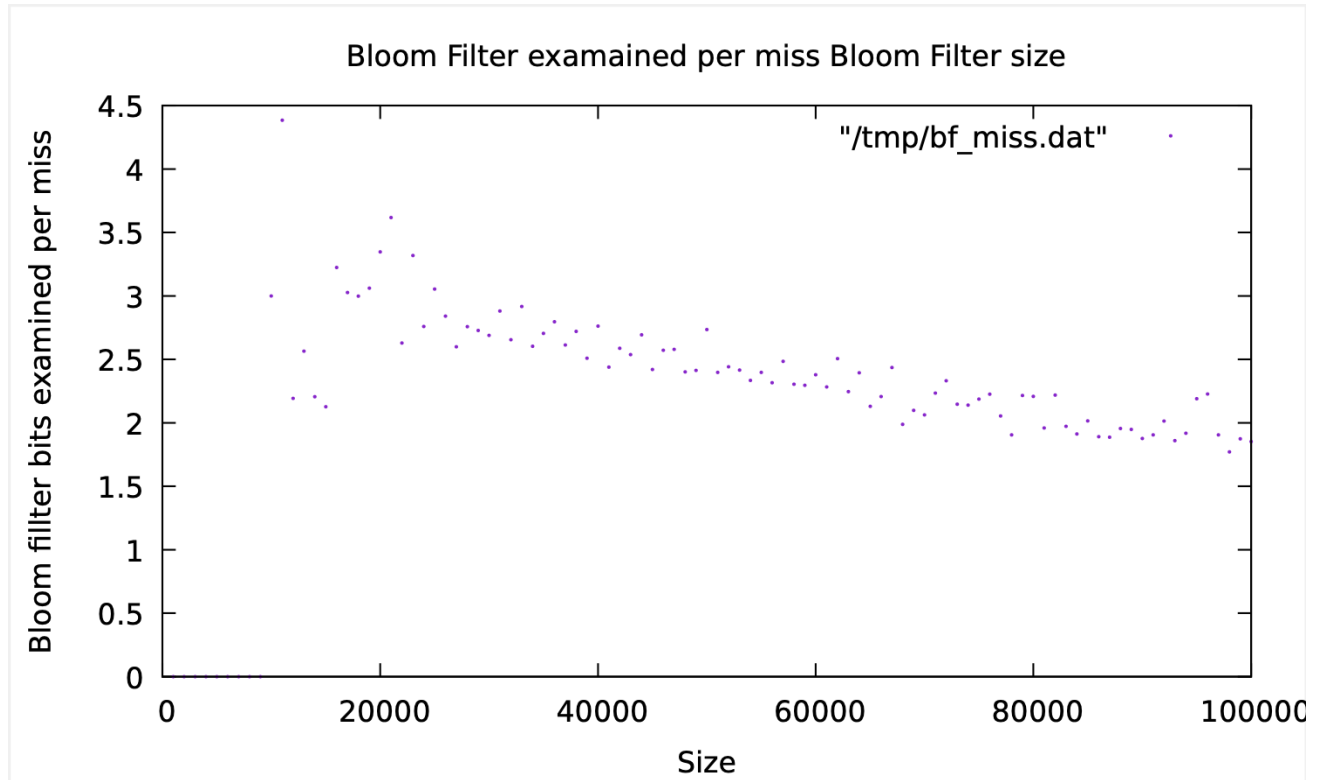
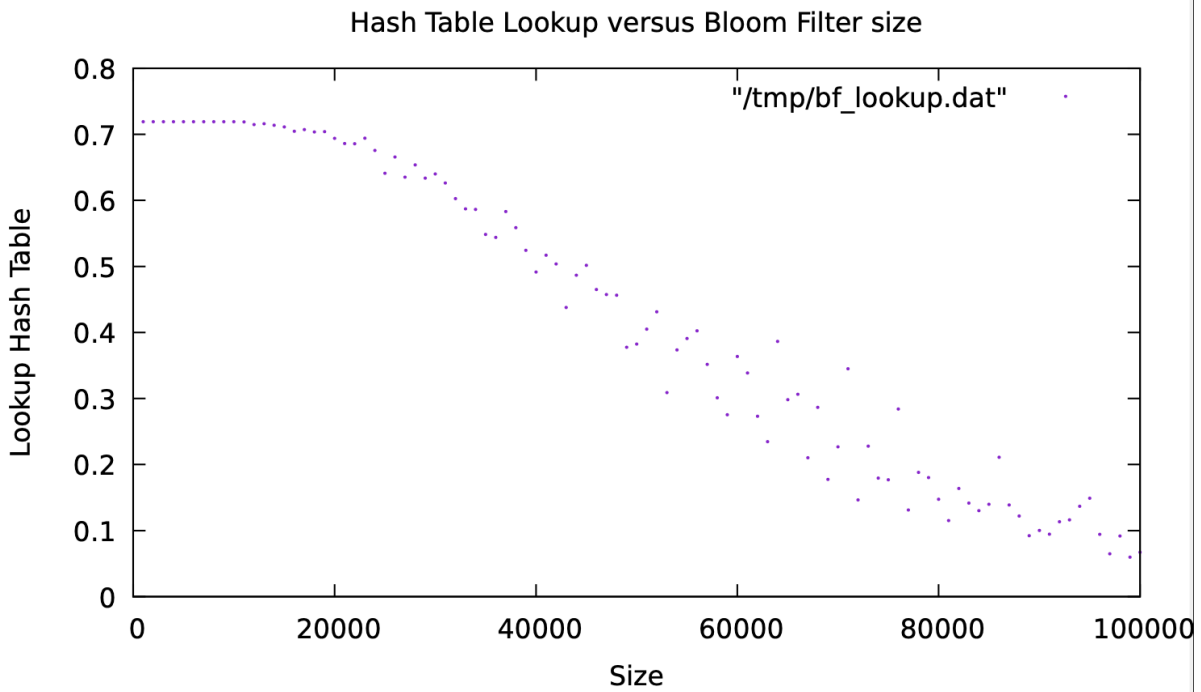


