

SUMMER INTERNSHIP PROJECT REPORT

SORTING VISUALIZER WEB APPLICATION

UNDER GUIDANCE OF

Dr. ANURADHA CHUG

From: August 2023 – September 2023



University School of Information, Communication and
Technology

Guru Gobind Singh Indraprastha University, Dwarka

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DECLARATION

I **Yash Aryan**, a student of Computer Science and Engineering, VIIth semester in **University School of Information, Communication & Technology, Dwarka** hereby declare that the work presented in this project report entitled **“Sorting Visualizer Web Application”** was undertaken from **August 2023 – September 2023** under the guidance of Dr. Anuradha Chug, Assistant Professor at USICT.

The matter embodied in this project report has not been submitted by me or anybody else to any institution for award of any other degree or diploma except to **University School of Information, Communication & Technology**, for the fulfilment of the requirements for the award of degree of Bachelors of Technology.

Yash Aryan

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ACKNOWLEDGEMENT

I am thankful to **“Utkrisht Internship”** for providing me this opportunity. It is a great value addition in my curriculum. It is my duty to record my sincere thanks and gratitude towards my mentor at USIC&T who helped me in understanding the concepts of Web Development through this project.

I would like to thank my mentor at USIC&T for their valuable guidance in understanding the concept.

I would like to express my gratitude towards my teachers at **University School of Information Communication and Technology** for encouraging students in developing their skills, my parents for their consistent support and mentor at USIC&T for their support.

1. Organization Profile



The University School of Information, Communication & Technology has been established to design and implement courses with a twin objective of generating effective professionals and to keep pace with the R & D activities of this fast emerging and changing field of Information & Communication Technology. The school aims at inculcating essential skills as demanded by the global software industry, through the interactive learning process. This includes team-building skills, audio-visual presentations and personality development programs. These enhance analytic and communication skills, besides inculcating the virtues of self-study.

The school was set up with an aspiration to generate manpower, with the ability to take on challenges and fare forward in the realm of Information & Communication Technology. The Curriculum has been designed to cater to the ever-changing demands of information, communication technology, with the necessary inputs from the industry. The school has highly qualified & experienced faculty who excel in their respective areas. The school also encourages research work in various areas of information & communication technology. The school aspires to produce individuals equipped to contribute for progress at all levels: individual, national and global

2. Introduction

Web development refers in general to the tasks associated with developing websites for hosting via intranet or internet. The web development process includes web design, web content development, client-side/server-side scripting and network security configuration, among other tasks.

In a broader sense, web development encompasses all the actions, updates, and operations required to build, maintain and manage a website to ensure its performance, user experience, and speed are optimal.

It might also, but not necessarily, include all those strategic actions needed to ensure its proper ranking on search engine results. Usually, those tasks pertain to a different specialization, namely search engine optimization (SEO). Web development is also known as website development, while the professionals that maintain a website are called web developers.

