

## Description for Lab2

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### 1.Design decisions

(1) Using random eviction policy. It seems work well.

(2) Most of the insertion and deletion have already be done.

The split on the leaf is to put half of the splitting page( $\text{numSlot}/2$ ) to a new leaf page and then put it to the right. Then according to the inserting keyfield putting the leftmost element of the new page or the rightmost element of the original page to parent node. The weakness is after insertion the differ between tuple numbers of the 2 pages may be two. Using  $(\text{numSlot}-1)/2$  can solve the problem, but it cannot pass the test. The split on the internal is similar, it split  $(\text{numSlot}+1)/2$  entries to a new page and then put the new page to the right. It always pushes the leftmost entry of the new page up. When splitting internal pages, their children's parentId should be modified.

The redistribute and merge is easier. Redistribute take elements from sibling until the item in the page is no less than the sibling and then modify entry in parent. Redistributing an internal is like to pass entry through parent entry. If an internal is redistributed, the children's parentId should be modify. Merge is like redistribute, but it need to delete/pull down parent entry as its own item.

2.No API is modified.

3.Not ready for multithread. Some permissions may be fault, and the locks are not applied yet. Some dirty pages may be forgotton.

4.It takes me 12 hours to finish lab2. The first insertion and of an empty B+ tree is a little cofusing. To find and insert in an B+ tree with only one node takes me some time to think.