

Write python program to implement Linked List using node with the following operations as menu driven program.

1. Insert node in beginning
2. Insert node in last
3. Insert node in middle
4. Delete node in beginning
5. Delete node in last
6. Delete node in middle.
7. Display

PROGRAM :

```
class Node:
    def __init__(self,data=None):
        self.data= data
        self.next=None

class List:
    def __init__(self, data=None):
        if data is not None:
            self.head = Node(data)
        else:
            self.head = None
        #print(self.head.data,'Hi')

    def insertFirst(self,data):
        node = Node(data)
        node.next = self.head
        self.head = node

    def insertEnd(self,data):
        node = Node(data)
        tmp = self.head
        while tmp.next is not None:
```

```
    tmp = tmp.next
tmp.next = node
```

```
def insertAfter(self,itemAfter,data):
```

```
    flag = False
    tmp = self.head
    while tmp is not None:
        if(tmp.data == itemAfter):
            tmp2 = tmp.next
            tmp.next = Node(data)
            tmp.next.next = tmp2
            flag = True
            break
        tmp = tmp.next
    if not flag:
        print('Unable to insert\nRemark: Item not found')
    else:
        print('Item inserted after ',itemAfter)
```

```
def show(self):
```

```
    print('[',end="")
    value= self.head
    #print(value.data,'Hello ')
    while value.next is not None:
        print(value.data,',',end="")
        value = value.next
    print(value.data,end="")
    print(''])
```

```
def deleteFirst(self,delData):
```

```
    flag = False
```

```

if self.head.data == delData:
    tmp2 = self.head
    self.head = self.head.next
    del tmp2
    flag = True
else:
    tmp = self.head
    while tmp is not None:
        if tmp.data == delData:
            tmp2.next = tmp.next
            flag = True
            break
        tmp2 = tmp
        tmp = tmp.next
    if not flag:
        print('Unable to delete Remark: Item not found')
    else:
        print('Item deleted')
def delete(self,delData):
    flag = False
    if self.head.data == delData:
        tmp2 = self.head
        self.head = self.head.next
        del tmp2
        flag = True
    else:
        tmp = self.head
        while tmp is not None:
            if tmp.data == delData:
                tmp2.next = tmp.next

```

```

        flag = True

        tmp2 = tmp

        tmp = tmp.next

    if not flag:

        print('Unable to delete Remark: Item not found')

    else:

        print('Item deleted')

def search(self,item):

    tmp = self.head

    flag = False

    while tmp is not None:

        if tmp.data == item:

            flag = True

            tmp = tmp.next

    return flag

if __name__ == "__main__":

    list = List(10)

    created = False

    menu = ""

```

_____Linked List_____

1. Create List
2. Insert at first position
3. Insert at end
4. Insert after element
5. Delete First Found
6. Delete all
7. Search
8. Display
9. Exit

Your Choice :

'''

```
for i in range(1,9,1):
```

```
    ch = int(input(menu))
```

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

```
        if not created:
```

```
            item = int(input('Enter item: '))
```

```
            list = List(item)
```

```
            print('List Created')
```

```
            created = True
```

```
        else:
```

```
            print('Already list is created')
```

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

```
        item = int(input('Enter item: '))
```

```
        list.insertFirst(item)
```

```
        print('Item inserted')
```

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

```
        item = int(input('Enter item: '))
```

```
        list.insertEnd(item)
```

```
        print('Item inserted')
```

```
    elif ch == 4:
```

```
        itemAfter = int(input('Enter item where after you want to insert: '))
```

```
        item = int(input('Enter item to insert: '))
```

```
        list.insertAfter(itemAfter,item)
```

```
        print('Item inserted')
```

```
    elif ch == 5:
```

```
        item = int(input('Enter item to delete: '))
```

```
        list.deleteFirst(item)
```

```
    elif ch == 6:
```

```
        item = int(input('Enter item to delete: '))
```

```
list.delete(item)
elif ch == 7:
    item = int(input('Enter item to search: '))
    print('Result : True- Found : False- Not found :',list.search(item))
elif ch == 8:
    list.show()
elif ch == 9:
    break
```