Tutorial Test (21/04/2021)

* Required

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Which of the following is true?

- (●) larger the order of B-tree, less frequently the split occurs
- ( ) larger the order of B-tree, more frequently the split occurs
- ( ) smaller the order of B-tree, more frequently the split occurs
- ( ) smaller the order of B-tree, less frequently the split occurs

Clear selection

Five node splitting operations occurred when an entry is inserted into a B-tree. Then how many nodes are written?

- ( ) 14
- ( ) 7
- (●) 11
- ( ) 5

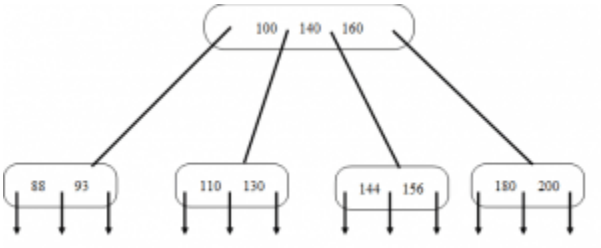
Clear selection

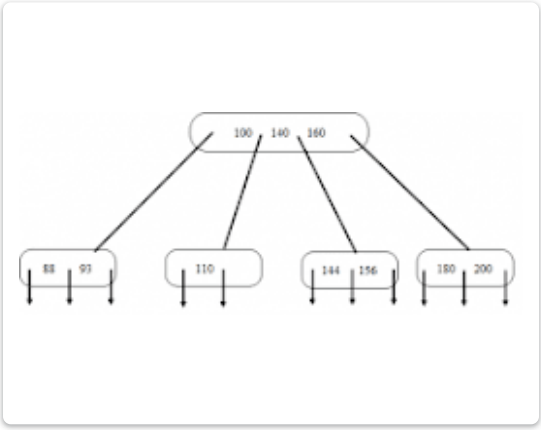
A B+ tree can contain a maximum of 11 pointers in a node. What is the minimum number of keys in leaves?

- ○ 11
- ○ 12
- ◉ 5
- ○ 6
- ○ Other: _____

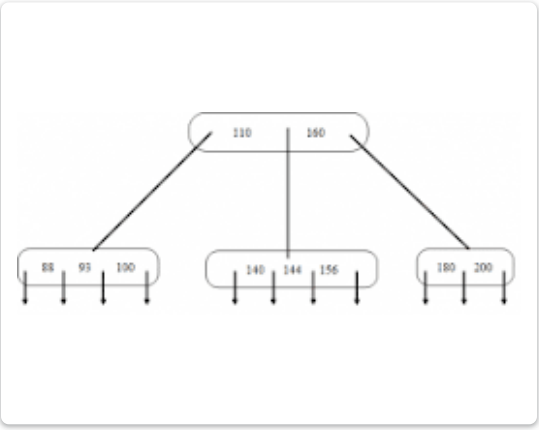
Clear selection

Figure shown below is B-tree of order 5. What is the result of deleting 130 from the tree?

