



## Erasmus

Mouse Stofl is sick of being pushed around by his fellow gang members, so he decides to start his own gang. Stofl knows the famous proverb *in regione caecorum rex est luscus* as stated by Erasmus in 1500. In English, this translates as *in the land of the blind, the one-eyed man is king*. Stofl interprets it as *less talented mice will respect and obey the more gifted ones*. As it happens, all mice can see just fine, except Fred who lost his eyes during a fight against a cat. In order to get the largest possible group of followers, Stofl has to think of another talent to impress.

Unfortunately, social conventions make it impossible for Stofl to walk around bragging about his talent, because no one likes an arrogant prick. Stofl decides that he will show his talent to only one mouse and hope that it tells other mice about his talent.

There are  $T$  independent talents. For each of the  $N$  mice, you know its talent value of each talent. For a given talent, a mouse is better than another if the talent value is strictly larger.

You also know which mice like each other ("liking" is symmetric, if  $a$  likes  $b$ , then also  $b$  likes  $a$ ). If a mouse learns about one of Stofl's talents and if Stofl is better than that mouse, it is impressed and tells all mice it likes about it. Those can also get impressed and tell their friends and so on.

Help Stofl to choose the talent he is likely to impress the largest number of mice. You must find out which talent and how large the clique will be. The first talent has index 0. If there are multiple talents which lead to a largest clique, choose the one with the smallest index.

### Input

The first line contains three numbers  $N$ ,  $M$  and  $T$ .

The next line contains  $T$  numbers, the  $k$ -th of which describes Stofl's talent value for talent  $k$ .

$N - 1$  lines follow with  $T$  numbers each. The  $i$ -th of those lines contains the talent values for the  $i$ -th mouse (excluding Stofl).

The last  $M$  lines are two numbers  $a$  and  $b$  ( $1 \leq a, b < N, a \neq b$ ), the pairs of mice who like to each other.

### Output

Expected are two numbers. The first tells which talent he should choose, the second how many mice will be impressed.

### Limits

There are 5 test cases, each worth 20 points.

- In test case 1 the limits are:  $N \leq 10, M \leq 10, T \leq 3$
- In test case 2 the limits are:  $N \leq 100, M \leq 100, T \leq 10$
- In test case 3 the limits are:  $N \leq 100, M \leq 1000, T \leq 10$
- In test case 4 the limits are:  $N \leq 10\,000, M \leq 10\,000, T \leq 100$
- In test case 5 the limits are:  $N \leq 2000, M \leq 2000, T \leq 1000$

The talent value is always a positive integer smaller than  $2^{31}$



## Example

Input	Output
9 10 2 2 4 8 4 1 5 8 7 1 2 6 3 7 9 4 5 1 5 1 4 1 5 2 4 2 5 3 5 3 7 3 8 4 6 4 7 6 7	0 2

Stofl choses talent 0 and shows it to mouse 4. In the end, 2 mice are impressed (2 and 4). The input is visualized below, the clique is highlighted in gray.

