

Sorting key-value pairs with a priority queue

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It is well known that one possibility to sort is to use a priority queue. In this problem set, we will

- implement a sorting algorithm using the priority queue provided by the standard library
- compare its performance to the sorting algorithm provided by the standard library

The task that is to be solved by both implementations is the following:

Input The first line of the input is the number n in decimal. Then follow n lines of pairs of numbers k_i, v_i .

Output n lines, the first with value $v_{\pi(1)}$, the second with $v_{\pi(2)}$ and so on. The order π is according to the keys: $k_{\pi(i)} \leq k_{\pi(j)}$ for $i < j$.

This task is available on codeJudge.

Besides the two implementations, you are required to

- design an experiment for comparing the efficiency of the two implementations
- report the results of the experiment as a graph
- discuss your findings

In your experiment, you can work with input that is generated inside the program instead of doing file I/O, and you can measure only the sorting step of the implementation.