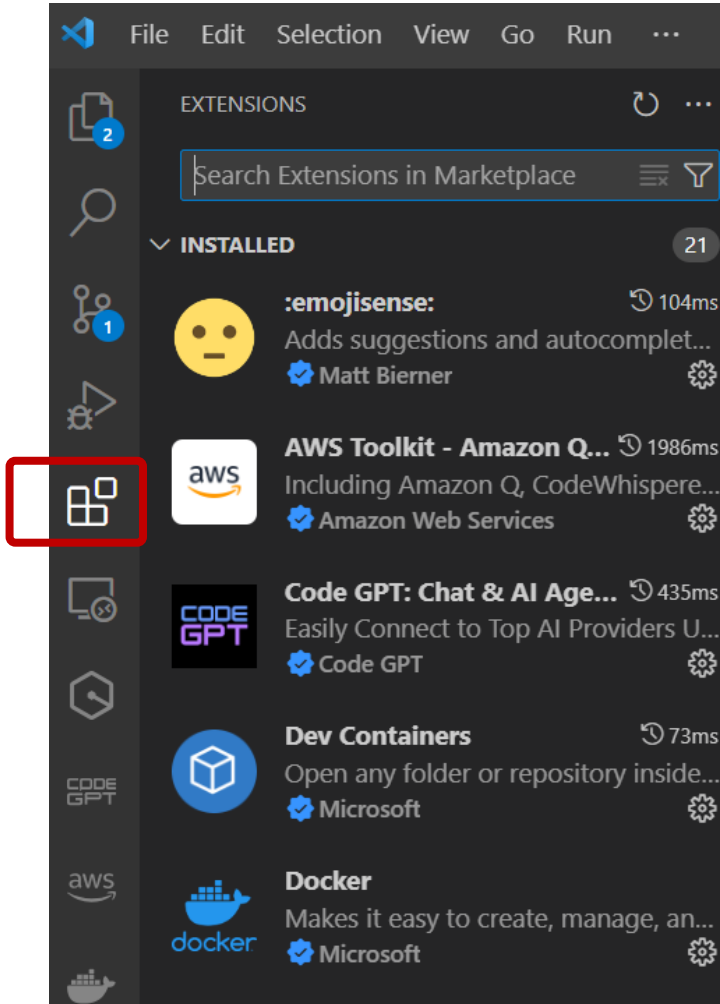
Visual Studio Code를
응용 프로그램(Applications)
폴더로 옮겨 주세요.



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

▪ 단축키

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

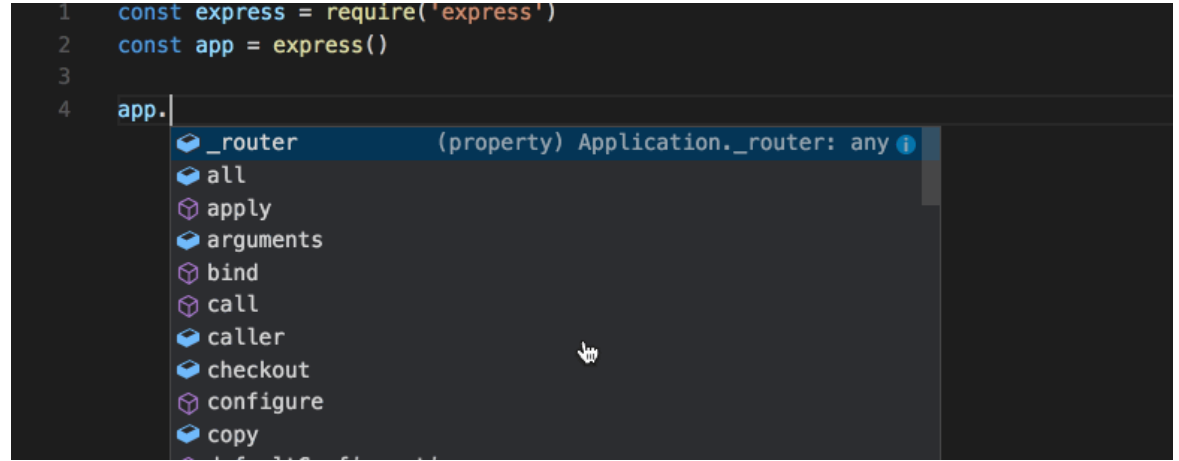
행을 위로 이동 : Alt + Up

화면 크기를 조정 : Ctrl + '+' 또는 Ctrl + '-'

Python 인터프리터 선택 : Ctrl + Shift+P (Windows)

⌘ + ⬆ + P (macOS)

