CPSC 350 Assignment 6

JON LE

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Abstract

Report on my experience with the final assignment for Data Structures.

1 Introduction

In this Report, we are going to examine the Time Difference, Trade offs, C++ Impacts, and Shortcomings from Empirical Analysis.

2 Responses:

2.1 How to add Comments

Time Differences for Algorithms Used The quicksort had a significant less in run-time other than bubble sort , selection sort, and insertion sort. The reason why is because quicksort O(n(log(n)) while the other three were O(log(n^2)).$O(log(n^2))hasafasterruntimecomparedt$

Trade offs Involved in Preference of Algorithms Time Complexity was best for Quicksort due to the run-time compared to the other three: Bubble/Selection/Insertion. Space complexity did not matter since I used dynamically allocated array, but Quicksort was better than the other three for time complexity because Quicksort was O(n(log(n)) and Bubble Sort, Selection Sort, Insertion Sort was O(log(n^2)).

Choice of Programming Language Impacts C++ allowed me to be able dynamically allocate an array by creating a pointer to first element of the array and you can iterate through index/brackets. A benefit of using C++ space complexity for Quicksort algorithm is O(1) using less space.

Shortcomings through Empirical Analysis Segmentation fault when I was trying to access memory location that did not exist, for coding issues, I had bugs. Writing the partition for Quicksort and implementing the recursive algorithm for Quicksort.

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Figure 1: This frog was uploaded via the project menu.

Item	Quantity
Widgets	42
Gadgets	13

Table 1: An example table.

2.3 How to add Tables

Use the table and tabular commands for basic tables — see Table 1, for example.

2.4 How to write Mathematics

LaTeX is great at typesetting mathematics. Let $X_1, X_2, \ldots, X_n$ be a sequence of independent and identically distributed random variables with $\mathrm{E}[X_i] = \mu$ and $\mathrm{Var}[X_i] = \sigma^2 < \infty$, and let

$$S_n = \frac{X_1 + X_2 + \cdots + X_n}{n} = \frac{1}{n}\sum_{i}^{n} X_i$$

denote their mean. Then as n approaches infinity, the random variables $\sqrt{n}(S_n - \mu)$ converge in distribution to a normal $\mathcal{N}(0, \sigma^2)$.

2.5 How to create Sections and Subsections

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2.6 How to add Lists

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