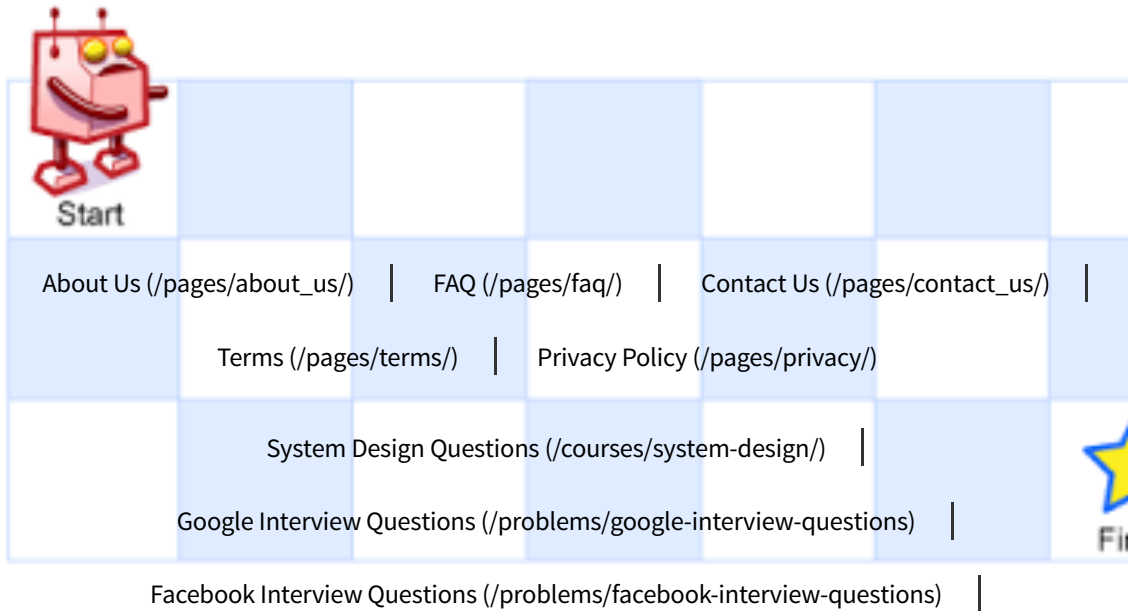← Programming (/courses/programming) / Math (/courses/programming/topics/math/)
/ Grid Unique Paths

Grid Unique Paths   Suggest Edit   Bookmark

A robot is located at the top-left corner of an **A x B grid** (marked 'Start' in the diagram below).

The robot can only move either down or right at any point in time. The robot is trying to reach the bottom-right corner of the grid (marked 'Finish' in the diagram below).

How many possible unique paths are there?

Note: A and B will be such that the resulting answer fits in a 32 bit signed integer.

Example :

```
Input : A = 2, B = 2
Output : 2

2 possible routes : (0, 0) -> (0, 1) -> (1, 1)
            OR  : (0, 0) -> (1, 0) -> (1, 1)
```

See Expected Output

Notes

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Time to Solve: 89 min. / Average Solving Time: 30 min.   Your Score: 169   Max Score: 375 ℹ

monokai   C++11 (gcc-4.8)   Seek Help   ℹ ⤢

```cpp
 1   long long unsigned int nCr(int n, int r)
 2   {
 3       // nCr = n! / ((n-r)! * r!)
 4       r = min(r, n-r);
 5       long long unsigned ans = 1;
 6       int tr = 1;
 7       for (int i = n ; i>(n-r); i--) {
 8           ans = ans *i;
 9           ans = ans / tr++;
10       }
11       return ans;
12
13   }
14
15   int Solution::uniquePaths(int A, int B) {
16       // Do not write main() function.
17       // Do not read input, instead use the arguments to the function.
18       // Do not print the output, instead return values as specified
19       // Still have a doubt. Checkout www.interviewbit.com/pages/sample_codes/ for more det
20
21       #if 0
22       have to take A-1 steps down and B-1 steps right
23       so total steps = A+B-2
24       if we denote taking down is 0 and taking right is 1
25       then the problem reduces to finding number of strings of length A+B-2 where there are
26       exactly A-1 zeroes and B-1 ones
27       if we find ways to put B-1 ones then we can fill rest of the zeroes
28       so the problem is nCr (A+B-2, B-1)
29       #endif
30       return nCr(A+B-2, B-1);
31   }
32
```

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Previous Submissions (/courses/1/topics/3/problems/grid-unique-paths/previous_su

Hints

Solution Approach (/courses/1/topics/3/problems/grid-unique-paths/hints/174/)   🔓

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