Training the army

In the magical kingdom of Kasukabe, people strive to possess skillsets. 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 **lists** of skill sets associated with them, A and B. He can only transform the skill set of person whose initial skill set belongs to the list A to one of the final skill set which belongs to the 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 further transformations.

Few points to note are:

- One person can possess only one skill set.
- A wizard can perform zero 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 number of people knowing it.

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

Sample Output

```
2
```

Explanation

There are 3 types of skill sets present along with 3 wizards. Initially, all three people know the 1^{st} skill set but no one knows the 2^{nd} and 3^{rd} skill sets.

The 1^{st} wizard's initial lists are: $A = [1]$ and $B = [2, 3]$. Suppose, he performs $1 \rightarrow 2$ transformation one any one of person with the 1^{st} skill set, then it's list A will be updated to an empty list [] and list B will be $[3]$.
Now, we have two people knowing the 1^{st} skill set and one person knowing the 2^{nd} skill set.

The 3^{rd} wizard's initial lists are: $A = [1]$ and $B = [2]$. He will use the transformation $1 \rightarrow 2$ one of the person with the 1^{st} skill set, then it's lists will also be updated to an empty lists A: [] and B: [].

Now, we have 1 person with 1^{st} skillset and and 2 people knowing the 2^{nd} skillset.

The 2^{nd} wizard's initial lists are: $A = [2]$ and $B = [3]$. He will transform one of the person with 2^{nd} skillset to 3^{rd} one using the transformation $2 \rightarrow 3$. It's lists will also be updated to an empty lists A: [] and B: [].
At this point, no further transformations are possible and we have achieved our maximum possible answer. Thus, each of the skill set, is known by 1 person.. This means there are three skill sets available in the kingdom.