3. **Sorting Visualizer Web Application**

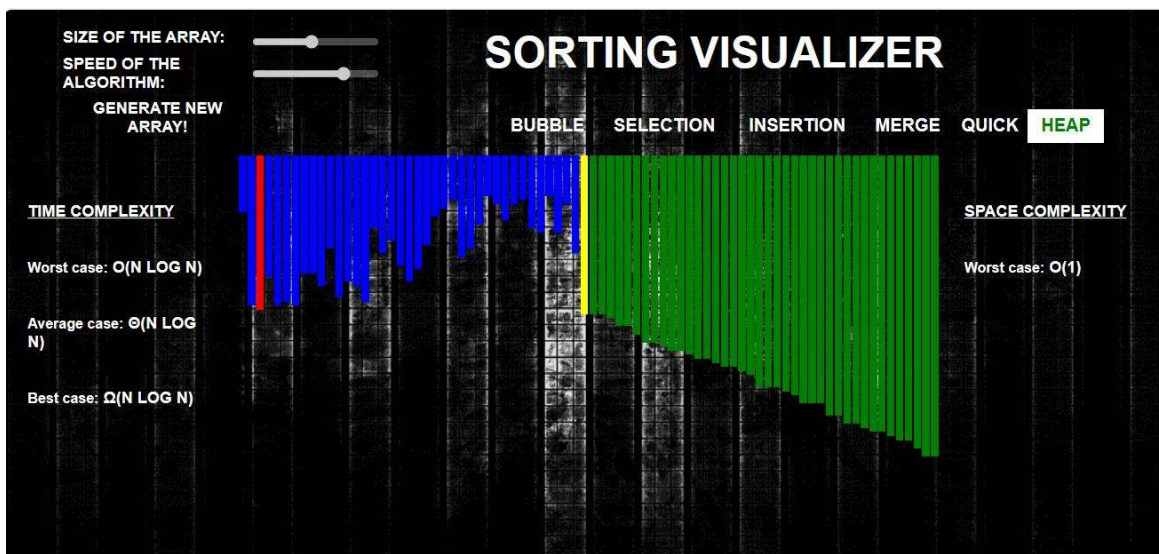
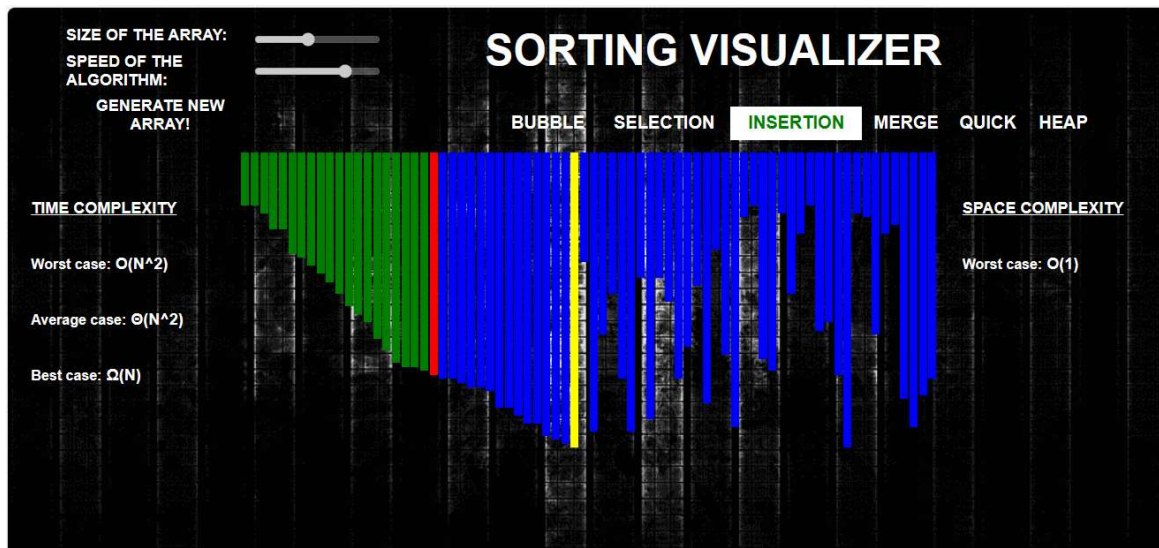
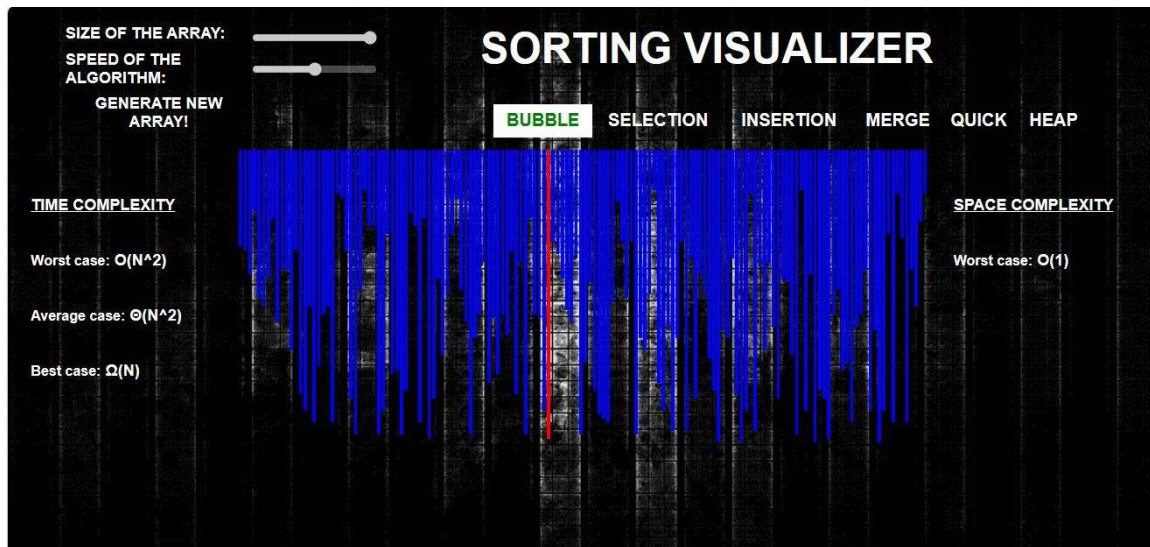
The objective of this sorting visualizer web application is to help users understand how sorting algorithms work by visualizing their steps. It is helpful for students learning about sorting algorithms, software developers who need to choose the right sorting algorithm for a particular application, and anyone else who is curious about how sorting works.

