

Exercise

Aim: create user environment and install jupyter notebook from conda command prompt.

What is conda?

Conda is package management system that provide the package management and environment management features for different operating system like MacOS, Linux, Windows. Its package manager helps to find and install packages which required or needed. In this its very easy to create and Manage the environment.

- With conda, you can
 - create,
 - export,
 - list,
 - remove and
 - update

What is conda a command prompt?

Conda command prompt is a command line platform to perform operation in the conda environment.

What is jupyter notebook?

Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text. Uses include: data cleaning and transformation, numerical simulation, statistical modelling, data visualization, machine learning, and much more.

1. To create an environment:

conda create --name myenv

```

Anaconda Prompt (Anaconda3)

(base) C:\Users\gs>conda create --name gsebv
Collecting package metadata (current_repodata.json): done
Solving environment: done

## Package Plan ##

  environment location: C:\Users\gs\Anaconda3\envs\gsebv

Proceed ([y]/n)? y

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

(base) C:\Users\gs>
```

in conda, an environment can also be created by following commands

- To create an environment with a specific version of Python:

conda create -n myenv python=3.4

- To create an environment with a specific package:

conda create -n myenv scipy

- OR:

conda create -n myenv python

conda install -n myenv scipy

- To create an environment with a specific version of a package:

conda create -n myenv scipy=0.15.0

- OR:

conda create -n myenv python

conda install -n myenv scipy=0.15.0

- To create an environment with a specific version of Python and multiple packages:

conda create -n myenv python=3.4 scipy=0.15.0 astroid babel

2. Cloning an environment:

- You can make an exact copy of an environment by creating a clone of it:

conda create --name myclone --clone myenv

```
Anaconda Prompt (Anaconda3) - conda install pip

(gserv) C:\Users\gs>conda craete --name gserv1 --clone gserv
CommandNotFoundError: No command 'conda craete'.
Did you mean 'conda create'?

(gserv) C:\Users\gs>conda create --name gserv1 --clone gserv
Source:      C:\Users\gs\Anaconda3\envs\gsenv
Destination: C:\Users\gs\Anaconda3\envs\gsenv1
Packages: 11
Files: 0
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
#
# To activate this environment, use
#
#     $ conda activate gserv1
#
# To deactivate an active environment, use
#
#     $ conda deactivate
```

in conda, an environment can also be cloned by following commands

- To verify that the copy was made:
conda info --envs

3. Building identical conda environments:

- To produce a spec list, Run following command

conda list --explicit

- To create this spec list as a file in the current working directory, run:

conda list --explicit > spec-file.txt

```

Anaconda Prompt (Anaconda3) - conda install pip
(gsendv) C:\Users\gs>conda info --envs
# conda environments:
#
base                  C:\Users\gs\Anaconda3
gsenv                  * C:\Users\gs\Anaconda3\envs\gsenv
gsenv1                 C:\Users\gs\Anaconda3\envs\gsenv1

(gsendv) C:\Users\gs>conda list --explicit>gsenv.txt

(gsendv) C:\Users\gs>conda list
# packages in environment at C:\Users\gs\Anaconda3\envs\gsenv:
#
# Name                        Version                        Build  Channel
ca-certificates              2019.11.27                     0
certifi                      2019.11.28                     py38_0
openssl                      1.1.1d                         he774522_3
pip                          19.3.1                         py38_0
python                      3.8.1                         h5fd99cc_1
setuptools                   44.0.0                         py38_0
sqlite                      3.30.1                         he774522_0
vc                          14.1                           h0510ff6_4
vs2015_runtime               14.16.27012                    hf0eaf9b_1
wheel                       0.33.6                         py38_0
wincertstore                 0.2                            py38_0

```

```

gsenv - Notepad
File Edit Format View Help
# This file may be used to create an environment using:
# $ conda create --name <env> --file <this file>
# platform: win-64
@EXPLICIT
https://repo.anaconda.com/pkgs/main/win-64/ca-certificates-2019.11.27-0.conda
https://repo.anaconda.com/pkgs/main/win-64/vs2015_runtime-14.16.27012-hf0eaf9b_1.conda
https://repo.anaconda.com/pkgs/main/win-64/vc-14.1-h0510ff6_4.conda
https://repo.anaconda.com/pkgs/main/win-64/openssl-1.1.1d-he774522_3.conda
https://repo.anaconda.com/pkgs/main/win-64/sqlite-3.30.1-he774522_0.conda
https://repo.anaconda.com/pkgs/main/win-64/python-3.8.1-h5fd99cc_1.conda
https://repo.anaconda.com/pkgs/main/win-64/certifi-2019.11.28-py38_0.conda
https://repo.anaconda.com/pkgs/main/win-64/wincertstore-0.2-py38_0.conda
https://repo.anaconda.com/pkgs/main/win-64/setuptools-44.0.0-py38_0.conda
https://repo.anaconda.com/pkgs/main/win-64/wheel-0.33.6-py38_0.conda
https://repo.anaconda.com/pkgs/main/win-64/pip-19.3.1-py38_0.conda

