To solve this problem, you will need to compute the total weight of the lightest Hamiltonian cycle in a complete, directed graph.

For example, consider the graph in Figure 1.

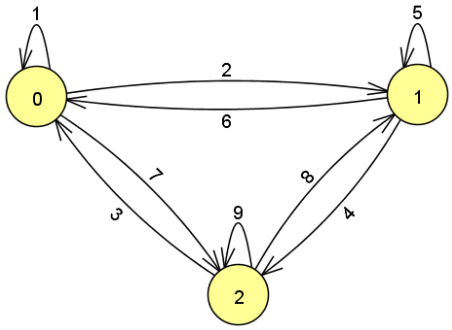

Figure 1: Graph described by Sample Input 2

The lightest Hamiltonian cycle goes from vertex 0 to vertex 1 to vertex 2 and then back to vertex 0, with a total weight of 9.

Input

The first line contains n, where $2 \leq n \leq 50$.

Each of the next n lines contains n integers, each of which is between 1 and 500, inclusive. This n by n grid of integers is the adjacency matrix for an n-vertex complete, directed graph.

Output

Produce a single line of input that contains the total weight of the lightest Hamiltonian cycle contained in the graph described in the input.

Sample Input 1

```
2
1 3
2 1
```

Sample Output 1

```
5
```

Sample Input 2

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

Sample Output 2

```
9
```