

## **COP 3502 Suggested Program Edits/Questions: Tries/Hash Tables (Week 12 Programs)**

- 1) Rewrite the insert function in mytrie.c **iteratively**.
- 2) Add code to either mytrie.c or mytrie2.c to count and maintain the number of nodes in the trie.
- 3) Edit the solution to maxprefix.c to print out the word that has the maximum number of prefixes that are also words. (This is a non-trivial edit!)
- 4) Load various dictionaries into hashtable.c and for each calculate the length of the longest linked list in the table. Play around with the hash function to see if you can reduce this value via a change to the hash function.
- 5) Adjusthtablelinear.c so that you read in a dictionary and make the table size about twice the size of the actual table. Then, calculate the average # of slots we would have to look at to insert a random value. (To do this, pretend that each hash value was equally likely and add up how many slots you have to iterate through before you hit an empty slot, including the empty slot, for each possible index in the array and then divide by the size of the array.)
- 6) Set up a test betweenhtablelinear.c and hashquadratic.c to see which performs better! This is open ended so that you think about how to set up the test on your own in a fair way. (Adjust the code as necessary to make the comparison a meaningful one.)