🔖 Dynamic Programming

You have solved **25 / 125** problems.

```
Input: "babad"
Output: "bab"
Note: "aba" is also a valid answer.
```

5   Longest Palindromic Substring (/problems/longest-palindromic-substring)

1. Extend   2. only Check those whose len will be larger than maxLen

53   Maximum Subarray (/problems/maximum-subarray)

```
Situation 1:
   m * i * s * i s * p * .    -> p
   1 0 1 0 1 0 1 0 0 0 0 0 0
m 0 1 0 0 0 0 0 0 0 0 0 0 0
i
```

121
```
Input: [−2,1,−3,4,−1,2,1,−5,4],             o-buy-and-sell-
Output: 6
Explanation: [4,−1,2,1] has the largest sum = 6.
```

```
Situation 2:
      .                        -> p
      1 0
m 0 1
```

```
Situation 3:
      m *
      1 0 1
m 0 1 1
m 0 0 1
m 0 0 1
```

70   Climbing Stairs (/problems/climbing-stairs)

10   Regular Expression Matching (/problems/regular-expression-matchin

m*i*s*   *count as one, two and three.

```
Input:
s = "mississippi"
p = "mis*is*p*."
Output: false
```

```
Situation 4:
      . *
      1
m
m
m
```

198   House Robber (/problems/house-robber)

```
Input: 5
Output: [0,1,1,2,1,2]
```

338   Counting Bits (/problems/counting-bits) $f[i] = f[i / 2] + i \% 2.$

More like a math problem.

139   Word Break (/problems/word-break)
```
Input: s = "catsandog", wordDict = ["cats", "dog", "sand", "and", "cat"]
Output: false
```

85   Maximal Rectangle (/problems/maximal-rectangle)

152   Maximum Product Subarray (/problems/maximum-product-subarray)

72   Edit Distance (/problems/edit-distance)

```
Input: [3,1,5,8]
Output: 167
Explanation: nums = [3,1,5,8] --> [3,5,8] -->   [3,8]   --> [8] --> []
             coins =  3*1*5      + 3*5*8    + 1*3*8    + 1*8*1   = 167
```

96   Unique Binary Search Trees (/problems/unique-b

312   Burst Balloons (/problems/burst-balloons)

firstly check 1, Math method is faster, 4k(8m+7), res = 4, then check 2

279   Perfect Squares (/problems/perfect-squares)

```
dp = triangle[-1]
for i in range(len(triangle) - 2, -1,-1):
    for j in range(len(triangle[i])):
        dp[j] = min(dp[j], dp[j+1]) + triangle[i][j]
return dp[0]
```

120   Triangle (/problems/triangle)

64   Minimum Path Sum (/problems/minimum-path-sum)

62   Unique Paths (/problems/unique-paths)

303   Range Sum Query - Immutable (/problems/range-sum-query-immutable)

123   Best Time to Buy and Sell Stock III (/problems/best-time-to-buy-and-sell-stock-iii)

```
Input: ")()())"
Output: 4
Explanation: The longest valid parentheses substring is "()()"
```

32   Longest Valid Parentheses (/problems/long

647   Palindromic Substrings (/problems/palindromic-substrings)

115   Distinct Subsequences (/problems/distinct-subsequences)

Use a stack

140   Word Break II (/problems/word-break-ii)

More like backtracking

188   Best Time to Buy and Sell Stock IV (/problems/best-time-to-buy-and-sell-
      stock-iv)

413   Arithmetic Slices (/problems/arithmetic-slices)

95   ~~Unique Binary Search Trees II~~ (/problems/unique-binary-search-trees-ii)

91   Decode Ways (/problems/decode-ways)

322   Coin Change (/problems/coin-change)

357   Count Numbers with Unique Digits (/problems/count-numbers-with-unique-
      digits)

309   Best Time to Buy and Sell Stock with Cooldown (/problems/best-time-to-
      buy-and-sell-stock-with-cooldown)

264   Ugly Number II (/problems/ugly-number-ii)

97   Interleaving String (/problems/interleaving-string)

746   Min Cost Climbing Stairs (/problems/min-cost-climbing-stairs)

300   Longest Increasing Subsequence (/problems/longest-increasing-
      subsequence)

343   Integer Break (/problems/integer-break)

87   Scramble String (/problems/scramble-string)

221   Maximal Square (/problems/maximal-square)

44   Wildcard Matching (/problems/wildcard-matching)

375   Guess Number Higher or Lower II (/problems/guess-number-higher-or-lower-
      ii)

304   Range Sum Query 2D - Immutable (/problems/range-sum-query-2d-
      immutable)

516   Longest Palindromic Subsequence (/problems/longest-palindromic-
      subsequence)

174   Dungeon Game (/problems/dungeon-game)

718   Maximum Length of Repeated Subarray (/problems/maximum-length-of-
      repeated-subarray)

698   Partition to K Equal Sum Subsets (/problems/partition-to-k-equal-sum-
      subsets)

354   Russian Doll Envelopes (/problems/russian-doll-envelopes)

321   Create Maximum Number (/problems/create-maximum-number)

920   Number of Music Playlists (/problems/number-of-music-playlists)

712   Minimum ASCII Delete Sum for Two Strings (/problems/minimum-ascii-
         delete-sum-for-two-strings)

132   Palindrome Partitioning II (/problems/palindrome-partitioning-ii)

740   Delete and Earn (/problems/delete-and-earn)

714   Best Time to Buy and Sell Stock with Transaction Fee (/problems/best-time-
         to-buy-and-sell-stock-with-transaction-fee)

