# DATA STRUCTURE

**Topic : B Tree**

**YouTube Link:** https://youtu.be/VY9JGy8L5c8

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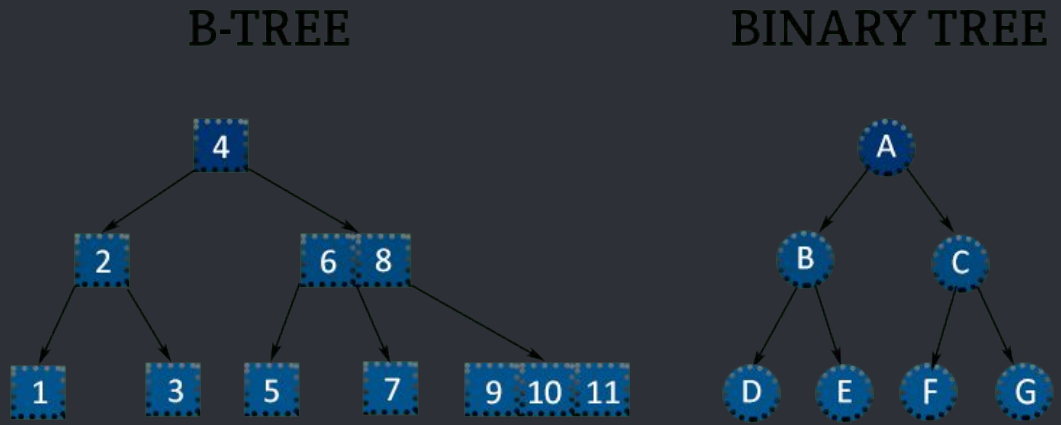
# What is B-Tree?

B-tree is a self-balancing tree data structure that maintains sorted data and allows searches, sequential access, insertions, and deletions in logarithmic time.

Also Known as balanced m-way tree(m = order)

# Properties of B-Tree

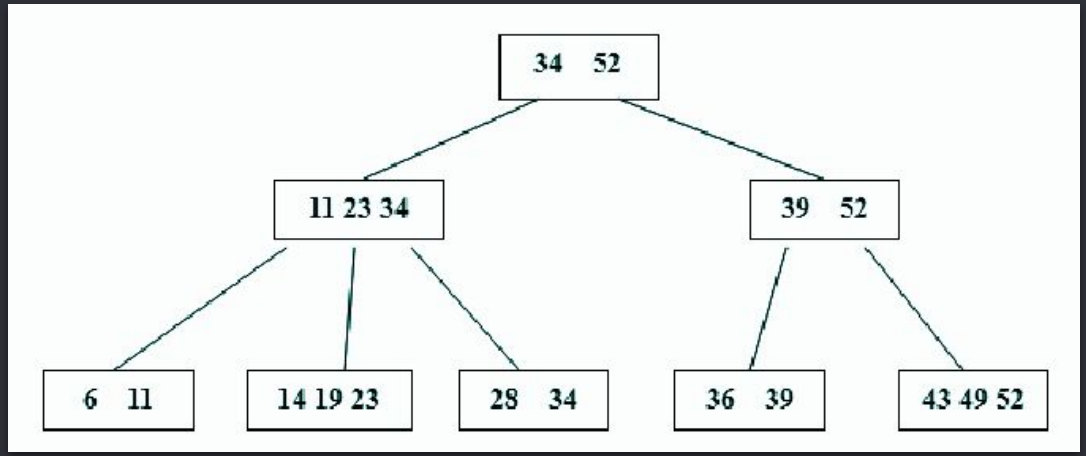
- ➔ Maintains sorted data
- ➔ All leaf node must be at same level
- ➔ Generalisation of Binary Search Tree in which a node can have more than one key and more than two children



# Properties of B-Tree

- Child Nodes
  - Every node can have max m child nodes
  - The root can have min 2 nodes
  - Leaf cant have any nodes and leaf nodes should be at same level