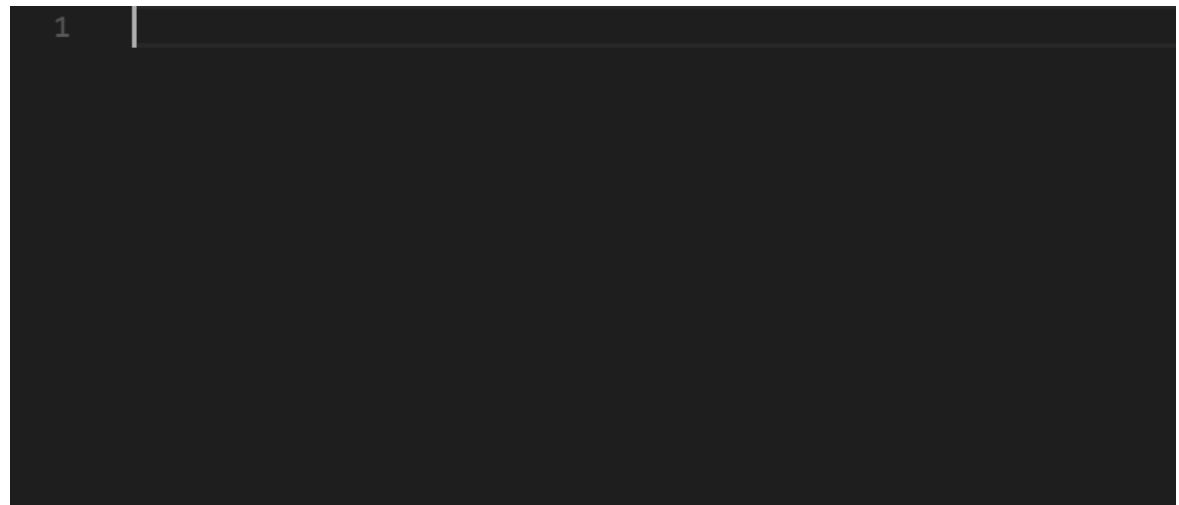
▪ 인텔리센스(IntelliSense) : 코드 완성



```
1 const express = require('express')
2 const app = express()
3
4 app.
```

