**CLZ2103 Planning Report-1155141320-Yung Pak Hong Patrick**

Since the invention of computers, computer scientist has been designing different computer algorithm to solve a large quality or perform complex calculation and operations. For example, a computer’s additional and subtraction for large quality are considered algorithms. However, the performance of different algorithms could be compared and measured. Nowadays, computer science is investigating and design more efficient algorithms, to create better computers and systems to achieve more complex calculations.

Similar in designing a product, computer scientist needs to consider the following aspect when designing or improving an algorithm to best of their ability.

* Design problem
* Algorithm’s
  + Data used
  + Type of language used to code
* Running time constancy
* Time complex/Running time: The number of computational complexities an algorithm requires to run and finish.
  + Best and worst case
  + Average case
* Computer/system/hardware intend to use from

To create or improve an algorithm is a difficult process and requires innovative visualization or concept in approaching the design problem. A different version of the algorithm is superior in certain aspects but potentially weaker in others. Hence, the best algorithms to solve an issue/problem is case dependent but could be compared in real-life application against each other.

For this investigation, I’m motivated to learn the different aspect computer scientist needs to consider in designing an algorithm. A majorly of algorithms have similar or same time complexity in achieving the same task but does not make the algorithms have equal performance. Hence, each algorithm needs to investigate and compare detailed under real-life situations. Ultimately, we wish to through compare the strength of different algorithms and attempt to merge certain aspects/concepts from another algorithm to build a better version.

**Proposed TimeLine:**

**Since 7/9/2021 Finish Topics/Parts:**

* Introduction
* Fairtesting
* MergeSort Investigation
* QuickSort Investigation

**Current Working Topic:**

* HeapSort Investigation
  + End of September
* Check grammar and structure of report(Ongoing process):
  + Would conduct a whole report rework at the end of each month

**Topics/Areas Require to work on:**

* Investigation Evaluation
* Investigation Precision & Accuracy
  + - Hope to finish investigation’s Evaluation and Precision & Accuracy at the end of October
* Investigation Conclusion
* Investigation Improvement
  + - Hope to Finish Conclusion and Improvement at the end of December
* Merge Sort Extension