DECLARATION

We hereby declare that this project work entitled "PERFORMANACE ANALYSIS AND SIMULATION OF DATA STRUCTURE ALGORITHMS" has been prepared by us during the year 2022-23 under the guidance of Mr. GANESH K, Lecturer, Department of Computer Science, Bhandarkar's' Arts and Science College, Kundapura in the partial fulfilment of BCA degree prescribed by Mangalore University.

We also declare that this project is the outcome of our own effort, that it has not been submitted to any other university for the award of any degree.

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It gives us an immense pleasure to present the project report on **"PERFORMANCE ANALYSIS AND SIMULATION OF DATA STRUCTURE ALGORITHMS"**

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Thank You,

Sapthami Chatra

Preeti Janardhan Naik

Sanjana S

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CONCLUSION

In conclusion, this project was successfully implemented using JavaScript. It is capable of carried out various data structure operations such as Sorting, Searching, Array Operation, Stack, Queue, Linked List, Tree and Graph. And also calculates time and space complexities of these operations.

During the implementation we have faced many challenges in making the application to take valid data and its processing. We have made an effort to create the user interface that are easily understood by the user. And handled all the challenges successfully. And also handles the various exception during the development project work.

We have learned about different types of sorting, searching and other operation, algorithm implementation of various data structure operation, time and space complexities etc…

Moreover, this project helped for us to understand Software Development Life Cycle (SDLC), Time bound work, team spirit and preparing project document, project testing, GUI designing and presentation.

In addition to that, we learned JavaScript coding and JavaScript tools.

Finally concluded that we tried to fulfil the objectives of project work and goal of our project Performance Analysis and Simulation of Data Structure Algorithms.

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LIMITATION

- In counting sort only, the elements between 1-10 can be given by the user.
- In bucket sort only the elements between 1-20 can be taken and only 4 buckets are provided for sorting.
- In stack at max of only 5 elements can be pushed.
- In queue at max of only 5 elements can be inserted.
- In BFS and DFS at max of 5 vertexes can be given as an input by the user.

SCOPE FOR ENHANCEMENT (FUTURE SCOPE)

- In the bucket sort it is possible to implement a greater number of buckets as per user needs.
- By implementing circular linked list, it is possible to understand the working of it in the data structure.
- It is also possible to take any number of array elements in counting sort.
- It is possible to take any number of vertices from the user in the graph.

ABBREVIATIONS AND ACRONYMS

- **RAM**-Random Access Memory
- **GUI-**Graphical User Interface
- **OS**-Operating System
- **SRS**-Software Requirement Specification
- **CFD**-Context Flow Diagram
- **DFD**-Data Flow Diagram
- **BST**-Binary Search Tree
- **BFS**-Breadth First Search
- **DFS**-Depth First Search
- **LIFO**-Last in First Out
- **FIFO-**First in First Out

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