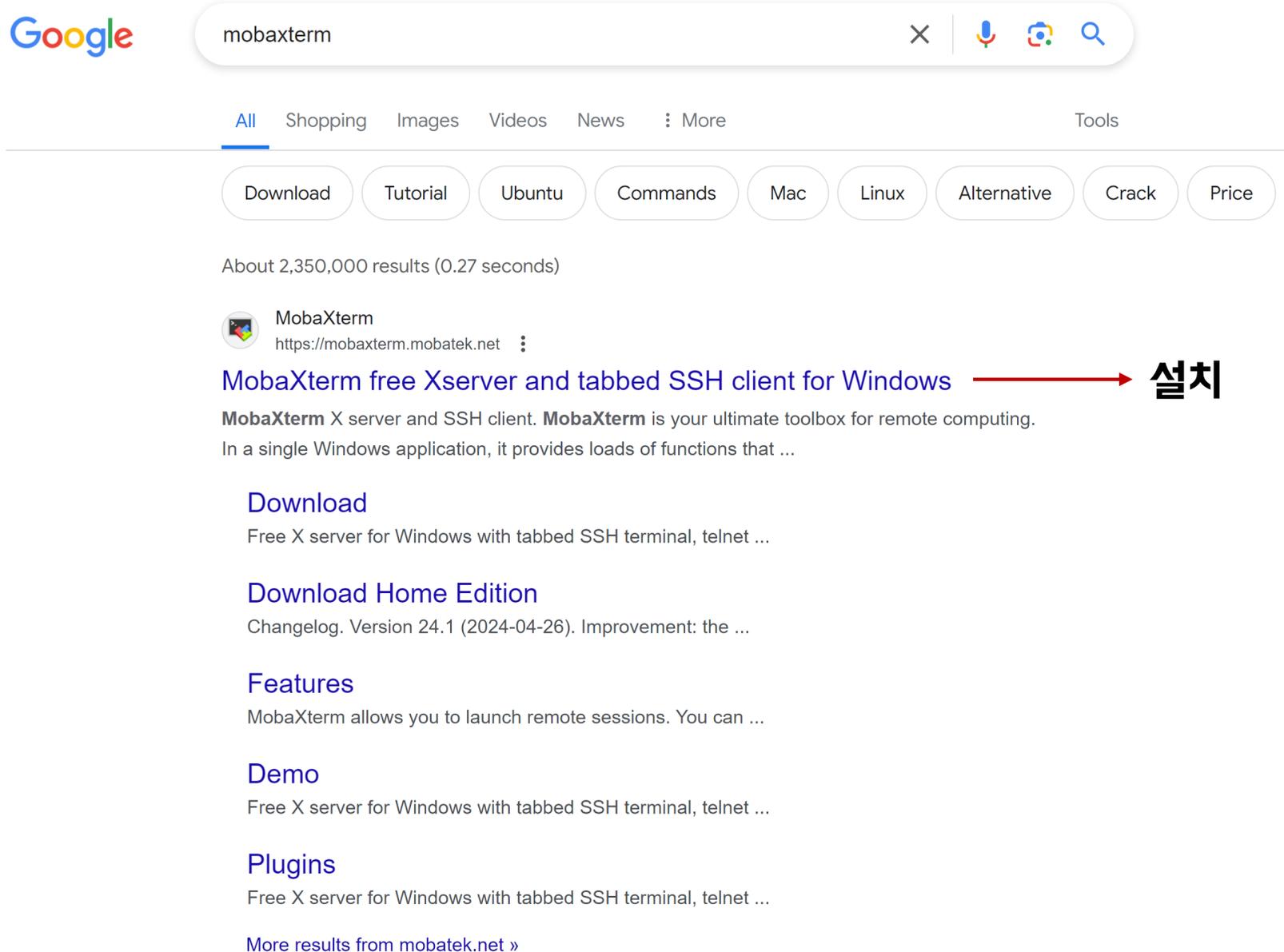




반도체소재설계 강의자료 03

한밭대학교 신소재공학과 신기현

1. MobaXterm



Google search results for "mobaxterm". The search bar contains "mobaxterm" and the results show "About 2,350,000 results (0.27 seconds)". The first result is from "MobaXterm" with the URL "https://mobaxterm.mobatek.net". The title of the result is "MobaXterm free Xserver and tabbed SSH client for Windows", which is highlighted with a red arrow pointing to the Korean word "설치" (Installation). Below the title is a short description: "MobaXterm X server and SSH client. MobaXterm is your ultimate toolbox for remote computing. In a single Windows application, it provides loads of functions that ...". There are several links below the description: "Download", "Download Home Edition", "Features", "Demo", and "Plugins". At the bottom, there is a link "More results from mobatek.net »".

Google

mobaxterm

All Shopping Images Videos News More Tools

Download Tutorial Ubuntu Commands Mac Linux Alternative Crack Price

About 2,350,000 results (0.27 seconds)

MobaXterm
https://mobaxterm.mobatek.net

MobaXterm free Xserver and tabbed SSH client for Windows → 설치

MobaXterm X server and SSH client. MobaXterm is your ultimate toolbox for remote computing. In a single Windows application, it provides loads of functions that ...

[Download](#)
Free X server for Windows with tabbed SSH terminal, telnet ...

[Download Home Edition](#)
Changelog. Version 24.1 (2024-04-26). Improvement: the ...

[Features](#)
MobaXterm allows you to launch remote sessions. You can ...

[Demo](#)
Free X server for Windows with tabbed SSH terminal, telnet ...

[Plugins](#)
Free X server for Windows with tabbed SSH terminal, telnet ...

[More results from mobatek.net »](#)



Connecting Server

The screenshot displays the MobaXterm interface. The main window shows the 'Session' menu highlighted in red. A red arrow points from this menu to the 'Session settings' dialog box. The dialog box is also outlined in red and contains the following information:

- Host:** themad.hanbat.ac.kr
- Username:** team01 ~ team 04
- PW:** n8318

Inside the 'Session settings' dialog, the 'SSH' protocol is selected. The 'Basic SSH settings' section includes:

- Remote host: themad.hanbat.ac.kr
- Specify username: checked, team01
- Port: 22

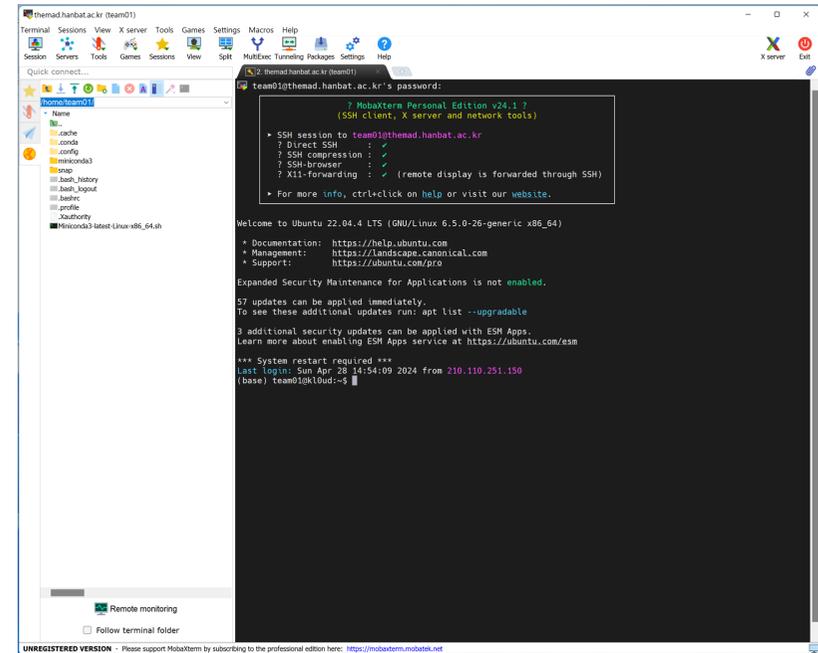
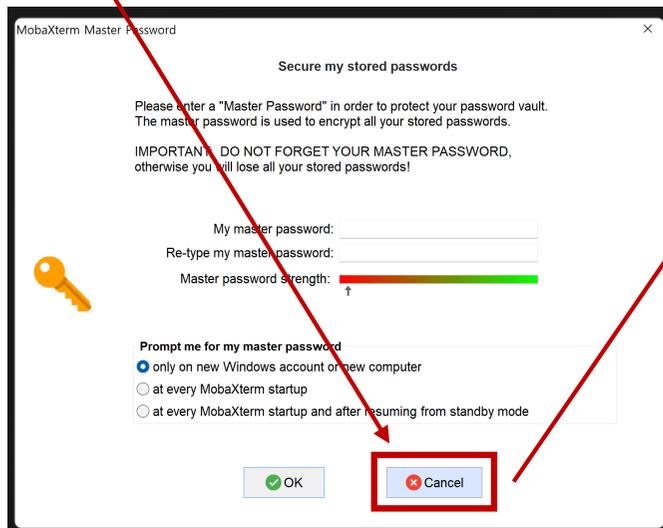
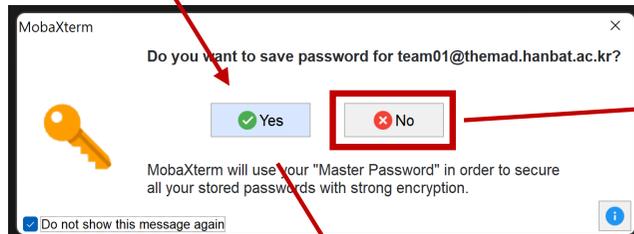
The 'Advanced SSH settings' section includes:

