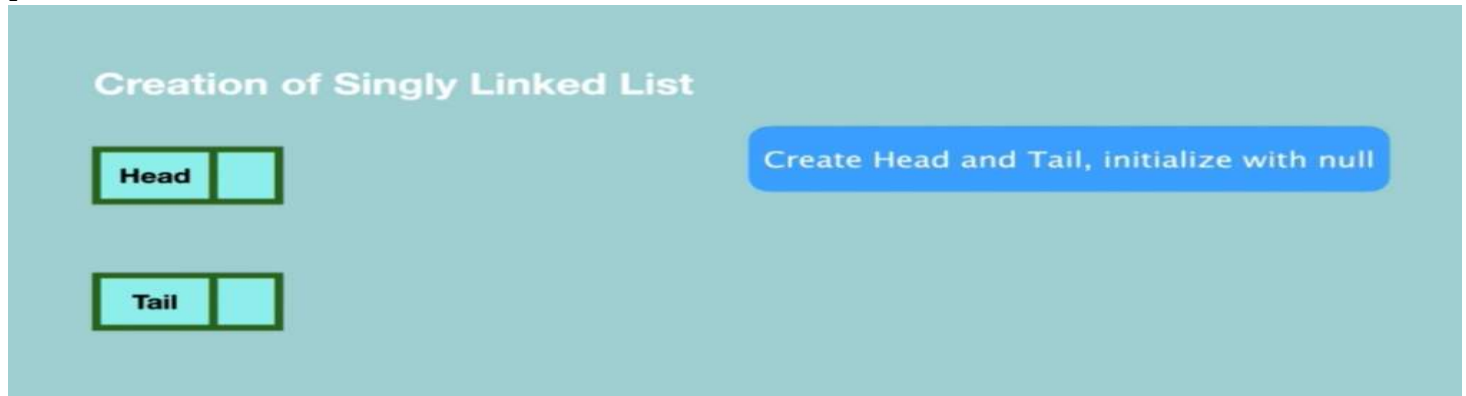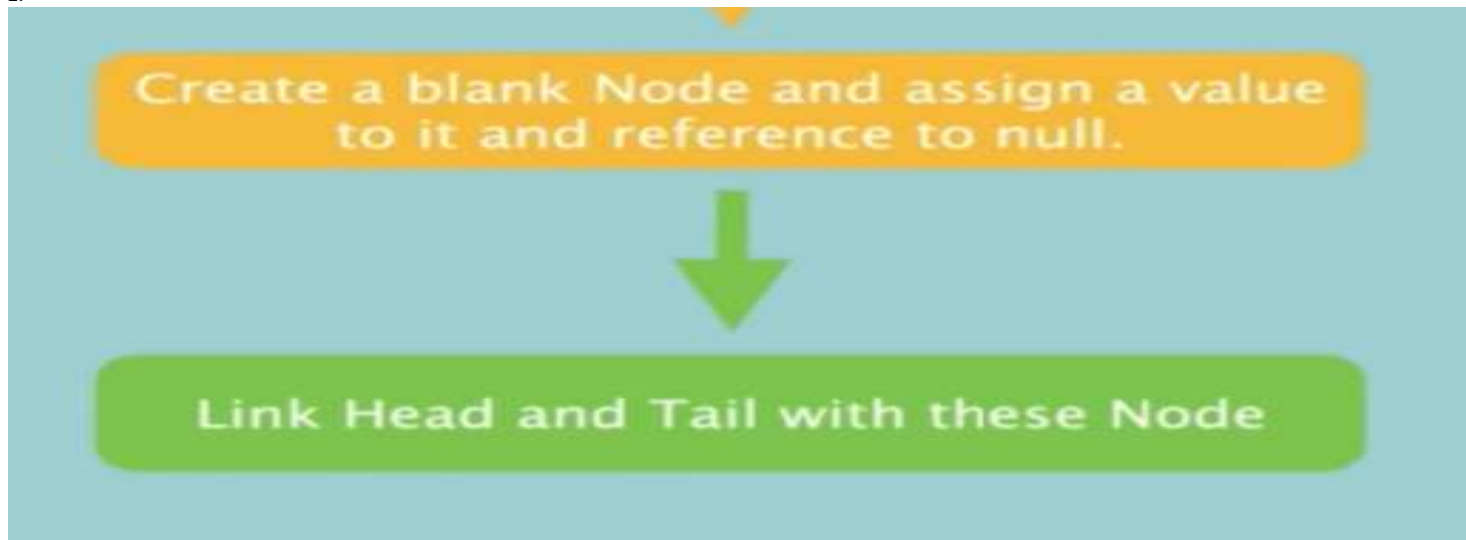# 12-1 LINKED LIST CREATION AND INSERTION - MEMORY VISUAL AND ALGORYTHM
