

All Contests > 101 Hack March 2016 > Jeanie's Route

Jeanie's Route

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Problem	Submissions	Leaderboard	Discussions
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Byteland has N cities (numbered from 1 to N) and $N - 1$ bidirectional roads. It is guaranteed that there is a route from any city to any other city.

Jeanie is a postal worker who must deliver K letters to various cities in Byteland. She can start and end her delivery route in any city. Given the destination cities for K letters and the definition of each road in Byteland, find and print the minimum distance Jeanie must travel to deliver all K letters.

Note: The letters can be delivered in any order.

Input Format

The first line contains two space-separated integers, N (the number of cities) and K (the number of letters), respectively.

The second line contains K space-separated integers describing the delivery city for each letter.

Each line i of the $N - 1$ subsequent lines contains 3 space-separated integers describing a road as $u_i v_i d_i$, where d_i is the distance (length) of the bidirectional road between cities u_i and v_i .

Constraints

- $2 \leq K \leq N \leq 10^5$
- $1 \leq d_i \leq 10^3$
- Byteland is a weighted undirected acyclic graph.

Output Format

Print the minimum distance Jeanie must travel to deliver all K letters.

Sample Input

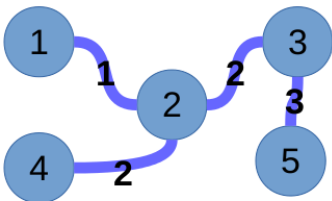
```
5 3
1 3 4
1 2 1
2 3 2
2 4 2
3 5 3
```

Sample Output

```
6
```

Explanation

Jeanie has 3 letters she must deliver to cities 1, 3, and 4 in the following map of Byteland:



One of Jeanie's optimal routes is $3 \rightarrow 2 \rightarrow 1 \rightarrow 2 \rightarrow 4$, for a total distanced traveled of $2 + 1 + 1 + 2 = 6$. Thus, we print 6 on a new line.

Submissions: 20
Max Score: 80
Difficulty: Moderate
[More](#)

Current Buffer (saved locally, editable)

Attempting to reconnect in ...

Reconnect

C++

```
1 #include <cmath>
2 #include <cstdio>
3 #include <vector>
4 #include <iostream>
5 #include <algorithm>
6 using namespace std;
7
8
9 int main() {
10     /* Enter your code here. Read input from STDIN. Print output to STDOUT */
11     return 0;
12 }
13
```

Line: 1 Col: 1

Upload Code as File

☐ Test against custom input

Run Code

Submit Code

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