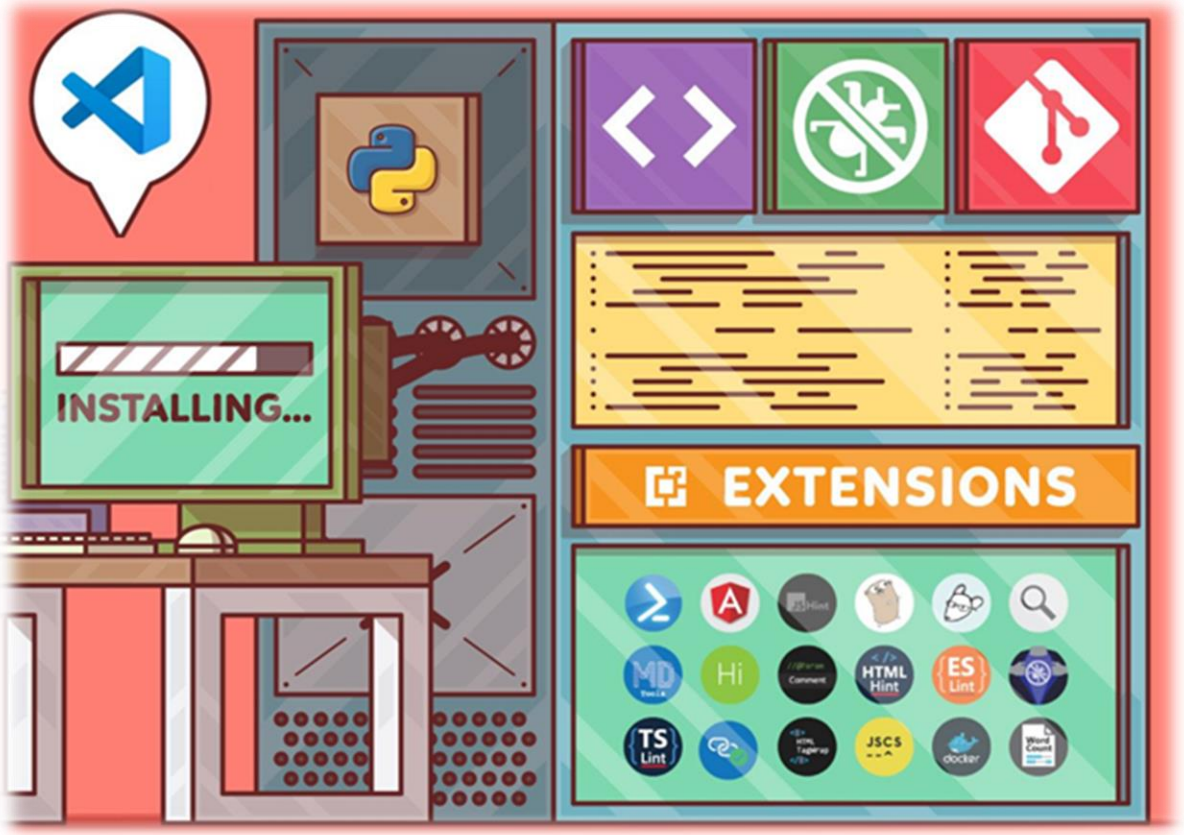
개발환경 구성



박경규

개발환경

PC

Visual Studio Code

Sublime Text

Jupyter Notebook

Jupyter Lab

Windows용 다운로드 단축키 : Ctrl+C+C

Mac용 다운로드 단축키 : ⌘+C+C

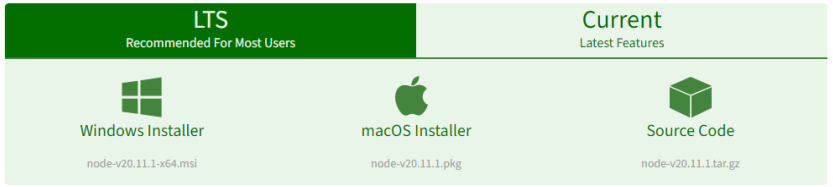
웹

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

https://www.kaggle.com/

Flowise 설치

NodeJS 설치 : https://nodejs.org/en/download



Flowise 설치
npm install -g flowise

Flowise 시작
npx flowise start

Flowise 사용
http://localhost:3000 접속

Developers (선택사항)

