Lab 4 Report

The first Task is to compute the height of a b-tree. The approach for this one is to first get the length of the root then the children recursively until you it a leaf.

The second task is to extract the items of a b-tree into a sorted list the approach is to go to the furthest left child put the child’s item into sorted list then the parent unless tbe parent has another child then you put the child into the sorted list first the your repeat until you come to the root then you do the next furthest possible child and repeat until the very end of the list

The third task is to return the minimum item given a depth. The first step is to

Reach the depth that was given and you this by going to the furthest left child each time it it’s a leaf and you have not reached the depth the b tree is not that deep return none else if you are at the depth return the first item

The fourth task is to return the maximum item given a depth. The first step is to

Reach the depth that was given and you this by going to the furthest right child each time it it’s a leaf and you have not reached the death the b tree is not that deep return none else if you are at the depth return the last item.

The fifth task is to return all the item in a given depth the way to do this is to make multiple recursive calls for each child that and subtract 1 from each of its depth then add them together

The sixth task is the same as far as getting to the depth you then transverse through each node and print them

The seventh task is to tell how many nodes are in a b tree that are full. The way to do this is transverse each root and child if they are full add one and if they are a leaf return the results.

The eight task is similar except when you check if it’s a leaf and has the right depth and that’s when you add the right result.

The nine task is to find the key in a b tree by basically comparing the key to the current node and once it is greater u go to the child until the key is found or it is a leaf and there is no child then u return none for not found

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