Data Str & Algorithms

Date: 15-02-21

Data Str

Organizes data in a form to store in memory to make the storage of and retrieval of data efficiently

```
int arr[5] = {5,4,6,7,9}
           = | 5 | 4 | 6 | 7 | 9 |
             0   1   2   3   4

S.O.P (arr[2]);
```

Data Types / Abstract data Types (Summarized)

Data Type

Data types provides specific domain

Abstract data types

- Abstract View: (Front end view) (User View)
- Implemented View: (Back end coding) (Developer View)

Algorithms

Steps by step procedure to solve problem.

Algorithm Analysis

Comparing diff algos to solve a problem.

2 main parameters for algorithmic analysis
(i) Time (ii) Space

Date:

Types of Algo Analysis

i. priori (before) analysis
: Analysis performs before execution.

ii. posterior analysis (after)
: Analysis performs after execution
(by comparing the output time)

Tuesday

Data Str & Algos

Date: 16-02-21

Data Types

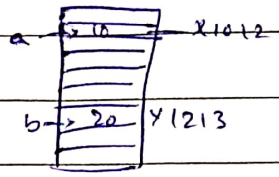
(i) primitive (ii) refference type

primitive type:

int, char, double, boolean ...

e.g

```
int a = 10;
int b = 20;
```



Reference type:

Types that holds complex values (objects)

e.g `person ali = new person();`

ali → Reference type

Primitive Type: Can overide data

Non-Primitive Type: can't overide data, every time creates new object e.g string, class array

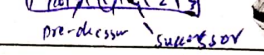
Types of Data Structures

(i) Linear Strs (ii) Non-Linear Strs

Linear

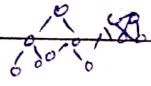
(i) Data Str in which data is arranged in sequential order

(ii) " " contain ① succurors & ② pre-decessors. e.g Array Stacks:



Non-Linear

(i) " " " " not in " e.g



(ii) ~~are those that store~~ It can have multiple successors and predecessor e.g Trees, Graphs etc

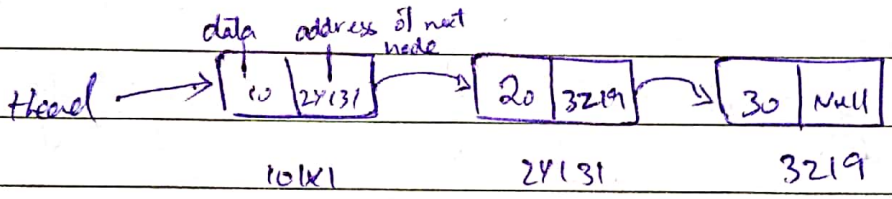
Asymptotic Analysis / Notations :-

analyzing ~~data~~ program on the basis of time either best time (min time) & or worst time (Burst time (time search)).

eg

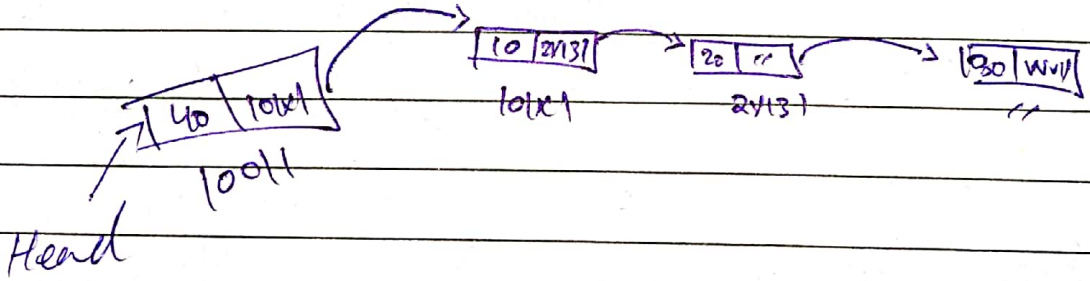
Linglists (linear type)

are nodes contains two parts



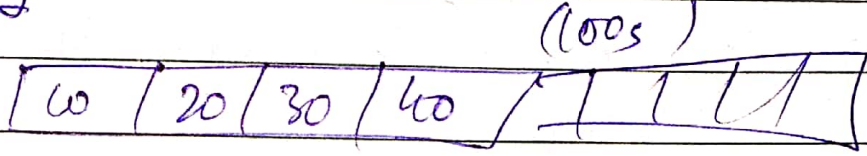
adding new data on begning

=> by creating new node and giving address of head/pointer



Head

Array



for adding new data on begning

=> we have to move every data on each index

Result - Ling list will provides best time & given efficiency.