Python Tsunami

Local Installations

Anaconda

Anaconda

UCPH HeaDS

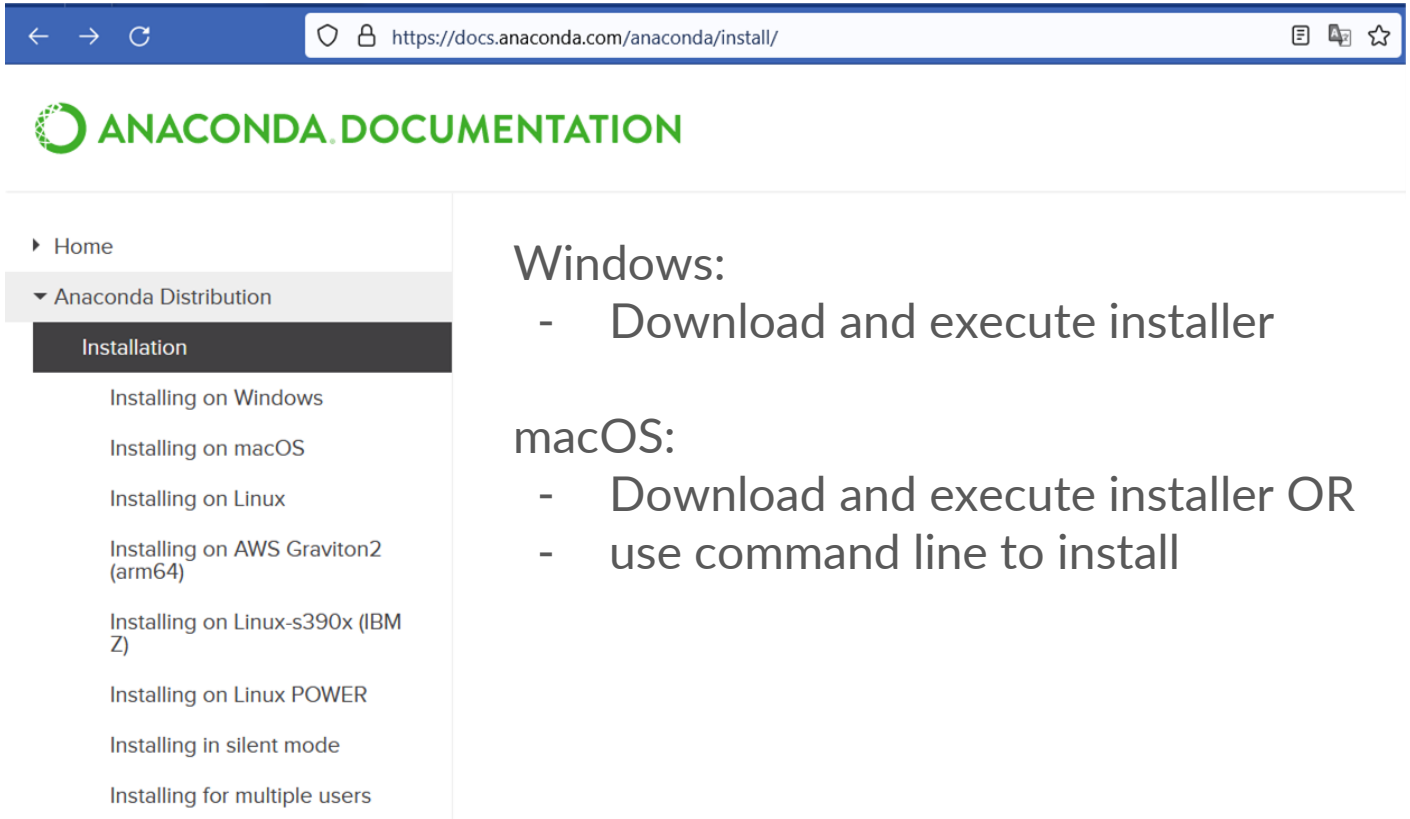
Anaconda is an all-in-one solution for writing and executing python code **locally**, as well as managing packages and environments.

