

The background features a dark blue gradient with faint, light blue geometric patterns. On the left side, there are several concentric circles and arcs, some of which are marked with degree values ranging from 40 to 260. These markings are arranged in a way that suggests a circular scale or a compass rose. The overall aesthetic is technical and modern.

FUNDAMENTALS OF PROGRAMMING

PART XII

CONTENTS

- Data Structures
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DATA STRUCTURES

WHAT, WHY

DATA STRUCTURES

A data structure is a particular way of organizing data in a computer so that it can be used effectively.

Data structure provides efficiency, reusability and abstraction. It plays an important role in enhancing the performance of a program because the main function of the program is to store and retrieve the user's data as fast as possible.

TYPES OF DATA STRUCTURE

TYPES OF DATA STRUCTURE



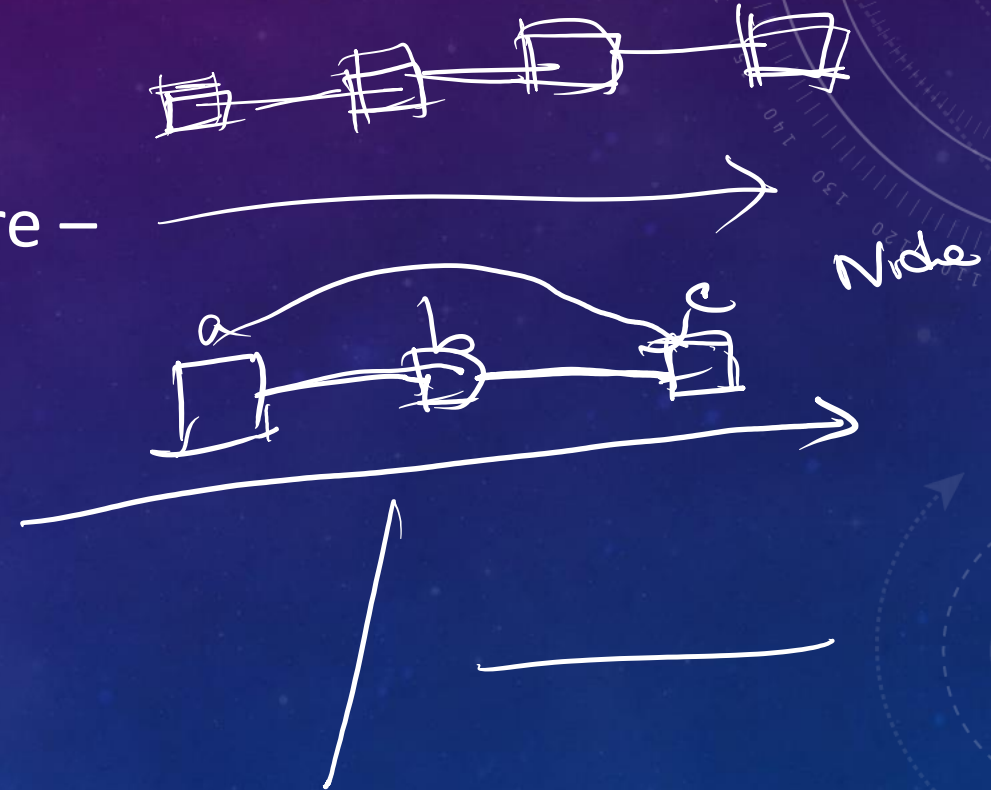
Linear Data Structure

Non-linear Data Structure

LINEAR DATA STRUCTURES

Most Popular Linear Data Structures are –

- Array
- Stack
- Queue
- Linked List



NON-LINEAR DATA STRUCTURES

Most Popular Non-linear Data Structures are –

- Graph
- Trees
- Matrix
- Heap
- Hashing



ARRAY DATA STRUCTURE

ARRAY AS DATA STRUCTURE

ARRAY DATA STRUCTURE

Array is simply collection of same type data/elements.

The type of elements that can be stored in the form of arrays is determined by the programming language.



Example of an Array

$A[\text{index}]$

$A[4]$

print $A[2]$

THE END

PART XII