- X11-Forwarding
- Compression
- Remote environment: Interactive shell
- Execute command:
- SSH-browser type: SFTP protocol
- Use private key:
- Execute macro at session start: <none>

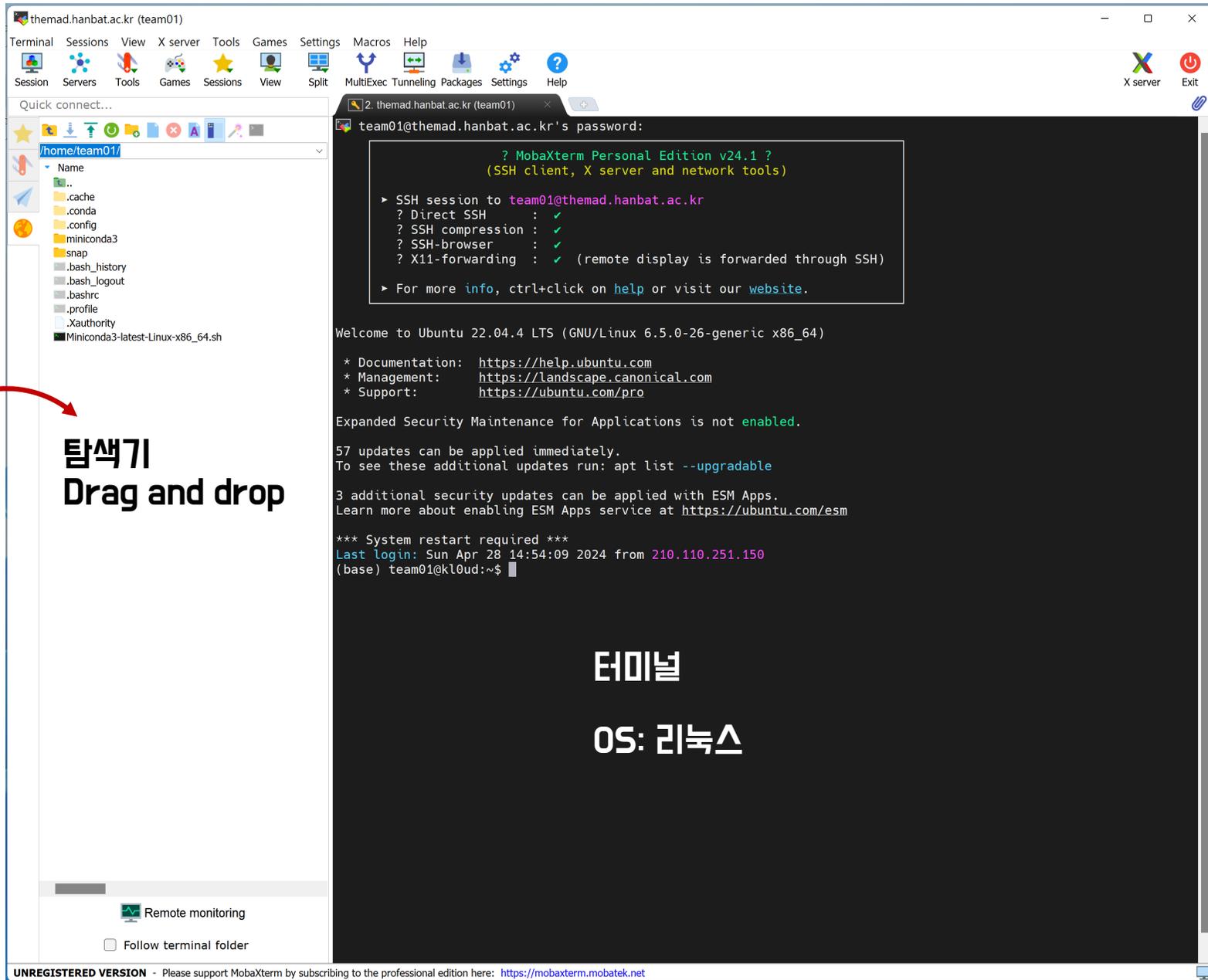
Buttons for 'OK' and 'Cancel' are at the bottom of the dialog.



Connecting Server



Connecting Server



파일이동

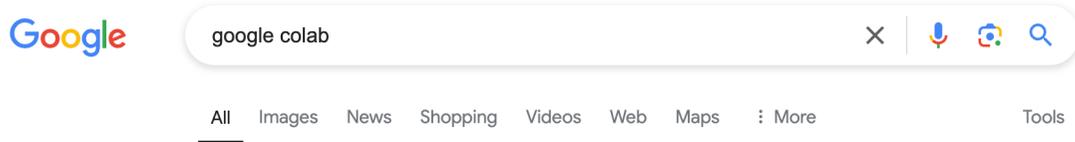
탐색기
Drag and drop

터미널

OS: 리눅스



2. Google Colab



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

Welcome To Colab - Colab - Google

Colab notebooks allow you to combine executable code and rich text in a single document, along with images, HTML, LaTeX and more. When you create your own Colab ...

Google Colab Notebook
Sign in.

Notebook loading error
... laboratory-static/common/7fdcc2ab29fcd8523145dabacf ...

