

CSE 370 - Database Systems

Assignment 03

section: 5

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Question 1 [CO6] : 5 Points

A PARTS file with Part# as the key field includes records with the following Part# values: 63, 35, 58, 23, 59, 70, 30, 25, 92, 86. Suppose that the search field values are inserted in the given order in a B+ tree of order $n = 4$; show how the tree will expand and what the final tree will look like.

After building the tree in this sequence, delete these values: 35, 86, 63, 92, 30 and show how the tree will reduce and what the final tree will look like.

Answer to the question no-1

$$n = 4$$

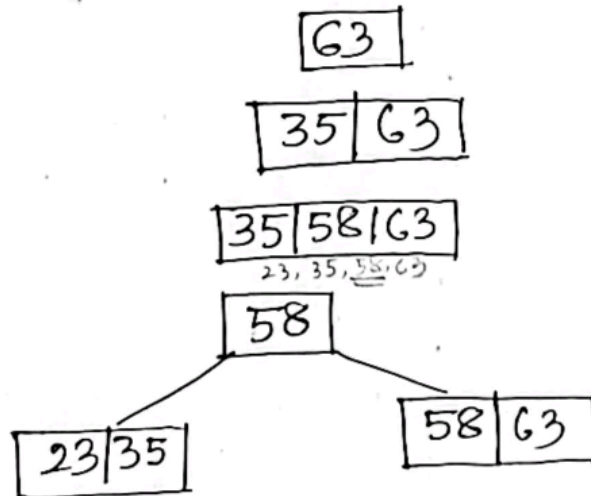
$$\text{max-keys} = n - 1 = 3$$

insert 63 \Rightarrow

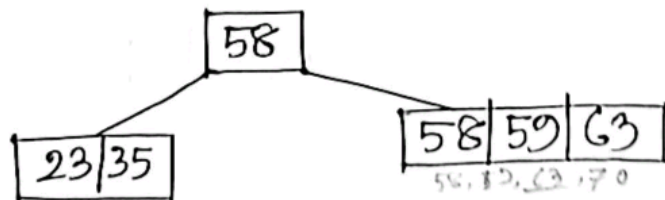
