Problem G. Guide

Time limit: 3 seconds
Memory limit: 512 megabytes

Mister Gooti is the world-famous guide of The Freezing Isles. The topology of the Isles can be represented as a tree with cities at the vertices and two-way roads between them. Gooti prepares a new sightseeing tour over the Isles. He wants to find the shortest path that starts in the capital and visits k different cities, including the capital. Please, help him.

Input

The first line of the input contains the number of tests T ($1 \le T \le 100$). Each test consists of two lines. The first line contains the overall number of cities n in the Isles and the requested number of cities k for the tour ($1 \le k \le n \le 100$). The second line contains the description of the tree in a rooted manner: $n-1$ integers where the i-th integer, p_i, is the parent of the city $i+1$ ($1 \le p_i \le i$). The capital is the city with the number 1 — the root of the tree.

Output

For each test, the first line of the output shall contain the length of the path l. The second line shall contain $l+1$ integers — the cities that lie on the path in the order of the traversal.

Example

standard input	standard output
3 6 2 1 1 2 2 3 6 6 1 1 2 2 3 6 4 1 2 3 4 5	1 1 2 8 1 3 6 3 1 2 5 2 4 3 1 2 3 4

Note

The following pictures illustrate all the three tests from the example.





