

Lab No 1: Conda Commands



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Course Code:	COMP 342 - L
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Task 1: Implement Conda Basic Commands

• Display the list of all installed packages in the current environment

Anaconda Prompt

```
(base) C:\Users\hania>conda list
# packages in environment at C:\Users\hania\anaconda3:
#
# Name                        Version      Build      Channel
_anaconda_depends            2023.09      py311_mk1_1
abseil-cpp                    20211102.0   hd77b12b_0
aiobotocore                   2.12.3       py311haa95532_0
aiohttp                       3.9.5        py311h2bbff1b_0
aioitertools                  0.7.1        pyhd3eb1b0_0
aiosignal                     1.2.0        pyhd3eb1b0_0
alabaster                     0.7.12       pyhd3eb1b0_0
anaconda-anon-usage           0.4.2        py311hfc23b7f_0
anaconda-catalogs             0.2.0        py311haa95532_0
anaconda-client               1.12.1       py311haa95532_0
anaconda-cloud-auth           0.1.3        py311haa95532_0
anaconda-navigator            2.5.0        py311haa95532_0
anaconda-project              0.11.1       py311haa95532_0
anyio                         4.2.0        py311haa95532_0
aom                            3.6.0        hd77b12b_0
appdirs                       1.4.4        pyhd3eb1b0_0
argon2-cffi                   21.3.0       pyhd3eb1b0_0
argon2-cffi-bindings          21.2.0       py311h2bbff1b_0
arrow                         1.2.3        py311haa95532_1
arrow-cpp                      14.0.2       ha81ea56_1
astroid                        2.14.2       py311haa95532_0
astropy                       5.3.4        py311hd7041d2_0
asttokens                     2.0.5        pyhd3eb1b0_0
async-lru                     2.0.4        py311haa95532_0
atomicwrites                   1.4.0        py_0
attrs                          23.1.0       py311haa95532_0
```

Description: Using the command `conda list` in anaconda prompt displays all the installed packages in the current environment.

• Display a specific package from the list

```
(base) C:\Users\hania>conda search tblib
Loading channels: done
# Name                        Version      Build      Channel
tblib                         1.3.1        py27_0     conda-forge
tblib                         1.3.1        py35_0     conda-forge
tblib                         1.3.1        py36_0     conda-forge
tblib                         1.3.2        py27_0     conda-forge
tblib                         1.3.2        py27h8ae915c_0   pkgs/main
tblib                         1.3.2        py35_0     conda-forge
tblib                         1.3.2        py35hd2cf7e1_0   pkgs/main
tblib                         1.3.2        py36_0     conda-forge
tblib                         1.3.2        py36h30f5020_0   pkgs/main
tblib                         1.3.2        py37_0     pkgs/main
tblib                         1.3.2        py_1       conda-forge
tblib                         1.4.0        py_0       pkgs/main
tblib                         1.4.0        py_0       conda-forge
tblib                         1.5.0        py_0       pkgs/main
tblib                         1.5.0        py_0       conda-forge
tblib                         1.6.0        py_0       pkgs/main
tblib                         1.6.0        py_0       conda-forge
tblib                         1.7.0        py_0       pkgs/main
tblib                         1.7.0        pyhd3eb1b0_0   pkgs/main
tblib                         1.7.0        pyhd8ed1ab_0   conda-forge
tblib                         2.0.0        pyhd8ed1ab_0   conda-forge
tblib                         3.0.0        pyhd8ed1ab_0   conda-forge
tblib                         3.0.0        pyhd8ed1ab_1   conda-forge
```

Description: To search for a specific package name, we use the command `conda search <package name>` and it will show its version, build and channel.

