



# Training the army

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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 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,  $C_1 C_2 \dots C_N$ , 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 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<sup>st</sup>** skill set but no one knows the **2<sup>nd</sup>** and **3<sup>rd</sup>** skill sets. The wizard's initial lists are: **A** = [1] and **B** = [2, 3]. He can perform any of the **1 → 2** or **1 → 3** transformations. If he goes for a **1 → 2** transformation on any of person with the **1<sup>st</sup>** 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<sup>st</sup>** skill set, and **1** person with the **2<sup>nd</sup>** skill set. This means there are two skill sets available in the kingdom.

f t in

Submissions: 274

Max Score: 120

Difficulty: Hard

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☆☆☆☆☆

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Current Buffer (saved locally, editable)  

Java 7



```
1 import java.io.*;
2 import java.util.*;
3 import java.text.*;
4 import java.math.*;
5 import java.util.regex.*;
6
7 public class Solution {
8
9     public static void main(String[] args) {
10         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11     }
12 }
```

Line: 1 Col: 1

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