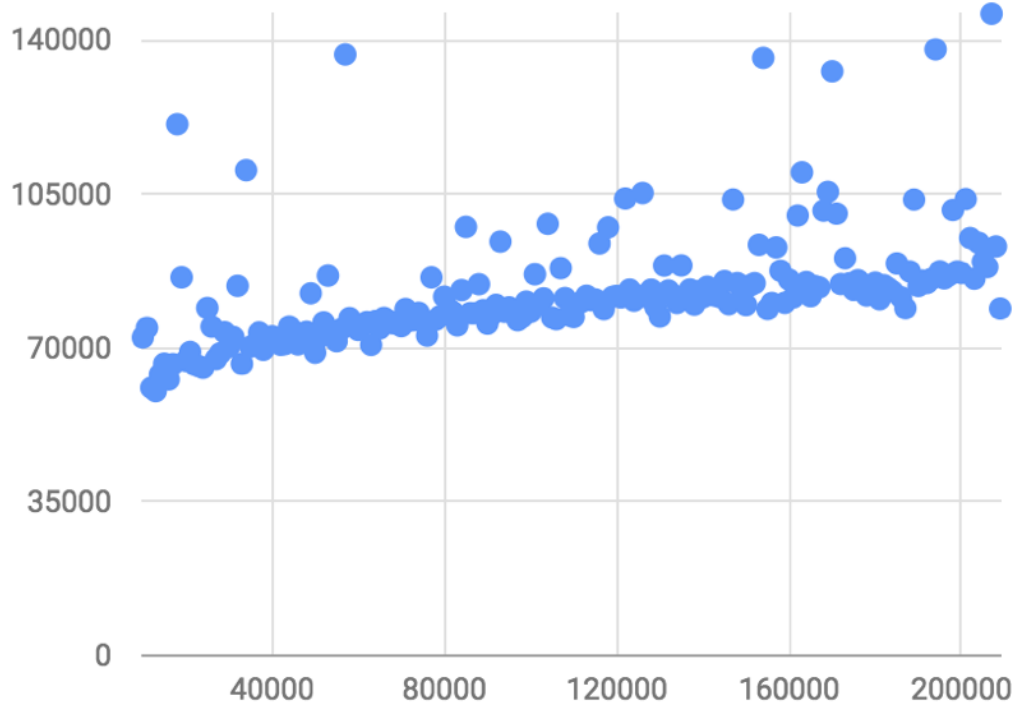Kesong Xie
Advanced Data Structure, CSE 100
PA2

Running Time Analysis

Ternary Search Tree:

min_size: 10000
step_size: 1000
num_iterations: 200
dictfile: shuffled_freq_dict.txt
average for each find: 10

The graph below is the plot for finding 100 elements:

From the graph, we can tell that the find function running time is O(logN) for ternary search tree, because with the size of the elements grows, the graph above presents a logarithmic shape.
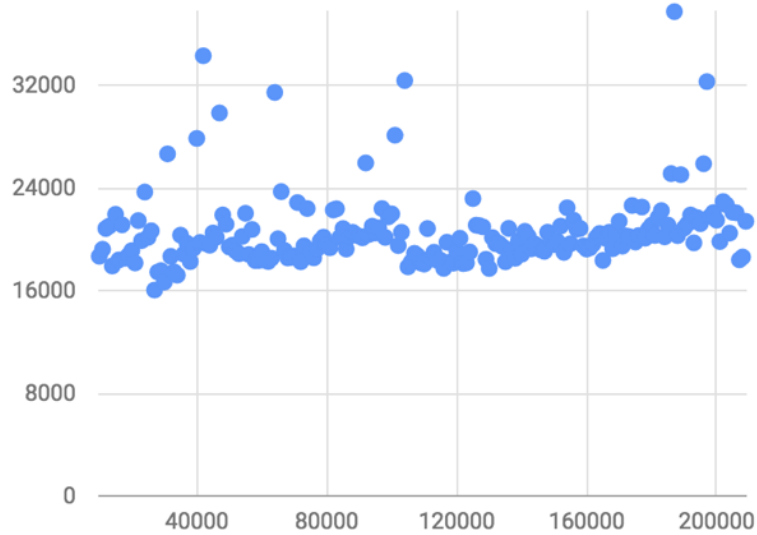
DictionaryHashTable:

min_size: 10000
step_size: 1000
num_iterations: 200
dictfile: shuffled_freq_dict.txt
average for each find: 10

The graph below is the plot for finding 100 elements:

From the graph, we can tell that the find function running time is O(1) for Dictionary with HashTable, because with the size of the elements grows, the graph above presents a horizontal line.
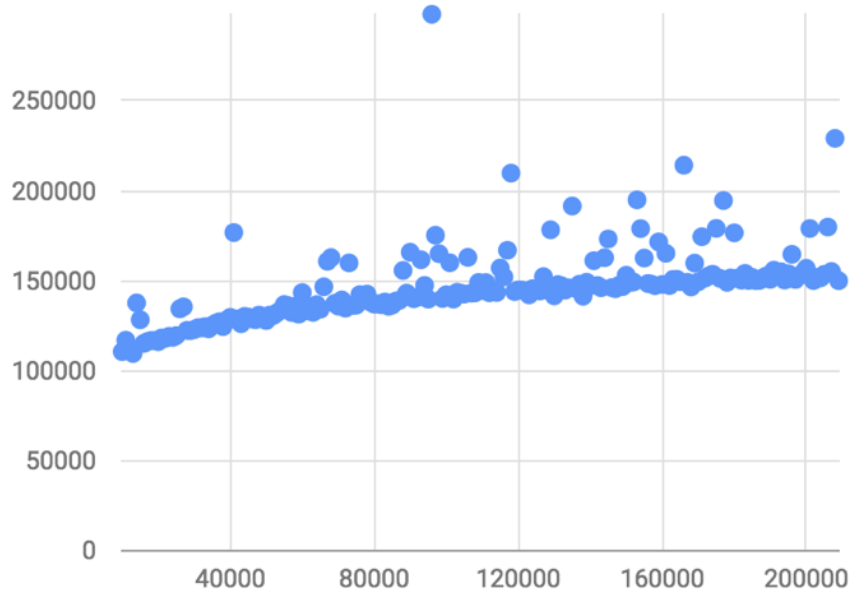
DictionaryBST:
min_size: 10000
step_size: 1000
num_iterations: 200
dictfile: shuffled_freq_dict.txt
average for each find: 10

The graph below is the plot for finding 100 elements:

From the graph, we can tell that the find function running time is O(logN) for Dictionary with BST, because with the size of the elements grows, the graph above presents a logarithmic shape