

BTREE

A BTree of order m is an m -way tree such that

1. All leaf nodes are at the same level.
2. All non-leaf nodes (except the root) have at most m and at least $m/2$ children.
3. The number of keys is one less than the number of children for non-leaf nodes and at most $m-1$ and at least $m/2$ for leaf nodes.
4. The root may have as few as 2 children unless the tree is the root alone.

Example for $m = 5$

DEF: A B-Tree of order 5 is an 5-way tree such that

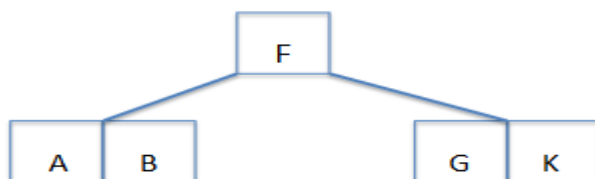
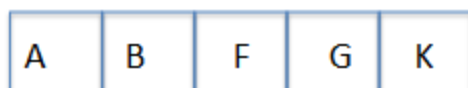
1. All leaf nodes are at the same level.
2. All non-leaf nodes (except the root) have at most 5 and at least 2 children.
3. The number of keys is one less than the number of children for non-leaf nodes and at most 4 and at least 2 for leaf nodes.
4. The root may have as few as 2 children unless the tree is the root alone.

Create a B-tree of order 5

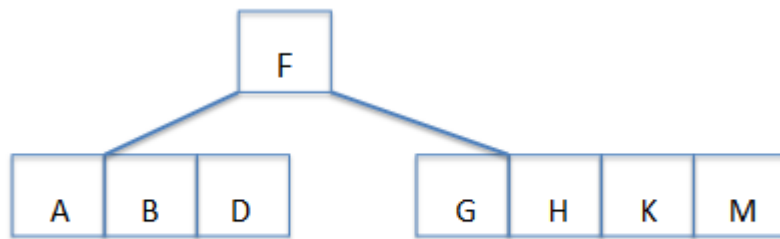
A G F B K D H M J E S I R X C L N T U P



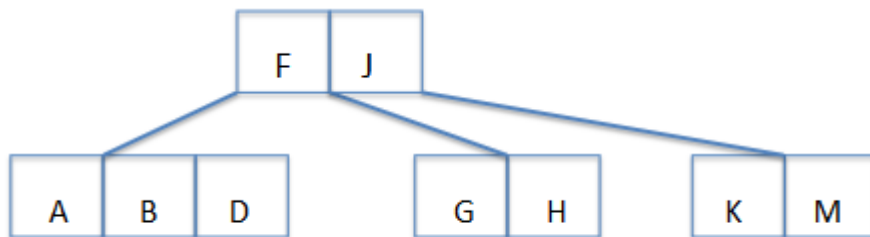
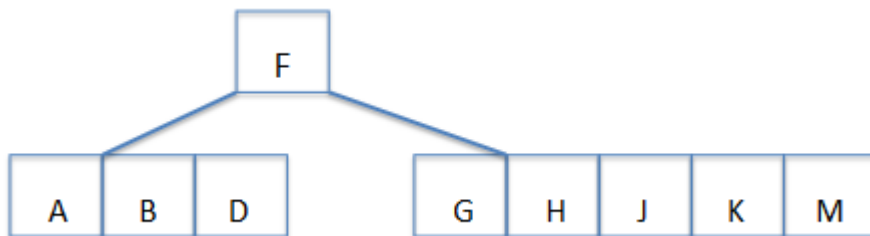
A G F B K D H M J E S I R X C L N T U P (Find the median)