Includes:

- ~ 100 popular packages
- Codings envs Spyder and Jupyter
- Jupyter lab IDE
- A prompt
- Can install many more add-ons

https://docs.anaconda.com/

Anaconda Installation



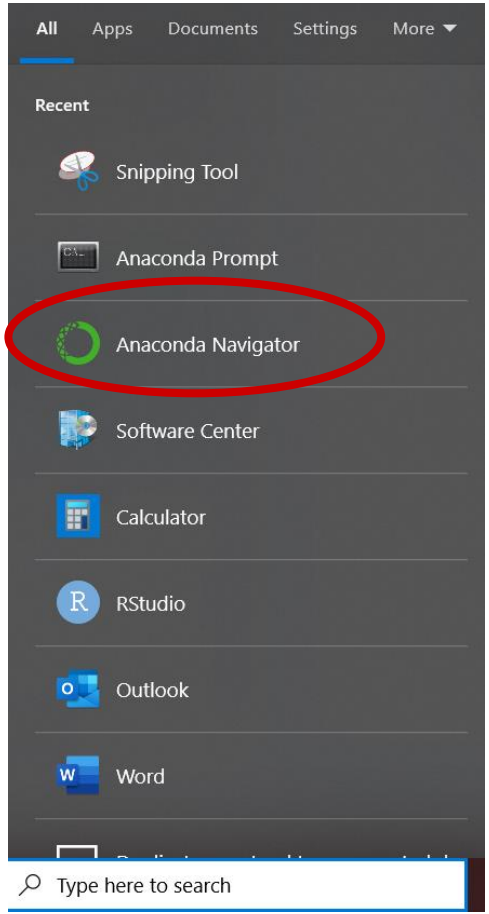
Windows:

- Download and execute installer

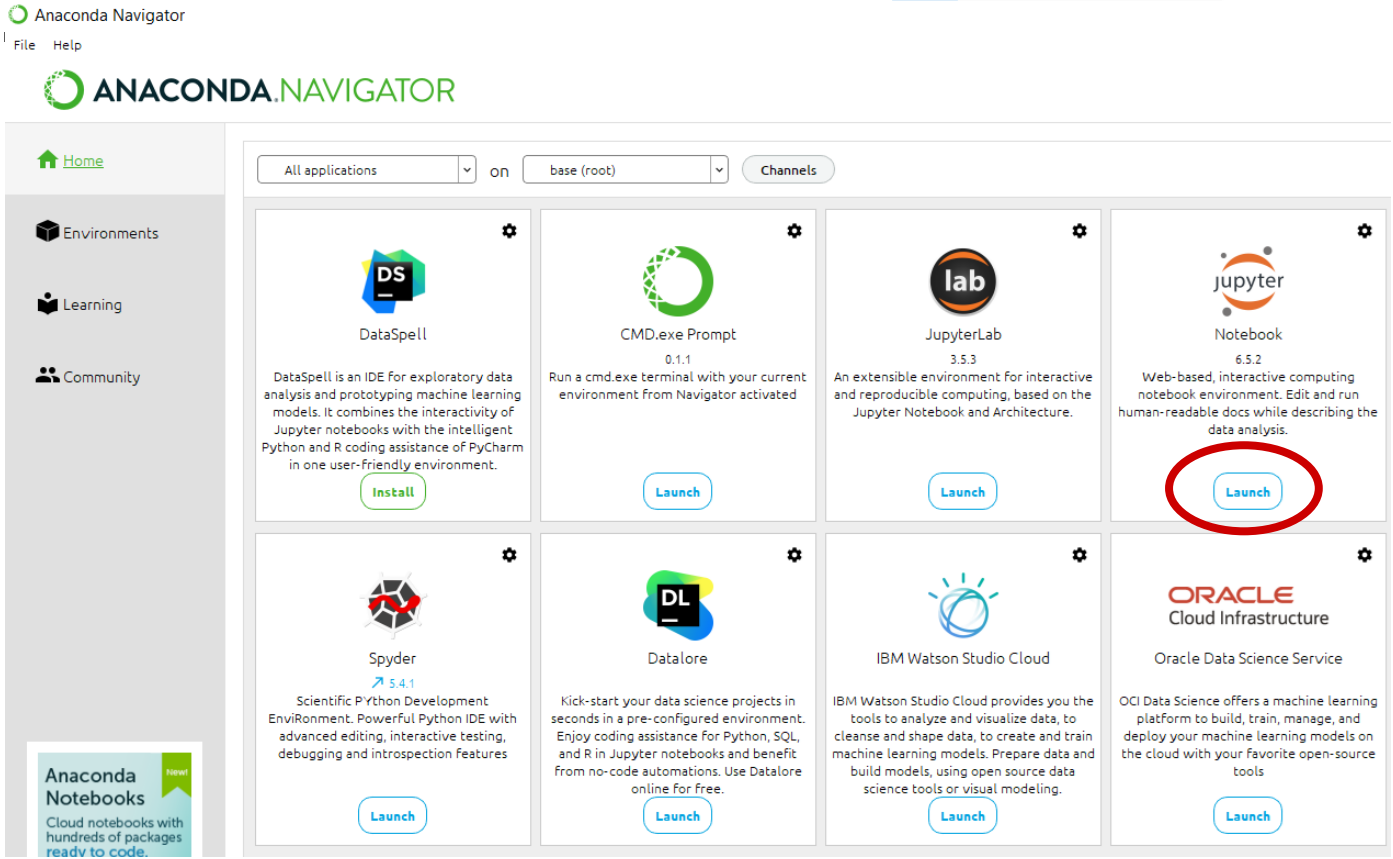
macOS:

