BASAVESHWAR ENGINEERING COLLEGE, BAGALKOT
Department of Computer Science and Engineering
Analysis and Design of Algorithms (22UCS501C)

List of Laboratory Assignments

1. Design and implement linear search and binary search algorithms. Analyze the efficiencies of algorithms. Repeat the experiment for different values of n.

2. Sort a given set of elements using the bubble sort and selection sort method and determine the time required to sort the elements. Repeat the experiment for different values of n.

3. Sort a given set of elements using the quick sort method and determine the time required to sort the elements. Repeat the experiment for different values of n.

4. Implement merge sort algorithm to sort a given set of elements and determine the time required to sort the elements. Repeat the experiment for different values of n.

5. Implement the following algorithms to
   a. Print all the nodes reachable from a given starting node in digraph using BFS method.
   b. Check whether a given graph is connected or not using DFS method.

6. Implement Horspool string matching algorithm to search for a pattern in the text.

7. Implement the following algorithms to
   a. Compute the transitive closure of a given directed graph using Warshall's algorithm.
   b. Compute the all pairs shortest path matrix using Floyd's algorithm.

8. Implement Knapsack problem using Dynamic Programming approach.

9. Find Minimum Cost Spanning Tree of a given undirected graph using Prim's algorithm.

10. Find Minimum Cost Spanning Tree of a given undirected graph using Kruskal's algorithm.

11. Find Single source shortest path of a given undirected graph using Dijkstra's algorithm.

12. Find a subset of a given set S = {sl, s2,....., sn} of n positive integers whose sum is equal to a given positive integer d. For example, if S= {1, 2, 5, 6, 8} and d = 9 there are two solutions {1, 2, 6} and {1,8}.A suitable message is to be displayed if the given problem instance doesn't have a solution.

13. Implement N Queen's problem using Back Tracking.