SCHOOL
HIGHER
MEDIA
ART
AND DESIGN
POLYTECHNIC
FROM PORTO

ALP

EXERCISE SHEET

ACADEMIC ACTIVITY

Algorithm and Data Structures

CURRICULAR UNIT

Sheet 04 – Functions

TOKEN

1. Adapt the exercise from worksheet 03 – Fibonacci sequence, so that it implements a **Finbonacci function** that prints the first **n** terms of the sequence.
   This **n** terms is being passed as an argument to the function.

```
# Exemplos da chamada da função fibonacci
numero = int(input('Indique nº de  termos a imprimir:'))
fibonacci(numero) # Imprime numer termos
fibonacci(5)      # Imprime 5 termos
fibonacci(10)     # Imprime 10 termos
```

2. Implement the **somatorio function** that takes 2 integers as input arguments and prints the sum of all integers included in that range.

```
somatorio(1,3)     # imprimie somatorio de numeros inteiros entre [1-3]
somatorio(3,6)     # imprimie somatorio de numeros inteiros entre [3-6]
```

3. Implement the **abundant function** that takes an integer and returns True or False, depending on whether the number is abundant or not.

   Definition of Abundant Number: A natural number is classified as abundant if the sum of its proper divisors is greater than him.

   Examples:
      12 is an abundant number, as 1+2+3+4+6 = 16 (greater than 12)
      18 is an abundant number, as 1+2+3+6+9 = 21 (greater than 18)
      10 is NOT an abundant number, as 1+2+5 = 8 (NOT greater than 10)

      abundant(10) should return False
      abundant(12) should return True

   Test by invoking your function for several different numbers.

4. Implement an average function that receives n positive integers (n is variable, depending on the amount of data that the user wants to enter.
   The function must work with 2, 3, 4 or more arguments.

   The function must return the arithmetic average of the numbers received as input parameters.

   Example of the function call:

```python
valorMedio = media(10,20,30)
print("{:.2f}" .format(valorMedio))
print("{:.2f}" .format(media(15, 30)))
print("{:.2f}" .format(media(5,10, 15, 20)))
```