

More pairs are better

Given an undirected unweighted graph $G=(V, E)$, a match is a collection of edges such that no two edges share a common vertex. In this problem you should collect as many as possible edges that construct matches in the graph.

Input

The first line contains n , the number of vertices in the graph. The next n lines contain n characters of '0' and '1', where '1' at position j in line i means there is an edge (i,j) in the graph.

There are no more than 500 vertices in the graph, and the vertices are labeled from 1 to n inclusive.

Output

Print each edge (pair of vertices) which is part of match collection. Each line contains two values, the vertices' label of the edge.

Example

Input:

```
6
001000
001000
110111
001010
001100
001000
```

Output:

```
5 4
2 3
```