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-thttps://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 according 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/

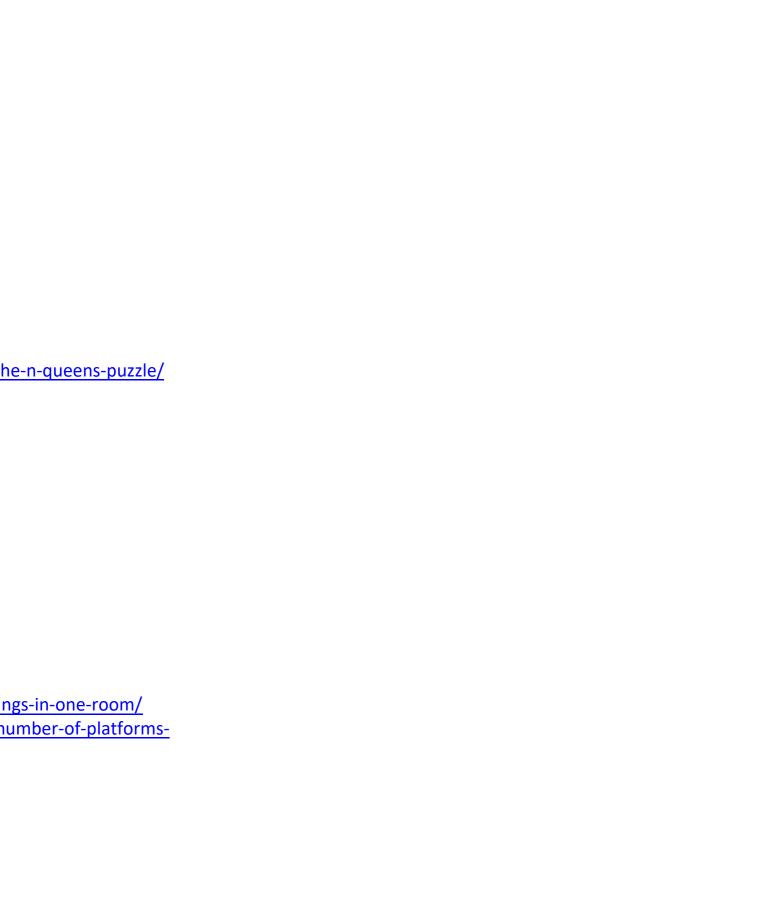
https://takeuforward.org/data-structure/find-minimum-number-of-coins/

How many meetings possible in 1 room -> https://takeuforward.org/data-structure/n-meeting-months https://takeuforward.org/data-structure/minimum-required-for-a-railway/

recursion

Kth permutation for recursion

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



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/