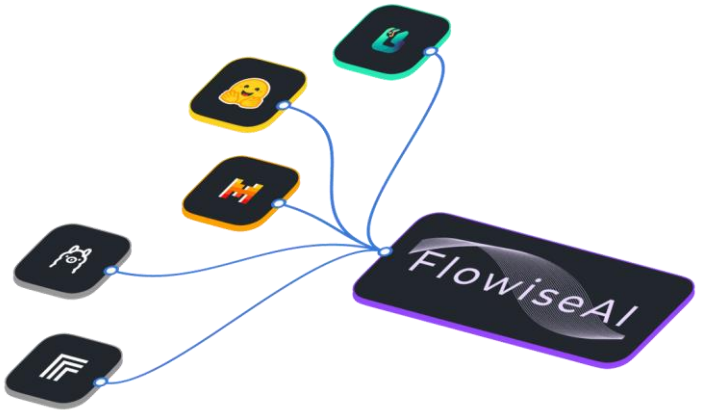
1. Yarn 설치
npm i -g yarn

2. Repository 복제
git clone https://github.com/FlowiseAI/Flowise.git

3. 모듈 설치
cd Flowise
yarn install
yarn build

4. App 실행
yarn start

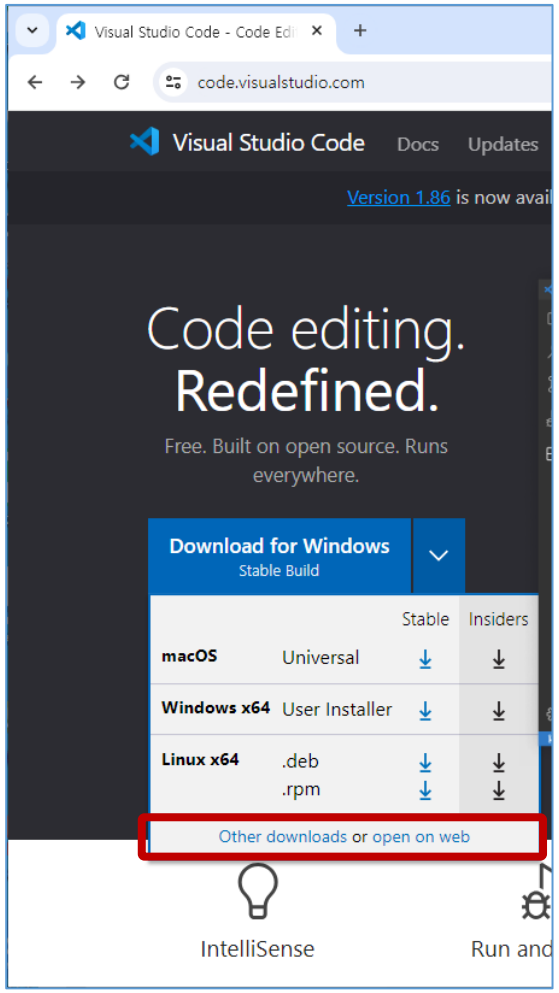
6. http://localhost:3000 접속

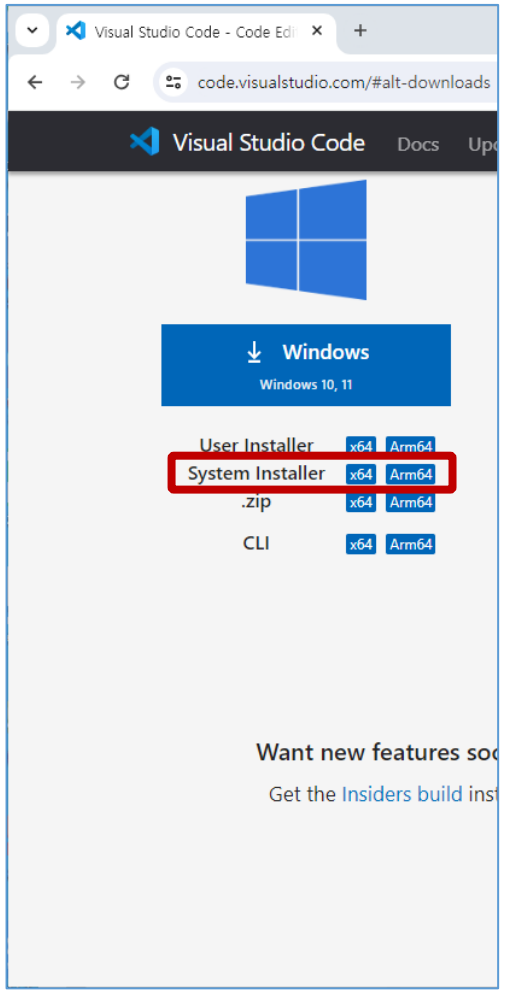


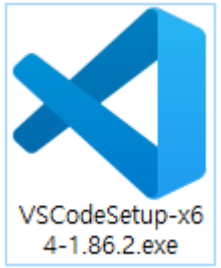
https://github.com/FlowiseAI/Flowise

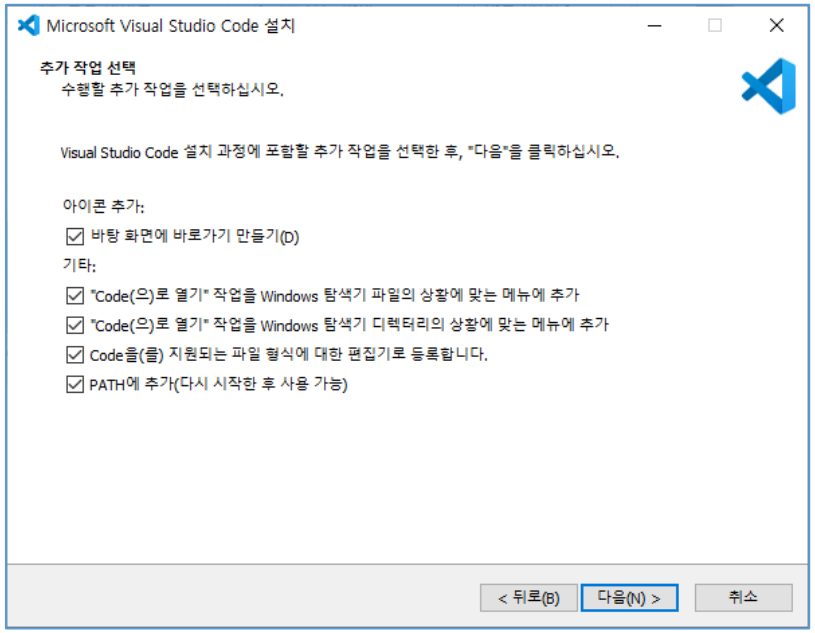
VS Code 설치 – Windows

■ 설치 프로그램 https://code.visualstudio.com/



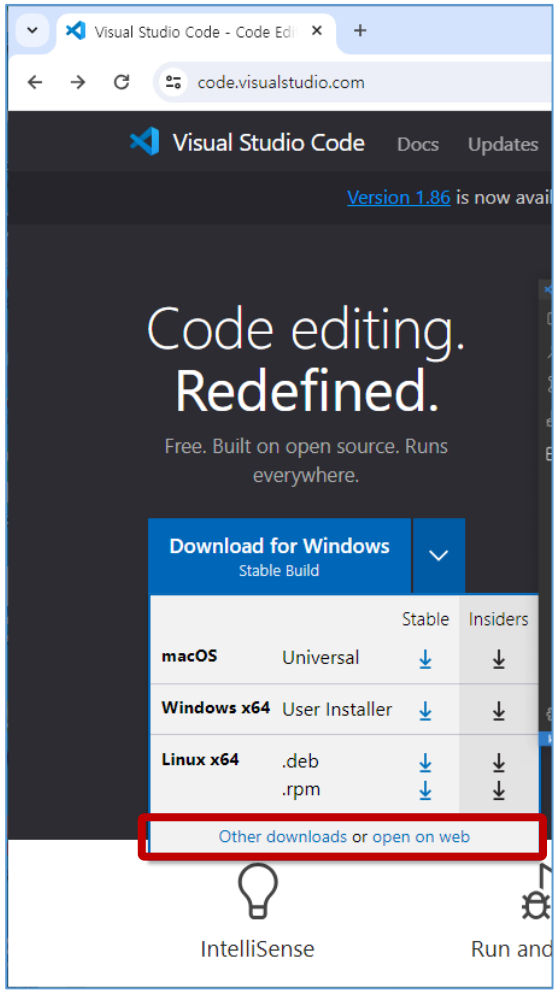


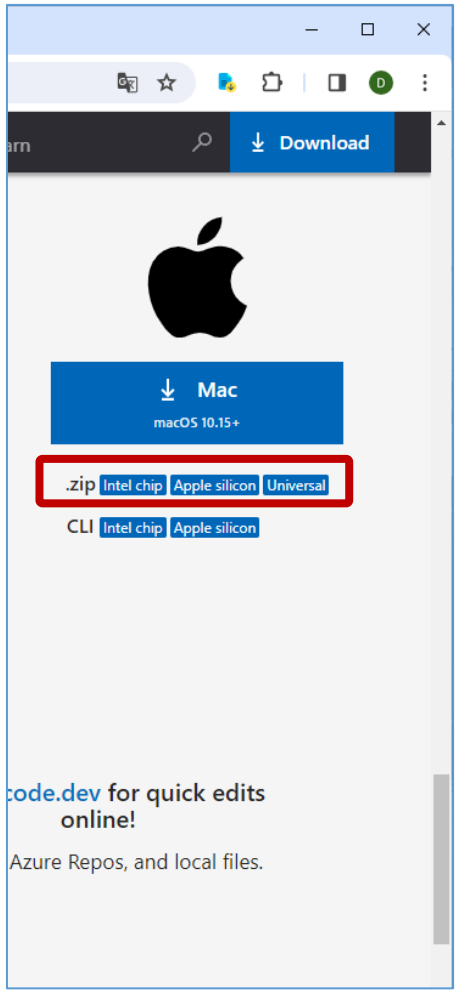