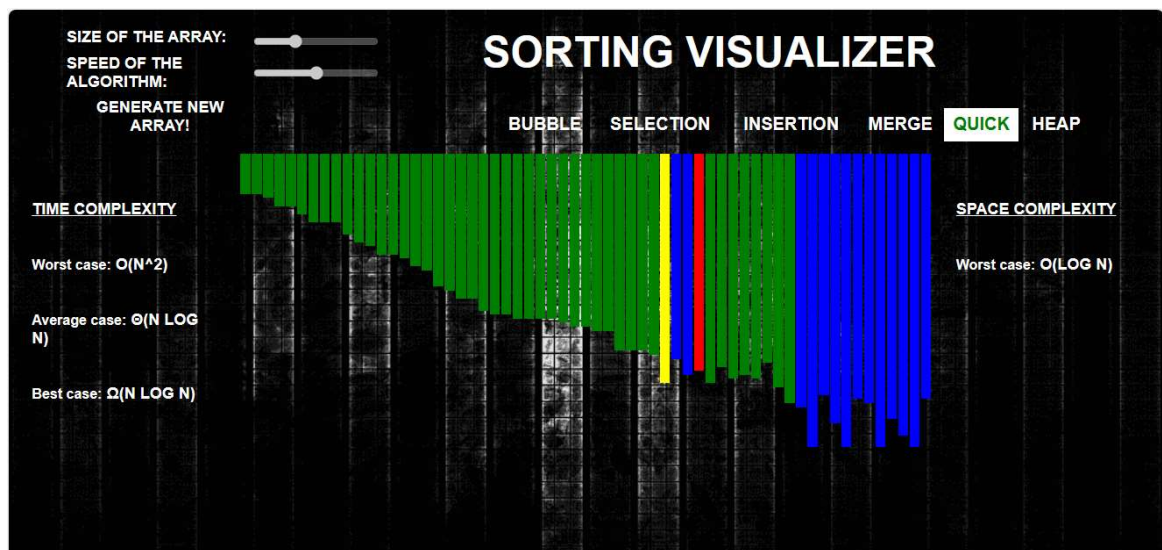
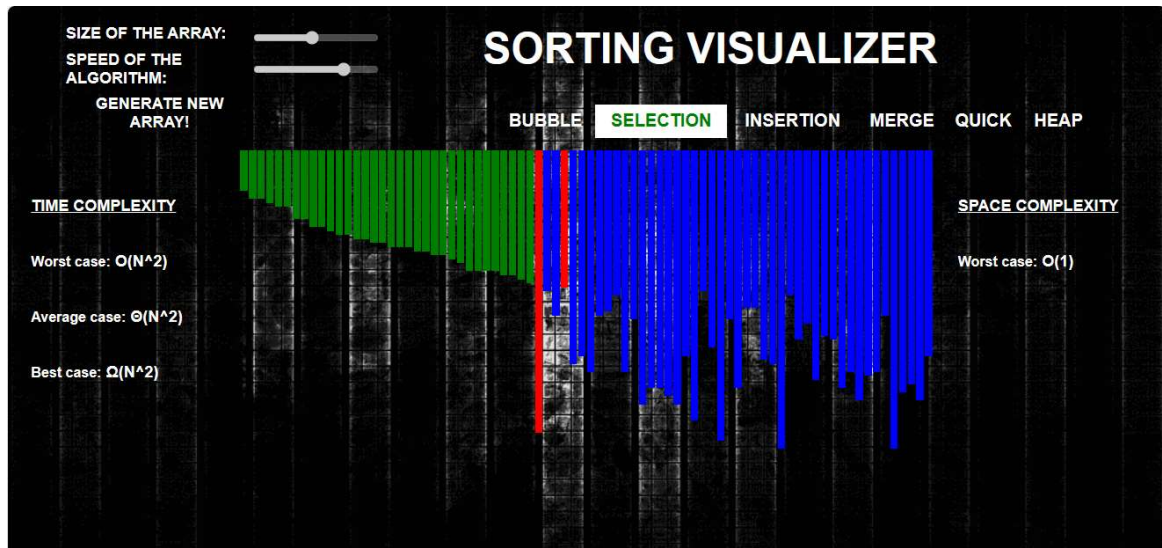
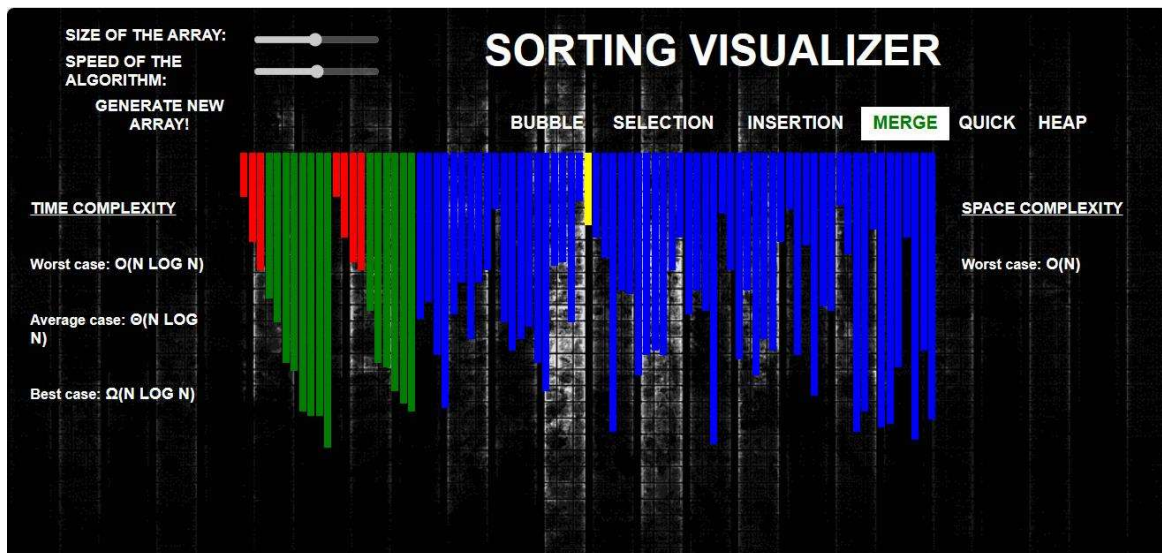
My sorting visualizer typically allows users to select the sorting algorithm they want to see, the size of the data set, and the speed of the visualization. It then shows the steps of the sorting algorithm in action, one step at a time. This allows users to see how the algorithm works and how it affects the data set.

