```java
/**
 * Definition for singly-linked list.
 * public class ListNode {
 *     int val;
 *     ListNode next;
 *     ListNode(int x) { val = x; }
 * }
 */
class Solution {
    public ListNode insertionSortList(ListNode head) {
        if (head == null || head.next == null)
            return head;

        ListNode dh = new ListNode(0);
        ListNode itr = dh;

        while (head != null) {
            ListNode nextHead = head.next;
            itr = dh;
            while (itr.next != null && itr.next.val < head.val) {
                itr = itr.next;
            }
            head.next = itr.next;
            itr.next = head;
            head = nextHead;
        }
        return dh.next;
    }
}
```