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

▪ 코드 스니펫 : 반복되는 코드 패턴을 입력하기 쉽게 해주는 템플릿



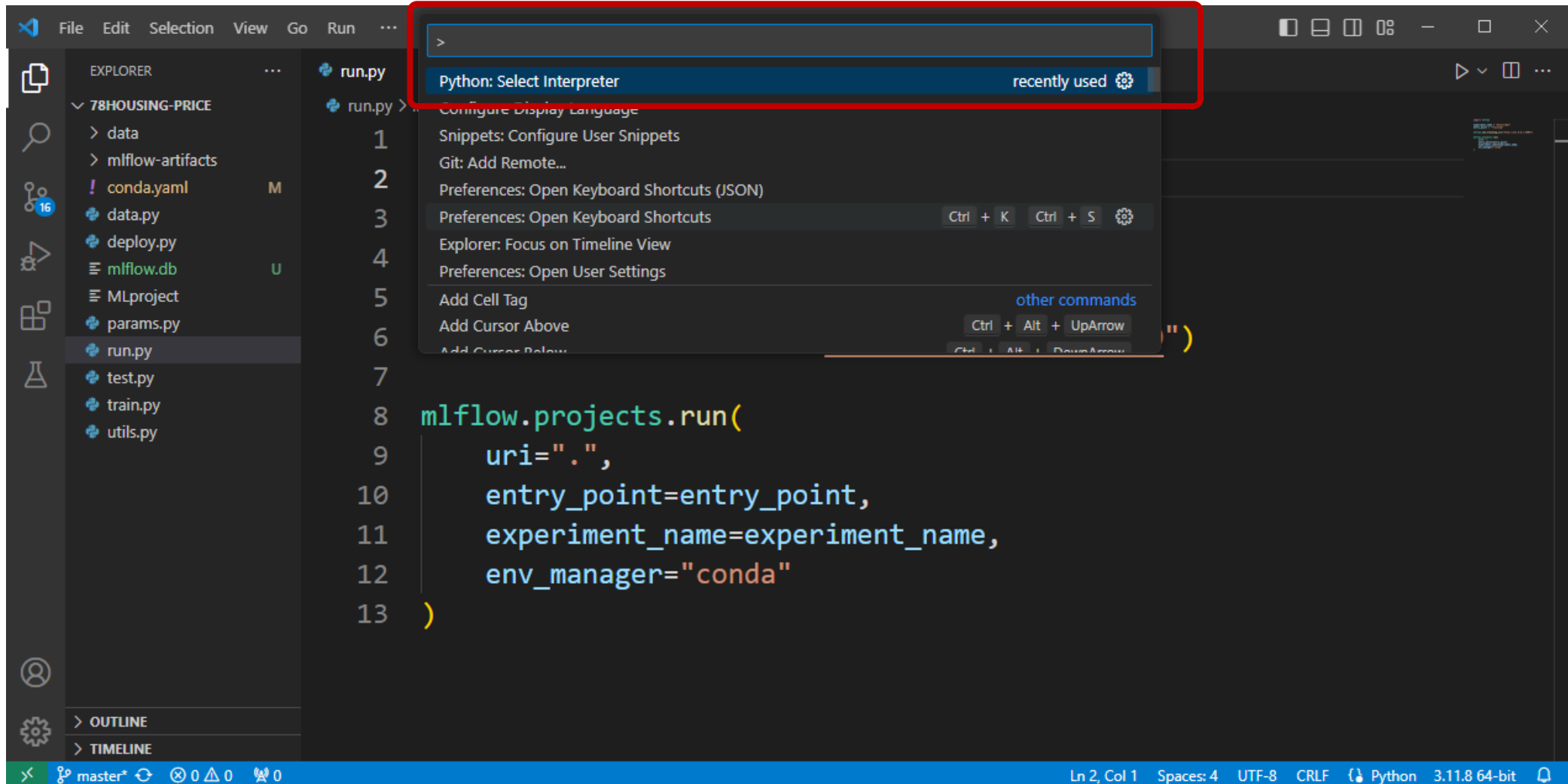
```
1
```

<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



NodeJS 설치

■ NodeJS

Run JavaScript Everywhere.



Node.js® is a free, open-source, cross-platform JavaScript run-time environment—that lets developers write command line tools and server-side scripts outside of a browser.

Node.js®는 무료, 오픈 소스, 크로스 플랫폼 JavaScript 런타임 환경입니다. 개발자가 브라우저 외부에서 command line 도구와 server-side scripts를 작성할 수 있도록 합니다.

■ NodeJS 설치

<https://nodejs.org/en/download>

Download Node.js®

Get Node.js® v22.14.0 (LTS) for Windows using fnm with npm

```
1 # Download and install fnm:
2 winget install Schniz.fnm
3
4 # Download and install Node.js:
5 fnm install 22
6
7 # Verify the Node.js version:
8 node -v # Should print "v22.14.0".
9
10 # Verify npm version:
11 npm -v # Should print "10.9.2".
```

PowerShell

Windows macOS Linux AIX

Copy to clipboard

Or get a prebuilt Node.js® for Windows running a x64 architecture.

Windows Installer (.msi) Standalone Binary (.zip)

■ Node 패키지 설치 방법

npm install 패키지명

Python(파이썬)

Python Libraries for Generative AI



TensorFlow



PyTorch



Transformers



Weight and Biases



JAX



LangChain



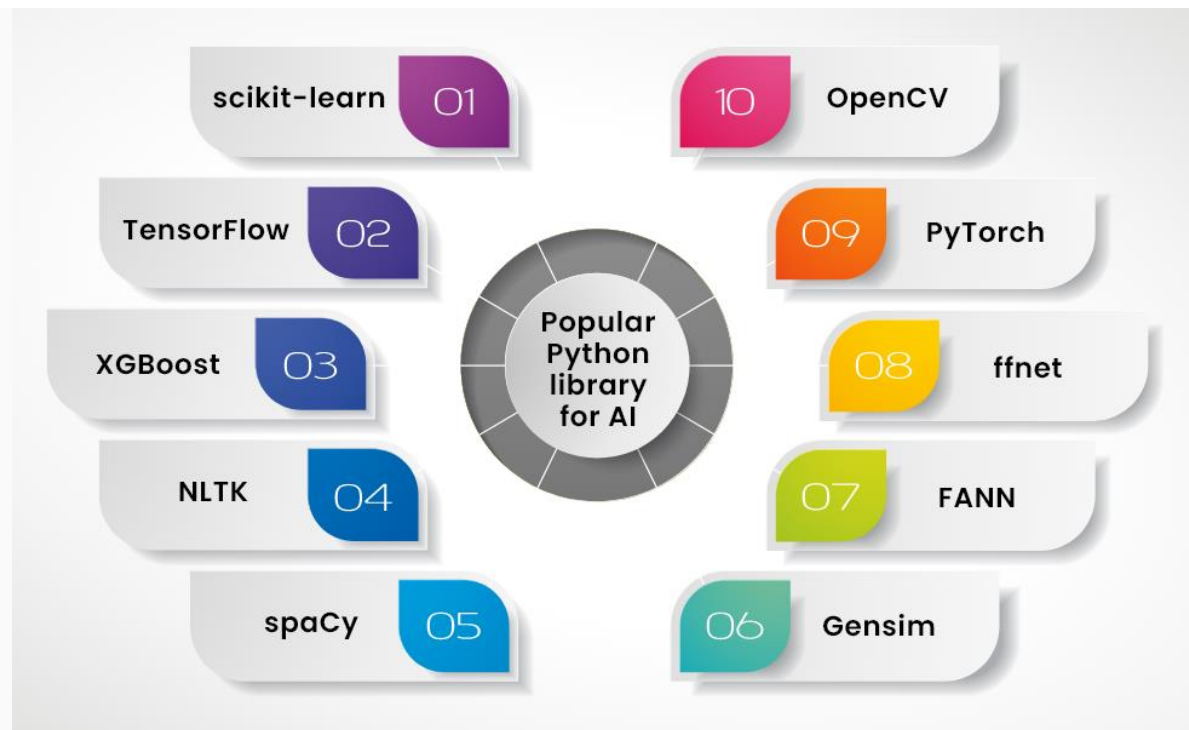
Llama Index



Diffusers



Acme



Python 설치

■ 파이썬 다운로드

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

• [Python 3.12.9 - Feb. 4, 2025](#)

