MaxNums

You are given a NxN matrix. The top left is indexed as (1,1) and the bottom right is indexed as (N,N). You start at (1,1) and need to reach (N,N). The matrix has numbers between 0 to 9. You need to find a path from (1,1) to (N,N) which grants maximum points (see rules below), while only moving right or down, i.e from (i,j) to (i+1,j) or (i,j+1). You need to print the maximum points possible.

Rules-

1. You start with 0 points
2. Moving right gives +1 points
3. Moving down gives -1 points
4. **When your score is 0, you can only move right** (not allowed to decrease score below 0, even if it allows you to gain large number of points later or even immediately)
5. Reaching a point in the matrix gives score equal to the number it has.

Please look at the first 3 sample examples carefully.

Grading instructions -

1. You are given a skeleton code with **input output code already written** for you, as well as some structure. The main function only does I/O. The solve function can be used to do some additional preprocessing on data. The recur function needs to be implemented (you need to change return type and arguments as well for that). Following this structure will save you time, but **you can disregard the provided code** and write from scratch if you want. There will be **no penalty for this**.
2. Your solution needs to use recursion. This problem can be solved via an iterative/bottom up solution, but that approach is not allowed. In simple words, **any solution other than recursion will result in zero marks.**

Constraints
N < 10

Input Format
First line will contain an integer N, representing size of matrix
Next N lines will contain the matrix

Output Format
Print a single integer denoting maximum number of points attainable

Example

Input
5
00000
0000**0**
0000**0**
0000**0**
9000**0**

Output
0

Explanation
In the above matrix, at the bottom, there's an opportunity to get +9 points. However, you cannot go there because you can only move right and down, and since your initial score is 0, you will have to move right as your first move (+1), and then you can move down(-1), or right again(+1). As it should be clear to you, since it's a square matrix, it's always possible to go from (1,1) to (N,N) without getting into negative points and then reaching (N,N) with score 0. Highlighted in bold is one potential path

Example

Input
5
40000
00000
00000
00000
90000

Output
13

Explanation
Because of the 4 in (1,1), we can take the highlighted path and get to 9.

Example

Input
2
00
90

Output
0

Explanation
Since your score is 0 at (1,1), you can't go to (1,2) and gain the +9. This is true even though you're at 0 score, go down costing -1 but immediately get into positive score due to +9, effectively making it a +8 move.

Input
10
0000000005
000**2**050000
000**0**000000
000**0**131000
000**0**000000
999**9003**000
020000**0**000
005000**200**3
0700000**0**0
0000000**80**

Output
24

Explanation
One potential path shown in bold.