B+ Tree API
January 18, 2017

Constant
pNum - maximum number of pointers that one node can have.

Methods
BPTree(pNum)

Constructor for the B+ Tree. Open the Tree for access.

search(key)

Search the B+ Tree from the root node to a leaf node using search-Key value. Once find the leaf node and the location of the search-Key value, return an iterator over the tuple ids from that location. TupleId will be used to find tuples from Buffer Manager and File Manager.

search(lowKey, highKey)

Search the B+ Tree from the root node to a leaf node using search-Key range values. Once find the leaf node and the location of the low-Key value, return an iterator over the tuple ids from that location to the location of the high-Key value.

insert(key, pointer)

When user creates a tuple, the index for that tuple will be inserted using insert() method. First searches the B+ Tree to find the location. Then insert the key and pointer to that location. If necessary, modifies the structure of B+ Tree to adjust to the insertion. Return the status of the operation.

delete(key)

When user deletes a tuple, the index for that tuple will be deleted using delete() method. First searches the B+ Tree to find the location. Then delete the key and pointer in that location. If necessary, modifies the structure of B+ Tree to adjust to the delete. Return the tupleId of that search-Key.

searchAll()

Search the B+ Tree from the node to the first location of the first leaf node, then return the key-tupleId pairs of all leaf nodes. This is necessary for Hybrid Merge Joint.

~BPTree() Destructor for the BPTree.