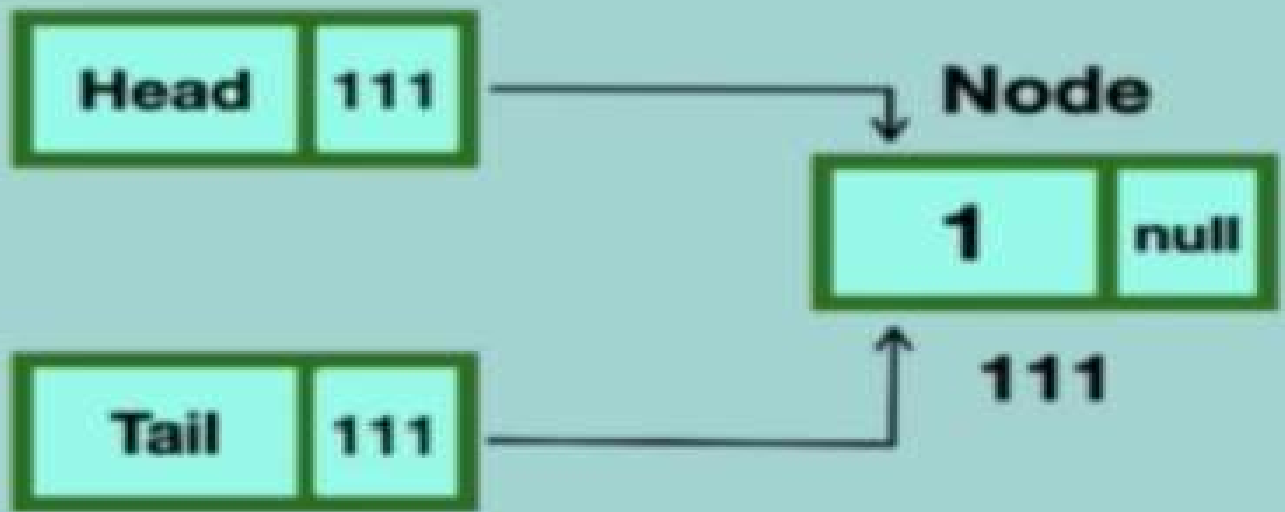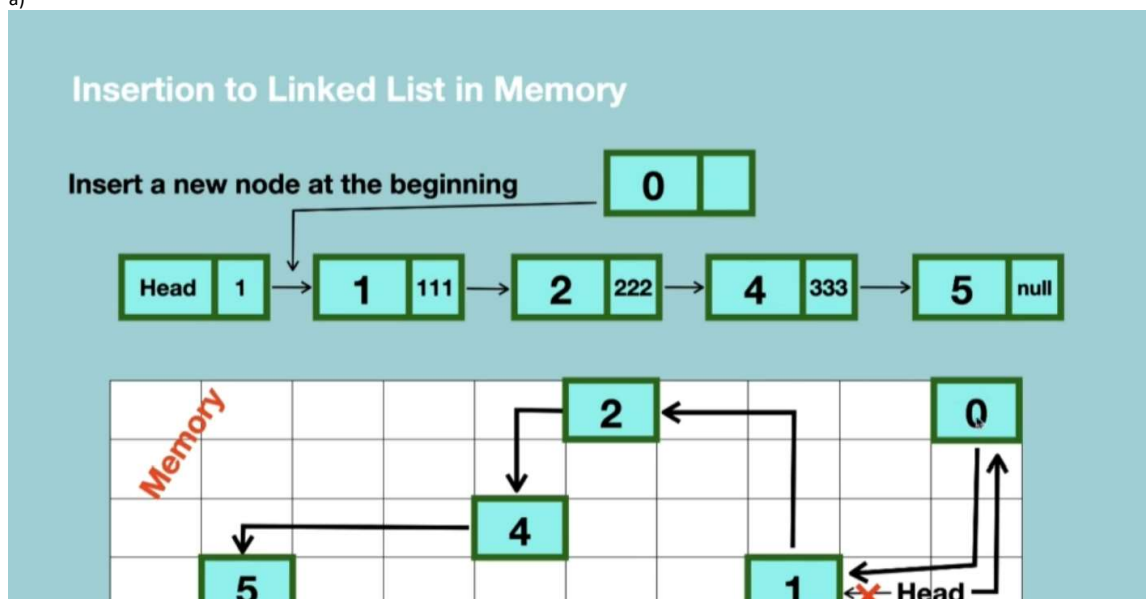
Friday, June 3, 2022   12:35 PM

