

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 these wizards has two **lists** of skill sets associated with them, A and B . He can only transform the skill set of a 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.

$$\begin{aligned} 2 &\rightarrow 1 \\ 2 &\rightarrow 2 \\ 3 &\rightarrow 1 \\ 3 &\rightarrow 2 \\ 6 &\rightarrow 1 \\ 6 &\rightarrow 2 \end{aligned}$$

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's 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, $C_1 C_2 \dots C_N$, 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 **1st** skill set but no one knows the **2nd** and **3rd** skill sets.

The **1st** 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 **1st** 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 **1st** skill set and one person knowing the **2nd** skill set.

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

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

The **2nd** wizard's initial lists are: $A = [2]$ and $B = [3]$. He will transform one of the person with **2nd** skillset to **3rd** 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.