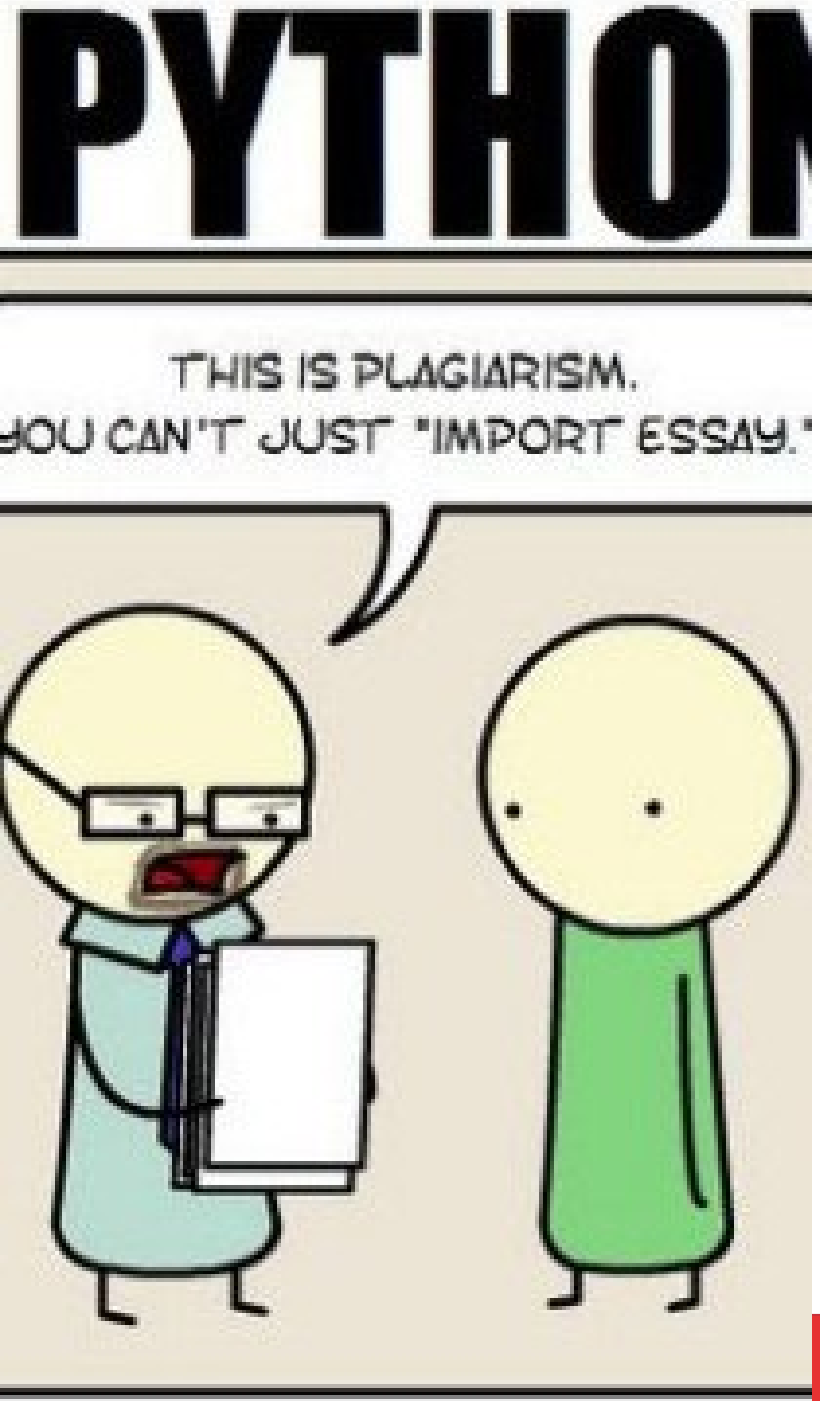
Lisbon School
of Economics
& Management
Universidade de Lisboa

Python: Modules, Packages, Libraries and Virtual Environments

Prof. Carlos J. Costa, PhD



Module

- A module can be described as a collection of interconnected code components stored within a file bearing the .py extension.
- https://docs.python.org/3/tutorial/modules.html#

- e.g. datetime, radom, re.

