Problem C
Formik Game
Time Limit: 1 second

In the far future, Fantastic Planet is preparing for an attack on the homeland of an alien race, called the Formik. Gifted children from all over the Fantastic Planet are recruited for trainings to become commanders for the new fleet of this attack.

At the end of the training, the two best students, Einder and Stilzon, compete each other in a game, called The Formik Game, to determine the commander of the fleet. The game simulates the battlefields in two zones of Formik planet. The detailed description of the game is as follows:

- The battlefields and roads in each zone form a directed acyclic graph. In each zone, a battlecruiser is initially placed at an arbitrary battlefield.
- Einder and Stilzon play in turns.
- In each turn, the player moves each battlecruiser to the adjacent battlefield, along the direction of its road in its own zone. The player must move both battlecruisers in his turn.
- The player, who cannot move at least one of the two battlecruisers in his turn, loses the game.

Einder and Stilzon are very smart and they both have extensive experience in this kind of battle. However, Stilzon is very arrogant and claims that he can win this game regardless of Einder's choice to move first or second. As Einder really wants to win the game, he now needs your help to determine which player, moving first or second, wins the game if both of them use optimal strategies in each move.

Input

The first line contains two integers n_1 and m_1 corresponding to the number of battlefields and roads of the first zone ($1 \le n_1, m_1 \le 100{,}000$).

Each line in the next m_1 lines contains two numbers x and y ($1 \le x, y \le n_1$) to represent a directed road from battlefield x to battlefield y in the first zone.

The next line contains two integers n_2 and m_2 corresponding to the number of battlefields and roads of the second zone ($1 \le n_2, m_2 \le 100{,}000$).

Each line in the next m_2 lines contains two numbers x and y ($1 \le x, y \le n_2$) to represent a directed road from battlefield x to battlefield y in the second zone.

The next line contains the number T ($1 \leq T \leq 100{,}000$) - the number of queries for this problem.

Each line in the next T lines contains two integers v_1 and v_2 ($1 \leq v_1 \leq n_1, 1 \leq v_2 \leq n_2$), where the battlecruisers are placed initially in the two zones.

Note: There can be multiple roads connecting two battlefields in a zone.

Output

For each query, print in a line "`first`" (without quotation mark) if Einder should choose to go first to win, and print "`second`" (without quotation mark) otherwise.

Sample Input	Sample Output
3 2 1 2 2 3 2 1 1 2 2 2 1 3 2	first second