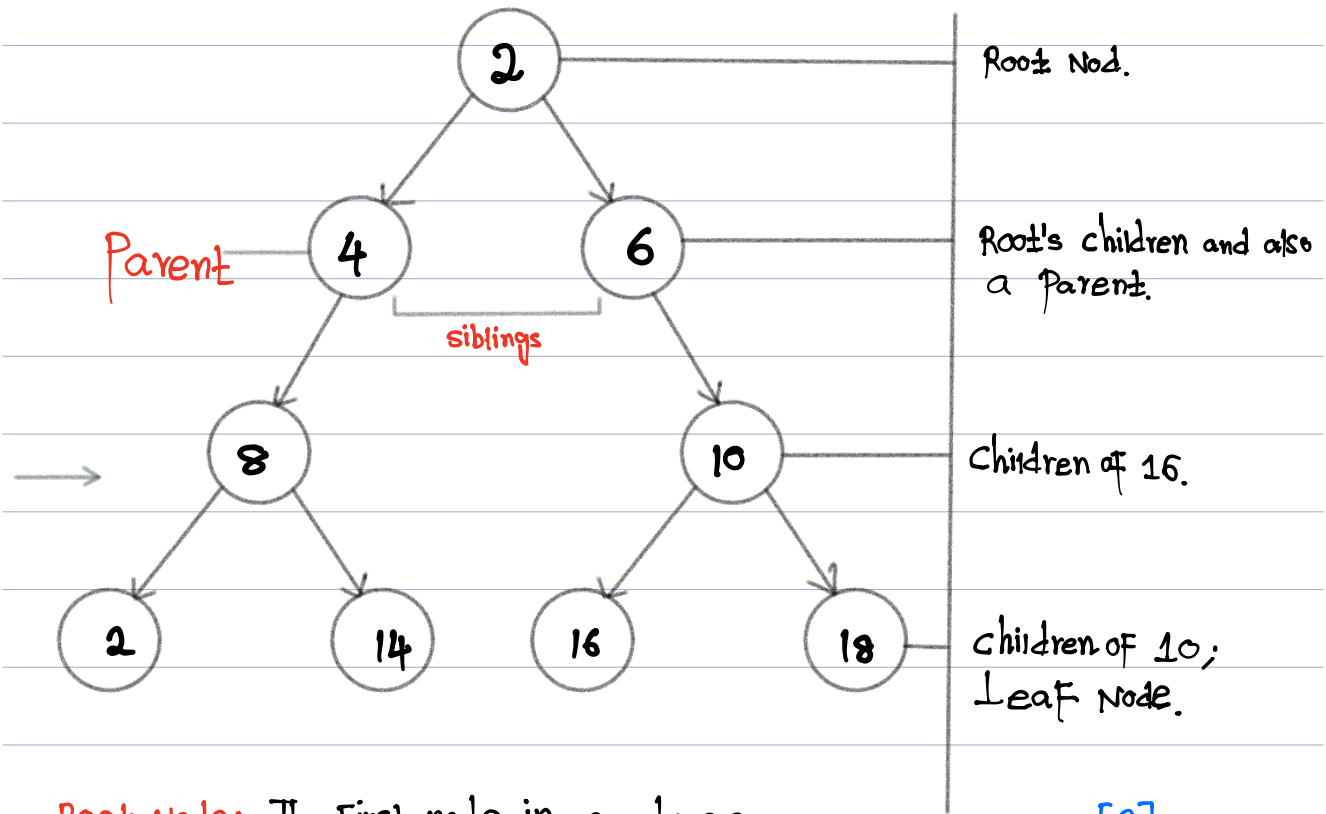
# Tree Data structure

A non-linear and a hierarchical data structure consisting of nodes which holds values and references to other nodes

For example, arrays are linear data structure, All the operations like insertions, deletions, etc are done in linear manner.




Root Node: The first node in a tree. [2]

Parent Node: A node that has one or more children. [2,4,6,8,10]

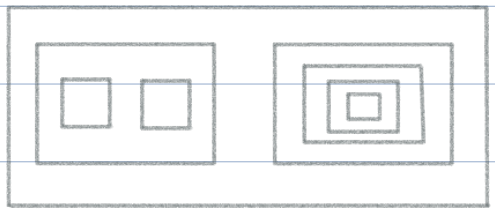
child: A node that comes just after a Parent node [2,4,6,8,10...]

sibling: The nodes which are having the same Parent [(4,6),(8,10)...]

Leaf Node: The nodes that have no children. [2,14,16,18]

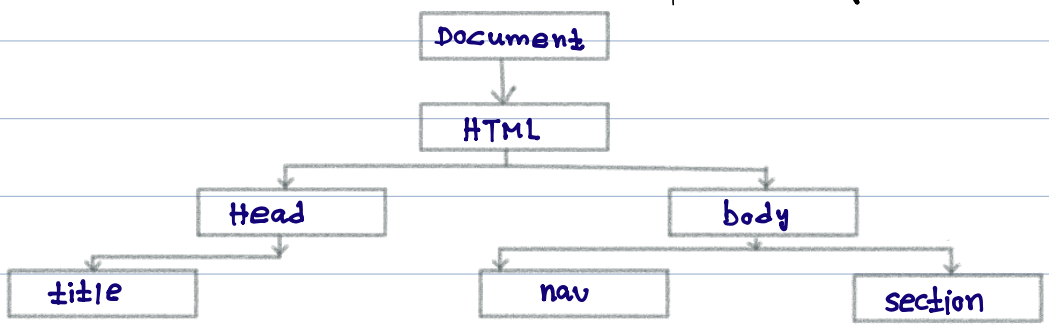
# Applications of Tree:

- **Folder structure:** when there are nested folders inside each other, They are represented by Trees



Every box represents a Folder.

- **XML/HTML :** Their elements are represented by tree.




- **object oriented Programming :** Inheritance is represented by Tree.
- **Parse Tree** in compilers.
- **Binary Heap:** To represent priority queue.
- **Binay search Tree.**