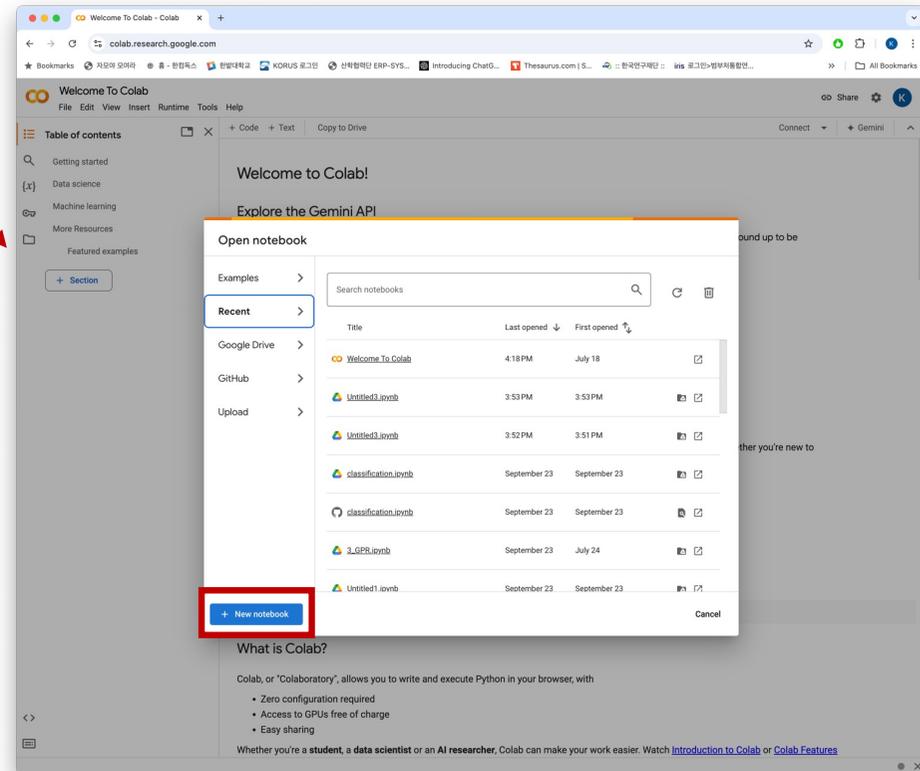
GitHub
Sign in. close. close. Open notebook. arrow_back Back ...

Pro
Colab Pro+ ... An additional 400 compute units for a total of 500 ...

Introduction to Colab and Python
Colab is a Python development environment that runs in the ...

[More results from google.com »](#)

구글아이디 로그인 필요



2. Google Colab

The screenshot shows the Google Colab interface with a notebook titled 'Untitled4.ipynb'. The left sidebar shows a file explorer with a folder named 'sample_data' and a file named 'POSCAR'. A red box highlights the folder icon, and the text '탐색기' (Search) is written below it. The main code cell contains the following Python code:

```
# Colab에 ase 패키지 설치
!pip install ase

from ase import Atoms
from ase.build import bulk
from ase.io.vasp import write_vasp

# 1. GaAs의 zinc-blende 구조를 생성 (cubic)
# bulk 함수를 사용하여 zincblende 구조로 GaAs를 만듭니다.
# 'GaAs', 'zincblende'는 GaAs의 구조 타입을 나타냅니다.
# a는 격자 상수로, GaAs의 실험적 값인 5.65 Å를 사용합니다.

a = 5.65 # lattice constant for GaAs in Angstroms
gaas = bulk('GaAs', 'zincblende', a=a)

# 2. POSCAR 파일로 저장
write_vasp('POSCAR', gaas, direct=True)

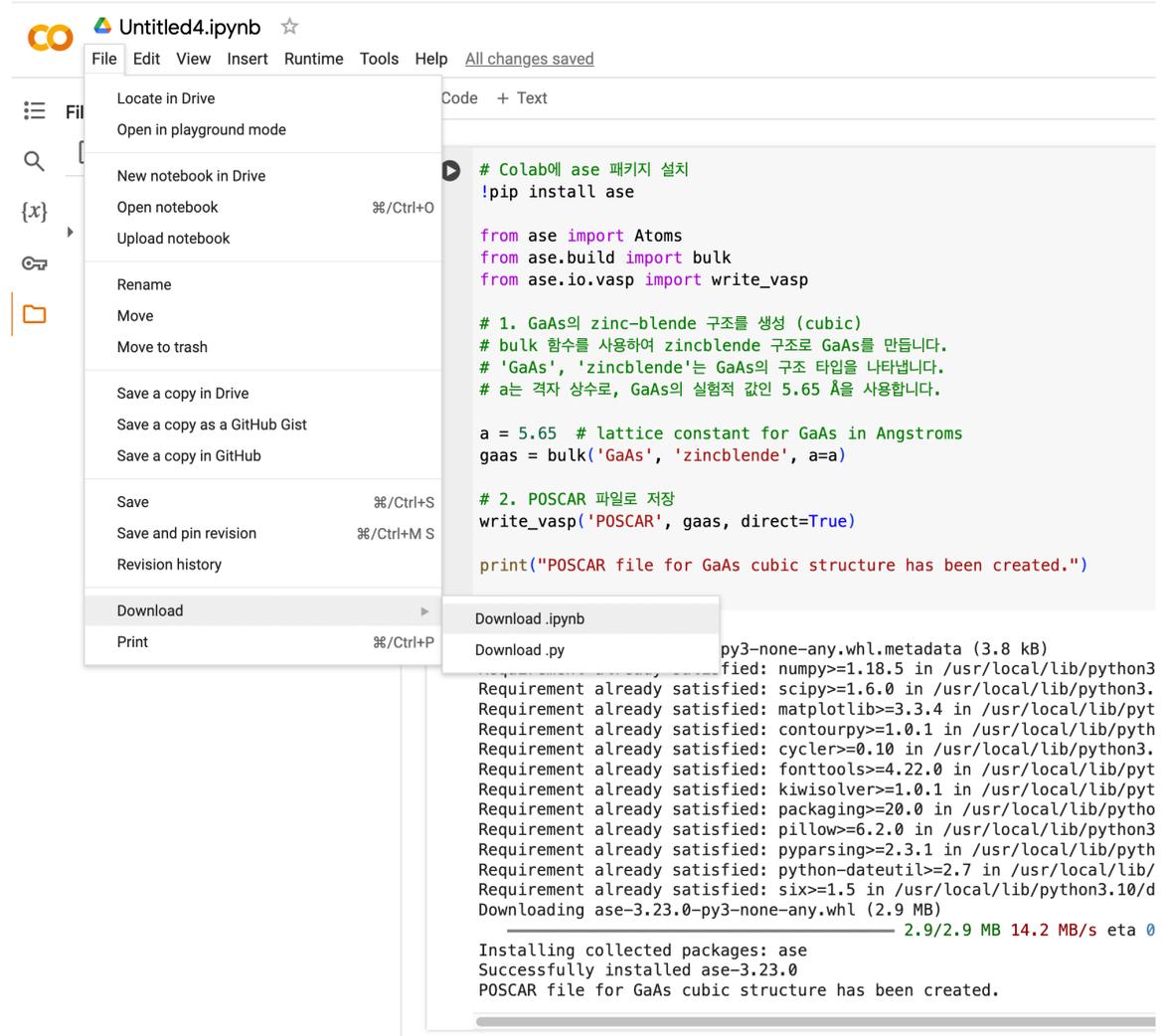
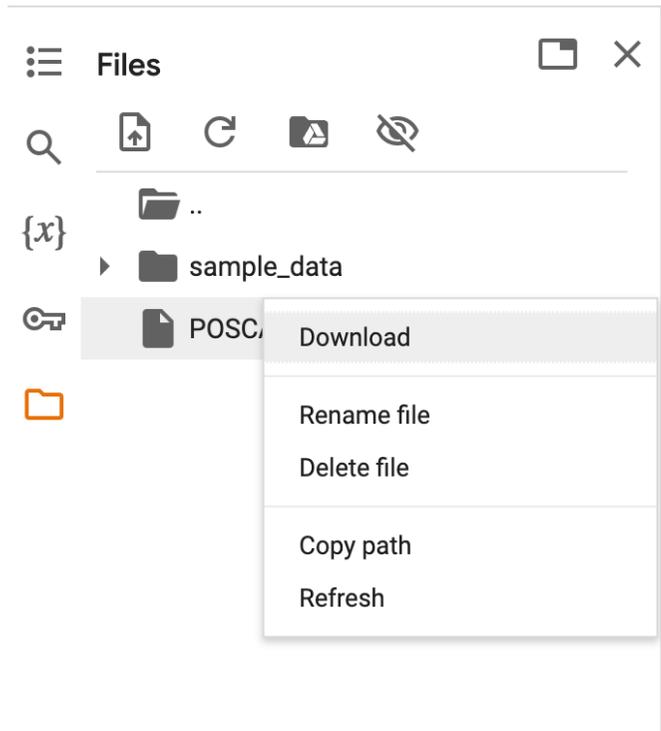
print("POSCAR file for GaAs cubic structure has been created.")
```