- Download and execute installer OR
- use command line to install

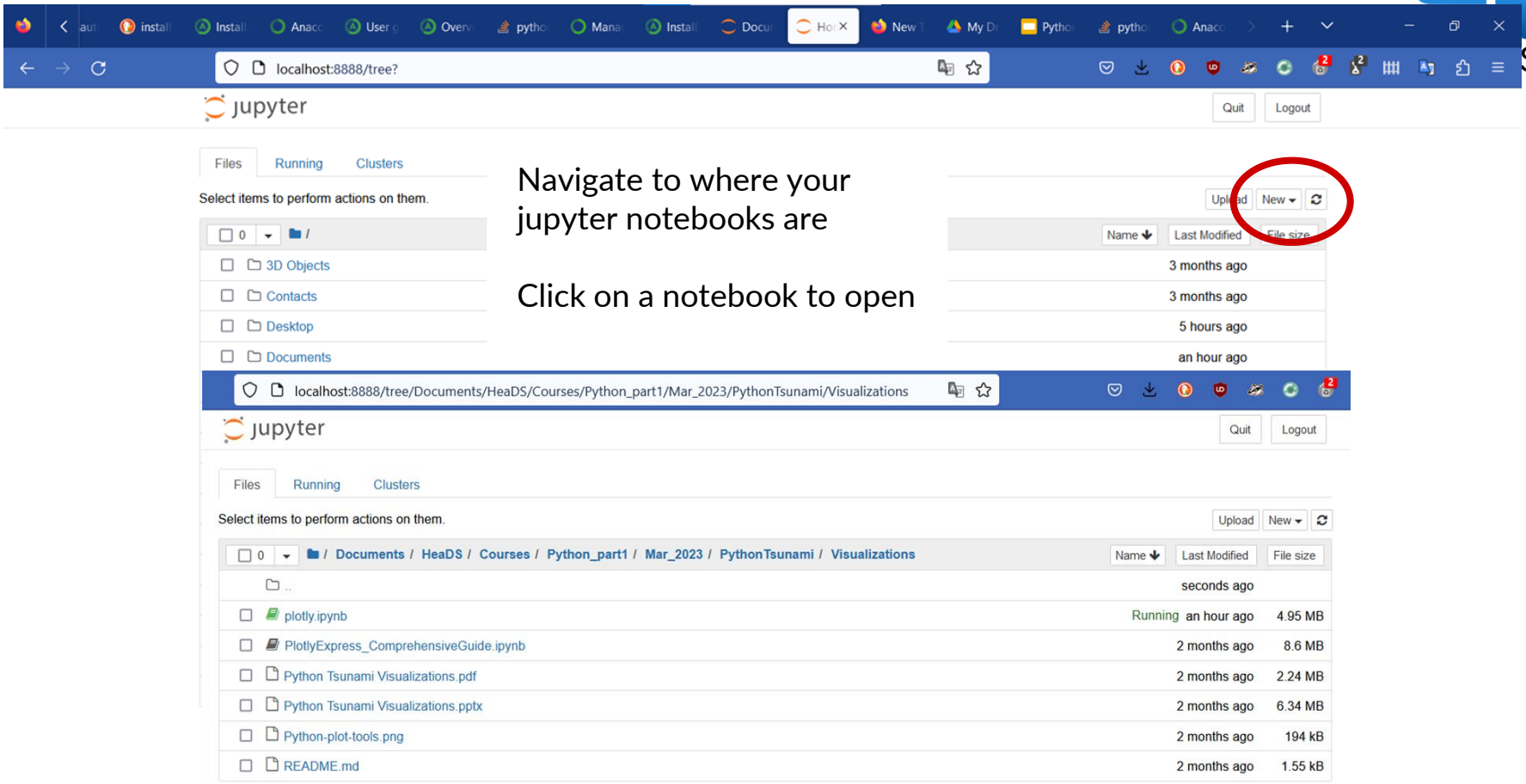
Anaconda


All
Apps
Documents
Settings
More
Recent
Snipping Tool
Anaconda Prompt
Anaconda Navigator
Software Center
Calculator
RStudio
Outlook
Word
Type here to search