• Install the flask package in the current environment

■ Anaconda Prompt - conda install flask

```
(base) C:\Users\hania>conda install flask
Retrieving notices: ...working... done
Collecting package metadata (current_repodata.json): done
Solving environment: done

==> WARNING: A newer version of conda exists. <==
  current version: 23.7.4
  latest version: 24.11.3

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=24.11.3

## Package Plan ##

  environment location: C:\Users\hania\anaconda3

  added / updated specs:
    - flask

The following packages will be downloaded:
```

package	build	
ca-certificates-2024.12.31	haa95532_0	129 KB
certifi-2024.12.14	py311haa95532_0	163 KB
openssl-3.0.15	h827c3e9_0	7.8 MB
Total:		8.0 MB

The following packages will be UPDATED:

package	build	
ca-certificates-2024.12.31	haa95532_0	129 KB
certifi-2024.12.14	py311haa95532_0	163 KB
openssl-3.0.15	h827c3e9_0	7.8 MB
Total:		8.0 MB

The following packages will be UPDATED:

ca-certificates	2024.3.11-haa95532_0 --> 2024.12.31-haa95532_0
certifi	2024.2.2-py311haa95532_0 --> 2024.12.14-py311haa95532_0
openssl	3.0.13-h2bbff1b_2 --> 3.0.15-h827c3e9_0

Proceed ([y]/n)? y

Downloading and Extracting Packages

Preparing transaction: done
Verifying transaction: done
Executing transaction: done

Description: Flask is a simple and flexible Python web framework that helps you quickly build websites or apps, letting you choose your tools and easily add features with community extensions. Here we install it using the command `conda install flask`.

