WORKSHEET 2

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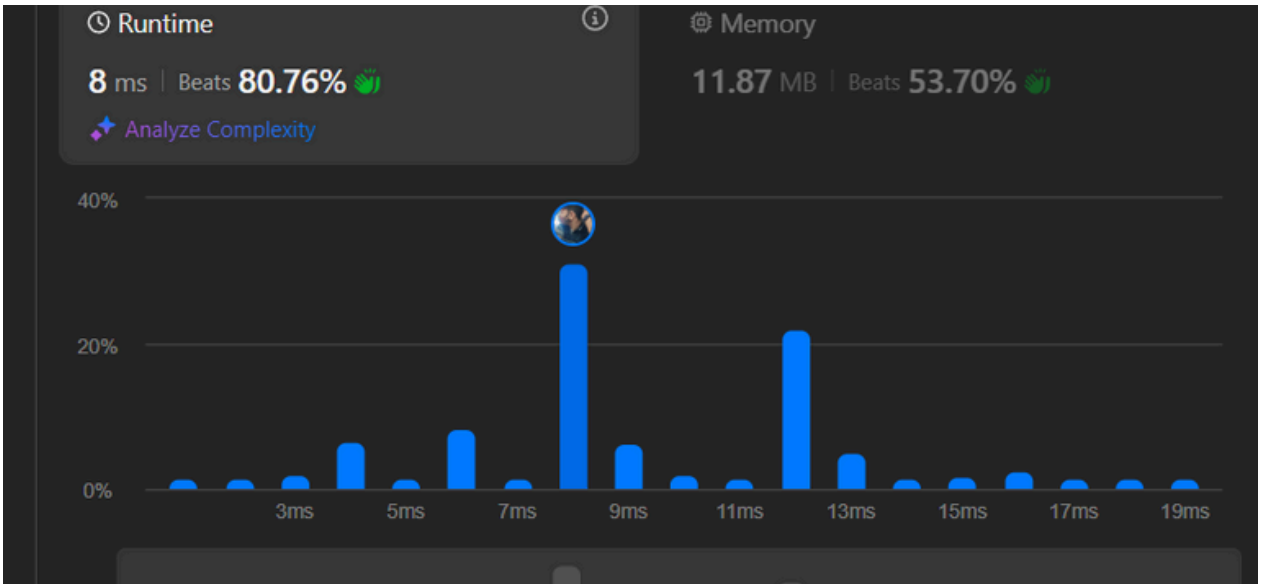
Subject Name: AP LAB - II
Subject Code: 22CSP-351

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:



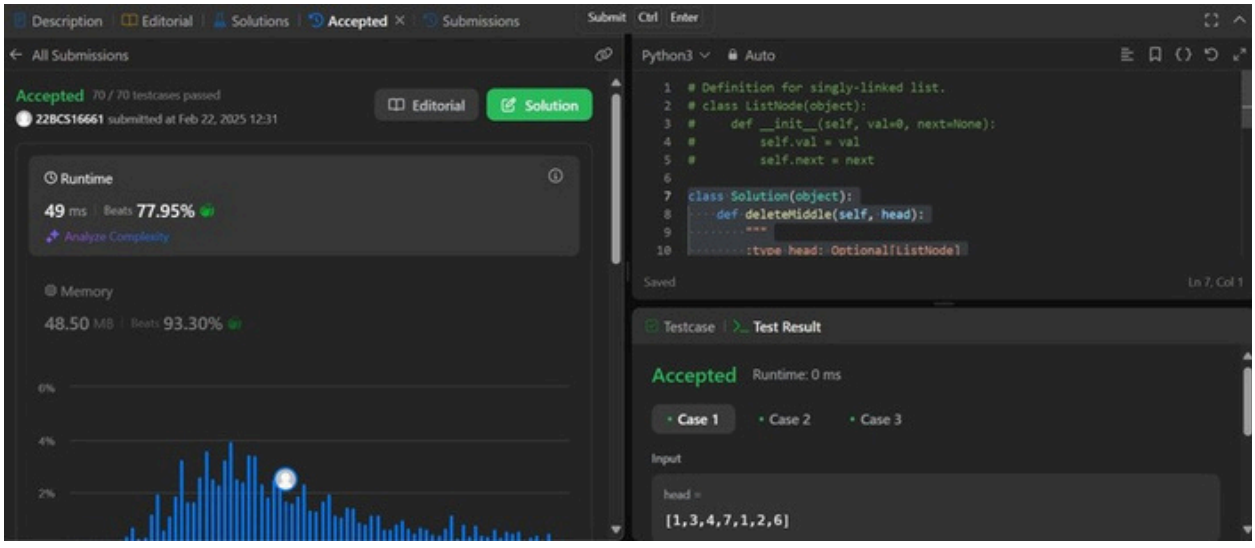
2.

Aim: You are given the head of a linked lisDt.e lete the middle node, and retu*rn 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: