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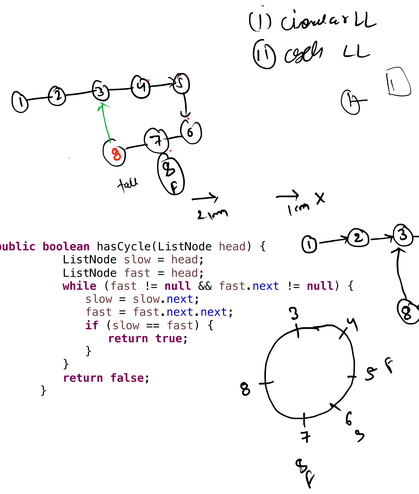
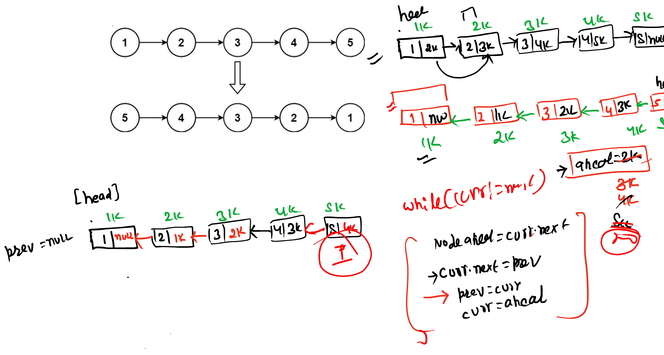
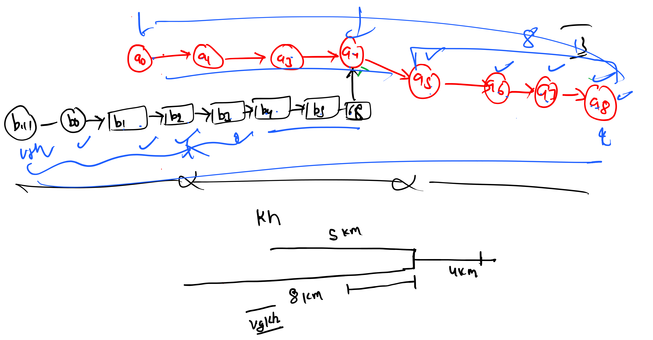


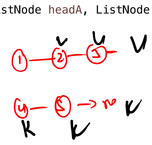

```
public boolean hasCycle(ListNode head) {
        ListNode slow = head;
        ListNode fast = head;
        while (fast != null && fast.next != null) {
            slow = slow.next;
            fast = fast.next.next;
            if (slow == fast) {
                return true;
            }
        }
        return false;
    }
```



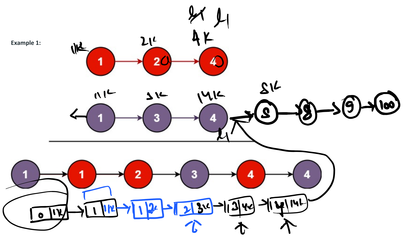



```
public ListNode getIntersectionNode(ListNode headA, ListNode headB) {
        ListNode kh =headA;
        ListNode vgkh=headB;
        while(kh!=vgkh) {
            if(kh==null) {
                kh=headB;
            }
            else {
                kh=kh.next;
            }
            if(vgkh==null) {
                vgkh=headA;
            }
            else {
                vgkh=vgkh.next;
            }

        }
        return vgkh;
    }
```



Example 1:



```
public ListNode mergeTwoLists(ListNode list1, ListNode list2) {
        ListNode Dummy = new ListNode();
        while(list1!=null && list2!=null) {
            if(list1.val<list2.val) {
                Dummy.next=list1;
                Dummy=Dummy.next;
                list1=list1.next;
            }
            else {
                Dummy.next=list2;
                Dummy=Dummy.next;
                list2=list2.next;
            }
        }
        if(list1==null) {
            Dummy.next=list2;
        }
        if(list2==null) {
            Dummy.next=list1;
        }

    }
```