

1705095

14-11-20

11-1

Step-1: look up the record in index file

Step-2: Delete the record file

Step-3: Delete the corresponding index key.

11-2

Step-1: look up the record in index file and if the record file is found, delete it.

Step-2: If ~~deleted~~ record entry is associated with index file —

Case 1 if an entry for the search key exists in index, it is deleted by replacing the entry in the index with the next search key value in the file.

Case 2: if the next search key value already has an index entry, the entry is deleted instead of being replaced.

Else

Index file remains same.

11-3

Step-1: Look up for the location of the index to the inserted.

Step-2: Insert the record file and then the corresponding index.

Step 3: Point the index to its corresponding record.

11-4

Step 1 Perform a loop up using the search key value of the record to be inserted.

Step 2: If a free space is available for the record, then insert it and no change is made in the index file.

Step 3: If the block in which the record has to be inserted is full, then a new block is ~~inserted~~ created. The first record key of the new sorted block has to be inserted in the index file.

12-1

$$\begin{aligned} \text{a) Number} &= (460 - 64 + 1) \times 64 \\ &= 397 \times 64 \quad (\text{for composite index}) \end{aligned}$$

Number of search keys of thana simple

$$\text{index} = 460 - 64 + 1$$

$$= 397$$

b) For composite index,

⇒ The record which only contains thana:

"Sodan" and district = "sylhet" will be

transferred from disk to memory. So, the query will be faster.

For simple index:

=> The records which contains thana = "Sadar" will be transferred from disk to memory. Among them there will be another query to find district = "Sylhet". It is slower.

1-2 If leaf node,  
minimum search key =  $\left\lceil \frac{n-1}{2} \right\rceil$

$$= 49$$

$$\begin{aligned}\text{Maximum search key} &= n-1 \\ &= 99-1 \\ &= 98\end{aligned}$$

If non-leaf,

$$\begin{aligned}\text{minimum search key} &= \left\lceil \frac{n}{2} \right\rceil - 1 \\ &= 49\end{aligned}$$

$$\text{maximum} = 99-1 = 98$$

$$\begin{aligned}\text{If root, minimum} &= 1 \text{ (if not leaf)} \\ &= 0 \text{ [if leaf]}\end{aligned}$$

$$\text{Maximum} = n = 99$$