• Update any package

```
Anaconda Prompt - conda update -n base -c defaults conda
(base) C:\Users\hania>conda update flask
Collecting package metadata (current_repodata.json): done
Solving environment: -
Warning: 2 possible package resolutions (only showing differing packages):
- defaults/win-64::gensim-4.3.3-py311hea22821_0, defaults/win-64::scipy-1.13.1-py311h9f229c6_1
- defaults/win-64::gensim-4.3.0-py311heda8569_0, defaults/win-64::scipy-1.14.1-py311h9f229c6done

==> WARNING: A newer version of conda exists. <==
  current version: 23.7.4
  latest version: 24.11.3

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=24.11.3

## Package Plan ##

environment location: C:\Users\hania\anaconda3

added / updated specs:
- flask

The following packages will be downloaded:

package | build | size
-----|-----|-----
aiohappyeyeballs-2.4.4 | py311haa95532_0 | 28 KB
aiohttp-3.11.10 | py311h827c3e9_0 | 907 KB
alabaster-0.7.16 | py311haa95532_0 | 20 KB
anyio-4.6.2 | py311haa95532_0 | 253 KB
argon2-cffi-bindings-21.2.0 | py311h827c3e9_1 | 41 KB
arrow-1.3.0 | py311haa95532_0 | 187 KB
arrow-cpp-17.0.0 | h33d5241_1 | 7.5 MB
astropy-6.1.3 | py311h827c3e9_0 | 12.2 MB
astropy-iers-data-0.2024.9.2.0.33.23 | py311haa95532_0 | 1.6 MB
attrs-24.3.0 | py311haa95532_0 | 176 KB
aws-sdk-cpp-1.11.212 | h6a15179_0 | 3.5 MB
backports-1.1 | pyhd3eb1b0_1 | 6 KB
bcrypt-3.2.0 | py311h827c3e9_2 | 47 KB
beautifulsoup4-4.12.3 | py311haa95532_0 | 273 KB
black-24.8.0 | py311haa95532_0 | 413 KB
```

```
Anaconda Prompt - conda update -n base -c defaults conda

The following NEW packages will be INSTALLED:

aiohappyeyeballs pkgs/main/win-64::aiohappyeyeballs-2.4.4-py311haa95532_0
astropy-iers-data pkgs/main/win-64::astropy-iers-data-0.2024.9.2.0.33.23-py311haa95532_0
cpp-expected pkgs/main/win-64::cpp-expected-1.1.0-h214f63a_0
h11 pkgs/main/win-64::h11-0.14.0-py311haa95532_0
httpcore pkgs/main/win-64::httpcore-1.0.2-py311haa95532_0
httpx pkgs/main/win-64::httpx-0.27.0-py311haa95532_0
libabseil pkgs/main/win-64::libabseil-20240116.2-cxx17_h5da7b33_0
libgrpc pkgs/main/win-64::libgrpc-1.62.2-hf25190f_0
nlohmann_json pkgs/main/win-64::nlohmann_json-3.11.2-h6c2663c_0
propcache pkgs/main/win-64::propcache-0.2.0-py311h827c3e9_0
simdjson pkgs/main/win-64::simdjson-3.10.1-h214f63a_0
spdlog pkgs/main/win-64::spdlog-1.11.0-h5966b97_0

The following packages will be REMOVED:

abseil-cpp-20211102.0-hd77b12b_0
aom-3.6.0-hd77b12b_0
brotli-1.0.9-h2bbff1b_8
brotli-bin-1.0.9-h2bbff1b_8
cfitsio-3.470-h2bbff1b_7
charls-2.2.0-h6c2663c_0
dav1d-1.2.1-h2bbff1b_0
entrypoints-0.4-py311haa95532_0
giflib-5.2.1-h8cc25b3_3
grpc-cpp-1.48.2-hfe90ff0_1
imagecodecs-2023.1.23-py311he6ff3c7_0
libaec-1.0.4-h33f27b4_1
libbvf-0.11.1-h2bbff1b_0
libzopfli-1.0.3-ha925a31_0
python-snappy-0.6.1-py311hd77b12b_0
zfp-1.0.0-hd77b12b_0

The following packages will be UPDATED:

aiohttp 3.9.5-py311h2bbff1b_0 --> 3.11.10-py311h827c3e9_0
alabaster pkgs/main/noarch::alabaster-0.7.12-py--> pkgs/main/win-64::alabaster-0.7.16-py311haa95532_0
anyio 4.2.0-py311haa95532_0 --> 4.6.2-py311haa95532_0
argon2-cffi-bindi- 21.2.0-py311h2bbff1b_0 --> 21.2.0-py311h827c3e9_1
arrow 1.2.3-py311haa95532_1 --> 1.3.0-py311haa95532_0
arrow-cpp 14.0.2-ha81ea56_1 --> 17.0.0-h33d5241_1
astropy 5.3.4-py311hd7041d2_0 --> 6.1.3-py311h827c3e9_0
attrs 23.1.0-py311haa95532_0 --> 24.3.0-py311haa95532_0
aws-sdk-cpp 1.10.55-hd77b12b_0 --> 1.11.212-h6a15179_0
backports 1.1-pyhd3eb1b0_0 --> 1.1-pyhd3eb1b0_1
bcrypt 3.2.0-py311h2bbff1b_1 --> 3.2.0-py311h827c3e9_2
beautifulsoup4 4.12.2-py311haa95532_0 --> 4.12.3-py311haa95532_0
```

```
Proceed [y/n]? y

Downloading and Extracting Packages
ipywidgets-8.1.5 | 259 KB | ##### | 100%
urllib3-2.2.3 | 233 KB | ##### | 100%
traitlets-5.14.3 | 226 KB | ##### | 100%
pyarrow-10.0.0 | 3.5 MB | ##### | 100%
lazy_loader-0.4 | 25 KB | ##### | 100%
nbformat-5.10.4 | 189 KB | ##### | 100%
jupyterlab-4.0.24 | 639 KB | ##### | 100%
ipykernel-6.29.5 | 254 KB | ##### | 100%
intake-2.0.7 | 301 KB | ##### | 100%
httpx-0.27.0 | 235 KB | ##### | 100%
parmi-1.5.0 | 381 KB | ##### | 100%
gensim-4.3.3 | 42.4 MB | 3 | 24%
gensim-4.3.3 | 42.4 MB | 3 | 0%
```

Description: Using the command `conda update <package name>` we can update a specific package.

