Lizeth Campos

**Lab 2 - Option A**

**Introduction**

For this first Lab we were given two text files that we had to read, those files are called activision and vivendi each of those files contain IDs of all of the company’s active employees. Our task was to read both of the text files containing the IDs and just create a singly linked list that stores the IDs in it. We have to sort the list using the following: bubble sort and Merge Sort, while sorting the list if we found any duplicates, they had to be next to each other. While traversing the list if we found a duplicate, we returned true if the key had been seen before.

**Proposed Solution design and implementation**

Starting first by reading both of the text files testing that each one worked, being able to read both of the text files line by line. Then after reading the first text file and adding one by one of the items into the Linked list that I created the next part was to add the remaining text file into the linked list to be able to sort it. After having added the content of the text files into the linked list and checking by printing the list that it worked, I continued by making the method of Bubble sort. For the method of bubble sort its just comparing the each item to another checking which one is greater and moving them to their corresponding position until the list is fully sorted having to check that the duplicates were neighbors of each other. Merge sort its easier to work with if you are dealing with smaller parts instead of with just one just big part. Splitting it in half working first with either the right side first or the left sorting one side then the other putting them together and sorting again till it’s fully sorted. Finally at the end if while the traversing the list if an item was seen before for example a duplicate we would just return true because if have been seen before.

**Experimental Results**

As a result, at the beginning I had to make sure that I was reading the text files correctly to check I just printed the text files just to make sure they were correct. To check that the values were being inserted correctly into the linked list I first tried to do it with one smaller text file then with both. Checking that the duplicates were actually next to each other.

**Conclusion**

Testing a code with a smaller text file helped to see if the code is doing was doing what its supposed to be doing instead of just working with a bigger one. With a smaller text file its easier to check if the items are being insert it.