

F7 – Obstacle course

You are working on the team assisting with programming for the Mars rover. To conserve energy, the rover needs to find optimal paths across the rugged terrain to get from its starting location to its final location. $N \times N$ square matrices contain the expenses for traversing each individual cell. For each of them, your task is to find the minimum-cost traversal from the top left cell $(0, 0)$ to the bottom right cell $(N - 1, N - 1)$. Legal moves are up, down, left, and right; that is, either the row index changes by one or the column index changes by one, but not both.

Input:

The first line of the input contains an integer N , $2 \leq N \leq 125$, giving the number of rows and columns in the $N \times N$ square matrix. Then will follow N lines, each containing N numbers. These numbers will be given as single digits, zero through nine, separated by single blanks.

Output:

The output is a single line containing an integer indicating the expense of the minimum-cost path from the top left to the bottom right corner.

Input and output samples:

| Input: | Output: |
|--------|---------|
| 3 | 20 |
| 5 5 4 | |
| 3 9 1 | |
| 3 2 7 | |

| Input: | Output: |
|-----------|---------|
| 5 | 19 |
| 3 7 2 0 1 | |
| 2 8 0 9 1 | |
| 1 2 1 8 1 | |
| 9 8 9 2 0 | |
| 3 6 5 1 5 | |

| Input: | Output: |
|---------------|---------|
| 7 | 36 |
| 9 0 5 1 1 5 3 | |
| 4 1 2 1 6 5 3 | |
| 0 7 6 1 6 8 5 | |
| 1 1 7 8 3 2 3 | |
| 9 4 0 7 6 4 1 | |
| 5 8 3 2 4 8 3 | |
| 7 4 8 4 8 3 4 | |