1075 – Finding Routes

Shakil has been the greatest boy-scout in Bangladesh and has become quite a superstar because he always organized the most wonderful scavenger hunts (you know, where the kids have to find a certain route following certain hints). Shakil has retired now, but a nationwide election quickly found a successor for him, a guy called Nabil. He does a poor job, though, and wants to learn from Shakil's routes. Unfortunately Shakil has left only a few notes for his successor.

Shakil never wrote down his routes completely, he only left lots of little sheets on which he had written two consecutive steps of the routes. He then mixed these sheets and memorized his routes similarly to how some people learn for exams: practicing again and again, always reading the first step and trying to remember the following. This made much sense, since one step always required something from the previous step. Nabil however would like to have a route written down as one long sequence of all the steps in the correct order. Please help him make the nation happy again by reconstructing the routes. Shakil never visited a single place twice.

Input

Input starts with an integer **T (≤ 80)**, denoting the number of test cases.

Each case contains one route and its first line tells you how many steps **(3 ≤ S ≤ 333)** the route has. The next **S - 1** lines, each contains one consecutive pair of the steps on the route separated by a single space. The name of each step is always a single string of letters.

Output

For each case, print the case number in a single line. Then print **S** lines containing the steps of the route in correct order. Then print a blank line after each case.

Sample Input	Output for Sample Input
2 4 SwimmingPool OldTree BirdsNest Garage Garage SwimmingPool 3 Toilet Hospital VideoGame Toilet	Case 1: BirdsNest Garage SwimmingPool OldTree Case 2: VideoGame Toilet Hospital