1

2.

As it is the first node, it points to the head and tail in the same time(will be updated as we add node)

3.

Insertion to Linked List in Memory

1. At the beginning of the linked list.
2. After a node in the middle of linked list
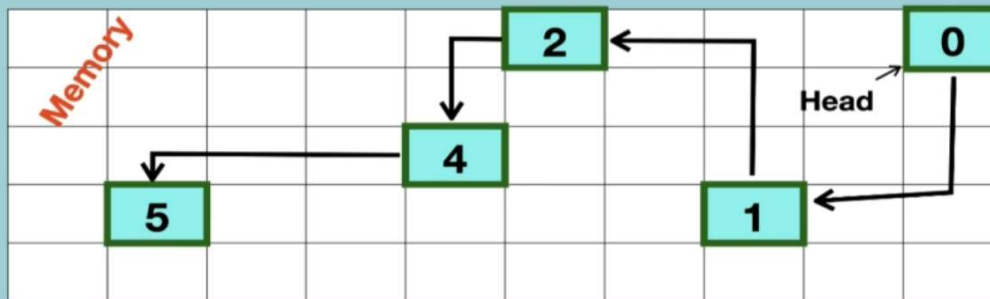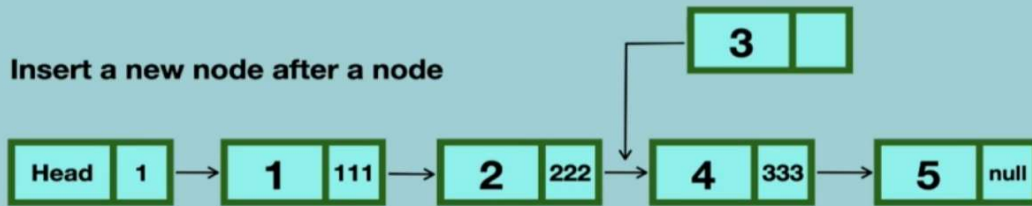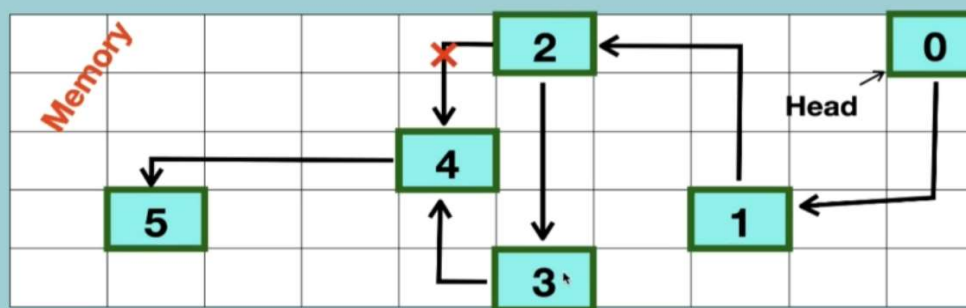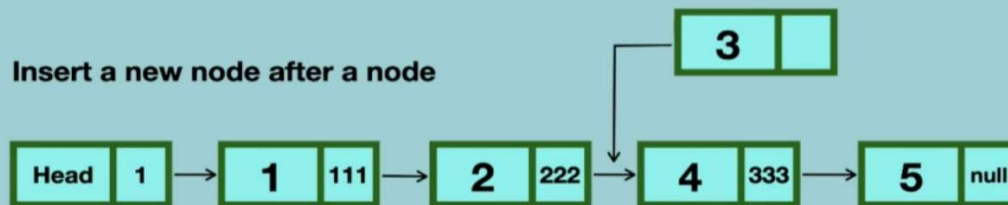3. At the end of the linked list.

a)

b)

