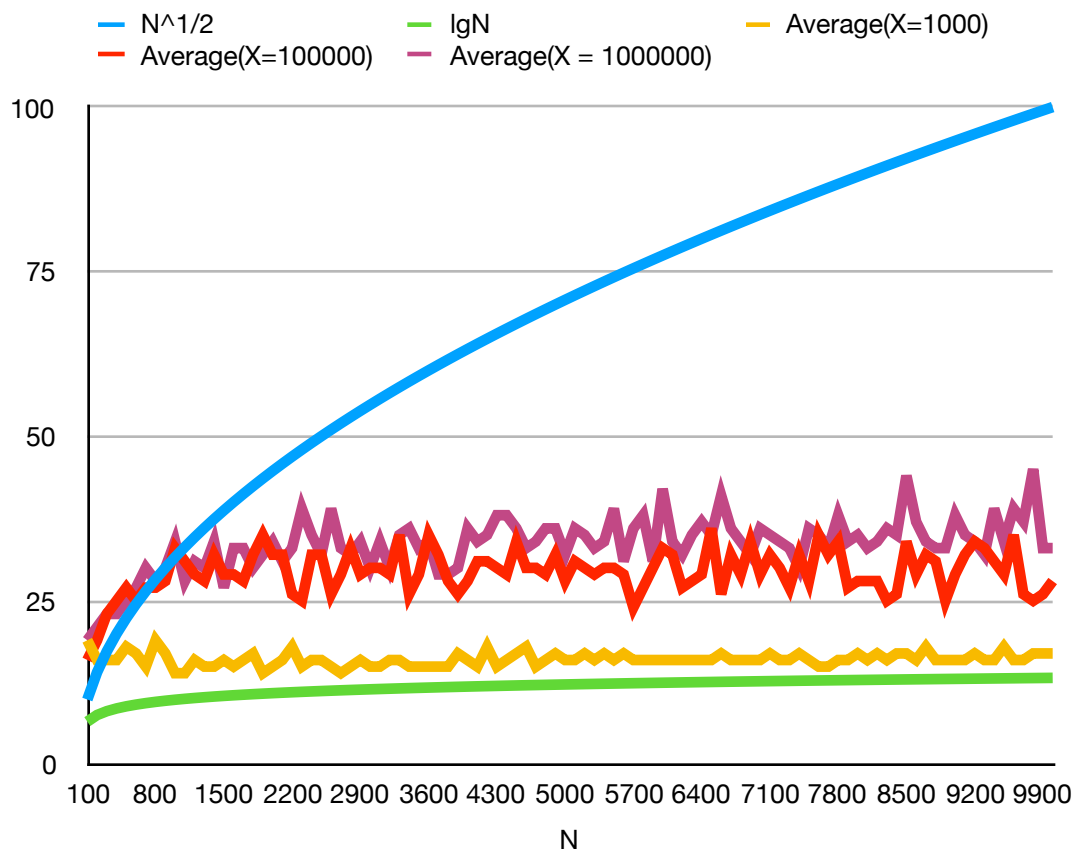


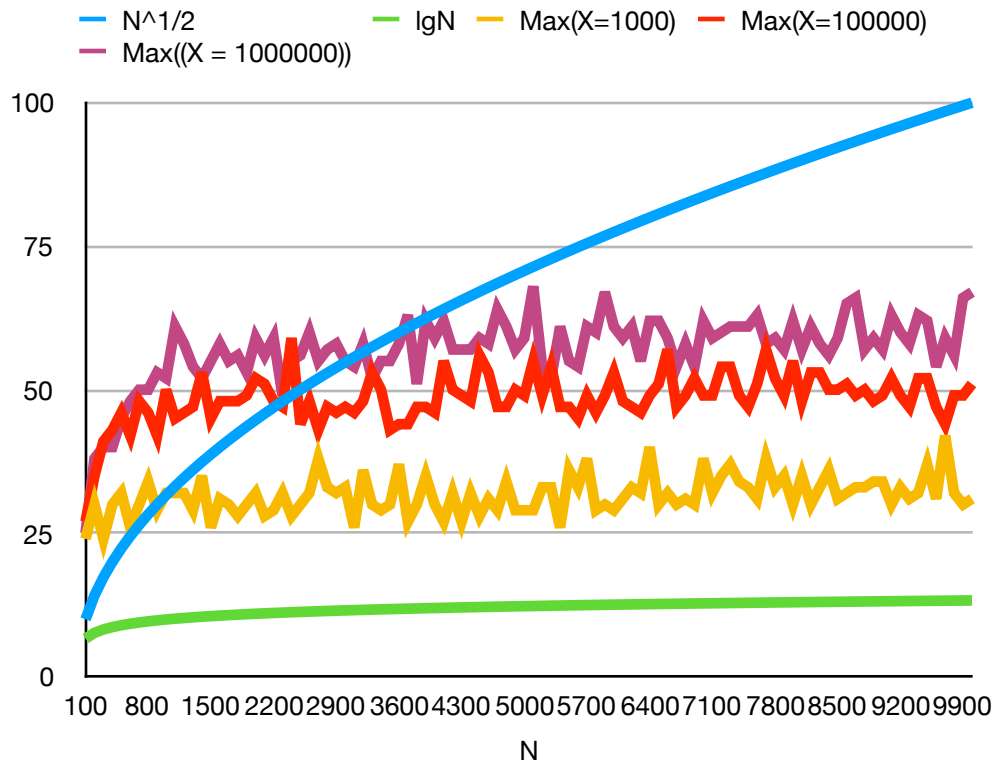
Assignment5 Binary Search Tree

Data:

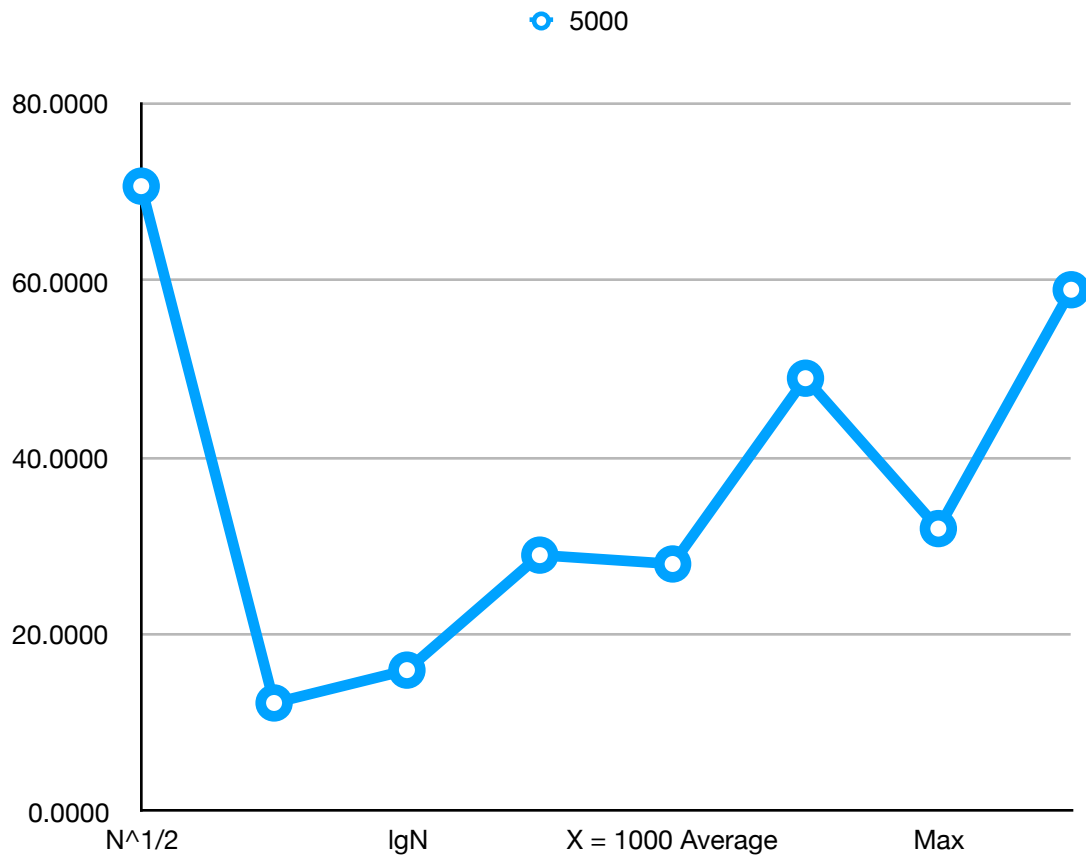
The data result is in the attachment. N is the number of elements, I chose about 100 N from 100 to 10000. X is the running times of insertion and deletion, I selected 3 different X in the task. The Average and Max in the chart means Average Depth and Max Depth for different N and X . And I used $2 * N$ to be the range of the keys.

Inference:





The pictures above are Average Depth and Max Depth changed following N.



As you can see, most of the values of Depth are between $\lg N$ and $N^{1/2}$, and as the values of X become larger, the data are closer to the $N^{1/2}$. The third picture is more decreasable, we can find that the depth of the tree will start out at $\lg N$ and degrade to $N^{1/2}$ followed the increase of X .