Assignment Case	
COMP6047 Algorithm and Programming	
Computer Science	**<Case Code>**
***Valid on** Compact Semester Year 2019/2020*	**Revision 00**

Soal
Case

Friend Recommendation

Jojo is a very sociable person and likes to make friends. To make more friends, he wants to be friends with a friend of his friend and therefore developing a new concept called Friend of Friend (FoF) to find friend recommendations. Consider the following scenario, Jojo is friend with Lili and Bibi, Lili is friend with Bibi and A, and Bibi is friend with Lili and B. Then we can conclude that the Jojo's friend recommendation from Lili is A and from Bibi is B. To create a bigger social network, there also has a depth concept that determines how deep the FoF link will be computed to get friend recommendations. From the previous scenario, if the depth is two then the Jojo's friend recommendation will also include A's friends and B's friends.

Now, Jojo wants to write a program for this recommendation system. given N data of user's friend, the program will output a set of friend recommendation of user X until a certain depth. To simplify things, the program will only take two friends from one user's friend list. Besides that, instead of users' name, the program will users' ID instead.

Format Input

The input starts with an integer T, total test cases the program need to solve. Each test case starts with an integer N, the number of users who has friend. The next N line contains three integers each, $U\ F_1\ F_2$, representing the user, first friend, and second friend respectively. The next line will contain two integers X and D, the user you need to find friend recommendation for, and the depth of the FoF system.

Format Output

For each test cases, output "Recommendation #Y: " followed by friend recommendation for X separated by a space in ascending order. If there are no friend recommendation, output "-" instead.

Constraints

$1 \leq T \leq 30$

$1 \leq N, X, U, F_1, F_2 \leq 25{,}000$

$1 \leq D \leq 20$

Sample Input	Sample Output
2 4 1 2 3 2 1 4 3 5 6 6 5 7 1 2 2 1 2 3 4 5 7 1 1	Recommendation #1: 4 5 6 7 Recommendation #2: -

Explanation:

In the first case, there are four data that contains the friend data of user 1, 2, 3, and 6. The FoF of user 1 in the first depth is 4, 5, and 6. The FoFoF of user 1 in the second depth is user 5 and 7, therefore the friend recommendation for user 1 using FoF concept with depth 2 is 4, 5, 6, and 7.

Note:

Don't forget to add the newline character after printing the output.