

Project 4

Name: Vincent Nguyen

ID: 30119507

Email: vincentnguye@umass.edu

1. Why the number of average search steps here is bigger?

The tree is unbalanced so the average and worse cases are the same. If the tree was not balanced, it would have to go through the entire tree at the worse case, making the Big O, $O(N)$. For an array, binary search always starts at the middle of the array. In a tree, the search starts at the root, which could be anything.

2. Comments on running/execution time (which one is faster and why).

The run time for searching through a tree is faster than searching through an array. This is because the tree is somewhat balanced. It will take less time because the tree search knows where to go (left or right child). For an array, it just starts at the middle.