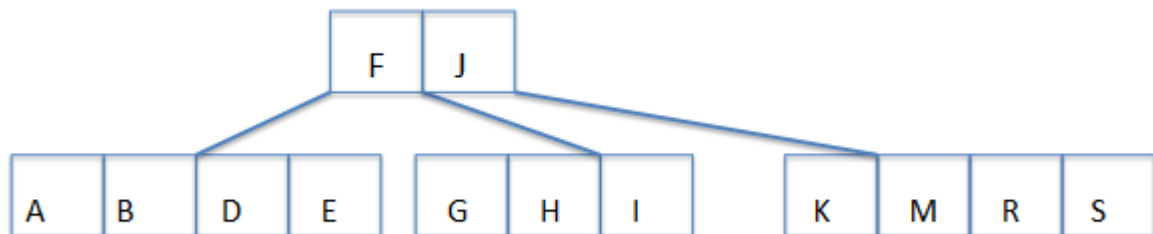
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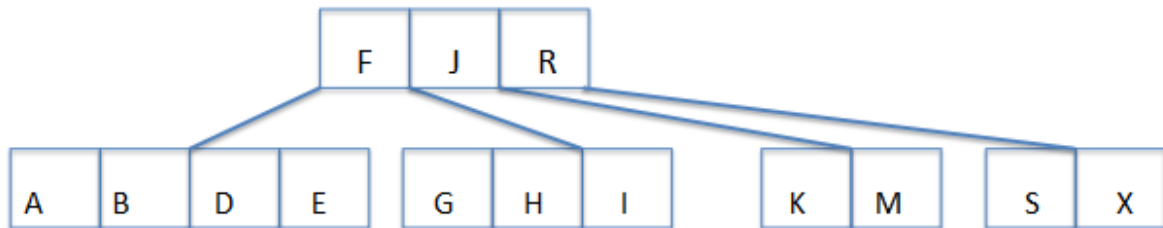
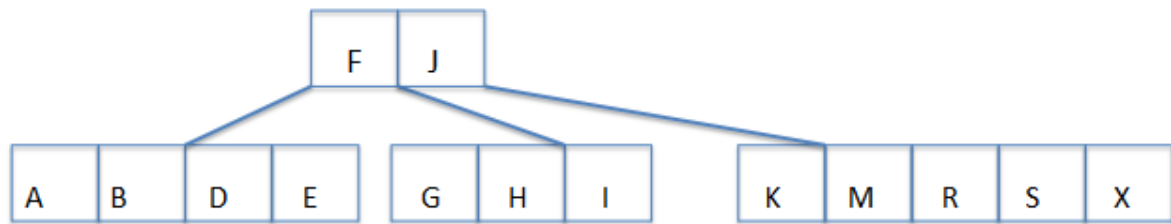
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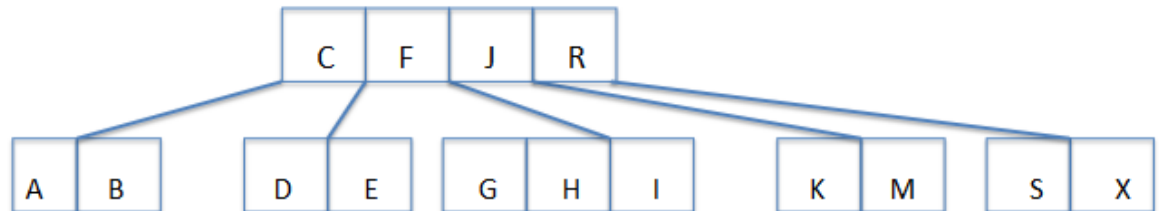
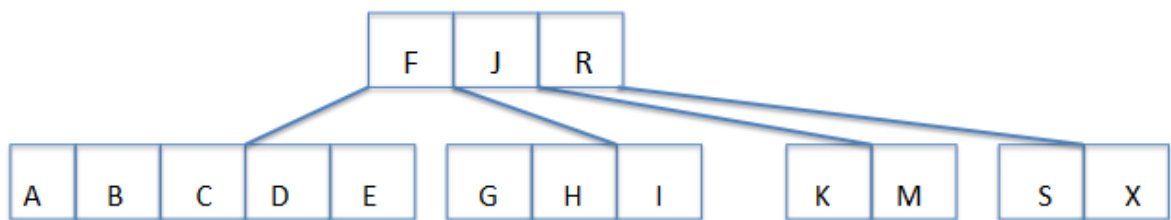