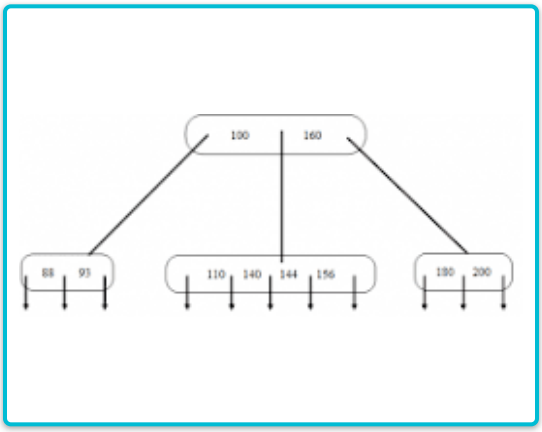




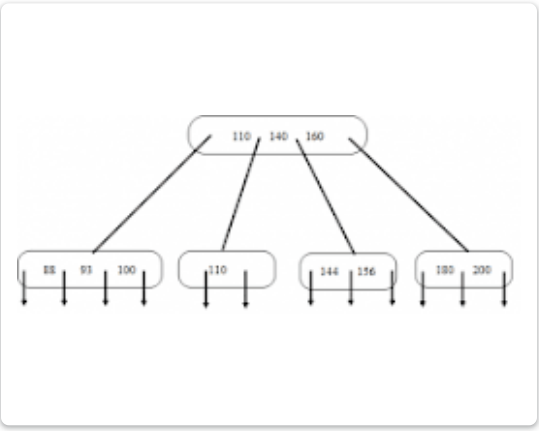
Option 1



Option 2



Option 3



Option 4

Clear selection

What is the maximum number of keys that a B+ -tree of order 2 and of height 2 have?

- (●) 3
- ( ) 80
- ( ) 27
- ( ) 26
- ( ) Other: _____

Clear selection

Compression techniques can be used on the keys to reduce both space and time requirements in a B-tree.

- (●) True
- ( ) False

Clear selection

A B-tree of order 4 and of height 3 will have a maximum of _____ keys

- (●) 255
- ( ) 63
- ( ) 127
- ( ) 188

Clear selection

What is the maximum number of keys that a B+ -tree of order 5 and of height 2 have

- (●) 24
- ( ) 10
- ( ) 25
- ( ) 2
- ( ) Other: _____

Clear selection

Roll Number *

U19CS012

B+ Trees are considered BALANCED because

- (●) the lengths of the paths from the root to all leaf nodes are all equal.
- ( ) the lengths of the paths from the root to all leaf nodes differ from each other by at most 1
- ( ) the number of children of any two non-leaf sibling nodes differ by at most 1.
- ( ) the number of records in any two leaf nodes differ by at most 1
- ( ) Other: _____

Clear selection

Select the widely used external memory data structure

- ○ AVL tree
- ◉ B-tree
- ○ Red-black tree
- ○ Both AVL tree and Red-black tree

Clear selection

B-tree and AVL tree have the same worst case time complexity for insertion and deletion.

- ◉ True
- ○ False

Clear selection

"When a key is deleted from the leaf, it is also deleted from the non-leaf nodes of the tree." Is this sentence True or False?

- ◉ True
- ○ False

Clear selection

The following key values are inserted into a B+ - tree in which order of the internal nodes is 3, and that of the leaf nodes is 2, in the sequence given below. The order of internal nodes is the maximum number of tree pointers in each node, and the order of leaf nodes is the maximum number of data items that can be stored in it. The B+ - tree is initially empty. 10, 3, 6, 8, 4, 2, 1 The maximum number of times leaf nodes would get split up as a result of these insertions is

- ○ 3
- ◉ 4
- ○ 2
- ○ 1
- ○ Other: _____

Clear selection

B-tree of order n is a order-n multiway tree in which each non-root node contains how many keys?

- ○ at most (n – 1)/2 keys
- ○ exact (n – 1)/2 keys
- ○ at least 2n keys
- ◉ at least (n – 1)/2 keys

Clear selection

"In B+Tree, Non-leaf nodes have pointers to data records" Is this sentence True or False?

- ◉ False
- ○ True

Clear selection

Five node splitting operations occurred when an entry is inserted into a B-tree. Then how many nodes are written?

- [ ] 2
- [ ] 4
- [ ] 5
- [x] 11

Clear selection

The best case height of a B-tree of order n and which has k keys is

- [x] logn (k+1) – 1
- [ ] nk
- [ ] logk (n+1) – 1
- [ ] klogn

Clear selection

B -tree is shallower than B+-tree

- [ ] True
- [x] False

Clear selection

"When a node is split during insertion, the middle key is promoted to the parent as well as retained in right half-node." Is this sentence True or False?

- (●) True
- ( ) False
- ( ) Other: _____

Clear selection

A B+ -tree grows upward

- (●) True
- ( ) False

Clear selection

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