ShaKer 2019 Coding Battle

E. « Perilous move »

Problem

Year 2577 of the stellar calendar. After 300 years of hard work, the big super galactic highway is nearly finished. With this construction, every part of the galaxy is going to be reachable in a split of a second. But there remains a massive problem : the last part to be built that links the Earth to whole Universe, passes through the Blorggozork planet. To end the construction, one last difficult step is needed : to move the inhabitants onto the next planet, Zorkgoblorg. It is not going to be easy : the inhabitants, blorgs and zorks have always been at war since thousands of years.

Your spaceships, small and inconvenient

Thankfully, the intergalactic council can rely on its superheroines to resolve the problem. In the rush, they formed M mediators, with the ability to reconcile blorgs and zorks for a short period of time. The task is complex, so **one mediator can only take in charge some blorgs and some zorks.**. The mediators came with their own relocation spaceship : each of them has a number of seats $1 \leq P \leq 10^4$, including the mediator and the pilot. One spaceship **can lift off if it is not full**, but it needs to be balanced to avoid any conflict : it always needs to have **the same number of blorgs and zorks.**

These spaceships are special. When needed, **two spaceship or more** can be linked to make a convoy. With that we obtain a meta spaceship **that is controlled by every mediator that is a part of it**, and the number of seats equals to the sum of the number of seats of each spaceship. To check in, a traveler (blorg or zork) has to be accepted by **every** mediator that is on board (each of them needs to be specialized in taking care of him).

With your M mediators and their spaceships, the intergalactic council asked you to **find how many inhabitants you can evacuate** (so that they can eventually send you reinforcement).

Input

— On the first line separated by spaces, 3 integers $1 \leq B \leq 200$, $1 \leq M \leq 200$, $1 \leq Z \leq 200$: the **number of blorgs**, the **number of mediators** and the **number**

of zorks ;
Then, for each mediator M :

— On the first line, an integer $1 \leq P \leq 10^4$, the number of seats (including the seat for the pilot, himself) in the spaceship of the mediator. **P is always odd.**
— On the second line, separated by spaces, 2 integers $1 \leq SB \leq B$, $1 \leq SZ \leq Z$: the **number of blorgs** and the **number of zorks** that the mediator can reconcile ;
— On the third line, separated by spaces, SB integers $1 \leq B_i \leq B$: the **ids of the blorgs** (ranging from 1 to B) that the mediator can reconcile ;
— On the fourth line, separated by spaces, SZ integers $1 \leq Z_i \leq Z$: the **ids of the zorks** (ranging from 1 to Z) that the mediator can reconcile.

Output

— An integer : the maximum amount of inhabitants that we can move.

Examples

Example 1

Input
3 2 3 3 2 1 1 2 3 3 1 1 3 3

Output
2

In this first example, we can only move 2 inhabitants. We can only get on board either :
— blorg 1, mediator 1 and zork 3
— blorg 2, mediator 1 and zork 3
— blorg 3, mediator 2 and zork 3

Example 2

Input
3 2 2 3 1 1 1 1 5 2 1 2 3 2

Output
4

In the second example, four inhabitants can lift off. We can have a first spaceship with blorg 1, mediator 1 and zork 1 and the second spaceship with blorg 2, mediator 2 and zork 2.

Example 3

Input
2 1 2 5 2 2 1 2 1 2

Output
4

In the third example, all of the inhabitants can move : there is 5 seat in the spaceship and the only mediator is compatible with every inhabitant.