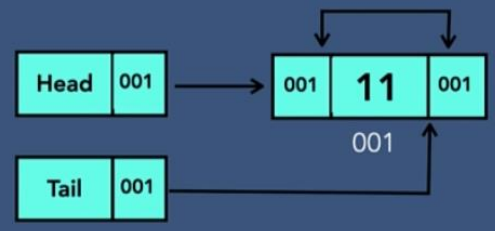
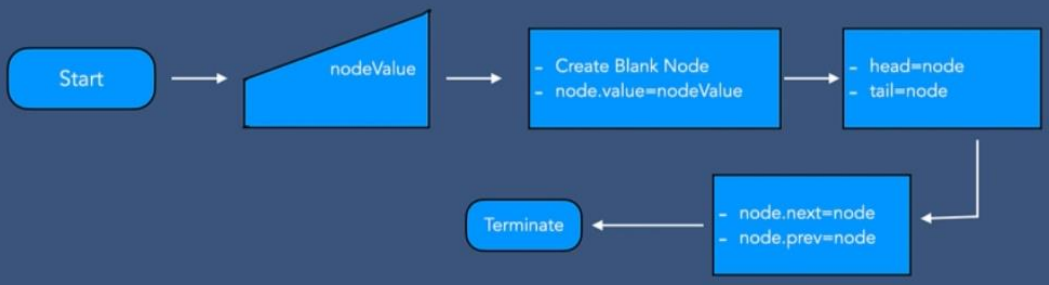
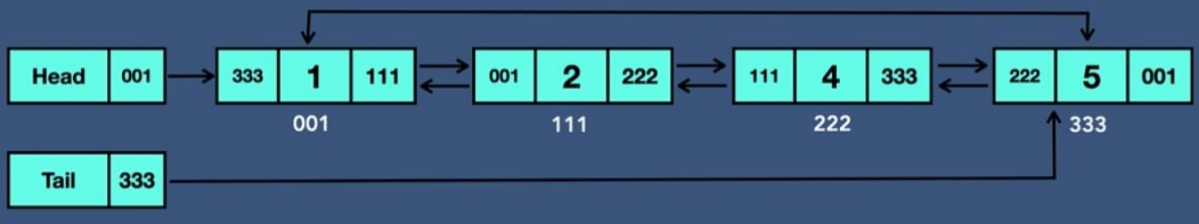
Create - Circular Doubly Linked List





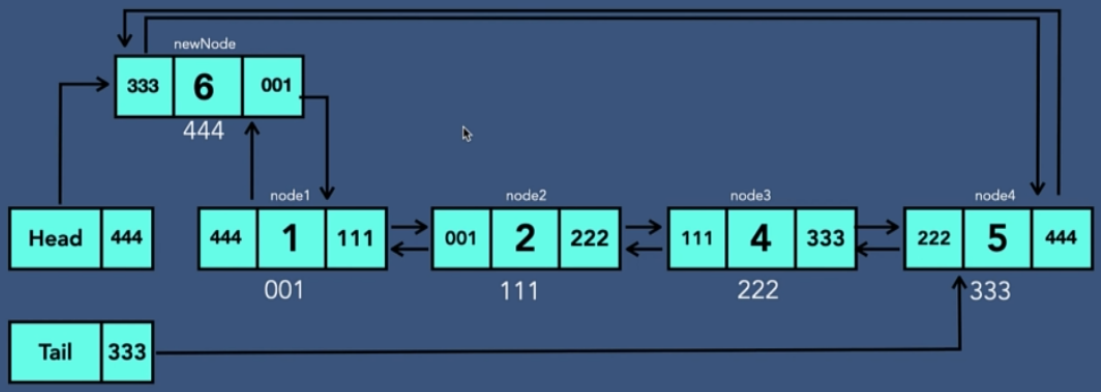
Insertion - Circular Doubly Linked List

- Insert at the beginning of linked list
- Insert at the specified location of linked list
- Insert at the end of linked list