Tanya Gyanmote
tgyanmot@ucsc.edu
11/21/22

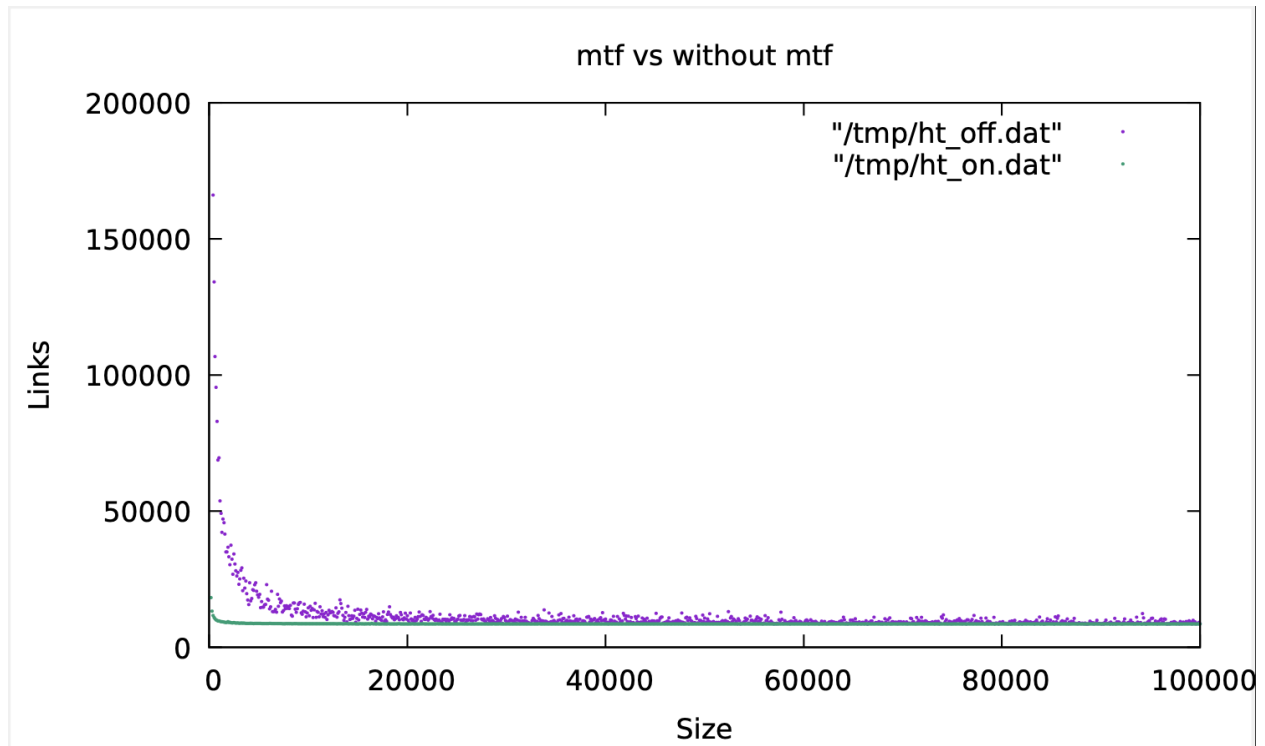
Assignment 6 Writeup



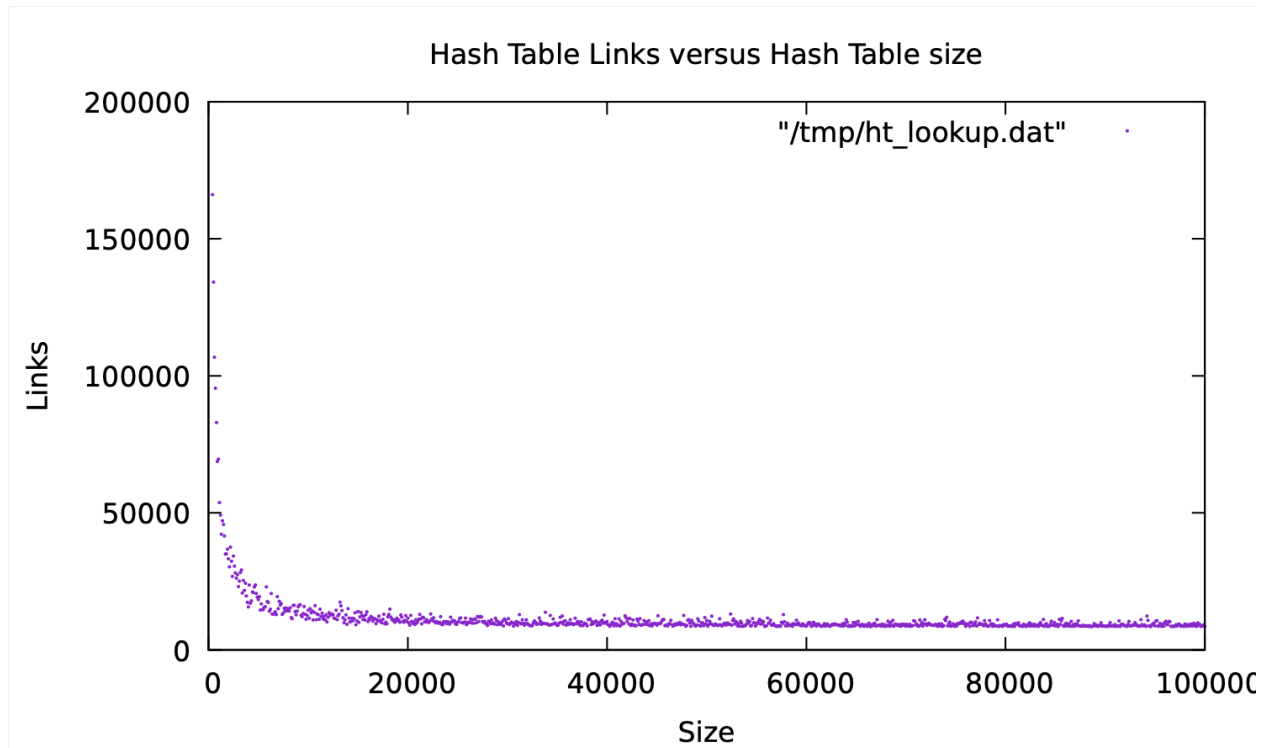
The number of Bloom filter bits examined per miss vary as the bloom filter varies in size. As you can see from the data there with the number of bloom filter bits examined per miss decreasing the size of the bloom filter also decreases. You can conclude that there is a sort of correlation between the bloom filter size and the bloom filter bits examined per miss. The correlation is not perfect, the purple dots suggest a causal relationship between the two.



Changing the bloom filter size affects the number of lookups performed in the hash table, as you can see from the data set above as the size of the Bloom Filter increases so do the lookups of the hash table. You can see that there is a correlation between the size and the lookups of the hash table. As the bloom filter increases false positives are less likely to occur because the hash table lookup won't be called as often.



As you can see from the graphs, the green line represents when mtf is true versus when mtf is false. You spend more time in the hashtable when mtf is false because when mtf is true you search for something and it moves to the front. Looking at the number of elements in the hashtable, when mtf is true the number of links decreases as you spend less time in the hashtable. As the size starts off at 0, the links are greater but as the size increases the links start to decrease.



The number of links examined vary as the size of the hash table varies since as the hash table increases you get reduced chain sizes which reduces the number of lookups that get called. From the data in the graph you can conclude that you shouldn't set a small hash table size when using a chained hash table because it slows the processing time down since it calls linked list lookup.