

Problem A

Cable Car

Time Limit: 1 second

In the Marvelous Mountain, there are N attractions. Each attraction is labeled from 1 to N . There are M **one-way** cable car lines to connect pairs of attractions. The length of a cable car line is a positive integer.

As we want most visitors to travel from the attraction S to the attraction T , we should consider possible plans to reduce the length of the shortest path to travel from S to T . We have a list of proposals with K new **two-way** cable car lines that can be built.



Your task is to select one of the K proposed cable car lines to build so that, upon finishing this new cable car line, the length of the shortest path from S to T is minimized.

Input

The first line contains five integer numbers: N , M , K , S , and T ($N \leq 10^5$, $M \leq 2 \times 10^5$, $K < 10^5$, $1 \leq S, T \leq N$, and $S \neq T$).

The i^{th} line of the following M lines contains 3 positive integer numbers: a_i , b_i , and l_i , denoting that the i^{th} cable car line is from the attraction a_i to the attraction b_i , and has the length of l_i ($l_i \leq 10^9$).

The j^{th} line of the following K lines contains 3 positive integer numbers: u_j , v_j , q_j , denoting that the new possible two-way cable car line can be built from u_j to v_j (and vice versa), with the length for each way of q_j ($q_j \leq 10^9$).

Output

Display an integer number that is the minimum length of the shortest path to go from S to T , after building a new two-way cable car line. Print -1 if there is no way to go from S to T , even with any new cable car line in the proposal list.

Sample Input

Sample Output

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4 5 3 1 4
1 2 13
2 3 19
3 1 25
3 4 17
4 1 18
1 3 23
2 3 5
2 4 25
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35
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