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Assignment 4: Linked List Dictionary

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In this assignment, we were given source code for a linked list in java, a txt file of words for a dictionary, and a txt file of an ebook. Our job was to put the words in a linked list array and create a dictionary out of it, in which we would compare it to the ebook given. Filling the linked list array was simple, we took the first character of each word and put it into one of 26 linked lists in the array. One for each letter in the alphabet. The tricky part was going through the text file and parsing the strings to match the dictionary. The first mistake in my code was trying to go through the book one line at a time. This proved itself to be tricky, however, so then I opted to go through the text one word at a time, which was much easier. To parse the string, the code first makes the word lowercase, then splits the word into pieces from certain characters like periods, exclamation points, commas, etc.. Once it does that, it puts the word back together, then it can be compared to the dictionary.

While the word is being searched for in the dictionary, the code keeps track of how many searches have been made. Then it will count whether the word was found or if it was not found. The linked list was very inefficient. If a word was not found in the dictionary, on average it would take about 7449 searches. The program looks through all of the words in a linked list when the word is not found, so it adds about 7000+ searches for each word not found. Even when the word was found, on average the code searched through about 3500 words on average.