kth Best Athlete

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

You are given an array containing scores across different players in an Olympics sport. A higher score is desired in some sports, whereas in some sports, a lower score is desired (It is denoted by d, which can be 1 or 0). You have to find the kth Best Athlete.

Note that it is the k^{th} Best Athlete in the sorted order, not the k^{th} 'distinct' Best Athlete not in a distinct order.

Constraints: You are not allowed to use inbuilt sorting algorithms. (should be obvious)

Hint: Also there is a strict constraint on time and space, so you have to sort in $O(nlogn)$ and in place only.

Input

The first line contains three integers t, k, d denoting the number of players, the k^{th} best score we need to find and d (1 or 0) where 1 denotes higher score is better, and 0 denotes lower score is better. ($0 <= k <= t <= 10^5$)

The second line contains t space-separated integers indicating the player's scores.

Output

Output the single integer, representing the respective score. See sample cases for example.

Examples

standard input	standard output
10 3 1 1 2 3 4 5 6 7 8 9 10	8
10 3 0 1 2 3 4 5 6 7 8 9 10	3
5 1 1 4 3 3 1 4	4