**DP Standard Practice Problems**

**Atcoder dp Contest :-** [**https://atcoder.jp/contests/dp/tasks**](https://atcoder.jp/contests/dp/tasks)

**All Standard DP PROBLEMS :-**

1. [Ugly numbers](https://www.geeksforgeeks.org/ugly-numbers/)
2. [Fibonacci numbers](https://www.geeksforgeeks.org/program-for-nth-fibonacci-number/)
3. [nth Catalan Number](https://www.geeksforgeeks.org/program-nth-catalan-number/)
4. [Bell Numbers (Number of ways to Partition a Set)](https://www.geeksforgeeks.org/bell-numbers-number-of-ways-to-partition-a-set/)
5. [Binomial Coefficient](https://www.geeksforgeeks.org/dynamic-programming-set-9-binomial-coefficient/)
6. [Permutation Coefficient](https://www.geeksforgeeks.org/permutation-coefficient/)
7. [Tiling Problem](https://www.geeksforgeeks.org/tiling-problem/)
8. [Gold Mine Problem](https://www.geeksforgeeks.org/gold-mine-problem/)
9. [Coin change problem](https://www.geeksforgeeks.org/dynamic-programming-set-7-coin-change/)
10. [Friends Pairing Problem](https://www.geeksforgeeks.org/friends-pairing-problem/)
11. [Subset Sum Problem](https://www.geeksforgeeks.org/dynamic-programming-subset-sum-problem/)
12. [Subset Sum Problem in O(sum) space](https://www.geeksforgeeks.org/subset-sum-problem-osum-space/)
13. [Subset with sum divisible by m](https://www.geeksforgeeks.org/subset-sum-divisible-m/)
14. [Largest divisible pairs subset](https://www.geeksforgeeks.org/largest-divisible-pairs-subset/)
15. [Perfect Sum Problem (Print all subsets with given sum)](https://www.geeksforgeeks.org/perfect-sum-problem-print-subsets-given-sum/)
16. [Compute nCr % p](https://www.geeksforgeeks.org/compute-ncr-p-set-1-introduction-and-dynamic-programming-solution/)
17. [Choice of area](https://www.geeksforgeeks.org/game-theory-choice-area/)
18. [Cutting a Rod](https://www.geeksforgeeks.org/dynamic-programming-set-13-cutting-a-rod/)
19. [Tiling with Dominoes](https://www.geeksforgeeks.org/tiling-with-dominoes/)
20. [Painting Fence Algorithm](https://www.geeksforgeeks.org/painting-fence-algorithm/)
21. [Newman–Shanks–Williams prime](https://www.geeksforgeeks.org/newman-shanks-williams-prime/)
22. [Assembly line scheduling](https://www.geeksforgeeks.org/dynamic-programming-set-34-assembly-line-scheduling/)
23. [Golomb sequence](https://www.geeksforgeeks.org/golomb-sequence/)
24. [Moser-de Bruijn Sequence](https://www.geeksforgeeks.org/moser-de-bruijn-sequence/)
25. [Newman-Conway Sequence](https://www.geeksforgeeks.org/newman-conway-sequence/)
26. [Find maximum length Snake sequence](https://www.geeksforgeeks.org/find-maximum-length-snake-sequence/)
27. [Print n terms of Newman-Conway Sequence](https://www.geeksforgeeks.org/print-n-terms-newman-conway-sequence/)
28. [Print Fibonacci sequence using 2 variables](https://www.geeksforgeeks.org/print-fibonacci-sequence-using-2-variables/)
29. [Print Fibonacci Series in reverse order](https://www.geeksforgeeks.org/print-fibonacci-series-reverse-order/)
30. [Count even length binary sequences with same sum of first and second half bits](https://www.geeksforgeeks.org/count-even-length-binary-sequences-with-same-sum-of-first-and-second-half-bits/)
31. [Sequences of given length where every element is more than or equal to twice of previous](https://www.geeksforgeeks.org/sequences-given-length-every-element-equal-twice-previous/)
32. [Longest Common Subsequence](https://www.geeksforgeeks.org/longest-common-subsequence/)
33. [Longest Repeated Subsequence](https://www.geeksforgeeks.org/longest-repeated-subsequence/)
34. [Longest Increasing Subsequence](https://www.geeksforgeeks.org/longest-increasing-subsequence/)
35. [A Space Optimized Solution of LCS](https://www.geeksforgeeks.org/space-optimized-solution-lcs/)
36. [LCS (Longest Common Subsequence) of three strings](https://www.geeksforgeeks.org/lcs-longest-common-subsequence-three-strings/)
37. [Maximum sum Bi-tonic Sub-sequence](https://www.geeksforgeeks.org/maximum-sum-bi-tonic-sub-sequence/)
38. [Maximum Sum Increasing Subsequence](https://www.geeksforgeeks.org/dynamic-programming-set-14-maximum-sum-increasing-subsequence/)
39. [Maximum product of an increasing subsequence](https://www.geeksforgeeks.org/maximum-product-increasing-subsequence/)
40. [Count all subsequences having product less than K](https://www.geeksforgeeks.org/count-subsequences-product-less-k/)
41. [Maximum subsequence sum such that no three are consecutive](https://www.geeksforgeeks.org/maximum-subsequence-sum-such-that-no-three-are-consecutive/)