- Remove the installed package

```
(base) C:\Windows\system32>conda remove scikit-learn
Collecting package metadata (repodata.json): / _
```

Description: To remove a package from conda we use the command remove <package name> and it will remove the specified package

Task 2: Implement Conda Virtual Environment Related Commands

- Create a virtual environment with the name formatted as "YourName_YourRegNo" (e.g., abc_B22F00A123)Display a specific package from the list

Administrator: Anaconda Prompt - conda deactivate

```
(base) C:\Windows\system32>conda create --name HaniaRasheed_B23S0983DS009 python=3.8
Collecting package metadata (current_repodata.json): done
Solving environment: done
```

```
==> WARNING: A newer version of conda exists. <==
current version: 23.7.4
latest version: 24.11.3
```

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=24.11.3
```

Package Plan

environment location: C:\Users\hania\anaconda3\envs\HaniaRasheed_B23S0983DS009

added / updated specs:
- python=3.8

The following packages will be downloaded:

package	build	
pip-24.2	py38haa95532_0	2.4 MB
python-3.8.20	h8205438_0	19.4 MB
setuptools-75.1.0	py38haa95532_0	1.6 MB
wheel-0.44.0	py38haa95532_0	137 KB
Total:		23.5 MB

The following NEW packages will be INSTALLED:

ca-certificates	pkgs/main/win-64::ca-certificates-2024.12.31-haa95532_0
libffi	pkgs/main/win-64::libffi-3.4.4-hd77b12b_1
openssl	pkgs/main/win-64::openssl-3.0.15-h827c3e9_0
pip	pkgs/main/win-64::pip-24.2-py38haa95532_0
python	pkgs/main/win-64::python-3.8.20-h8205438_0
setuptools	pkgs/main/win-64::setuptools-75.1.0-py38haa95532_0
sqlite	pkgs/main/win-64::sqlite-3.45.3-h2bbff1b_0
vc	pkgs/main/win-64::vc-14.40-haa95532_2
vs2015_runtime	pkgs/main/win-64::vs2015_runtime-14.42.34433-h9531ae6_2
wheel	pkgs/main/win-64::wheel-0.44.0-py38haa95532_0

Proceed ([y]/n)?

Downloading and Extracting Packages

setuptools-75.1.0	1.6 MB	#####	100%
python-3.8.20	19.4 MB	#####4	40%
wheel-0.44.0	137 KB	#####	100%
python-3.8.20	19.4 MB	#####4	45%

Description: By using the command conda create --name HaniaRasheed_B23S0983DS009 python=3.8 we create a new virtual environment.

- **Activate the created environment**

```
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
#
# To activate this environment, use
#
#     $ conda activate HaniaRasheed_B23S0983DS009
#
# To deactivate an active environment, use
#
#     $ conda deactivate

(base) C:\Windows\system32>conda activate HaniaRasheed_B23S0983DS009
```

Description: To activate this newly created environment we use the command conda activate HaniaRasheed_B23S0983DS009.

- **List all environments to see the one you just created**

```
(HaniaRasheed_B23S0983DS009) C:\Windows\system32>conda env list
# conda environments:
#
base                  C:\Users\hania\anaconda3
HaniaRasheed_B23S0983DS009  *  C:\Users\hania\anaconda3\envs\HaniaRasheed_B23S0983DS009
datascience           C:\Users\hania\anaconda3\envs\datascience
my-env                 C:\Users\hania\anaconda3\envs\my-env
newEnv                 C:\Users\hania\anaconda3\envs\newEnv
```

Description: To list all the environments created, use the command conda env list

- **Install Jupyter in the created environment**

Description: To install jupyter in the virtual environment conda install jupyter is used.

Select Administrator: Anaconda Prompt - conda deactivate - conda inst

```
(HaniaRasheed_B23S0983DS009) C:\Windows\system32>conda install jupyter
Collecting package metadata (current_repodata.json): done
Solving environment: done

==> WARNING: A newer version of conda exists. <==
  current version: 23.7.4
  latest version: 24.11.3

