

SNS COLLEGE OF TECHNOLOGY

Coimbatore-35 An Autonomous Institution



Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF INFORMATION TECHNOLOGY B.Tech - AIML

DATASTRUCTURES

II YEAR III SEM

UNIT 1 –LINEAR STRUCTURES

TOPIC 1 – Introduction

27-10-2022



Introduction- Need of Structure





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Data Structure



The logical or mathematical model of particular organization of data

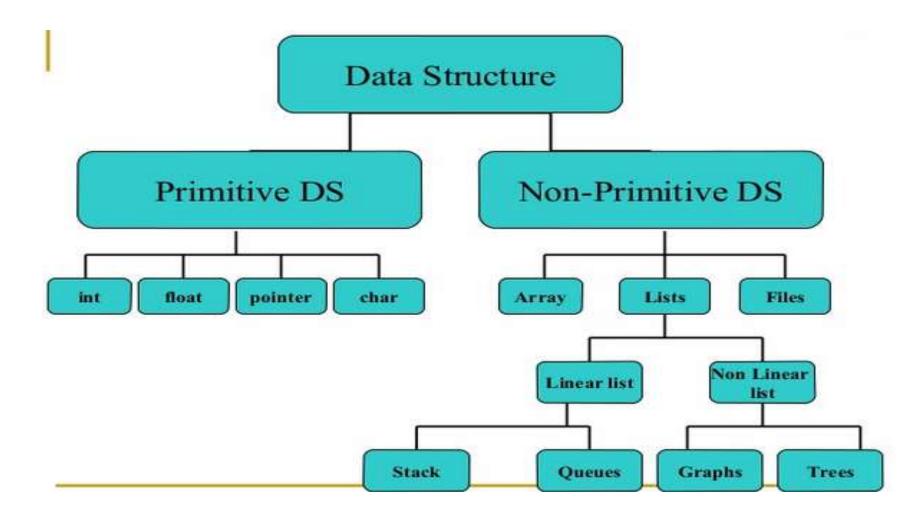
• Specifies the following four things

- 1. Organization of data
- 2. Accessing Methods
- 3. Degree of Associativity
- 4. Processing alternatives for information



Types of Data Structure





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- **Traversal** -Processing each element in the list
- Search-Finding the location of the element with a given value with the given key
- Insertion Adding new element to the list
- Deletion -Removing an elements from the list
- **Sorting** -Arranging the elements in some type of order
- Merging -Combining two list into a single list

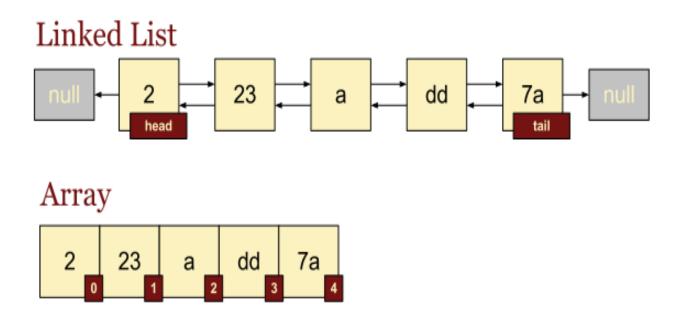


Implementation of Data Structure



Two ways of Implementation

≻Array≻Linked List



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Difference Between Array & Linked list

ARRAYS

- 1. Good Data structure for Searching algorithms.
- 2. Disadvantage : Insertion and Deletion of Elements require Data movements(Time Consuming)

LINKED LIST

- 1. It allows quick insertion and deletion of elements.
- 2. Searching is difficult.

A Sequential traversal from the beginning of the list is required to search for an element until it is found or up to the end of the list





Benefits

- ≻Space for each item it stores is more
- \succ Time to perform basic operation is less
- >Programming effort and complexity is reduced





- 1. M. A. Weiss, "Data Structures and Algorithm Analysis in C", Pearson Education, 2nd Edition, 2002.
- A. V. Aho, J. E. Hopcroft and J. D. Ullman, "Data Structures and Algorithms", Pearson Education, 2nd Edition, 2007
- 3. Ashok Kamthane, " Data Structures Using C ", Pearson Education, 2nd Edition, 2012.
- 4. Sahni Horowitz, "Fundamentals of Data Structures in C"Universities Press; Second edition 2008





Thank You

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Introduction/Data Structure/ Ms.S.Rajasulochana /IT/SNSCT

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