Problem A. Almost Acyclic

Input file:	`standard input`
Output file:	`standard output`
Time limit:	10 seconds
Memory limit:	512 megabytes

We call a **connected** undirected graph *almost-acyclic*, if the graph has no cycles, or all the simple cycles in it share at least one common point.

You are given a complete undirected graph $G = (V, E)$ with n vertices. Each edge (i, j) has a weight $w_{i,j}$. Calculate ($f(G)$ is 1 if G is almost-acyclic, or 0 otherwise):

$$\sum_{E' \subseteq E,\ G'=(V,E')} f(G') \prod_{(i,j)\in E'} w_{i,j} \mod 10^9 + 7$$

Input

The first line contains a single integer T ($1 \le T \le 16$), denoting the number of test cases.

For each test case, the first line contains an integer n ($1 \le n \le 16$).

The next n lines each contains n integers. The j-th number in the i-th line denotes $w_{i,j}$ ($0 \le w_{i,j} < 10^9+7$).

It is guaranteed that $w_{i,j} = w_{j,i}$, $w_{i,i} = 0$.

It is guaranteed that for each $1 \le i \le 16$, there is at most one test case satisfying $n = i$.

Output

For each test case, output one line with an integer denoting the answer.

Example

standard input	standard output
2 3 0 1 2 1 0 1 2 1 0 5 0 1 0 1 1 1 0 1 1 1 0 1 0 1 0 1 1 1 0 1 1 1 0 1 0	7 120