



## WORKSHEET 2

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Subject Name: AP LAB - II

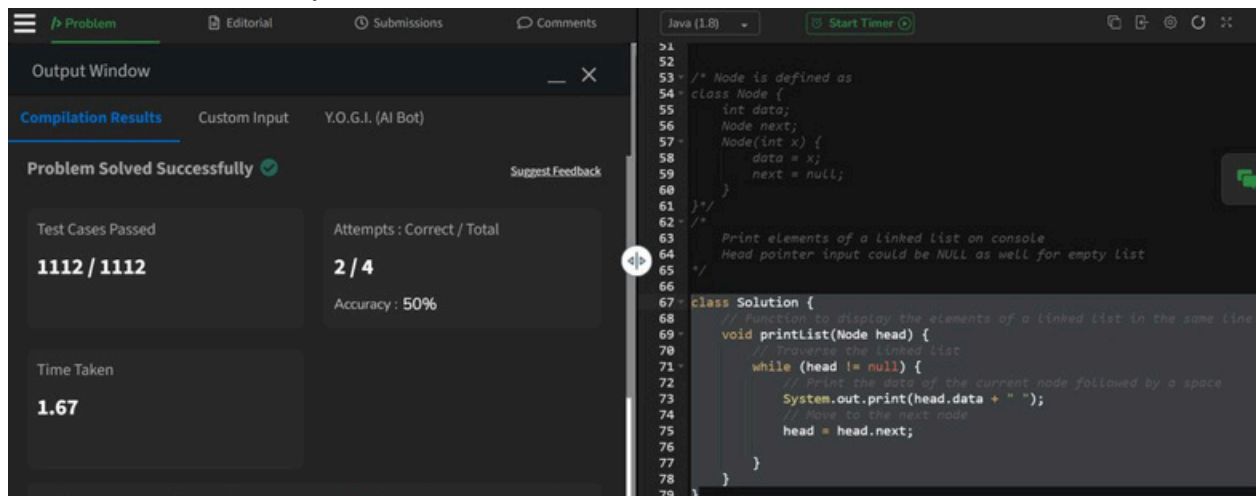
Subject Code: 22CSP-351

1. Aim: Given a linked list. Print all the elements of the linked list separated by space followed.

2. Source Code:

```
class Solution {  
  
    // Function to display the elements of a linked list in the same line  
    void printList(Node head) {  
        // Traverse the linked list  
        while (head != null) {  
            // Print the data of the current node followed by a space  
            System.out.print(head.data + " ");  
            // Move to the next node  
            head = head.next;  
        }  
    }  
}
```

3. Screenshots of outputs:



2.

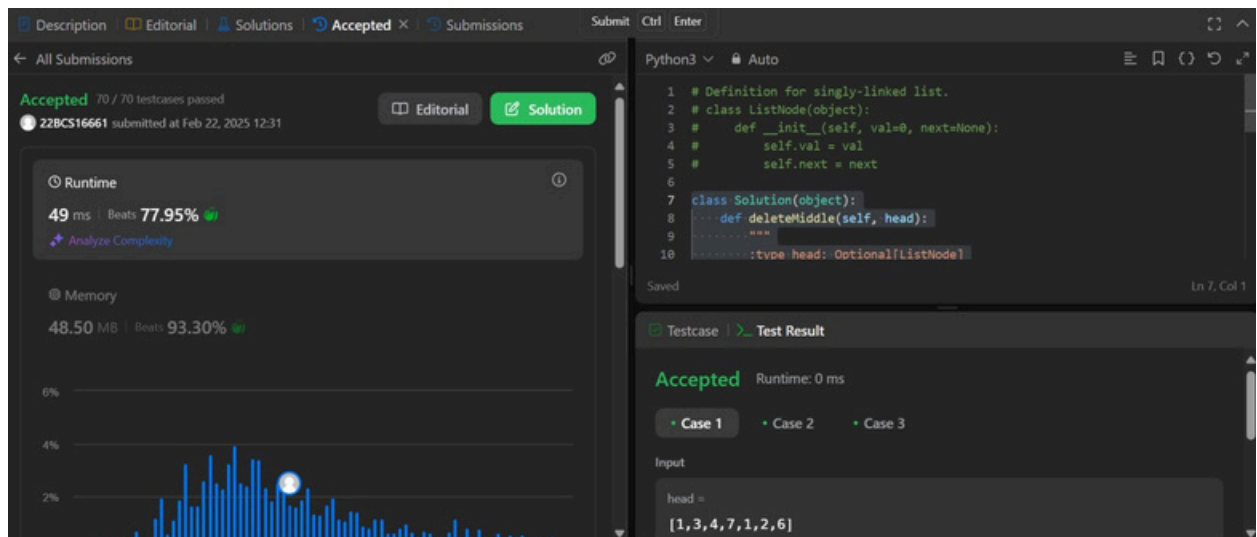
Aim: You are given the head of a linked list. Delete the middle node and return the head of the modified linked list.

Source Code:

```
class Solution(object):
    def deleteMiddle(self, head):
        """
        :type head: Optional[ListNode]
        :rtype: Optional[ListNode]
        """

        if not head or not head.next:
            return None
        slow = head
        fast = head
        prev = None
        while fast and fast.next:
            fast = fast.next.next
            prev = slow
            slow = slow.next
        prev.next = slow.next
        return head
```

Screenshots of outputs:



3.

Aim: Given head, the head of a linked list, determine if the linked list has a cycle in it.

There is a cycle in a linked list if there is some node in the list that can be reached again by continuously following the next pointer. Internally, pos is used to denote the index of the node that tail's next pointer is connected to. Note that pos is not passed as a parameter.

Return true *if there is a cycle in the linked list*. Otherwise, return false.

Source Code:

class Solution:

```
def hasCycle(self, head: Optional[ListNode]) -> bool:
```

```
    fast = head
    slow = head
    while fast and fast.next:
```

```
        fast = fast.next.next
        slow = slow.next
        if fast == slow:
```

```
            return True
```

```
    return False
```

4. Screenshots of outputs:

