

Programming

Class 15 - Numpy - Pandas

Universidad CES



UNIVERSIDAD CES
Un compromiso con la excelencia

Fundamentals

Numpy is an open source Python library that is used in almost all fields of science and engineering. It is the universal standard for working with numeric data in Python and is the core of the scientific ecosystems of Python and PyData.

Syntax:

```
Import numpy as np
```

The background is a dark blue-tinted aerial photograph of a city, likely Rio de Janeiro, showing a mix of modern high-rise buildings and older structures nestled in a valley with hills in the background. Overlaid on the left side is a semi-transparent white shape with a curved edge, decorated with several white laurel wreath motifs. The text 'What is an Array?' is centered within this white shape.

What is an Array?

It is an matrix of data structure. Information or raw elements are stored in it.

It is the central structure of the numpy library and allows the implementation of multiple functions that facilitate data handling, especially numerical data in the python programming language.



Numpy functions

Sort

Concatenate

ndim

size

shape

reshape

There are many other functions, these are just a few.

*See examples.

Access the values of a numpy array

data		data[0]		data[1]		data[0:2]		data[1:]		data[-2:]		data		
0	1	1				1		2		2		0	1	
1	2			2		2		3		3		1	2	-2
2	3											2	3	-1
												3		

Operators

Numpy

`data = np.array([1,2])`

data
1
2

`ones = np.ones(2)`

ones
1
1

`data + ones`

data
1
2

 +

ones
1
1

 =

2
3

`data - ones`

data
1
2

 -

ones
1
1

 =

0
1

`data * data`

data
1
2

 *

data
1
2

 =

1
4

`data / data`

data
1
2

 /

data
1
2

 =

1
1

`data.max()`

data
1
2
3

 .max() = 3

`data.min()`

data
1
2
3

 .min() = 1

`data.sum()`

data
1
2
3

 .sum() = 6

Basic operations:

- Sum
- Subtraction
- Multiplication
- Division

Advanced and most used operations:

- Max
- Min
- Sum
- Media

Pandas



Practice

Thank you



UNIVERSIDAD CES

Un compromiso con la excelencia