

Problem E

The Tiny Kingdom

Time limit: 2 second
Memory: 1024 megabytes

Problem Description

Today, Tang wants you to help him solve the following problem. Tang and his crush live in a super large kingdom called "TINY." In this kingdom, there are N houses numbered from 1 to N , with Tang's house being number X and his crush's house being number Y . They have agreed to go out together to enjoy the vast natural scenery of the TINY kingdom. The kingdom has built M roads connecting two houses, meaning that members of one house u can pass through to the other house v and vice versa. Additionally, these roads have a length and travel time of a positive integer w not exceeding one billion. Since Tang's house and his crush's house are far apart, they have agreed to meet at another house, such that the time to get there or the time they meet is minimized, allowing them to spend more time together. *Now*, as Tang's junior, he asks you to find the number of the house that provides the shortest path for both Tang and his crush so that they do not waste much time. **Note:** Tang and his crush left at the same time.

Input:

- The first line contains four integers N , M , X , Y .
- The next M lines each contain three integers u , v , and w .

Output:

- A single integer representing the smallest time it takes for Tang and his crush to meet. If no meeting house can be found, output **-1**.

Example:

| INPUT | OUTPUT |
|---|--------|
| 7 7 1 7 1 7 5 1 3 1 7 5 2 3 5 3 1 2 6 1 6 10 2 5 9 | 4 |

The problem has **18** test cases.

- The first **10** tests have $N \leq 10^3$ and $M \leq 10^4$.
- The next **4** tests have $N \leq 10^4$ and $M \leq 10^5$.
- The last **4** tests have $N \leq 10^5$ and $M \leq 10^6$.