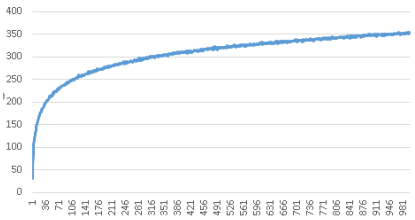
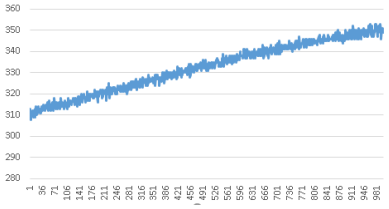
Christopher Myers, Michael Krebs

Project 4

Data Structure 0: Binary Tree



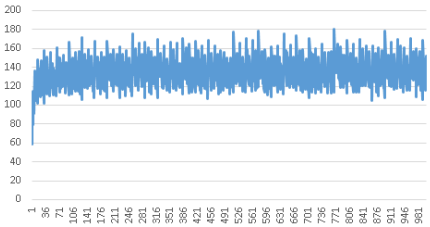
ADD



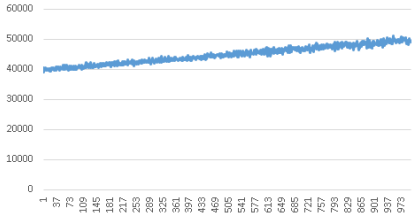
REMOVE

We conclude that data structure 0 is a binary tree based on the O(log n) add and remove is approximately O(log n).

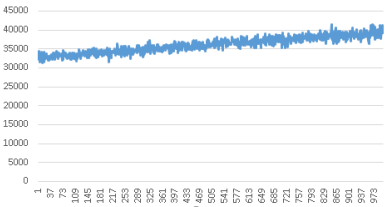
Data Structure 1: Heap



ADD



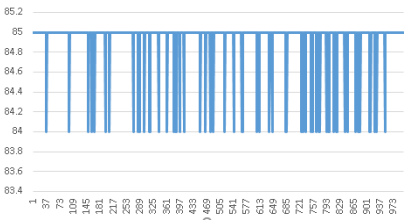
REMOVE



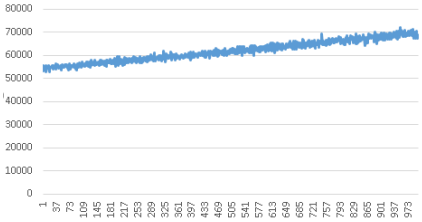
SEARCH

We conclude that data structure 1 is a heap based on the O(log n) add time, the near O(n) remove time, the O(n) search time.

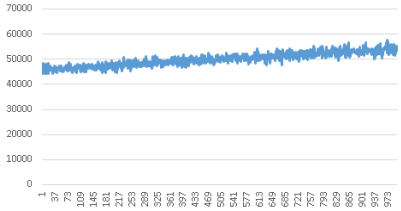
Data Structure 2: Linked List



ADD (looks jittery but only varies by 1)



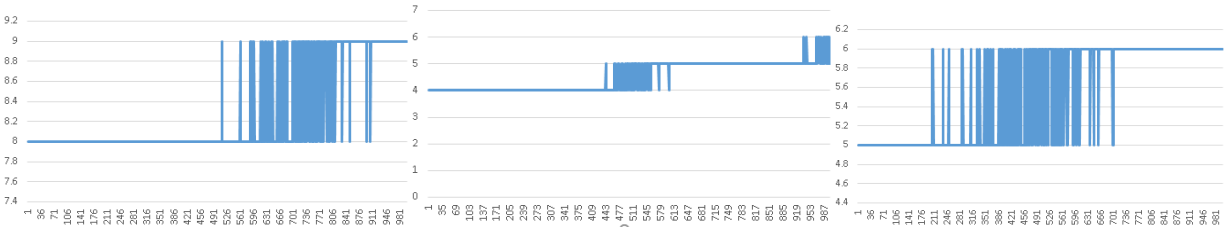
REMOVE



SEARCH

We conclude that data structure 2 is a linked list because of the O(1) add time and O(n) time for both remove and search.

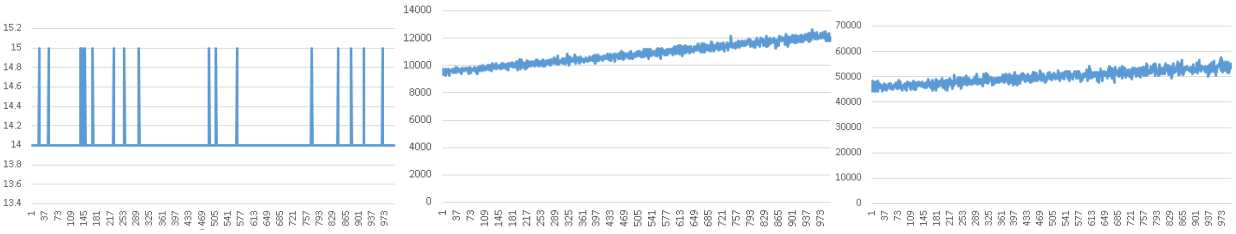
Data Structure 3: Hashset



ADD REMOVE SEARCH

We conclude that data structure 3 is a Hashset because the add remove and search times are all O(1). The spikes in the graph we believe come from an increase in memory allocation.

Data Structure 4: Linked List



ADD REMOVE SEARCH

We conclude that data structure 2 is a linked list because of the O(1) add time and O(n) time for both remove and search.