

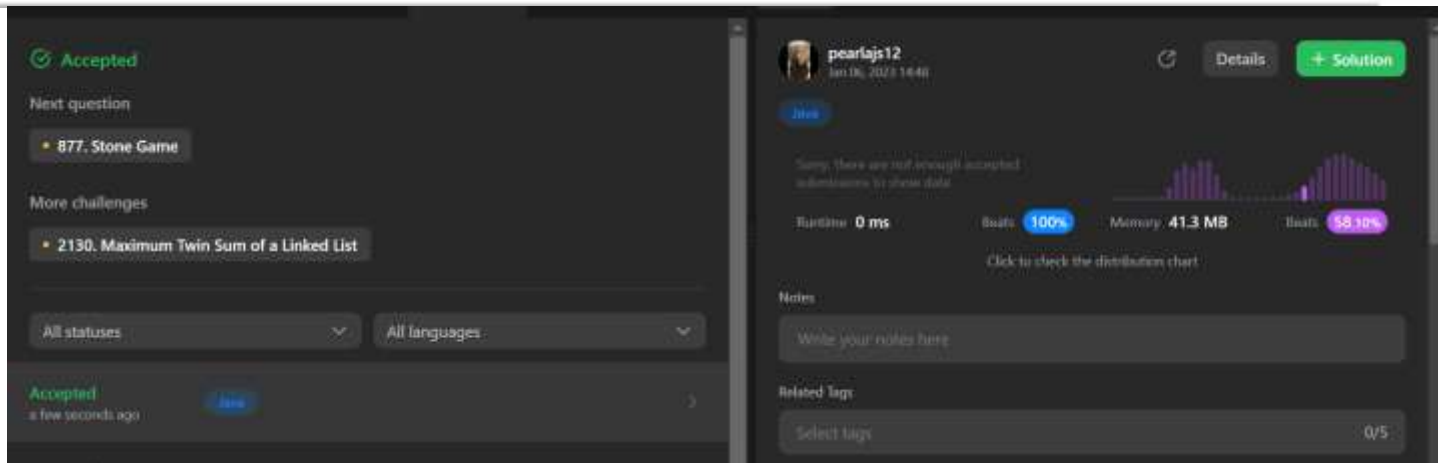
## WORKSHEET 4

**NAME- MANPREET KAUR****SEC-DWWC 43****UID:20BCS2212****Date- 06/01/2023****Q1) ADD TWO NUMBERS**<https://leetcode.com/problems/add-two-numbers/description/>

```
class Solution {
public ListNode addTwoNumbers(ListNode l1, ListNode l2) {
    ListNode l11=l1;
    ListNode l12=l2;
    ListNode dummy=new ListNode(0);
    ListNode d=new ListNode();
    d=dummy;

    int carry=0;
    while(l11!=null || l12!=null)
    {

        int x = (l11 != null) ? l11.val : 0;
        int y = (l12 != null) ? l12.val : 0;
        int sum = carry + x + y;
        d.next=new ListNode(sum%10);
        carry=sum/10;
        if(l11 != null)
            l11=l11.next;
        if(l12 != null)
            l12=l12.next;
        d=d.next;
    }
    if (carry > 0) {
        d.next = new ListNode(carry);
    }
    return dummy.next;
}
};
```



## Q2) Palindrome Linked List

class Solution

```
{
    ListNode getMid(ListNode head) {
        ListNode slow = head, fast = head;
        while (fast != null) {
            slow = slow.next;
            fast = fast.next == null ? null : fast.next.next;
        }
        return slow;
    }

    ListNode reverse(ListNode head) {
        ListNode prev = null, curr = head, next = head.next;
        while (curr != null) {
            curr.next = prev;
            prev = curr;
            curr = next;
            if (next != null)
                next = next.next;
        }
        return prev;
    }

    boolean isPalindrome(ListNode head) {
        if (head == null) return false;
        ListNode mid = getMid(head);
        if (mid != null) // this is to handle when there is only 1 element
            mid = reverse(mid);
        ListNode pointer_1 = head, pointer_2 = mid;
        while (pointer_1 != null && pointer_2 != null) {
            if (pointer_1.val != pointer_2.val)
                return false;
            pointer_1 = pointer_1.next;
            pointer_2 = pointer_2.next;
        }
    }
}
```

```
        return true;
    }
}
```

