DATA STRUCTURE NOTES

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Data structure :

i) Data structure is way to store & organised data so that it can be used efficiently.

ii) the data structure is not any programming language like C, C++, Java, etc. it is a set of algorithm that is used in any programming language. like C, C++, Java etc.

Types of Data structure :

1] primitive data structure
2] non-primitive data structure.

1] primitive data structure :

the primitive data structure are primitive data types, the int, char, float, double and pointer are the primitive data structure that can hold a single value.

2] **non-primitive data structure:**

class, object, array, string and interface are non-primitive data structure.

- **Arrays:**

arrays are defined as collection of similer types of data items stored in a continious memory location.

arrays are the simplest data structure where each data element can randomly accesed by using its index number.

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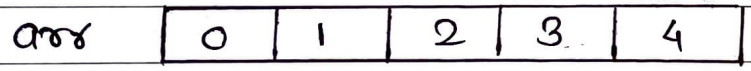


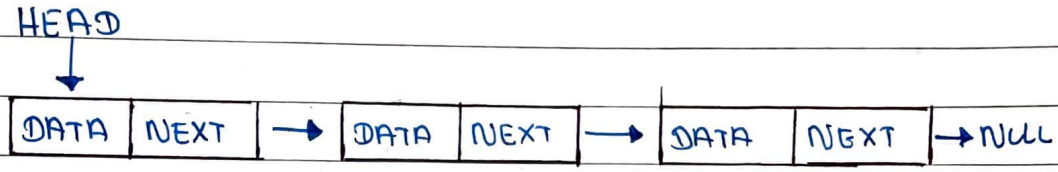
arr → array variable
[0] → index of element

- **Linked List:**

A link list is a data structure that has sequance of node where every node is connected to next nod by its reference ~~number~~ pointer.

each node has two parts :-

- a data feild
- a reference of next node.



Linked list.

3] **Stack :**

A stack is a linear data structure that follows LIFO (last in first out) approach for accessing element.

PUSH, Pop and Top (or peak) are basic operation in Stack

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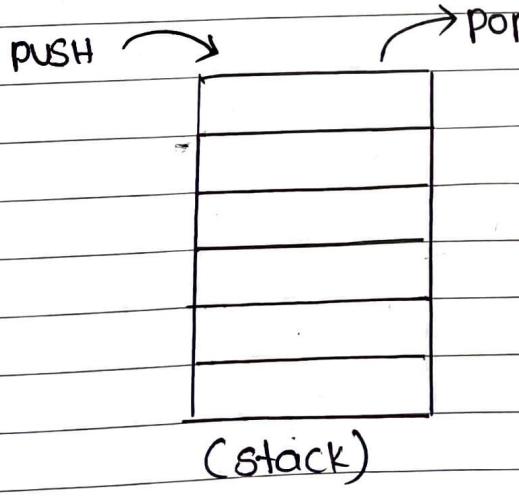
applications :

1] evaluating postfix expression
2] Reverse a string
3] problem of infix to postfix
4] check for balance parentheses in an expression.

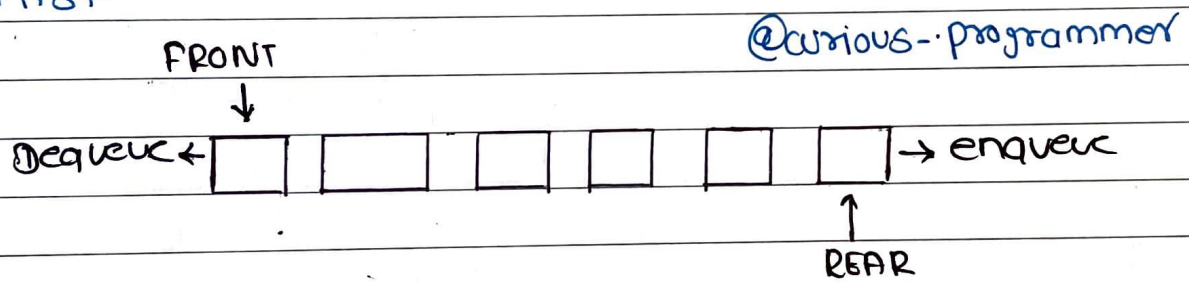


(stack)

4] **Queue :**

A Queue can be defined by as an ordered list which enables insert operation to be performed and one end called REAR and DELETE operation can performed by another end called FRONT.

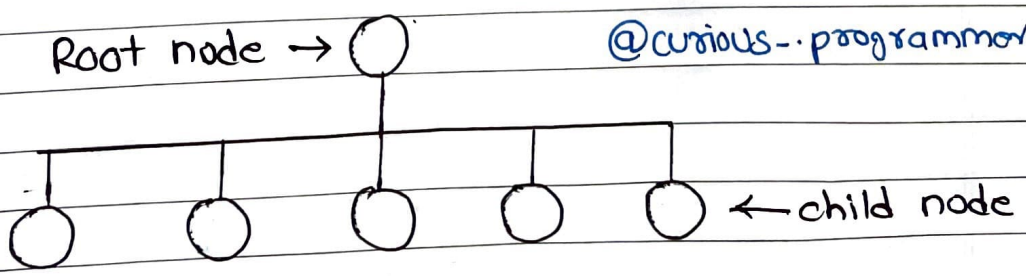
Queue is Reffred to the first in first.



5] **TREE :**

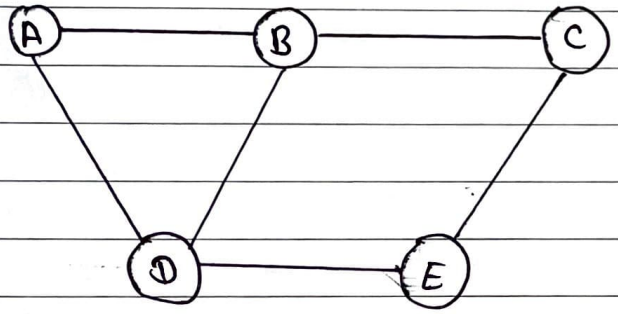
A TRee is a data structure that represent hierarchical data.

A tree data can be defined recursivly as a collection of nodes, where each node is a list of Reference to node



6] **Graph :**

A Graph can be defined as group of a ~~collection~~ of ~~nodes~~. ~~where~~ vertices and edges that are used to connected that vertices.



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