42. [Longest subsequence such that difference between adjacents is one](https://www.geeksforgeeks.org/longest-subsequence-such-that-difference-between-adjacents-is-one/)
43. [Maximum length subsequence with difference between adjacent elements as either 0 or 1](https://www.geeksforgeeks.org/maximum-length-subsequence-difference-adjacent-elements-either-0-1/)
44. [Maximum sum increasing subsequence from a prefix and a given element after prefix is must](https://www.geeksforgeeks.org/maximum-sum-increasing-subsequence-from-a-prefix-and-a-given-element-after-prefix-is-must/)
45. [Maximum Length Chain of Pairs](https://www.geeksforgeeks.org/dynamic-programming-set-20-maximum-length-chain-of-pairs/)
46. [Print Maximum Length Chain of Pairs](https://www.geeksforgeeks.org/print-maximum-length-chain-of-pairs/)
47. [Path with maximum average value](https://www.geeksforgeeks.org/path-maximum-average-value/)
48. [Maximum games played by winner](https://www.geeksforgeeks.org/maximum-games-played-winner/)
49. [Maximum path sum in a triangle](https://www.geeksforgeeks.org/maximum-path-sum-triangle/)
50. [Minimum Sum Path in a Triangle](https://www.geeksforgeeks.org/minimum-sum-path-triangle/)
51. [Maximum sum of a path in a Right Number Triangle](https://www.geeksforgeeks.org/maximum-sum-path-right-number-triangle/)
52. [Size of The Subarray With Maximum Sum](https://www.geeksforgeeks.org/size-subarray-maximum-sum/)
53. [Maximum sum of pairs with specific difference](https://www.geeksforgeeks.org/maximum-sum-pairs-specific-difference/)
54. [Maximum size square sub-matrix with all 1s](https://www.geeksforgeeks.org/maximum-size-sub-matrix-with-all-1s-in-a-binary-matrix/)
55. [Maximum number of segments of lengths a, b and c](https://www.geeksforgeeks.org/maximum-number-segments-lengths-b-c/)
56. [Recursively break a number in 3 parts to get maximum sum](https://www.geeksforgeeks.org/recursively-break-number-3-parts-get-maximum-sum/)
57. [Maximum value with the choice of either dividing or considering as it is](https://www.geeksforgeeks.org/maximum-value-choice-either-dividing-considering/)
58. [Maximum weight path ending at any element of last row in a matrix](https://www.geeksforgeeks.org/maximum-weight-path-ending-element-last-row-matrix/)
59. [Maximum sum in a 2 x n grid such that no two elements are adjacent](https://www.geeksforgeeks.org/maximum-sum-2-x-n-grid-no-two-elements-adjacent/)
60. [Maximum difference of zeros and ones in binary string | Set 2 (O(n) time)](https://www.geeksforgeeks.org/maximum-difference-zeros-ones-binary-string-set-2-time/)
61. [Maximum path sum for each position with jumps under divisibility condition](https://www.geeksforgeeks.org/maximum-path-sum-position-jumps-divisibility-condition/)
62. [Maximize the sum of selected numbers from an array to make it empty](https://www.geeksforgeeks.org/maximize-sum-selected-numbers-performing-following-operation/)
63. [Maximum subarray sum in an array created after repeated concatenation](https://www.geeksforgeeks.org/maximum-subarray-sum-array-created-repeated-concatenation/)
64. [Maximum path sum that starting with any cell of 0-th row and ending with any cell of (N-1)-th row](https://www.geeksforgeeks.org/maximum-path-sum-starting-cell-0-th-row-ending-cell-n-1-th-row/)
65. [Min Cost Path](https://www.geeksforgeeks.org/dynamic-programming-set-6-min-cost-path/)
66. [Minimum number of jumps to reach end](https://www.geeksforgeeks.org/minimum-number-of-jumps-to-reach-end-of-a-given-array/)
67. [Minimum cost to fill given weight in a bag](https://www.geeksforgeeks.org/minimum-cost-to-fill-given-weight-in-a-bag/)
68. [Minimum sum of multiplications of n numbers](https://www.geeksforgeeks.org/minimum-sum-of-multiplications-of-n-numbers/)
69. [Minimum removals from array to make max – min <= K](https://www.geeksforgeeks.org/minimum-removals-array-make-max-min-k/)
70. [Minimum steps to minimize n as per given condition](https://www.geeksforgeeks.org/minimum-steps-minimize-n-per-given-condition/)
71. [Minimum number of edits ( operations ) require to convert string 1 to string 2](https://www.geeksforgeeks.org/dynamic-programming-set-5-edit-distance/)
72. [Minimum time to write characters using insert, delete and copy operation](https://www.geeksforgeeks.org/minimum-time-write-characters-using-insert-delete-copy-operation/)
73. [Longest Common Substring](https://www.geeksforgeeks.org/longest-common-substring/)
74. [Longest Common Substring (Space optimized DP solution)](https://www.geeksforgeeks.org/longest-common-substring-space-optimized-dp-solution/)
