148. Sort List

题目描述：https://leetcode.com/problems/sort-list/

> 把一个链表sort

解题思路：

利用mergetSort

代码：

```
/**
 * Definition for singly-linked list.
 * struct ListNode {
 *     int val;
 *     ListNode *next;
 *     ListNode(int x) : val(x), next(NULL) {}
 * };
 */
class Solution {
public:
    ListNode* merge(ListNode * head, ListNode* mid){
        ListNode *sorted = new ListNode(0);
        ListNode *shead = sorted;
        while(head || mid){
            if(head && (!mid || head->val <= mid->val)){
                sorted->next = head;
                sorted = sorted->next;
                head = head->next;
            }
            if(mid && (!head || mid->val <= head->val)){
                sorted->next = mid;
                sorted = sorted->next;
                mid = mid->next;
            }
        }
        sorted->next = NULL;
        return shead->next;
    }
    ListNode* sortList(ListNode* head) {
        if(!head||!head->next){
            return head;
        }
        ListNode * slow = head;
        ListNode * fast = head->next;
        while(fast && fast->next){
            slow = slow->next;
            fast = fast->next->next;
        }
        ListNode* half = slow -> next;
        slow->next = NULL;
        return merge(sortList(head), sortList(half));
    }
};
```