The output of the code execution shows the installation of the ASE package and the creation of the POSCAR file:

```
Collecting ase
  Downloading ase-3.23.0-py3-none-any.whl.metadata (3.8 kB)
Requirement already satisfied: numpy>=1.18.5 in /usr/local/lib/python3.10/dist-packages (from ase) (1.26.4)
Requirement already satisfied: scipy>=1.6.0 in /usr/local/lib/python3.10/dist-packages (from ase) (1.13.1)
Requirement already satisfied: matplotlib>=3.3.4 in /usr/local/lib/python3.10/dist-packages (from ase) (3.7.1)
Requirement already satisfied: contourpy>=1.0.1 in /usr/local/lib/python3.10/dist-packages (from matplotlib>=3.3.4->ase) (1.3.0)
Requirement already satisfied: cycler>=0.10 in /usr/local/lib/python3.10/dist-packages (from matplotlib>=3.3.4->ase) (0.12.1)
Requirement already satisfied: fonttools>=4.22.0 in /usr/local/lib/python3.10/dist-packages (from matplotlib>=3.3.4->ase) (4.54.1)
Requirement already satisfied: kiwisolver>=1.0.1 in /usr/local/lib/python3.10/dist-packages (from matplotlib>=3.3.4->ase) (1.4.7)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.10/dist-packages (from matplotlib>=3.3.4->ase) (24.1)
Requirement already satisfied: pillow>=6.2.0 in /usr/local/lib/python3.10/dist-packages (from matplotlib>=3.3.4->ase) (10.4.0)
Requirement already satisfied: pyparsing>=2.3.1 in /usr/local/lib/python3.10/dist-packages (from matplotlib>=3.3.4->ase) (3.1.4)
Requirement already satisfied: python-dateutil>=2.7 in /usr/local/lib/python3.10/dist-packages (from matplotlib>=3.3.4->ase) (2.8.2)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.10/dist-packages (from python-dateutil>=2.7->matplotlib>=3.3.4->ase) (1.16.0)
Downloading ase-3.23.0-py3-none-any.whl (2.9 MB)
----- 2.9/2.9 MB 14.2 MB/s eta 0:00:00
Installing collected packages: ase
Successfully installed ase-3.23.0
POSCAR file for GaAs cubic structure has been created.
```

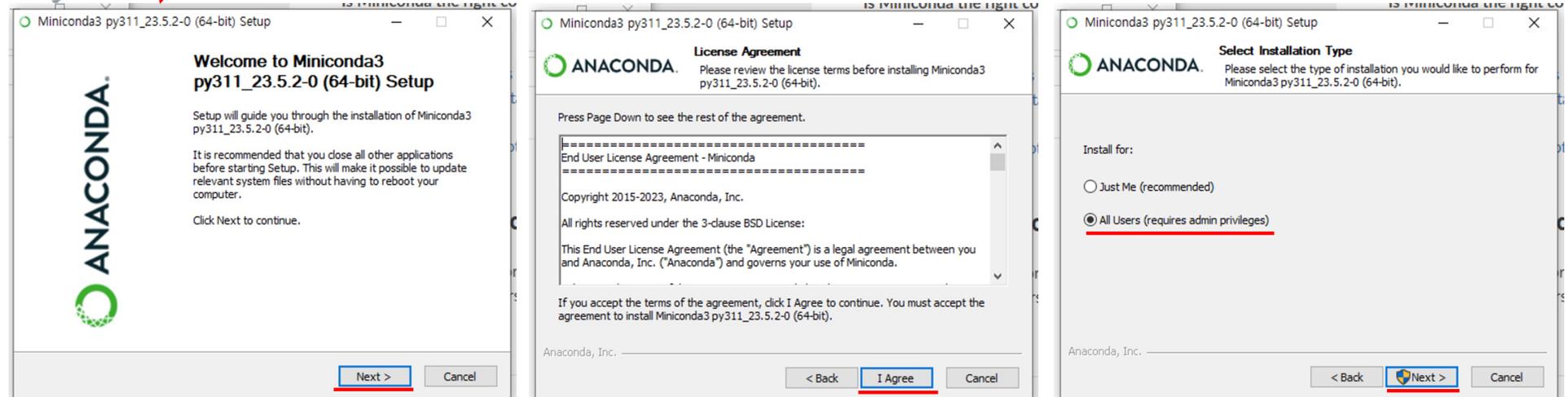
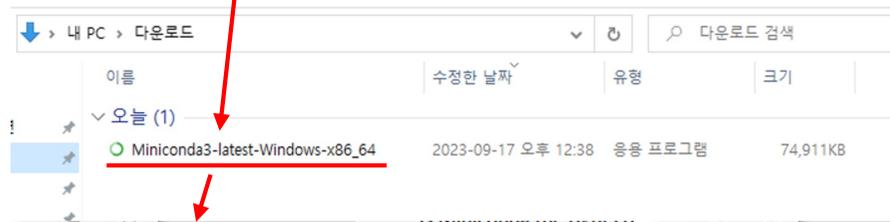


2. Google Colab

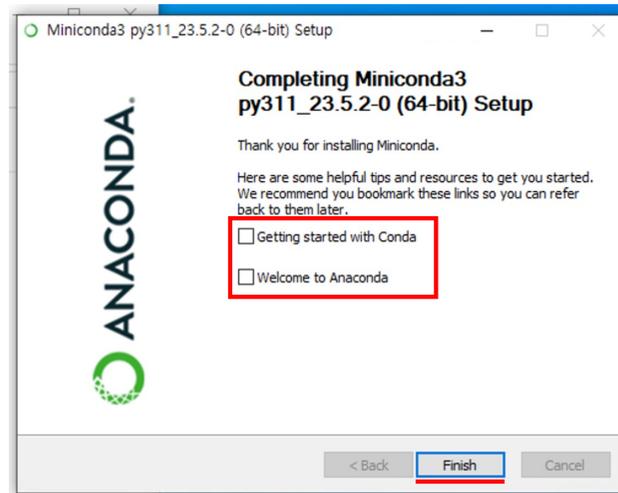
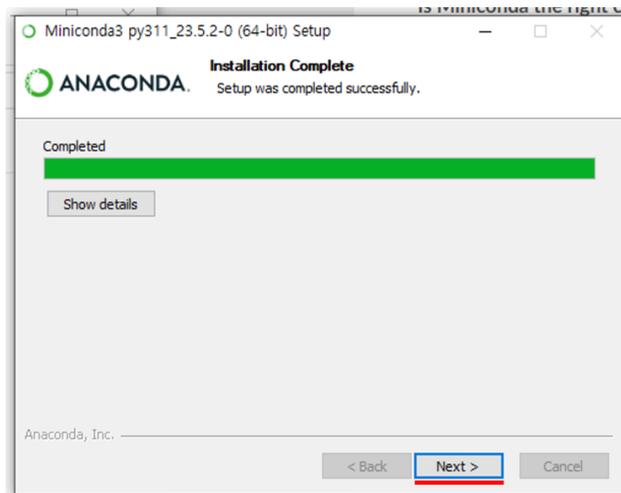
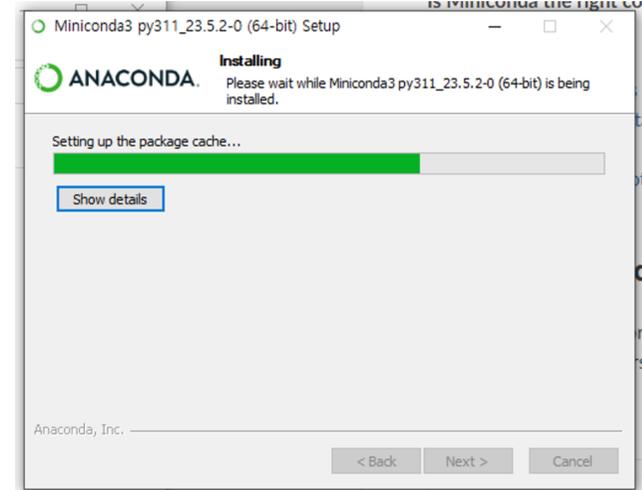
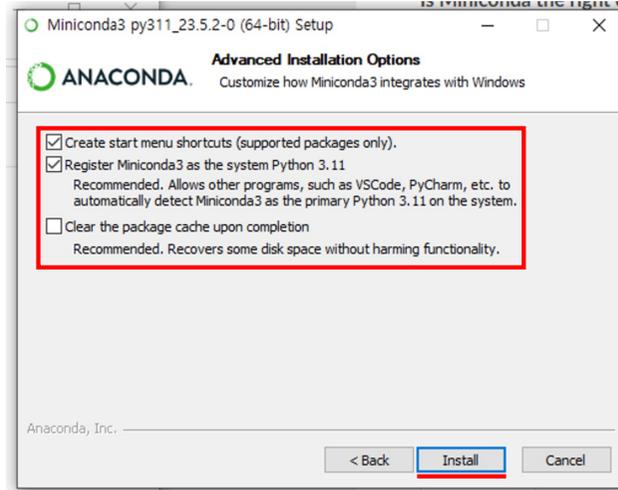
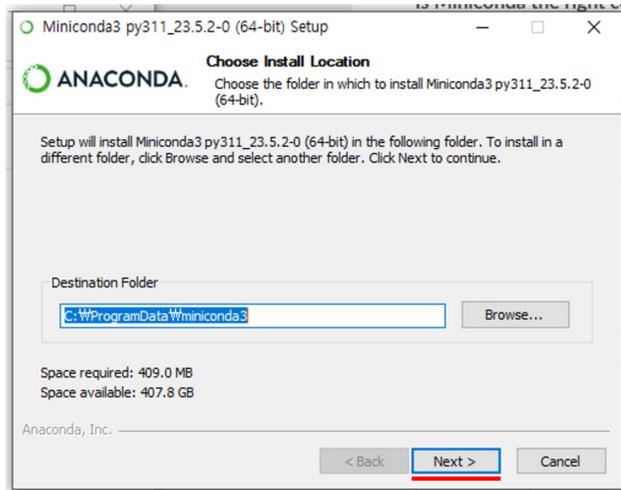