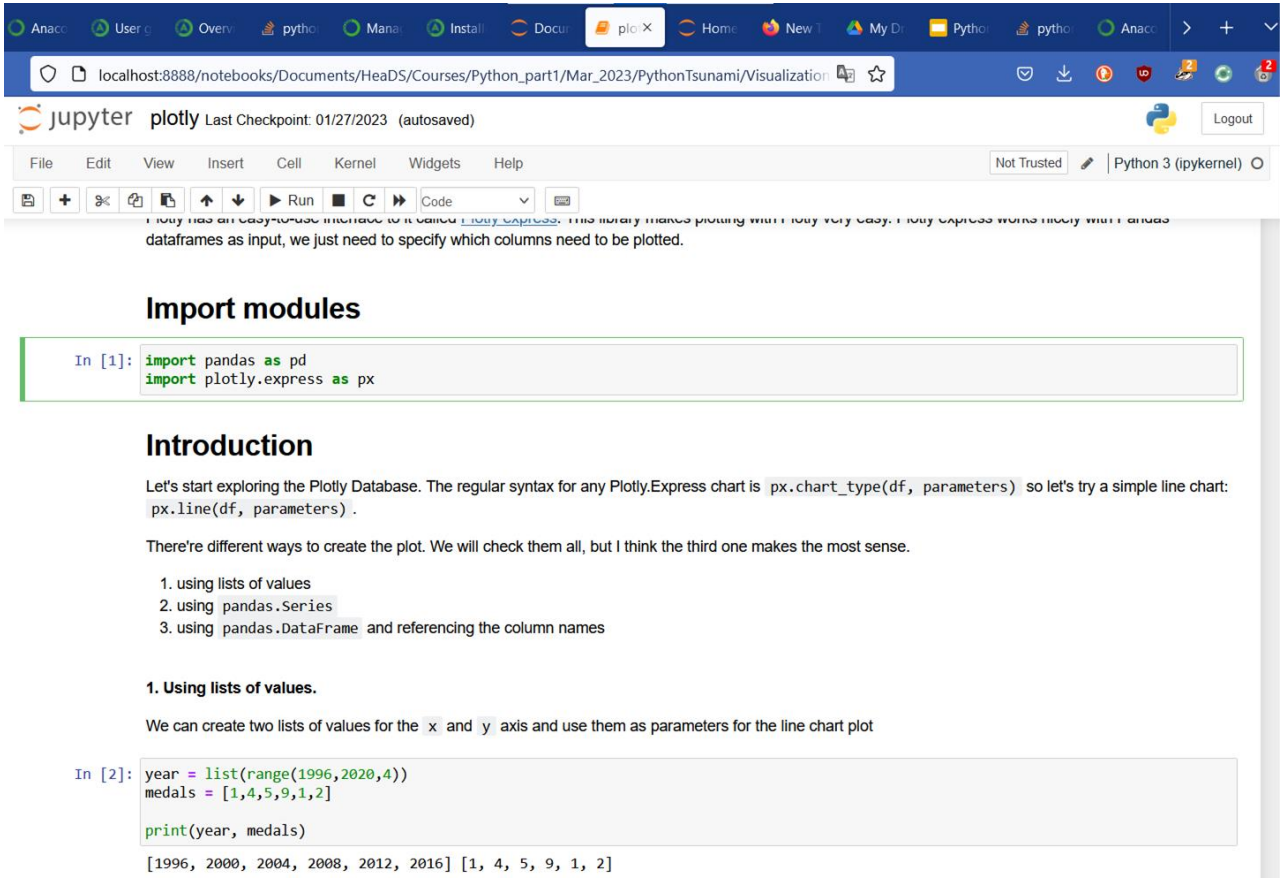
Jupyter


Anaconda Navigator
File Help
ANACONDA.NAVIGATOR
Home
Environments
Learning
Community
All applications
on
base (root)
Channels
DataSpell
DataSpell is an IDE for exploratory data analysis and prototyping machine learning models. It combines the interactivity of Jupyter notebooks with the intelligent Python and R coding assistance of PyCharm in one user-friendly environment.
Install
CMD.exe Prompt
0.1.1
Run a cmd.exe terminal with your current environment from Navigator activated
Launch
JupyterLab
3.5.3
An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.
Launch
Notebook
6.5.2
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.
Launch
Spyder
5.4.1
Scientific PYthon Development EnviRonment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features
Launch
Datalore
Kick-start your data science projects in seconds in a pre-configured environment. Enjoy coding assistance for Python, SQL, and R in Jupyter notebooks and benefit from no-code automations. Use Datalore online for free.
Launch
IBM Watson Studio Cloud
IBM Watson Studio Cloud provides you the tools to analyze and visualize data, to cleanse and shape data, to create and train machine learning models. Prepare data and build models, using open source data science tools or visual modeling.
Launch
ORACLE
Cloud Infrastructure
Oracle Data Science Service
OCI Data Science offers a machine learning platform to build, train, manage, and deploy your machine learning models on the cloud with your favorite open-source tools
Launch
Anaconda Notebooks
New!
Cloud notebooks with hundreds of packages ready to code.

Jupyter


localhost:8888/tree?
jupyter
Quit
Logout
Files
Running
Clusters
Select items to perform actions on them.
Upload
New
Name
Last Modified
File size
3D Objects
3 months ago
Contacts
3 months ago
Desktop
5 hours ago
Documents
an hour ago
Navigate to where your jupyter notebooks are
Click on a notebook to open
localhost:8888/tree/Documents/HeaDS/Courses/Python_part1/Mar_2023/PythonTsunami/Visualizations
jupyter
Quit
Logout
Files
Running
Clusters
Select items to perform actions on them.
Upload
New
Documents / HeaDS / Courses / Python_part1 / Mar_2023 / PythonTsunami / Visualizations
Name
Last Modified
File size
seconds ago
plotly.ipynb
Running an hour ago
4.95 MB
PlotlyExpress_ComprehensiveGuide.ipynb
2 months ago
8.6 MB
Python Tsunami Visualizations.pdf
2 months ago
2.24 MB
Python Tsunami Visualizations.pptx
2 months ago
6.34 MB
Python-plot-tools.png
2 months ago
194 kB
README.md
2 months ago
1.55 kB

Jupyter



Operate as in colab

- Code cells and text cells
- Run cells with run button or shift+enter
- Output appears below cell

Environments and packages

Packages

Packages are also called libraries. They are bundles of code that contain a certain functionality.

You have already used packages:

