ALGORITHMS AND DATA STRUCTURES USING JAVA

DATA STRUCTURE: -

- Store data in memory.
- How to access the data.
- Works efficiently.

It provides Abstract Data Type (ADT).

Queue	Stack
push ()	push ()
pop ()	pop ()
peak ()	isEmpty ()
FIFO	LIFO

ARRAY: -

To get into from any index and to set into to any index.

Techniques for Data Structure: -

1. Divide and conquer.
2. Greedy Approach.
3. Dynamic Programming.

Analysis: -

1. Exact
2. Asymptotic: -

   It is not exact analysis.

Complexity Analysis: -

- Time Complexity: - Number of iterations.
- Space Complexity: - input data + auxiliary data.

Constant value is always called as Order of one O (1).

STACK: -

ADS of stack: -

1. LIFO
2. isEmpty ()
3. isFull ()
4. push
5. pop

QUEUE: -

ADS of queue: -

1. FIFO

LINKED LIST: -

1. Node can be added from first as well as from last.

Doubly linked list: -

We can move forward as well as backwards.

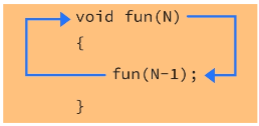
RECURSION: -

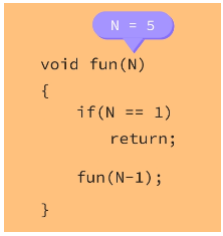
What is recursion

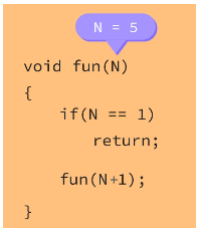
Recursion is the process for the function to call itself

Basic rules of recursion are

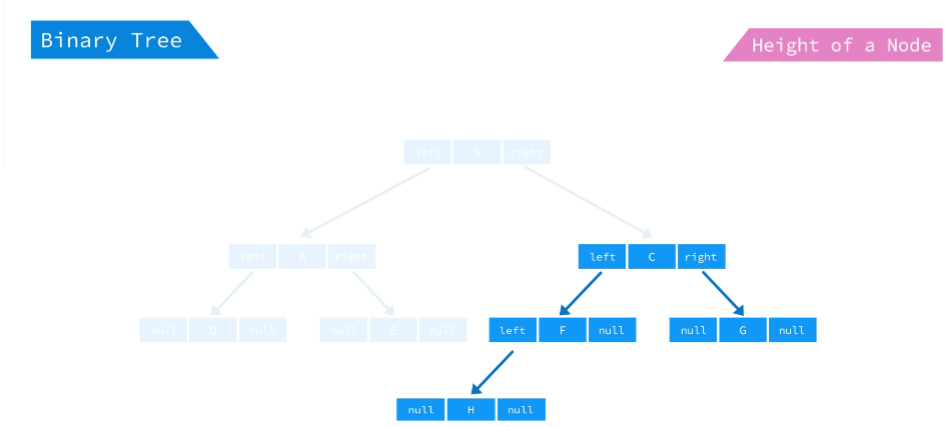
1. function should call itself
2. There should be a base case define where the function should stop calling itself
3. Recursive call should align towards base case in order to avoid infinite function calling.







BINARY TREE: -



BinaryTree.pptx