Exhaustive Search

1. Travelling Salesperson Problem
2. Knapsack Problem
3. Assignment Problem

*Discussion on Exponential run time (NP)

Assignment Problem using Hungarian Method (P-time)

Notes shared.

Anany Chapter 3: 3.4

Backtracking Technique

*Betterment over exhaustive approach in terms of generating candidate solutions

1. N-Queens Problem
2. Hamiltonian Circuit Problem
3. Sub-Set Sum Problem

(best average worst scenario in producing state space tree in context of N-queens and Hamiltonian Circuit Problem)

Anany chapter 12: 12.1

Branch and Bound Technique

Optimization Problems (maximization and minimization)

1. Knapsack Problem
2. Assignment Problem
3. Travelling Salesperson Problem

Anany chapter 12: 12.2

Dynamic Programming Technique

*Discussion on recursive, iterative and memorization techniques using Fibonacci numbers example in terms of run time

Optimization Problems

1. Coin Row Problem
2. Coin change Problem.

Anany chapter 8: 8.1

Dynamic Programming Technique

3. Rod Cutting Problem

Cormen chapter 14: 14.1

4. Knapsack Problem*

Anany chapter 8: 8.2

5. Matrix chain Multiplication

Cormen chapter 14: 14.2

Greedy Technique

1. Huffman Codes and its Analysis

Cormen chapter 15: 15.2 15.3

*Overview of Graph Trees and Spanning Trees

1. Graph Algorithms

a. Breadth First Search

b. Depth First Search

Cormen chapter 20: 20.2 20.3

2. Minimum Spanning Tree

a. Prims Algorithm and its Analysis

b. Kruskal Algorithm and its Analysis

Cormen chapter 21: 21.2

3. Single Source Shortest Path (Dijkstra Algorithm)*

Cormen chapter 22: 22.3