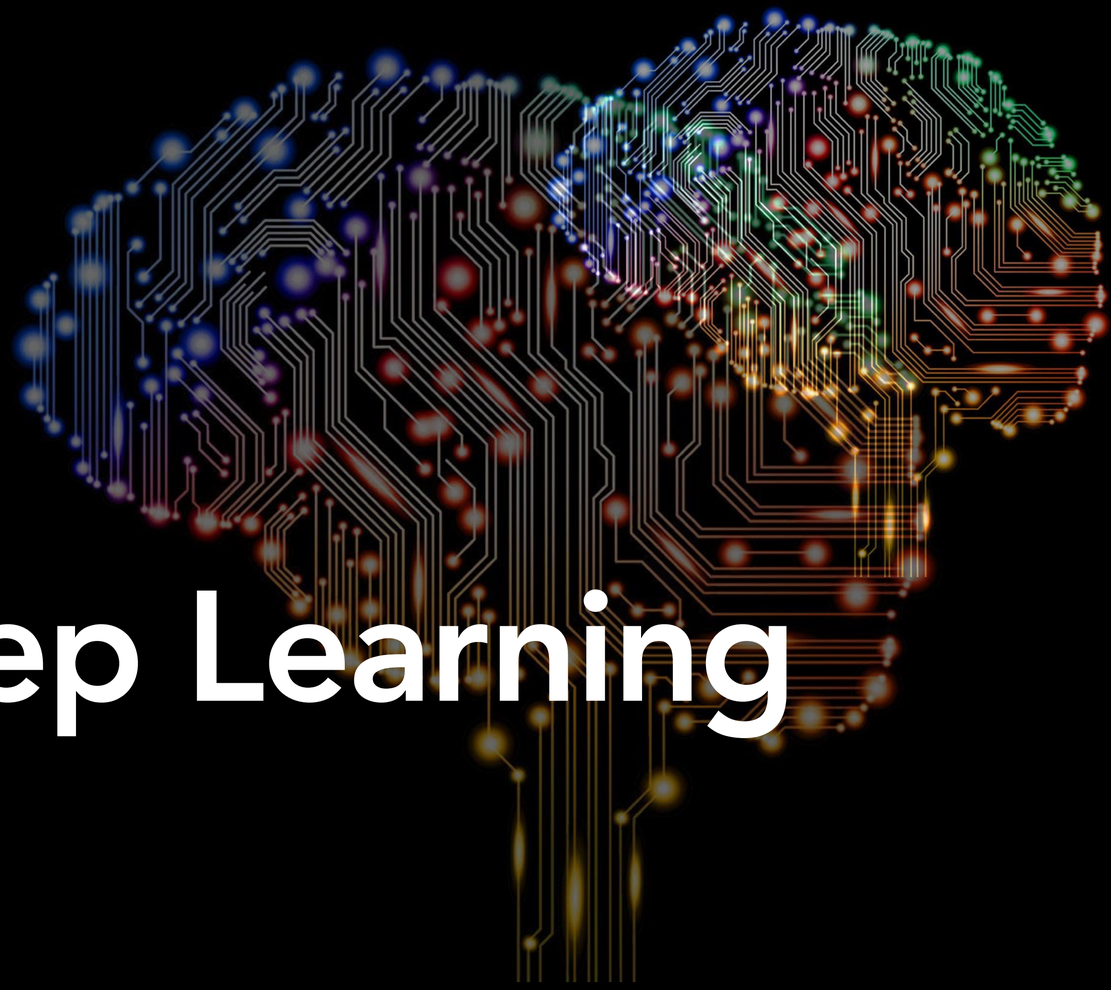


Introduction to Deep Learning

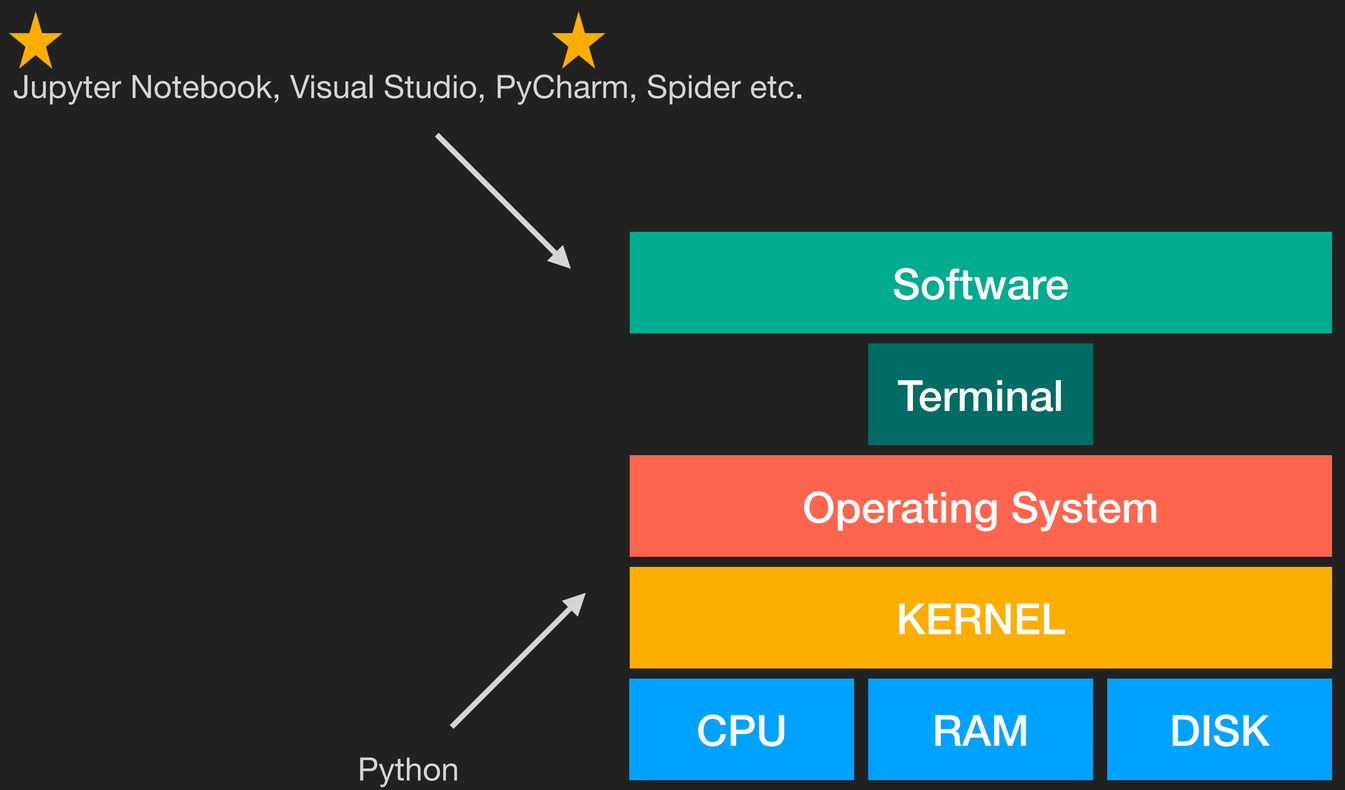
Week 1

Firat YASAR

12/10/2022

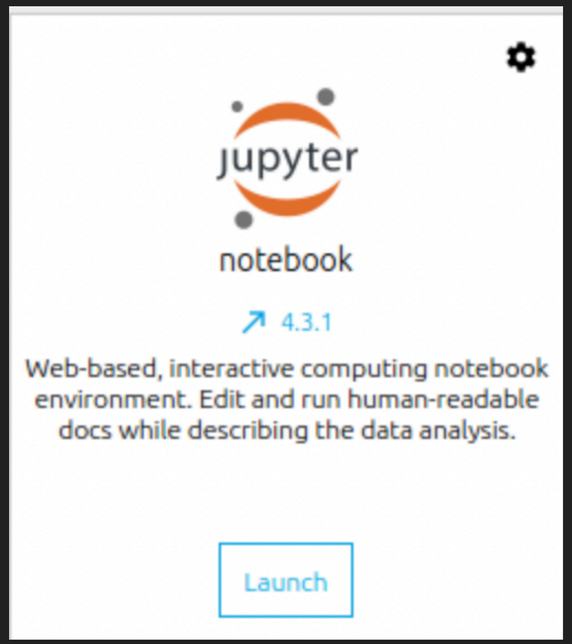
1. What to use

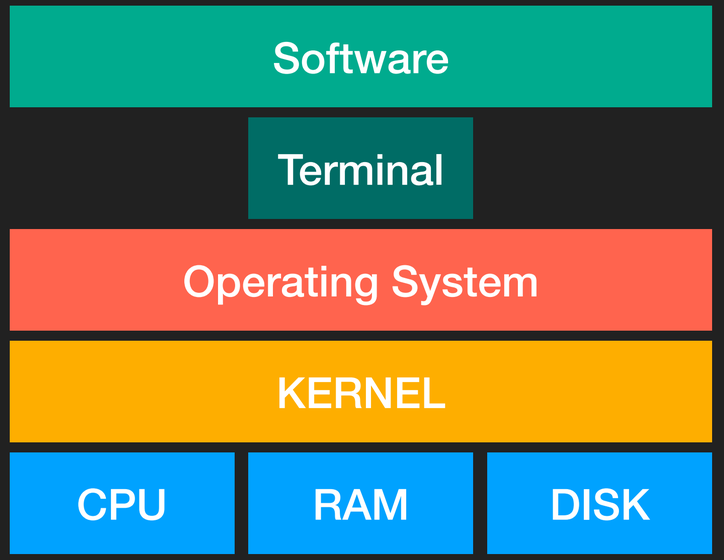
- Tools
  - Jupyter Notebooks
- Other Tools
  - Google Colab https://colab.research.google.com/
  - Kaggle https://www.kaggle.com/
  - DataBricks
  - GitHub https://github.com/
- Cloud - NOT for this course!
