CPSC 335

1. The theoretical height of the Trie is obtained using the longest word from the dictionary. Therefore the height of the tree for ALL\_WORDS.txt is 22 which is implemented in the program as well.
2. If the word exists in the Trie then the program would search through the tree until the complete length of the word has been found. Therefore the time taken depends on the length of the word.

If the word does not exist then the time would depend on the longest set of characters found when searching. Therefore the time depends on the prefix of the word found.

My program outputs the average time for both cases by taking the total time taken for each case and dividing it by the number of searches performed.

1. Case 1 : if the length of the word increases for words that are in the dictionary, then the search time would not increase. As the word exists we know that it will search through the right nodes reaching the word

Case2: however if the word does not exist in the dictionary then the program has to travel through multiple prefixes to make sure that the word is not in the dictionary. Therefore the average time would increase.

BONUS:

1. And 2. Have both been implanted