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=24.11.3

## Package Plan ##

environment location: C:\Users\hania\anaconda3\envs\HaniaRasheed_B23S0983DS009

added / updated specs:
- jupyter

The following packages will be downloaded:
```

package	build	
anyio-4.2.0	py38haa95532_0	186 KB
argon2-cffi-bindings-21.2.0	py38h2bbff1b_0	36 KB
async-lru-2.0.4	py38haa95532_0	18 KB
attrs-23.1.0	py38haa95532_0	143 KB
babel-2.11.0	py38haa95532_0	6.8 MB
beautifulsoup4-4.12.3	py38haa95532_0	214 KB
brotli-python-1.0.9	py38hd77b12b_8	347 KB
certifi-2024.8.30	py38haa95532_0	163 KB
cffi-1.17.1	py38h827c3e9_0	257 KB
colorama-0.4.6	py38haa95532_0	32 KB
comm-0.2.1	py38haa95532_0	15 KB

Proceed ([y]/n)? y

```
Downloading and Extracting Packages
jupyterlab_server-2. | 87 KB | ##### 100%
fr33339-validator-0. | 10 KB | ##### 100%
pyzmq-25.1.2 | 412 KB | ##### 100%
jsonschema-4.23.0 | 178 KB | ##### 100%
sip-6.7.12 | 518 KB | ##### 100%
urllib3-2.2.3 | 182 KB | ##### 100%
beautifulsoup4-4.12. | 214 KB | ##### 100%
cffi-1.17.1 | 257 KB | ##### 100%
pygments-2.15.1 | 1.7 MB | ##### 65%
```

Preparing transaction: done
Verifying transaction: -

- Add the created environment to the Jupyter kernel list so it can be used within Jupyter Notebook

```
(base) C:\Windows\system32>python -m ipykernel install --user --name=aa
Installed kernelspec aa in C:\Users\hania\AppData\Roaming\jupyter\kernels\aa
```


Description: To add the created environment to the jupyter kernel python -m ipykernel install --user --name=aa is used so it can be used within jupyter notebook.

- Deactivate the environment

```
(HaniaRasheed_B23S0983DS009) C:\Windows\system32>conda deactivate
```

Description: To deactivate an environment we use the command `conda deactivate` .

- Remove the environment

 Administrator: Anaconda Prompt

```
(base) C:\Windows\system32>conda remove --name newEnv --all

Remove all packages in environment C:\Users\hania\anaconda3\envs\newEnv:

## Package Plan ##

  environment location: C:\Users\hania\anaconda3\envs\newEnv

The following packages will be REMOVED:

bzip2-1.0.8-h2bbff1b_6
ca-certificates-2024.12.31-haa95532_0
libffi-3.4.4-hd77b12b_1
openssl-3.0.15-h827c3e9_0
pip-24.2-py311haa95532_0
python-3.11.11-h4607a30_0
setuptools-75.1.0-py311haa95532_0
sqlite-3.45.3-h2bbff1b_0
tk-8.6.14-h0416ee5_0
tzdata-2024b-h04d1e81_0
vc-14.40-haa95532_2
vs2015_runtime-14.42.34433-h9531ae6_2
wheel-0.44.0-py311haa95532_0
xz-5.4.6-h8cc25b3_1
zlib-1.2.13-h8cc25b3_1

