Btree Insert
Insert
Assume the search method puts the nodes in the search path on a stack called path.

Suppose k is the new value to be inserted

search
node = path.pop()
if there is room in node for a new value
    insert k into the node
    write node to the file (into the same location where it was previously located)
    set split to false
else
    let newnode be a new B+tree Node
    split the values (including k) between node and the newnode
    let val be the smallest value in the newnode
    write node to the file (into the same location where it was previously located)
    write newnode into the file
    let loc be the address in the file of newnode
Insert

while (!path.empty() && split) {
    node = path.pop()
    if there is room in node for a new value
        insert val and loc into node
        write node to the file (into the same location where is was previously located)
        set split to false
    else
        let newnode be a new B+treeNode
        let val be the middle value of the values in the node (including k)
        put the values less than val and matching locations in node
        put the values greater than val and matching locations in newnode
        write node to the file (into the same location where is was previously located)
        write newnode into the file
        let loc be the address in the file of newnode
        split remains true
}

if split // then the root was split
   let newnode be a new B+treenode
   insert root (the address of the old root), val and loc into newnode
   write newnode into the file
   update the address of root to the address of newnode
Insert
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