Shortest Path Problems

1.**Baba Yaga-mission:** Your very close friend, John, also known as the Baba Yaga, is often on various missions to complete different tasks. For this, he needs to travel to different countries. For each of his missions, he has a peculiar ritual. Let's say, he is going from country **s** to country **t**. He will start his journey from **s**, visit Continental Hotel, located at country **x**, and then go to country **t**. Even if the country **t** falls on his path from **s** to **x**, he will first go to **x** and then return to **t**. Consider this as a professional courtesy. To travel from one country to another, he needs to spend a few markers for different favors like mission equipment, food, travel cost, etc. A marker is a small round metal object indicating a debt between two individuals. Markers are witnessed and recognized. That means, if one person offers a marker to another and asks for a favor, the offered person must comply. It is evident from previous statements that these markers are very precious. For this reason, John wants to minimize the number of markers used.

John knows that you're a great programmer. So he has asked you to calculate the number of markers he requires to go on his missions.

For each case, print the case number first. Then for all the missions, you have to print the number of markers required in a newline. If such required path from country **s** to country **t** doesn't exist, print "**Be seeing ya, John**" (without the quotation marks).

Sample Input

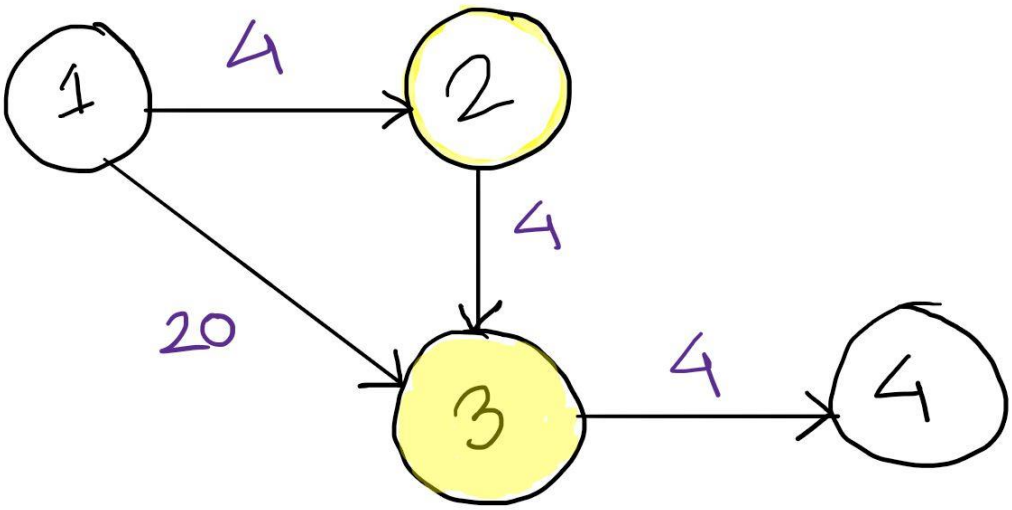
*The first line of each test case contains **4** integers, **N** , the number of countries, **M** , the number of flights connecting them, **x (1 ≤ x ≤ N)**, the location of Continental Hotel and **Q**, the number of missions John needs to participate in. The countries are conveniently numbered from **1** to **N**.The next **M** lines each will contain three integers **u**, **v** and **w (1 ≤ u, v ≤ N)** indicating that there is a flight from **u** to **v** which costs **w** markers. Then the following **Q** lines each will contain two integers **s (1 ≤ s ≤ N)**, the country where John currently is in, and **t (1 ≤ t ≤ N)**, the country he needs to go to. There can be multiple flights between two countries.*

```
4 4 3 2
1 2 4
1 3 20
2 3 4
3 4 4
1 4 //source(s)-1 & destination (t)-4
2 4 //source(s)-2 & destination (t)-4
```

