

Round A China New Grad Test 2014

[A. Read Phone Number](#)

[B. Rational Number Tree](#)

[C. Sorting](#)

[D. Cross the maze](#)

**E. Spaceship Defence**

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Read Phone Number

6pt	Not attempted <b>1885/3058 users</b> correct (62%)
13pt	Not attempted <b>1094/1837 users</b> correct (60%)

Rational Number Tree

9pt	Not attempted <b>1193/1545 users</b> correct (77%)
12pt	Not attempted <b>368/1037 users</b> correct (35%)

Sorting

5pt	Not attempted <b>1666/1990 users</b> correct (84%)
8pt	Not attempted <b>1551/1635 users</b> correct (95%)

Cross the maze

10pt	Not attempted <b>134/370 users</b> correct (36%)
13pt	Not attempted <b>119/132 users</b> correct (90%)

Spaceship Defence

10pt	Not attempted <b>175/382 users</b> correct (46%)
14pt	Not attempted <b>106/152 users</b> correct (70%)

[Top Scores](#)

dreamoon	100
springegg	100
tckwok	100
cgy4ever	100
OR.Director	100
AlanC	100
Mochavic	100
jxwuyi	100
oldherl	100
Descent	100

## Problem E. Spaceship Defence

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](#) to get started.

Small input  
10 points

Solve E-small

Large input  
14 points

Solve E-large

### Problem

The enemy has invaded your spaceship, and only superior tactics will allow you to defend it! To travel around your spaceship, your soldiers will use two devices: *teleporters* and *turbolifts*.

Teleporters allow your soldiers to move instantly between rooms. Every room contains a teleporter, and rooms are color-coded: if a soldier is in a room with some color, she can use the teleporter in that room to immediately move to any other room with the same color.

Turbolifts allow your soldiers to move between rooms more slowly. A turbolift is like an elevator that moves in many directions. Each turbolift moves from one room to one other room, and it takes a certain amount of time to travel. Notes about turbolifts:

- Turbolifts are not two-way: if a turbolift moves soldiers from room a to room b, the same turbolift cannot move soldiers from room b to room a, although there might be another turbolift that does that.
- More than one soldier can use the same turbolift, and they do not interfere with each other in any way.

You will be given the locations and destinations of several soldiers. For each soldier, output the minimum amount of time it could take that soldier to travel from his location to his destination.

### Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow.

For every test case:

The first line of every test case contains an integer **N**, which is the number of rooms in your spaceship. The rooms are numbered from 1 to **N**. The following **N** lines each contain a string telling the color of the rooms, from room 1 to room **N**. The strings only contain characters a-z (the lower-case English letters) and 0-9 (the number 0 to 9), and the length of each string will be less than or equal to 2.

The next line in the test case is an integer **M**, which indicates the number of turbolifts in your spaceship. The following **M** lines each contain 3 space-separated integers **a<sub>i</sub>**, **b<sub>i</sub>**, **t<sub>i</sub>**, telling us that there is a turbolift that can transport soldiers from room **a<sub>i</sub>** to room **b<sub>i</sub>** in **t<sub>i</sub>** seconds.

The next line in the test case contains an integer **S**, which is the number of soldiers at your command. The following **S** lines each contain two integers: the location and destination of one soldier, **p<sub>j</sub>** and **q<sub>j</sub>**.

### Output

For each test case, output one line containing only the string "Case #x:", where x is the number of the test case (starting from 1). On the next **S** lines, output a single integer: on line **j**, the smallest number of seconds it could take for a soldier to travel from **p<sub>j</sub>** to **q<sub>j</sub>**. If there is no path from **p<sub>j</sub>** to **q<sub>j</sub>**, the integer you output should be -1.

### Limits

$1 \leq S \leq 100$ .  
 $1 \leq a_i, b_i \leq N$ .  
 $0 \leq t_i \leq 1000$ .  
 $1 \leq p_j, q_j \leq N$ .

### Small dataset

$1 \leq T \leq 10$ .  
 $1 \leq N \leq 1000$ .  
 $0 \leq M \leq 3000$ .

### Large dataset

$T = 1$ .  
 $1 \leq N \leq 80000$ .

$0 \leq \mathbf{M} \leq 3000$ .

Sample

Input	Output
3	Case #1:
3	-1
gl	0
t3	Case #2:
t3	-1
3	0
1 2 217	0
3 2 567	Case #3:
1 1 21	3
2	55
2 1	-1
2 3	
4	
ca	
bl	
bl	
8z	
0	
3	
1 2	
2 3	
1 1	
8	
re	
b7	
ye	
gr	
0l	
0l	
ye	
b7	
7	
4 1 19	
2 4 21	
2 5 317	
4 5 34	
4 7 3	
4 8 265	
8 6 71	
3	
4 3	
2 6	
1 4	

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