# 2130 Maximum Twin Sum of a Linked List

In a linked list of size n, where n is even, the ith node (0-indexed) of the linked list is known as the twin of the (n-1-i)th node, if 0 <= i <= (n / 2) - 1.

For example, if n = 4, then node 0 is the twin of node 3, and node 1 is the twin of node 2. These are the only nodes with twins for n = 4.

The twin sum is defined as the sum of a node and its twin.

Given the head of a linked list with even length, return the maximum twin sum of the linked list.

## SOLUTION IN C++

class Solution {

public:

int pairSum(ListNode\* head) {

int ans = 0;

ListNode\* slow = head;

ListNode\* fast = head;

// `slow` points to the start of the second half.

while (fast != nullptr && fast->next != nullptr) {

slow = slow->next;

fast = fast->next->next;

}

// `tail` points to the end of the reversed second half.

ListNode\* tail = reverseList(slow);

while (tail != nullptr) {

ans = max(ans, head->val + tail->val);

head = head->next;

tail = tail->next;

}

return ans;

}

private:

ListNode\* reverseList(ListNode\* head) {

ListNode\* prev = nullptr;

while (head) {

auto next = head->next;

head->next = prev;

prev = head;

head = next;

}

return prev;

}

};