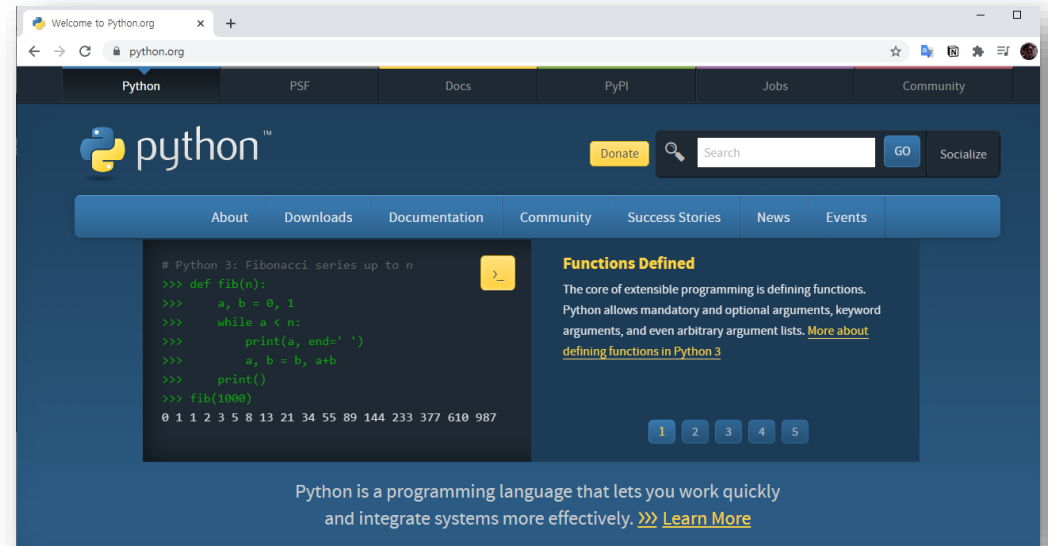
- Download [Windows installer \(64-bit\)](#)
- Download [Windows installer \(32-bit\)](#)
- Download [Windows installer \(ARM64\)](#)
- Download [Windows embeddable package \(64-bit\)](#)
- Download [Windows embeddable package \(32-bit\)](#)
- Download [Windows embeddable package \(ARM64\)](#)

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

Stable Releases

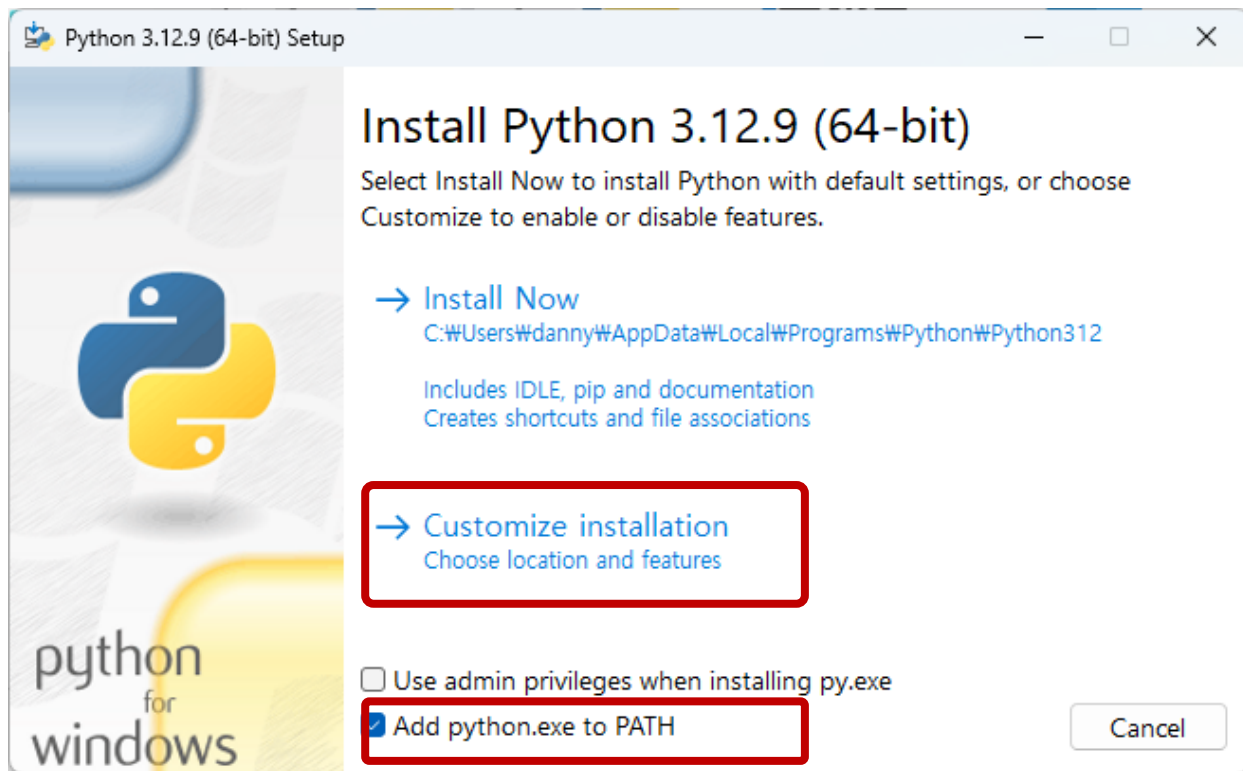
• [Python 3.12.9 - Feb. 4, 2025](#)

