1-DP-Playing with Numbers

Started on	Sunday, 12 October 2025, 9:44 AM
State	Finished
Completed on	Sunday, 12 October 2025, 9:50 AM
Time taken	6 mins 51 secs
Grade	**10.00** out of 10.00 (**100**%)

Question 1 | Correct Mark 10.00 out of 10.00 Flag question

Playing with Numbers:

Ram and Sita are playing with numbers by giving puzzles to each other. Now it was Ram term, so he gave Sita a positive integer 'n' and two numbers 1 and 3. He asked her to find the possible ways by which the number n can be represented using 1 and 3.Write any efficient algorithm to find the possible ways.

Example 1:

Input: *6*
Output:*6*
Explanation: *There are 6 ways to 6 represent number with 1 and 3*

1+1+1+1+1+1
3+3
1+1+1+3
1+1+3+1
1+3+1+1
3+1+1+1

Input Format

First Line contains the number n

Output Format

Print: The number of possible ways 'n' can be represented using 1 and 3

Sample Input

6

Sample Output

6

Answer: (penalty regime: 0 %)

```c
#include <stdio.h>


long long countWays(int n) {

    long long dp[n + 1];

    dp[0] = 1;
    dp[1] = 1;
    dp[2] = 1;

    for (int i = 3; i <= n; i++) {
        dp[i] = dp[i - 1] + dp[i - 3];
    }

    return dp[n];
}

int main() {
    int n;
    scanf("%d", &n);

    if (n < 0) {
        printf("0\n");
    } else if (n == 0 || n == 1 || n == 2) {
        printf("1\n");
    } else {

        long long result = countWays(n);

        printf("%lld\n", result);
    }

    return 0;
}
```

	Input	Expected	Got	

✔	6	6	6	✔
✔	25	8641	8641	✔
✔	100	24382819596721629	24382819596721629	✔

Passed all tests! ✔

Correct

Marks for this submission: 10.00/10.00.

Finish review

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2-DP-Playing with chessboard

Started on	Friday, 24 October 2025, 1:42 PM
State	Finished
Completed on	Friday, 24 October 2025, 2:00 PM
Time taken	18 mins 32 secs
Grade	**10.00** out of 10.00 (**100**%)

Question 1 | Correct Mark 10.00 out of 10.00 Flag question

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[n][n];
    int dp[n][n];
    for (int i = 0; i < n; i++) {
        for (int j = 0; j < n; j++) {
            scanf("%d", &board[i][j]);
        }
    }
    dp[0][0] = board[0][0];
    for (int j = 1; j < n; j++) {
        dp[0][j] = dp[0][j - 1] + board[0][j];
    }
    for (int i = 1; i < n; i++) {
        dp[i][0] = dp[i - 1][0] + board[i][0];
    }
    for (int i = 1; i < n; i++) {
        for (int j = 1; j < n; j++) {
            int maxPrev = dp[i - 1][j] > dp[i][j - 1] ? dp[i - 1][j] : dp[i][j - 1];
            dp[i][j] = board[i][j] + maxPrev;
        }
    }
    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	12	12	✔

	1 3 1 1 5 1 4 2 1			
✔	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

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3-DP-Longest Common Subsequence

Started on	Friday, 24 October 2025, 2:01 PM
State	Finished
Completed on	Friday, 24 October 2025, 2:08 PM
Time taken	7 mins 33 secs
Marks	1.00/1.00
Grade	**10.00** out of 10.00 (**100**%)

Question 1 | Correct Mark 1.00 out of 1.00 Flag question

Given two strings find the length of the common longest subsequence(need not be contiguous) between the two.

Example:

s1: ggtabe

s2: tgatasb

s1	a	g	**g**	**t**	**a**	**b**	
s2	**g**	x	**t**	**x**	**a**	**y**	**b**

The length is 4

Solveing it using Dynamic Programming

For example:

Input	Result
aab azb	2

Answer: (penalty regime: 0 %)

```c
#include <stdio.h>
#include <string.h>

int LCS(char s1[], char s2[]) {
    int m = strlen(s1);
    int n = strlen(s2);
    int dp[m + 1][n + 1];

    for (int i = 0; i <= m; i++) {
        for (int j = 0; j <= n; j++) {
            if (i == 0 || j == 0)
                dp[i][j] = 0;
            else if (s1[i - 1] == s2[j - 1])
                dp[i][j] = 1 + dp[i - 1][j - 1];
            else
                dp[i][j] = (dp[i - 1][j] > dp[i][j - 1]) ? dp[i - 1][j] : dp[i][j - 1];
        }
    }

    return dp[m][n];
}

int main() {
    char s1[100], s2[100];
    scanf("%s", s1);
    scanf("%s", s2);
    int result = LCS(s1, s2);
    printf("%d\n", result);
    return 0;
}

```

	Input	Expected	Got	
✔	aab azb	2	2	✔
✔	ABCD ABCD	4	4	✔

Passed all tests! ✔

Correct

Correct

Marks for this submission: 1.00/1.00.

Finish review

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4-DP-Longest non-decreasing Subsequence

Done

Opened: Tuesday, 1 July 2025, 12:03 AM

Re-attempt quiz

Attempts allowed: 4

Time limit: 1 hour

Grading method: Highest grade

Summary of your previous attempts

Attempt	State	Marks / 1.00	Grade / 10.00	Review
1	Finished Submitted Friday, 24 October 2025, 2:18 PM	1.00	10.00	Review

Highest grade: 10.00 / 10.00.

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