***CSE-5311-004-DSGN & ANLY ALGORITHMS***

***Project***

**Definition:**

Implement and compare the following sorting algorithms:● Merge sort● Heap sort● Quick sort (Regular quicksort & quicksort using 3 medians)● Insertion sort● Selection sort

● Bubble sort

To Run File:

Go to the file location and open the command prompt and then type below command:

* python main.py

It will ask user to choose which sorting algorithm user would like to use. Enter the preference.

It will ask user to enter Size of Array that needs to be sorted. Enter the size and press enter.

It will ask user that if they want to enter the numbers manually or automatically. If user enter ‘y’ and press enter it will automatically create array by generating random numbers. If user enters ‘n’ and press enter then user has to enter the numbers manually.

After this step, it will display the input unsorted list along with the same list after sorting, the time required to sort the list and the time and space complexities of the selected algorithm.

Then if the user has chosen to generate the list using random numbers it will ask user if they would like to see its ‘Time Vs number of input’ graph, if the user enters ‘y’ a graph will be popped up.

The last thing is while choosing the algorithm in the start there is an option ‘ALL’. If the user opts this there will be a ‘Time Vs number of input’ graph popping up which shows the comparison of all the algorithms.