Roy and Little Mario

Submissions Attempted by: **375** | Solved by: **203** | Partially Solved by: **39** | ★★★☆☆

Ad-Hoc Algorithms Combinatorics Dynamic Programming Medium Edit

Hi,

This problem is a representation of summing the values of the nth row of a Pascals triangle. So it can be calculated as 2 to the power of N. Where N is the number of bricks available.

Explanation is as:

1 brick can be arranged in 1 way. 2 bricks can be arranged in 1+1 way (covering 1 place at a time and covering two places at a time) 3 bricks can be arranged in 1+2+ way (covering 1, 2 and three places at a time respectively).

Going on this way we see that a **Pascal's triangle** is formed. The total number of ways in which the bricks can be arranged is the sum of the Nth row of the triangle.

It can be easily calculated using JAVA's Math.pow(2, N)... :-)

Edit Editorial

IS THIS EDITORIAL HELPFUL?

Yes, it's helpful

No, it's not helpful

2 developer(s) found this editorial helpful.

Author Solution by Ravi Ojha

```
"""
This is O(1) solution for each test case
If one can't figure that its a Tribonacci Series,
then he will use bruteforce over ((n-2)^2)/12 possibilities
which shall get him AC in one or two Test Files.

Note that I've used Dynamic-Programming Tag for O(1) solution and
Multiplicative-Inverse Tag for O(n^2) solution
```

```
9.
10. This question is inspired from integer partition problem, where ea
11. For each possible partition we find number of permutations and sum
12. Initially I actually restricted each partition to be just 1 or 2,
13. So to make things tough, I introduced 3 also and hence Tribonacci
14. """
15.
16. MOD = 1000000007
17. trib = []
18. def calc_trib():
19.     trib.append(0)
20.     trib.append(1)
21.     trib.append(2)
22.     trib.append(4)
23.     for i in xrange(4,100010):
24.         temp = (trib[i-1] + trib[i-2] + trib[i-3])%MOD
25.         trib.append(temp)
26. def roy_and_mario():
27.     calc_trib() #we figured that it is nothing but a tribonacci s
28.     for t in xrange(input()):
29.         n = input()
30.         print trib[n]
31. roy_and_mario()
```

Tester Solution

```
1. #include <iostream>
2. #include<stdio.h>
3. using namespace std;
4. #define MOD 1000000007
5. #define LL long long int
6. int main() {
7.     int t,N,i;
8.         LL tribonacci[100010];
9.         tribonacci[0]=0,tribonacci[1]=0,tribonacci[2]=1;
10.        for(i=3;i<100010;i++) tribonacci[i]=(tribonacci[i-1]+tribon
11.        scanf("%d",&t);
12.        while(t--)
13.        {
14.                scanf("%d",&N);
15.                printf("%lld\n",tribonacci[N+2]);
16.        }
17.        return 0;
18. }
```

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Lavesh Gupta a year ago

Please Ravi can you explain how it is a Tribonacci series

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Puneet Jain a year ago

How can it be a pascal triangle...as for n=4 pascal traingle gives a solution of 8...but the correct answer is 7

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Puneet Jain a year ago

How can it be a pascal triangle...as for n=4 pascal triangle gives a solution of 8...but the correct answer is 7

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Shivam Mishra 10 months ago

wrong explanation

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rit2013060 7 days ago

whoever have written editorial for this problem -- is wrong - that is actually solution when there is no limit on bricks height.
Unfortunately that here is 3.

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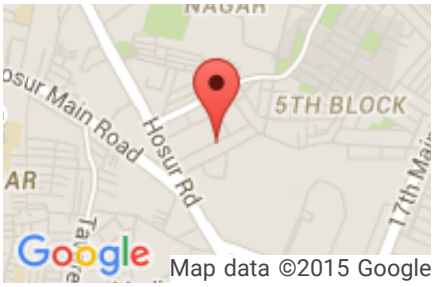

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