Ingé1 - Unix
LAB 9 – Shell Programming (bash) (Part 3)

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Exercise 1 : Arrays, File Reading

Q1. Write a script that sorts a numeric array in descending order. The values of the array are provided as command-line arguments and sorted from the largest to the smallest element.

Q2. Write another script that reads integer values from a file and saves them in an array. These values are then sorted in ascending order and displayed on the screen.

Exercise 2 : Function with bash

Q1. Write a script that calculates the series of a number N defined as follows: $u_{n+1} = u_n/2$ if u_n is even and $u_{n+1} = 3u_n + 1$ if u_n is odd, with an initial value of $u_0 = N$. When running the script, the number N should be entered via the keyboard in the terminal. The calculation of the series is performed in a function that takes the number N as an argument, and the number of terms is entered by the user via the keyboard.

Expected outputs:

```
Give a number N = 15
Number of terms in the series =  20
15 46 23 70 35 106 53 160 80 40 20 10 5 16 8 4 2 1 4 2 1 4
```