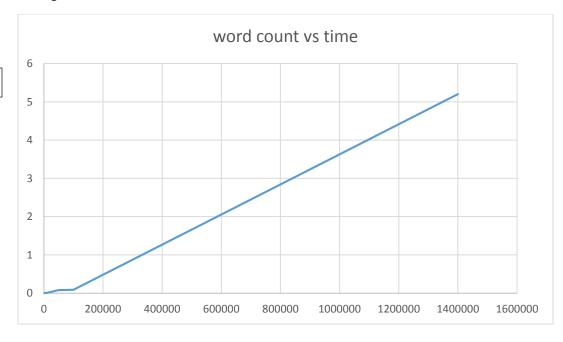Assignment 6 answers

1. Eat and ate. In stringHash1, the order of letters does not matter since it is an addition procedure.StringHash2 multiplies the letter by the index that is used during iteration.
2. StringHash2 is better since it accounts for the ordering of letters in words, so this minimizes collisions and spreads out the hash links more throughout the table. Even if 2 words have the same letters, if they are in a different order, they will hash to a different value.
3. No, because the size function is dependent on the number of hash links, and has no relationship with the hashing function.
4. Yes, because the load factor depends on the number of buckets, and this is affected by which hashing function is used.
5. Yes, because the number of empty buckets is inversely related to the number of buckets being used, which is affected by the hashing function.
6. Yes. Since the size is different, the words will hash to different values, and this leads to more collisions if the size is decreased, or less if it is increased, and the number of empty buckets will change relative to that.
7. As can be seen in the table below, resizing the size of the hash table does not have a significant impact on performance. For a small change in performance, there needs to be a very large change in word count.

Time(s)

word count vs time

Words