**Algorithms Final Term Topics with Resource Links (For MCQ Class Test and Final Term Exam)**

1. Master Theorem Case 3 has been covered from page - 94 of CLRS.
2. Fibonacci Divide and Conquer, Top Down with Memoization Dynamic Programming and Bottom Up Dynamic Programming have been covered from: <https://www.log2base2.com/algorithms/dynamic-programming/dynamic-programming.html>
3. 0/1 knapsack has been covered from - <https://dyclassroom.com/dynamic-programming/0-1-knapsack-problem>
4. LCS has been covered from page - 394 of CLRS.
5. Print LCS has been covered from page - 395 of CLRS respectively.
6. Graph basics including concepts such as Vertices, Edges, Directed, Undirected, Bidirectional, Weighted, Unweighted, Tree, Loop, Cycle, Adjacency Matrix, Adjacency List have been discussed in the class
7. Kruskal and Prim's has been covered from pages - 631 and 634 of CLRS
8. DFS, BFS, Print Path, Topological Sort and Bellman Ford have been covered from pages - 604, 595, 601, 613 and 651 of CLRS respectively.
9. Backtracking Algorithm Design Technique has been discussed in class
10. Comparison among different algorithm design techniques (Incremental, Divide and Conquer, Dynamic Programming, Greedy) and also which Final Term algorithm uses which type of design technique have been discussed in the class
11. Dijkstra's algorithm has been covered from [AIUB ALGORITHMS SUMMER 2022 CLASS RESOURCES](https://docs.google.com/document/d/1gEG2m_PQfWuGr5UmxYLdlITKV8OcbNPaUemFJ1S7X7U/edit?usp=sharing)
12. DFS Tree, Tree Edge, Forward Edge and Back Edge have been covered from <https://www.geeksforgeeks.org/tree-back-edge-and-cross-edges-in-dfs-of-graph/>
13. Overlapping Subproblem and Optimal Substructure have been discussed in class ([AIUB ALGORITHMS SUMMER 2022 CLASS RESOURCES](https://docs.google.com/document/d/1gEG2m_PQfWuGr5UmxYLdlITKV8OcbNPaUemFJ1S7X7U/edit?usp=sharing))
14. Negative Weight Cycle has been discussed in class ([AIUB ALGORITHMS SUMMER 2022 CLASS RESOURCES](https://docs.google.com/document/d/1gEG2m_PQfWuGr5UmxYLdlITKV8OcbNPaUemFJ1S7X7U/edit?usp=sharing))
15. Floyd Warshall All Pair Shortest Path Algorithm has been covered from page 695 of CLRS and [Summer 2022 Algorithms Last Class](https://docs.google.com/document/d/1B9eWLAfZ8ABrhQ-H1tEAhdVefr17KiPqhQKfl_hkWYY/edit?usp=sharing)
16. Matrix Chain Multiplication Problem has been covered from page 375 of CLRS and [Summer 2022 Algorithms Last Class](https://docs.google.com/document/d/1B9eWLAfZ8ABrhQ-H1tEAhdVefr17KiPqhQKfl_hkWYY/edit?usp=sharing)
17. Real World Applications of all the Final Term algorithms have been discussed in the class

Note - Do all the related example problems given in the resources above.

**Algorithms Lab Final Exam Topics (Programs) with Resource Links**

1. Fibonacci Divide and Conquer, Top Down with Memoization Dynamic Programming and One Dimensional Bottom Up Dynamic Programming have been covered from: <https://www.log2base2.com/algorithms/dynamic-programming/dynamic-programming.html>
2. 0/1 knapsack (Two Dimensional Bottom Up Dynamic Programming) has been covered from - <https://dyclassroom.com/dynamic-programming/0-1-knapsack-problem>
3. Dijkstra's algorithm (Greedy) has been covered from [AIUB ALGORITHMS SUMMER 2022 CLASS RESOURCES](https://docs.google.com/document/d/1gEG2m_PQfWuGr5UmxYLdlITKV8OcbNPaUemFJ1S7X7U/edit?usp=sharing)