

**Date** : 8th - 10 - 2020

**Morning Session** : 9am – 11.00 PM

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## Topics: Linked List implementation

### Types of Linked List - Singly linked, doubly linked and circular

There are three common types of Linked List.

1. Singly Linked List
2. Doubly Linked List
3. Circular Linked List

### Singly Linked List

It is the most common. Each node has data and a pointer to the next node.



Singly linked list

### Doubly Linked List

We add a pointer to the previous node in a doubly-linked list. Thus, we can go in either direction: forward or backward.



Doubly linked list

# Circular Linked List

A circular linked list is a variation of a linked list in which the last element is linked to the first element. This forms a circular loop.



Circular linked list

A circular linked list can be either singly linked or doubly linked.

- for singly linked list, next pointer of last item points to the first item
- In the doubly linked list, `prev` pointer of the first item points to the last item as well.

To see linked list implementation in please watch Recorded Lecture

[Recorded Lecture](#)

### MCQ 1:

1. Time Complexity -> to reverse a linked list
- a.  $O(n)$
  - b.  $O(1)$
  - c.  $O(\log n)$
  - d.  $O(n*n)$

Answer: A,  $O(n)$

### MCQ 2:

2. Time Complexity -> detect a loop
- a.  $O(n)$
  - b.  $O(1)$
  - c.  $O(\log n)$
  - d.  $O(n*n)$

Answer: A,  $O(n)$