Joy and Apples

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

Joy loves to eat Apples and he prefers to eat the one which have a bigger size. However he doesn't like the very big ones since they aren't that juicy. So he decides that he will eat the apple which is the not the largest but the $k'th$ largest available to him in his *magical* basket.

As soon as he eats an apple of a particular size another apple of the same size appears in his magical basket.

You are given an array of N apple sizes that are dropped in his magical basket one by one and you have to help Joy find the k'th largest apple he can eat at any given instance.

Input

The first line contains two integers $n - (1 \leq n \leq 10^5)$ and $k - (1 \leq k \leq 10^3)$.

The next line contains n space separated integers denoting the sizes of the apples that get dropped in his magical basket. $(1 \leq a[i] \leq 10^5)$.

Output

You have to output n space separated integers denoting the size of apply that Joy should eat at each step. If he can't eat any apple at any step print -1.

Example

standard input	standard output
6 4 1 2 3 4 5 6	-1 -1 -1 1 2 3

Note

There doesn't exist 4 apples till 3.

For 4, the 4th largest apple is 1.

For 5, the 4th largest apple is 2.

For 6, the 4th largest apple is 3.