Insertion to Linked List in Memory

Insert a new node after a node

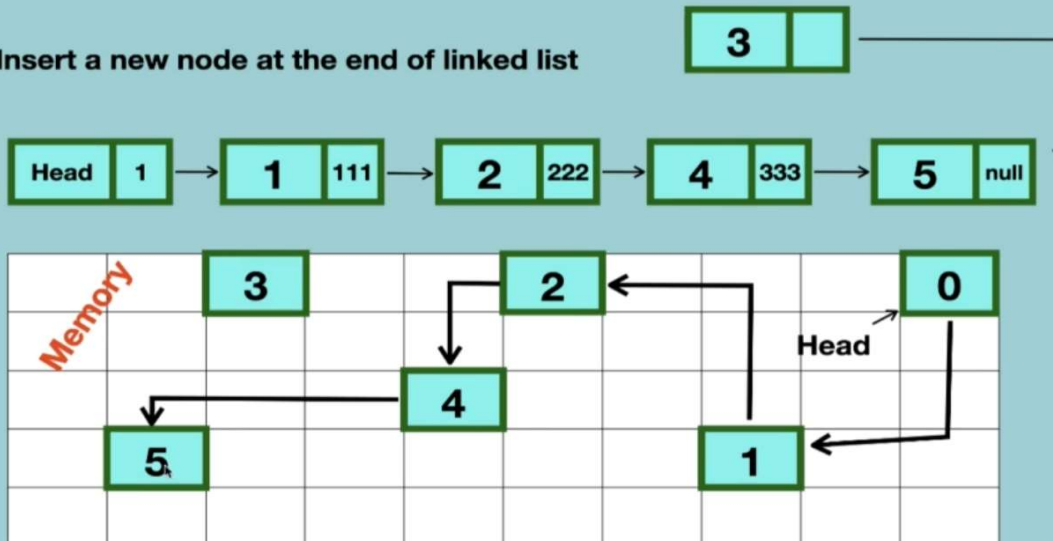Insertion to Linked List in Memory

Insert a new node after a node

c)

