Problem A
The Assignment Problem

Input File: *testdata.in*
Time Limit: *5 secs.*

Problem Description

Given an n-by-n matrix M, suppose that each (i, j)-entry (the entry in the ith row and jth column) $M[i, j]$ contains a non-negative integer $a_{i,j}$. A *transversal* of an n-by-n matrix consists of n positions, one in each row and each column. Finding a transversal with maximum sum is the assignment problem. Please write a computer program to find a transversal with the maximum sum. This sum is called the optimal sum. Fig. 1 shows two assignments.

Technical Specification

1. $2 \leq n \leq 1000$.
2. $0 \leq a_{i,j} \leq 1000000$, where $1 \leq i, j \leq n$.

Input File Format

The first line of the input file contains an integer indicating the number of test cases to follow. Each test case has the following format: the first line of each test case contains a positive integer n. The next n lines contain n rows such that the ith line represents the ith row of the matrix. In addition, each line contains n non-negative integers such that any consecutive two integers are separated by a space.

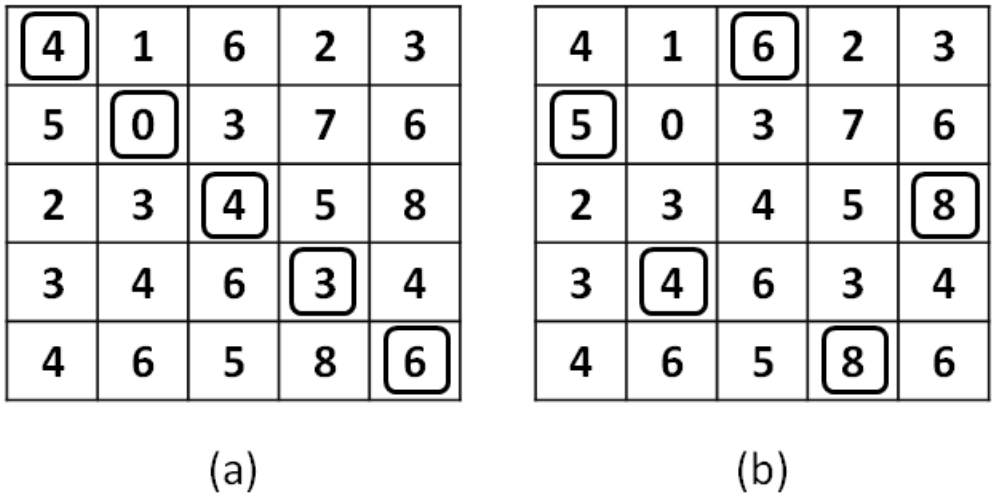

Figure 1: Example of two assignments. (a) A assignment with a non-optimal sum 17. (b) A assignment with an optimal sum 31.

Output Format

The output contains one line for each test case. Each line contains an integer, which is the optimal sum.

Sample Input

```
2
5
4 1 6 2 3
5 0 3 7 6
2 3 4 5 8
3 4 6 3 4
4 6 5 8 6
2
1 1
1 1
```

Sample Output for the Sample Input

31
2