

Задача 1. Намерете k-тия най-голям елемент в масив.

Задача 2. Създайте структура от данни, която да поддържа следните операции със съответните им сложности по време:

- Добавяне на елемент $O(\log(n))$
- Намиране на медианата на елементите от структурата $O(1)$

Задача 3. We have a collection of stones, each stone has a positive integer weight.

Each turn, we choose the two heaviest stones and smash them together. Suppose the stones have weights x and y with $x \leq y$. The result of this smash is:

- If $x = y$, both stones are totally destroyed;
- If $x \neq y$, the stone of weight x is totally destroyed, and the stone of weight y has new weight $y - x$.

At the end, there is at most 1 stone left. Return the weight of this stone (or 0 if there are no stones left.)

Задача 4. In a warehouse, there is a row of barcodes, where the i th barcode is `barcodes[i]`.

Rearrange the barcodes so that no two adjacent barcodes are equal. You may return any answer, and it is guaranteed an answer exists.

Input: [1, 1, 1, 2, 2, 2]

Output: [2, 1, 2, 1, 2, 1]