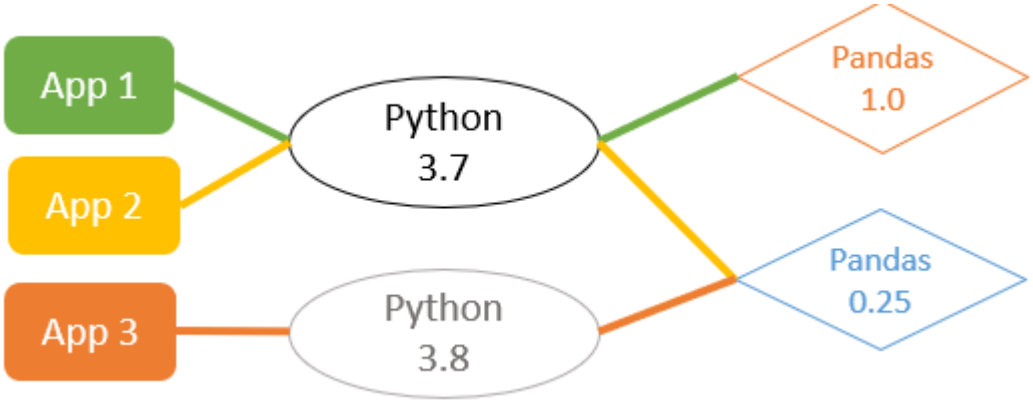
```
import pandas as pd
```

```
import plotly.express as px
```

Many python packages are under constant development to keep up to date and as such they have versions.

Packages

Many scientific softwares require **specific versions** of packages installed in order to function (because they were written with that version).