### Q3) TEMPLE LAND

Ans)

```
#include <bits/stdc++.h>
using namespace std;
```

```
int main() {
    // ASHISH RANA
    int t;
    cin>>t;
    while(t--){
        int n;
        cin>>n;
        vector<int>a(n);
        for(auto &i:a)cin>>i;

        if(n&1){
            bool flag=1;
            for(int i=0;i<=n/2;i++){
                if(i+1!=a[i])flag=0;
            }
            for(int i=n/2+1;i<n;i++){
                if(n-i!=a[i])
                    flag=0;
            }
            cout<<(flag?"yes":"no")<<"\n";
        }
        else cout<<"no\n";
    }
    return 0;
}
```

Status: ✓ Correct Answer

Submission ID: [84575349](#)

Time:  
0.00s

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#### Q4) MIDDLE OF LINKED LIST

```
class Solution {
    public ListNode middleNode(ListNode head) {
        ListNode slow = head, fast = head;
        while (fast != null && fast.next != null) {
            slow = slow.next;
            fast = fast.next.next;
        }
        return slow;
    }
}
```

✓ Accepted

Next question

• 877. Stone Game


More challenges

• 2130. Maximum Twin Sum of a Linked List

All statuses ▾ All languages ▾

Accepted  
a few seconds ago

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 **pearlaj12**  
Jan 16, 2023 14:40

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Sorry, there are not enough accepted submissions to show data.

Runtime: **0 ms**    Beats: **100%**    Memory: **41.3 MB**    Beats: **58.10%**

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Notes

Write your notes here

Related Tags

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Q5) <https://leetcode.com/problems/sort-list/>

#### SORT LIST

```
class Solution {
    public ListNode sortList(ListNode head) {
        if (head == null || head.next == null)
            return head;
        ListNode mid = getMid(head);
        ListNode left = sortList(head);
        ListNode right = sortList(mid);
        return merge(left, right);
    }

    ListNode merge(ListNode list1, ListNode list2) {
        if (list1 == null) {
            return list2;
        }
        if (list2 == null) {
            return list1;
        }
        ListNode head1=list1;
        ListNode head2=list2;

        ListNode dummy;
        ListNode head3;

        //choosing the head which is smaller :)
        if(head1.val<head2.val)
        {

            head3=dummy=new ListNode(head1.val);
            head1=head1.next;
        }
        else{
            head3=dummy=new ListNode(head2.val);
            head2=head2.next;
        }

        // Loop until any of the list becomes null
        while (head1 != null && head2 != null) {
            if (head1.val < head2.val) {
                head3.next = new ListNode(head1.val);
                head1 = head1.next;
            } else {
                head3.next = new ListNode(head2.val);
                head2 = head2.next;
            }
            head3=head3.next;
        }
    }
}
```

```
}

while(head1!=null)
{
    head3.next=new ListNode(head1.val);
    head1=head1.next;
    head3=head3.next;
}
while(head2!=null)
{
    head3.next=new ListNode(head2.val);
    head2=head2.next;
    head3=head3.next;
}

return dummy;
}
ListNode getMid(ListNode head) {
    ListNode midPrev = null;
    while (head != null && head.next != null) {
        midPrev = (midPrev == null) ? head : midPrev.next;
        head = head.next.next;
    }
    ListNode mid = midPrev.next;
    midPrev.next = null;
    return mid;
}
}
```

**Testcase**   **Result****Accepted**   Runtime: 0 ms• **Case 1**   • Case 2   • Case 3**Input**head =  
[4,2,1,3]**Output**