**Algorithms and Data Structures**

1. Brief intro to Data Structures, Abstract Data Type, Algorithms high level.
2. Big O, theta, omega
3. Space and time complexity with Big O. meaning of relative times
4. O(1), O(ln N), 0(N) <-> O(kN), O(NlnN), O(N^2), O(N^k), O(2^N), O(N!) Examples? Like high level code rather than complete detail.
5. Binary search hand diagram with alphabetic search.
6. Recursion - Fibonacci numbers with recursion, factorial with recursion? Other ways?
7. Some needs for data structures – Array, List, Linked List, Stack, Queue, Dequeue, Map, Set (General cases) Hashing – hashCode and equals?
8. Binary Tree discussion and code with recursion. Other ways to perform various operations on trees without recursion such as depth, breadth first search? What is time complexity of recursion here? What is time complexity of other methods?
9. Detailed binary tree and testing analysis.