8 days:

**Day 3**

**Data structure and algorithm using JavaScript and Database using MySQL.**

**Non Linear Data structure**

Tree

Graphs

**Tree**: Tree is a non-linear data structure where element (called nodes) are organized in a hierarchical manner.

The structure start with a root node or parent node, the top most element in three tree. From this root element we can create n number of branches, each nodes are connected by node top to bottom.

Tree Structure

1. Root Node -> The topmost node in the tree
2. Child node -> chich connect top most node that can be root node or sub-root node
3. Leaf node 🡪 leaf node doesn’t contains any child node. Last node in tree structure.
4. Depth : Distance from the root node
5. Height 🡪 the maximum depth in the tree

root node

root

Child3

Child2

Child1

children node leaf node leaf node

Grand Child2

leaf node leaf node Example of Tree Data Structure is

G2 Child2

G2 Child1

Grand Child1

1. File system : C drive, D Drive or Root directory

C or D Drive -🡪 Root node

Which contains file as well as sub folder. sub folder is children node and file are leaf node.

1. DOM Parser : html tag is root node, head and body are children, head title, meta, script tag are children node. Inside title contents is leaf node.

Inside paragraph contents are leaf node(text node) etc

**Graph :** Graphs is another non linear data structure which consist of nodes (vertices) and edges(connection between more than one nodes).

Here node can be person, city, mobile device etc.

Types of Graph

1. Directed graph 🡪 One node or vertices connected to another node.
2. Uni direction graph -🡪 A ------------🡪 B
3. Bi direction graphs 🡪 A 🡨---------------🡪B
4. Weighted graphs 🡪 Edge have weight like cost, distance ,time etc.
5. Unweighted graphs -🡪 all edge are equal
6. Cyclic graph 🡪 A-🡪B🡪C—A
7. Acyclic graphs -🡪 A-🡪B----🡪C-🡪D--🡪E

Google map

Social media

Networking concept