Red-Black Tree

Slides: 6, 7, 10, 11, 13, 14, 16and 17. Proofs optional. Slides 26 – 30 optional.

Heaps

Heaps and Priority Queue class notes (You must know everything listed in Slide 2)

Appendix: Analysis. Slides 2 – 7

Graphs

Lesson 12 (everything except proof)

Graph Appendix: Proofs. You must know everything.

Graph Implementation

DFS

BFS

Must know how to modify DFS and BFS to create new algorithms.

For example, I will show you how to modify DFS and BFS to determine whether or not a graph is Bi-partite.

I will show you how to create Spanning Tree.

I will show you how to level order using BFS

I will show you how to perform topological ordering (or sorting) and more.

Whatever I teach, can come in the exam.

You need to write an algorithm.

Graph Algorithms

Shortest Path algorithm

Dynamic Programming Algorithm to solve shortest path if values are negative.

Kruskal's Algorithm to compute minimum spanning tree.

Hard Problems

Everything.