3. Windows (miniconda3 + powershell + vim)

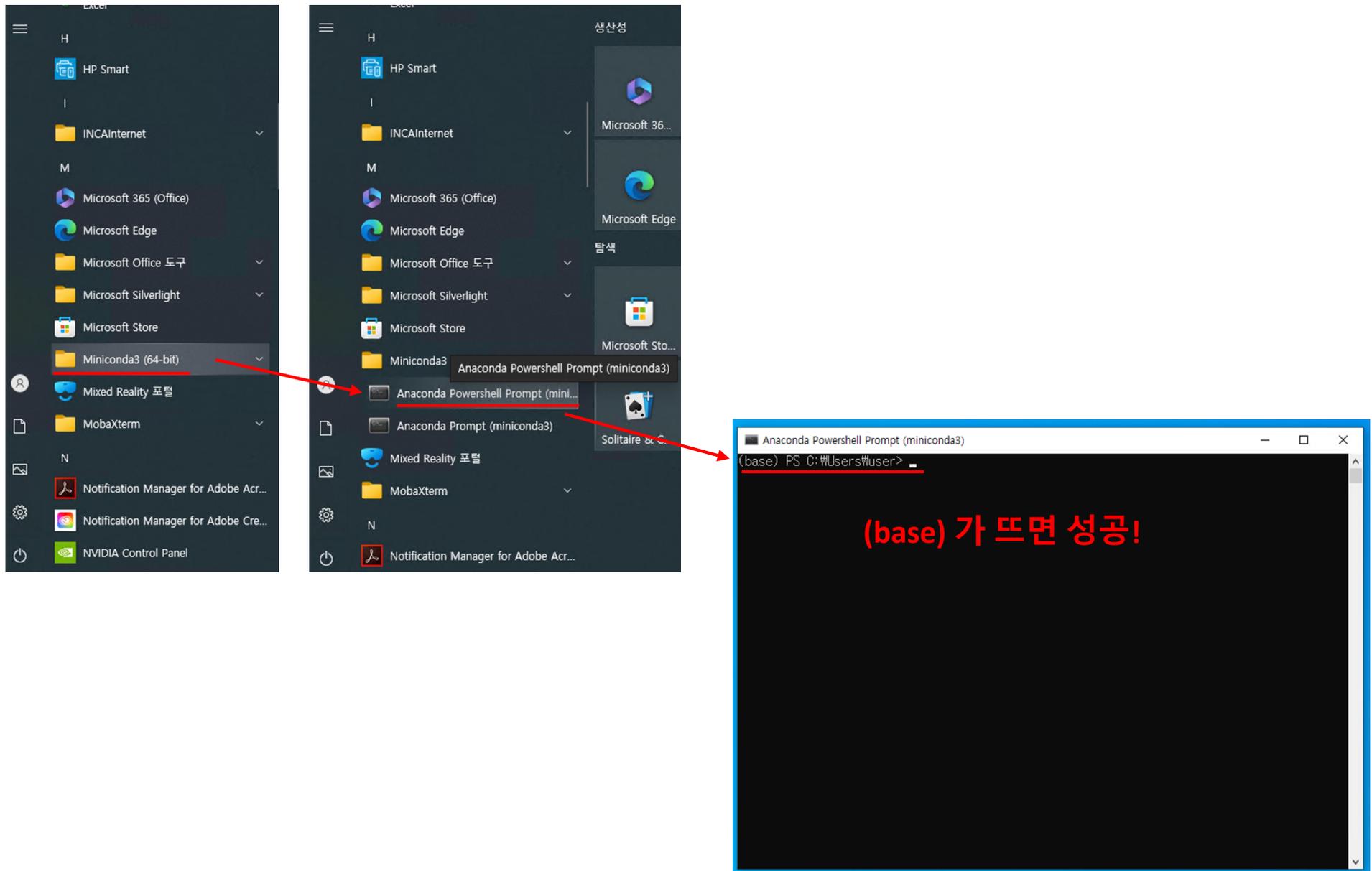
Platform	Name	SHA256 hash
Windows	<u>Miniconda3 Windows 64-bit</u>	00e8370542836862d4c790aa8966f1d7344a8add4b766004febcb23f40e2914
macOS	Miniconda3 macOS Intel x86 64-bit bash	1622e7a0fa60a7d3d892c2d8153b54c6dffe3e6b979d931320ba56bd52581d4b
	Miniconda3 macOS Intel x86 64-bit pkg	2236a243b6cbe6f16ec324ecc9e631102494c031d41791b44612bbb6a7a1a6b4
	Miniconda3 macOS Apple M1 64-bit bash	c8f436dbde130f171d39dd7b4fca669c223f130ba7789b83959adc1611a35644
	Miniconda3 macOS Apple M1 64-bit pkg	837371f3b6e8ae2b65bdfc8370e6be812b564ff9f40bcd4eb0b22f84bf9b4fe5
Linux	Miniconda3 Linux 64-bit	634d76df5e489c44ade4085552b97bec786d49245ed1a830022b0b406de5817
	Miniconda3 Linux-aarch64 64-bit	3962738cfac270ae4ff30da0e382aecf6b3305a12064b196457747b157749a7a
	Miniconda3 Linux-ppc64le 64-bit	92237cb2a443dd15005ec004f2f744b14de02cd5513a00983c2f191eb43d1b29
	Miniconda3 Linux-s390x 64-bit	221a4cd7f0a9275c3263efa07fa37385746de884f4306bb5d1fe5733ca770550



