National University of Computer & Emerging Sciences
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Design And Analysis Of Algorithms

Project Report

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Abstract

This project consists of 10 sorting algorithms with an interactive user interface which allows you to select a file size and then proceeds to visualize each algorithm to help understand the logic behind it.

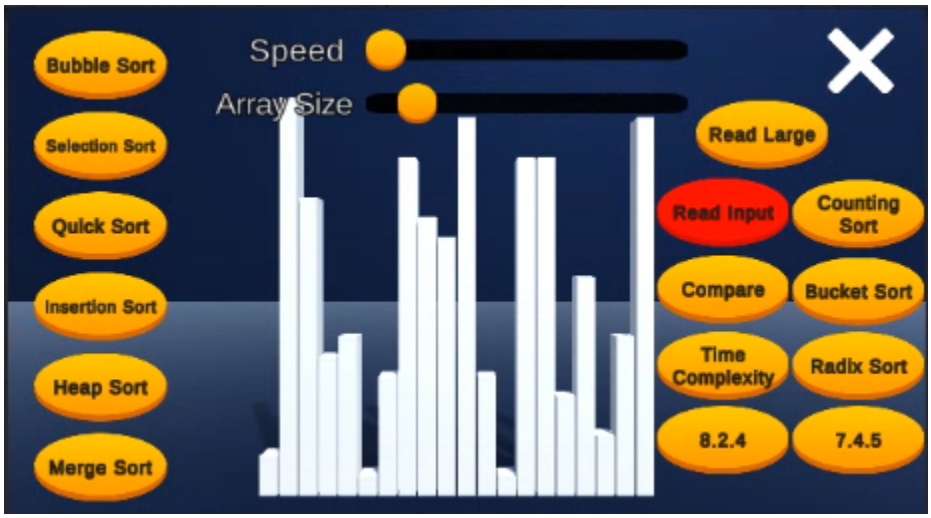
Introduction

The project was made with the intention of providing an interface to the user to select a sorting algorithm to their preference. Furthermore, visualization was also provided to show how each algorithm works.

Programming design

All sorting algorithms were coded in C# language and with help of Unity we were able to show visualization of each algorithm. Other than that, a feature in the program provides time complexities for each algorithm dynamically updating every time the program is run on a new input file.

Experimental Setup



The figure above shows our dashboard. This provides interactive buttons to select your preferred algorithm, input file, and the final time complexities.

Results and Discussion

Figure shows results for 1000 inputs.

Conclusion

We conclude that the result varies depending on input file size. When taking 10 inputs, bubble, insertion, and selection provide a better result compared to merge, quick, and heap because partitioning takes a longer initial time but is more efficient for larger inputs(e.g 1000).

References

https://www.geeksforgeeks.org