1012.Loop

Input file:	standard input
Output file:	standard output
Time limit:	2.5 seconds
Memory limit:	512 megabytes

You are given an array a of length n. You must perform exactly k times operations.

For each operation,

- First, you select two integers l, r $(1 \leq l \leq r \leq n)$,
- Second, change a to b, satisfy :
  - For each i $(1 \leq i < l)$, $b_i = a_i$;
  - For each i $(l \leq i < r)$, $b_i = a_{i+1}$;
  - $b_r = a_l$
  - For each i $(r < i \leq n)$, $b_i = a_i$;

Find the lexicographically largest possible array after k times operations.

Array x is lexicographically greater than array y if there exists an index i $(1 \leq i \leq n)$ such that $x_i > y_i$ and for every j $(1 \leq j < i)$, $x_j = y_j$.

Input

The first line of the input contains one integer T $(1 \leq T \leq 100$) — the number of test cases. Then T test cases follow.

The first line of the test case contains two integers n $(1 \leq n, k \leq 300000)$

The second line of the test case contains n integers $a_1, a_2, ..., a_n (1 \leq a_i \leq 300000)$

The sum of n over all testcases doesn't exceed 10^6.

The sum of k over all testcases doesn't exceed 10^6.

Output

For each testcase,one line contains n integers ,$a_1, a_2, ..., a_n$ — the lexicographically largest possible array after k times operations.

Example

standard input	standard output
2 7 3 1 4 2 1 4 2 4 5 2 4 3 5 4 5	4 4 2 4 2 1 1 5 4 5 4 3