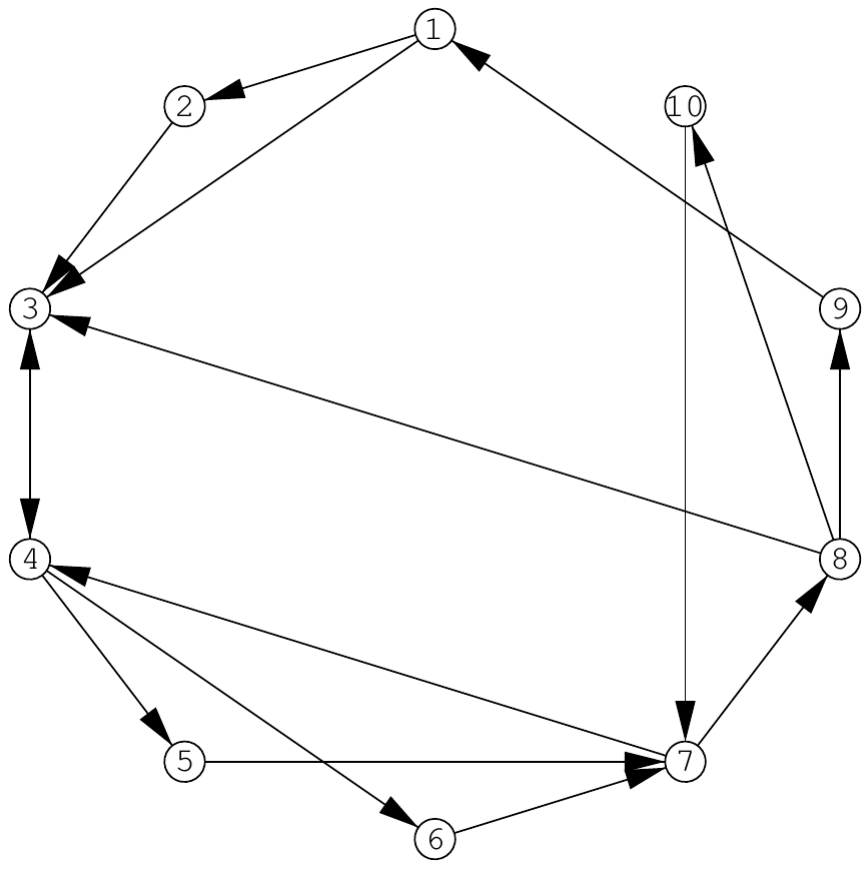
A company decides to simulate on computer the process of manufacturing its own goods. In order to do that, it makes the following observations:

1. The whole process can be splitted into several steps; between them there are some dependencies. This can be represented by a diagram (graph), which we suppose to be only one for all goods produced by company as in figure 1;



2. First step designates the start of manufacturing process;there is only one first step, denoted by the number 1;
3. There are not steps isolated or outside the process (every step is linked by a path with the first step);
4. Some steps are total dependants; so, we claim that the step i is total dependant of step j if every path in the fabrication process cannot arrive to i without was passing through j.

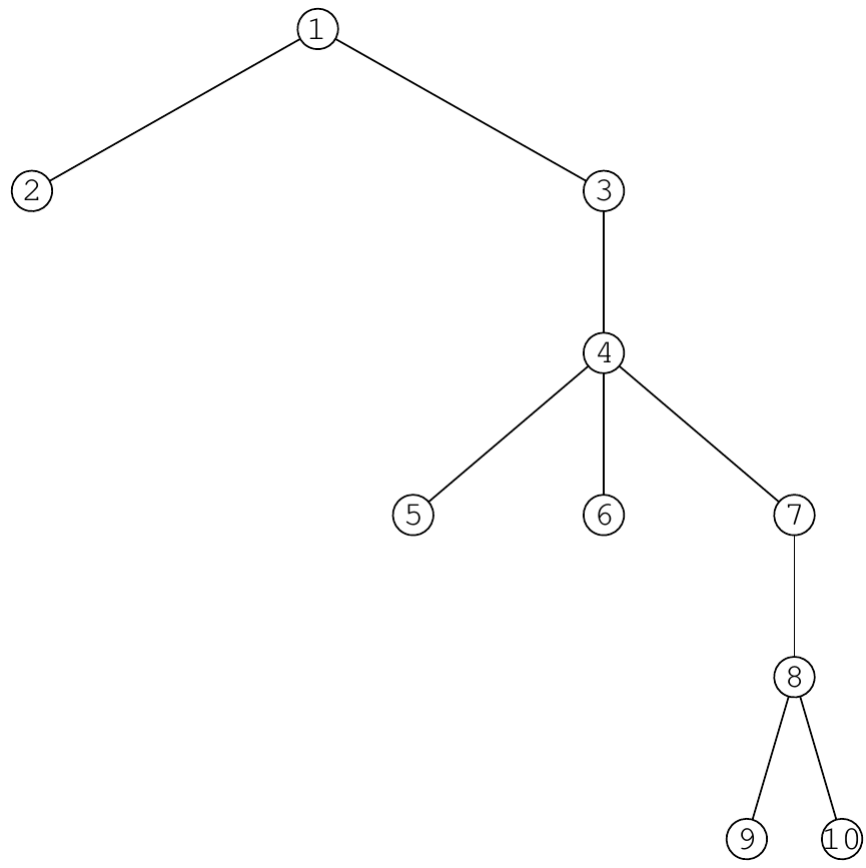
So, all steps are total dependants of step 1.

Example: In the process shown by the figure 1 the step 4 is total dependant of step 3, steps 5,6 and 7 are total dependants of 4 (hence of 3), but step 3 is not total dependant of step 2.

The Computing Center Dept. of company notes that whole manufacturing process is easier to be controlled if it would be structured by a tree, as follows:

- All steps of manufacturing process are nodes of the tree;
- Each node ensures total dependence of all its own descendants;

The tree associated to the diagram from figure 1 is shown in figure 2.



Your task is to write a program that builds this dependence tree.

Input

The input file contains several input data sets. An input data set has the following format:

n - number of steps of manufacturing process ($2 \leq n \leq 99$);

$$\begin{matrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{matrix}$$

where $a_{ij} = 1$ if step j follows directly step i in the process diagram, otherwise $a_ij = 0$.

Output

At output, the program must write $n - 1$ lines for every input data set; each line has the format:
i j
with the meaning that node j is a direct descendant of node i in the tree. The pair $(i_1 j_1)$ follows $(i_2 j_2)$ if and only if $(i_1 < i_2)$ or $(i_1 = i_2$ and $j_1 < j_2)$.

Sample Input

```
10
0 1 1 0 0 0 0 0 0 0
0 0 1 0 0 0 0 0 0 0
0 0 0 1 0 0 0 0 0 0
0 0 1 0 1 1 0 0 0 0
0 0 0 0 0 0 1 0 0 0
0 0 0 0 0 0 1 0 0 0
0 0 0 1 0 0 0 1 0 0
0 0 1 0 0 0 0 0 1 1
1 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 1 0 0 0
```

Sample Output

```
1 2
1 3
3 4
4 5
4 6
4 7
7 8
8 9
8 10
```