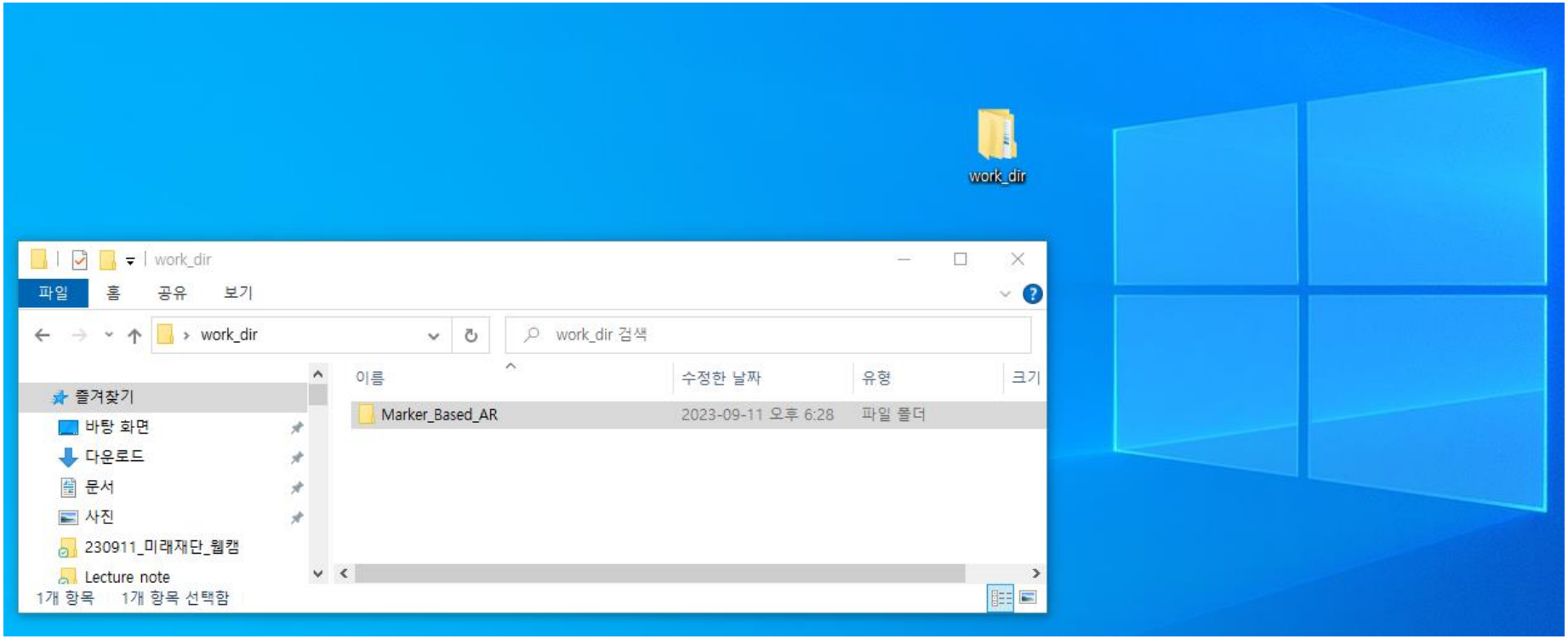
EXERCISE_01:
Marker based AR

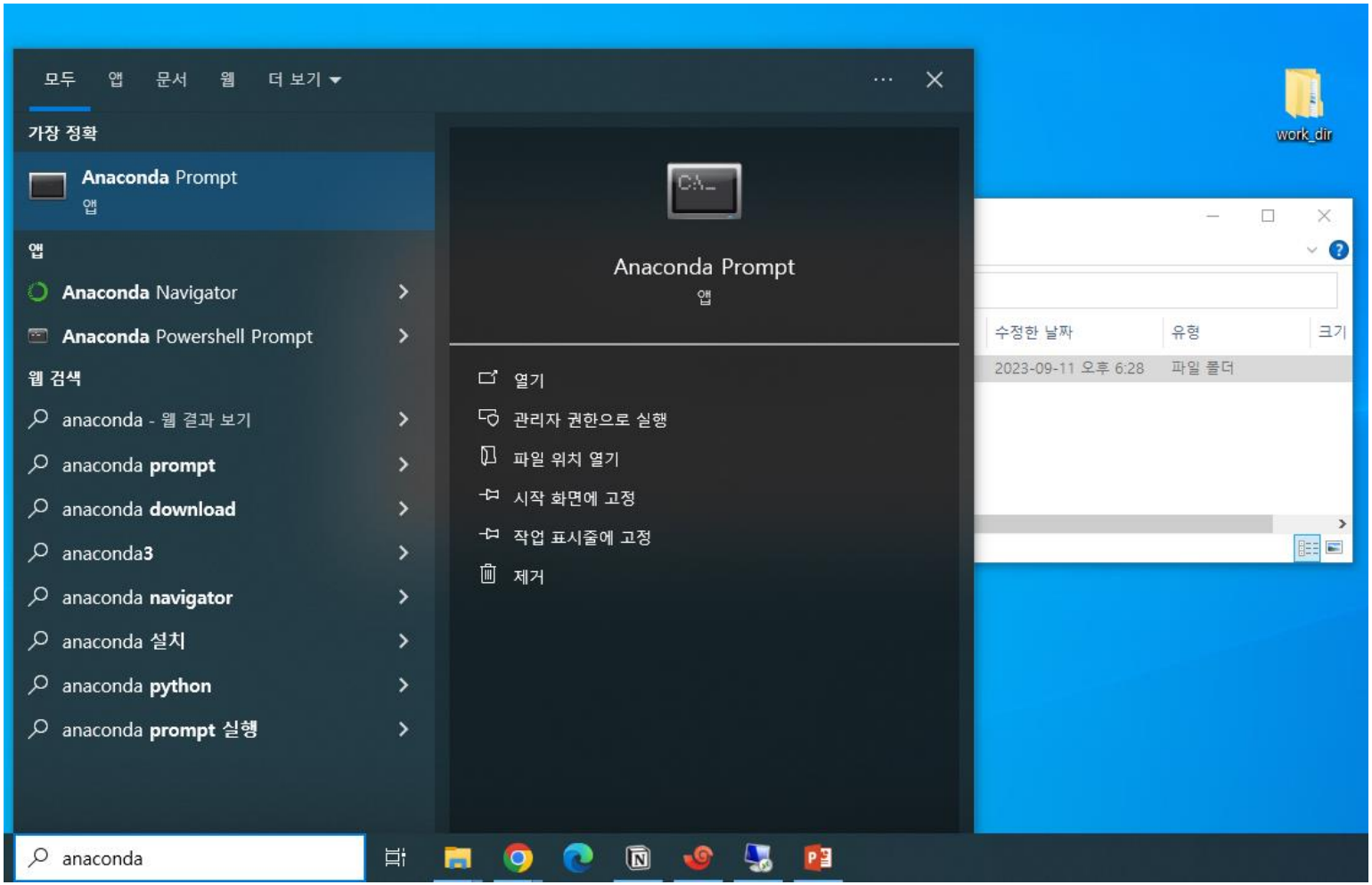
Exercise

- Prepare work place
- Example: Desktop/work_dir
- Copy the example code to the work_dir



