Name:

Course: CS 355

Semester: Fall 2012

Assignment Number: 8

Assignment Type: Homework 6 - Analysis

Assignment Description: Carefully answer the questions below. Be sure you answer in complete sentences and with correct grammar. The space provided is not an indicator for the space needed to answer the question.

Assignment Due Date: Tuesday, October 30, 2012 (beginning of class)

To Be Included in Portfolio: YES

**Question 1: Create a separate driver that tests your Hash Table with a data set of size 10, 50, 100, 1000, 10,000. Making use of the integer values returned from the insert, remove, and search methods, justify that those routines have runtimes of O(1). Feel free to show tables in Excel or generate them with your new statistical driver.**

The runtime of the insert, remove, and search methods result to O(1) in two ways – chain linking and double-hashing. For chain linking the add, search, and remove functions can just use one run of a modulus equation (item % table size); collisions are handled in a linked list for that row. Therefore, the runtime for the functions would be O(1).

With double-hashing, the process becomes a repeat of a basic hashing function. When implemented correctly, inserting, removing, and searching usually take no more than a few hash functions at max.