RAJALAKSHMI ENGINEERING COLLEGE

Started on	Wednesday, 5 November 2025, 3:58 AM
State	Finished
Completed on	Wednesday, 5 November 2025, 4:03 AM
Time taken	5 mins 7 secs
Grade	**10.00** out of 10.00 (**100**%)

Question 1 | Correct Mark 10.00 out of 10.00

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>

unsigned long long countWays(int n) {
    unsigned long long dp[n + 1];

    // Initialize all dp values to 0
    for (int i = 0; i <= n; i++)
        dp[i] = 0;

    // Base case: there's 1 way to make 0
    dp[0] = 1;

    // Fill dp array using bottom-up approach
    for (int i = 1; i <= n; i++) {
        if (i >= 1)
            dp[i] += dp[i - 1];
        if (i >= 3)
            dp[i] += dp[i - 3];
    }

    return dp[n];
}

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

```
    scanf("%d", &n);

    if (n < 0) {
        printf("0\n");
    } else {
        unsigned long long result = countWays(n);
        printf("%llu\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.

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