

Homework: Weighted graphs

Ex.1

Implement the array-based version of the Dijkstra's algorithm

The implementation of the algorithm can be found in the `dijkstra_array.c` file, in the `src` directory. Other files containing useful structs and functions, necessary for the realization of the algorithm, can be found in the `src` and `include` directories.

Ex.2

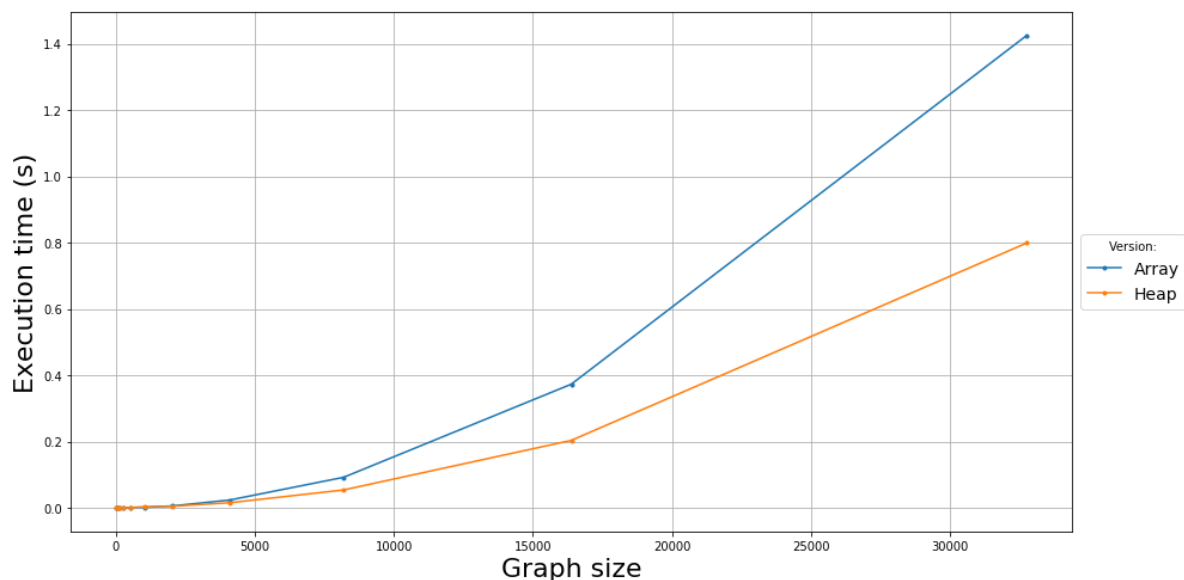
Implement the binary heap-based version of the Dijkstra's algorithm by using the library `binheap` that was previously developed

The implementation of this version of the algorithm can be found in the `dijkstra_heap.c` file, in the `src` directory. To avoid any problems in the compilation of the program, the `binheap.c` file containing the non-swap implementation of the binary heaps and the correspondent `binheap_no_swap.h` header file are inserted respectively in the `src` and `include` directories.

Ex.3

Test the implementations on a set of instances of the problem and compare their execution times.

In the following graph I reported performance tests performed on graphs of increasing size, plotting the execution times obtained running `./test_dijkstra`



It is clearly visible that, as expected, the heap version of the algorithm outperforms the array one.