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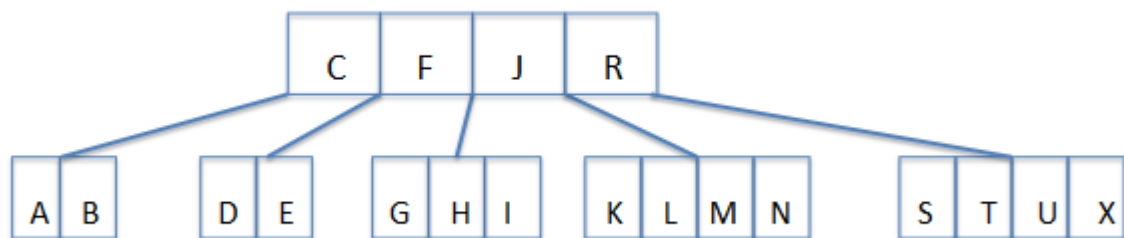
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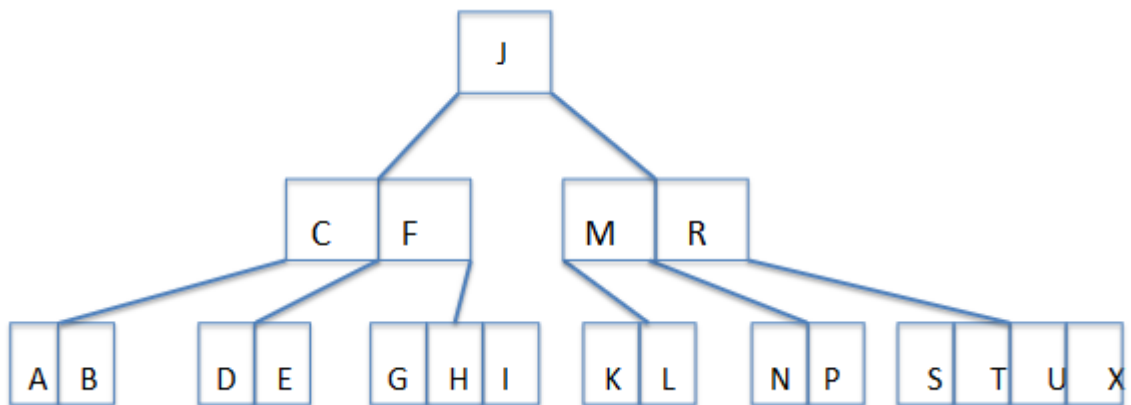
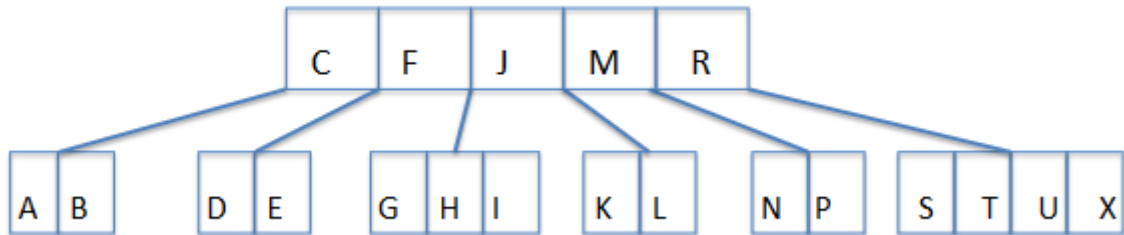
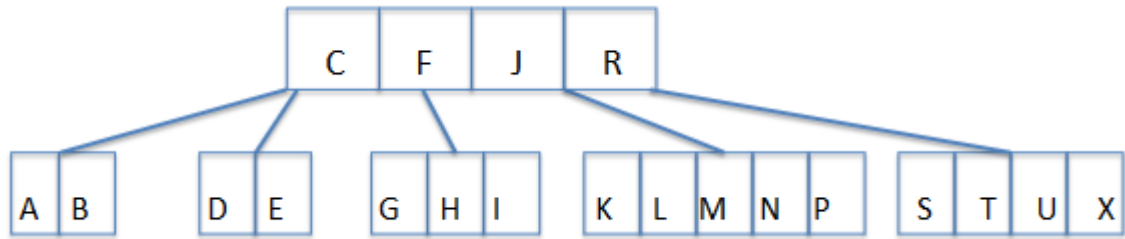
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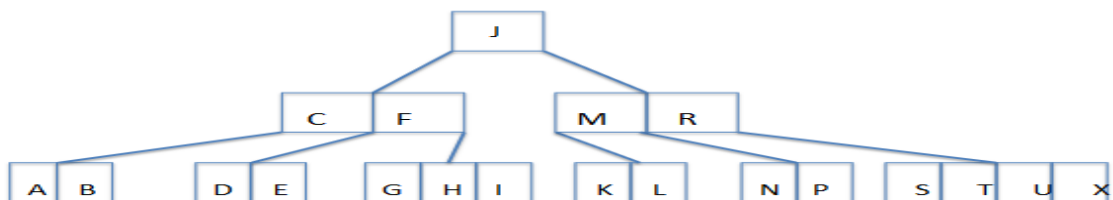