- Download [macOS 64-bit universal2 installer](#)



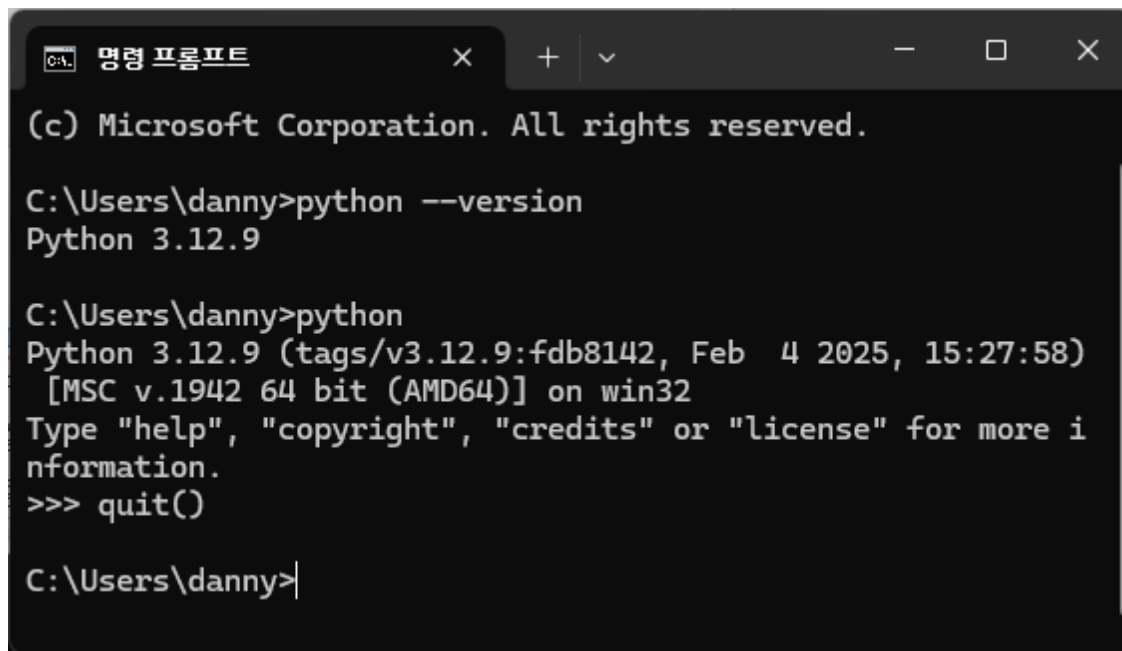
Python 설치

■ 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.

