Introduction to Algebra 2

Important note: Introduction to Algebra is a prerequisite for this challenge.

Welcome back to Sevenkplus' perfect math class! You are now familiar with the following types of magmas: **quasigroup**, **loop**, **semigroup**, **monoid**, **group**, **abelian group**, **rack**, and **quandle**. Furthermore, you are familiar with the **magic number** of a magma.

Or are you?

The following problem is an exercise to check whether you *really* are familiar with these definitions.

Find as many magmas as you can, such that no two of them have the same magic number.

Input Format

There is no input for this challenge, your code should print the output in the below mentioned format.

Output Format

The first line, T, the number of magmas of different magic numbers you can find. Following are T magmas.

For each magma, the first line is a integer n, the size of the set M. (Yes, you only need to consider finite algebraic structures here, which greatly simplies the problem.) Without loss of generality, we assume that $M = \{0, 1, \ldots, n-1\}$.

Following are n lines. Each line contains n integers. The j-th number on the i-th line is $(i-1) \bigodot (j-1)$ where $\bigodot$ is the binary operation of the magma.

You know, judging homework is not fun. So you should make sure that $1 \leq n \leq 100$. Also, Sevenkplus is generous enough to give you a small hint: $T \leq 256$.

Your answer is considered correct only if T is the largest possible, and the T magmas are valid and have different magic numbers.

Sample Input

```
NO INPUT
```

Sample Output

```
2
1
0
2
1 1
1 0
```

Explanation

The sample output is not a correct output. It is there to show the output format.