insert 35 \Rightarrow

insert 58 \Rightarrow

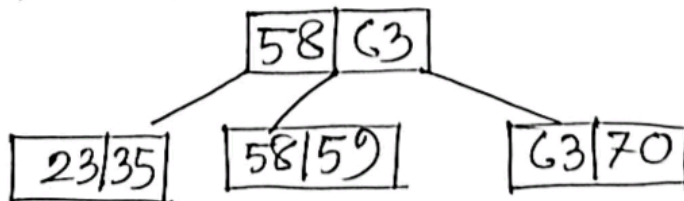
insert 23 \Rightarrow



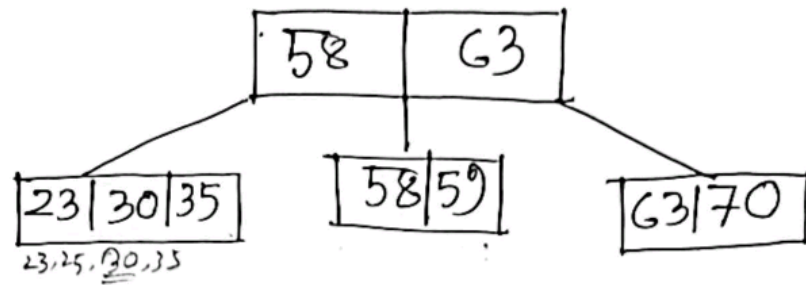
insert 59 \Rightarrow



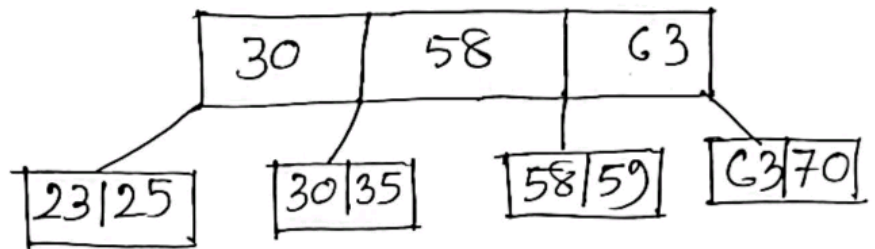
insert 70 \Rightarrow



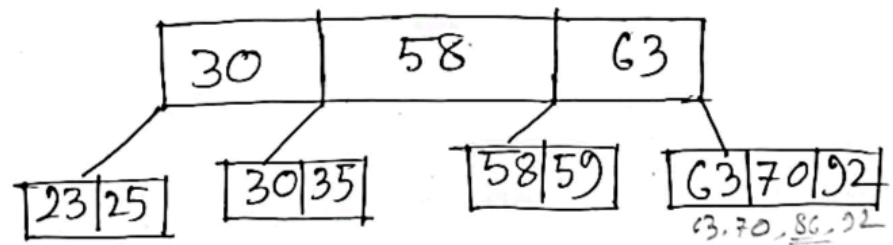
insert 30 \Rightarrow



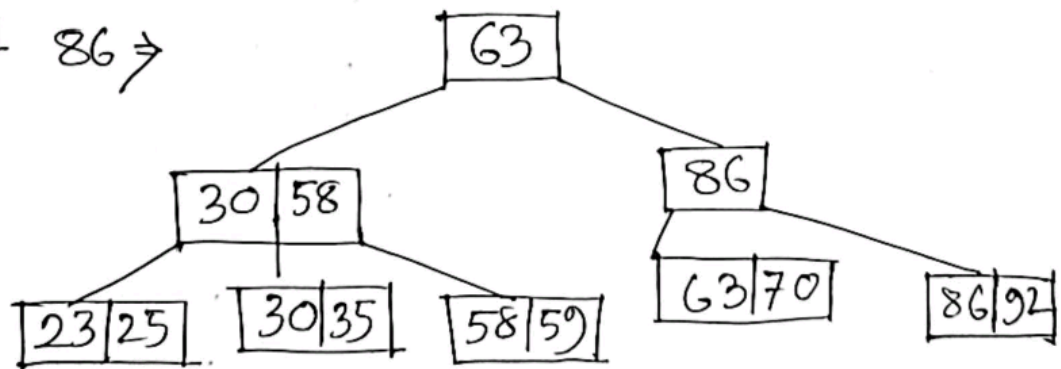
insert 25 \Rightarrow



insert 92 \Rightarrow



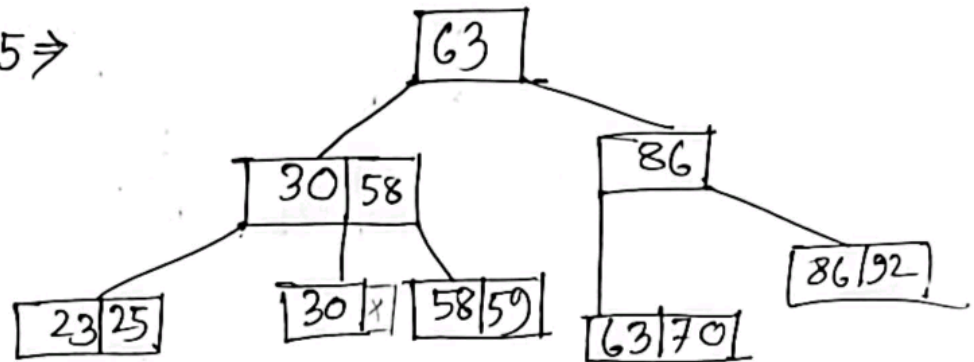
insert 86 \Rightarrow



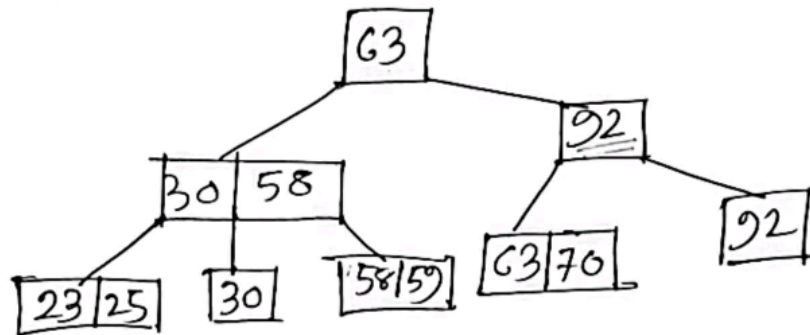
Final tree

Deletion

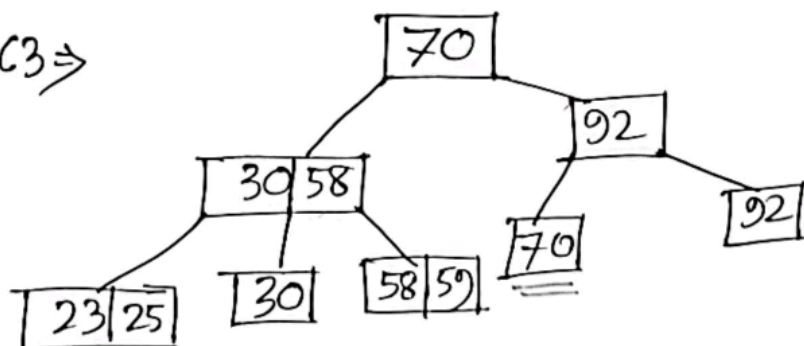
Delete 35 \Rightarrow



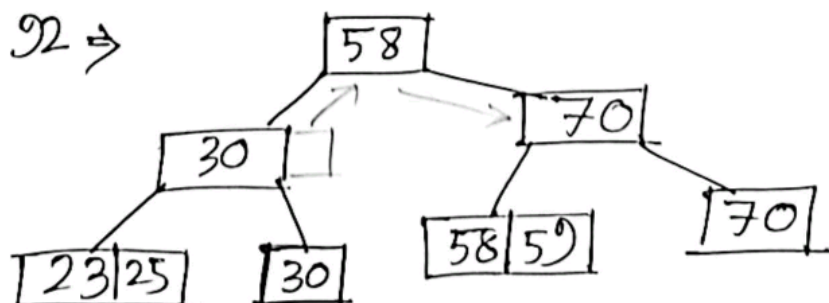
Delete 86 \Rightarrow



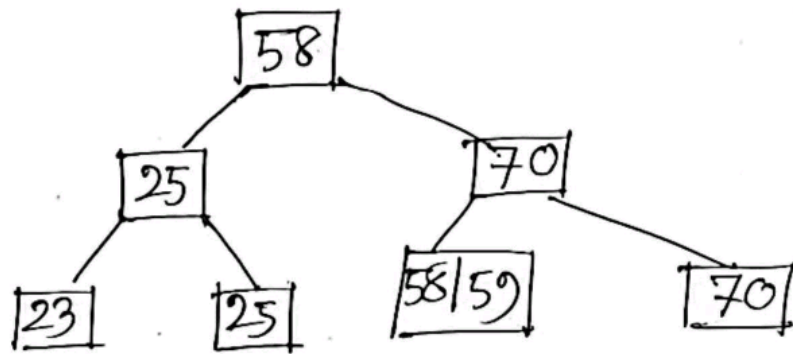
Delete 63 \Rightarrow



Delete 92 \Rightarrow



Delete 30 \Rightarrow



(Am)