| **3** |  | **Linked List** | 10 |
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|  | 3.1 | Introduction, Representation of Linked List, Linked List v/s Array, Types of Linked List - Singly Linked List, Circular Linked List, Doubly Linked List, Operations on Singly Linked List and Doubly Linked List, Stack and Queue using Singly Linked List, Singly Linked List Application-Polynomial Representation and Addition. |  |

*LINKED LIST*

Linked list is an ordered collection of data elements called

nodes that are randomly stored in memory.

* A linked list is a linear and dynamic data structure
* Node is a structure consisting of two fields: Data field and Next field

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Limitations of Array:

* In array, elements are stored in contiguous memory locations
* Static Data Structure: Size must be known at the time of declaration before the compilation of the program
* Insertion and deletion of elements in between the array require a lot of data movement

Linked List:

* In a linked list, elements are not stored contiguous memory locations.
* Each node is connected to its successor through the link. (implemented using pointers)
* Linked list is used to store similar types of data in memory.

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There are 4 Types of Linked List:

* Singly Linked List
* Doubly Linked List
* Circular Linked List
* Doubly Circular Linked List

Applications:

Implementation of stacks and queues ❖ Implementation of graphs

Image viewer

Music Player