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Introduction

Course on Data Structure

Pankaj Sharma • Lesson 1 • July 8, 2024

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CS & IT Engineering

Data Structure

Introduction

Lecture Number- 01

By- Pankaj Sir

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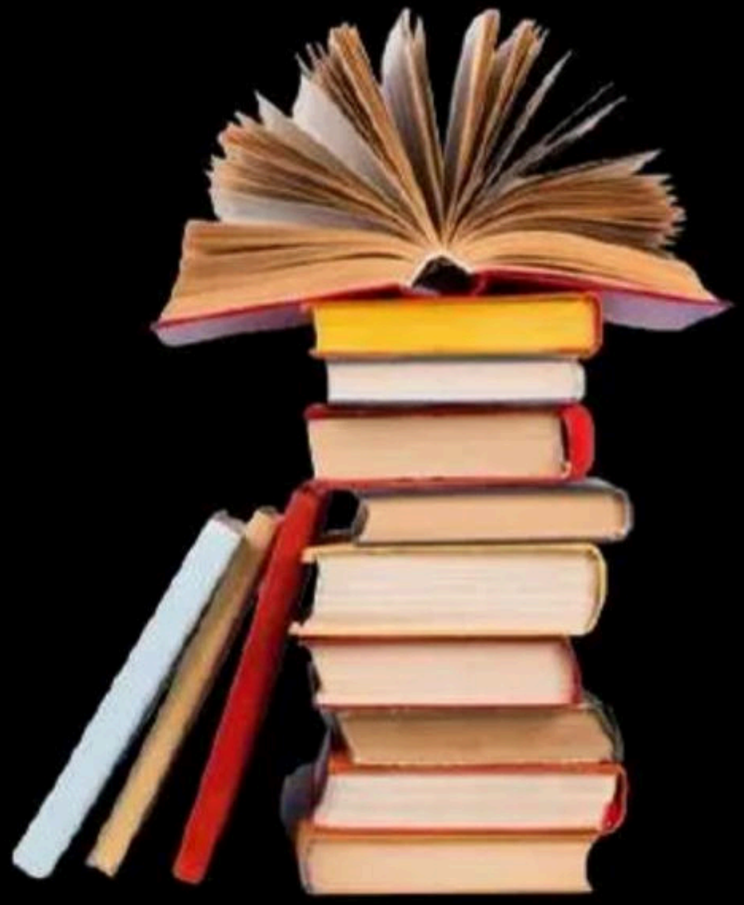
Topics

to be covered



1. Introduction

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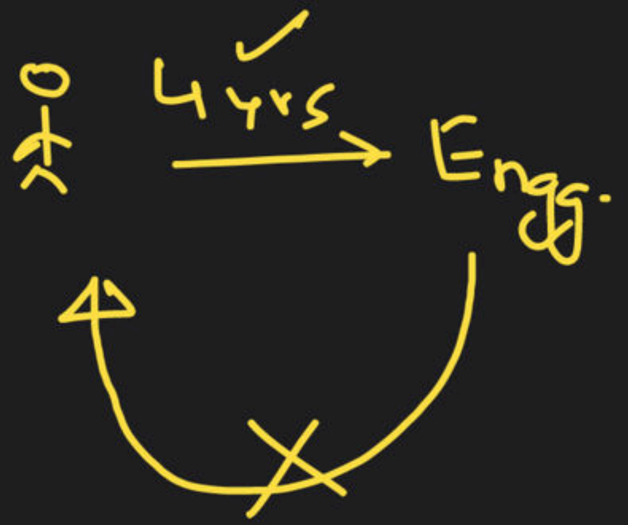
Data structure



Bholu bache

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Data Structure

① Why to store data ?

OTP

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Row wise arrangement with a grouping of 10

1 2 3	.....	10
11 12 13	- - - -	20
21 22 23		
91 92 93	- - -	100

Col. wise arrangement with a grouping of 10.

11	- - -	91
12		92
13		93
10 20		100

Row wise arr. with a grouping of 20 etc.

1 2 3	....	20
21 22 23	- - -	40
181 82	- - -	200

No pattern Randomly

7 2

7th Page
3rd Row, 3rd col

1st row → 10 (101 - 110)
11 (111 - 120)

Where is 623?

Ex 2.

Contact list → ~~sorted~~ → unsorted

search ~~X~~ facility

Ex3. Dictionary → Sorted → Search (3 Lacs)

→ Unsorted →

Ex 4

gmail → users

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Data structure

Linear data structure

A data structure in which an element can have almost 2 neighbours.

Non linear data structure

Possible to have more than 2 neighbours.

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Linear data structure

1) Arrays → address calculation

2) linked list → node

3) stack

4) Queue

Hashing.

Non linear data structure

1) Tree
   - Binary Tree
   - BST
   - Heap
   - AVL tree

2) Graph

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DA

↳ Python

75 min
- 90 Min

Gate cs
↓
C prog.

