Training the army

by vlade087

In the magical kingdom of Kasukabe, people strive to possess only one skillset. Higher the number of skillset present among the people, the more content people will be.

There are N types of skill set present and initially there exists C_i people possessing i^{th} skill set, where $i \in [1, N]$.

There are T wizards in the kingdom and they have the ability to transform the skill set of a person into another skill set. Each of the these wizards has two list of skill sets associated with them, A and B. He can only transform the skill set of person whose initial skill set lies in list A and that final skill set will be an element of list B. That is, if $A = [2, 3, 6]$ and $B = [1, 2]$ then following transformation can be done by that trainer.

$$2 \rightarrow 1$$
$$2 \rightarrow 2$$
$$3 \rightarrow 1$$
$$3 \rightarrow 2$$
$$6 \rightarrow 1$$
$$6 \rightarrow 2$$

Once a transformation is done, both skill is removed from the respective lists. In the above example, if he perform $3 \rightarrow 1$ transformation on a person, list A will be updated to $[2, 6]$ and list B will be $[2]$. This updated list will be used for next transformation and so on.

Few points to note are:

- A wizard can perform 0 or more transformation as long as they satisfies the above criteria.
- A person can go through multiple transformation of skill set.
- Same class transformation is also possible. That is a person' skill set can be transformed into his current skill set. Eg. $2 \rightarrow 2$ in the above example.

Your goal is to design a series of transformation which results into maximum number of skill set with non-zero acquaintance.

Input Format

The first line contains two numbers, $N\ T$, where N represent the number of skill set and T represent the number of wizards.
Next line contains N space separated integers, $C_1\ C_2\ \ldots\ C_N$, where C_i represents the number of people with i^{th} skill. Then follows $2 \times T$ lines, where each pair of line represent the configuration of each wizard.
First line of the pair will start with the length of list A and followed by list A in the same line. Similarly second line of the pair starts with the length of list B and then the list B.

Constraints

- $1 \leq N \leq 200$
- $0 \leq T \leq 30$
- $0 \leq C_i \leq 10$
- $0 \leq |A| \leq 50$
- $1 \leq A_i \leq N$
- $A_i \neq A_j, 1 \leq i < j \leq |A|$

- $0 \leq |B| \leq 50$
- $1 \leq B_i \leq N$
- $B_i \neq B_j, 1 \leq i < j \leq |B|$

Output Format

The output must consist of one number, the maximum number of distinct skill set that can the people of country learn, after making optimal transformation steps.

Sample Input

```
3 1
3 0 0
1 1
2 2 3
```

Sample Output

```
2
```

Explanation

There are 3 types of skill sets present and only 1 wizard. Initially, all three people know the 1^{st} skill set but no one knows the 2^{nd} and 3^{rd} skill sets. The wizard's initial lists are: $A = [1]$ and $B = [2, 3]$. He can perform any of the $1 \rightarrow 2$ *or* $1 \rightarrow 3$ transformations. If he goes for a $1 \rightarrow 2$ transformation on any of person with the 1^{st} skill set, then list A will be updated to an empty list $[]$ and list B will be $[3]$. At this point, no further transformations are possible as list A is empty. Thus, there will be two people with the 1^{st} skill set, and 1 person with the 2^{nd} skill set. This means there are two skill sets available in the kingdom.