

Triangle Sum

Timelimit: 3 sec

Problem description

You are given a square matrix of integers. Find a triangle that contains numbers whose sum is as big as possible. If the matrix is a $n \times n$ matrix a_{ij} then a triangle of width s that starts at a_{ij} contains all $a_{i'j'}$ where $i' \leq i$, $j' \leq j$, and $i + j - i' - j' < s$. With other words: All coordinates are contained that are reachable from (i, j) in at most $s - 1$ steps, where one step is to the left or up.

Input

A number n ($n \leq 1000$) followed by n lines containing the rows of the $n \times n$ matrix.

Output

One number. The maximal sum in a triangle.

Sample input/output

Input	Output
4 1 2 3 -4 5 6 7 8 -1 -1 -1 -1 -2 -2 -2 -2	16

In this example the triangle of width 2 starting at $(2, 3)$ is optimal. It contains the numbers 3, 6, 7.