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Esercizio 2 Laboratorio Algoritmi e Strutture Dati EditDistance

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How to compile with makefile

To compile the program using the dynamic function write make without any other parameter. If you want to use the other implementation then write:

make noMemoization.

EditDistance without memoisation

The implementation of this function follows exactly the same structure that we've seen in the slides that were given us.

The execution time of this algorithm is, accordingly to what we've seen in the theory part of the course, exponential.

We proved this through the execution of the program on our machines.

EditDistance with memoisation (dynamic programming)

The implementation of this function was possible thanks to the memoisation technique that we've studied in theory with our teacher.

Thanks to the memoisation we decreased the amount of calculations required by the algorithm by saving progressive results inside a matrix.

We noticed, thanks to many execution and the theory that we've studied, that this algorithm is no more exponential but is $\theta(mn)$ (where m and n are the length and height of the matrix).

In conclusion…

We can definitely say that using the memoisation method the algorithm takes less time and so it more efficient.