  - Google Cloud Platform
  - Amazon Web Services
  - Microsoft Azure



Anaconda distribution : Python + librairies + notebook

- Anaconda will install
  - Python 3.9
  - Libraries (Matplotlib, Scipy, Numpy, Pandas etc.)
  - Jupyter Notebook
- Go to https://www.anaconda.com/ and install it.
- In the anaconda interface you will see several editors that you can use for different purposes.
- We will use Jupyter Notebook
- Which Python version?





Terminal

```
jupyter notebook
```

```
jupyter notebook mon_notebook.ipynb
```

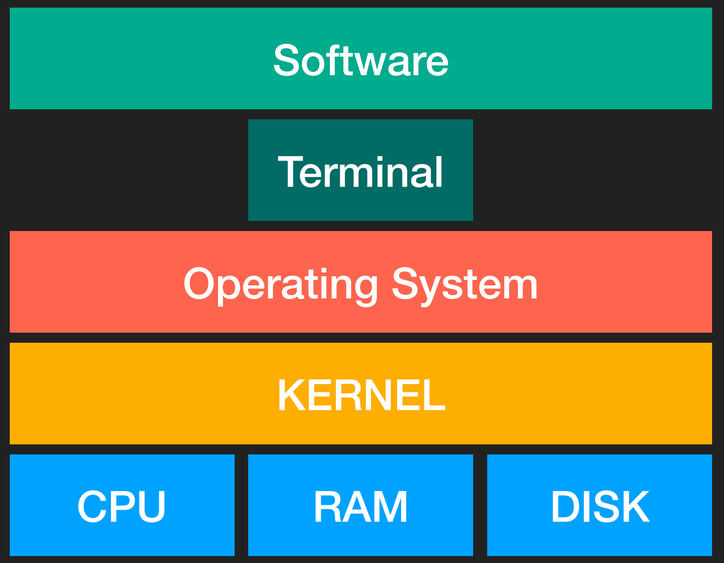
Without Anaconda

1. Install Python
   - https://www.python.org/downloads/
2. `You need to install PIP
   - PIP is the package installer for Python
   - `python -m pip install --upgrade pip`
3. Now, the terminal will understand the command « pip »
4. On terminal
   - `python -m pip install jupyter`