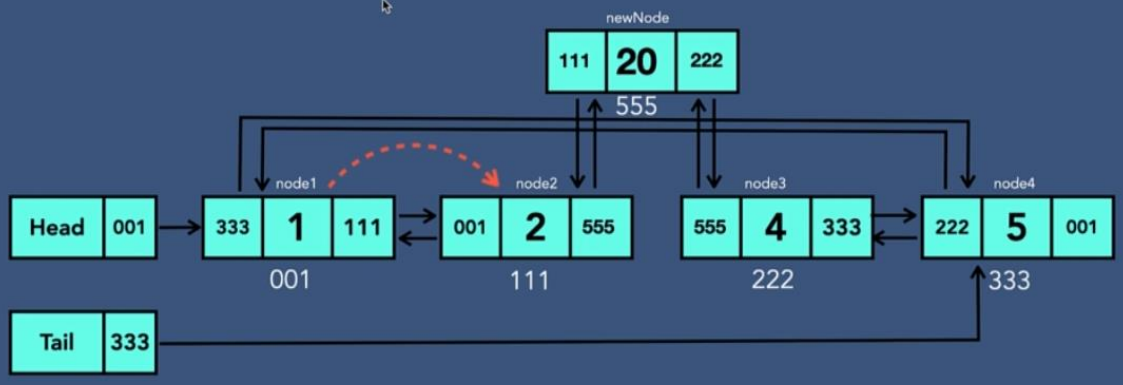
Insertion - Circular Doubly Linked List

- Insert at the beginning of linked list



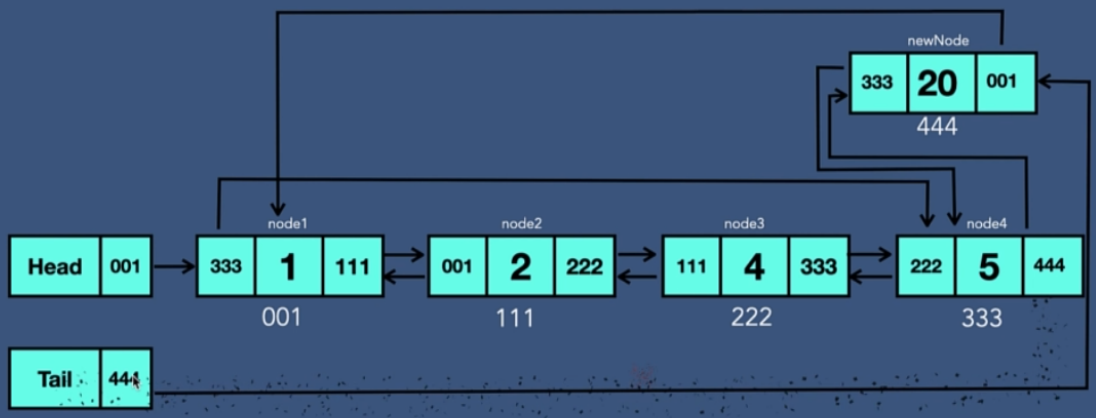
