

**PA5 Report**

By

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**CSI 281**

**Data Structures & Algorithms**

**Spring 2019-20**

1. **Introduction**

The purpose of this experiment is to determine the efficiency of 3 different data structures (array, linked list and doubly linked list) by measuring how long it takes to complete comon tasks.

1. **Background**

Linked Lists have the advantage of being resizeable and a new element can quickly be added to them. The down side is you can only get to elements by traversing the entire list.

Doubly Linked Lits are the same as linked lists but they can be traversed in either direction.

Arrays can not be resized like Linked Lists but all of its elements are in order so you can quickly find random elements.

1. **Experiment Plan**

the data structures will be graded on how fast they can compleet the following tasks

- make insertions at beginnig (x100,000)

- make insertions at end (x100,000)

- make insertions at random location (x100,000)

- retrive random elements (x50,000)

- traverse and print all elements

- delete all elements

1. **Experimentation Detail**

And provide information on the platform[[1]](#footnote-2) where the experimentation was conducted. For example:

* 1. Memory on board
  2. Processor type
  3. CPU speed
  4. System type: 32 bits or 64 bits

The result of your experimentation must be reported in two parts: raw and summary. The raw data must be reported as an appendix and only the summary are reported in this section. All reported results must be in second[[2]](#footnote-3).

1. **Discussion and Conclusion**

In this section, you must include the following points:

1. Explain the results that you collected.
2. Did your experiment produced results that you expected?
3. **References**

Provide the detail references you used for this report. You must cite all reference you used throughout your report using the IEEE standard.

1. **Appendix**

You can document your raw data here.

1. To check the CPU speed, in the command prompt, enter msinfo32, and all the needed information are available in the pop-up window [↑](#footnote-ref-2)
2. You should use the timer system given to you for PA3. [↑](#footnote-ref-3)