

## 4. Heap – Data Structure

### ◆ Definition:

A **Heap** is a **complete binary tree** where the value of the parent node is:

- **Greater** than children in **Max Heap**
  - **Smaller** than children in **Min Heap**
- 

### ◆ Operations:

- **Insert:**  $O(\log n)$
  - **Delete (Root):**  $O(\log n)$
  - **Peek (Root):**  $O(1)$
- 

### ◆ Applications:

- Priority Queue
- Heap Sort
- Dijkstra's Algorithm
-