

# Unique Grid Path

## Problem Statement

[Suggest Edit](#)

You are present at point 'A' which is the top-left cell of an  $M \times N$  matrix, your destination is point 'B', which is the bottom-right cell of the same matrix. Your task is to find the total number of unique paths from point 'A' to point 'B'. In other words, you will be given the dimensions of the matrix as integers 'M' and 'N', your task is to find the total number of unique paths from the cell  $MATRIX[0][0]$  to  $MATRIX[M - 1][N - 1]$ .

To traverse in the matrix, you can either move Right or Down at each step. For example in a given point  $MATRIX[i][j]$ , you can move to either  $MATRIX[i + 1][j]$  or  $MATRIX[i][j + 1]$ .

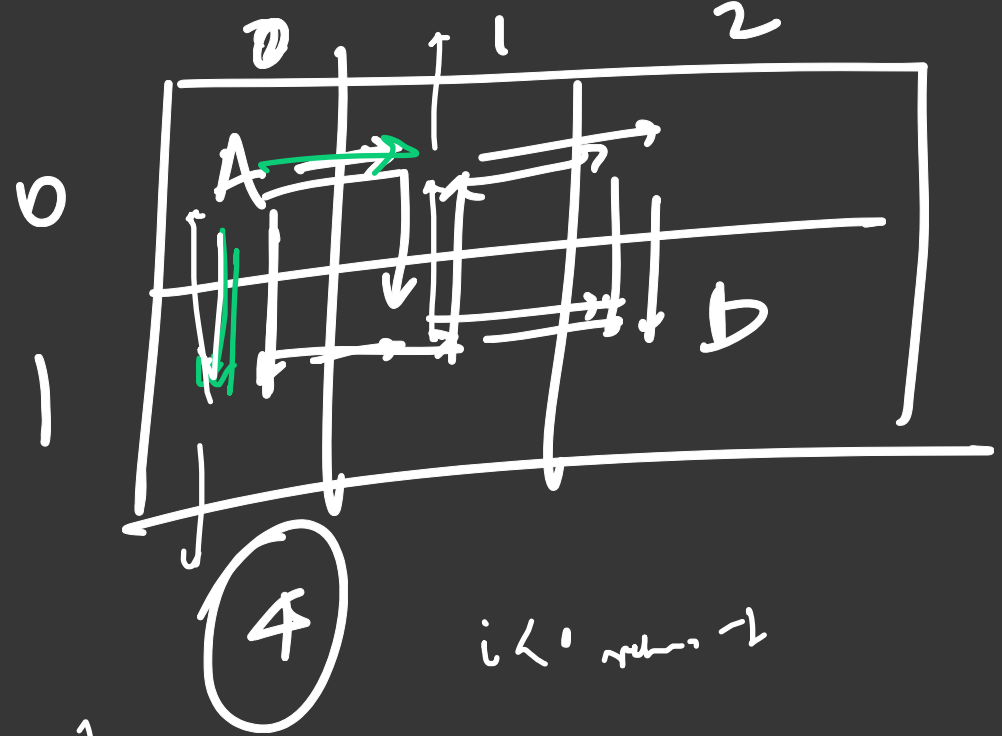
7 2 3

Unique Pet Count

# Time

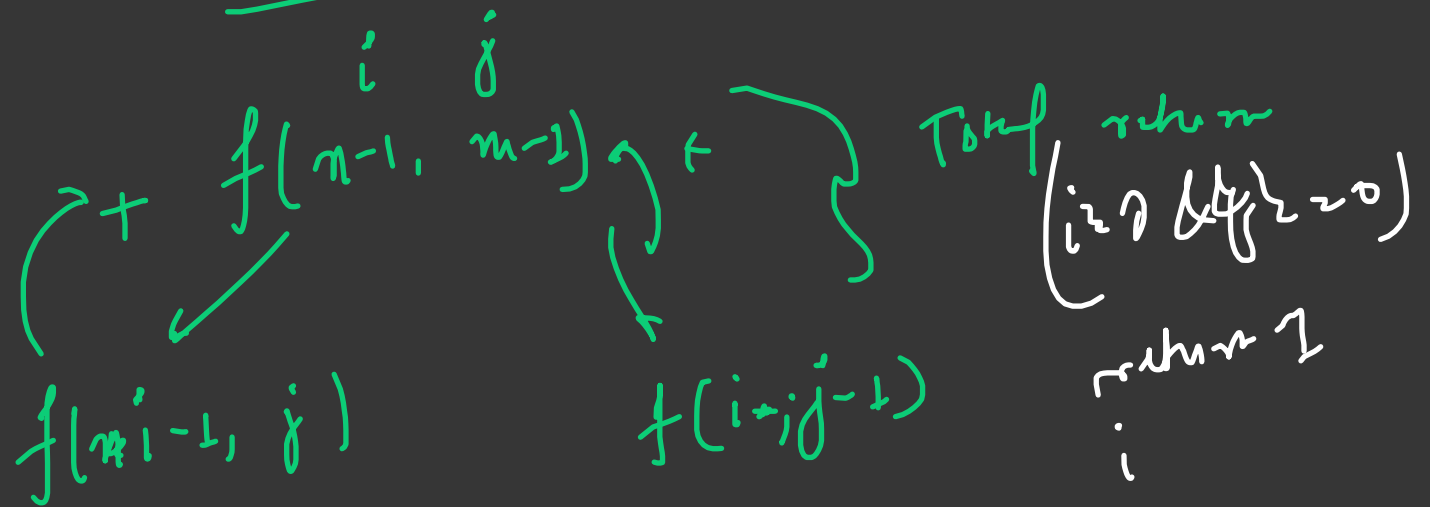
$$i \nabla \cdot \mathbf{A} = 0$$

ik'  $\rightarrow$  1