Terminal

```
jupyter notebook
```

```
jupyter notebook mon_notebook.ipynb
```



Python packages

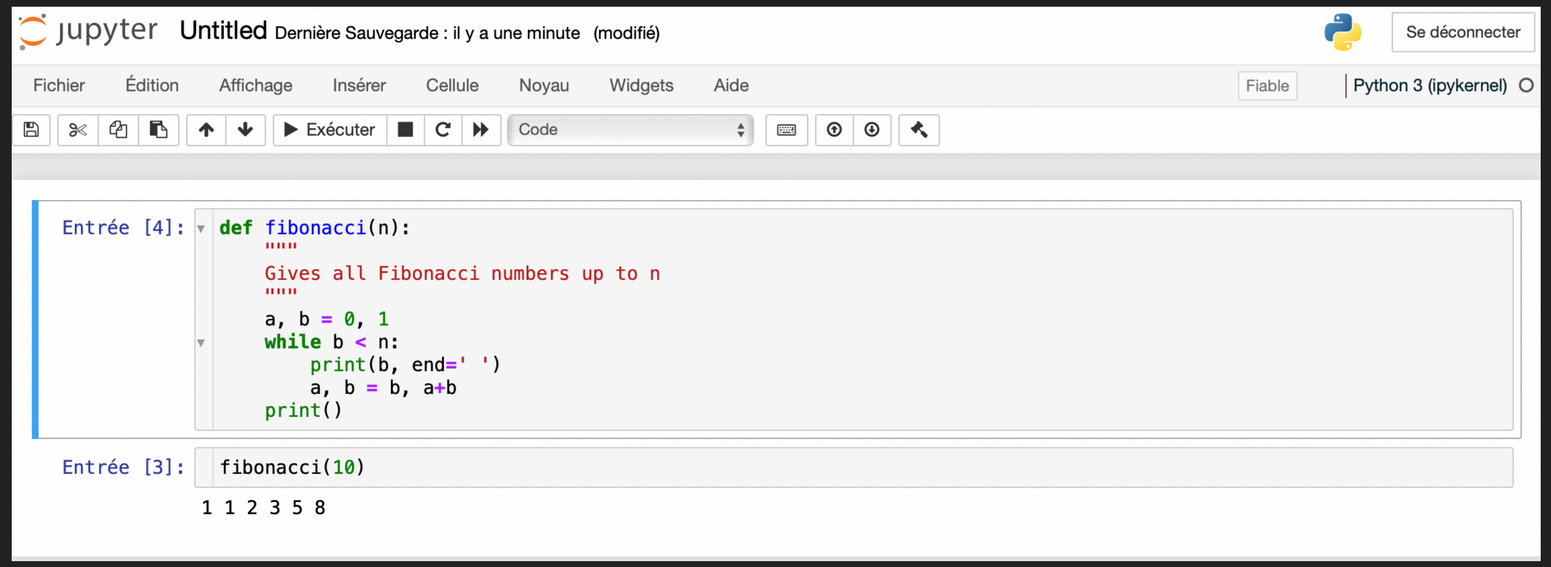
1. Libraries for this course
    1. **pandas** to manipulate dataframes (applies Relational Algebra rules https://en.wikipedia.org/wiki/Relational_algebra)
    2. **numpy** and **scipy** for calculations (Linear Algebra)
    3. **matplotlib** and **seaborn** for visualisation
    4. **scikit-learn** for ML algorithmes
    5. **Tensorflow** and **PyTorch** for deep learning
    6. And more…

2. You can install a library
    - conda install <name of the package>
    - pip install <name of the package>
    - Example: conda install pandas

- Important: Documentation is your best friend. For instance, https://scikit-learn.org/stable/

Jupyter Notebooks

1. Cells: code, markdown,
2. To use LaTex you need MacTex installed in your computer.
3. Examples
4. **.ipynb** files are notebooks
5. How to use **.py** files
6. Recommended : Nbextensions for Jupyter Notebooks



Ressources

1. Corey Schafer’s YouTube channel https://www.youtube.com/c/Coreyms
2. Will Koehrsen’s kaggle https://www.kaggle.com/code/willkoehrsen/start-here-a-gentle-introduction
3. https://web.stanford.edu/class/cs224n/readings/cs224n-python-review.pdf
4. https://cs231n.github.io/python-numpy-tutorial/
5. …

Dataset Repositories

1. https://archive.ics.uci.edu/ml/datasets.php
2. https://alex.smola.org/teaching/cmu2013-10-701/resources.html
3. https://www.openml.org/
4. …

Data Science pipeline