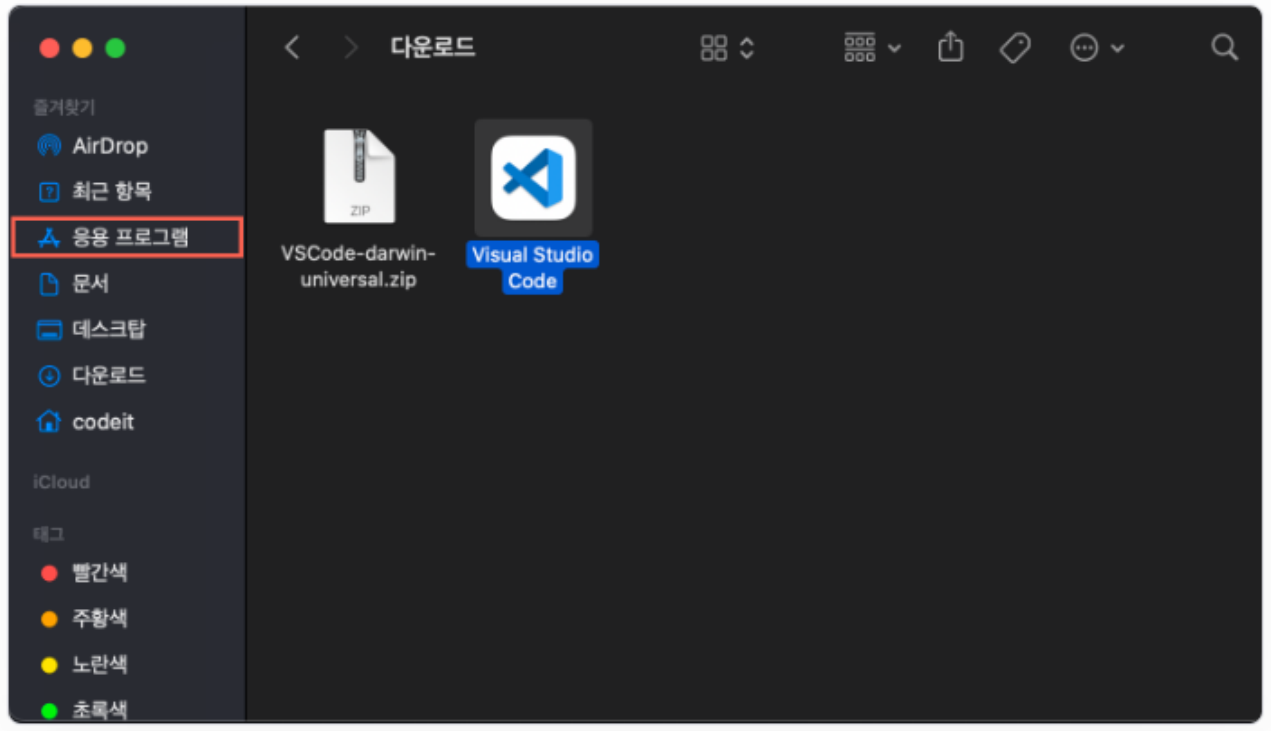
VS Code 설치 – macOS

■ 설치 프로그램 https://code.visualstudio.com/

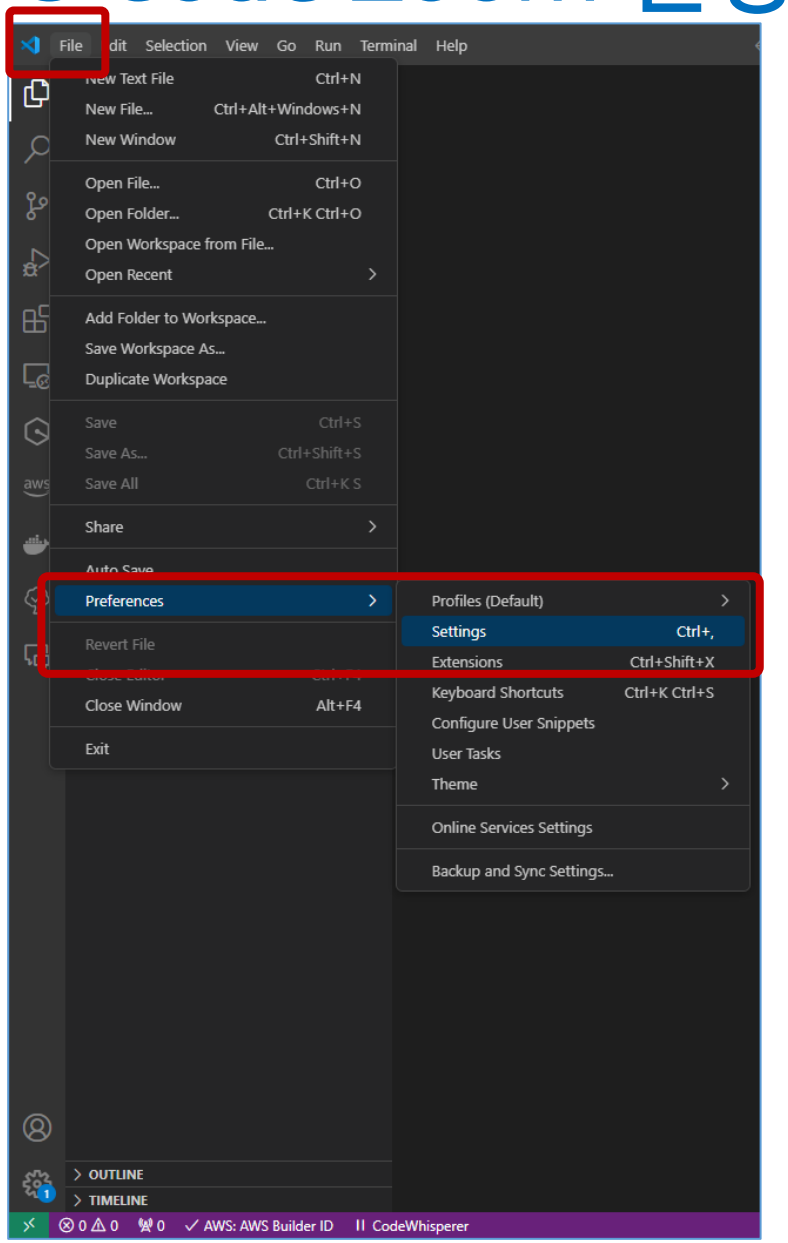


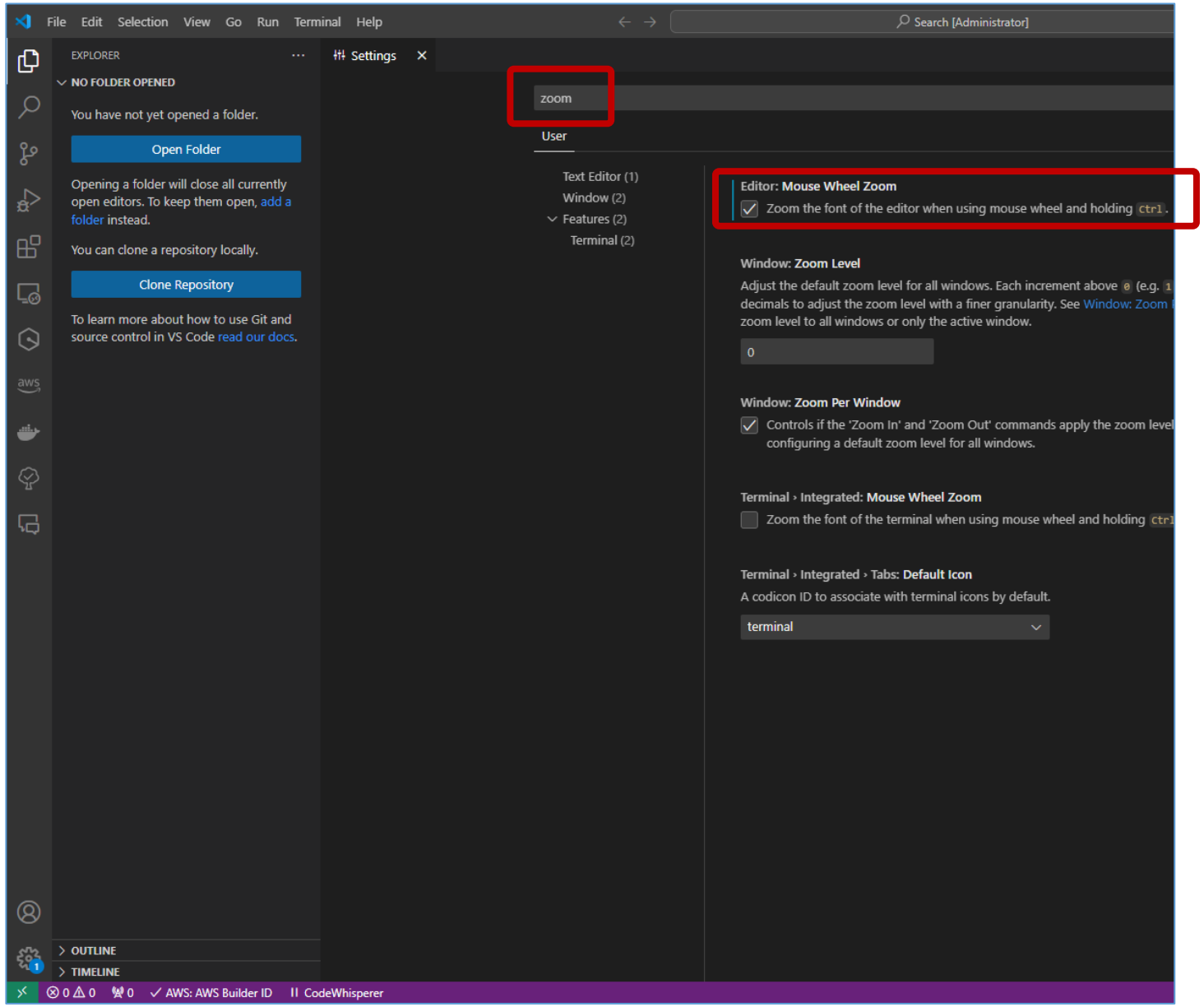


Visual Studio Code를 응용 프로그램(Applications) 폴더로 옮겨 주세요.

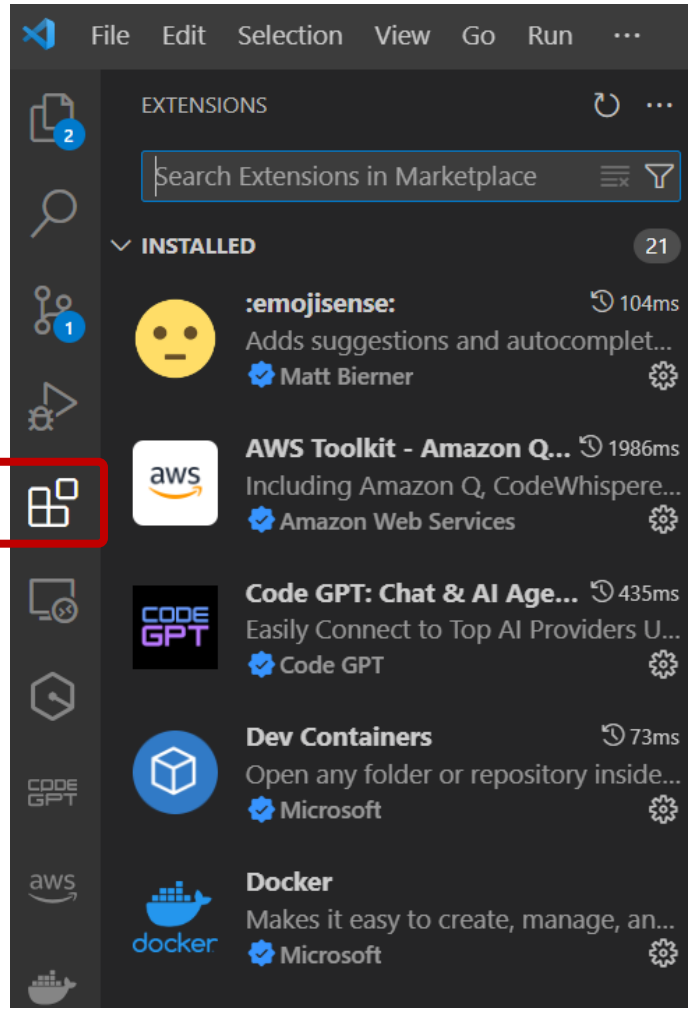


VS Code Zoom 설정





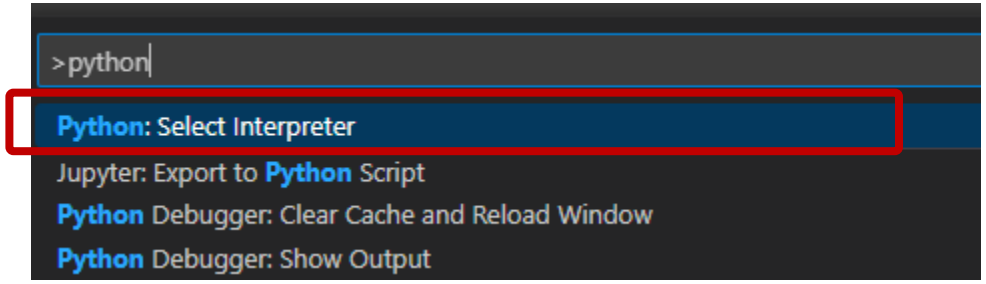
VS Code Extension 설치



- **Python** : 파이썬에 대한 풍부한 지원 제공, IntelliSense(Pylance), 린팅, 디버깅, 코드 탐색 등의 기능을 제공
- **Jupyter** : Jupyter 노트북 지원
- **Black Formatter** : Python 파일에 대한 포맷팅 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