75. [Sum of all substrings of a string representing a number | Set 1](https://www.geeksforgeeks.org/sum-of-all-substrings-of-a-string-representing-a-number/)
76. [Find number of endless points](https://www.geeksforgeeks.org/find-number-endless-points/)
77. [Find n-th element from Stern’s Diatomic Series](https://www.geeksforgeeks.org/find-n-th-element-from-sterns-diatomic-series/)
78. [Find maximum possible stolen value from houses](https://www.geeksforgeeks.org/find-maximum-possible-stolen-value-houses/)
79. [Find number of solutions of a linear equation of n variables](https://www.geeksforgeeks.org/find-number-of-solutions-of-a-linear-equation-of-n-variables/)
80. [Count number of ways to reach a given score in a game](https://www.geeksforgeeks.org/count-number-ways-reach-given-score-game/)
81. [Count ways to reach the nth stair using step 1, 2 or 3](https://www.geeksforgeeks.org/count-ways-reach-nth-stair-using-step-1-2-3/)
82. [Count of different ways to express N as the sum of 1, 3 and 4](https://www.geeksforgeeks.org/count-ofdifferent-ways-express-n-sum-1-3-4/)
83. [Count ways to build street under given constraints](https://www.geeksforgeeks.org/count-ways-build-street-given-constraints/)
84. [Count Balanced Binary Trees of Height h](https://www.geeksforgeeks.org/count-balanced-binary-trees-height-h/)
85. [Counting pairs when a person can form pair with at most one](https://www.geeksforgeeks.org/counting-pairs-person-can-form-pair-one/)
86. [Counts paths from a point to reach Origin](https://www.geeksforgeeks.org/counts-paths-point-reach-origin/)
87. [Count number of ways to cover a distance](https://www.geeksforgeeks.org/count-number-of-ways-to-cover-a-distance/)
88. [Count of arrays having consecutive element with different values](https://www.geeksforgeeks.org/count-arrays-consecutive-element-different-values/)
89. [Count ways to divide circle using N non-intersecting chords](https://www.geeksforgeeks.org/count-ways-divide-circle-using-n-non-intersecting-chords/)
90. [Count the number of ways to tile the floor of size n x m using 1 x m size tiles](https://www.geeksforgeeks.org/count-number-ways-tile-floor-size-n-x-m-using-1-x-m-size-tiles/)
91. [Count all possible paths from top left to bottom right of a mXn matrix](https://www.geeksforgeeks.org/count-possible-paths-top-left-bottom-right-nxm-matrix/)
92. [Count number of ways to fill a “n x 4” grid using “1 x 4” tiles](https://www.geeksforgeeks.org/count-number-of-ways-to-fill-a-n-x-4-grid-using-1-x-4-tiles/)
93. [Largest Sum Contiguous Subarray](https://www.geeksforgeeks.org/largest-sum-contiguous-subarray/)
94. [Smallest sum contiguous subarray](https://www.geeksforgeeks.org/smallest-sum-contiguous-subarray/)
95. [Size of array after repeated deletion of LIS](https://www.geeksforgeeks.org/size-array-repeated-deletion-lis/)
96. [Remove array end element to maximize the sum of product](https://www.geeksforgeeks.org/remove-array-end-element-maximize-sum-product/)
97. [Convert to Strictly increasing array with minimum changes](https://www.geeksforgeeks.org/convert-strictly-increasing-array-minimum-changes/)
98. [Longest alternating (positive and negative) subarray starting at every index](https://www.geeksforgeeks.org/longest-alternating-positive-negative-subarray-starting-every-index/)
99. [Ways to sum to N using array elements with repetition allowed](https://www.geeksforgeeks.org/ways-sum-n-using-array-elements-repetition-allowed/)
100. [Unique paths in a Grid with Obstacles](https://www.geeksforgeeks.org/unique-paths-in-a-grid-with-obstacles/)
101. [Number of n-digits non-decreasing integers](https://www.geeksforgeeks.org/number-n-digits-non-decreasing-integers/)
102. [Number of ways to arrange N items under given constraints](https://www.geeksforgeeks.org/number-of-ways-to-arrange-n-items-under-given-constraints/)
103. [Probability of reaching a point with 2 or 3 steps at a time](https://www.geeksforgeeks.org/probability-reaching-point-2-3-steps-time/)
104. [Value of continuous floor function : F(x) = F(floor(x/2)) + x](https://www.geeksforgeeks.org/value-continuous-floor-function-fx-ffloorx2-x/)
105. [Number of decimal numbers of length k, that are strict monotone](https://www.geeksforgeeks.org/number-decimal-numbers-length-k-strict-monotone/)
106. [Different ways to sum n using numbers greater than or equal to m](https://www.geeksforgeeks.org/different-ways-sum-n-using-numbers-greater-equal-m/)