**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?

There are 50 rows in the file and 50 cells in hash table array.

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

29 cells contained the head of linked list.

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

58 percent of array is being used.

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

The length of longest linked list is 4.

**Test 2**

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

Yes. 39 cells now have linked lists. This is a percentage of 39. The longest linked list is now 2.

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

The bigger the span for hashing the lesser the chances of collision. At twice the number of cells, the maximum occupancy would be 50%. Here we get 39%- 22 entries map to 11 hash positions.

**Test 3**

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

50 rows in file. 25 cells in hashtable.

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

22 cells contained the head of a linked list.

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

88% of the array is being used.

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

More percentage of cells get filled.

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

There are few cells which now have a linked list of length 5. Also more cells are now filled with longer linked lists. Since the hash array has lesser number of positions available, more collisions will occur giving rise to more and longer linked lists.

**Test 4**

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

4.7 tics

**Test 5**

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

3.7 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?

4.2 tics.

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

Yes, the difference between the two answers is that of 0.5 tics.

**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.