Karnatak Law Society’s

# GOGTE INSTITUTE OF TECHNOLOGY

Department of Computer Science and Engineering Udyambag, Belgavi – 590008

*(An Autonomous Institution under Visvesvaraya Technological University, Belagavi)*

**(APPROVED BY AICTE, NEW DELHI)**

Journal Submission of

# DESIGN AND ANALYSIS OF ALGORITHMS

*Submitted in the partial fulfilment for the academic requirement of*

**4th semester B.E. in**

**Computer Science Engineering**

Submitted by

|  |  |
| --- | --- |
| **NAME** | **USN** |
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Under the guidance of

Prof. Pankaja Patil

Dept. of CSE

Academic Year 2021 (Even Semester)

**DEPARTMENT OF COMPUTER ENGINEERING**



# CERTIFICATE

This is to certify that the Journal Term works carried out by **Venaktesh G Dhongadi** bearing **USN: 2GI19CS175** has submitted in partial fulfilment of the requirements for 4th semester B.E. in **Design and Analysis of Algorithms, COMPUTER SCIENCE AND ENGINEERING,** Visvesvaraya

Technological University, Belagavi. It is certified that all corrections/suggestions indicated have been incorporated in the journal. The journal has been approved as it satisfies the academic requirements in respect of research work prescribed for the said degree.

Date: 13/07/2021 Signature of Guide Place: Belagavi **Prof. Pankaja Patil**

Asst. Prof., Dept. of CSE,

KLS Gogte Institute of Technology, Belagavi

Name of the Examiners Signature of the Examiners

1. 1.

2. 2.

**INDEX**

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| --- | --- | --- |
| **SL.NO** | **Experiment Title** | **Signature** |
| **1** | 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, the number of elements in the list to  be sorted and plot a graph of the time taken versus n |  |
| **2** | Implement Quick Sort algorithm and determine the time required to sort the elements. Repeat the experiment for different values of n, the number of elements in the list to be sorted and plot a graph of the time taken versus n |  |
| **3** | Implement Insertion Sort algorithm and determine the time required to sort the elements. Repeat the experiment for different values of n, the number of elements in the list to be sorted and plot a graph of the time  taken versus n. |  |
| **4** | Implement Heap Sort algorithm and determine the time required to sort the elements. Repeat the experiment for different values of n, the number of elements in the list to be sorted and plot a graph of the time taken versus n. |  |
| **5** | From a given vertex in a weighted connected graph, find shortest paths to other vertices using Dijkstra's algorithm. |  |
| **6** | Find the Minimum Cost Spanning Tree of a given undirected graph using Prim’s algorithm |  |
| **7** | Implement All-Pairs Shortest Paths Problem using Floyd's algorithm. |  |
| **8** | Implement 0/1 Knapsack problem using Dynamic Programming |  |
| **9** | 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. |  |
| **10** | Implement N Queen's problem using Back Tracking |  |