

# CCC '22 S2 - Good Groups

Time Limit: 4.0s    Memory Limit: 1G

## Canadian Computing Competition: 2022 Stage 1, Junior #4, Senior #2

A class has been divided into groups of three. This division into groups might violate two types of constraints: some students must work together in the same group, and some students must work in separate groups.

Your job is to determine how many of the constraints are violated.

## Input Specification

The first line will contain an integer  $X$  with  $X \geq 0$ . The next  $X$  lines will each consist of two different names, separated by a single space. These two students *must* be in the same group.

The next line will contain an integer  $Y$  with  $Y \geq 0$ . The next  $Y$  lines will each consist of two different names, separated by a single space. These two students *must* not be in the same group.

Among these  $X + Y$  lines representing constraints, each possible pair of students appears at most once.

The next line will contain an integer  $G$  with  $G \geq 1$ . The last  $G$  lines will each consist of three different names, separated by single spaces. These three students have been placed in the same group.

Each name will consist of between 1 and 10 uppercase letters. No two students will have the same name and each name appearing in a constraint will appear in exactly one of the  $G$  groups.

The following table shows how the available 15 marks are distributed at the Senior level.

Marks Awarded	Marks Awarded	Marks Awarded
3 marks	$G \leq 50$	$X \leq 50$ and $Y = 0$
5 marks	$G \leq 50$	$X \leq 50$ and $Y \leq 50$
7 marks	$G \leq 100000$	$X \leq 100000$ and $Y \leq 100000$

## Output Specification

Output an integer between 0 and  $X + Y$  which is the number of constraints that are violated.

## Sample Input 1

```
1
ELODIE CHI
0
2
DWAYNE BEN ANJALI
CHI FRANCOIS ELODIE
```

## Output for Sample Input 1

```
0
```

## Explanation of Output for Sample Input 1

There is only one constraint and it is not violated: `ELODIE` and `CHI` are in the same group.

## Sample Input 2

```
3
A B
G L
J K
2
D F
D G
4
A C G
B D F
E H I
J K L
```

## Output for Sample Input 2

```
3
```

## Explanation of Output for Sample Input 2

The first constraint is that `A` and `B` must be in the same group. This is violated.

The second constraint is that **G** and **L** must be in the same group. This is violated.

The third constraint is that **J** and **K** must be in the same group. This is not violated.

The fourth constraint is that **D** and **F** must not be in the same group. This is violated.

The fifth constraint is that **D** and **G** must not be in the same group. This is not violated.

Of the five constraints, three are violated.