CIRCULAR LINKED LIST

1. What is a circular linked list ?

A circular linked list is a type of linked list in which the the first node and the last node of the list are connected together.

Circular linked list can be of two types:

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

Circular Singly Linked List

1. What is a circular singly linked list ?

It is a circular linked list where the next of the last node points to the head node

2. How to insert a new node at the end of the list ?

1. Traverse the list till the last node (it can identified as the next of last node pointing to the head node)
2. Make the next of this node point to the new node
3. Make the next of new node point to the head node

3. How to insert a new node as the head node ?

1. Store the details of the last node in a temporary node
2. Make the next of the new node point to the head node
3. Make the new node as the head node
4. Make the next of last node (which was stored in a temporary node) point to the new head node

4. How to delete a node from the end of the list ?

1. Traverse till the last node
2. Store the previous node in a temporary node
3. Make the next of the last node point to None
4. Make the next of the temporary node point to the head node

Circular Doubly Linked List

1. What is a circular doubly linked list ?

It is a circular linked list where the next of the last node points to the head node and the previous of the head node points to the last node

2. How to insert a new node at the end of the list ?

1. Traverse till the last node
2. Make the next of the last node point to the new node
3. Make the previous of the new node point to this node
4. Make the next of the new node point to the head node
5. Make the previous of the head node point to the new node

3. How to insert a new node as the head node ?

1. Make the next of new node point to the head node
2. Make the previous of new node point to the previous of head node (which is the last node)

3. Make the new node as the head node
4. Make the previous of the next node (which is the previous head node) point to this node
5. Make the next of last node point to new head node

4. How to delete a node from the end of the list ?

1. Traverse till the last node
2. Make the previous of head node point to this node's previous
2. Make the next of the previous node point to the head node (which now becomes your new last node)
3. Nullify the pointers of this node by making its next and previous pointing to None

5. How to delete the head node ?

1. Make the previous of second node point to previous of head node
2. Make the second node as the head node
3. Make the next of last node point to None