Competitive Programming SS24

Submit until end of contest

Problem: indiana (1.0 second timelimit)

Famous archaeologist and adventurer Indiana Jones has taken the dangerous task of finding the original cup awarded to Uruguay at the first FIFA World Cup in 1930 onto himself. His search has led him to an ancient underground cave system Many traps guard these caves, and only his instinct and his faithful whip have saved Indy from certain death. Now he has reached a mysterious gate that is shut close.

The gate is riddled with switches and levers, all of them are denoted with letters and numbers. As you may have guessed, the gate will only open if the switches and levers are pulled in the correct order, but beware! For if anyone is unlucky enough to get the order wrong, doom awaits him. Luckily, during his exploration of the caves Indy has found several encrypted hints which provide clues about the correct sequence. Here's one: "The faithful knows that X comes before O" And another: "Under no circumstances should you touch A unless B has been moved!" Clearly these clues give hints about the correct order, but there are a lot of switches and levers, and there are lots of clues. Indy needs help!

Given all of the hints Indy has collected, can you help him determine the correct order of the levers and switches so that he can successfully complete his adventure? But beware, Indy could have missed some hints; or perhaps he misinterpreted some of them. The former case will likely leave more than one possible sequence while the latter may lead to no possible sequence at all. You must detect these cases and warn Indy.

Input The first line of input contains the number of test cases t ($1 \leq t \leq 30$). For each test case there is one line with the number n ($1 \leq n \leq 10^4$) of switches/levers on the gate and the number h ($0 \leq h \leq 10^5$) of hints that Indy has discovered. Then h lines follow, one for each clue, with the numbers a and b ($1 \leq a, b \leq n, a \neq b$), meaning that lever a must be pulled before lever b. The sum of h over all test cases does not exceed 10^6.

Output For each test case output one line with the correct sequence of the numbers 1 to n. Separate the numbers with a whitespace. If there is no possible sequence, print `recheck hints` instead. Otherwise, if there are multiple possible sequences, print `missing hints`.

Sample input

```
3
3 2
1 2
3 1
3 1
1 2
3 2
1 2
2 1
```

Sample output

```
3 1 2
missing hints
recheck hints
```