403   Frog Jump (/problems/frog-jump)

363   Max Sum of Rectangle No Larger Than K (/problems/max-sum-of-rectangle-
         no-larger-than-k)

✔   213   House Robber II (/problems/house-robber-ii)

368   Largest Divisible Subset (/problems/largest-divisible-subset)

377   Combination Sum IV (/problems/combination-sum-iv)

410   Split Array Largest Sum (/problems/split-array-largest-sum)

✔   63   Unique Paths II (/problems/unique-paths-ii)

546   Remove Boxes (/problems/remove-boxes)

638   Shopping Offers (/problems/shopping-offers)

✔   256   Paint House (/problems/paint-house)   🔓

494   Target Sum (/problems/target-sum)

376   Wiggle Subsequence (/problems/wiggle-subsequence)

416   Partition Equal Subset Sum (/problems/partition-equal-subset-sum)

486   Predict the Winner (/problems/predict-the-winner)

✔   276   Paint Fence (/problems/paint-fence)   🔓

887   Super Egg Drop (/problems/super-egg-drop)

813   Largest Sum of Averages (/problems/largest-sum-of-averages)

646   Maximum Length of Pair Chain (/problems/maximum-length-of-pair-chain)

392   Is Subsequence (/problems/is-subsequence)

✔   689   Maximum Sum of 3 Non-Overlapping Subarrays (/problems/maximum-sum-
             of-3-non-overlapping-subarrays) ★

     474   Ones and Zeroes (/problems/ones-and-zeroes)

     877   Stone Game (/problems/stone-game)

     664   Strange Printer (/problems/strange-printer)

     903   Valid Permutations for DI Sequence (/problems/valid-permutations-for-di-
             sequence)

     673   Number of Longest Increasing Subsequence (/problems/number-of-longest-
             increasing-subsequence)

     464   Can I Win (/problems/can-i-win)

     730   Count Different Palindromic Subsequences (/problems/count-different-
             palindromic-subsequences)

     466   Count The Repetitions (/problems/count-the-repetitions)

     650   2 Keys Keyboard (/problems/2-keys-keyboard)

     741   Cherry Pickup (/problems/cherry-pickup)

     351   Android Unlock Patterns (/problems/android-unlock-patterns)   🔓

     361   Bomb Enemy (/problems/bomb-enemy)   🔓

     688   Knight Probability in Chessboard (/problems/knight-probability-in-
             chessboard)

     847   Shortest Path Visiting All Nodes (/problems/shortest-path-visiting-all-nodes)

     446   Arithmetic Slices II - Subsequence (/problems/arithmetic-slices-ii-
             subsequence)

     956   Tallest Billboard (/problems/tallest-billboard)

     517   Super Washing Machines (/problems/super-washing-machines)

     801   Minimum Swaps To Make Sequences Increasing (/problems/minimum-
             swaps-to-make-sequences-increasing)

     418   Sentence Screen Fitting (/problems/sentence-screen-fitting)   🔓

     629   K Inverse Pairs Array (/problems/k-inverse-pairs-array)

     787   Cheapest Flights Within K Stops (/problems/cheapest-flights-within-k-stops)

     931   Minimum Falling Path Sum (/problems/minimum-falling-path-sum)

467   Unique Substrings in Wraparound String (/problems/unique-substrings-in-wraparound-string)

818   Race Car (/problems/race-car)

523   Continuous Subarray Sum (/problems/continuous-subarray-sum)

472   Concatenated Words (/problems/concatenated-words)

✔   265   Paint House II (/problems/paint-house-ii)   🔓

838   Push Dominoes (/problems/push-dominoes)

879   Profitable Schemes (/problems/profitable-schemes)

552   Student Attendance Record II (/problems/student-attendance-record-ii)

576   Out of Boundary Paths (/problems/out-of-boundary-paths)

600   Non-negative Integers without Consecutive Ones (/problems/non-negative-integers-without-consecutive-ones)

808   Soup Servings (/problems/soup-servings)

471   Encode String with Shortest Length (/problems/encode-string-with-shortest-length)   🔓

873   Length of Longest Fibonacci Subsequence (/problems/length-of-longest-fibonacci-subsequence)

960   Delete Columns to Make Sorted III (/problems/delete-columns-to-make-sorted-iii)

837   New 21 Game (/problems/new-21-game)

514   Freedom Trail (/problems/freedom-trail)

871   Minimum Number of Refueling Stops (/problems/minimum-number-of-refueling-stops)

898   Bitwise ORs of Subarrays (/problems/bitwise-ors-of-subarrays)

943   Find the Shortest Superstring (/problems/find-the-shortest-superstring)

750   Number Of Corner Rectangles (/problems/number-of-corner-rectangles)   🔓

940   Distinct Subsequences II (/problems/distinct-subsequences-ii)

691   Stickers to Spell Word (/problems/stickers-to-spell-word)

639   Decode Ways II (/problems/decode-ways-ii)

568   Maximum Vacation Days (/problems/maximum-vacation-days)   🔓

764   Largest Plus Sign (/problems/largest-plus-sign)

935   Knight Dialer (/problems/knight-dialer)

790   Domino and Tromino Tiling (/problems/domino-and-tromino-tiling)

727   Minimum Window Subsequence (/problems/minimum-window-subsequence)   🔓

651   4 Keys Keyboard (/problems/4-keys-keyboard)   🔓

964   Least Operators to Express Number (/problems/least-operators-to-express-number)

902   Numbers At Most N Given Digit Set (/problems/numbers-at-most-n-given-digit-set)

656   Coin Path (/problems/coin-path)   🔓