0/5 Questions Answered

Vitamin 3

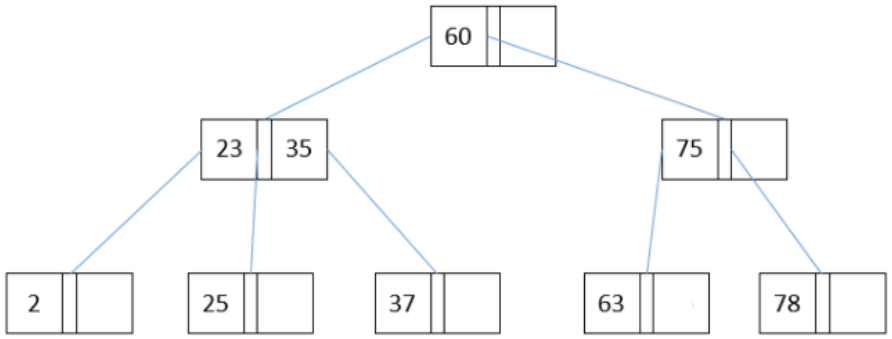
STUDENT NAME

Search students by name or email...

Q1 B+ Tree Insertion

3 Points

Q1.1



What is the height of the tree after the sequence of insertions 26, 27, 28, 29, 30? For reference, the tree's current height is 2.

- ○ 2
- ○ 3
- ○ 4
- ○ 5

Q1.2

Considering the same B Tree from the question above (before insertion), what is the maximum number of keys we can insert into the tree without changing the height? Hint: Look at the in-person discussion worksheet to figure out this question.

Enter your answer here

Q1.3

Using the same B Tree from the 1st question (before insertion), what is the minimum number of keys we can insert to change the height of the tree? Hint: Look at the discussion worksheet to figure out this question.

Enter your answer here

Save Answer

Q2 Bulk Loading

2 Points

Q2.1

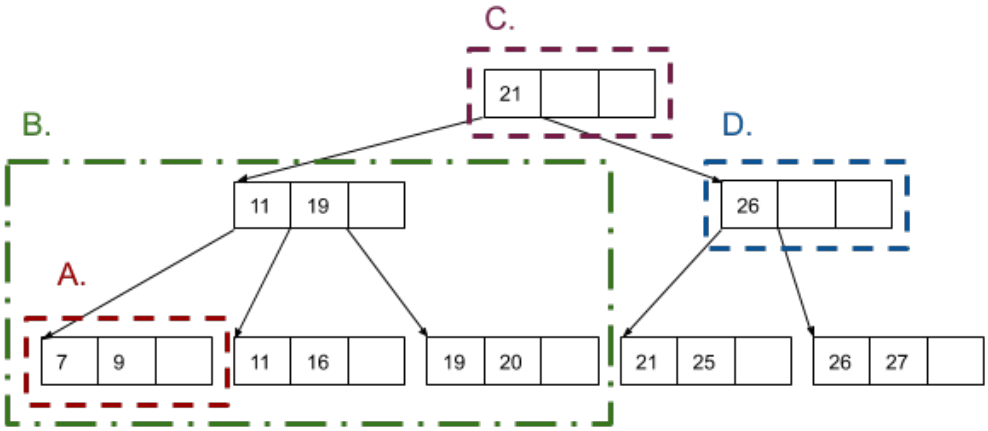
Assume you bulk loaded the keys 1 to 60 into a B+ tree with fill-factor .75 and order d = 2. How many leaf nodes would there be?

- 15
- 20
- 30
- 40

Q2.2

The following B+ Tree is still in the process of being bulk-loaded

with fill factor 67%. Which of the boxed sections of the tree are guaranteed to stay the same after the bulk-loading is finished? Select all that apply.



- [ ] A
- [ ] B
- [ ] C
- [ ] D
- [ ] None of the above

Save Answer

Q3 B+ Tree Potpourri

6 Points

Q3.1

An order d=23 B+ tree with fill factor 31% can contain nodes with up to how many pointers?

- ○ 24

- ○ 31
- ○ 47
- ○ 60

Q3.2

What do the inner nodes in a B+ tree index contain?

- ○ Records
- ○ Non-Deleted Keys
- ○ Non-Deleted and Deleted Keys
- ○ Values
- ○ Tables

Q3.3

When we split a leaf node, we _____ a value from the _____ to an _____.

- ○ copy/leaf node/inner node
- ○ push/leaf node/inner node
- ○ copy/inner node/leaf node
- ○ push/inner node/leaf node

Q3.4

When we split an inner node, we _____ a value from the _____ to an _____.

- ○ copy/leaf node/inner node
- ○ push/leaf node/inner node
- ○ copy/inner node/parent node
- ○ push/inner node/parent node

Q3.5

Up to how many leaf nodes can the following B+ tree contain?

- Height = 4
- Order = 3

Enter your answer here

Q3.6

Up to how many records can the same B+ tree contain?

- Height = 4
- Order = 3

Enter your answer here

Save Answer

Q4 B+ Tree Range Search

2 Points

There is an Alternative-2 unclustered B+ Tree with height 3 and order 2. What is the worst case cost in I/Os to perform a range search on the index key? Assume that there are 10 matching records in the range and all leaf nodes are full.

Enter your answer here

Save Answer

Q5 Alternative Sanity Check

1 Point

Alternative-3 indices store _____ in their leaves. Alternative-1 indices store _____ in their leaves, and alternative-2 indices store _____ in their leaves.

- (key, list of record ids) pairs, (key, record id) pairs, records
- (key, record id) pairs, records, (key, list of record ids) pairs
- records, (key, record id) pairs, (key, list of record ids) pairs
- (key, list of record ids) pairs, records, (key, record id) pairs

Save Answer

Save All Answers

Submit & View Submission >