Proceed ([y]/n)? y

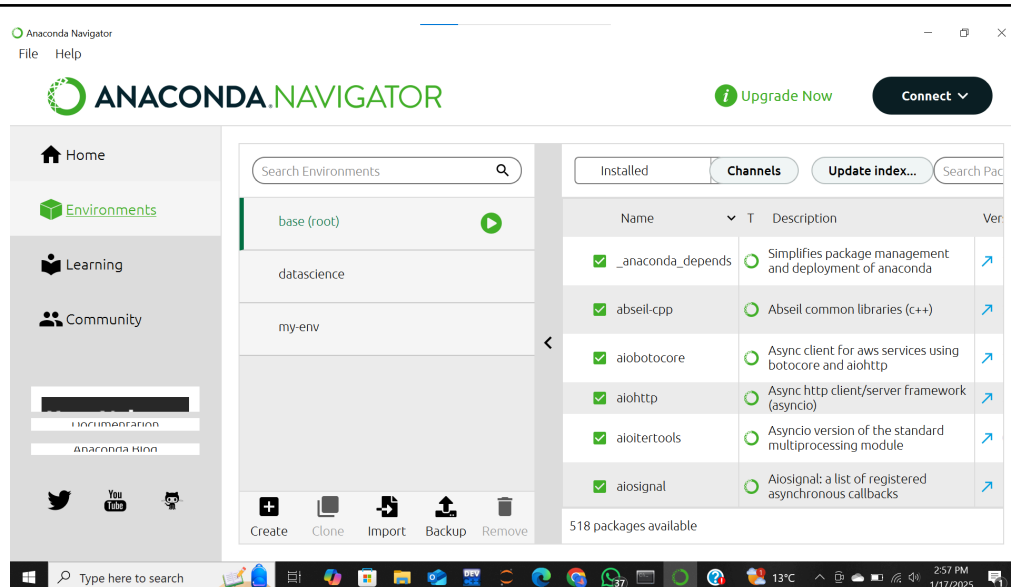
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
```

Description: To remove an environment we use the command `conda remove --name newEnv --all`

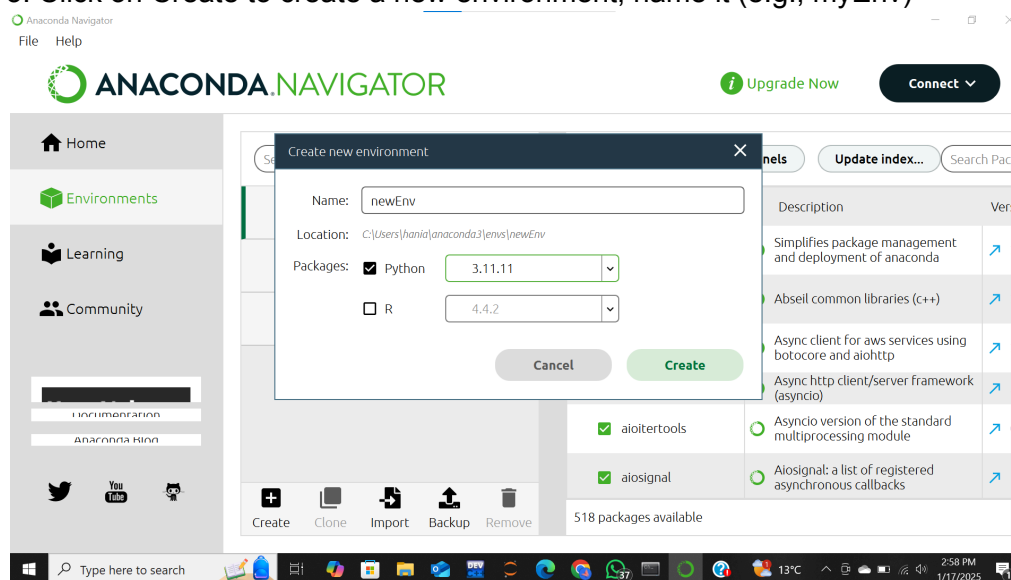
Task 3: Create Virtual Environment in Anaconda Navigator

Steps to Create and Activate Environments Using Anaconda Navigator:

1. Open Anaconda Navigator.
2. Navigate to the Environments tab on the left.



3. Click on Create to create a new environment, name it (e.g., myEnv)



4. After creation, select the environment and click Activate to start using it.

5. You can now open Jupyter Notebook from within the selected environment.

Description: In this lab, we explored the basics of Conda for managing packages and virtual environments. Task 1 focuses on fundamental commands: listing all installed packages in the current environment, displaying details for a specific package, installing the `flask` package, updating an existing package, and removing an installed package. Task 2 delves into virtual environment management: creating an environment named in the format "YourName_YourRegNo," activating it, verifying its presence in the list of environments, installing Jupyter within the environment, and adding the environment to Jupyter's kernel list. We also learned how to deactivate and remove a Conda environment. Task 3 involves creating and managing virtual environments using the Anaconda Navigator, providing a GUI-based approach to achieve similar tasks.