Recursion & backtracking

Sunday, 12 March 2023 12:46 AM

Rat in a maze
https://takeuforward.org/data-structure/rat-in-a-maze/
DFS with multiple routes to identify the no of paths to reach destination (n-1,n-1)

M Coloring problem
https://takeuforward.org/data-structure/m-coloring-problem/
https://www.geeksforgeeks.org/m-coloring-problem/

Sudoku Solver
https://takeuforward.org/data-structure/sudoku-solver/
https://www.geeksforgeeks.org/sudoku-backtracking-7/

Nqueen problem
https://takeuforward.org/data-structure/n-queen-problem-return-all-distinct-solutions-to-t
https://www.geeksforgeeks.org/n-queen-problem-backtracking-3/

Word break using backtracking
https://www.geeksforgeeks.org/word-break-problem-using-backtracking/
O(2n)

Greedy algorithm
Job sequencing problem
Greedy about profits..so sort them the array in decreasing order accoding to profits
https://takeuforward.org/data-structure/job-sequencing-problem/
Alternative solution using disjoint set:
https://www.geeksforgeeks.org/job-sequencing-problem-using-disjoint-set/
https://takeuforward.org/data-structure/find-minimum-number-of-coins/
How many meetings possible in 1 room -> https://takeuforward.org/data-structure/n-meeti
Minimum railways platfom required -> https://takeuforward.org/data-structure/minimum-r
required-for-a-railway/

recursion
Kth permutation for recursion
https://takeuforward.org/data-structure/find-k-th-permutation-sequence/

he-n-queens-puzzle/

ngs-in-one-room/
number-of-platforms-

Kth permutation for recursion
https://takeuforward.org/data-structure/find-k-th-permutation-sequence/
Palindrome partitioning
https://takeuforward.org/data-structure/palindrome-partitioning/

Find combinations-1
https://takeuforward.org/data-structure/combination-sum-1/
https://takeuforward.org/data-structure/combination-sum-ii-find-all-unique-combinations/

Sum of all Subsets multiple combinations
https://takeuforward.org/data-structure/subset-sum-sum-of-all-subsets/
Backtracking problem
Pick the element for addition, and don't pick the element for addition

Pick the element for sum, don't pick the element for sum
At each iteration, add the intermediate subsets to the result
Once the index reaches last index, stop it and add the calculated sum to the result
Backtracking problem by removing the added element at the end.
https://www.geeksforgeeks.org/find-all-unique-subsets-of-a-given-set/
https://takeuforward.org/data-structure/subset-ii-print-all-the-unique-subsets/
https://www.geeksforgeeks.org/count-of-unique-subsets-from-a-set-having-repeated-elements/