# **Order exercises**



During a math class, a teacher wanted to practice ordering with students. He gave an array of N integers,  $a=\{a_1,a_2,\ldots,a_N\}$  to the students along with following definitions:

- ullet Subarray is a contiguous segment of array. For example  $a[l,r]=\{a_l,a_{l+1},\ldots,a_r\}$  is a subarray, where  $1\leq l\leq r\leq N$
- We say that a sum of a subarray is a sum of elements in this subarray
- We say that subarray  $X(=a[xl,xr]=\{a_{xl},a_{xl+1},\ldots,a_{xr}\})$  is greater than subarray  $Y(=a[yl,yr]=\{a_{yl},a_{yl+1},\ldots,a_{yr}\})$  if and only if:
  - ullet X has a greater sum than Y
  - ullet X and Y has the same sum and X begins earlier
  - ullet X and Y has the same sum, they start in the same place and the length of X is smaller than the length of Y

Since the teacher doesn't like number 0, there is no 0 in the array a. Other than array a, the teacher also gave an integer K. The task is to lists as many as possible, but not more than K, subarrays with a *positive* sum in the following order.

- The first subarray is the greatest subarray in the array according to above definition.
- The  $i^{th}$  subarray is the greatest subarray disjoint to any of the  $j^{th}$  subarray, where j < i (disjoint means that they have no common elements).

Of course in order to win with others, you have to solve the problem first.

#### Input

In the first line there are two integers N and K separated by a single space. In the second line there are N integers separated by single space denoting the array arr.

#### **Output**

Print no more than K lines. In the  $i^{th}$  line print the sum of the  $i^{th}$  sequence in the above order.

#### **Constraints**

$$egin{aligned} 1 & \leq N \leq 10^5 \ 1 & \leq K \leq N \ 0 & <|a_i| \leq 10^4, where \ i \in [1,N] \end{aligned}$$

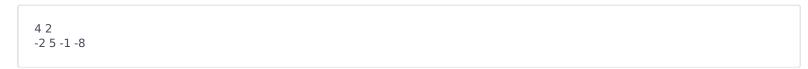
### Sample Input 00

# Sample Output 00

6 2

Subarray  $a[1,2]=\{a_1,a_2\}$  has sum 6 and this is the greatest value in the whole array. Next disjoint greatest subarray is  $a[4,4]=a_4$  with sum = 2. There are no more subsequences with a positive value disjoint with the first and the second subsequence.

## Sample Input 01



## **Sample Output 01**

5

## **Explanation**

Subarray  $a[2,2]=\{a_2\}$  has sum 5 and this is the greatest value in the whole array. There are no more subsequences with a positive value disjoint with the first one, so even if K=2, we print out just one value.

## **Tested by** Abhiranjan