2. LEET CODE – MAXIMUN TWIN SUM OF THE LINKED LIST

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**
 * Definition for singly-linked list.
 * struct ListNode {
 *     int val;
 *     struct ListNode *next;
 * };
 */
 struct ListNode* reverse(struct ListNode* head)
{
      struct ListNode*p = NULL, *q = NULL, *r = head;

      while(r!= NULL){
         p = q;
         q = r;
         r = r->next;
         q->next = p;
      }
      head = q;
      return head;
}

int pairSum(struct ListNode* head) {
   if(head == NULL){
         return -1;
      }

      //if only 2 nodes
      if(head->next->next ==NULL){
         int sum = head->val + head->next->val;
         return sum;
      }

      struct ListNode *temp = head ,*s = head , *f = head->next;

      // find middle
      while(f!=NULL){
         f = f->next;
         if(f!=NULL){
            f = f->next;
            s = s->next;
         }
      }

      struct ListNode* second = reverse(s->next);
      s->next = second;
      struct  ListNode* first = head;

      int ans = INT_MIN;

      while(second != NULL){
         int data = first->val + second->val;
         ans = fmax(ans,data);
         first = first->next;
         second = second->next;
```

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        }

        return ans;
    }
```

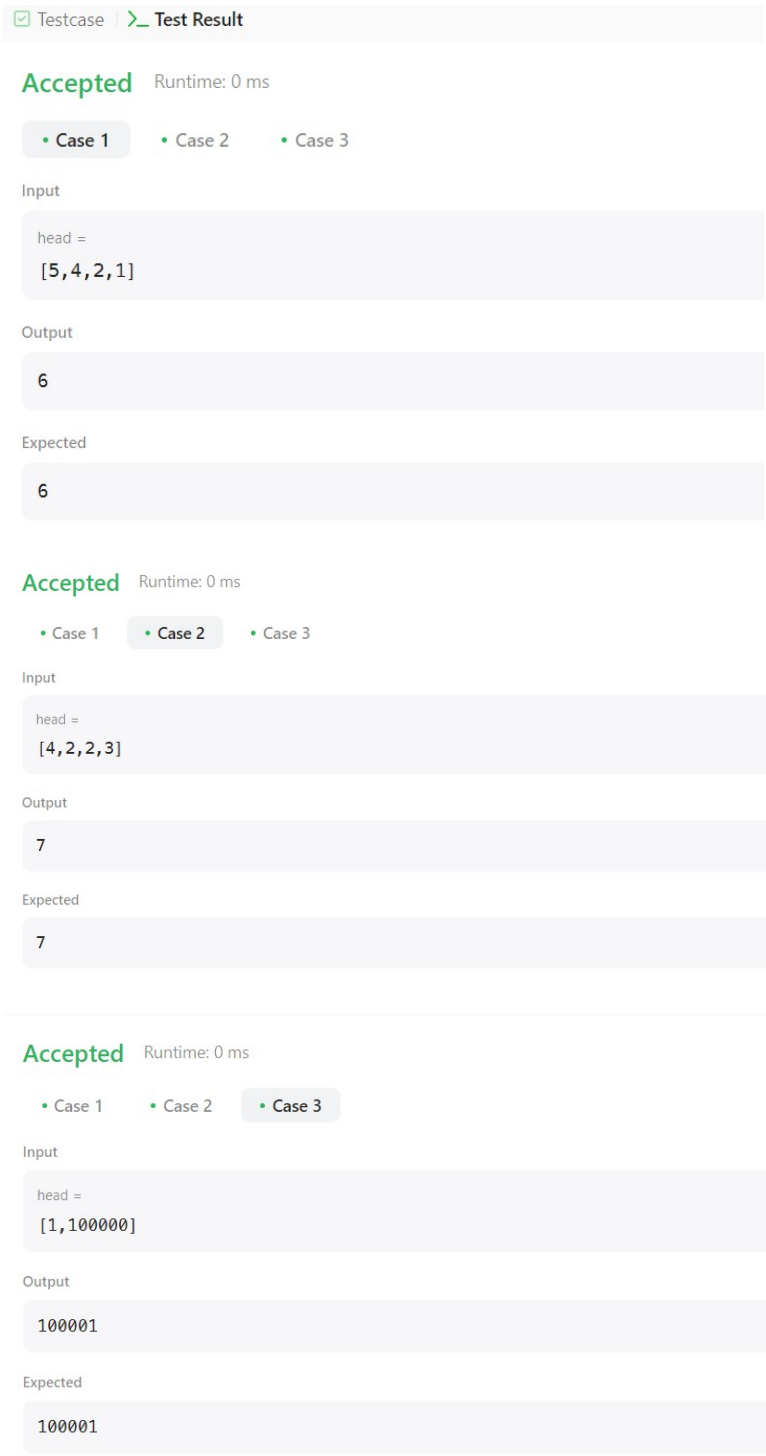
Testcase
Test Result
Accepted
Runtime: 0 ms
• Case 1
• Case 2
• Case 3
Input
head =
[5,4,2,1]
Output
6
Expected
6
Accepted
Runtime: 0 ms
• Case 1
• Case 2
• Case 3
Input
head =
[4,2,2,3]
Output
7
Expected
7
Accepted
Runtime: 0 ms
• Case 1
• Case 2
• Case 3
Input
head =
[1,100000]
Output
100001
Expected
100001