Insertion - Circular Doubly Linked List

- Insert at the specified location of linked list

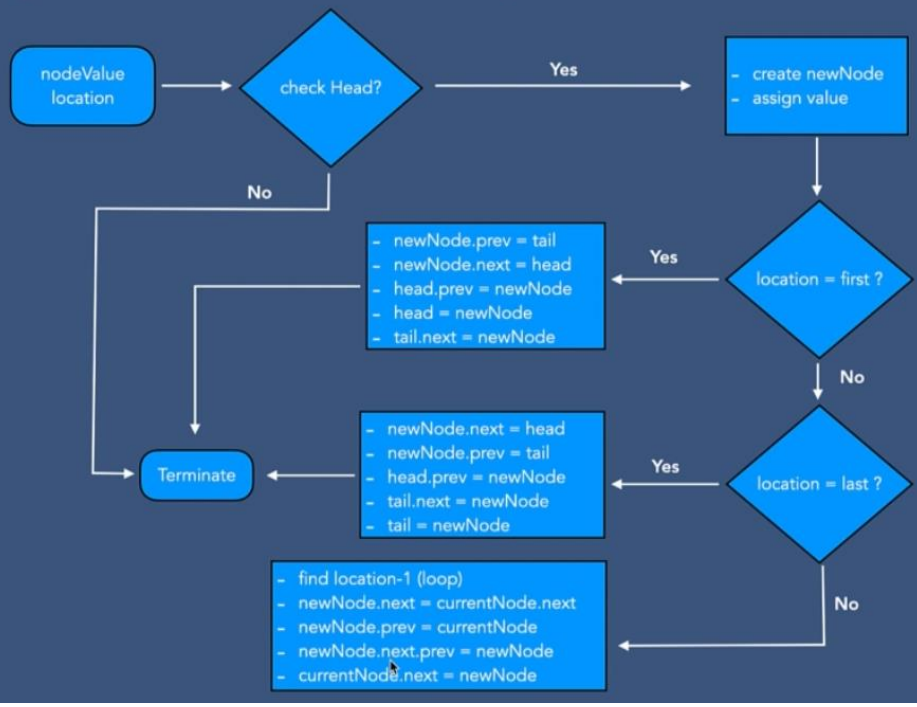


Insertion - Circular Doubly Linked List

