Online

Section A2 / B1

Time: 40 Minutes

In Mamaland, there are many points of interest (POIs) and roads between the POIs. Each road has specific costs. The roads are one-directional. One of the POI's is very interesting (As it is '*Mamar bari*', obviously!). Anyone starting from a specific POI and ending in another wants to at least visit *Mamar bari*.

You are to help recommend a trip (path, if you're confused) of the lowest cost between any two POI's, but your recommended trip must have *Mamar bari* as an intermediate visiting place. If there isn't any such trip, you must report this. Use Floyd-Warshall algorithm to solve this.

Input / Output

The first line of input consists of 2 integers N and M, the no. of input POIs and roads respectively. The next M lines contain 3 integers u, v and w indicating there is a road from POI u to POI v of cost w.

After these M lines, the immediate next line will contain an integer K, the POI no. of *Mamar bari.*

The next lines will contain two POI numbers X and Y respectively. You are to give output a trip of the lowest cost from POI X to POI Y with *Mamar bari* K as an intermediate visiting place.

The program terminates when -1 -1 is given as input for X and Y respectively.

Sample Input	Sample Output
7 9 1 2 4 2 3 3 3 4 -2 4 7 6 3 7 2 5 1 3 1 6 1 6 7 1 4 5 2 3 1 7 4 7 2 3 1 3 5 3 5 4 -1 -1	Shortest Path Weight: 9 Path: 1 --> 2(4) --> 3(3) --> 7(2) Shortest Path Weight: 14 Path: 4 --> 5(2) --> 1(3) --> 2(4) --> 3(3) --> 7(2) Shortest Path Weight: 3 Path: 2 --> 3(3) Shortest Path Weight: 7 Path: 1 --> 2(4) --> 3(3) Shortest Path Weight: 10 Path: 5 --> 1(3) --> 2(4) --> 3(3) Shortest Path Weight: 8 Path: 5 --> 1(3) --> 2(4) --> 3(3) --> 4(-2)