**Coding Assignment 6 Results**

CSE 3318

**Test 1**

**A.** How many rows are in your file/how many cells are in your hash table array?

30 in the file and on the Hash Table array

**B.** How many of those cells contained the head of a linked list?

20

**C.** What percentage of the array is being used?

2/3 of the array is being used

**D.** What is the length of the longest linked list?

3

**Test 2**

**A.** Did increasing the size of the hash table array give you different results than Test Question 1?

Yes the data is more spread out but there is still a few links that are of length 2

**B.** Explain why or why not.

By changing the Hash table size to a larger size it increased the number the value is moded by and spreads the data out further. However if the hash table size was not a multiple of the original table size we might see better results.

**Test 3**

**A.** How many rows are in your file/how many cells are in your hash table array?

There are 30 rows in my file so in this test there are 15 cells in the array

**B.** How many of those cells contained the head of a linked list?

13 out of the 15 cells have a head of a linked list.

**C.** What percentage of the array is being used?

86.67% of the array is being utilized

**D.** How did decreasing the size of the hash table array affect the percentage of the array that filled?

Decreasing the number of cells decreased the space wasted but it did make a couple of my list longer

**E.** Did your hash table get any linked lists that were longer than in Test 1? Why or why not?

A few of the linked list got longer by several links with the longest being 5

**Test 4**

**A.** What was your average search time when your HASHTABLESIZE matched the number of records in the file?

On average this took 2 tics to complete

**Test 5**

**A.** What was your average search time when your HASHTABLESIZE was set to 1?

I was expecting it to take longer but it took the same time of just 2 tics.

**Test 6**

**A.** What was your average search time when your HASHTABLESIZE was set to 1 and you only searched for the last record of your input file?

This took the same amount of time 2 tics.

**B.** Was this average different from your answer to Test 5. If yes, why?

It was the same as test 5 as I did used the last one in my testing, but this consistently gave me the 2 tic clock speed since it did have to search through the linked list in its entirety.

**Bonus Question**

If your program was using Open Addressing rather than Separate Chaining, then how many cells of the hash table array would be used when HASHTABLESIZE is set to the number of lines in the file? How did you calculate this number? Show/explain your answer.

For Open Addressing it would simply need to be the same size as the input array or larger depending on the load factor your going for. For example the data I used could open address to a an array of size thirty however several data point would collide and we would need to shift them to a different cell or simply make the array larger so we don’t have to go looking for every single data entry.