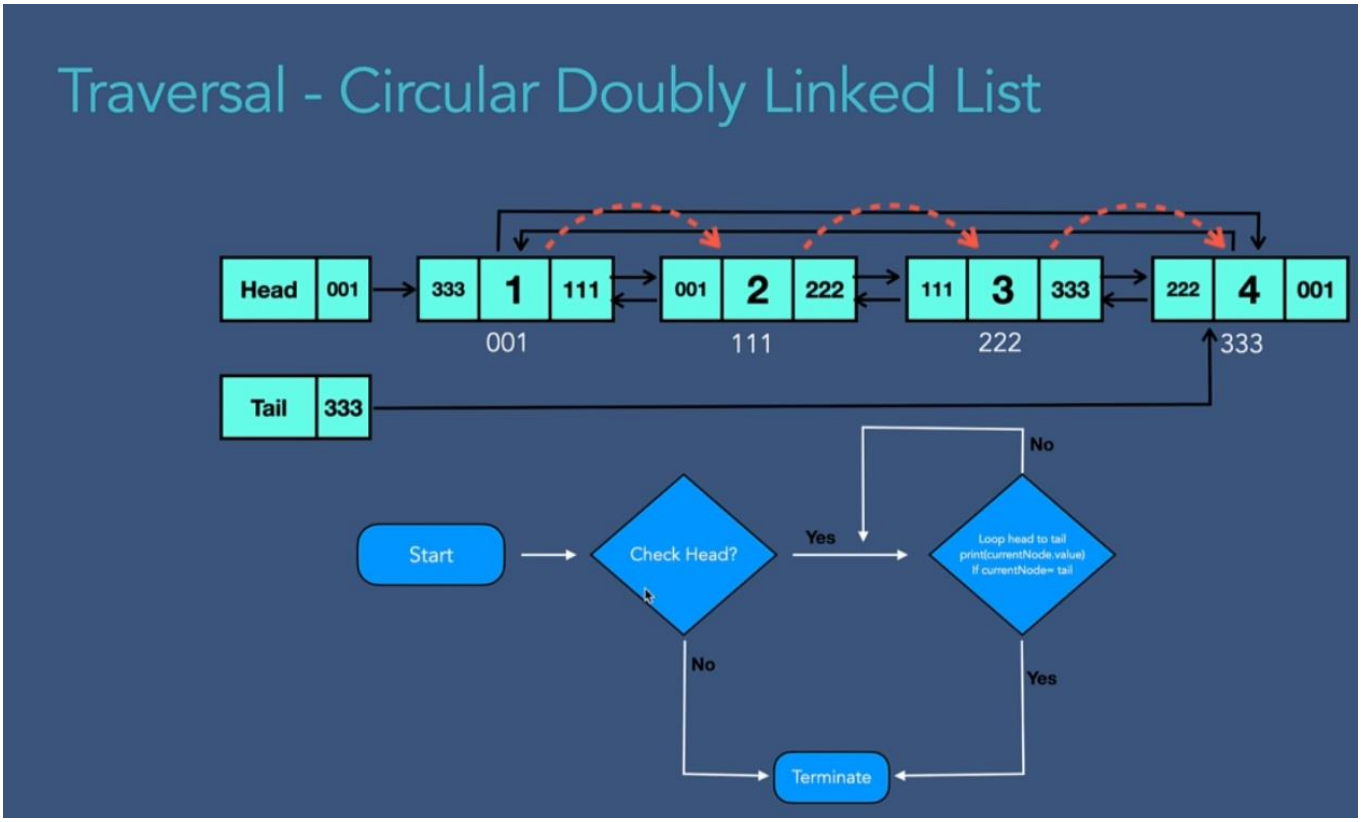
- Insert at the end of linked list



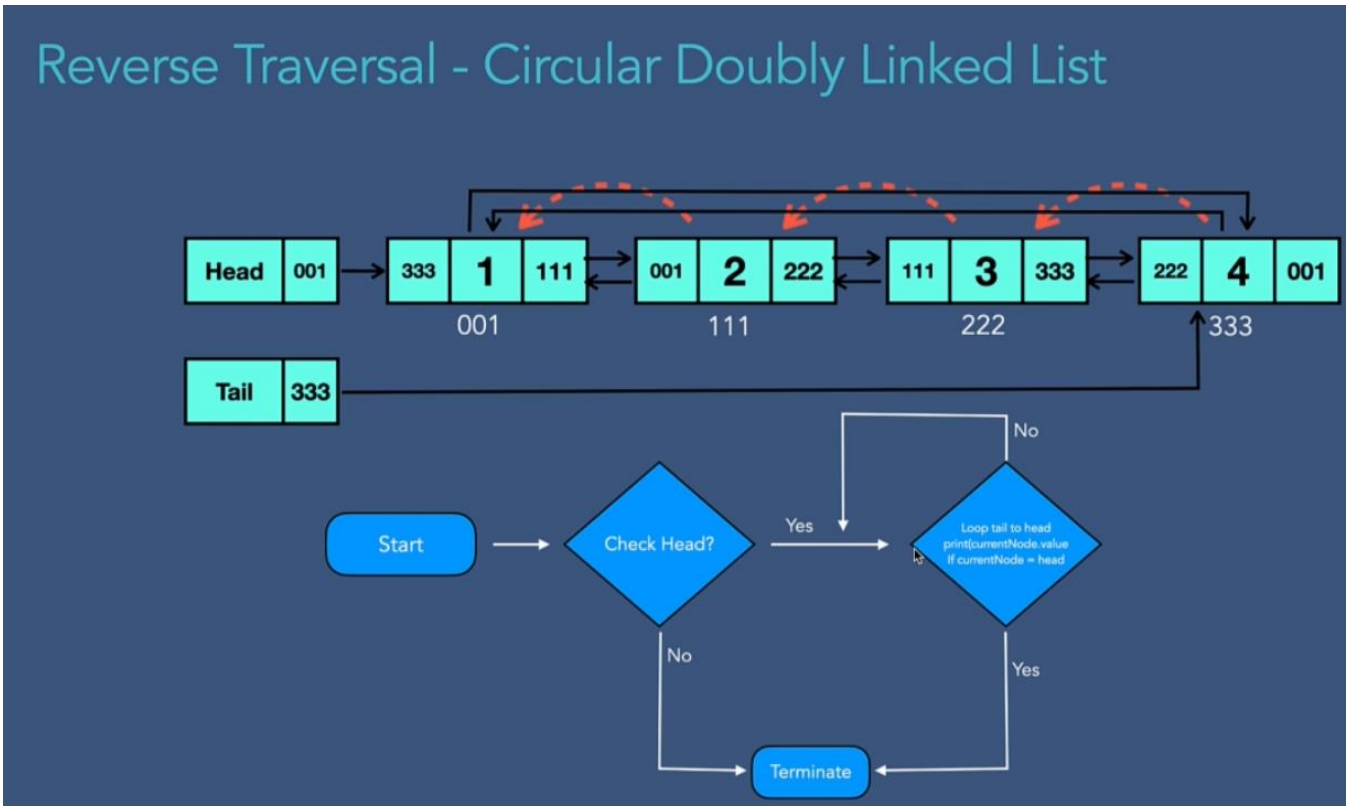
Insertion Algorithm - Circular Doubly Linked List



