

NOI '02 P2 - Naughty Kid

Time limit: 5.0s **Memory limit:** 512M

A group of children were playing games on the lawn, and a curious passer came over and they had the following conversation:

"Children, what game are you playing?"

"One of us is the referee, and the rest are divided into two teams: N people on the Star team, and M people on the Moon team. If you guess who the referee is, I'll tell you what game we're playing."

"Alright, can I ask for hints?"

"Of course. You can ask us if someone belongs to a certain team, but you can't ask if someone is a referee. The Star team's members always tell the truth when asked; the Moon team's members always tell the lie. The referee, when you ask him an odd number of times, he will tell the truth, and the even number of times he will tell the lies."

"Okay. Can I ask any question?"

"You're not allowed to ask anyone questions about himself. For example, you're not allowed to ask me: 'Are you from the Star team?' And you can't ask anyone a question about the same person twice. For example, if you've asked me if Dingding is from the Star team, you can no longer ask me if Dingding is from the Moon team. Lastly, please try not to ask the same person too many questions, because he has to continue playing and has no time to answer your questions."

This passer was smart enough to not only guess who the referee was, but also tell which team everyone else was on. Can you write a program that does the same job?

Interaction

This is an interactive problem. The interactor has three operations:

- `GetNM`: This operation should be called once at the beginning and return the value of N and M , respectively. ($2 \leq N + M \leq 500$).
- `Ask Child1 Child2 T`: It is used to query the child Child1 "Does Child2 belong to the T team", where T is either 0 or 1, T is 0 for the Star team, and 1 for the Moon team. If the interactor returns 1, it means Child1 answered "Yes"; if the interactor returns 0, it means Child1 answered "No". ($1 \leq \text{Child1}, \text{Child2} \leq N + M + 1$), $\text{Child1} \neq \text{Child2}$.
- `Answer Ans`: It should be called $N + M + 1$ times consecutively, starting from 1 to $N + M + 1$, to output the role of each child in order. The value of parameter Ans is 0, 1 or 2. 0 for the Star team, 1 for the Moon team, and 2 for the referee. Terminate your program immediately after calling this operation $N + M + 1$ times.

Sample Interaction

`>>>` denotes your output; don't actually print this out.

```

>>> GetNM
1 1
>>> Ask 1 2 0
0
>>> Ask 2 1 0
1
>>> Ask 3 1 1
0
>>> Answer 2
>>> Answer 1
>>> Answer 0

```

Explanation

Operation	Return Value	Explanation
GetNM	1 1	There is one member in the Star team and one member in the Moon team.
Ask 1 2 0	0	Child1 said Child2 is not a member of the Star team.
Ask 2 1 0	1	Child2 said Child1 is a member of the Star team.
Ask 3 1 1	0	Child3 said Child1 is not a member of the Moon team.
Answer 2	None	Child1 is the referee.
Answer 1	None	Child2 is a member of the Moon team.
Answer 0	None	Child3 is a member of the Star team.

Scoring

1. You only guessed who is the referee correctly. In this case, if you ask a child more than three (including three) questions, then you can only get 40% of the points, otherwise, you can get 60% of the points;
2. You guessed who is the referee and which team each of the remaining children belongs to correctly. In this case, if you ask a child more than three (including three) questions, then you can only get 70% of the points, otherwise, you will get full marks for that test case.