

## Solving simple problems with Python



### Objectives

*Using Python to solve simple problems*

- Implement simple programs using Python
- Solve simple problems using read/write instructions, conditional, loops
- Implement functions
- Use test-driven development



### Requirements

Write an application to deal with all of the requirements below. Implement functions to read data, process data and display output results. Use procedural programming and feature-driven development.

The application should allow the following:

- a. Create a list of natural numbers  
*ex. `my_list = [5, 8, 4, 7]`*
- b. Convert a list of natural numbers to string
- c. Determine the sum of elements from the list which are powers of 2  
*ex. `my_list = [5, 8, 4, 7]`, then sum is  $12 = 8 + 4$*
- d. Filter the elements from the list which are not powers of 2  
*ex. `my_list = [5, 8, 4, 7]`, then `result_list = [5, 7]`*
- e. Delete from the list the sequence starting from the first even number to the last even number in the list.  
*ex. `my_list = [5, 8, 4, 7, 2, 3]` becomes `[5, 3]`*
- f. Delete all even numbers in a list.  
*ex. `my_list = [5, 8, 4, 7, 2, 3]` becomes `[5, 7, 3]`*
- g. Shift to the beginning of the list the longest sequence of even numbers  
*ex. `my_list = [5, 2, 4, 7, 6, 8, 4, 3]`, then `result_list = [6, 8, 4, 5, 2, 4, 7, 3]`*