Super Kth LIS

Given an array of N integers ($a_0, a_1, \ldots, a_{N-1}$), find all possible increasing subsequences of maximum length, L. Then print the lexicographically K^{th} longest increasing subsequence as a single line of space-separated integers; if there are less than K subsequences of length L, print -1.

Two subsequences $[a_{p_0}, a_{p_1}, \ldots, a_{p_{L-2}}, a_{p_{L-1}}]$ and $[a_{q_0}, a_{q_1}, a_{q_2}, \ldots, a_{q_{L-2}}, a_{q_{L-1}}]$ are considered to be *different* if there exists at least one i such that $p_i \neq q_i$.

Input Format

The first line contains 2 space-separated integers, N and K, respectively.
The second line consists of N space-separated integers denoting $a_0, a_1, \ldots, a_{N-1}$ respectively.

Constraints

- $1 \leq N \leq 10^5$
- $1 \leq K \leq 10^{18}$
- $1 \leq a_i \leq N$

Scoring

- $1 \leq N \leq 10^3$ for 30% of the test data.
- $1 \leq N \leq 10^5$ for 100% of the test data.

Output Format

Print a single line of L space-separated integers denoting the lexicographically K^{th} longest increasing subsequence; if there are less than K subsequences of length L, print -1.

Note: L is the length of longest increasing subsequence in the array.

Sample Input 0

```
5 3
1 3 1 2 5
```

Sample Output 0

```
1 3 5
```

Sample Input 1

```
5 2
1 3 2 4 5
```

Sample Output 1

```
1 3 4 5
```

Explanation

Sample Case 0:
The longest possible increasing subsequences in lexicographical order are:

1. $[1, 2, 5]$
2. $[1, 2, 5]$
3. $[1, 3, 5]$

Notice that the first and second subsequences appear the same; they are actually both *different* because the 1 in the first subsequence comes from array element a_0, and the 1 in the second subsequence comes from array element a_2. Because $K = 3$, we print the 3^{rd} one ($[1, 3, 5]$) as a single line of space-separated integers.

Sample Case 1:
The longest possible increasing subsequences in lexicographical order are:

1. $[1, 2, 4, 5]$
2. $[1, 3, 4, 5]$

Because $K = 2$, we print the 2^{nd} one ($[1, 3, 4, 5]$) as a single line of space-separated integers.