```

- To create an identical environment on the same machine or another machine:

conda create --name myenv --file spec-file.txt

- To use the spec file to install its listed packages into an existing environment:

conda install --name myenv --file spec-file.txt

4. Activating and Deactivating an environment:

- To activate an environment:
- On Windows, in your Anaconda Prompt, run

conda activate myenv

```
Anaconda Prompt (Anaconda3) - conda install pip
# To activate this environment, use
#
#     $ conda activate gsend
#
# To deactivate an active environment, use
#
#     $ conda deactivate

(base) C:\Users\gs>conda activate gsend

(gsend) C:\Users\gs>conda list
# packages in environment at C:\Users\gs\Anaconda3\envs\gsenv:
#
# Name                                Version           Build    Channel

(gsend) C:\Users\gs>conda install pip
Collecting package metadata (current_repodata.json): done
Solving environment: done
```

- On macOS and Linux, in your Terminal Window, run
- Conda prepends the path name myenv onto your system command.
- To deactivate an environment:
- On Windows, in your Anaconda Prompt, run

deactivate

- On macOS and Linux, in your Terminal Window, run

source deactivate

5. Determining your current environment:

- By default, the active environment—the one you are currently using—is shown at the beginning of your command prompt, in
 - parentheses () or
 - brackets []

(myenv) \$

- If you do not see this, run:

conda info --envs

In the environments list that displays, your current environment is highlighted with an asterisk (*).

6. Viewing a list of your environments:

conda info --envs

```
Anaconda Prompt (Anaconda3) - conda install pip
(gsenv) C:\Users\gs>conda info --envs
# conda environments:
#
base                C:\Users\gs\Anaconda3
gsenv                * C:\Users\gs\Anaconda3\envs\gsenv
gsenv1              C:\Users\gs\Anaconda3\envs\gsenv1
```

- OR

conda env list

7. Viewing a list of the packages in an environment:

conda list -n myenv

- If the environment is activated, in your Terminal window or an Anaconda Prompt, run:

conda list

```
(gsenv) C:\Users\gs>conda list
# packages in environment at C:\Users\gs\Anaconda3\envs\gsenv:
#
# Name                  Version           Build    Channel
ca-certificates         2019.11.27        0
certifi                 2019.11.28        py38_0
openssl                 1.1.1d            he774522_3
pip                     19.3.1            py38_0
python                  3.8.1             h5fd99cc_1
setuptools              44.0.0            py38_0
sqlite                  3.30.1            he774522_0
vc                      14.1              h0510ff6_4
vs2015_runtime          14.16.27012       hf0eaf9b_1
wheel                   0.33.6            py38_0
wincertstore            0.2               py38_0

(gsenv) C:\Users\gs>
```

- To see if a specific package is installed in an environment,

conda list -n myenv scipy

8. Sharing an environment:

- To quickly reproduce your environment, with all of its packages and versions, use **environment.yml** file.

9. Exporting the environment file:

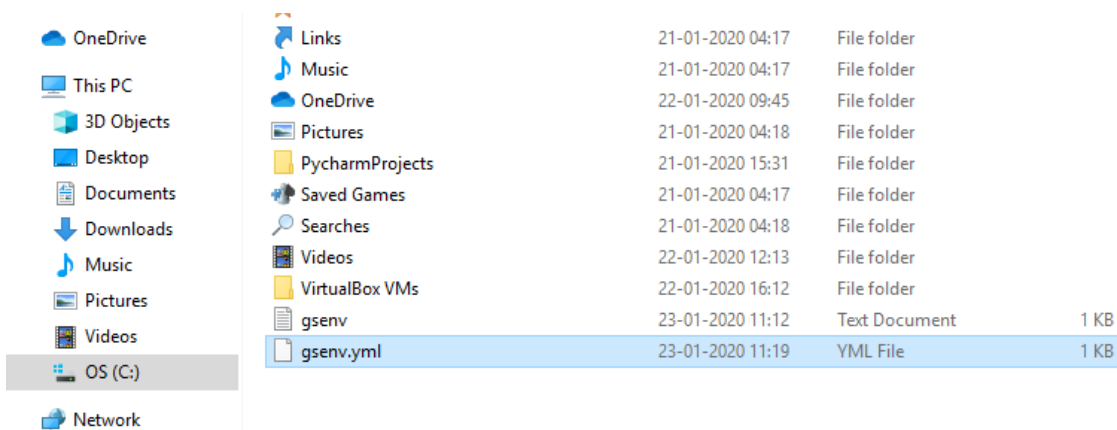
- First you need to activate environment which you want to export.
- Export your active environment to a new file:

conda env export > environment.yml

```

Anaconda Prompt (Anaconda3) - conda install pip
(gsendv) C:\Users\gs>conda list -n gsendv scipy
# packages in environment at C:\Users\gs\Anaconda3\envs\gsenv:
#
# Name                               Version                               Build Channel
(gsendv) C:\Users\gs>conda env export>gsenv.yml
(gsendv) C:\Users\gs>conda env create -f gsendv.yml
CondaValueError: prefix already exists: C:\Users\gs\Anaconda3\envs\gsenv