Miniconda 설치 (윈도우)



Miniconda 설치 (윈도우)



대부분의 명령어

```
Anaconda Powershell Prompt
(base) PS C:\Users\user> ls

디렉터리 : C:\Users\user

Mode                LastWriteTime         Length Name
----                -
d-----          2023-07-10 오후 2:06           .ms-ad
d-r---          2021-01-27 오전 10:22           3D Objects
d-r---          2024-03-06 오후 6:16           Contacts
d-r---          2024-10-09 오후 5:35           Creative Cloud Files
d-r---          2024-10-08 오후 7:47           Desktop
d-r---          2024-10-14 오후 8:45           Documents
d-r---          2024-10-10 오후 2:20           Downloads
d-r---          2024-10-10 오후 2:21           Dropbox
d-r---          2024-03-06 오후 6:16           Favorites
d-----          2021-11-18 오후 3:14           Intel
d-r---          2024-03-06 오후 6:16           Links
d-----          2023-10-17 오후 7:55           miniconda3
d-r---          2024-03-06 오후 6:16           Music
d-r---          2021-01-27 오전 10:24           OneDrive
d-r---          2024-03-06 오후 6:16           Pictures
d-r---          2024-03-06 오후 6:16           Saved Games
d-r---          2024-03-06 오후 6:16           Searches
d-r---          2024-03-06 오후 6:16           Videos
d-----          2024-10-08 오후 8:04           vimfiles
-a----          2024-10-08 오후 8:04           946 .test.un~
-a----          2024-10-08 오후 8:04           920 _viminfo

(base) PS C:\Users\user>
```

대부분의 명령어가 무리없이 작동한다.

```
(base) PS C:\Users\user> cd .\Desktop\
(base) PS C:\Users\user\Desktop> cd ../
(base) PS C:\Users\user> cd .\Desktop\
(base) PS C:\Users\user\Desktop> mkdir test
```

디렉터리 : C:\Users\user\Desktop

Mode	LastWriteTime	Length	Name
d-----	2024-10-14 오후 9:13		test

```
(base) PS C:\Users\user\Desktop> rmdir test
```

```
(base) PS C:\Users\user\Desktop\test> mv .\a\ d
(base) PS C:\Users\user\Desktop\test> ls
```

디렉터리 : C:\Users\user\Desktop\test

Mode	LastWriteTime	Length	Name
d-----	2024-10-14 오후 9:14		b
d-----	2024-10-14 오후 9:14		c
d-----	2024-10-14 오후 9:14		d

```
(base) PS C:\Users\user\Desktop\test> cp .\d\ f
(base) PS C:\Users\user\Desktop\test> ls
```

디렉터리 : C:\Users\user\Desktop\test

Mode	LastWriteTime	Length	Name
d-----	2024-10-14 오후 9:14		b
d-----	2024-10-14 오후 9:14		c
d-----	2024-10-14 오후 9:14		d
d-----	2024-10-14 오후 9:14		f



Vi editor 작동 X

```
Anaconda Powershell Prompt x + v
(base) PS C:\Users\user\Desktop\test> vi
vi : 'vi' 용어가 cmdlet, 함수, 스크립트 파일 또는 실행할 수 있는 프로그램 이름으로 인식되지 않습니다. 이름이 정확한지
확인하고 경로가 포함된 경우 경로가 올바른지 검증한 다음 다시 시도하십시오.
위치 줄:1 문자:1
+ vi
+ ~~
+ CategoryInfo          : ObjectNotFound: (vi:String) [], CommandNotFoundException
+ FullyQualifiedErrorId : CommandNotFoundException

(base) PS C:\Users\user\Desktop\test> vi test
vi : 'vi' 용어가 cmdlet, 함수, 스크립트 파일 또는 실행할 수 있는 프로그램 이름으로 인식되지 않습니다. 이름이 정확한지
확인하고 경로가 포함된 경우 경로가 올바른지 검증한 다음 다시 시도하십시오.
위치 줄:1 문자:1
+ vi test
+ ~~
+ CategoryInfo          : ObjectNotFound: (vi:String) [], CommandNotFoundException
+ FullyQualifiedErrorId : CommandNotFoundException

(base) PS C:\Users\user\Desktop\test> |
```

Vi editor 가 작동하지 않는다.



Vim text editor 설치

The image shows a Google search for 'vim' and the resulting vim.org download page. The search results page on the left has a 'Download' button highlighted with a red box. The download page on the right shows the 'Download' link in the sidebar also highlighted with a red box. A red arrow points from the search results 'Download' button to the 'Download' link in the sidebar of the vim.org page. The main content of the vim.org page lists MS-Windows download options, with 'gvim_9.1.0_x86_signed.exe' highlighted by a red box. A red arrow points from this box to the text 'MS-Windows:'.

vim - Google Search

google.com/search?q=vim&oq=vim&gs_lcrp=EgZjaHJvbWUqDggAEEUYJxg7GIAEGIoFMg4IABBFGCcYOxiABBiKBTINCAEQAB

Bookmarks 자모야 모여라 홈 - 한컴독스 한밭대학교 KORUS 로그인 산학협력단 ERP-SY... Introducing ChatGPT Thesaurus

Google vim

All Images Videos Shopping News

Vim
https://www.vim.org

welcome home : vim online

Vim is a highly configurable text editor built to be efficient. It is included as "vi" with most UNIX systems.

Download About Vim Documentation

not logged in ([login](#))

ENHANCED BY Google

Search

Home
[Advanced search](#)

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Community
News
Sponsoring
Trivia
Documentation

Download

Vim from GitHub
Vim from Mercurial
List of Mirrors
Sources
Patches
Development
Runtime files
Script links
Translations

SPONSOR VOTE
Vim development for features

Downloading Vim

Vim is available for many different systems and there are several versions

Most popular:

Recent and signed MS-Windows files are available on the [win-wi](#) website. The current stable version is [gvim_9.1.0000_x64.exe](#) (64 bit installer). A zip package (32bit and 64bit) is also available: [gvim_9.1.0000_x86.zip](#) (32bit zip package) and [gvim_9.1.0000_x64.zip](#) (64bit zip package).

Signed MS-Windows builds are available from the [win-wi](#) website.

MS-Windows:

- [gvim_9.1.0_x86_signed.exe](#) (32bit installer)
- [gvim_9.1.0_x64_signed.exe](#) (64bit installer)
- [gvim_9.1.0_x86_signed.zip](#) (32bit zip package)
- [gvim_9.1.0_x64_signed.zip](#) (64bit zip package)

