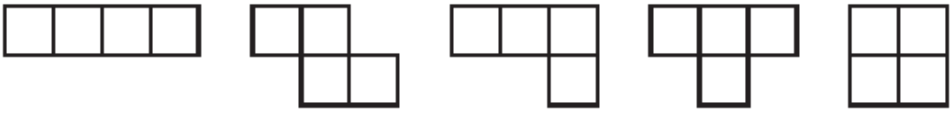
3756 The Game of Tetris

Tetris is a famous video game that has 5 pieces similar to these:



In this problem, you're given an $N \times N$ grid of integers. We want to place a single piece of TETRIS on the grid such that the sum of the numbers below the piece are the maximum. Notice that all but the last TETRIS piece can be rotated by 90 degrees. Some pieces even have four different orientations. Any orientation is acceptable as long as the piece completely fits inside the grid. For example, the left-most piece can be placed on the first row of the grid, with a sum of 80. It can also be placed, for example, on the third column, yielding a sum of 91. As a matter of fact, in a 4×4 grid, we can have 77 different ways to place the Tetris pieces. In the sample grid shown below, the largest sum that can be achieved is 120.

70	2	1	7
7	1	30	6
4	30	30	5
3	1	30	2

Write a program that determines the largest such sum for a given grid.

Input

Your program will be tested on one or more test cases. The first line of a test case has a single integer N denoting the grid size where $4 \leq N \leq 100$. The grid will be specified using N lines starting on the second line in a row major format. Each line will have N integers separated by one or more spaces. The absolute value of each integer in the grid will not exceed $1,000,000$.

The end of the input cases is specified by a zero on a separate line.

Output

For each test case, output the result on a single line using the following format:

$k.\sqcup result$

Where k is the test case number (starting at 1,) and $result$ is the largest sum that can be obtained.

Sample Input

```
4
70  2  1 7
 7  1 30 6
 4 30 30 5
 3  1 30 2
0
```

Output

```
1. 120
```