

7A2	GRAPH TRAVERSAL 2	
	Input	Standard Input
	Output	Standard Output

### Problem Description

Write a program that searches an undirected graph for vertices which are inaccessible from a given starting vertex.

### Input

The first line of input are 2 integers  $v$  ( $1 \leq v \leq 50$ ) and  $e$  ( $1 \leq e \leq 50$ ) representing the number of vertices and the number of edges respectively, follows by  $e$  lines where in each line there are 2 integers that represent the edge.

In the following line there is an integer  $T$  ( $1 \leq T \leq 50$ ) that represents the number of test cases. The following  $T$  lines are the test cases. For each test case, there is an integers  $a$  ( $1 \leq a \leq v$ ) which is the starting vertex.

### Output

Output list of vertices that are inaccessible from a given starting vertex as shown in the sample output.

Sample Input	Sample Output
8 9 0 2 0 5 2 4 2 5 4 5 1 3 1 6 3 7 6 7 2 0 3	< 1 3 6 7 > < 0 2 4 5 >

Note: You may modify DepthFirstSearch.java given with the lecture slide. The program uses Graph.java, Bag.java and Stack.java, which need to be include in your project and submit to PC2.

7B	SEKOLAH@FTSM REACHING OUT	
	Input	Standard Input
	Output	Standard Output

### Problem Description

Long semester holiday is just round the corner. sekolah@FTSM committee is planning to reach out most of popular workshop to schools in Semenanjung Malaysia. One of the committee's concern in the travelling expenses. You are to help them to identify the shortest path form a given city to a destination city. Figure 1 shows the map of Malaysia with the identified cities marked in circles. Figure 2 is the graph representation of the cities.



Figure 1

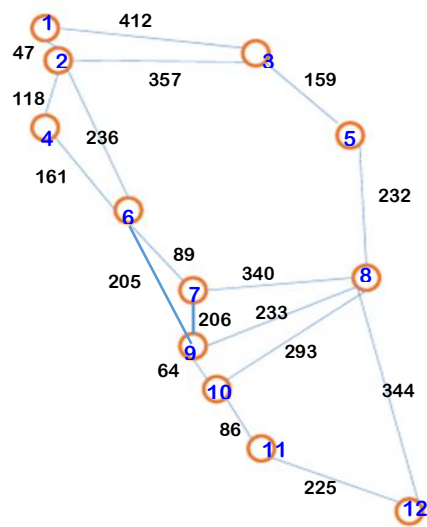


Figure 2

Table 1 list the name of the cities

Table 1

1	Kangar
2	Alor Setar
3	Kota Bharu
4	George Town
5	Kuala Terengganu
6	Ipoh
7	Cameron Highlands
8	Kuantan
9	Kuala Lumpur
10	Seremban
11	Melaka
12	Johor Baharu

## Input

First line of input is integer  $N$  that represents the number of cities. In the following  $N$  lines is the adjacency matrix representation of the distance between the cities. (as in Figure 1 and 2). This follows by  $N$  lines that represent the name of the cities (as in Table 1).

In the following line there is an integer  $T$  ( $1 \leq T \leq 50$ ) that represents the number of test cases. The following  $T$  lines are the test cases. For each test case, there are 2 integers  $s$  and  $d$  ( $1 \leq s, d \leq N$ ) that represents the source and destination city respectively.

## Output

For each test case, output the shortest distance between the two cities as shown in the sample output

Sample Input									
12									
0	47	412	0	0	0	0	0	0	0
47	0	357	118	0	236	0	0	0	0
412	357	0	0	159	0	0	0	0	0
0	118	0	0	0	161	0	0	0	0
0	0	159	0	0	0	0	232	0	0
0	236	0	161	0	0	89	0	205	0
0	0	0	0	0	89	0	340	206	0
0	0	0	0	232	0	340	0	233	293
0	0	0	0	0	205	206	233	0	64
0	0	0	0	0	0	0	293	64	0
0	0	0	0	0	0	0	0	0	86
0	0	0	0	0	0	0	344	0	0
Kangar									
Alor Setar									
Kota Bharu									
George Town									
Kuala Terengganu									
Ipoh									
Cameron Highlands									
Kuantan									
Kuala Lumpur									
Seremban									
Melaka									
Johor Baharu									
3									
1 3									
10 8									
8 2									
Sample Output									
Kangar to Kota Bharu is 404 km									
Seremban to Kuantan is 293 km									
Kuantan to Alor Setar is 665 km									