This sorting visualizer is a helpful tool for understanding sorting algorithms. It can make it easier to learn about sorting algorithms, to choose the right sorting algorithm for a particular application, and to debug sorting code.

It can be used to compare the performance of different sorting algorithms on the same data set. It can be used to visualize the time complexity of different sorting algorithms. It can be used to visualize the space complexity of different sorting algorithms. It can be used to visualize the worst-case, best-case, and average-case performance of different sorting algorithms. It can be used with data set of different sizes. This project can be extended in future to visualize the sorting algorithm on different data types, such as integers, strings, and objects. This is helpful for understanding the generality of the algorithm. It can be extended to add more sorting algorithms, such as radix sort, bucket sort and counting sort. It can be extended to include explanations of the sorting algorithms. In future, we can connect this web application to a database. This would allow users to explore a wider variety of sorting algorithms and data sets. This project can be extended to make it available on mobile devices, so that users can use it on the go. This would make the sorting visualizer more accessible to a wider audience.

Some images showing the project is as follows:





4. Result

Through this program I was able to learn new technologies and implement them to make a project that can be extended further for business purposes. The training program at Utkrisht gave me a head start in my journey of learning and working with latest technologies.

The main objective behind pursuing this internship was to understand the practical approach to Web Development, implement and make a project based on the skills I learnt to gain hands-on experience with these technologies.

5. Bibliography

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