# Data Structures and Algorithms Basics

Week#2

# Study Material

## Video References

- Data Structures
- Data Structures and Algorithms
- Hash Table
- Priority Queue
- Generic Tree
- Introduction to Algorithms
- Algorithm Analysis

# Assignment


***Assignment # 2***

# Problem Statement


Implement your own version of the following data structures with mentioned functionalities:

- Linked List
  - Insert
  - Insert at position
  - Delete
  - Delete at position
  - Center
  - Reverse
  - Size
  - Iterator
  - Traverse/Print

# Problem Statement


Implement your own version of the following data structures with mentioned functionalities:

- Stack
  - Push
  - Pop
  - Peek
  - Contains
  - Size
  - Reverse
  - Iterator
  - Traverse/Print

# Problem Statement


Implement your own version of the following data structures with mentioned functionalities:

- Queue
  - Enqueue
  - Dequeue
  - Peek
  - Contains
  - Size
  - Reverse
  - Iterator
  - Traverse/Print

# Problem Statement


Implement your own version of the following data structures with mentioned functionalities:

- Priority Queue
  - Enqueue
  - Dequeue (Highest Priority)
  - Peek (Highest Priority)
  - Contains
  - Size
  - Reverse
  - Iterator
  - Traverse/Print

# Problem Statement


Implement your own version of the following data structures with mentioned functionalities:

- N-Child Tree
  - Insert
  - Delete
  - Contains
  - Get Elements by value
  - Get Elements by level
  - Iterator Breadth First
  - Iterator Depth First
  - Traverse/Print Breadth First
  - Traverse/Print Depth First

# Problem Statement


Implement your own version of the following data structures with mentioned functionalities:

- Hash Table
  - Insert
  - Delete
  - Contains
  - Get Value by key
  - Size
  - Iterator
  - Traverse/Print

# Expected Behaviour And Output


- Use of similar data structures already present in the language/framework is not allowed
- Make use of java's object oriented capabilities for implementing the data structures
- Exception handling is expected in the program
- Jdk8 should be used for development


# Evaluation Criteria


- Code Completeness and Correctness
- Usage of OO Principles, package/class structure, class/function/variable names
- Complexity of the operations
- Code should be in running condition
- Presentation Skills