Activity 1. Two algorithms with the same complexity

For all of the recorded times please refer to the excel file in the same folder.

Both algorithms have a complexity of O(n^2). However, loop3 is faster than loop2. This is because in loop3, n\*n executions are only performed in the last case of the loop, whereas every other case is n\*I, where i<n. Loop2 on the contrary performs n\*n times always.

Activity 2. Two algorithms with different complexity

Complexity of loop1 is O(nlogn), and loop2’s complexity is O(n^2). Loop1 is then much faster than loop2, specially in high load cases.

Activity 3. Complexity of other algorithms

The case is quite similar to the previous one, where loop5 has a better complexity than loop4, also very noticeable in high load cases.

Activity 4. Study of Unknown

By looking at the code, it has a complexity of O(n^3). However, it will be faster than an algorithm that executes n\*n\*n, as it only executes that many times in the longest case.