Reindeers & Elves
Problem ID: work

You're about to go home for Christmas, but you've been urgently paged by the Claus's to solve a dilemma.

"Every year, " Mrs. Claus says, "in Santa's workshop, there are r reindeers and e elves that work together in harmony."

However, she explains, this year, the reindeers and elves have been quabbling amongst themselves, and now the reindeers claim that they will only work with certain elves. Unfortunately, even whilst working their tiffs continue, and so the reindeers' preferences change by the hour. Thus, for each hour, a reindeer will only work with one elf out of its preferred elves. In turn, an elf can work with at most one reindeer each hour. And both must work in pairs, which will allow them to make and deliver up to 25 gifts per hour.

Given a gift quota g, determine whether this quota can be met based on the given reindeer schedule and their preferred elves. Note that not all reindeers are available at every hour. For example, reindeer 1 may be available at hours 1, 2, 3, 4 and reindeer 2 may be available at hours 1, 3.

Input

The first line of input contains 3 integers r, e, g ($1 \leq r \leq 9$ and $1 \leq e \leq 25\,000$ and $0 \leq g \leq 18\,446\,744\,073\,709\,551\,615$) as defined in the problem. For all r reindeers, there is a reindeer id number ($1 \leq 9$) differentiating the reindeers. For each reindeer id, there are hours h ($1 \leq 24$) lines, with the first number being h, and the next number being elf ids ($1 \leq 25\,000$) that a reindeer can work with. A separate line containing 0 marksthe end of a reindeers preferences list.

Output

Output "possible" if the gift quota can be met, or "impossible" if not.

Sample Input 1

```
1 2 50
1
1 1 2
2 1 2
0
```

Sample Output 1

```
possible
```

Sample Input 2

```
2 2 200
1
1 1
2 2
3 1
4 2
0
2
1 2
2 1
3 2
4 1
0
```

Sample Output 2

```
possible
```

Sample Input 3

```
3 2 500
1
1 1
2 1
3 1
0
2
1 2
2 1
0
3
1 2
2 2
0
```

Sample Output 3

```
impossible
```