

연결 리스트를  $O(n \log n)$ 에 정렬하라.

Input: head = [4,2,1,3]

Output: [1,2,3,4]

# Definition for singly-linked list.

# class ListNode:

# def \_\_init\_\_(self, val=0, next=None):

# self.val = val

# self.next = next

1.리스트로 변환

class Solution:

def sortList(self, head: ListNode) -> ListNode:

def toList(head):

result = []

while head:

result.append(head.val)

head = head.next

return result

def toNode(list):

result = temp = ListNode()

for l in list:

temp.next = ListNode(l)

temp = temp.next

return result.next

result = toList(head)

result.sort()

result = toNode(result)

return result

class Solution:

def sortList(self, head: ListNode) -> ListNode:

p = head

lst: List = []

while p:

lst.append(p.val)

p = p.next

lst.sort()

p = head

for i in range(len(lst)):

p.val = lst[i]

p = p.next

return head

2.merge sort

class Solution:

def sortList(self, head: ListNode) -> ListNode:

def mergeTwoLists(l1: ListNode, l2: ListNode) -> ListNode:

if l1 and l2:

if l1.val > l2.val:

l1, l2 = l2, l1

l1.next = mergeTwoLists(l1.next, l2)

return l1 or l2

if not (head and head.next):

return head

half, slow, fast = None, head, head

while fast and fast.next:

half, slow, fast = slow, slow.next, fast.next.next

half.next = None

l1 = self.sortList(head)

l2 = self.sortList(slow)

return mergeTwoLists(l1, l2)