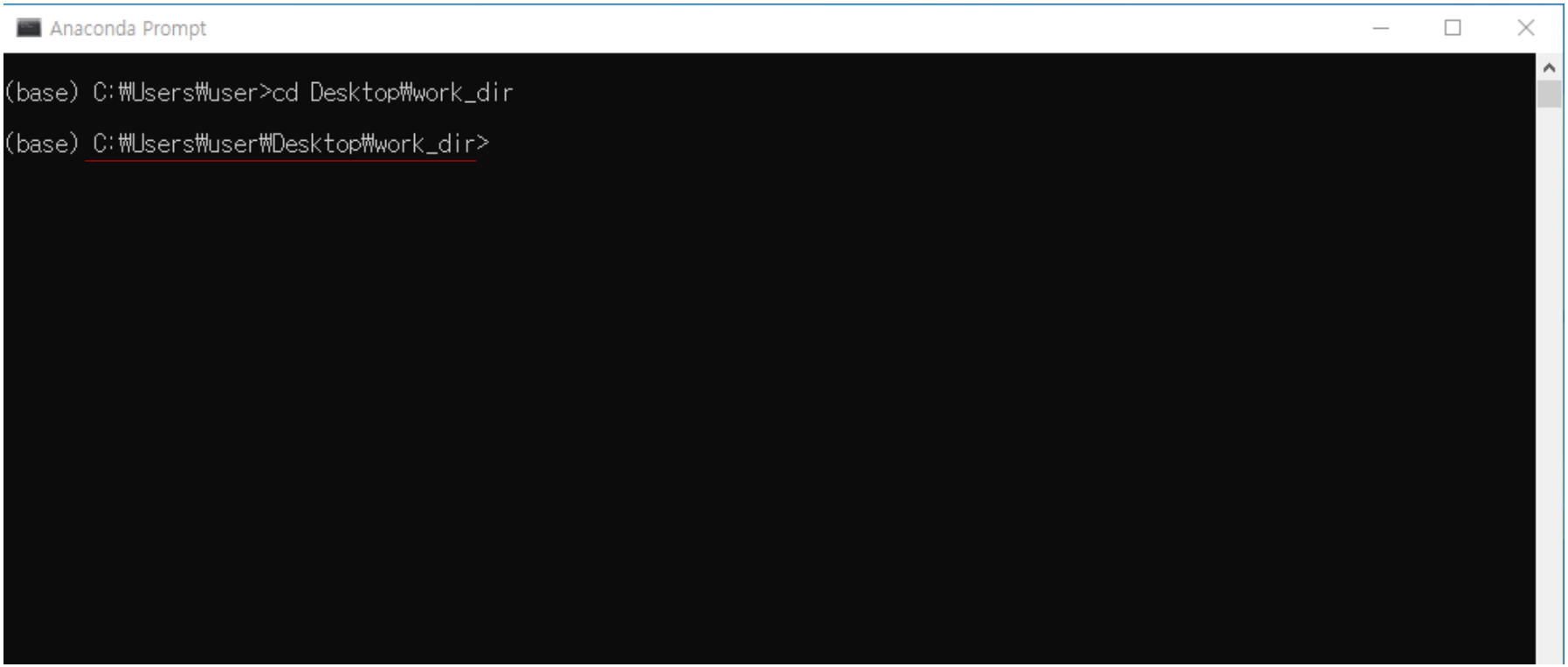
Exercise

- Run anaconda prompt



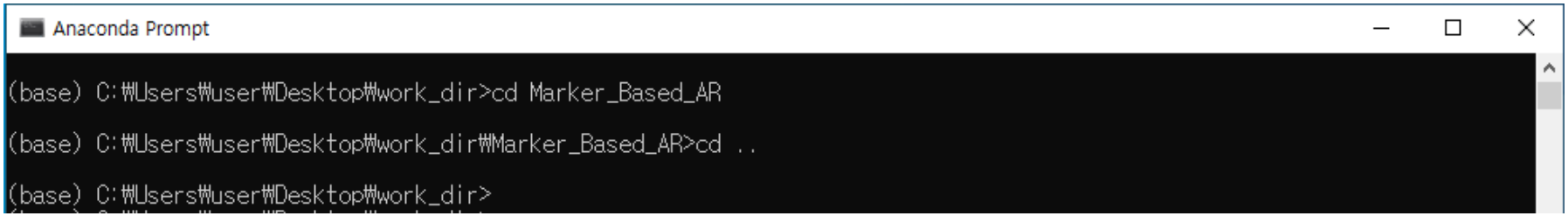
Exercise

- Enter the work place by using “cd” command
- Check the current path



Exercise

- You can enter the work_dir by using “cd” command
- You can go back by using “cd ..” command



Exercise

- Need to create conda environment for our example code.
- In the prompt, “(base)” means that you are in the base environment
- You can check what environment is prepared (“conda env list”)

```
(base) C:₩Users₩user₩Desktop₩work_dir>conda env list
# conda environments:
#
base                  *  E:₩anaconda3
test_env                 E:₩anaconda3₩envs₩test_env
```

Exercise

- Create new conda environment

  (conda create –n marker_based_ar python=3.9)

  : option “-n” means name

  : option “python=3.9” means installing 3.9 version python

```
(base) C:₩Users₩user₩Desktop₩work_dir>conda create -n marker_based_ar python=3.9
Retrieving notices: ...working... done
Collecting package metadata (current_repodata.json): done
Solving environment: done


==> WARNING: A newer version of conda exists. <==
  current version: 23.1.0
  latest version: 23.7.3

Please update conda by running

    $ conda update -n base -c defaults conda

Or to minimize the number of packages updated during conda update use

     conda install conda=23.7.3
```

