Problem A: Altered Arrival

The German train services have a problem. Due to construction errors, they are not able to reverse the order of a train in place once it is on the railway. This means that currently trains enter stations either forwards or backwards at random. This frequently leads to chaos, e.g. when people with seat reservations try to find their seat. But isn't there a better solution?

Did you know that . . . ?

. . . to the rest of the world, Germans have a reputation for being punctual? Yet when it comes to the country's train system, passengers experience shocking delays.

Assume a train is currently at a certain train station with the coaches in some order. What is the shortest way to route this train through the railway system in such a manner that it arrives back at that same station but with the reverse order of coaches? Each station has two opposite sides at which tracks lead to other stations. Trains can drive in either direction. When a train leaves a station at the same side it arrived, the direction of driving is reversed. When it leaves at the opposite side, the direction of driving stays the same.

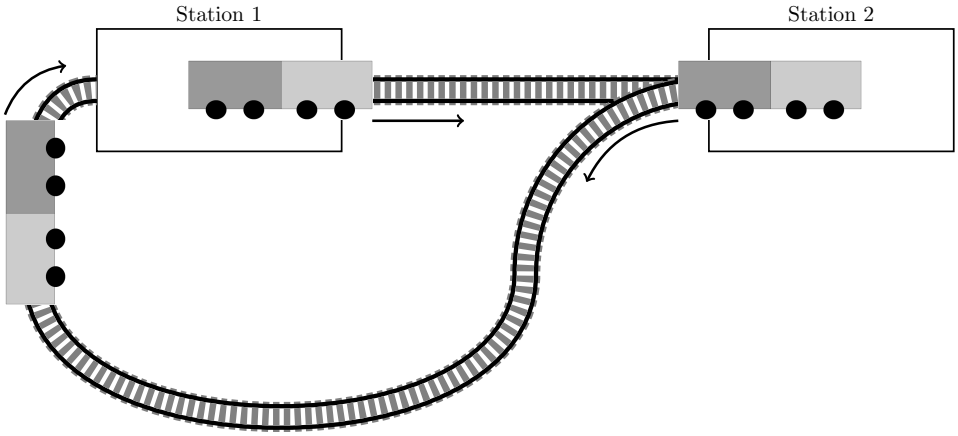

Figure A.1: Illustration of Sample Input 1.

Input

The input consists of:

- One line with two integers n and m ($2 \leq n \leq 2 \cdot 10^5$; $1 \leq m \leq 2 \cdot 10^5$) where n is the number of stations and m the number of tracks connecting the stations. The stations are numbered from 1 to n and each station has two sides 1 and 2.
- m lines, each with five integers a_s, a_t, b_s, b_t and ℓ ($1 \leq a_s, b_s \leq n$; $1 \leq a_t, b_t \leq 2$; $1 \leq \ell \leq 10^9$). This means that stations a_s and b_s are connected by a track which connects to side a_t of station a_s and to side b_t of station b_s. The length of the track is ℓ kilometres.
- One line with an integer t ($1 \leq t \leq n$) giving the station the train is in at the moment.

Railway connections are bidirectional and every existing connection is listed exactly once in the input. No station has a direct connection to itself ($a_s \neq b_s$). The railway network is connected, which means that there is a path between every pair of stations.

Output

In case there is no route which reverses the train, output `impossible`. Otherwise, output the minimum possible length of such a route in kilometres.

Sample Input 1

```
2 2
1 2 2 1 1
2 1 1 1 4
1
```

Sample Output 1

```
5
```

Sample Input 2

```
2 1
1 2 2 1 1
1
```

Sample Output 2

```
impossible
```

Sample Input 3

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

Sample Output 3

```
6
```