Sample Output

```
Case 1:
12
```

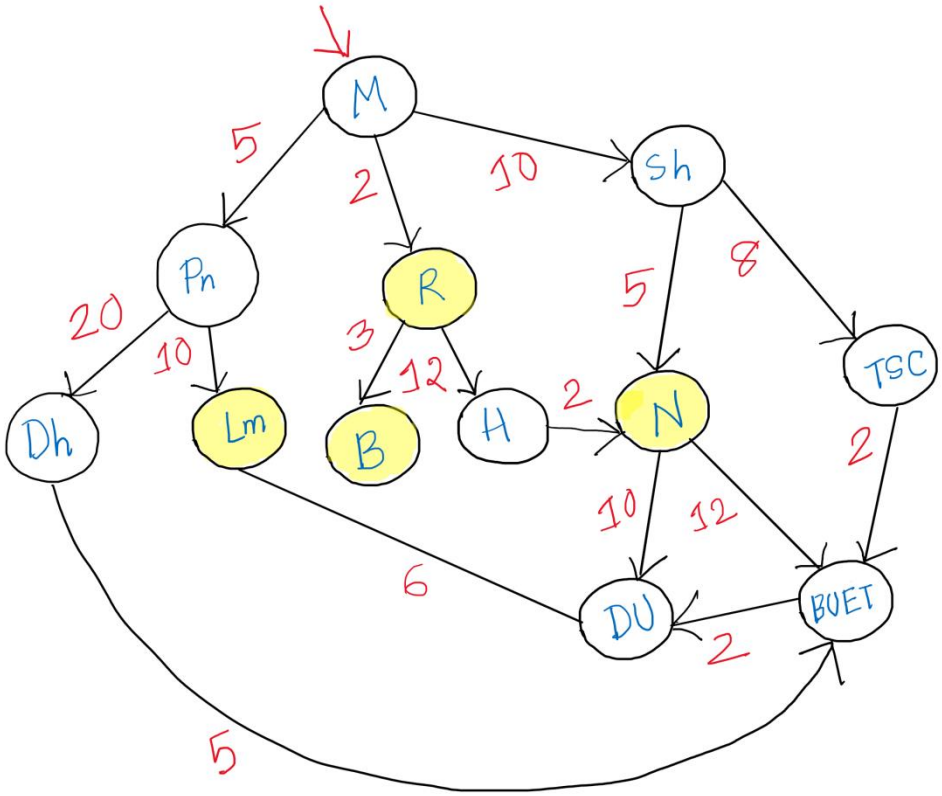
For the first query, John will go through the following sequence of countries: 1 -> 2 -> 3 -> 4. The number of markers required: (4 + 4 + 4) = 12.



2.**Baba Yaga in Dhaka:** John has decided to come to Dhaka for an assassination. He has heard from his associates from Bangladesh that repair work is going on in some areas of Dhaka city, such as-Rampura, Lalmatia etc. He wanted one of you from BRAC University to determine the shortest path from 'Mouchak' to 'DU'-which path will avoid all the areas which are under maintenance work. You will be given the source node,s and destination node,t in the two lines before last line of input file. Last line contains the list of Yellow nodes' number. Yellow nodes are going through construction work. Use a greedy approach to solve it and make sure to avoid some nodes while considering the nodes to be visited. The full name of each area and their node no in input file is given below in the following table- -

Node	Location
M,0	Mouchak
Pn ,1	Panthapath
Dh ,4	Dhanmondi
Lm ,5	Lalmatia
R ,2	Rampura
B ,6	Badda
H ,7	Hatirjheel
Sh ,3	Shahahbagh
N ,8	Nilkhet
TSC,9	TSC
DU, 10	Dhaka University
BUET ,11	BUET
Yellow	Repairing

White	OK



Sample Input

12 //no. of nodes

16 //no. of connecting routes

0,1,5

0,2,2

0,3,10

1,4,20

1,5,10

2,6,3

2,7,12

3,8,5

3,9,8

4,11,5

5,10,6

7,8,2

8,10,10

8,11,12

9,11,2

11,10,2

0 //source-Mouchak

10 //destination-DU

2,5,6,8 //colour-yellow

Sample Ouput

Mouchak->Shahbagh->TSC->BUET->Dhaka University

Path cost: 22