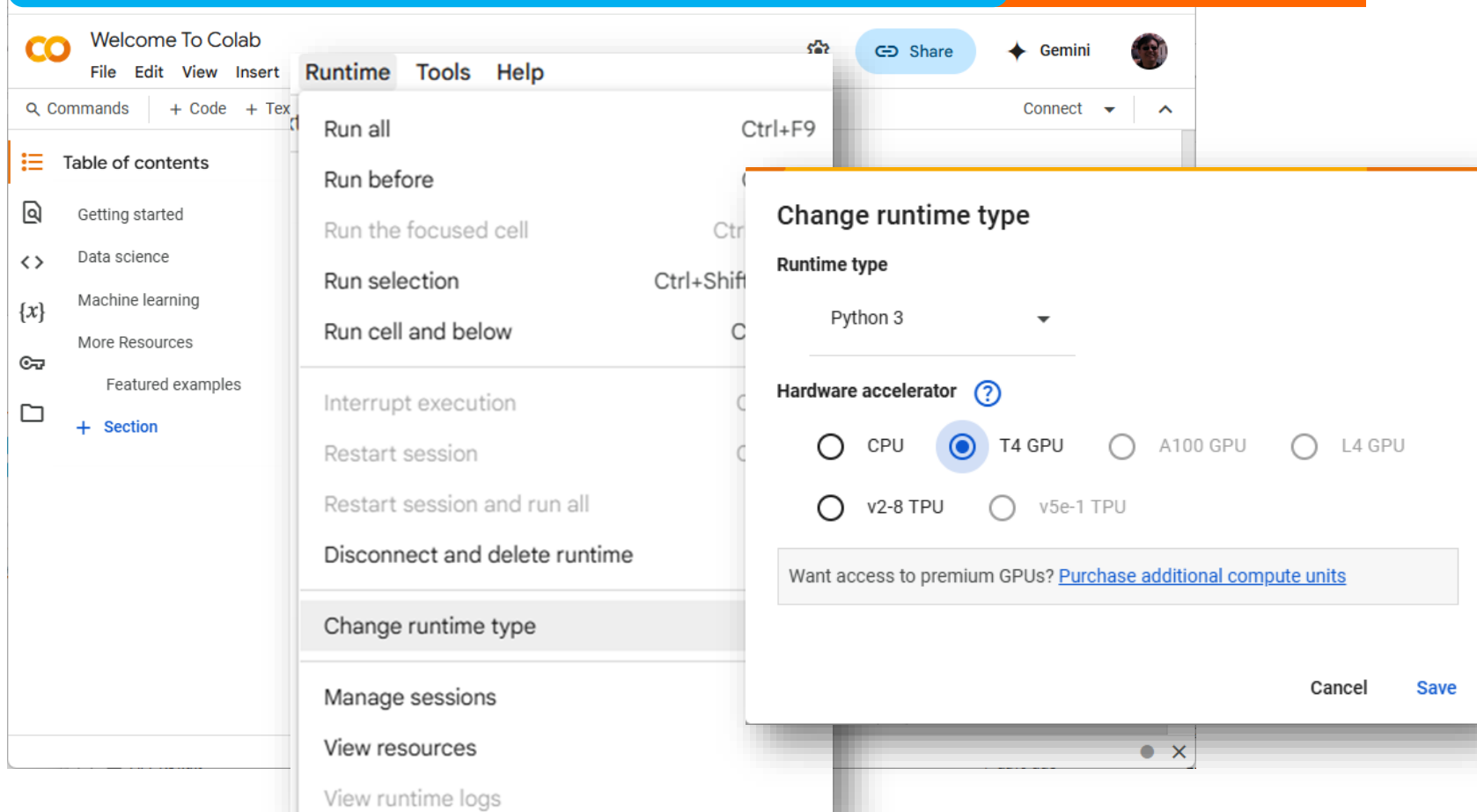
- 가상환경 생성 : `python3 -m venv venv`
- 가상환경 실행 : `source venv/bin/activate`
- 파이썬 패키지 설치 : `pip3 install jupyterlab notebook openai`
 - Jupyter Lab 실행 : `jupyter lab`
 - Jupyter Notebook 실행 : `jupyter notebook`
- 패키지 목록파일 만들기
`pip3 freeze > requirements.txt`
- 패키지 목록파일로 패키지 설치 하는 방법
`pip3 install -r requirements.txt`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