```



10. Creating an environment from an environment.yml file:

- Create the environment from the environment.yml file:

conda env create -f environment.yml

- Verify that the new environment was installed correctly:

conda list

11. Installing Jupyter notebook in conda environment:

- To install jupyter notebook:

```
pip install jupyter notebook
```

```
Anaconda Prompt (Anaconda3) - jupyter notebook
(genv) C:\Users\gsipip install jupyter notebook
Collecting jupyter
  Downloading https://files.pythonhosted.org/packages/83/d0/0f5dd132200728a6190397e1ea87cd62444e2d39ce588ef25b2abd7e/jupyter-1.0.0-py2.py3-none-any.whl
Collecting notebook
  Downloading https://files.pythonhosted.org/packages/b1/f1/0a6f709ef53a324203f466646ee39273e0ac79ffa5de5db2ef3e28b5df/notebook-6.0.3-py3-none-any.whl (9.7MB)
  9.7MB 2.2MB/s
Collecting ipkernel
  Downloading https://files.pythonhosted.org/packages/e1/92/8fec943b58107399f969f00557804d884c96fcd0bc296e81a2ed4fd270/ipkernel-5.1.3-py3-none-any.whl (116kB)
  122kB 3.3MB/s
Collecting ipynbwidgets
  Downloading https://files.pythonhosted.org/packages/56/a0/dbcf5881bb2f51e8db678211907f16ea0a182b232c591a6d6f276985ca95/ipynbwidgets-7.5.1-py2.py3-none-any.whl (121kB)
  122kB ...
Collecting nbconvert
  Downloading https://files.pythonhosted.org/packages/79/6c/05a569ef703d18aac89b74d6075b404e8a4fde2c76b23ca77b644b14/nbconvert-5.6.1-py2.py3-none-any.whl (455kB)
  460kB 6.4MB/s
Collecting qtconsole
  Downloading https://files.pythonhosted.org/packages/7c/57/3528b84ffa753e2089908bbf74bb5ae60653eb7a63797b6234e88b847d67/qtconsole-4.6.0-py2.py3-none-any.whl (121kB)
  122kB 3.3MB/s
Collecting jupyter-console
  Downloading https://files.pythonhosted.org/packages/0a/89/742fa5a80b552fcb6a8922712697c66828aee7b91ee4ae2b7f90ff8481/jupyter_console-6.1.0-py2.py3-none-any.whl
Collecting prometheus-client
  Downloading https://files.pythonhosted.org/packages/b3/23/41a5a24b502d35a4ad50a5b7202a5e1d9a0364d0c12f56db3dbf7aca76d/prometheus_client-0.7.1.tar.gz
Collecting jupyter-core<4.6.1
  Downloading https://files.pythonhosted.org/packages/fb/82/86437f661875e30682e9904c13ba6c216f86f5f6caeef212d3ee8b6ca11/jupyter_core-4.6.1-py2.py3-none-any.whl (82kB)
  92kB 3.0MB/s
Collecting tornado<5.0
  Downloading https://files.pythonhosted.org/packages/30/78/2d282359846172b12423baffaa186b66b73cd91887fcef78b6eade136b/tornado-6.0.3.tar.gz (482kB)
  491kB ...
Collecting traitlets<4.2.1
  Downloading https://files.pythonhosted.org/packages/ca/ab/872a23e29cec3cf2594af7e857f18b687ad21039cf19b922fac5b9b142d5/traitlets-4.3.3-py2.py3-none-any.whl (75kB)
  81kB 2.6MB/s
Collecting jupyter-client<5.3.4
  Downloading https://files.pythonhosted.org/packages/13/81/f0ee0ebc949851a120254bf1530ae101bde2d3ab9710c6ff81525061/jupyter_client-5.3.4-py2.py3-none-any.whl (92kB)
  92kB 3.0MB/s
Collecting Send2Trash
  Downloading https://files.pythonhosted.org/packages/49/46/c3dc27481d1cc57b9385aff41c474cebf7714f7935b1247194adae45db714/Send2Trash-1.5.0-py3-none-any.whl
Collecting ipython-genutils
  Downloading https://files.pythonhosted.org/packages/fa/bc/9bd35c2b7447d5f33b2d54f1460be9df7d742ef232135381c374c69a/ipython_genutils-0.2.0-py2.py3-none-any.whl
Collecting Jinja2
  Downloading https://files.pythonhosted.org/packages/65/e0/eb357e62802015cab1ccce04e8a277b03f1d8e53da3dc3106882ec42558b/jinja2-2.10.3-py2.py3-none-any.whl (125kB)
  133kB 6.8MB/s
Collecting nbformat
  Downloading https://files.pythonhosted.org/packages/ac/eb/de575b7a6de7ab8d8c95edc180ccc36deda3f1379186c4ee7ad6fc2f1586/nbformat-5.0.4-py3-none-any.whl (169kB)
  174kB ...
Collecting pyzmq<17
  Downloading https://files.pythonhosted.org/packages/7d/f1/4b12dd1f7dcff3b875350f1a52b9a325d68539b9abfd74de65bd20e7f5e/pyzmq-18.1.1-cp38-cp38-win_amd64.whl (1.1MB)
  1.1MB 1.7MB/s
Collecting terminado<0.8.1
  Downloading https://files.pythonhosted.org/packages/ff/96/1d9a2c23990aea8f8e0b5c3b6627d03196a73771a17ad29860bbe9823ab6/terminado-0.8.3-py2.py3-none-any.whl
Collecting iniconfig<0.8.0
```

