

# Gin & Tonic

## Problem ID: gintonic

It is once again time for the "Klub of Allergenic Tonic Tasters In Scrollbar" (KATTIS) to gather for their annual tonic tasting seance, where people with all kinds of exotic allergies will be attending.

You are the bartender for the night, and have been tasked with serving non-lethal drinks for the entire party. The Tonic Tasters should not be served just any drink – tonight it's just Gin and Tonics!

The KATTIS guests know how difficult it can be to find a safe drink, and have provided you with a list of their allergies in advance. In addition, given the wide variety of gins and tonic you serve, you only have a limited supply of each type of gin and tonic. You need to figure out how many attendees can receive a G&T that is safe for them to enjoy.



The "Klub of Allergenic Tonic Tasters In Scrollbar" as imagined by Midjourney.

Specifically, you have  $n$  members attending the KATTIS party, each with a list of  $m_i$  allergens they are allergic to. You also have  $g$  types of gin and  $i$  types of tonic available to serve. For each type of gin and tonic, you know the list of allergens it contains as well as the available supply.

A gin and tonic pair  $(j, r)$  is safe for a member  $p$  if and only if none of the allergens of  $j$  and  $r$  are contained in the allergens of  $p$ .

Your task is to find the maximum number of allergenic attendees who can receive a safe-to-drink G&T.

## Input

The input consists of the following:

- Three integers  $g$  ( $1 \leq g \leq 100$ ),  $i$  ( $1 \leq i \leq 100$ ) and  $n$  ( $1 \leq n \leq 10^4$ ), the number of gins, tonics and members attending the KATTIS party.
- For each gin  $G_i$  an integer  $\ell_j$  ( $1 \leq \ell_j \leq 10^5$ ), the amount of gin in units, followed by a list ( $0 \leq \text{length} \leq 10$ ), consisting of space separated names representing the allergens present in gin  $g_i$ .
- For each tonic  $t_i$  an integer  $\ell_r$  ( $1 \leq \ell_r \leq 10^5$ ), the amount of tonic in units, followed by a list ( $0 \leq \text{length} \leq 10$ ), consisting of space separated names representing the allergens present in tonic  $t_i$ .
- For each member  $n_i$ , an alphanumeric name of at most length 10 followed by a space separated list ( $0 \leq \text{length} \leq 10$ ) of the allergens they are allergic to.

## Output

You should output a single integer, the maximum number of party guests that can receive a drink without anyone being exposed to any allergen they are allergic to.

**Sample Input 1**

```
3 4 5
2 lactose cucumber
2 cucumber caffeine
1 lactose caffeine
2 lactose
2 cucumber lactose
1 caffeine
1 cucumber caffeine
hans lactose
peter lactose
george lactose cucumber
patrick lactose caffeine
lucas cucumber caffeine
```

**Sample Output 1**

```
2
```

**Sample Input 2**

```
3 3 3
2 citrus
2 coffee
1
2 grass
1 avocado
1 coffee
alice coffee
jac0b
suzanne grass citrus cucumber
```

**Sample Output 2**

```
3
```