4 Commuter Pass

JOI-kun is living in a city with N stations. The stations are numbered from 1 to N. There are M railways numbered from 1 to M. The railway i ($1 \leq i \leq M$) connects the station A_i and the station B_i in both directions, and the fare is C_i yen.

JOI-kun is living near the station S, and goes to the IOI high school near the station T. He is planning to buy a commuter pass connecting these two stations. When he buys a commuter pass, he needs to choose a route between the station S and the station T with minimum cost. Using this commuter pass, he can take any railways contained in a chosen route in any directions without additional costs.

JOI-kun often goes to bookstores near the station U and the station V. Therefore, he wants to buy a commuter pass so that the cost from the station U to the station V is minimized.

When he moves from the station U to the station V, he first choose a route from the station U to the station V. Then the fare he has to pay is

- 0 yen if the railway i is contained in a route chosen when he buys a commuter pass, or
- C_i yen if the railway i is not contained in a route chosen when he buys a commuter pass.

The sum of the above fare is the cost from the station U to the station V.

He wants to know the minimum cost from the station U to the station V if he chooses a route appropriately when he buys a commuter pass.

Task

Write a program which calculates the minimum cost from the station U to the station V if he chooses a route appropriately when he buys a commuter pass.

Input

Read the following data from the standard input.

- The first line of input contains two space separated integers N, M. This means the city JOI-kun lives in has N stations and M railways.
- The second line contains two space separated integers S, T. This means JOI-kun is planning to buy a commuter pass from the station S to the station T.
- The third line contains two space separated integers U, V. This means JOI-kun wants to minimize the cost from the station U to the station V.
- The i-th line ($1 \leq i \leq M$) of the following M lines contains three space separated integers A_i, B_i, C_i. The railway i connects the station A_i and the station B_i in both directions, and the fare is C_i yen.

Output

Write one line to the standard output. The output should contain the minimum cost from the station U to the station V if he chooses a route appropriately when he buys a commuter pass.

Constraints

All input data satisfy the following conditions.

- $2 \leq N \leq 100\,000$.
- $1 \leq M \leq 200\,000$.
- $1 \leq S \leq N$.
- $1 \leq T \leq N$.
- $1 \leq U \leq N$.
- $1 \leq V \leq N$.
- $S \neq T$.
- $U \neq V$.
- $S \neq U$ or $T \neq V$.
- JOI-kun can move from any stations to any other stations taking railways.
- $1 \leq A_i < B_i \leq N$ $(1 \leq i \leq M)$.
- For every $1 \leq i < j \leq M$, either $A_i \neq A_j$ or $B_i \neq B_j$.
- $1 \leq C_i \leq 1\,000\,000\,000$ $(1 \leq i \leq M)$.

Subtask

Subtask 1 [16 points]

- $S = U$.

Subtask 2 [15 points]

- There is a unique route with minimum cost from the station S to the station T.

Subtask 3 [24 points]

- $N \leq 300$.

Subtask 4 [45 points]

- There are no additional constraints.

Sample Input and Output

Sample Input 1	Sample Output 1
6 6 1 6 1 4 1 2 1 2 3 1 3 5 1 2 4 3 4 5 2 5 6 1	2

In this sample input, there is only one route JOI-kun can choose when he buys a commuter pass: Station 1 → Station 2 → Station 3 → Station 5 → Station 6.

In order to minimize the cost from the station 1 to the station 4, he chooses the following route: Station 1 → Station 2 → Station 3 → Station 5 → Station 4. When he chooses this route, the fare he has to pay is

- 2 yen for the railway 5 connecting the station 4 and the station 5, and
- 0 yen for other railways.

Hence the total cost is 2 yen.

Sample Input 2	Sample Output 2
6 5 1 2 3 6 1 2 1000000000 2 3 1000000000 3 4 1000000000 4 5 1000000000 5 6 1000000000	3000000000

In this sample input, JOI-kun does not use the commuter pass when he moves from the station 3 to the station 6.

Sample Input 3	Sample Output 3
8 8 5 7 6 8 1 2 2 2 3 3 3 4 4 1 4 1 1 5 5 2 6 6 3 7 7 4 8 8	15

Sample Input 4	Sample Output 4
5 5 1 5 2 3 1 2 1 2 3 10 2 4 10 3 5 10 4 5 10	0

Sample Input 5	Sample Output 5
10 15 6 8 7 9 2 7 12 8 10 17 1 3 1 3 8 14 5 7 15 2 3 7 1 10 14 3 6 12 1 5 10 8 9 1 2 9 7 1 4 1 1 8 1 2 4 7 5 6 16	19