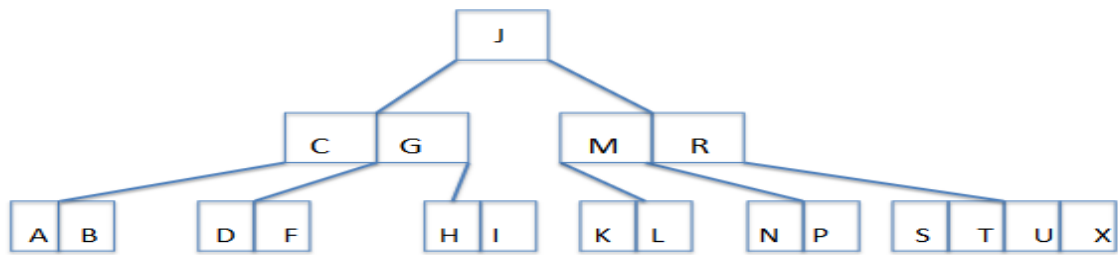
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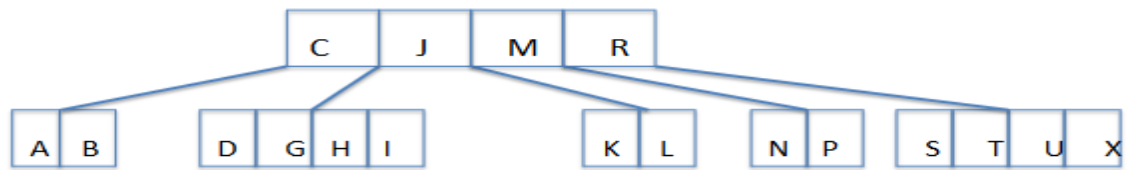
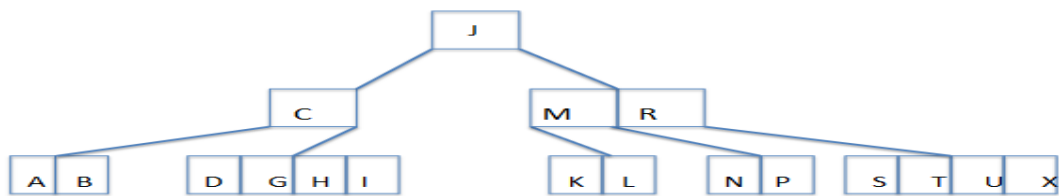
DELETION EXAMPLE (BTREE of order 5)

- Delete E from leaf node





DELETE F



DELETE M

