Problem: Balanced Courses Assignments

Description

At the beginning of the semester, the head of a computer science department D have to assign courses to teachers in a balanced way. The department D has m teachers T={1,2,...,m} and n courses C={1,2,...,n}. Each teacher t∈T has a preference list which is a list of courses he/she can teach depending on his/her specialization. We known a list of pairs of conflicting two courses that cannot be assigned to the same teacher as these courses have been already scheduled in the same slot of the timetable. The load of a teacher is the number of courses assigned to her/him. How to assign nn courses to mm teacher such that each course assigned to a teacher is in his/her preference list, no two conflicting courses are assigned to the same teacher, and the maximal load is minimal.

Input

The input consists of following lines

- Line 1: contains two integer m and n (1≤m≤10, 1≤n≤30)

- Line i+1: contains an positive integer k and k positive integers indicating the courses that teacher i can teach (∀i=1,...,m)

- Line m+2: contains an integer k

- Line i+m+2: contains two integer i and j indicating two conflicting courses (∀i=1,...,k)

Output

The output contains a unique number which is the maximal load of the teachers in the solution found and the value -1 if not solution found.

Example

Input

4 12

5 1 3 5 10 12

5 9 3 4 8 12

6 1 2 3 4 9 7

7 1 2 3 5 6 10 11

25

1 2

1 3

1 5

2 4

2 5

2 6

3 5

3 7

3 10

4 6

4 9

5 6

5 7

5 8

6 8

6 9

7 8

7 10

7 11

8 9

8 11

8 12

9 12

10 11

11 12

Output

3

Sample TestCase

C 17 ▾

```
1  │  Write your Source code here
```

Source code

C 17 ▼

```c
//C
#include <stdio.h>

int main()
{

}
```

SUBMIT CODE

Or

C 17   ▾   Select file

SUBMIT

🔍 Tìm kiếm   ✕   ↺

ID	Bài tập	Trạng thái	Message	Điểm	Ngôn ngữ	Số test case	Thời gian

Không có bản ghi nào để hiển thị

5 hàng ▾ |< ‹   0-0 của 0   › >|