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#include <stdio.h>
#include <stdlib.h>
#define MAXSIZE 100

typedef struct node {
    int data;
    struct Node* next;
}Node;

Node* create(int val)
{
    Node* n = (Node*)malloc(sizeof(Node));

    n->data = val;
    n->next = NULL;

    printf("\n\nFunction Create Head Node: %u Address of Head Node %d Data of Head Node, %u Next of Head Node", n, n->data, n->next);
    return n;
}

void PrintList(Head)
{
    int i=0;
    // If more nodes are added
    Node *temp1 = (Node*)malloc(sizeof(Node));
    if (Head==NULL)
        printf("\n\nLinked List is empty...");
    else
    {
        temp1=Head;
        printf("\n\nFunction PrintList:");

        while(temp1 != NULL)
        {
            printf("\nNode %d: %u Addr, %d Data, %u Next Addr", i++,temp1, temp1->data, temp1->next);
            temp1 = temp1->next;
        }
        free(temp1);
    }
}

Node *Insertatend(Node *Head, int val)
{
    //create a node
    Node *n = (Node*)malloc(sizeof(Node));
    n->data = val;
    n->next = NULL;

    // Only single node after head

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// head->next = n;
// printf("\n\n Function InsertAtEnd: %u Address of Head->next Node, %d Data of Head->next Node, %u Next of Head->next Node", n, n->data, n->next);

// If more nodes are added then require to reach the last node
if (Head!=NULL)
{
    Node *temp = (Node*)malloc(sizeof(Node));
    temp=Head;
    printf("\n\nFunction InsertAtEnd:Loop From Head till End:\n%u Address of Head Node, %d Data of Head Node, %u Next of Head Node", temp, temp->data, temp->next);

    while(temp->next != NULL)
    {
        printf("\nLOOP: %u Address of Node, %d Data of Node, %u Next of Node", temp, temp->data, temp->next);
        temp = temp->next;
    }

    temp->next = n;
}
else
    Head=n;
printf("\n\nInserted Node with %d data and its next %u", n->data, n->next);
// free(n);
return Head;
}

Node *InsertAtFront(Node *Head, int val)
{
    //create a new node n
    Node *n = (Node*)malloc(sizeof(Node));
    n->data = val;
    n->next=Head;
    printf("\n\nInsertAtFront: Inserted node as Head Node WITH %u new address, %u data, %u next of Head Node", n, n->data, n->next);

    Head=n;
// free(n);
return Head;
}

Node *DeleteFromFront(Node *Head)
{
    //create a new node n
    Node *n = (Node*)malloc(sizeof(Node));
    printf("\n\nFunction DeleteFromFront: Delete Head Node: %u Address, %d Data, %u Next", Head, Head->data, Head->next);
    n=Head;
    if(n!=NULL)
    {
        if (n->next !=NULL)
        {
            n=n->next;
        }
    }
}

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        else
            n=NULL;

    }
    Head=n;
    free(n);
    return Head;
}

Node *DeleteFromEnd(Node *Head)
{
    printf("\n\nFunction DeleteFromEnd:");
    Node *temp = (Node*)malloc(sizeof(Node));
    temp=Head;

    Node *prev = (Node*)malloc(sizeof(Node));
    if (temp->next==NULL)
    {
        temp=NULL;
        Head=temp;
    }
    else
    {
        while((temp->next) != NULL)
        {
            prev=temp;
            temp = temp->next;
        }
        temp=prev;
        temp->next=NULL;
    }

    // free(temp);
    return Head;
}

void main()
{
    Node* Head = create(10);
    printf("\n\tsize of Head node: %d Data and %d next = %d",sizeof(Head->data),
    sizeof(Head->next),sizeof(Node));

    Head=DeleteFromFront(Head);
    PrintList(Head);

    Head=Insertatend (Head, 20);
    PrintList(Head);

    Head=DeleteFromEnd(Head);
    PrintList(Head);

    Head=Insertatend (Head, 25);

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PrintList(Head);

Head=InsertAtFront(Head,15);
PrintList(Head);

Head=DeleteFromEnd(Head);
PrintList(Head);

Head=InsertAtFront(Head,5);
PrintList(Head);

Head=DeleteFromEnd(Head);
PrintList(Head);

}
```