Elevate
↳ coding class
05:30
↳ C prog -
08:00
↳ DS

2.5 - 3 month

Arrays → 4-5 Lectures.

L.L → 5 lectures

Stack & Queue → 5 lec.

Trees → 9-10 lecture

Hashing → 2 lect.

Graph → 1 lect.

1.5 Hrs

Min. no. of lectures

30 lectures

C Programming → Arrays, Pointers, structures

→ 8 lect. ⇝

Request → ——— → O

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Array

1.) Elem. are stored seq. one after another in memory.

2.) Collection of Homo. types of elements.

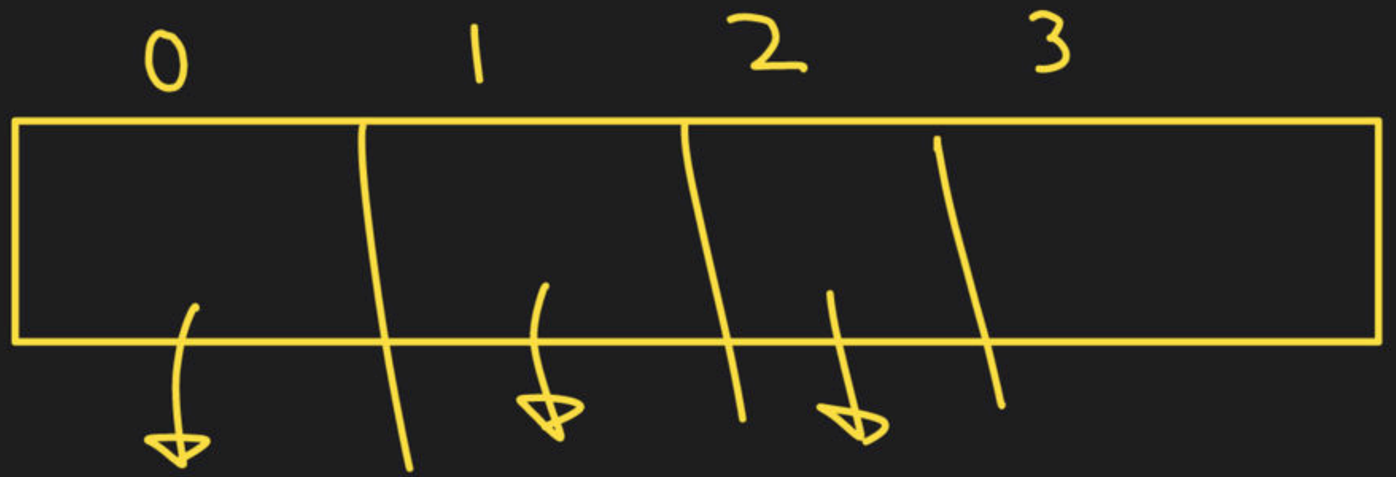
int a[10]; char c[5];

3.] To access ind. elements ⇒ Unique identication Number ('index)

(Roll No.)

In C → index starts from 0.

q



int q[4];

