# D. Swaps in Permutation

time limit per test: 5 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given a permutation of the numbers $1, 2, ..., n$ and $m$ pairs of positions $(a_j, b_j)$.

At each step you can choose a pair from the given positions and swap the numbers in that positions. What is the lexicographically maximal permutation one can get?

Let $p$ and $q$ be two permutations of the numbers $1, 2, ..., n$. $p$ is lexicographically smaller than the $q$ if a number $1 \le i \le n$ exists, so $p_k = q_k$ for $1 \le k < i$ and $p_i < q_i$.

## Input

The first line contains two integers $n$ and $m$ ($1 \le n, m \le 10^6$) — the length of the permutation $p$ and the number of pairs of positions.

The second line contains $n$ distinct integers $p_i$ ($1 \le p_i \le n$) — the elements of the permutation $p$.

Each of the last $m$ lines contains two integers $(a_j, b_j)$ ($1 \le a_j, b_j \le n$) — the pairs of positions to swap. Note that you are given a `positions`, not the values to swap.

## Output

Print the only line with $n$ distinct integers $p'_i$ ($1 \le p'_i \le n$) — the lexicographically maximal permutation one can get.

### Example

| input |
| --- |
| 9 6<br>1 2 3 4 5 6 7 8 9<br>1 4<br>4 7<br>2 5<br>5 8<br>3 6<br>6 9 |

| output |
| --- |
| 7 8 9 4 5 6 1 2 3 |