Q4. Repeatedly Delete N nodes after M nodes of a Linked list: Given a linked list and two integers M and N. Traverse the linked list such that you retain M nodes then delete next N nodes, continue the same until end of the linked list.

 Input:

 M = 2, N = 2 Linked List: 1->2->3->4->5->6->7->8

Output:

 Linked List: 1->2->5->6

The main part of the problem is to maintain proper links between nodes, make sure that all corner cases are handled.

Program:-

```
#include <stdio.h>

#include <stdlib.h>


// A Linked List Node
struct Node
{
        int data;
        struct Node* next;
};


// Helper function to create a new node with the given data and
// pushes it onto the list's front
void push(struct Node** head, int data)
{
        // create a new linked list node from the heap
        struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));

        newNode->data = data;
        newNode->next = *head;
```

```c
        *head = newNode;
}


// Helper function to print a given linked list
void printList(struct Node* head)
{
        struct Node* ptr = head;
        while (ptr)
        {
                printf("%d â€"> ", ptr->data);
                ptr = ptr->next;
        }

        printf("null");
}


// Recursive function to delete every `n` nodes in a linked list after
// skipping `m` nodes
void deleteNodes(struct Node *head, int m, int n)
{
        // base case
        if (head == NULL || head->next == NULL) {
                return;
        }

        struct Node *prev = NULL, *next = NULL;
        struct Node* curr = head;

        // skip `m` nodes
        for (int i = 1; curr && i <= m; i++)
        {
```

```c
            prev = curr;

            curr = curr->next;

        }


        // delete next `n` nodes

        for (int i = 1; curr && i <= n; i++)

        {

            next = curr->next;

            free(curr);

            curr = next;

        }


        // link remaining nodes with the last node

        prev->next = curr;


        // recur for remaining nodes

        deleteNodes(curr, m, n);

}


int main(void)

{

        // input keys

        int keys[] = {56,72,23,49,95,65,89 };

        int n = sizeof(keys) / sizeof(keys[0]);


        struct Node* head = NULL;

        for (int i = n - 1; i >= 0; i--) {

                push(&head, keys[i]);

        }


        deleteNodes(head, 1, 3);
```
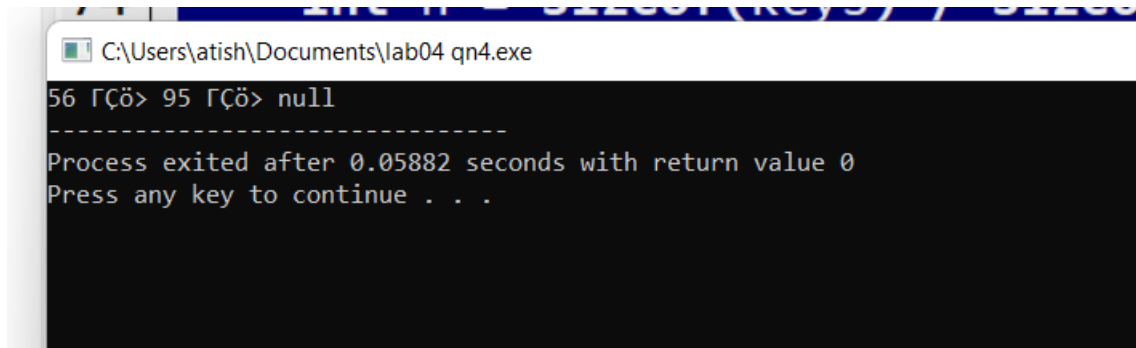
```
        printList(head);


        return 0;

}
```

Output:-

C:\Users\atish\Documents\lab04 qn4.exe

```
56 ΓÇö> 95 ΓÇö> null
-------------------------------
Process exited after 0.05882 seconds with return value 0
Press any key to continue . . .
```