

## **COL 106 Resources to Use:**

1. Time Complexity:
  1. Data Structures and Algorithms in C++ 2e By Michael Goodrich, Roberto Tamassia and David Mount
2. Pointers and References:
  1. Practice :)
3. Linked List and Variations :
  1. Data Structures and Algorithms in C++ 2e By Michael Goodrich, Roberto Tamassia and David Mount
  2. LeetCode Problems
  3. List Reversal Problems
4. Stack, Queue:
  1. Data Structures and Algorithms in C++ 2e By Michael Goodrich, Roberto Tamassia and David Mount
  2. Stack using Queues and vice versa
  3. LeetCode Problems (Must do)
  4. Codeforces
5. Hashing, Dictionaries:
  1. Collision Resolution techniques
  2. Comparison between various data structures used
6. Sorting Algorithms:
  1. Data Structures and Algorithms in C++ 2e By Michael Goodrich, Roberto Tamassia and David Mount
  2. CP Handbook ( Can be found on ANCC Website)
  3. LeetCode problems
7. Memory Management and Good Coding Practices:
  1. Data Structures and Algorithms in C++ 2e By Michael Goodrich, Roberto Tamassia and David Mount (chapter dedicated to it)
  2. Master Slave Technique to avoid data leak and double delete errors
  3. Learn to use gdb/lldb
8. Trees, Tree Traversals, Topological Sorting:
  1. Data Structures and Algorithms in C++ 2e By Michael Goodrich, Roberto Tamassia and David Mount
  2. CP Handbook
  3. LeetCode Problems
  4. TopoSort: Wikipedia
  5. CSES
9. BST, AVL, 2-4 Tree, Red Black Tree:
  1. Data Structures and Algorithms in C++ 2e By Michael Goodrich, Roberto Tamassia and David Mount (Best)
  2. Youtube ( : )
  3. CSES
10. Priority Heap, Binary Heap/Queue, Fibonacci Heap:

1. Priority Heap: Data Structures and Algorithms in C++ 2e By Michael Goodrich, Roberto Tamassia and David Mount
2. Binary Heap/Queue: 2 PDFs in the Repo and individually sufficient and well explained
3. Fibonacci Heap: <https://www.youtube.com/watch?v=6JxvKfSV9Ns> + PDF in the Repo( Read after watching the video)
11. SCC, Tarjans Algorithm, Kosaraju Algorithm:
  1. Tarjans: Wikipedia, GFGs
  2. Kosaraju: CP Handbook
  3. LeetCode Problems
  4. CSES
12. Shortest Distance Problem, Dijkstra, Bellman Form, Floyd Warshall:
  1. Data Structures and Algorithms in C++ 2e By Michael Goodrich, Roberto Tamassia and David Mount
  2. CP Handbook
  3. LeetCode Problems
  4. CSES
  5. Project Euler
13. MST, Prims, Kruskals:
  1. Data Structures and Algorithms in C++ 2e By Michael Goodrich, Roberto Tamassia and David Mount
  2. CP Handbook
  3. LeetCode Problems
  4. CSES
  5. Project Euler
14. Miscellaneous Data Structures:
  1. Union Find:
    1. CP Handbook
    2. LeetCode Problems
    3. CodeForces
  2. Trie:
    1. Data Structures and Algorithms in C++ 2e By Michael Goodrich, Roberto Tamassia and David Mount
    2. LeetCode
    3. CSES
    4. Project Euler
  3. Segment Tree:
    1. CP Handbook
    2. CP Algorithms(Best)
    3. CSES
    4. Project Euler

Note:- Many of the topic have few resources worth reading in the repository which are not mentioned above.

### **Other Resources:**

1. [Algorithms For Competitive Programming](#)
2. [Algorithms in C++: Robert Sedgwick](#)
3. [Guide to Competitive Programming: Antti Laaksonen](#)
4. [YouTube](#) :)

Most of the mentioned texts can be found in the repository