

## Introduction to Linked Lists

Linked lists are similar to arrays (Linear data structures)

7	10	11	12	18	22
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 $\Rightarrow$  In Arrays elements are stored in contiguous memory locations

7	•
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 $\rightarrow$ 

10	•
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 $\rightarrow$ 

11	•
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 $\rightarrow$  NULL  $\Rightarrow$  In linked lists, elements are stored in non contiguous memory locations

data       $\swarrow$  Pointer to next element

sequence of nodes, where each node contains data and a reference (or link) to the next node in the sequence.

### Why Linked Lists?

Memory and the capacity of an array remains fixed.

In case of linked lists, we can keep adding and removing elements without any capacity constraints

### Drawbacks of Linked Lists

- $\rightarrow$  Extra memory space for pointers is required (for every node 1 pointer is needed)
- $\rightarrow$  Random access not allowed as elements are not stored in contiguous memory locations.

### Implementation

Linked list can be implemented using a structure in C language

```
struct Node {  
    int data;  
    struct Node* next;  
};
```

$\Rightarrow$  Self referencing structure