Guvi and Subarrays

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

Guvi loves subarrays and wishes to find the k subarrays of the largest value of array A. The value of a subarray is the sum of the elements of that subarray. Help him in his quest by printing the values of k largest valued subarrays. A subarray is a contiguous set of elements. Output the values in descending order.

Input

The first line contains t, the number of test cases ($1 \leq t \leq 5$).
Then t testcases follow. Each testcase consists of 2 lines:
The first line contains 2 space separated integers n ($1 \leq t \leq 10^5$) and k ($1 \leq k \leq min(10^5, \frac{n*(n+1)}{2})$). n is the size of the array A.
The next line contains n integers denoting the elements of A ($1 \leq A_i \leq 10^9$).

Output

For each testcase, output k space separated integers denoting the answer.

Example

standard input	standard output
2 3 4 1 3 4 3 3 10 2 7	8 7 4 4 19 12 10

Note

In the first test case, the number of possible subarrays is 6. The values in descending order are 8 7 4 4 3 1.