

Round C APAC Test 2016

[A. gRanks](#)

[B. gFiles](#)

C. gGames

[D. gMatrix](#)

Questions asked **2**

Submissions

gRanks

6pt	Not attempted 1263/2254 users correct (56%)
10pt	Not attempted 923/1243 users correct (74%)

gFiles

9pt	Not attempted 529/1189 users correct (44%)
17pt	Not attempted 222/493 users correct (45%)

gGames

10pt	Not attempted 85/221 users correct (38%)
18pt	Not attempted 13/44 users correct (30%)

gMatrix

11pt	Not attempted 826/1065 users correct (78%)
19pt	Not attempted 157/549 users correct (29%)

Top Scores

johngs	100
cchao	100
NAFIS	100
exprosic	100
orenguy	83
nhho	82
yaray	82
BananaTree	82
mkrjn99	82
tapasjain	82

Problem C. gGames

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](#) to get started.

Small input
10 points

Solve C-small

Large input
18 points

Solve C-large

Problem

The country of elves is planning to hold an elimination tournament, and there are 2^N elves who would like to take part. At the start of the tournament, they will be given unique ID numbers from 1 to 2^N , and the Elf President will line them up in some order.

The tournament is a series of matches between two elves, and every match has one winner and one loser (there are no ties). In the first round, the first elf in the line competes against the second elf in the line, the third elf competes against the fourth elf, and so on. After the first round, the 2^{N-1} elves who lost leave the line, and the 2^{N-1} elves who won remain where they are. Then, the remaining elves play the second round in the same way: the first remaining elf in the line competes against the second remaining elf in the line, the third remaining elf competes against the fourth remaining elf, and so on. After N rounds, there will be only one elf remaining, and that elf is the winner.

M of the elves are sensitive, which means that they will be very sad if they have to compete in matches against their friends during the games. Specifically, the i th elf will be sad if they have to compete with their friends in the first K_i rounds. (Note that friendship is not necessarily mutual: if one elf considers another elf to be a friend, the other elf does not necessarily consider that elf to be a friend.)

The Elf President wants to know: is there a way to specify the initial positions of all 2^N elves to guarantee that no elf will be sad, no matter what happens in the tournament?

Input

The first line of the input gives the number of test cases, T . T test cases follow. Each test case consists of one line with two integers N and M , then M sets of two lines each, in which the first line has integers E_i , K_i , and B_i for one elf, and the second has B_i integer ID numbers of that elf's friends.

Output

For each test case, output one line containing "Case #x: ", where x is the case number (starting from 1), followed by YES or NO.

Limits

$1 \leq T \leq 200$.
 $0 \leq M \leq 2^N$.
 $1 \leq E_i \leq 2^N$.
 $1 \leq K_i \leq N$.
 $M \leq \sum(B_i) \leq \min(2 * M, 2^N)$.

Small dataset

$1 \leq N \leq 3$.

Large dataset

$N = 4$.

Sample

Input	Output
3	Case #1: NO
1 1	Case #2: YES
1 1 1	Case #3: YES
2	
2 2	
1 1 1	
2	
3 1 1	
4	

```
3 3
1 2 2
3 4
2 2 2
5 6
7 1 1
8
```

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