

Program 3

Due: March 13, 2009 (by midnight).

For this programming assignment you will implement a spelling checker. Your spell checker will input words from a dictionary and a document and then output the words in the document that are not in the dictionary. You will store the dictionary words in a hash table and also output statistics about the hash table's performance. The details follow.

1. Implement the separate chaining **HashTable** template class as shown in the Weiss book, Figures 5.6-5.10 (excluding Figure 5.8). You will be using your **HashTable** class to store the dictionary words (i.e., strings). So, we will use the hash function from Figure 5.4.
2. Add a new method to the **HashTable** class called **PrintStats()** that prints the minimum, maximum and mean chain length for all the chains in the table.
3. The dictionary file will contain one word per line, and the first line will be the number of words in the file. The words will all be lowercase. See sample at <http://www.eecs.wsu.edu/~holder/courses/CptS223/spr09/dictionary.txt>. The document will contain lowercase words separated by spaces or new lines. See sample at <http://www.eecs.wsu.edu/~holder/courses/CptS223/spr09/document.txt>. You may assume the dictionary and document files will always have these names and be in the same directory as your executable. Your program should work with any dictionary and document files that comply with these constraints.
4. Your main program should do the following.
 - a. Create a hash table whose size is equal to the number of words in the dictionary.
 - b. Read the words from the dictionary and store each one in the hash table.
 - c. Output the statistics of the hash table (minimum, maximum and mean chain length).
 - d. Read the words from the document and output each word that is not in the dictionary.
5. Create a **readme.txt** file that describes exactly how to compile and execute your program and on what platform.
6. Collect your source code, readme file and any other files needed to compile and execute your program into one ZIP file called **<your_last_name>-pgm3.zip** and include it as an attachment to an email to me (holder@wsu.edu) by the deadline. Grading will be based not only on correctness, but also on programming style and documentation.