Lab Discussion 8

EXERCISE 1. As leaves do not have children they require less space. Alternatively, one might want to use this space to store more keys in leaves.

How must the *insert* and *delete* operations for B-trees be updated to handle such a variation?

EXERCISE 2. Assume that the nodes of a B-tree or a B^+-tree are stored in external storage.

  (i)   How many blocks have to be moved from external storage into the buffer during an *insert*, *find* or *delete* operation on a B-tree or a B^+-tree?

  (ii)   How many blocks have to be moved from external storage into the buffer during one of the operations in Exercise 2 above?

 (iii)   How many blocks have to be moved from external storage into the buffer during a *range* operation on a B-tree or a B^+-tree?

 (iv)   Discuss which order of B-trees or B^+-trees would be ideal for minimising the number of paging operations (i.e. moving a block from external storage into the buffer), assuming that the number of blocks that can be kept simultaneously in the buffer is bounded by k.