This is where environments come in!

Environments

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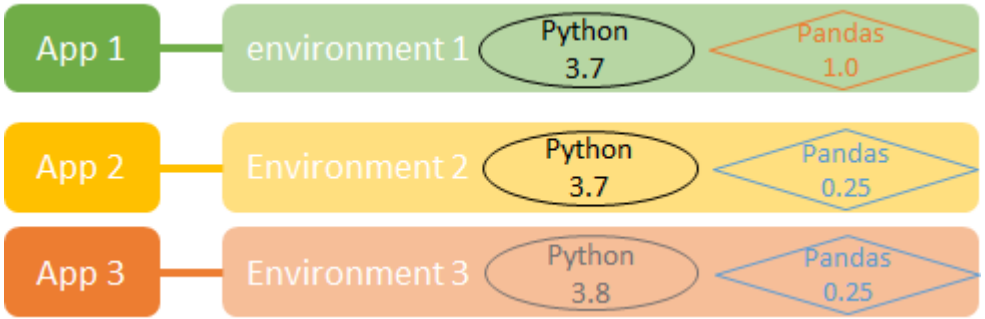
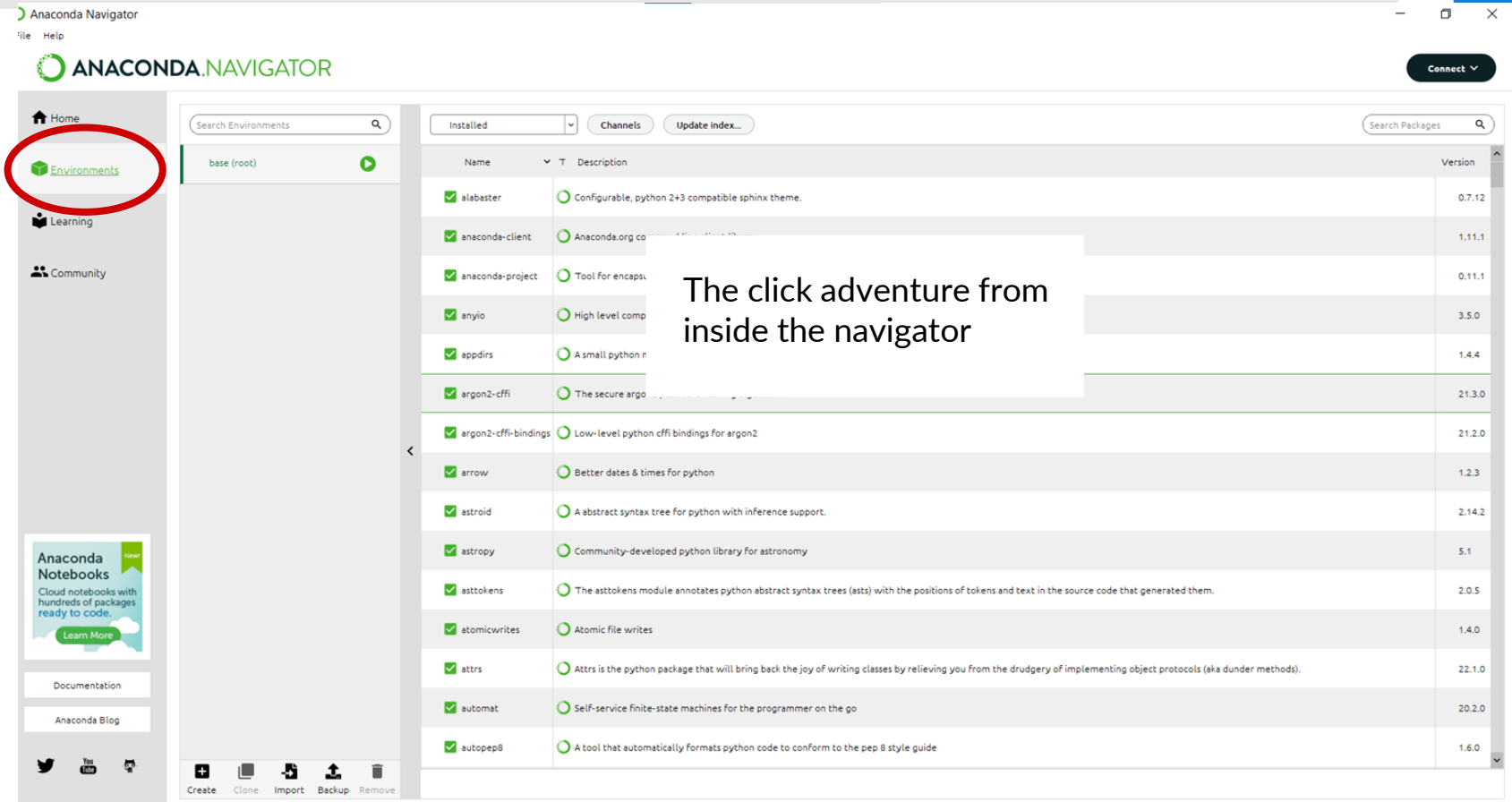
An environment is a collection of specific versions of packages that are compatible to each other.