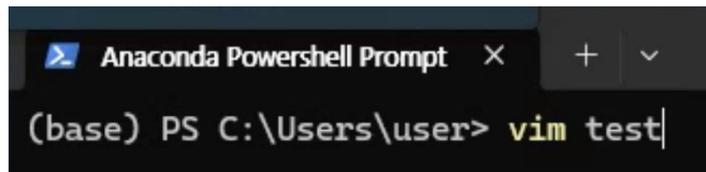
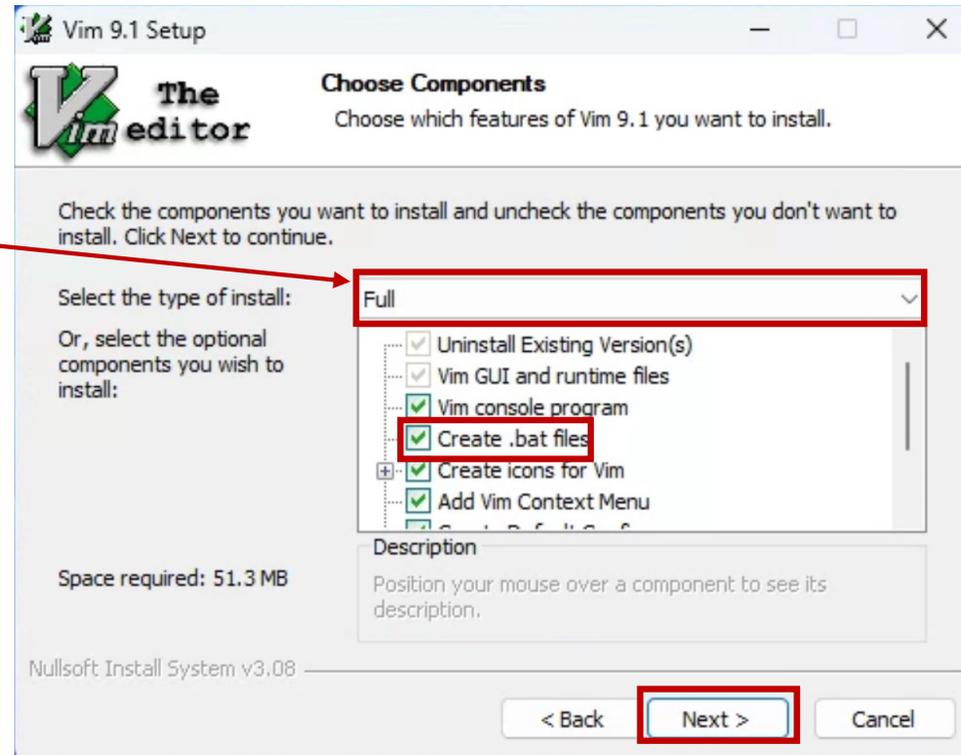
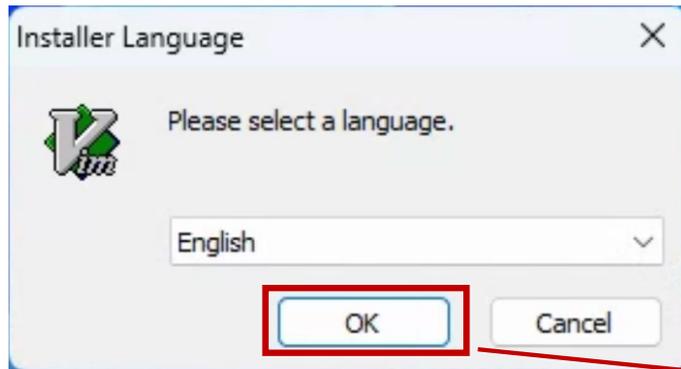
Winget packages are also available: [vim.vim \(stable\)](#) and [vim.vim \(development\)](#).

Unix: See the [GitHub](#) page, or [Mercurial](#), if you prefer that. The [MacVim](#) project also provides a GUI version for Unix.

Mac: See the [MacVim](#) project for a GUI version and [Homebrew](#) for installation instructions.



Vim text editor 설치



vim editor 가 성공적으로 작동



참고

The image shows two side-by-side windows. The left window is a Windows File Explorer window titled 'test', displaying a directory view with four subfolders: 'b', 'c', 'd', and 'f'. The right window is an Anaconda PowerShell Prompt window showing the following commands and output:

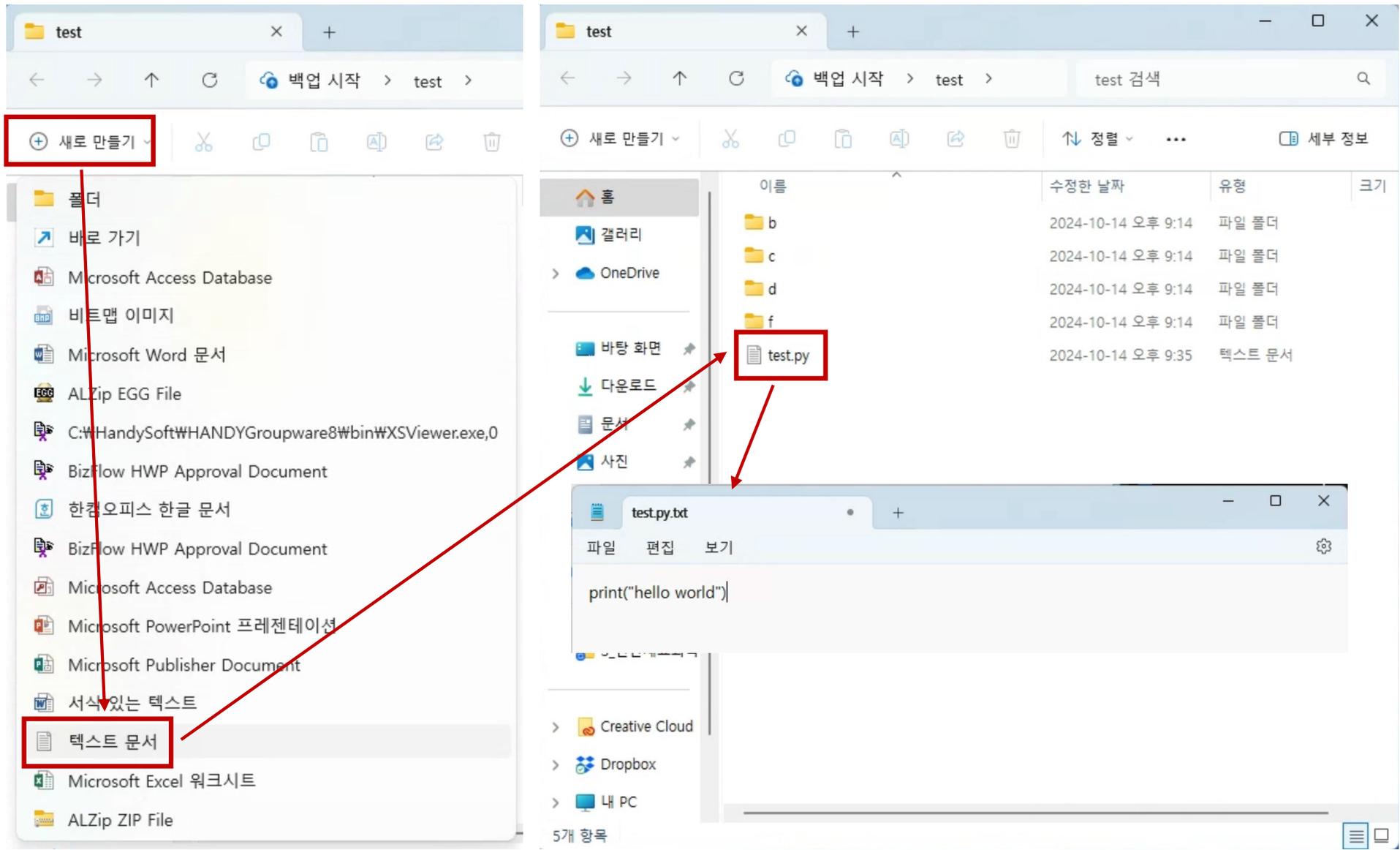
```
(base) PS C:\Users\user> cd .\Desktop\  
(base) PS C:\Users\user\Desktop> cd .\test\  
(base) PS C:\Users\user\Desktop\test> ls
```

디렉터리 : C:\Users\user\Desktop\test

Mode	LastWriteTime	Length	Name
d----	2024-10-14 오후 9:14		b
d----	2024-10-14 오후 9:14		c
d----	2024-10-14 오후 9:14		d
d----	2024-10-14 오후 9:14		f

(base) PS C:\Users\user\Desktop\test>

참고



참고

The image shows a Windows File Explorer window on the left and an Anaconda PowerShell Prompt window on the right. The File Explorer window displays the contents of a folder named 'test' on the desktop, including subfolders 'b', 'c', 'd', and 'f', and a file 'test.py'. The PowerShell Prompt window shows the execution of the 'ls' command, which lists the files and folders in the current directory. The output is as follows:

```
(base) PS C:\Users\user\Desktop\test> ls

디렉터리 : C:\Users\user\Desktop\test

Mode                LastWriteTime         Length Name
----                -
d-----          2024-10-14 오후 9:14             b
d-----          2024-10-14 오후 9:14             c
d-----          2024-10-14 오후 9:14             d
d-----          2024-10-14 오후 9:14             f
-a-----          2024-10-14 오후 9:39             20 test.py.txt

(base) PS C:\Users\user\Desktop\test> python .\test.py.txt
hello world
(base) PS C:\Users\user\Desktop\test> |
```

