

The Fast and the Furious II

Task: After your last race in Manhattan you appeared in the list of the most wanted people of the FBI. So you decide that it is better to escape from the United States and go to South America. Unfortunately, you also have to leave your loved Lamborghini behind.

The street racing competitions here are similar to the ones in Manhattan: You and your opponent are given some destinations, must visit them all and the one who returns to the start first wins. But there are also some differences: The street network here is different than in Manhattan, usually you have to visit fewer destinations, and your new car is not faster than your opponent's car.

Input: The first line contains three integers n , m and d . n is the number of crossroads, which are numbered from 0 to $n - 1$, m is the number of streets, and d the number of destinations (including the starting point). Then, m lines follow, which describe the streets that connect the crossroads: Each line contains three values a_i , b_i and w_i . a_i and b_i are the two crossroads that are connected by this street, and w_i denotes its length. Finally, in a last line the d destinations are described. Here, the first destination is start (and finish) of the race.

You can assume that $1 \leq n \leq 50000$, $d \leq 20$, and all values are integers. Moreover, you can drive on the streets in both directions.

Output: Output the length of a shortest tour beginning and finishing in the start and visiting all destinations.

Sample Input:

```
9 12 3
0 1 2
0 3 5
1 2 4
1 4 2
2 5 2
3 4 5
3 6 1
4 5 4
4 7 4
5 8 2
6 7 3
7 8 5
0 2 8
```

Sample Output:

```
20
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