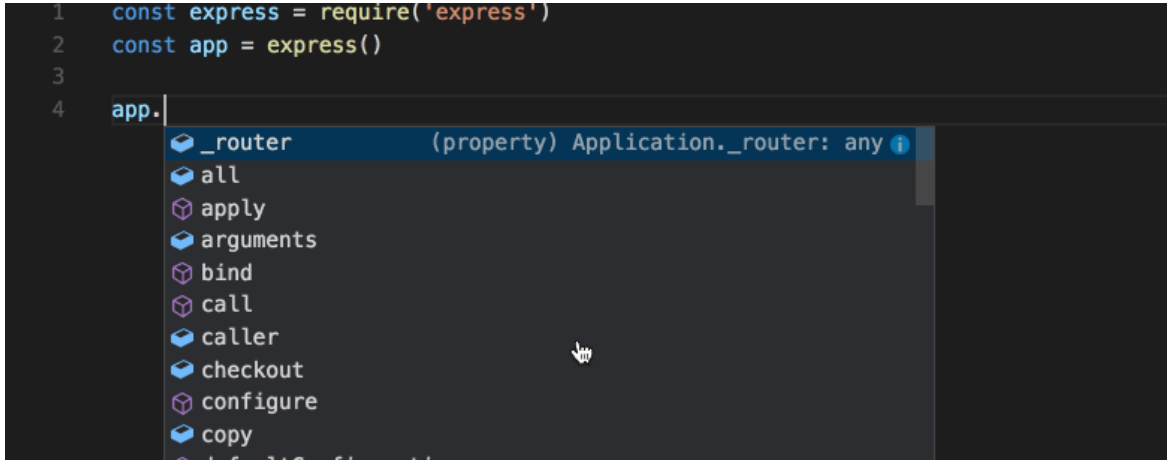
아래에 행 복사 추가 : Shift + Alt + Up

행을 아래로 이동 : Alt + Down

행을 위로 이동 : Alt + Up

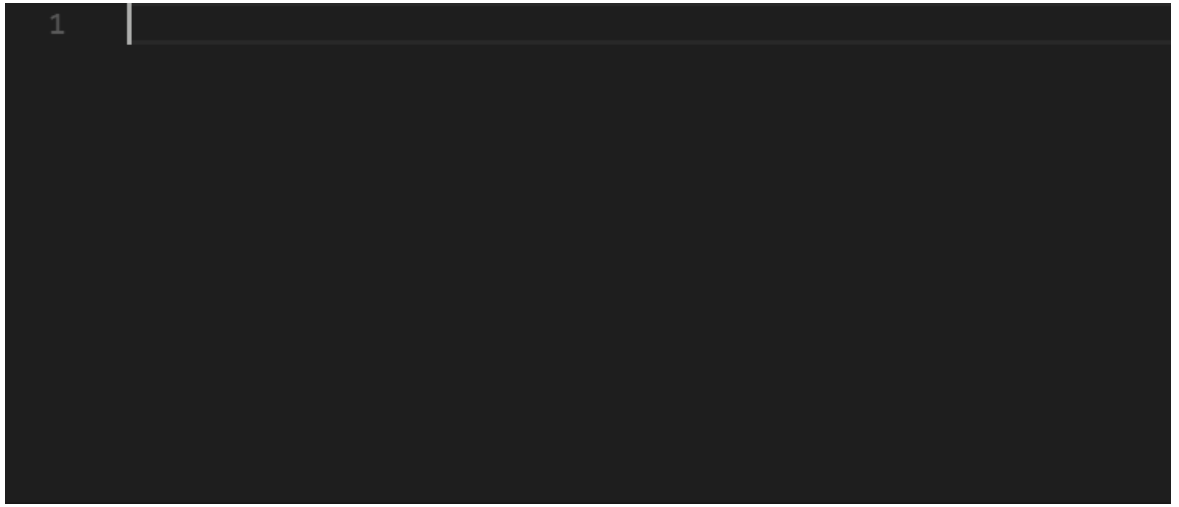
화면 크기를 조정 : Ctrl + '+' 또는 Ctrl + '-'

