Problem:

Merge Two Sorted Lists

Total Accepted: **96351** Total Submissions: **285064** Difficulty: **Easy**

> Merge two sorted linked lists and return it as a new list. The new list should be made by splicing together the nodes of the first two lists.

Algorithm:

create an auxilary node ‘head’ for help.
create a pointer pointing to the head node, as a new List

scan through the linkLists (from l1 and l2), compare each node, append the smaller one to the new list and, at the same time, delete it from its original list.

Keep doing this until either one of the two list is empty.

Finally append the remaining list of nodes to the new list.

Code:

```
def mergeTwoLists(self, l1, l2):
    head = ListNode(-1)     # a pseudo head node of the new list
    current = head          # create a pointer points to the head node

    while l1 and l2:
        if l1.val <= l2.val: # compare two head nodes of the lists
            current.next = l1 # append the smaller one to the head node
            l1 = l1.next      # delete the one that is just appended to the new list
            current = current.next # move the pointer to he next node of the new list
        else:
            current.next = l2
            l2 = l2.next
            current = current.next

    # append the remaining nodes to the new list
    if l1 is not None:
        current.next = l1
    else:
        current.next = l2

    head = head.next

    return head
```