

GROUP:D
ASSIGNMENT NO:10

Title: Study Heap data structure

Objective: To understand Max heap and Min heap.

Problem Statement: Read the marks obtained by students of second year in an online examination of particular subject. Find out maximum and minimum marks obtained in that subject. Use heap data structure. Analyze the algorithm.

Outcome: Demonstrate and apply knowledge of Indexing and Multiway Trees

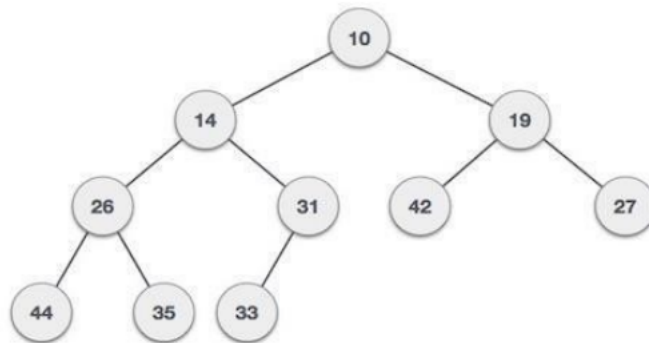
Theory:

Heap: Heap is a special case of balanced binary tree data structure where the root-node key is compared with its children and arranged accordingly. If α has child node β then –

$\text{key}(\alpha) \geq \text{key}(\beta)$

As the value of parent is greater than that of child, this property generates **Max Heap**. Based on this criteria, a heap can be of two types –

Min-Heap – Where the value of the root node is less than or equal to either of its children.

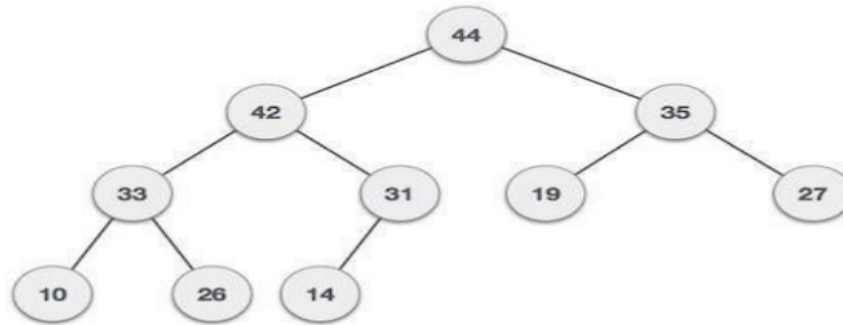


Max-Heap – Where the value of the root node is greater than or equal to either of its children.

Implementation

Algorithm :

1. Accept the marks for student.
2. Insert the marks in heap.
3. Up-adjust the heap.
4. Repeat the steps 1 to 4 if marks of more students to be entered.
5. Display the maximum marks.



Flowchart:

