CS23331-Design and Analysis of Algorithms-2023 Batch-CS

Quiz navigation

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Finish review

Status	Finished
Started	Tuesday, 22 April 2025, 1:24 PM
Completed	Tuesday, 22 April 2025, 1:41 PM
Duration	17 mins 15 secs
Grade	**10.00** out of 10.00 (**100**%)

Question **1**

Correct

Mark 10.00 out of 10.00

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Playing with Chessboard:

Ram is given with an n*n chessboard with each cell with a monetary value. Ram stands at the (0,0), that the position of the top left white rook. He is been given a task to reach the bottom right black rook position (n-1, n-1) constrained that he needs to reach the position by traveling the maximum monetary path under the condition that he can only travel one step right or one step down the board. Help ram to achieve it by providing an efficient DP algorithm.

Example:

Input

3

1 2 4

2 3 4

8 7 1

Output:

19

Explanation:

Totally there will be 6 paths among that the optimal is

Optimal path value:1+2+8+7+1=19

Input Format

First Line contains the integer n

The next n lines contain the n*n chessboard values

Output Format

Print Maximum monetary value of the path

Answer: (penalty regime: 0 %)

```c
#include <stdio.h>
int main() {
    int n;
    scanf("%d", &n);
    int board[100][100];
    int dp[100][100];
    for (int i = 0; i < n; i++) {
        for (int j = 0; j < n; j++) {
            scanf("%d", &board[i][j]);
        }
    }
    for (int i = 0; i < n; i++) {
        for (int j = 0; j < n; j++) {
            if (i == 0 && j == 0)
                dp[i][j] = board[i][j];
            else if (i == 0)
                dp[i][j] = dp[i][j - 1] + board[i][j];
            else if (j == 0)
                dp[i][j] = dp[i - 1][j] + board[i][j];
            else
                dp[i][j] = (dp[i - 1][j] > dp[i][j - 1] ? dp[i - 1][j] : dp[i][j - 1]) + board[i][j];
        }
    }

    printf("%d\n", dp[n - 1][n - 1]);

    return 0;
}
```

	Input	Expected	Got	
	3 1 2 4 2 3 4 8 7 1	19	19	
	3 1 3 1 1 5 1 4 2 1	12	12	
	4 1 1 3 4 1 5 7 8 2 3 4 6 1 6 9 0	28	28	

Passed all tests!

Correct

Marks for this submission: 10.00/10.00.

Finish review

◄ 1-DP-Playing with Numbers

Jump to...

3-DP-Longest Common Subsequence ►