Problem A. Total Eclipse

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

There are n cities and m bidirectional roads in Byteland. These cities are labeled by $1, 2, \ldots, n$, the brightness of the i-th city is b_i.

Magician Sunset wants to play a joke on Byteland by making a total eclipse such that the brightness of every city becomes zero. Sunset can do the following operation any number of times:

- Remove all the cities with zero brightness from consideration.
- Select an integer k $(1 \le k \le n)$.
- Select k distinct unremoved cities $c_1, c_2, \ldots, c_k$ $(1 \le c_i \le n)$ such that they are connected with each other. In other words, for every pair of distinct selected cities c_i and c_j $(1 \le i < j \le k)$, if you are at city c_i, you can reach city c_j without visiting cities not in $\{c_1, c_2, \ldots, c_k\}$.
- For every selected city c_i $(1 \le i \le k)$, decrease b_{c_i} by 1.

Sunset will always choose the maximum possible value of k for each operation. Now Sunset is wondering what is the minimum number of operations he needs to do, please write a program to help him.

Input

The first line contains a single integer T $(1 \le T \le 10)$, the number of test cases. For each test case:

The first line contains two integers n and m $(1 \le n \le 100\,000,\ 1 \le m \le 200\,000)$, denoting the number of cities and the number of roads.

The second line contains n integers $b_1, b_2, \ldots, b_n$ $(1 \le b_i \le 10^9)$, denoting the brightness of each city.

Each of the following m lines contains two integers u_i and v_i $(1 \le u_i, v_i \le n,\ u_i \ne v_i)$ denoting a bidirectional road between the u_i-th city and the v_i-th city. Note that there may be multiple roads between the same pair of cities.

Output

For each test case, output a single line containing an integer: the minimum number of operations.

Example

standard input	standard output
1 3 2 3 2 3 1 2 2 3	4