525 Milk Bottle Data

There is a box of the shape of an $N \times N$ lattice. Each grid of the lattice may contain a milk bottle or none. Mr. Smith wrote down the data of the box by making a record for each row from left to right and each column from top to bottom. In each record, '1' indicaes that there is a bottle in the corresponding grid and '0' does not. Unfortunately, the order of these records is thrown into confusion, and some of these records have corrupted.

Now it's up to you to provide a program to recover these data: i.e. to give the original arrangement of the box and give real values for those corrupted data.

Input

The input data is stored in the input file, where '2' denotes that the corresponding character has been corrupted. Each line in the file represents a record. You should output the original arrangement of the box, and show the record number for each column on the top of the lattice, and show the record number for each row to the left of the lattice.

Output

You are required to give only one possible result if there are many, and you should give the indication '`impossible`' if there is no possibility of original arrangement.

Sample Input

```
01210
21120
21001
12110
12101
12101
00011
22222
11001
10010
```

Sample Output

```
     9  8  6  2  7

4    1  0  1  1  0
10   1  0  0  1  0
1    0  1  1  1  0
3    0  1  0  0  1
5    1  1  1  0  1
```