Algorithms: Practices in Open Source Software

Open-source software (OSS) is a type of computer software with its source code made available with a license in which the copyright holder provides the rights to study, change, and distribute the software to anyone and for any purpose (excerpt from Wikipedia).

1. Divide and Conquer Algorithms

Binary Search
https://www.geeksforgeeks.org/binary-search/
Implementation practice in C/C++, Java, Python, C# (recursive vs. iterative)

Merge Sort
https://www.geeksforgeeks.org/merge-sort/
Implementation practice in C/C++, Java, Python

Quick Sort
https://www.geeksforgeeks.org/quick-sort/
Implementation practice in C/C++, Java, Python, C#

2. Dynamic Programming

Fibonacci Numbers
https://www.geeksforgeeks.org/program-for-nth-fibonacci-number/
Implementation practice in C, Java, Python, C#

Binomial Coefficient
https://www.geeksforgeeks.org/dynamic-programming-set-9-binomial-coefficient/
Implementation practice in C/C++, Java, Python, C#

Floyd Warshall Algorithm: All-pairs Shortest Path Problem
https://www.geeksforgeeks.org/dynamic-programming-set-16-floyd-warshall-algorithm/
Implementation practice in C/C++, Java, Python, C#

Bellman-Ford Algorithm
https://www.geeksforgeeks.org/dynamic-programming-set-23-bellman-ford-algorithm/
Implementation practice in C++, Java, Python

Matrix Chain Multiplication
https://www.geeksforgeeks.org/dynamic-programming-set-8-matrix-chain-multiplication/
Implementation practice in C, Java, Python3, C#

0/1 Knapsack Problem
https://www.geeksforgeeks.org/knapsack-problem/
Implementation practice in C/C++, Java, Python

Optimal Binary Search Tree
https://www.geeksforgeeks.org/dynamic-programming-set-24-optimal-binary-search-tree/
Implementation practice in C/C++, Java, C#

Subset Sum Problem
https://www.geeksforgeeks.org/dynamic-programming-subset-sum-problem/
Implementation practice in C, Java, Python3, C#

3. Greedy Algorithms

Prim's Minimum Spanning Tree Algorithm
https://www.geeksforgeeks.org/greedy-algorithms-set-5-prims-minimum-spanning-tree-mst-2/
Implementation practice in C/C++, Java, Python

Kruskal's Minimum Spanning Tree Algorithm
https://www.geeksforgeeks.org/greedy-algorithms-set-2-kruskals-minimum-spanning-tree-mst/
Implementation practice in C/C++, Java, Python

Dijkstra's Shortest Path Algorithm
https://www.geeksforgeeks.org/greedy-algorithms-set-6-dijkstras-shortest-path-algorithm/
Implementation practice in C++, Java, Python

Job Sequencing Problem
https://www.geeksforgeeks.org/job-sequencing-problem-set-1-greedy-algorithm/
Implementation practice in C++

4. Backtracking

N-Queens Problem
https://www.geeksforgeeks.org/backtracking-set-3-n-queen-problem/
Implementation practice in C/C++, Java, Python

Subset Sum Problem
https://www.geeksforgeeks.org/backttracking-set-4-subset-sum/
Implementation practice in C

m-Coloring Problem
https://www.geeksforgeeks.org/backttracking-set-5-m-coloring-problem/
Implementation practice in C/C++, Java, Python

Hamiltonian Cycle Problem
https://www.geeksforgeeks.org/backtracking-set-7-hamiltonian-cycle/
Implementation practice in C/C++, Java, Python

5. Branch and Bound

0/1 Knapsack Problem
https://www.geeksforgeeks.org/branch-and-bound-set-2-implementation-of-01-knapsack/
Implementation practice in C++

8-Puzzle Problem
https://www.geeksforgeeks.org/branch-bound-set-3-8-puzzle-problem/
Implementation practice in C

N-Queens Problem
https://www.geeksforgeeks.org/branch-and-bound-set-4-n-queen-problem/
Implementation practice in C++

Traveling Salesman Problem
https://www.geeksforgeeks.org/branch-bound-set-5-traveling-salesman-problem/
Implementation practice in C++