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Assignment 4

Due Oct. 25

My Linked List Spell Checker

PDF file describing the problem, the algorithms, the program design, results, and observations via Drop Box. Make sure to check spellings and grammar. The abstract should be typed in Times New Roman style font with single spacing and the font size of 12.

In programing assignment four we were tasked with creating a spell checker, using the MyLinkedList class and methods created. An array of linked lists was created with 26 indices to hold words read in from a dictionary file, with each starting letter given its own list. Index 0 contained "a" words while index 25 held words starting with the letter z. Using ASCII values each word read in was appended to the appropriate linked list. Once the dictionary was created, a text file, the novel Oliver was read in line by line. Each line was trimmed of white space, its characters were converted to lower case and using regular expressions, all undesirable character values were replaced with white space. The string was then split by its white spaces and each element of the newly created string array compared to the dictionary file, using the contains method created in MyLinkedList, element by element. If the word was found in the dictionary list, the indexOf method was used and totaled to find elements traversed to find the match. If not, the overall size of the linked list was totaled, because the method traversed the entire list. Words found in the dictionary are assume to be correctly spelled while words not found in dictionary misspelled.

Results:

Correctly Spelled	940250
Misspelled	059291
Avg. Comparison of Found	3558.37
Avg. Comparison of Not Found	7903.53

The table above shows correctly spelled words (words found), misspelled words (words not found) and the average comparisons of each. Average comparisons show the number of checks each category completed in attempt to locate a given word in the dictionary array. Average comparisons of words not found shows the average length of each linked list for each induvial letter. Average comparison of words found shows that our search does in fact follows the Big Oh notation for a linear search.