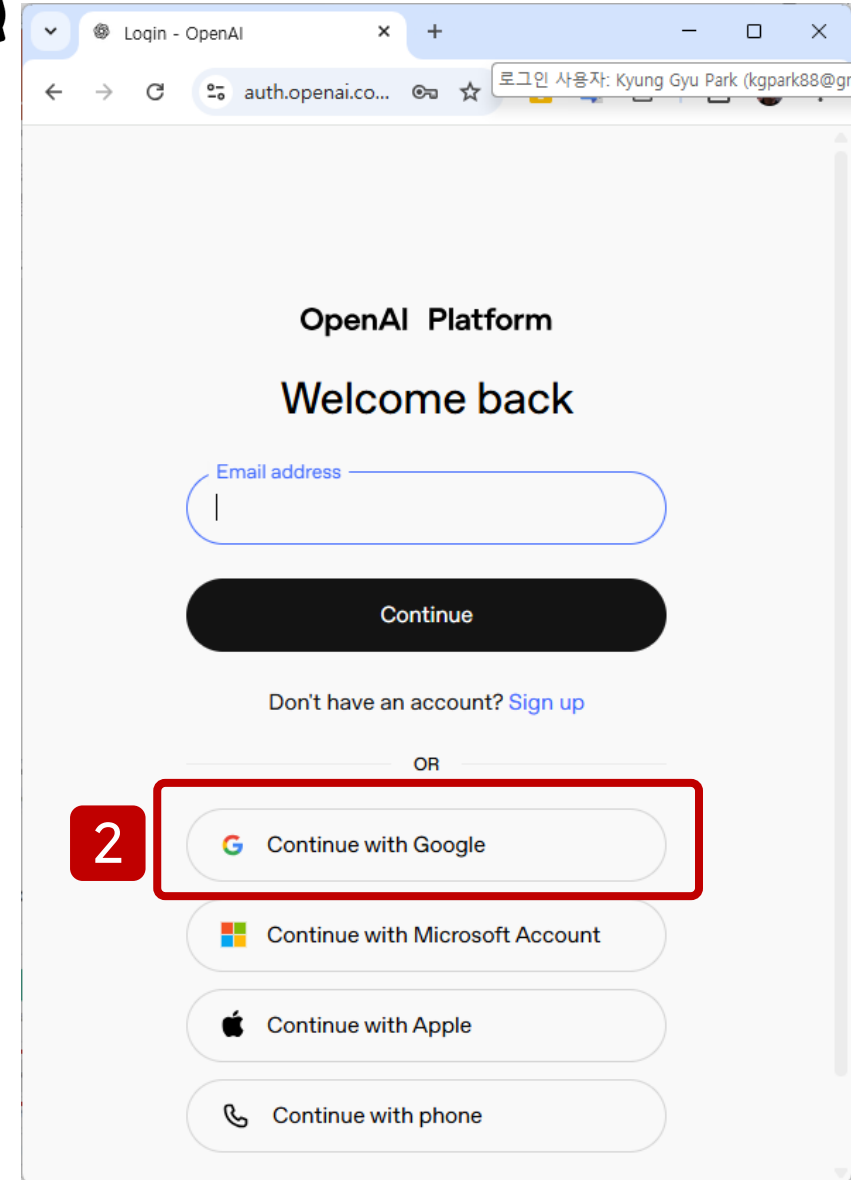
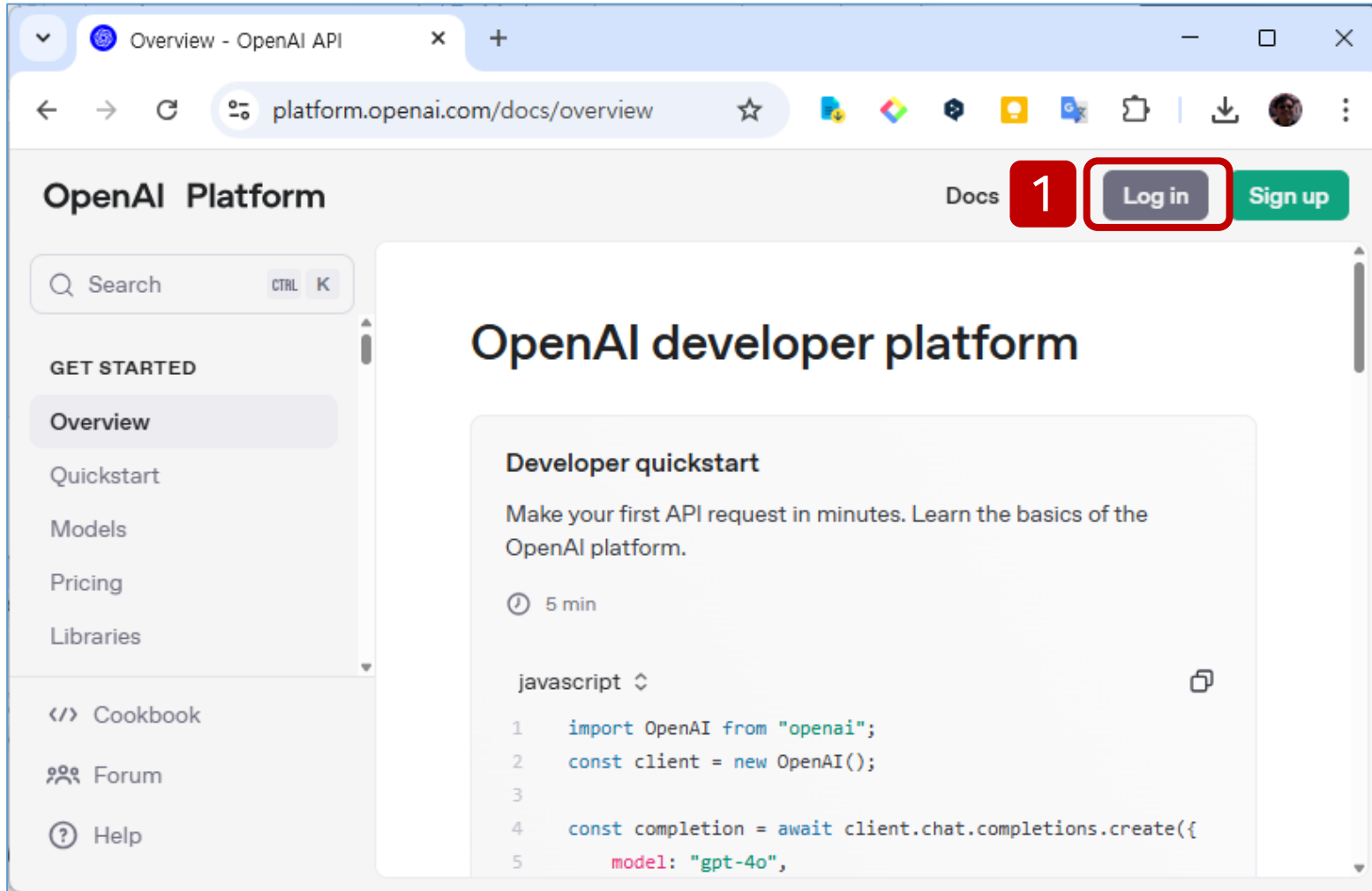