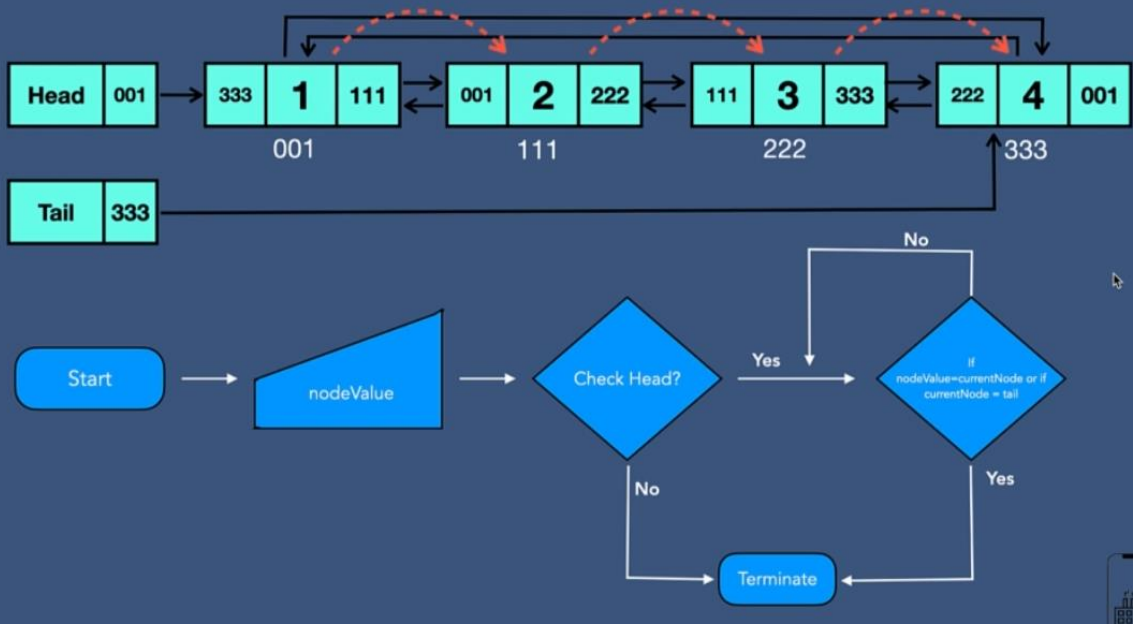
Traversal - Circular Doubly Linked List



Reverse Traversal - Circular Doubly Linked List

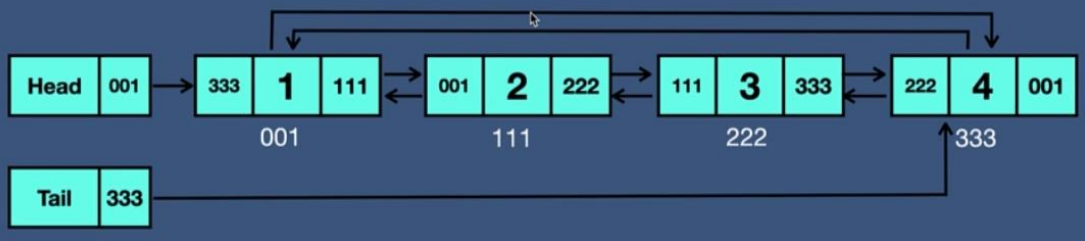


Searching- Circular Doubly Linked List



Deletion - Circular Doubly Linked List

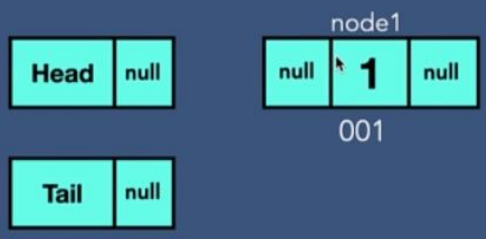
- Deleting the first node
- Deleting any given node
- Deleting the last node