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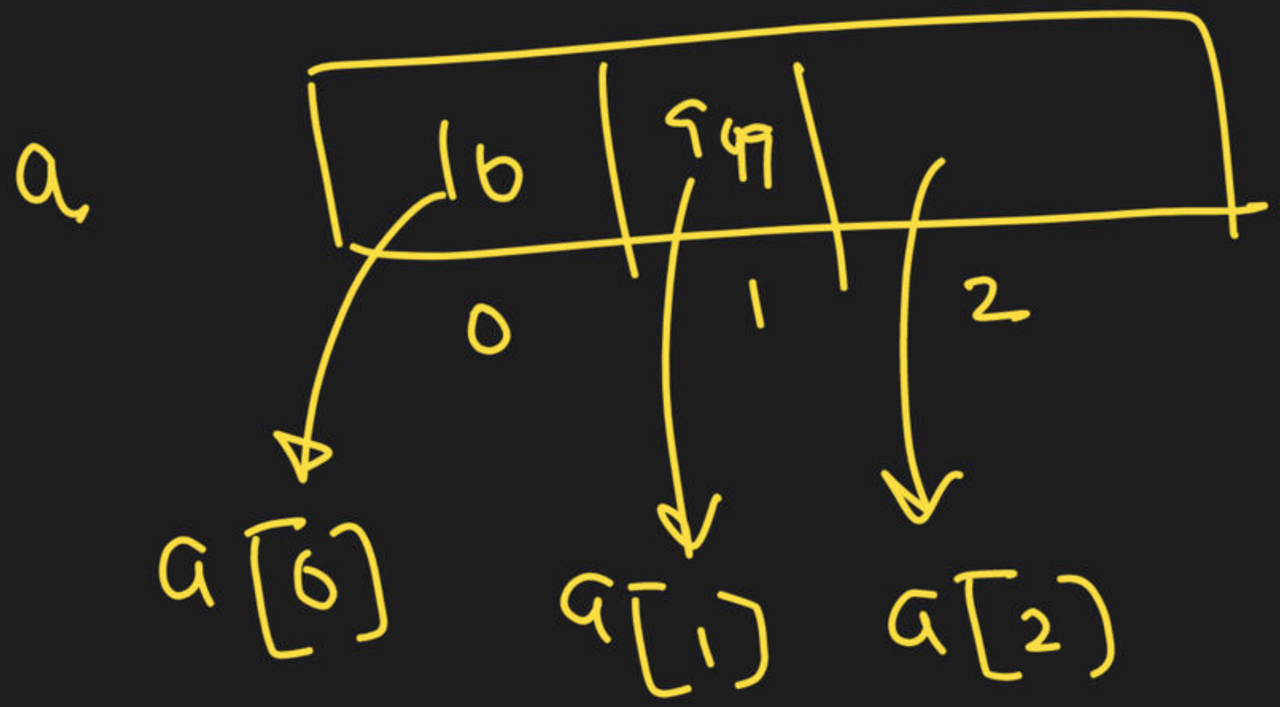
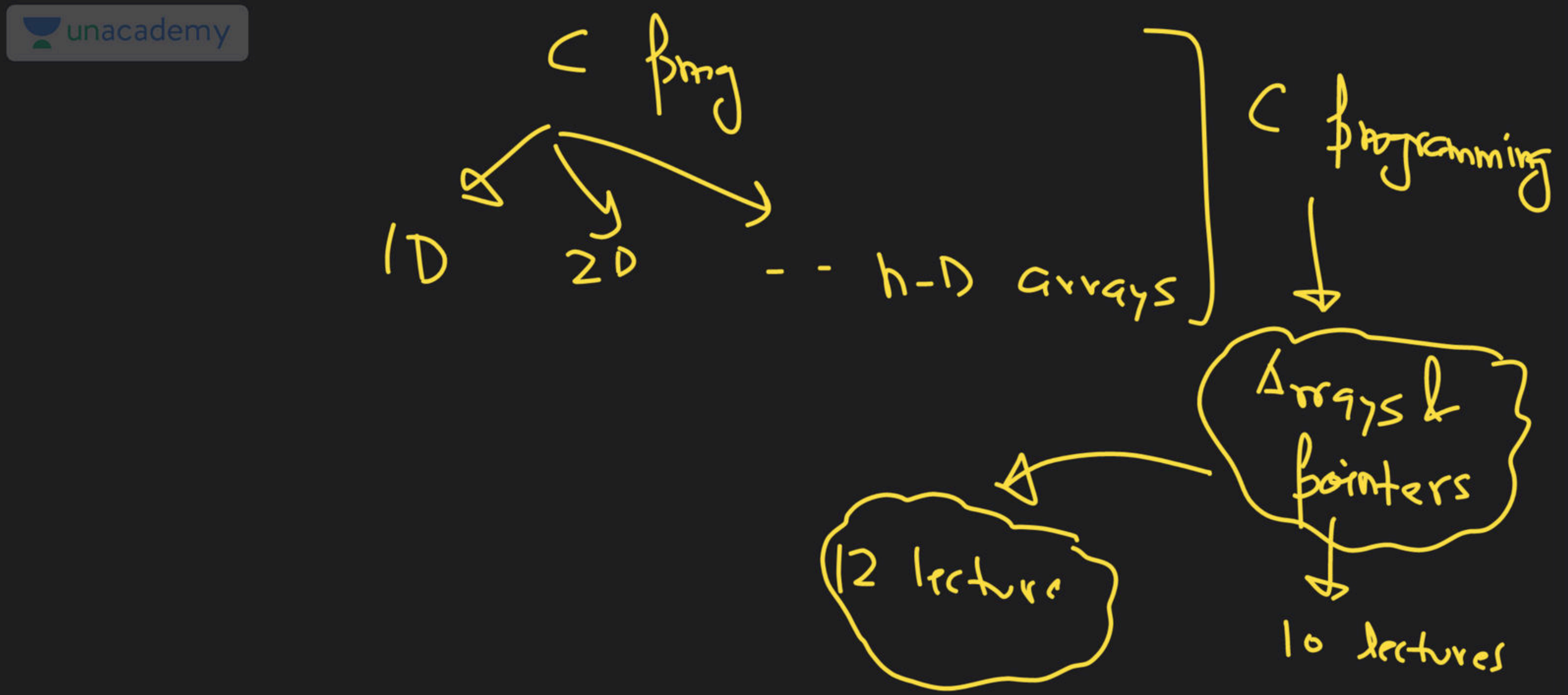
```
int a,b,c;

a='b';

b=30;

c=20;
```

```
int a[3];
```




```
a[0]=10;

a[1]='qq';
```


C prog
1D
2D
- - n-D arrays
C programming
Arrays & pointers
12 lecture
10 lectures

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Arrays - 1

05:30 PM → 11:11

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THANK YOU!

Here's to a cracking journey ahead!