Task: TUR
Tourist

Byteotia was once an immensely beautiful land, and well connected too – every pair of towns used to be connected by a direct bidirectional road. Alas, Bitotia has declared war on Bytoetia, and fired the Biting Magnet of Polarization (BMP). As a result, all roads turned unidirectional. And while the conflict is long a thing of the past, the road polarization and the ensuing commuting chaos persist.

Before the war Mr Longint, a well known tourist, had planned a tour of all Byteotian towns. Nowadays, such tour may not even be possible, so Mr Longint may be forced to settle for visiting as many towns as possible. Write a program that determines the longest tour out of each town in Byteotia so that the tour visits the maximum number of towns, without revisiting any of them. Mr Longint may not only start but also end his tour in any town.

Input

In the first line of the standard input, there is a single integer n ($2 \leq n \leq 2000$) that specifies the number of towns in Byteotia. These are numbered from 1 to n. Next, $n-1$ lines that describe the current (sorry) state of Byteotian road system follow. The i-th such line describes the direct roads connecting the town no. $i+1$ with those of smaller numbers; this description consists of i numbers, each of which is either zero or one: If the j-th number in the line is one, this means that the road between the towns no. j and $i+1$ is currently oriented from j toward $i+1$. If, however, that number is zero, then the road is currently oriented from $i+1$ to j.

Output

Your program is to print n lines to the standard output, the i-th of which should describe the route starting in town no. i that visits the most towns without revisiting any. Such description should start with an integer $d \geq 1$, specifying the number of towns en route, followed by d integers specifying the numbers of successive towns to be visited by Mr Longint; all numbers in the description should be separated by single spaces. If there are several longest routes starting in a given town, any of those can be printed.

Example

For the following input data:
```
4
1
1 1
1 0 1
```
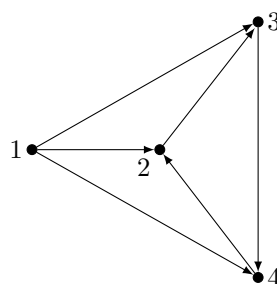
a correct result is:
```
4 1 2 3 4
3 2 3 4
3 3 4 2
3 4 2 3
```


Sample grading tests:
   1ocen: $n = 3$, a cycle;
   2ocen: $n = 2000$, each road oriented toward the town with smaller number.

Grading

The set of tests consists of the following subsets. Within each subset, there may be several test groups.

Subset	Property	Score
1	$n \leq 8$	27
2	for each town, it is possible to start in it and tour the whole country without visiting any town more than once	30
3	no additional properties	43