Exercise

- Enter y for continuing installing.

```
The following NEW packages will be INSTALLED:

  ca-certificates    pkgs/main/win-64::ca-certificates-2023.08.22-haa95532_0
  openssl            pkgs/main/win-64::openssl-3.0.10-h2bbff1b_2
  pip                pkgs/main/win-64::pip-23.2.1-py39haa95532_0
  python             pkgs/main/win-64::python-3.9.17-h1aa4202_0
  setuptools         pkgs/main/win-64::setuptools-68.0.0-py39haa95532_0
  sqlite             pkgs/main/win-64::sqlite-3.41.2-h2bbff1b_0
  tzdata             pkgs/main/noarch::tzdata-2023c-h04d1e81_0
  vc                 pkgs/main/win-64::vc-14.2-h21ff451_1
  vs2015_runtime     pkgs/main/win-64::vs2015_runtime-14.27.29016-h5e58377_2
  wheel              pkgs/main/win-64::wheel-0.38.4-py39haa95532_0


Proceed ([y]/n)?
```

Exercise

- To enter the created environment:

  (“conda activate marker_based_ar”)
- You can see the (base) change into (marker_based_ar). Now you are in (markder_based_ar) environment

```
# To activate this environment, use
#
#     $ conda activate marker_based_ar
#
# To deactivate an active environment, use
#
#     $ conda deactivate


(base) C:₩Users₩user₩Desktop₩work_dir>conda activate marker_based_ar

(marker_based_ar) C:₩Users₩user₩Desktop₩work_dir>
```

Exercise

- Try to run example code
- Please check the current path
- “python src\ar_main.py”

```
(marker_based_ar) C:₩Users₩user₩Desktop₩work_dir₩Marker_Based_AR>python src₩ar_main.py
Traceback (most recent call last):
  File "C:₩Users₩user₩Desktop₩work_dir₩Marker_Based_AR₩src₩ar_main.py", line 12, in <module>
    import cv2
ModuleNotFoundError: No module named 'cv2'

(marker_based_ar) C:₩Users₩user₩Desktop₩work_dir₩Marker_Based_AR>
```

- ModuleNotFoundError: No model named ‘cv2’

  To solve this error, you need to install cv2 module

  “pip install opencv-python”

Exercise

```
(marker_based_ar) C:₩Users₩user₩Desktop₩work_dir₩Marker_Based_AR>pip install opencv-python
Collecting opencv-python
  Obtaining dependency information for opencv-python from https://files.pythonhosted.org/packages/fb/c4/f574ba6f04e6d7b
8c38d23e7a52389566dd7631fee0bcdd79ea07ef2dbf/opencv_python-4.8.0.76-cp37-abi3-win_amd64.whl.metadata
  Downloading opencv_python-4.8.0.76-cp37-abi3-win_amd64.whl.metadata (20 kB)
Collecting numpy>=1.17.0 (from opencv-python)
  Obtaining dependency information for numpy>=1.17.0 from https://files.pythonhosted.org/packages/df/18/181fb40f03090c6
bd061bb8b1f4c32453f7c602b0dc7c08b307baca7cd7/numpy-1.25.2-cp39-cp39-win_amd64.whl.metadata
  Downloading numpy-1.25.2-cp39-cp39-win_amd64.whl.metadata (5.7 kB)
Downloading opencv_python-4.8.0.76-cp37-abi3-win_amd64.whl (38.1 MB)
   ---------------------------------------- 38.1/38.1 MB 36.4 MB/s eta 0:00:00
Downloading numpy-1.25.2-cp39-cp39-win_amd64.whl (15.6 MB)
   ---------------------------------------- 15.6/15.6 MB 46.7 MB/s eta 0:00:00
Installing collected packages: numpy, opencv-python
Successfully installed numpy-1.25.2 opencv-python-4.8.0.76

(marker_based_ar) C:₩Users₩user₩Desktop₩work_dir₩Marker_Based_AR>
```

- Successfully installed

Exercise

- Run the code again “python src\ar_main.py”
- Still error
- “conda install matplotlib”

Exercise

- Run the code again “python src\ar_main.py”