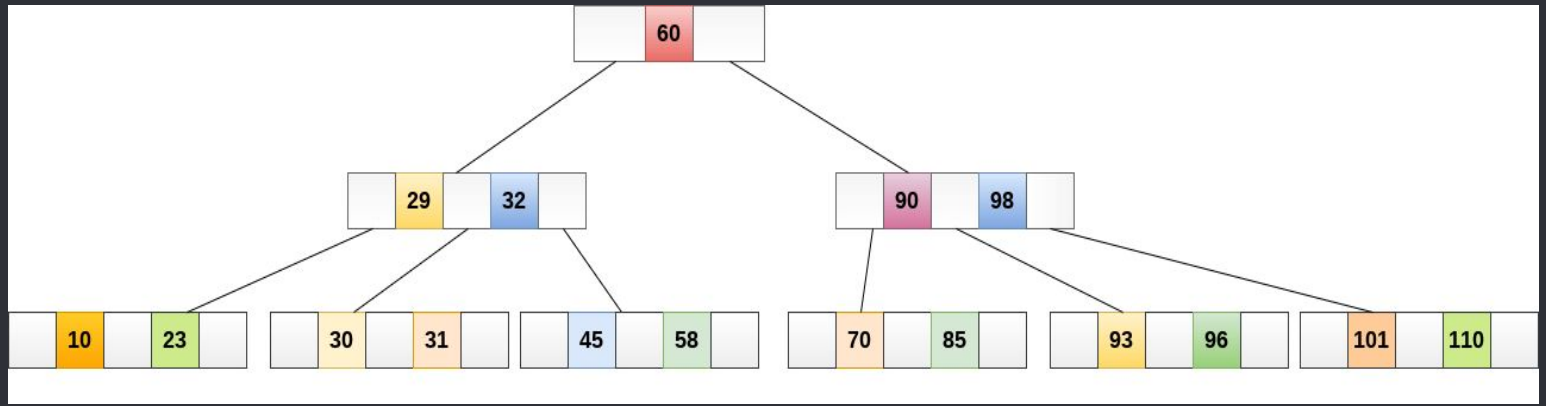
Eg: B-tree of order 3, so m=3



# Properties of B-Tree

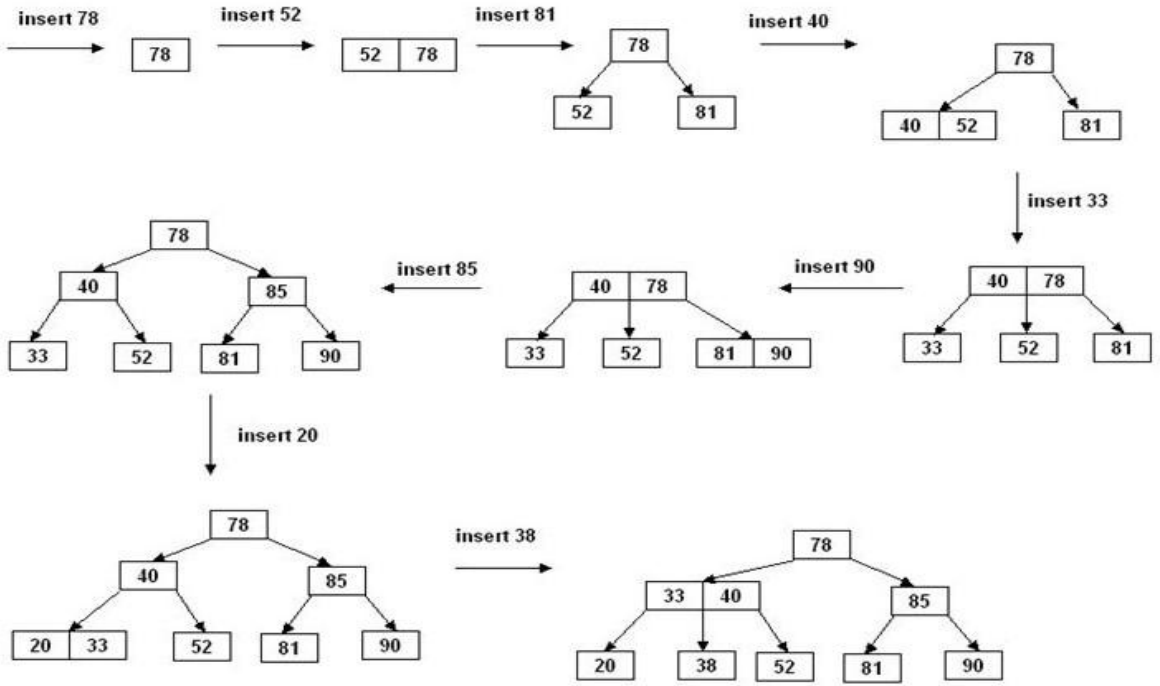
- Keys
  - Every node has max m-1 keys
  - Every nodes can have minimum ⌈m/2⌉-1 keys (except root)
  - Root can have 1 key

Eg: B-tree of order 3 , so m=3



# B-Tree Insertion

- Example: Insert the keys 78, 52, 81, 40, 33, 90, 85, 20, and 38 in this order in an initially empty B-tree of order 3



# References


https://www.javatpoint.com/b-tree
https://www.youtube.com/watch?v=94ErZ5K8XZg
https://www.geeksforgeeks.org/delete-operation-in-b-tree/

*thank you...!*