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## **QUESTION NO 1:**

```
class Node:
    def __init__(self,data):
        self.data=data
        self.next=None
class S__List:
    def __init__(self):
        self.head=None
        self.ctr=0
    def Val_President(self,data):
        node=Node(data)
        if self.head==None:
            self.head=node
        else:
            node.next=self.head
            self.head=node
        self.ctr+=1
    def Val_member(self,pos,data):
```

```

if pos==0:
    self.Val_President(data)
elif pos==self.ctr+1:
    self.Val_secretary(data)
else:
    node=Node(data)
    temp=self.head
    i=0
    while(i<int(pos)-1):
        temp=temp.next
        i+=1
    node.next=temp.next
    temp.next=node
    self.ctr+=1

def Val_secretary(self,data):
    node=Node(data)
    if self.head==Node:
        self.head=node
    temp=self.head
    while(temp.next is not None):
        temp=temp.next
    temp.next=node
    self.ctr+=1

def Del_president(self):
    if self.head==None:
        print("Error empty list")
    elif self.ctr==1:
        self.head=None

```

```

        self.ctr-=1
    else:
        self.head=self.head.next
        self.ctr-=1
def Del_secretary(self):
    if self.ctr==0:
        print("ERROR EMPTY LIST")
    elif self.ctr==1:
        self.ctr=0
        self.head=None
    else:
        temp=self.head
        prev=self.head
        while(temp.next is not None):
            prev = temp
            temp=temp.next
        prev.data=None
        self.ctr-=1
def Del_Member(self,pos):
    if self.head==None:
        print("Error ")
    elif pos==0:
        self.Del_president()
    elif pos==self.ctr:
        self.Del_secretary()
    else:
        temp=self.head
        prev=temp
        i=0

```

```

while (i<pos):
    prev=temp
    temp=temp.next
    i+=1
prev.next=temp.next
temp.next=None
self.ctr-=1
def printe(self):
    temp=self.head
    lst=[]
    while temp!=None:
        lst.append(temp.data)
        temp=temp.next
    print(lst)

def Reversing_list(self):
    prev=None
    current=self.head
    while(current is not None):
        next=current.next
        current.next=prev
        prev=current
        current=next
    self.head=prev

def print_ctr(self):
    return self.ctr
def menu(self):
    print("1. Insert at beginning")

```

```
print("2. Insert at middle")
print("3. Insert at end")
print("4. Delete at beginning")
print("5. Delete at middle")
print("6. Delete at end")
print("7. Total members")
print("8. Count number of nodes")
print("9. Exit")
ch=eval(input("Enter choice:"))
return ch
```

```
l=S__List()
```

```
end=""
```

```
while end!='N':
```

```
    end=input("Do you want to end this crap?")
```

```
    #end=end.title()
```

```
    ch=l.menu()
```

```
    if ch==1:
```

```
        data=input("Enter data:")
```

```
        l.Val_President(data)
```

```
    elif ch==2:
```

```
        data=(input("Enter data:"))
```

```
        pos=(input("Enter the position:"))
```

```
        l.Val_member(pos,data)
```

```
    elif ch==3:
```

```
        data=(input("Enter data:"))
```

```
        l.Val_secretary(data)
```

```
elif ch==4:
    l.Del_president()
elif ch==5:
    pos=(input("Enter position:"))
    l.Del_Member(pos)
elif ch==6:
    l.Del_secretary()
elif ch==7:
    print(l.print_ctr())
elif ch==8:
    l.Reversing_list()
elif ch==9:
    l.printe()
```