IntelliSense



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

Snippets

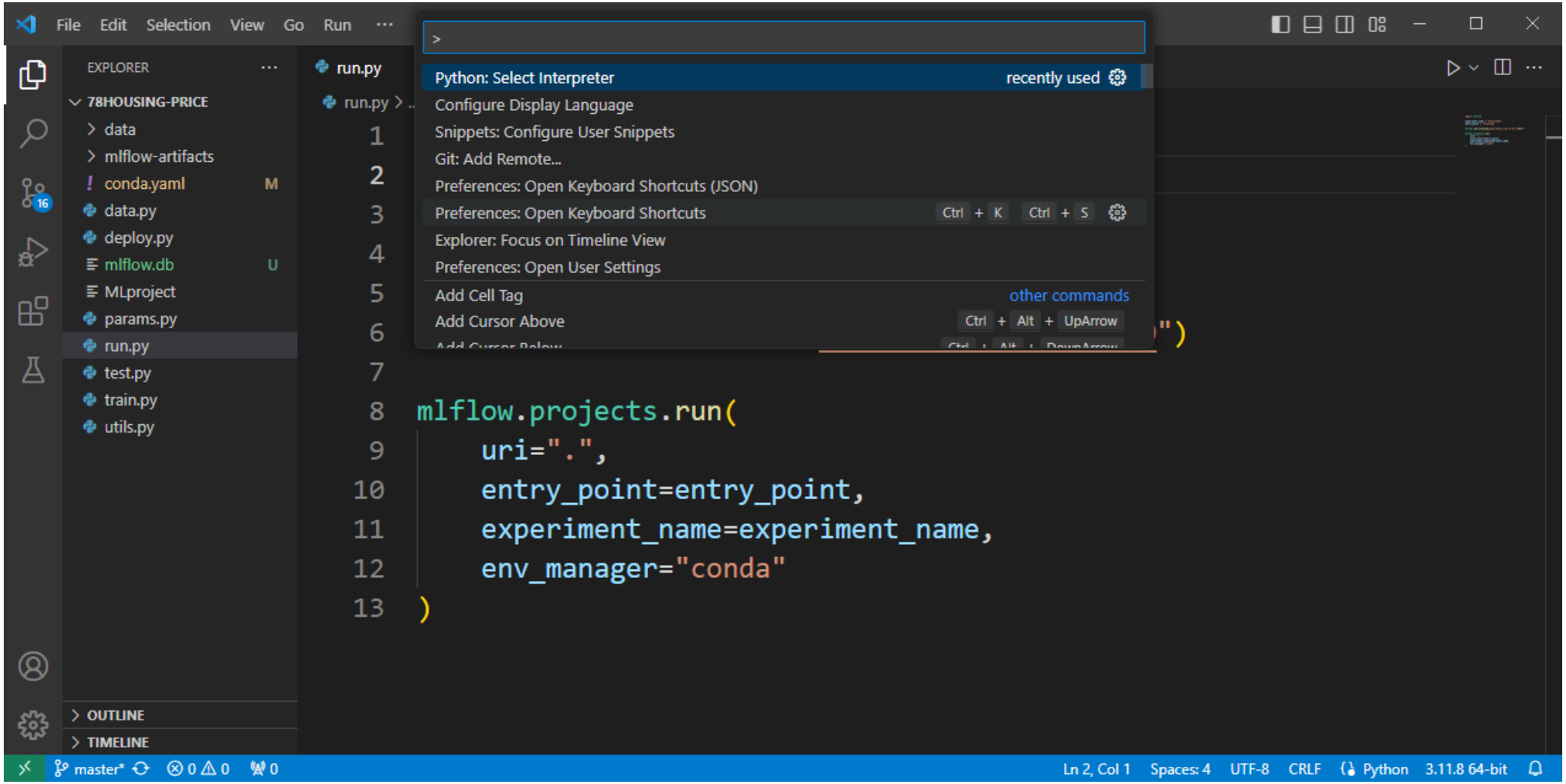


https://code.visualstudio.com/docs/editor/userdefinedsnippets

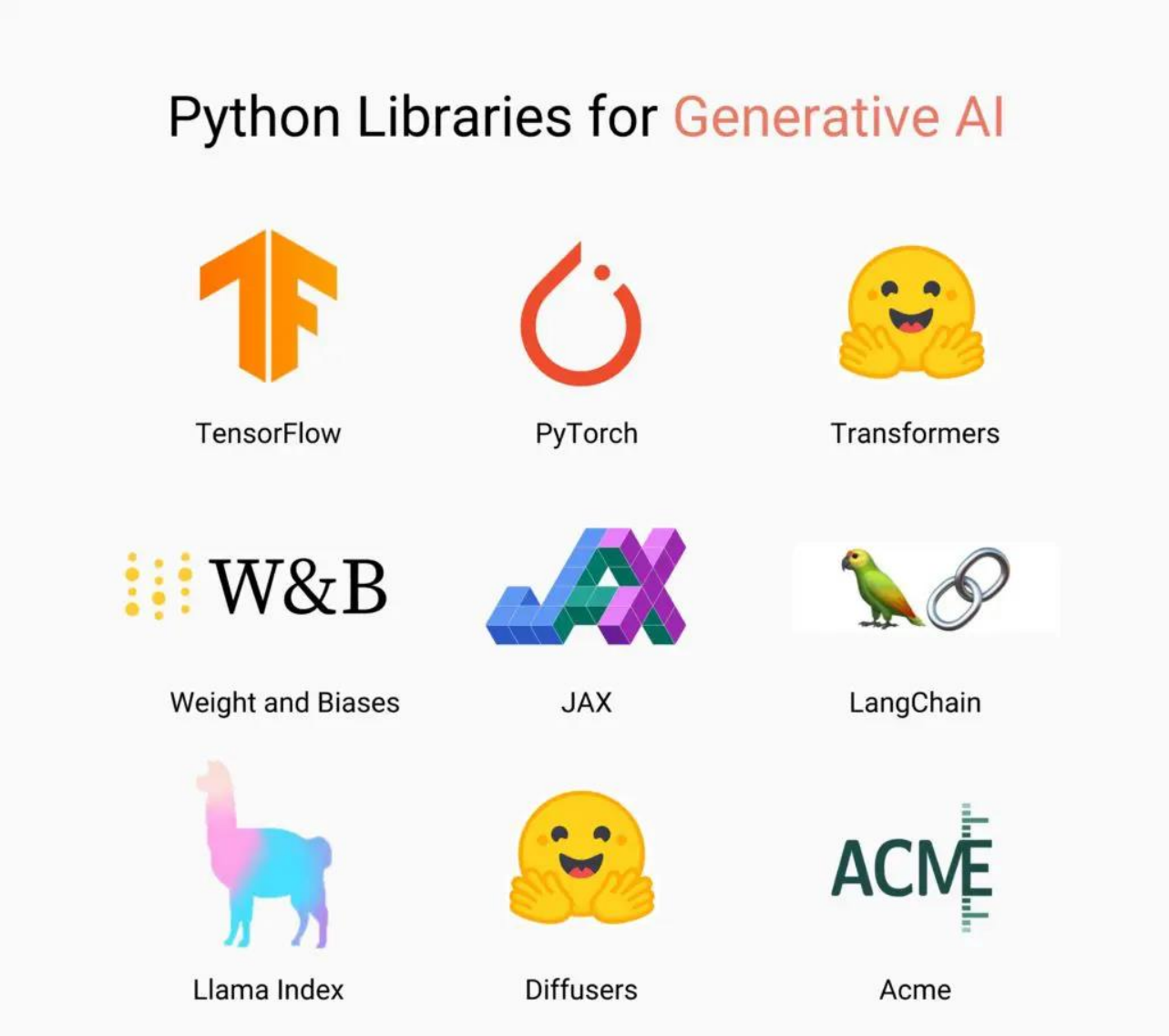
VS Code : Python 선택

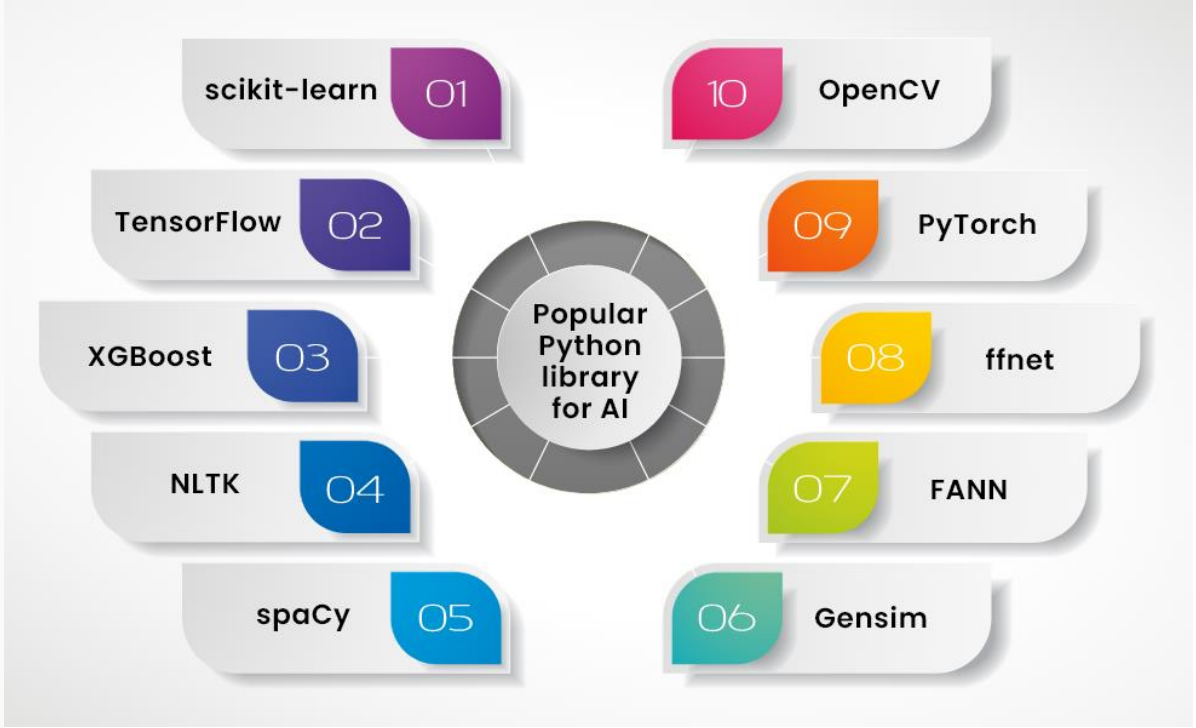
- **Windows : Ctrl + Shift + P**
  Python : Select Interpreter

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



Python(파이썬)





https://datasciencedojo.com/blog/python-libraries-for-generative-ai/

Python 설치

■ 파이썬 다운로드

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

Stable Releases

•Python 3.11.8 - Feb. 6, 2024

•Note that Python 3.11.8 *cannot* be used on Windows 7 or earlier.

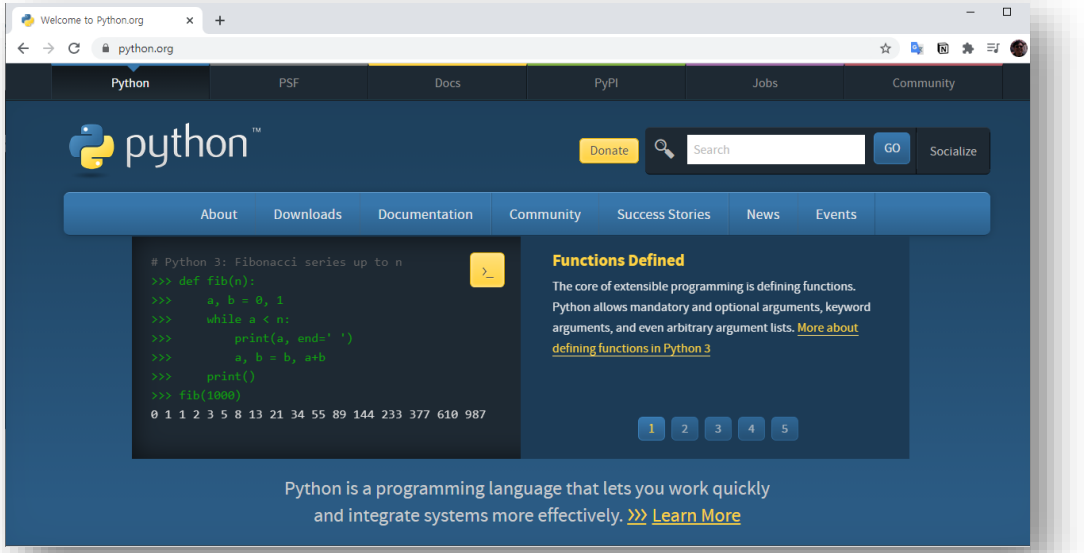
- Download Windows embeddable package (32-bit)
- Download Windows embeddable package (64-bit)
- Download Windows embeddable package (ARM64)
- Download Windows installer (32 -bit)
- Download Windows installer (64-bit)
- Download Windows installer (ARM64)

https://www.python.org/downloads/macos/

Stable Releases

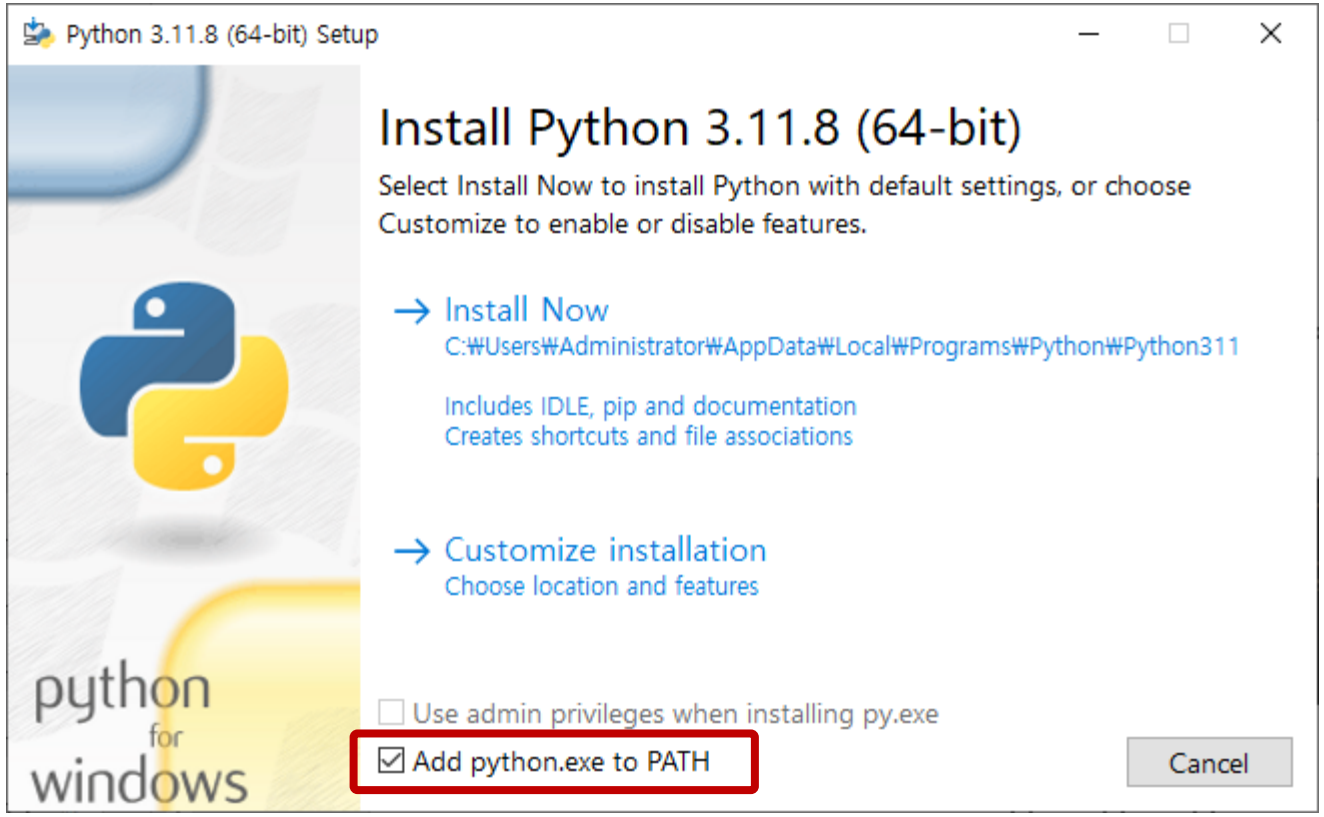
•Python 3.11.8 - Feb. 6, 2024

- Download macOS 64-bit universal2 installer



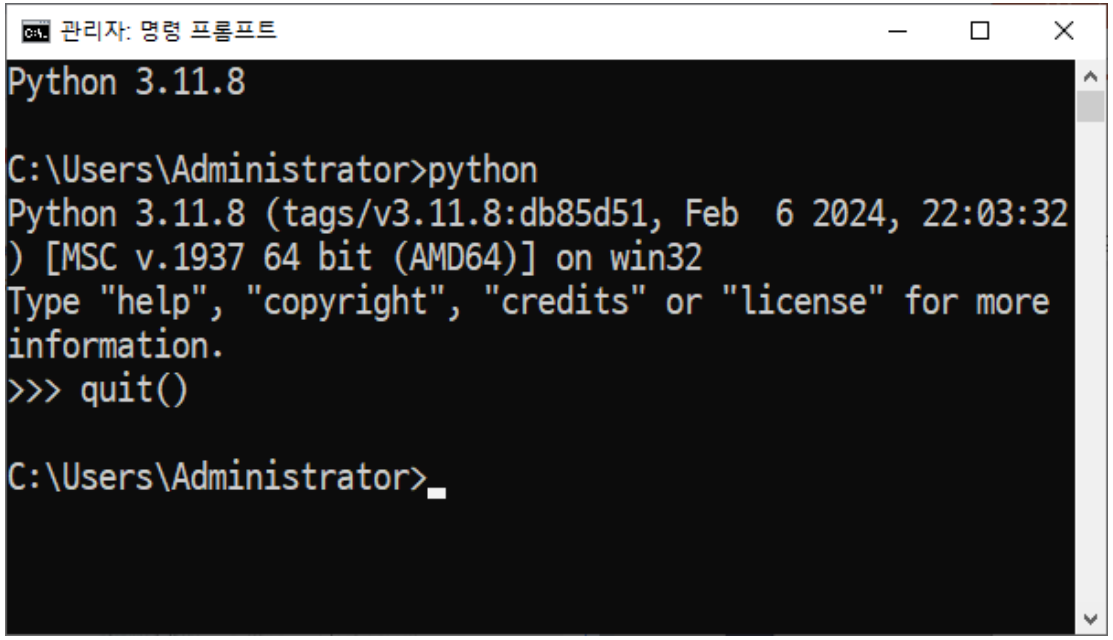
Python 설치

■ 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 py311`
- 가상환경 실행 : `py311\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 py311`
- 가상환경 실행 : `source py311/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`

Python 가상환경 설치

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

- 가상환경 생성 : `python -m venv py311`

- 가상환경 실행
  - Windows : `py311\Scripts\activate.bat`
  - Linux / macOS : `source py311/bin/activate`

- 파이썬 패키지 설치 : `pip install jupyterlab notebook openai`
  - Jupyter Lab 설치 확인 : `jupyter lab`
  - Jupyter Notebook 설치 확인 : `jupyter notebook`

- 패키지 목록파일 만들기
  `pip freeze > requirements.txt`

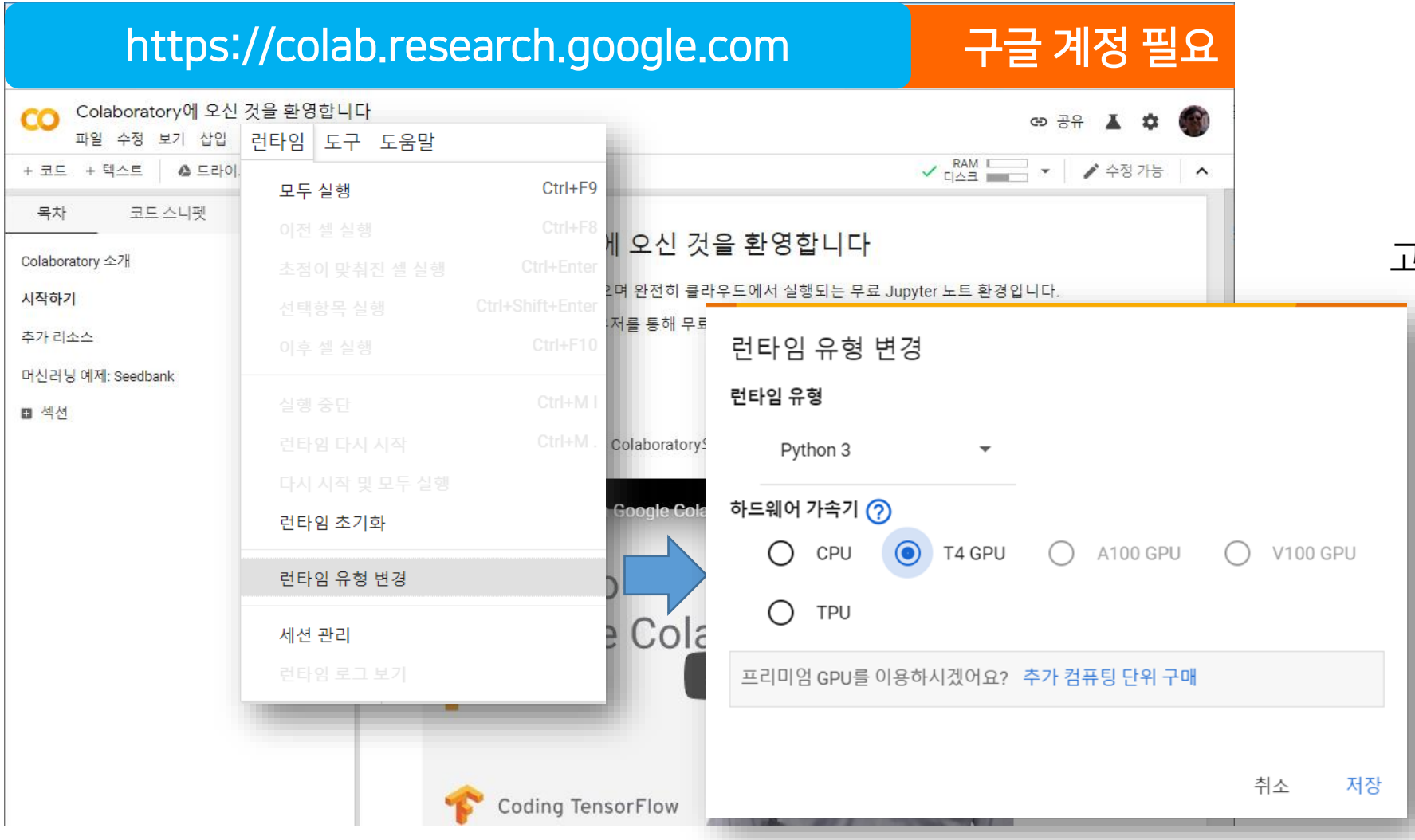
- 패키지 목록파일로 패키지 설치 하는 방법
  `pip install -r requirements.txt`

- 파이썬 패키지 삭제 : `pip uninstall jupyterlab`

Colab(코랩)

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

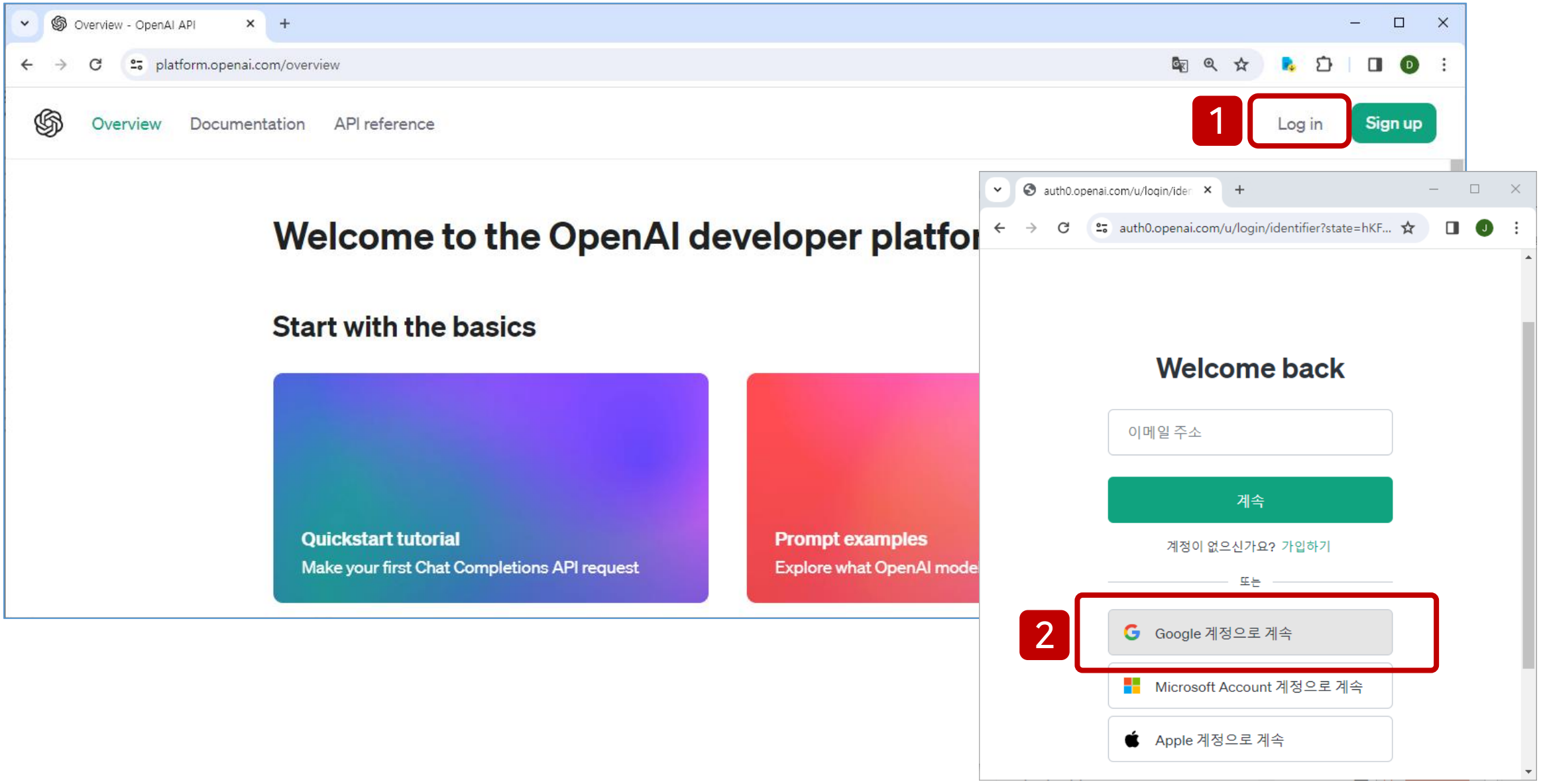
https://colab.research.google.com 구글 계정 필요



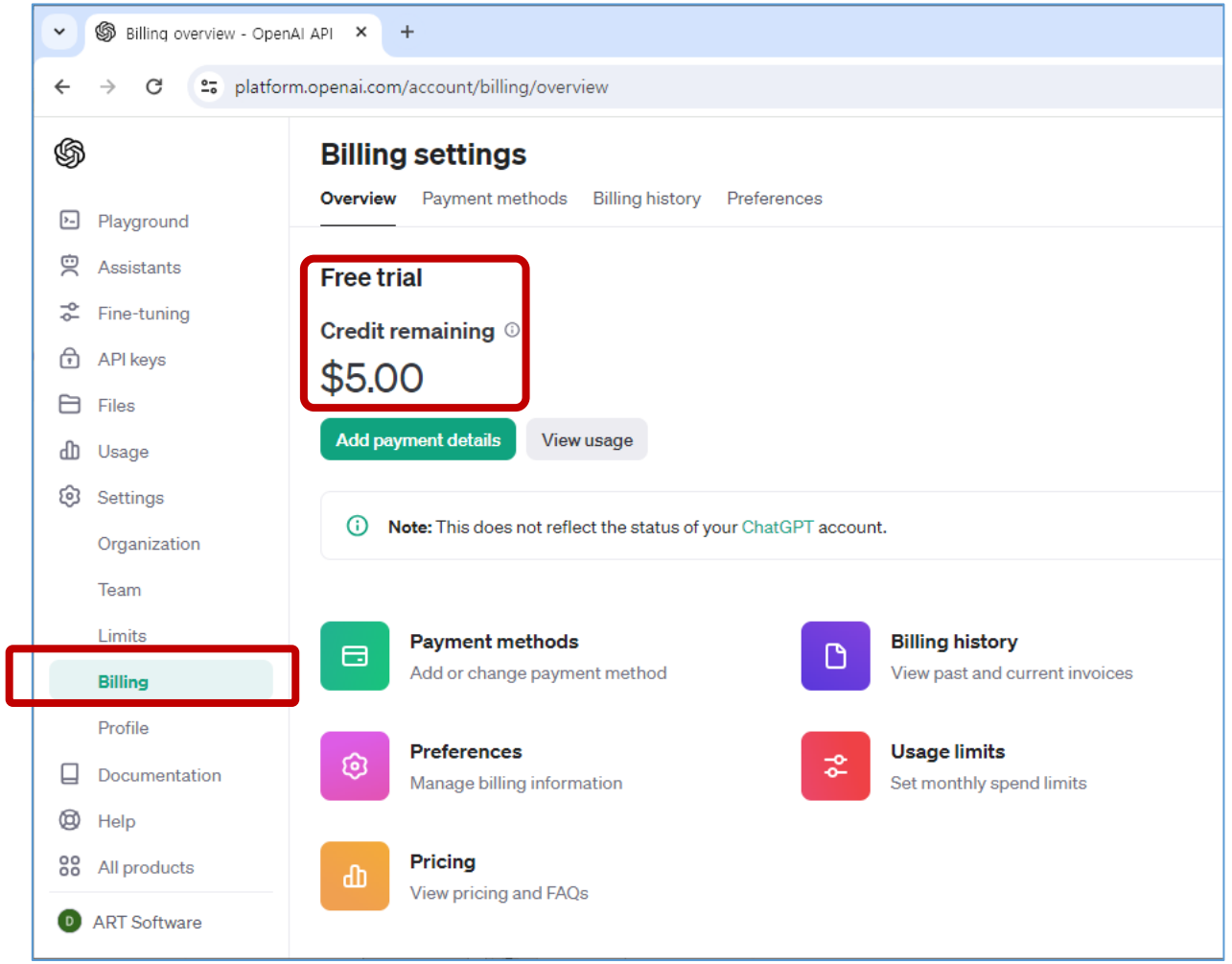
고성능GPU(Graphics Processing Unit)

OpenAI API 사용

https://platform.openai.com/



OpenAI API 무료사용 https://platform.openai.com/account/billing/overview



Rate limits

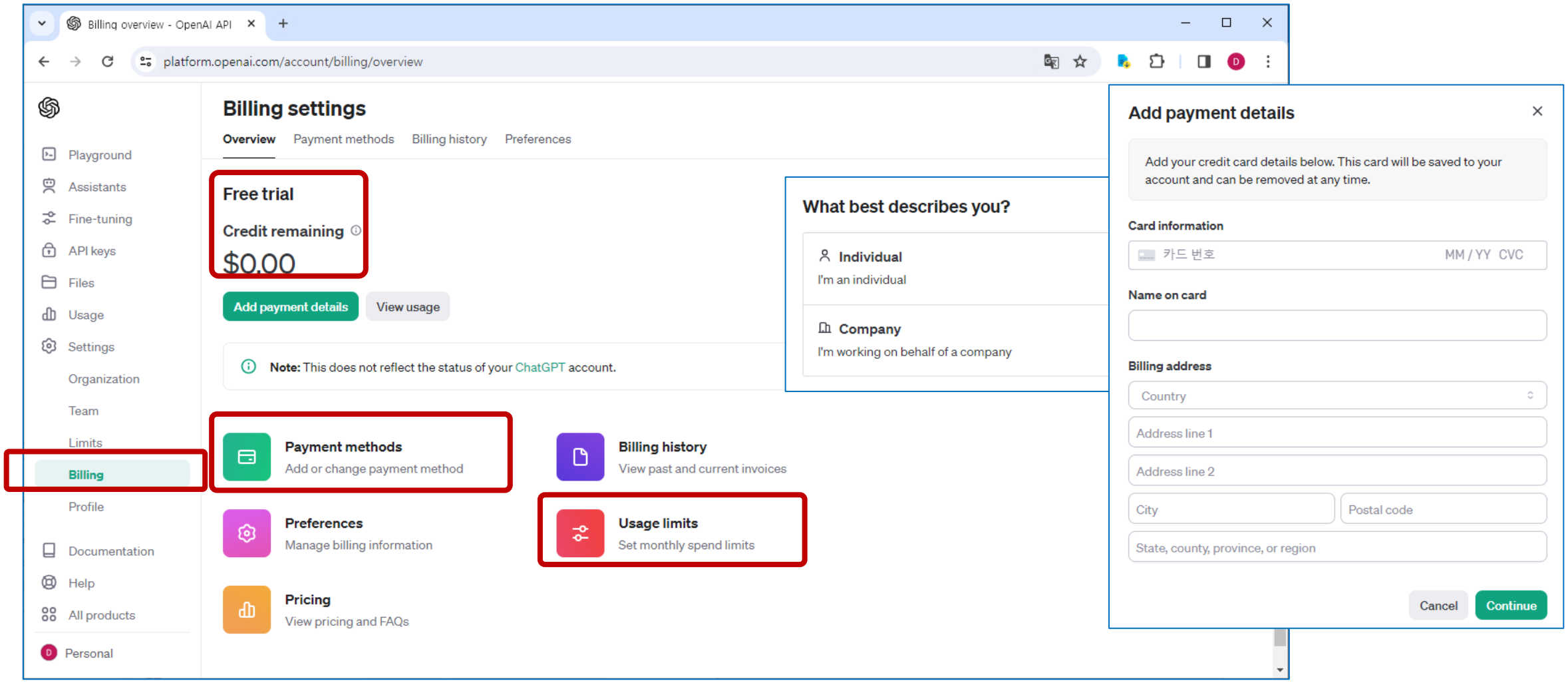
MODEL	TOKEN LIMITS	REQUEST AND OTHER LIMITS
gpt-3.5-turbo : LLM	40,000 TPM	3 RPM 200 RPD
text-embedding-3-small	150,000 TPM	3 RPM 200 RPD
dall-e-3 : Text to Image		3 RPM 200 RPD
tts-1 : Text to Speech		3 RPM 200 RPD
whisper-1 : Automatic Speech Recognition		3 RPM 200 RPD

- TPM (tokens per minute)
- TPD (tokens per day)
- RPM (requests per minute)
- RPD (requests per day)
- IPM (images per minute)

- 1 token ~= 4 chars in English
- 1 token ~= ¾ words
- 100 tokens ~= 75 words

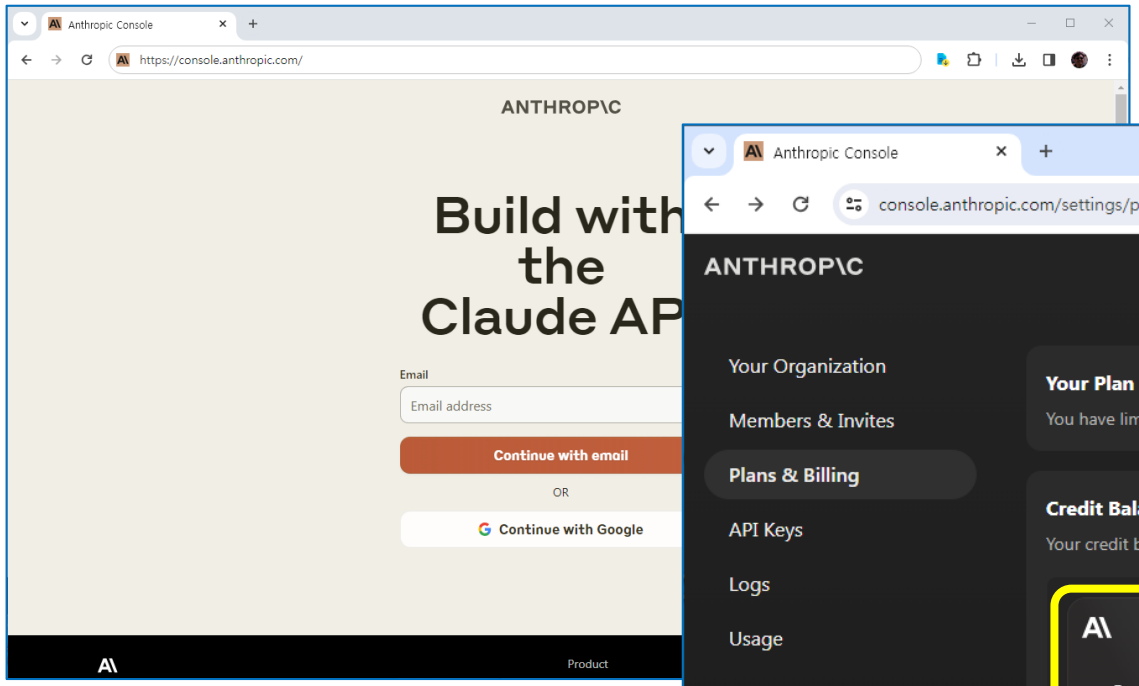
참고 : https://help.openai.com/en/articles/4936856-what-are-tokens-and-how-to-count-them

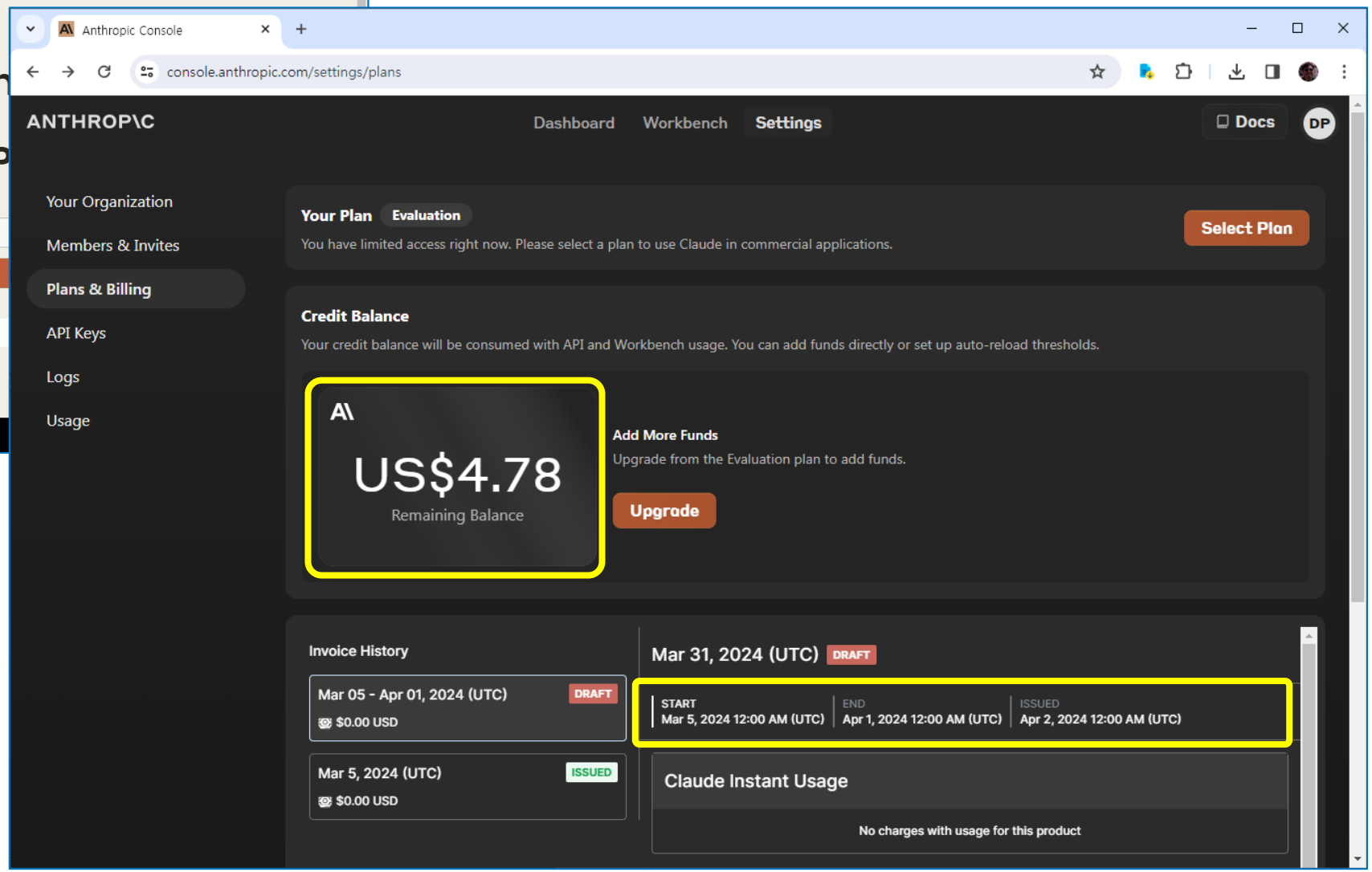
OpenAI API 유료사용 https://platform.openai.com/account/billing/overview



Anthropic API 무료사용

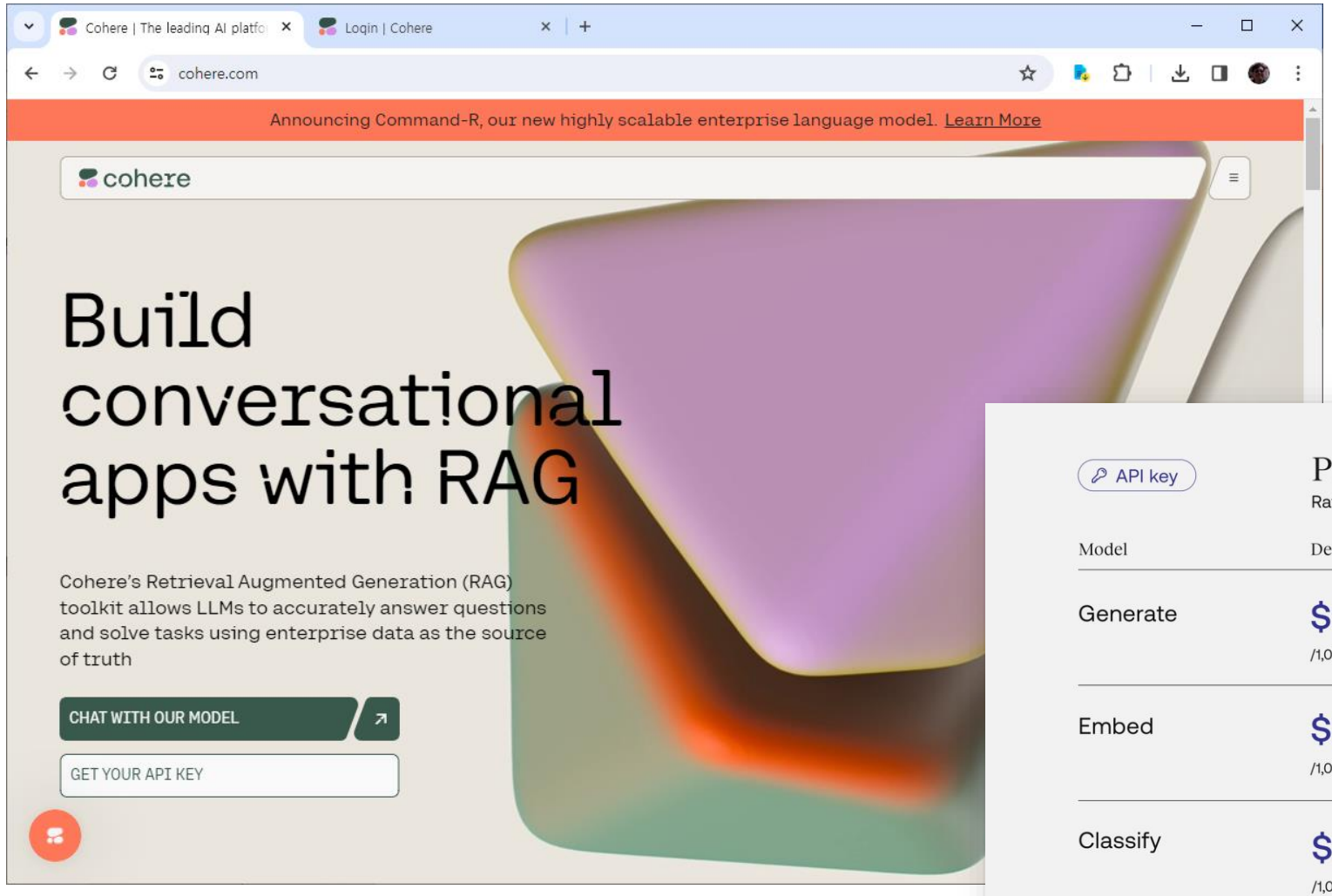
https://console.anthropic.com/

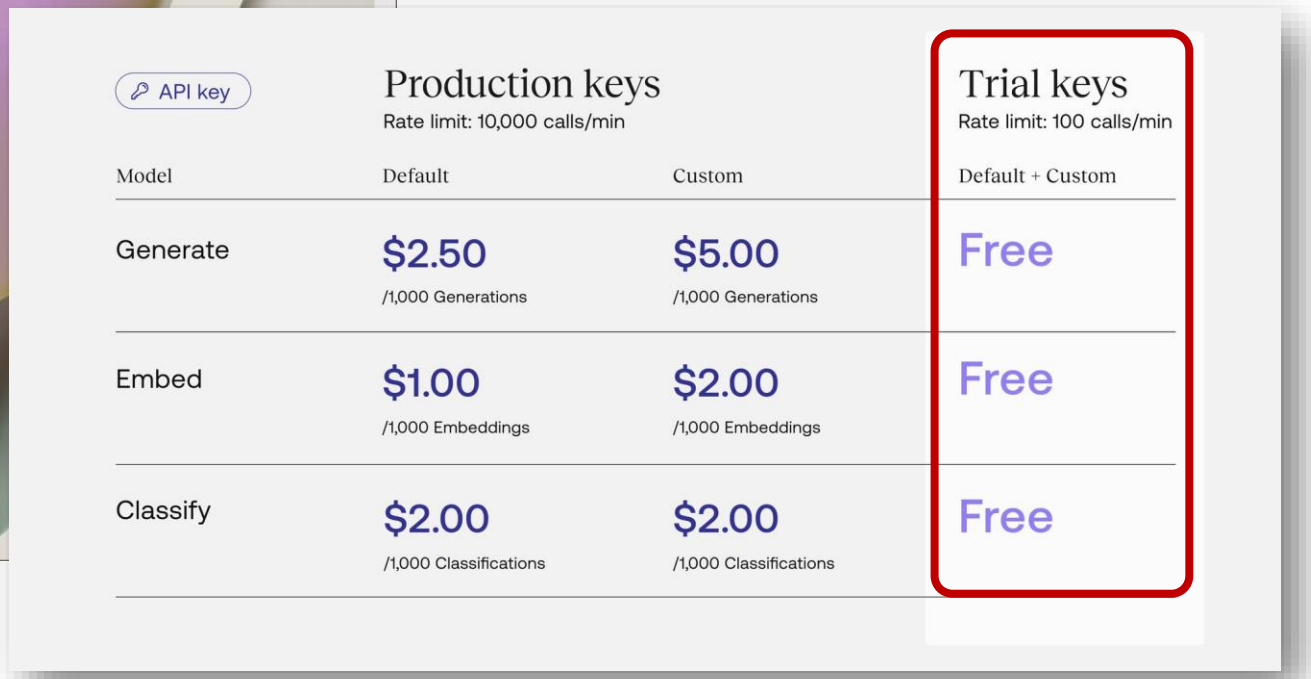




Cohere API 무료사용

https://cohere.com/





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

실습

PythonEssence.ipynb

Thank you