F. Mentors

time limit per test: 3 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

In BerSoft n programmers work, the programmer i is characterized by a skill r_i.

A programmer a can be a mentor of a programmer b if and only if the skill of the programmer a is strictly greater than the skill of the programmer b ($r_a > r_b$) and programmers a and b are not in a quarrel.

You are given the skills of each programmers and a list of k pairs of the programmers, which are in a quarrel (pairs are unordered). For each programmer i, find the number of programmers, for which the programmer i can be a mentor.

Input

The first line contains two integers n and k (2 ≤ n ≤ 2 · 10^5, 0 ≤ k ≤ min — total number of programmers and number of pairs of programmers which are in a quarrel.

The second line contains a sequence of integers r_1, r_2, \dots, r_n (1 \le r_i \le 10^{9}), where r_i equals to the skill of the i-th programmer.

Each of the following k lines contains two distinct integers x, y (1 \le x, y \le n, x \ne y) — pair of programmers in a quarrel. The pairs are unordered, it means that if x is in a quarrel with y then y is in a quarrel with x. Guaranteed, that for each pair (x, y) there are no other pairs (x, y) and (y, x) in the input.

Output

Print n integers, the i-th number should be equal to the number of programmers, for which the i-th programmer can be a mentor. Programmers are numbered in the same order that their skills are given in the input.

Examples

input
4 2 10 4 10 15 1 2 4 3
output
0 0 1 2

input
10 4 5 4 1 5 4 3 7 1 2 5 4 6 2 1 10 8 3 5
output
5 4 0 5 3 3 9 0 2 5

Note

In the first example, the first programmer can not be mentor of any other (because only the second programmer has a skill, lower than first programmer skill, but they are in a quarrel). The second programmer can not be mentor of any other programmer, because his skill is minimal among others. The third programmer can be a mentor of the second programmer. The fourth programmer can be a mentor of the first and of the second programmers. He can not be a mentor of the third programmer, because they are in a quarrel.