

CS2803	Design and Analysis of Algorithms Lab	2 Credits
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Programs:

1. Using a stack of characters, convert an infix string to a postfix string.
2. Implement polynomial addition using a single linked list
3. Implement insertion, deletion, searching of a BST, and display Pre order, Post order and In order traversal's.
4. Implement linear search on integer array.
5. Implement heap sort using a min heap.
6. Write a program that will generate integer array of variable sizes with different data patterns and then apply all sorting algorithms and display the comparative efficiency of each sorting algorithms.
7. Implement DFS routine in a connected graph
8. Implement BFS routine in a connected graph
- 9. Greedy**
 - i. Implement Dijkstra's shortest path algorithm using BFS
 - ii. Given a set of weights, form a Huffman tree from the weights and also find out the code corresponding to each weight.
 - iii. Take a weighted graph as an input, find out one MST using Kruskal's algorithm
 - iv. Take a weighted graph as an input, find out one MST using prim's algorithm
 - v. Given a set of weights, profits and an upper bound M – Find out a solution to the fractional Knapsack problem
- 10.Divide and Conquer**
 - i. Implement binary search on an integer array.
 - ii. Write a quick sort routine for an array of integers.
 - iii. Implement merge sort for the array of integers.
 - iv. Implement Strassen's matrix multiplication algorithm for matrices whose order is a power of two.
 - v. Large integer multiplication
- 11.Back tracking**
 - i. Pattern matching in a given text using Brute force approach.
 - ii. N-Queen problem using Brute force approach.

12.Dynamic programming

- i. Fibonacci series using Dynamic programming
- ii. Binary knapsack using Dynamic programming.