

Programming for Data Scientists

TP 01

Exercise 01 - Python files

- Create a python file to display the current date time.
 - invoke the previous file from the command line to display the result.
- NB. you can use **time** module to get the current date time with the next instruction:

```
time.ctime()
```

Exercise 02 - Errors and Debugging

- Write RectArea(w, h) function that returns the area of a rectangle with width **w** and height **h**.
- Call RectArea(5,10), then Call RectArea(10,"b"), what do you notice?
- Write a small system which allows the previous function to handle the wrong parameters.

Exercise 03 - Numpy

- Create two python arrays py_arr1 and py_arr2 with length of 1000000 (their values are from 0 to 999999), then calculate the sum of them using a for loop.
- Create two numpy arrays np_arr1 and np_arr2 with length of 1000000 (their values are from 0 to 999999), then calculate the sum of them using + operation (addition).
- What do you notice?
- create an array **np_arr** of random values with dimensions of 6x8.
- Round np_array to two decimal places. (eg. 0.12345..9 → 0.12)
- Using the previous array, create two arrays **np_arr_int_rounded** and **np_arr_int** but with integer values (with rounding and without rounding).
- Create zeros, ones arrays with dimensions of 4x4.
- Create a diagonal array with dimensions of 5x5.
- Create a diagonal array with dimensions of 5x5 (9 on the diagonal and 1 elsewhere).