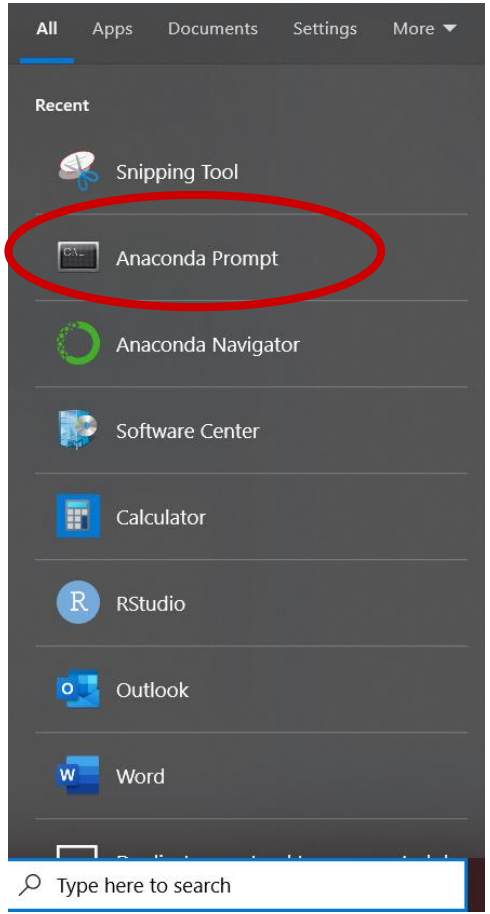


We use conda to create and manage python environments.

Conda environments - Navigator



Conda environments - command line



The prompt lets you create and manage environments via the command line.

On Mac, use the terminal instead.

Anaconda Prompt

```
(base) C:\Users\pnv719>conda env list
# conda environments:
#
base                  *  C:\Users\pnv719\AppData\Local\anaconda3


(base) C:\Users\pnv719>
```

Managing environments

Create an (empty) environment:

```
conda create --name my_env
```

Create an env with specific packages installed:

```
conda create -n my_env python=3.9 scipy=0.17.3
```

Activate (load) an environment:

```
conda activate my_env
```

Install a package (into a specific env):

```
conda install scipy=0.17.3 (-n my_env)
```

https://docs.conda.io/projects/conda/en/latest/user-guide/tasks/manage-environments.html
https://docs.anaconda.com/anaconda/user-guide/tasks/install-packages/

Dataset Exercise