Insertion to Linked List in Memory
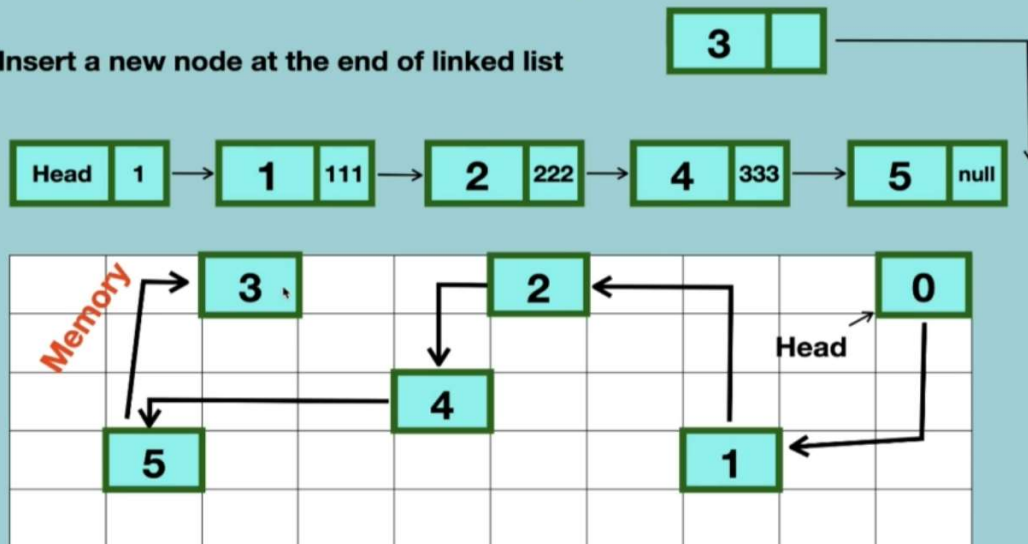
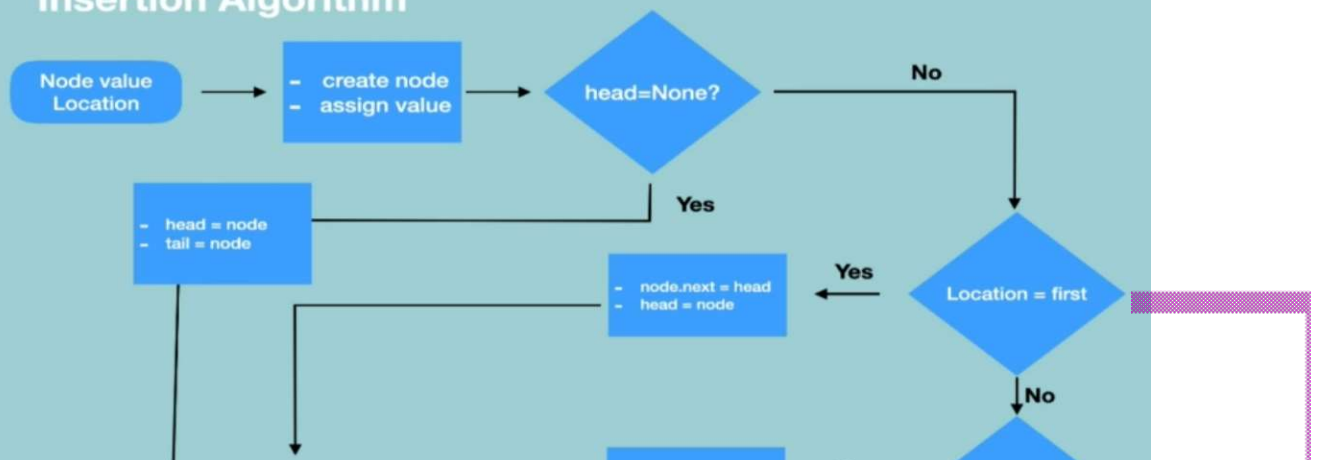**Insert a new node at the end of linked list**
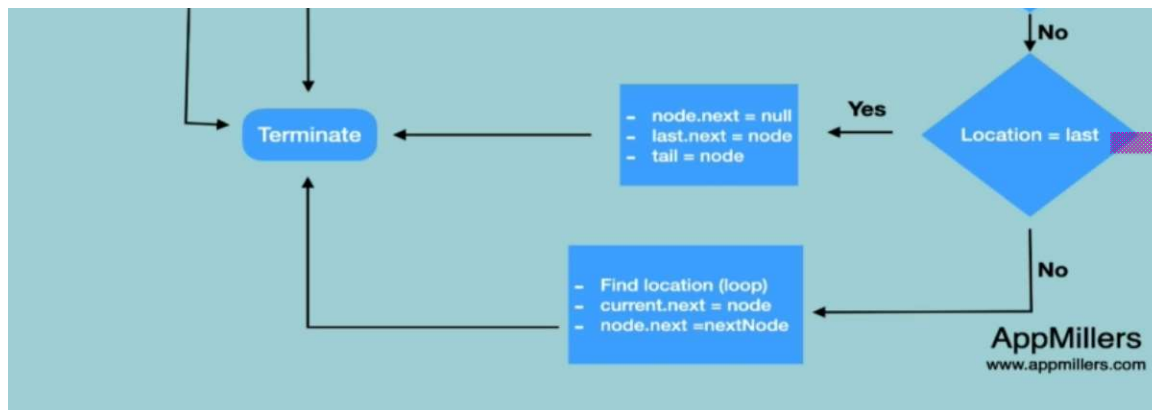
We are adding a node at the end of the list

