Problem J : Cafebazaar's Applications

It's the end of the year, and Cafebazaar has released a list, containing the number of users of each of its n applications. Now, each application is eager to showcase its success through an advertisement image, which highlights a continuous subset of the application list containing the application itself. Also, for the image to be credible, it should contain at least k applications, including itself.

دیوار	15000000
بازاریاب	10000000
phanous	30000000
کارنامه	20000000
	200000
	70000000
	100000000

For each application in this list, we need to determine the minimum possible rank this application can achieve within any valid subset, according to the number of users. The rank of an application within a subset is defined by the number of applications in that subset that have more users than it, plus one.

Input

The first line of input consists of two integers n and k ($1 \leqslant k \leqslant n \leqslant 10^5$), where n represents the total number of applications and k represents the minimum number of applications in an advertisement image. The following n lines contain information about each application: the i^{th} line contain c_i, representing the number of users for the i^{th} application ($1 \leqslant c_i \leqslant 10^8$).

Output

In the only line of output print n space-separated integers. The i^{th} integer should be the minimum rank that i^{th} application can achieve within an advertisement image.

Example

Standard Input	Standard Output
7 3 15000000 10000000 30000000 20000000 200000 70000000 100000000	2 3 1 2 3 1 1

Standard Input	Standard Output
3 2 10 10 10	1 1 1