



- Constituent College of JSS Science and Technology University
- Approved by A.I.C.T.E
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- Identified as lead institution for World Bank Assistance under TEQIP Scheme



Faculty: Sheela N

Semester Starting on: 08.03.2021

Class & Section: IV Sem. 'B' Sec.

Semester Ending on:

Subject with Code: Design and Analysis of Algorithms Lab(CS46L)

Implement the algorithms for solving the following given problems and Analyze by executing the program for different inputs and counting the no. of times the algorithm's basic operation is executed. Plot the graph for the same. (Input size vs Basic operation count)

Note: The input can be read from a file or generated using the random number generator or any other method except reading through the keyboard.

1. Euclid's , consecutive integer checking and modified Euclid's algorithms to find GCD of two non_negative integers.
2. Sequential search and Binary search algorithms for searching an element in the list.
3. Sorting algorithms applying the following design strategies
 - a) Brute force (Selection sort, Bubble sort)
 - b) Divide and conquer(Merge sort, Quick sort)
 - c) Decrease and conquer (Insertion sort)
 - d) Transform and conquer(Heap sort)
4. String Matching algorithms
(Brute Force, Boyer Moore, Horspool)
5.
 - a. Print all the nodes reachable from a given starting node in a digraph using BFS method.
 - b. Check whether a given graph is connected or not using DFS method.

6. Obtain the Topological ordering of vertices in a given digraph.
7. Compute the transitive closure of a given directed graph using Warshall's algorithm.
8. All-Pairs Shortest Paths Problem using Floyd's algorithm.
9. 0/1 Knapsack problem using Dynamic Programming.
10. From a given vertex in a weighted connected graph, find shortest paths to other vertices using Dijkstra's algorithm.
11. Find Minimum Cost Spanning Tree of a given undirected graph using Kruskal's algorithm.
12. Find Minimum Cost Spanning Tree of a given undirected graph using Prim's algorithm.