

# Stage3 – Step a

a) Tree node and B+ tree design:

Nodes and leaf nodes will be represented by files.

The B+ tree will be represented by a system of files which all have internal components containing different values and references (pointers) to one another. A leaf node will have a left and right pointer at the beginning and end of the file. The middle values will contain data from the objects they're representing. A node on the second to lowest level will have pointers to leaf nodes and the single lowest value in that node. All nodes on higher levels will point to nodes in the level which is one below the current node level. There will be pointers to the nodes and the node's leftmost value at the bottom left part of the subtree starting at that node.

b) The B+ trees are built from the bottom up

c) The tree generation time processing results are in a file in this directory called 'timingsa.docx'

d) The search operation is implemented