Approach → we have try all ways / paths.

Return



Pseudocode.

if

dp[i][j]

base case (0, 0) return 1,

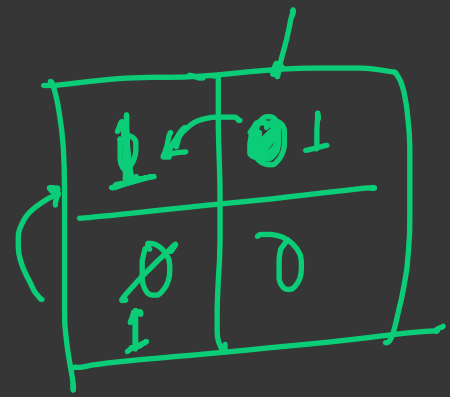
dp[0][0] = 1

if (i < 0) x

i-1 for (i=0; i < n; i++)

f(j=0, j < m, j++)

if (i > 0 & j > 0)  
dp[i][j] = dp[i-1][j] + dp[i][j-1]

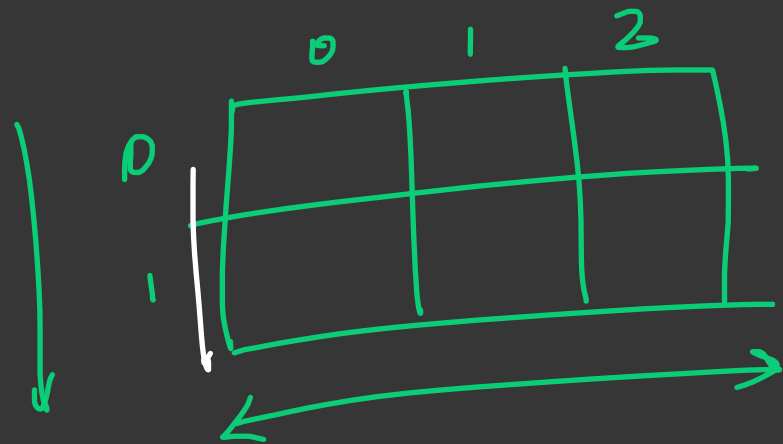


prw → curr

	1	1
1	1	1

Optimal Solution

Using Combination:



Total

$$m+n-2$$

$$2+3+5-2$$

$$2 \textcircled{3} \rightarrow$$

$$\left\{ \begin{array}{l} 0, \text{ first down (row)} \rightarrow \underline{2} (\underline{1}) \\ 0, 1, 2 \text{ left (col)} \rightarrow \underline{3} (\underline{2}) \end{array} \right.$$

Total Combination  $3(m+n-5)$

$$\left\{ \begin{array}{ccc} \underline{D} & \underline{L} & \underline{L} \\ \underline{L} & \underline{D} & \underline{L} \\ \underline{L} & \underline{L} & \underline{D} \end{array} \right\} \underline{\underline{\text{Combination}}}$$

