CSC2400 / Chapter 7 Homework

Due: Thursday, November 7, 2019

**NAME:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. (3 points) What are the three methods for exploiting space for time tradeoffs?
2. (10 points) Assuming that the set of possible list values is **{a, b, c, d}**, sort the following list in alphabetical order by the distribution-counting algorithm.  
    **b, c, d, c, b, a, a, b**
3. (10 points) Demonstrate the Horspool’s algorithm to search for the pattern **BAOBAB** in the text **BESS\_KNEW\_ABOUT\_BAOBABS**.
4. (10 points) Demonstrate the Knuth-Morris-Pratt Algorithm to search for the pattern **BAOBAB** in the text **BAOBXBAOBAXBAOBAB**.
5. (10 points) For the input **30, 20, 56, 75, 31, 19** and hash function h(K) = K % 11, construct the open hash table (**chaining** method for collision management).

1. (2 points) For problem #5, find the largest number of key comparisons in a successful search in this table.
2. (10 points) For the input **30, 20, 56, 75, 31, 19** and hash function h(K) = K % 11, construct the closed hash table (**linear probing** method for collision management).

1. (2 points) For problem #7, find the largest number of key comparisons in a successful search in this table.

**SCORE: \_\_\_\_\_\_ / 57**