

## Chapter 19 notes

B-trees must be able to be sorted meaning things on the left tree are smaller

Find min just go to the left

Find max just go to the right

The Big Oh times is  $O(\log N)$

If you take the largest from the smaller side then everything from the left is still smaller

If you take the smallest from the larger side then everything to the right is still larger

If it's a leaf then it is easy to remove

If it is a branch then you do the left most left one on top or the right most right one on top depending.

**When you insert you always add a leaf node? True or false**

Insert:  $O(N)$

Remove:  $O(N)$

Find:  $O(N)$

Hoping for  $\log N$  for all of these

Trees aren't very good at finding the Kth element

**For the Programming hw**

For find min if there is no left then you're the min base case if not continue going left.

Do problem 19.27 recursively

So if it is a big tree then you can use the root and say give me all the stuff then do the right and give you all the stuff

How you would print it as a string

(All of things on the left + root + all of the thing on the right)

Base case you have no child