Module

- Create congratmodule.py file:

```
def congrat (name):
     print(“Congratulations, " + name)
```

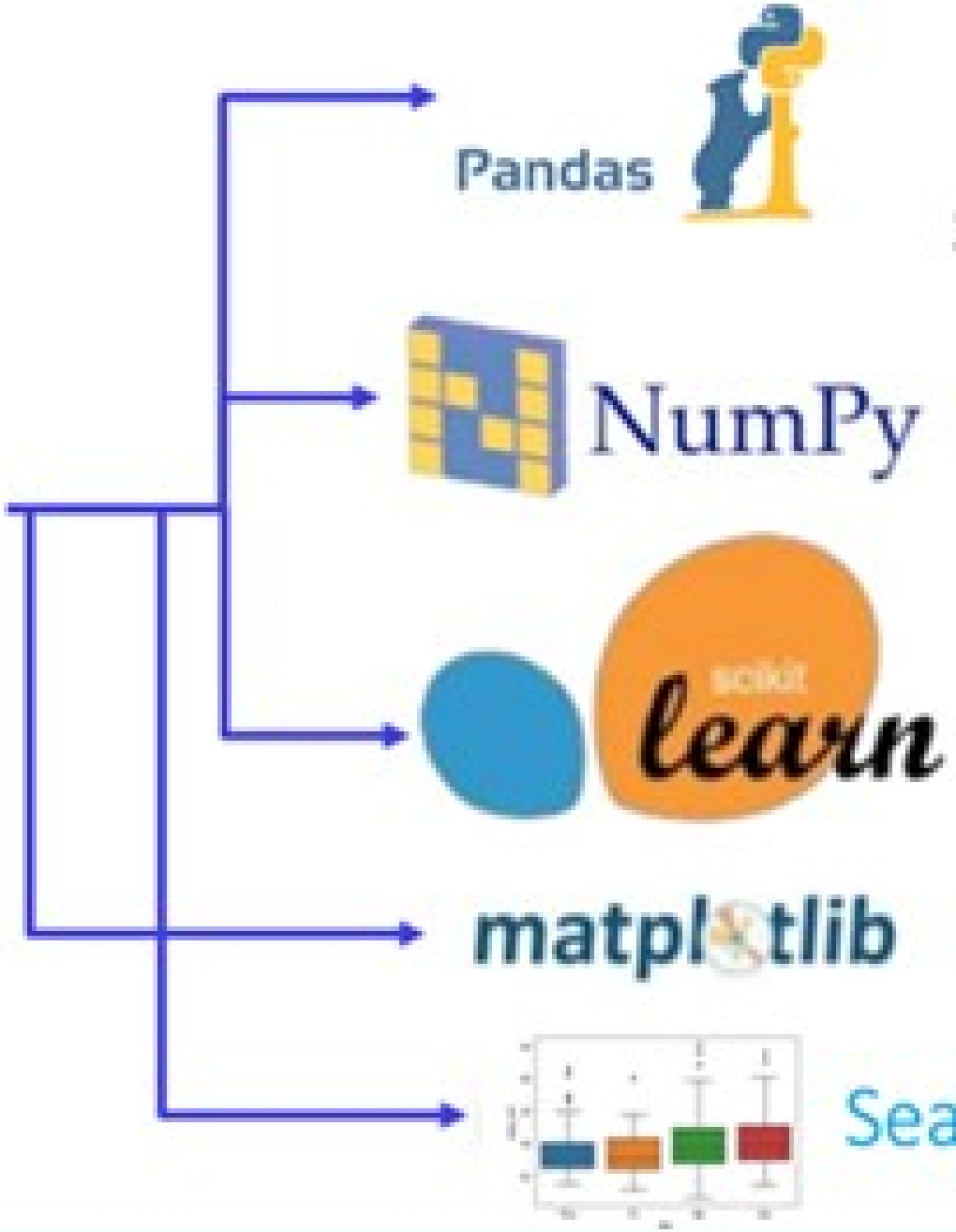
- Use module:

```
import congratmodule
congratmodule.congrat("Jonathan")
```