Insertion to Linked List in Memory
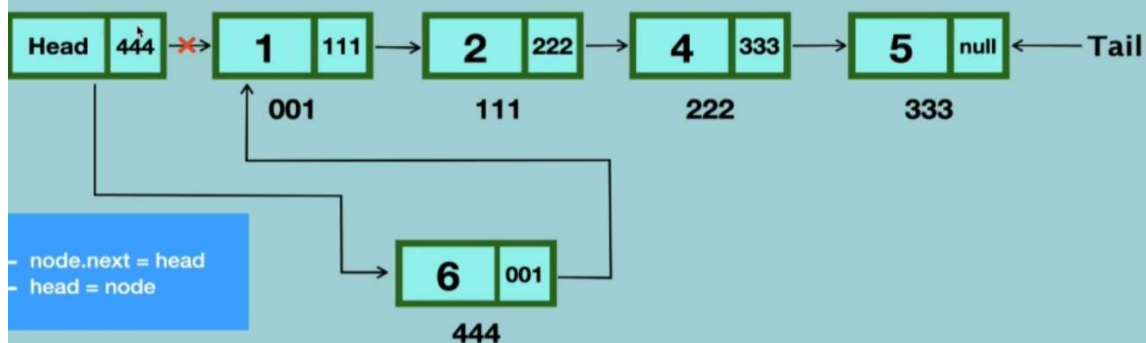
Insert a new node at the end of linked list
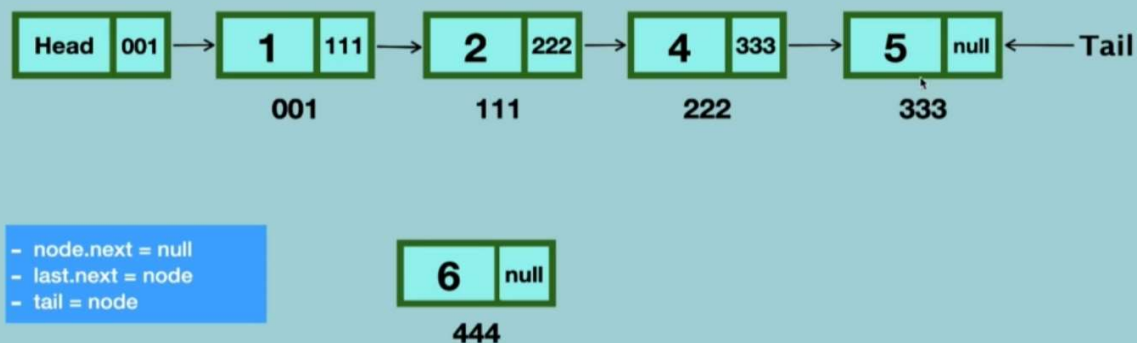

Insertion Algorithm

- Node value
- Location

→ create node
→ assign value

head=None?   No

Yes

- head = node
- tail = node

- node.next = head
- head = node   Yes   Location = first

No

Terminate

- node.next = null
- last.next = node
- tail = node

Yes

No

Location = last

No

- Find location (loop)
- current.next = node
- node.next = nextNode

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Singly Linked List Insertion at the beginning

Head 444 ✗→ 1 | 111 → 2 | 222 → 4 | 333 → 5 | null ← Tail

001   111   222   333

- node.next = head
- head = node

6 | 001

444

Singly Linked List Insertion at the end

Head 001 → 1 | 111 → 2 | 222 → 4 | 333 → 5 | null ← Tail

001   111   222   333

- node.next = null
- last.next = node
- tail = node

6 | null

444

Singly Linked List Insertion at the end

Head 001 → 1 | 111 → 2 | 222 → 4 | 333 → 5 | 444 ←✗ Tail

001   111   222   333

Singly Linked List Insertion at the end

- node.next = null
- last.next = node
- tail = node
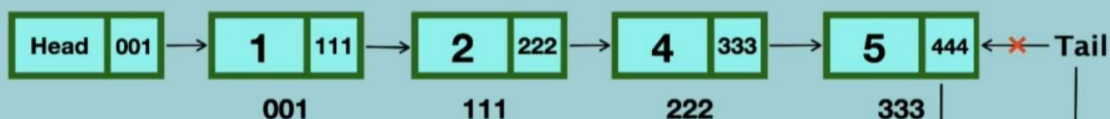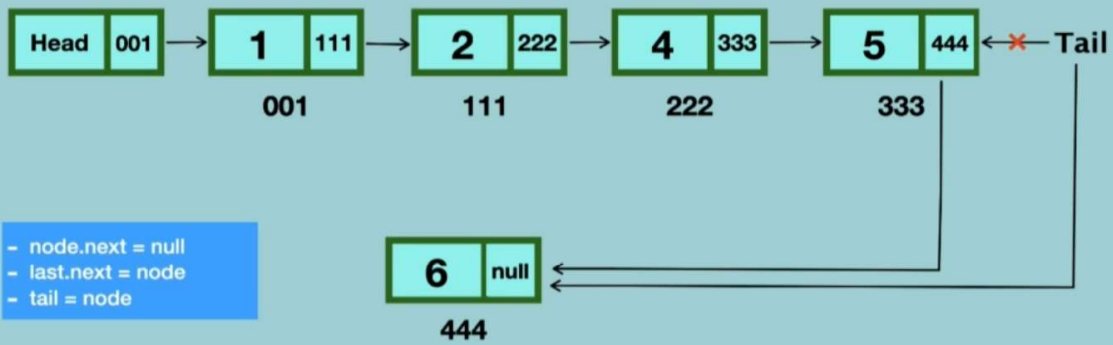
Singly Linked List Insertion in the middle

- find location (loop)
- current.next = node
- node.next =nextNode