

Problem

Result

Code : Staircase using Dp

Send Feedback

A child runs up a staircase with 'n' steps and can hop either 1 step, 2 steps or 3 steps at a time. Implement a method to count and return all possible ways in which the child can run-up to the stairs.

Input format :

The first and the only line of input contains an integer value, 'n', denoting the total number of steps.

Output format :

Print the total possible number of ways.

Constraints :

0 <= n <= 10 ^ 4

Time Limit: 1 sec

Sample Input 1:

4

Sample Output 1:

7

Sample Input 2:

10

Sample Output 2:

274

```
1 * #include<bits/stdc++.h>
2 * long staircase(int n){
3 *     /* Don't write main().
4 *     * Don't read input, it is passed as function argument.
5 *     * Return output and don't print it.
6 *     * Taking input and printing output is handled automatically.
7 *     */
8 *     long long int *ans=new long long int[n+1];
9 *     ans[0]=1;
10 *    ans[1]=1;
11 *    long long int x,y,z;
12 *    for(int i=2;i<=n;i++){
13 *        x=0,y=0,z=0;
14 *        x=ans[i-1];
15 *        if(i-2>=0)
16 *            y=ans[i-2];
17 *        if(i-3>=0)
18 *            z=ans[i-3];
19 *        // cout<<"x: " <<x<<" y: " <<y<<" z: " <<z<<endl;
20 *        ans[i]=x+y+z;
21 *        //cout<<ans[i]<<endl;
22 *    }
23 *    return ans[n];
24 * }
25
```