Packages

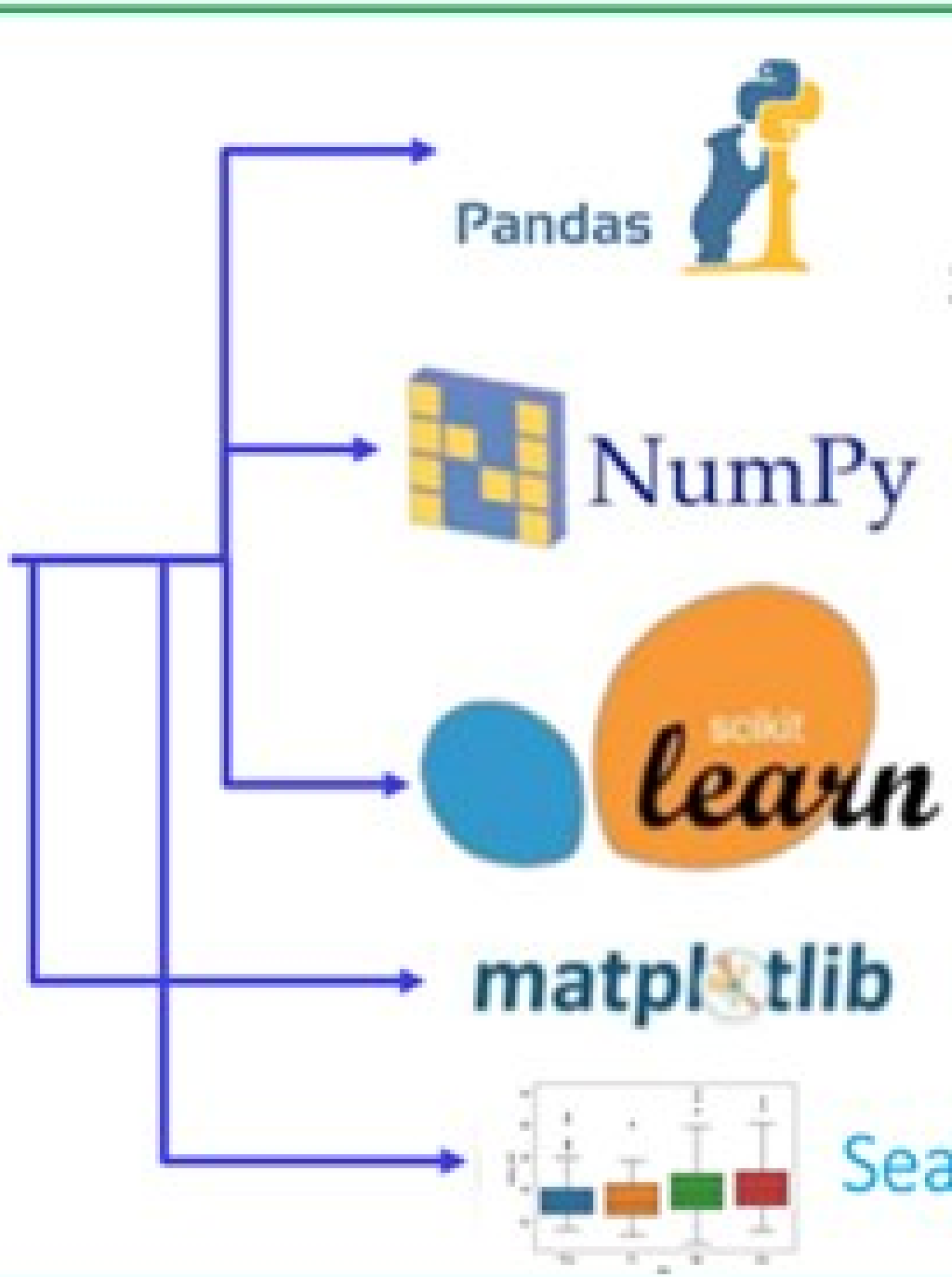
- Python packages are basically a directory of a collection of modules.
- To be considered a package (or subpackage), a directory must contain a file named __init__.py.
- This file usually includes the initialization code for the corresponding package.
- https://docs.python.org/3/tutorial/modules.html#packages

- e.g. NumPy, Pandas.



Library

- A library is a comprehensive concept encompassing a reusable block of code.
- e.g. Matplotlib, Requests



Modules/Packages/Libraries

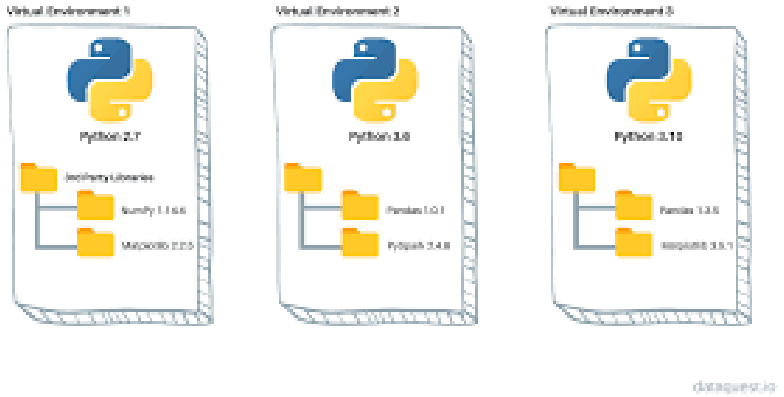
- A package is a collection of modules, a library is a collection of packages.

Framework

- A frameworks contain the basic flow and architecture of the application.
- e.g. Django, Flask.

Environment

- A virtual environment in Python is a specialized environment where the Python interpreter, libraries, and scripts are segregated from those present in other virtual environments.
- Furthermore, it inherently shields itself from any libraries integrated into a "system" Python installation, which typically comes as part of the operating system.



Environment

- Install pip install (if it is not installed):
  - Download get-pip.py (https://bootstrap.pypa.io/get-pip.py) to a folder on your computer.
  - Open a command prompt and navigate to the folder containing the get-pip.py installer.
  - Run the following command:
  - python get-pip.py

- Terminal VSCode (windows):
  - python -m venv .venvtest
  - .\\.venvtest\Scripts\Activate.ps1
  - deactivate

Environment

- Use Anaconda...