고성능GPU(Graphics Processing Unit)



OpenAI API 사용

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



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. 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 to 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

\$ 5

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

Payment method

+ Add payment method

Cancel **Continue**

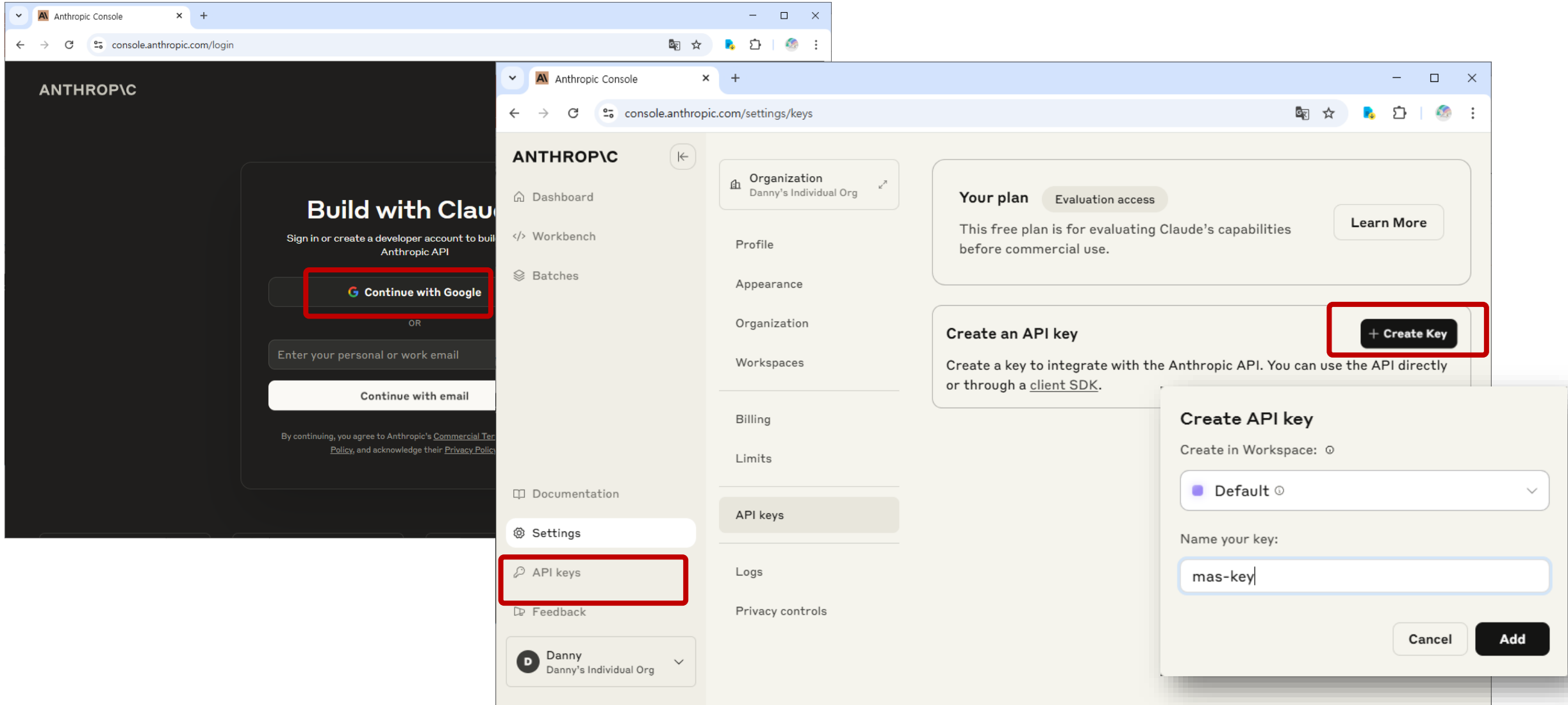
OpenAI API 구매

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

The screenshot shows the OpenAI API Billing settings page. 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 has tabs for Overview, Payment methods, Billing history, and Preferences. The Overview tab shows a "Free trial" status with "Credit remaining" of "\$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 content 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, containing fields for Card information (카드 번호, 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 right.

Anthropic API 사용

<https://console.anthropic.com/>



The image shows a sequence of steps to access the Anthropic API:

- Step 1: Login Page** (console.anthropic.com/login). The "Continue with Google" button is highlighted with a red box.
- Step 2: Settings Page** (console.anthropic.com/settings/keys). The "API keys" option in the left sidebar and the "+ Create Key" button are highlighted with red boxes.
- Step 3: Create API key Modal**. The "Name your key:" field contains the text "mas-key".

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 😊