- To connect jupyter notebook to conda:

Conda install nb_conda

```
(genv) C:\Users\gs>conda install nb_conda
Collecting package metadata (current_repodata.json): done
Solving environment: failed with initial frozen solve. Retrying with flexible solve.
Solving environment: failed with repodata from current_repodata.json, will retry with next repodata source.
Collecting package metadata (repodata.json): done
Solving environment: failed with initial frozen solve. Retrying with flexible solve.
Solving environment: /
Found conflicts! Looking for incompatible packages.
This can take several minutes. Press Ctrl-C to abort.
Examining python: 91% [ 129/141] [00:05<00:00, 16.50it/-]
Examining sphinxcontrib-serializingjson: 99% [ 140/141] [00:16<00:00, 9.55it/s] [failed]

UnsatisfiableError: The following specifications were found
to be incompatible with the existing python installation in your environment:

Specifications:

- nb_conda -> python[version='>2.7,<2.8.0a0']>=3.6,<3.7.0a0']>=3.7,<3.8.0a0']

Your python: python=3.8

If python is on the left-most side of the chain, that's the version you've asked for.
When python appears to the right, that indicates that the thing on the left is somehow
not available for the python version you are constrained to. Note that conda will not
change your python version to a different minor version unless you explicitly specify
that.

The following specifications were found to be incompatible with each other:

Package wheel conflicts for:
nb_conda -> python[version='>3.7,<3.8.0a0'] -> pip -> wheel
python=3.8 -> pip -> wheel
Package pip conflicts for:
python=3.8 -> pip
nb_conda -> python[version='>3.7,<3.8.0a0'] -> pip
Package wincertstore conflicts for:
nb_conda -> notebook[version='>4.3.1'] -> jinja2 -> setuptools -> wincertstore[version='>=0.2.1']
python=3.8 -> pip -> setuptools -> wincertstore[version='>=0.2.1']
Package ca-certificates conflicts for:
python=3.8 -> openssl[version='>1.1.1d,<1.1.2a'] -> ca-certificates
nb_conda -> python[version='>3.7,<3.8.0a0'] -> ca-certificates
Package certifi conflicts for:
nb_conda -> notebook[version='>4.3.1'] -> tornado[version='>=4.6.1'] -> certifi
nb_conda -> notebook[version='>4.3.1'] -> jinja2 -> setuptools -> certifi[version='>=2016.09]>=2016.9.26|>=2017.4.17]
python=3.8 -> pip -> setuptools -> certifi[version='>=2016.09]>=2016.9.26]
Package ipython_genutils conflicts for:
nb_conda -> notebook[version='>4.3.1'] -> ipython_genutils
Package setuptools conflicts for:
python=3.8 -> pip -> setuptools
nb_conda -> notebook[version='>4.3.1'] -> jinja2 -> setuptools
Package msgpack-python conflicts for:
nb_conda -> python[version='>3.7,<3.8.0a0'] -> pip -> cephcontrol -> msgpack-python
Package ipython conflicts for:
nb_conda -> notebook[version='>4.3.1'] -> ipykernel -> ipython[version='>4.0|>4.0.0|>=5.0']

(genv) C:\Users\gs>
```

12. Removing an environment:

- To remove an environment, in your Terminal window or an Anaconda Prompt, run:

conda remove --name myenv --all

- To verify that the environment was removed, in your Terminal window or an Anaconda Prompt, run:

conda info --envs