5/15/22, 5:41 PM Maximum Path Sum in the matrix

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                                                 Practice ▼
                                                             Guided Paths (
                                                                             Interview Prep ▼
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                                                            4
                                              Submissions
                                                                                                                                                                    C++ (g++ 5.4)
        Problem
                                                    1 v int solve(int r, int c, vector<vector<int>> &matrix, int n, vector<vector<int>>& dp){
                                   Report
Correct Answer
                                                            if(c < 0 or c >= matrix[0].size())
Submitted on May 15, 2022, 5:40:58 PM
                                                    3
                                                                return -1e8;
                                                    4
                                                            if(r == (n - 1))
Penalty ?
             Score
                          Test Cases
                          8/8
                                                                return dp[r][c] = matrix[r][c];
             72
10%
                                                    6
Runtime
             Language
                                                    7
                                                            if(dp[r][c] != -1)
             C++ (g++ 5.4)
351ms
                                                    8
                                                                return dp[r][c];
                                                    9
                                                            int d = solve(r + 1, c, matrix, n, dp) + matrix[r][c];
                                                   10
                                                            int dLeft = solve(r + 1, c - 1, matrix, n, dp) + matrix[r][c];
                                                   11
Previous Submissions
                                                   12
                                                            int dRight = solve(r + 1, c + 1, matrix, n, dp) + matrix[r][c];
 Submitted On
              Status
                               Score
                                         Penalty
                                                   13
              Correct Answer
                                                            return dp[r][c] = max(d, max(dLeft, dRight));
                                                   14
                                         0%
 6 mins ago
                               80/80
              8/8 Test cases Passed
                                                   15 }
                                                   16
                                                      int getMaxPathSum(vector<vector<int>> &matrix)
              Wrong Answer
 10 mins ago
                               60/80
                                         0%
                                                   17 ▼ {
              6/8 Test cases Passed
                                                            // Write your code here.
                                                   18
              Correct Answer
                                         0%
                                                   19 ▼
 19 mins ago
                               80 / 80
              8/8 Test cases Passed
                                                   20
                                                                //This is Recursive and Memoization solution
              Correct Answer
                                                   21
                                                                     Recursive
 36 mins ago
                               80/80
                                         0%
              8/8 Test cases Passed
                                                   22
                                                                         //TC = O(3^n)
                                                   23
                                                                         //SP = O(1)
              Correct Answer
 53 mins ago
                               80/80
                                         0%
                                                                     Memoization
                                                   24
              8/8 Test cases Passed
                                                   25
                                                                         //TC = O(n * n)
              Correct Answer
                                                                         //SP = O(n * n + St)
                                                   26
 1 hour ago
                               80 / 80
                                         0%
              8/8 Test cases Passed
                                                   27
                                                   28
                                                            int columns = matrix[0].size();
              Time Limit
 1 hour ago
                                49.6 / 80
              Exceeded
                                                            int rows = matrix.size();
                                                   29
                                                            int ans = -1e8;
                                                   30
              Time Limit
 1 hour ago
                                40/80
                                         0%
                                                            vector<vector<int>> dp(rows, vector<int>(columns, -1));
                                                   31
              Exceeded
                                                            for(int i = 0; i < columns; i++){
                                                   32
              Correct Answer
                                                   33
                                                                ans = max(ans, solve(0, i, matrix, rows, dp));
 2 mins ago
                               80/80
              8/8 Test cases Passed
                                                   34
                                                   35
                                                            return ans;
                                                            */
                                                   36
                                                   37
                                                   38 ▼
                                                            //This is Tabulation Approach
                                                   39
                                                                     //TC = O(n*n)
                                                   40
                                                   41
                                                                     //SP = O(n*n)
                                                            int columns = matrix[0].size();
                                                   43
                                                            int rows = matrix.size();
                                                            vector<vector<int>> dp(rows, vector<int>(columns, -1));
                                                   44
                                                   45
                                                            int ans = -1e8;
                                                   46
                                                            for(int c = 0; c < columns; c++)
                                                                dp[rows - 1][c] = matrix[rows - 1][c];
                                                   47
                                                   48
                                                   49
                                                            for(int r = rows - 2; r >= 0; r--){
                                                   50
                                                                for(int c = 0; c < columns; c++){
                                                                     if(c == 0){
                                                   51
                                                                         int d = matrix[r][c] + dp[r + 1][c];
                                                   52
                                                                         int dr = matrix[r][c] + dp[r + 1][c + 1];
                                                   53
                                                   54
                                                                         dp[r][c] = max(d, dr);
                                                   55
                                                                     else if(c == (columns - 1)){
                                                   56
                                                   57
                                                                         int d = matrix[r][c] + dp[r + 1][c];
                                                   58
                                                                         int dl = matrix[r][c] + dp[r + 1][c - 1];
                                                   59
                                                                         dp[r][c] = max(d, dl);
                                                   60
                                                   61
                                                                     else{
                                                   62
                                                                         int d = matrix[r][c] + dp[r + 1][c];
                                                   63
                                                                         int dl = matrix[r][c] + dp[r + 1][c - 1];
                                                                         int dr = matrix[r][c] + dp[r + 1][c + 1];
                                                   64
                                                                         dp[r][c] = max(d, max(dl, dr));
                                                   65
                                                   66
                                                   67
                                                   68
                                                   69
                                                            for(int c = 0; c < columns; c++)</pre>
                                                   70
                                                                ans = max(ans, dp[0][c]);
                                                   71
                                                            return ans;
                                                   72
                                                            */
                                                   73
                                                   74
                                                                //This is space optimized solution
                                                   75
                                                                     //TC = O(n^2)
                                                                     //SP = O(n)
                                                   76
                                                   77
                                                            int columns = matrix[0].size();
```

Console ^

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Show Hint

int rows = matrix.size();

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