참고

The image shows a workflow for creating a POSCAR file for GaAs cubic structure. It consists of three windows:

- File Explorer:** Shows a directory named 'test' containing folders 'b', 'c', 'd', 'f', and files 'gaas.py', 'POSCAR', and 'test.py'.
- Anaconda PowerShell Prompt:** Shows the execution of the following commands:

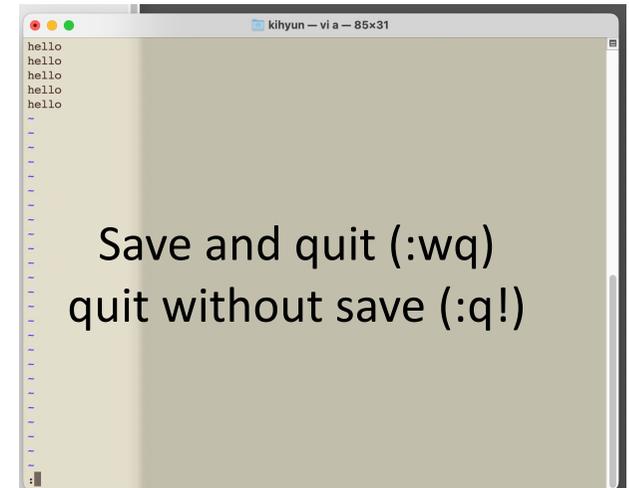
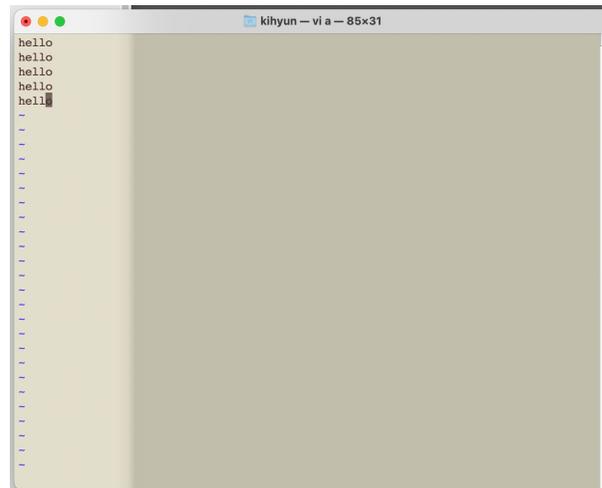
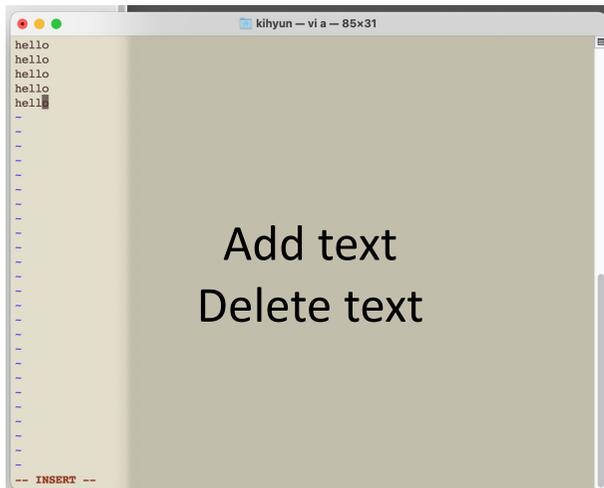
```
(base) PS C:\Users\user\Desktop\test> ls
디렉터리: C:\Users\user\Desktop\test

Mode                LastWriteTime         Length Name
----                -
d-----          2024-10-14 오후 9:14             b
d-----          2024-10-14 오후 9:14             c
d-----          2024-10-14 오후 9:14             d
d-----          2024-10-14 오후 9:14             f
-a----          2024-10-14 오후 9:40             596 gaas.py.txt
-a----          2024-10-14 오후 9:39             20 test.py.txt

(base) PS C:\Users\user\Desktop\test> python .\gaas.py.txt
POSCAR file for GaAs cubic structure has been created.
(base) PS C:\Users\user\Desktop\test> ase gui POSCAR
```
- POSCAR GUI:** Displays a 3D visualization of a cubic unit cell with two overlapping spheres (one red, one purple) representing atoms.

리눅스 명령어 (맥의 터미널, 윈도우 파워셸 유사하게 작동)

- vi editor = text editor
- vi = **v**iewer
- Basic command : **vi [textfile]**
- If there is no file, will make file (열 파일이 없으면 생성)
- If there is file, will open file (열 파일이 있으면 오픈)



Three different modes

리눅스 명령어 (맥의 터미널, 윈도우 파워셸 유사하게 작동)

- / : means directories
- ./ : present directories
- ../ : previous (one above) directories
- ~/ : home directories
- pwd = present working directory (현재위치)
- ls = list = showing the files and directories
 - ls (./)
 - ls ../
 - ls (./)[name_of_directory]/
- mkdir = make directory
 - mkdir (./)[name_of_directory]
 - mkdir ../[name_of_directory]
 - mkdir ../../[name_of_directory]
- cd = change directory
 - cd [name_of_directory]
 - cd ~/something/something/something/[name_of_directory]
- Linux doesn't allow 'space' (띄어쓰기 X)
- Try to use 'tab' all the time (자동완성)
- 윗 화살표 (↑) : 직전사용한 명령어

기본적으로

‘[명령어] [주소]/[타겟]’ 의 형태

ex) cd ./test

ex) cd ~/something/something/test

ex) mkdir test

ex) mkdir ./test

ex) mkdir ~/something/something/test

ex) cp ~/d/d/d/text ~/d/e/f/g



리눅스 명령어 (맥의 터미널, 윈도우 파워셸 유사하게 작동)

- rmdir = remove directory (**only empty directory**)
 - rmdir [name_of_directory]
 - rmdir ../[name_of_directory]
- rm = remove files (**only files**)
 - rm [name_of_files]
 - **rm -rf [name_of_directory] : enforce the command**
- cp = copy files to other directory
 - cp [name_of_files] ../[name_of_directory]
 - cp test.txt example.txt : **make new file or overwrite (복사 - 붙이기)**
 - cp ../[name_of_files] ../[name_of_directory]
- mv = move files(or directory) to other directory (**오려두기 - 붙이기**)
 - Same as cp



ChatGPT - 실습

1. 카카오 api 를 활용하여, 한밭대학교 주변 식당 리스트를 모두 뽑는 Python 코드를 만들어라.
2. 일반적으로 HfO_2 가 가질 수 있는 구조 (unit cell, POSCAR) 를 만드는 코딩을 만들고, 비교하라.
3. 삼성전자의 주가를 예측하는 프로그램을 만드시오 (2020년 데이터 머신러닝을 통해 학습하여 2021년의 주가를 예측 및 비교)
4. 앞에서 수행한 주가 예측의 정확성을 높여보라.
5. 벽돌깨기 게임을 만들어보라. 단, 목숨은 3개, 게임의 시작과 끝에 start 와 end 표시를 하도록 만들어라.
6. 벽돌깨기 게임의 재미를 높이기 위해서 다양한 아이템을 추가해보라. (아이템을 먹으면 바가 길어지거나, 공의 숫자가 늘어나거나, 공이 커지거나, 공의 속도가 변화하는 등, 최소 2가지 이상의 아이템을 추가하라.)
7. 완성도를 높여보라. (난이도를 추가하고, 벽돌의 모양을 변경하는 등)

