Kanjoos Pulak

time limit per test case: 2 seconds
memory limit per test case: 1 gigabyte

Pulak is giving a treat at JC. He wants to choose the cheapest item to give to his friends. His friends know his intentions, and make a deal with him.

There are N items available at JC, and their price is denoted by an array $P = [p_1, p_2, \ldots, p_N]$ of length N where p_i is the price of the i^{th} item. For a fixed integer M ($M \leq N$), Pulak's friends will randomly choose an integer i ($1 \leq i \leq N - M + 1$) and Pulak will choose the cheapest item of i^{th},$(i+1)^{th}$,...,$(i + M - 1)^{th}$ items to give to his friends.

Since the integer i is randomly chosen, Pulak wants to know the price of the cheapest item for **all possible values of** i.

He has an upcoming compilers deadline, and asks for your help. Please help Pulak, and you might get a treat too :)

Constraints

Subtask 1 (30 marks)

$1 \leq N \leq 10^3$
$1 \leq M \leq N$
$1 \leq p_i \leq 10^9$

Subtask 2 (70 marks)

$1 \leq N \leq 10^6$
$1 \leq M \leq N$
$1 \leq p_i \leq 10^9$

Input

The first line contains the integers N and M.
The next line contains N integers of the array P.
All A[i] can be stored inside an int variable

Output

The output should consist of a single line with (N-M+1) numbers, where the i^{th} number denotes the price of the cheapest of i^{th},$(i+1)^{th}$,...,$(i + M - 1)^{th}$ items.

Sample test cases

Test case 1

Input

5 3
15 32 27 21 33

Output

15 21 21

Test case 2

Input

10 4
14 1 2 31 74 23 84 62 17 1999

Output

1 1 2 23 23 17 17