

Data Structure

Duration – 1 Month

- Design principles
 - Data Structures and Algorithms
 - Object-Oriented Design Principles
- Analysis techniques
 - Running Time
 - Pseudo-Code
 - Analysis of Algorithms
- Stacks, Queues, Lists
 - Stacks
 - Queues
 - Linked Lists
- Trees
 - The Tree Abstract Data Type
 - Basic Algorithms on Trees
 - Binary Trees
 - Data Structures for Representing Trees
- Priority Queues
 - The Priority Queue Abstract Data Type
 - Priority Queue as a Sequence
 - Heaps
- Dictionaries
 - The Dictionary Abstract Data Type
 - Binary Search Trees
 - AVL Trees
 - Hash Tables
- Sorting, Selection
 - Sorting: Merge Sort, Quick Sort
 - Complexity of Sorting
 - Selection
- Graphs
 - The Graph Abstract Data Type
 - Data Structures for Graphs
 - Graph Traversal
 - Directed Graphs