Deletion - Circular Doubly Linked List

Deleting the first node

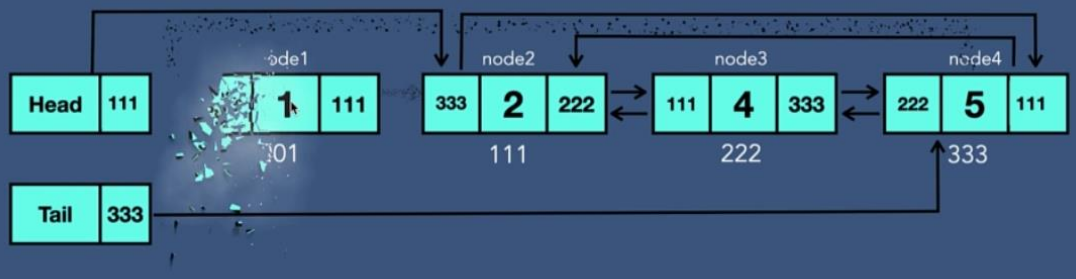
Case 1 - one node



Deletion - Circular Doubly Linked List

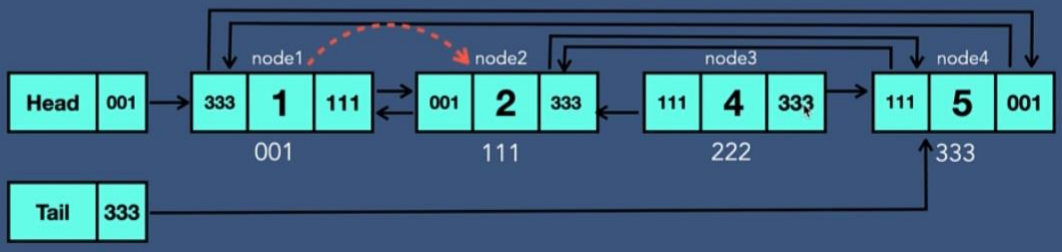
Deleting the first node

Case 2 - more than one node



Deletion - Circular Doubly Linked List

Deleting any given node



Deletion - Circular Doubly Linked List

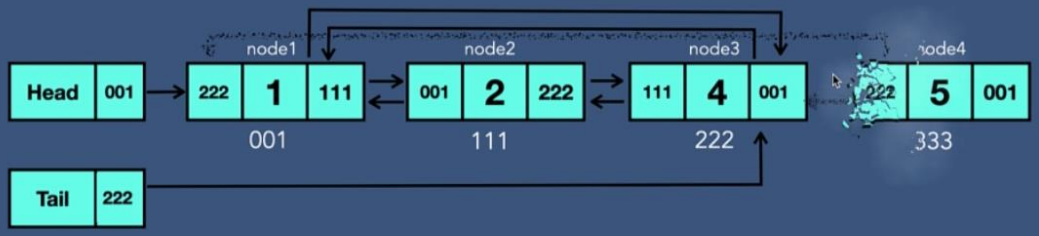
Deleting the last node

Case 1 - one node

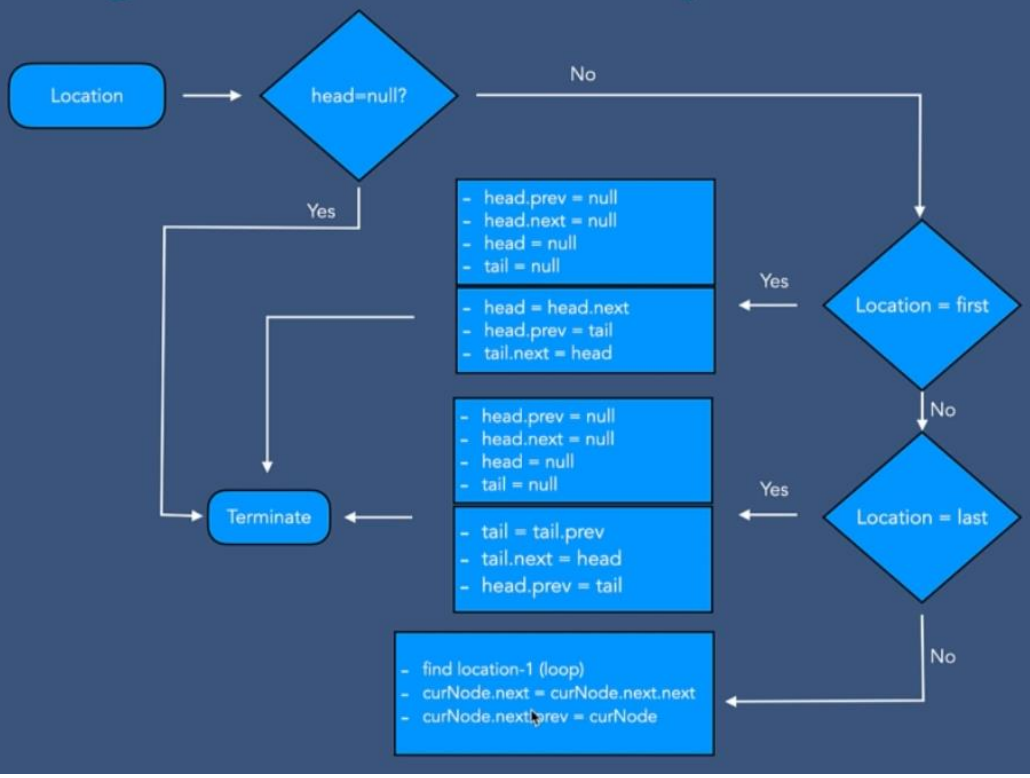
Deletion - Circular Doubly Linked List

Deleting the last node

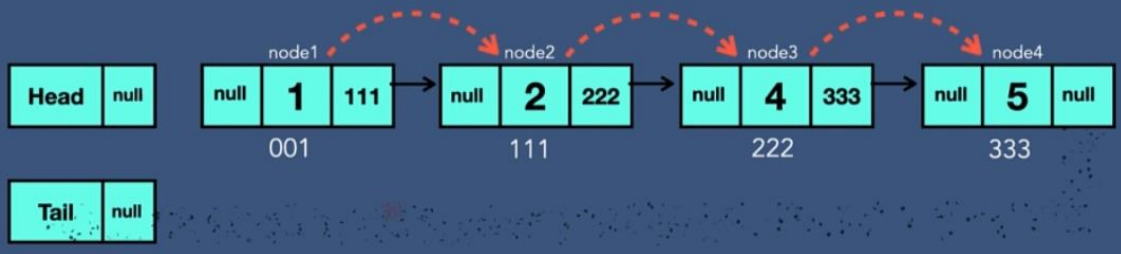
Case 2 - more than one node



Deletion Algorithm - Circular Doubly Linked List

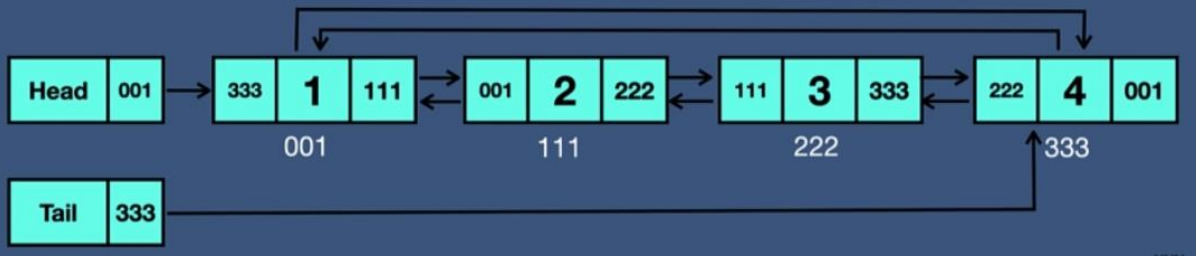


Delete Entire Circular Doubly Linked List



Time and Space Complexity of Circular Doubly Linked List

Circular Doubly Linked List	Time complexity	Space complexity
Creation	O(1)	O(1)
Insertion	O(n)	O(1)
Searching	O(n)	O(1)
Traversing (forward ,backward)	O(n)	O(1)
Deletion of a node	O(n)	O(1)
Deletion of CDLL	O(n)	O(1)



Time Complexity of Array vs Linked List

	Array	Linked List
Creation	O(1)	O(1)
Insertion at first position	O(1)	O(1)
Insertion at last position	O(1)	O(1)
Insertion at n^{th} position	O(1)	O(n)
Searching in Unsorted data	O(n)	O(n)
Searching in Sorted data	O(logn)	O(n)
Traversing	O(n)	O(n)
Deletion at first position	O(1)	O(1)
Deletion at last position	O(1)	O(n)/O(1)
Deletion at n^{th} position	O(1)	O(n)
Deletion of array/linked list	O(1)	O(n)/O(1)
Access n^{th} element	O(1)	O(n)