LAB 7, 3/02/24

```
#include <stdio.h>
#include <ctype.h>

struct node
{
    int val;
    struct node * prev;
    struct node * next;
};
struct node *head = NULL;
void insert_left()
{
    int pos;
    struct node * ptr1 = head;
    printf ("Enter the position\n");
    scanf ("%d", &pos);
    struct node * new_node = (struct node *) mall
        (sizeof (struct node));
    printf ("Enter the value to be inserted
    scanf ("%d", &new_node -> val);
    if (head == NULL)
    {
        new -> prev = NULL;
        new -> next = NULL;
        head = new;
        printf ("Node inserted\n");
    }
    else
    {
        for (i = 0; i < pos - 1; i++)
        {
            ptr = ptr -> next;
            new -> prev = ptr -> prev;
```

```
ptr -> prev -> next = new;
ptr -> prev = new;
printf(" Node inserted \n");
}
}

void delete()
{
    int val;
    printf(" Enter the value : ");
    scanf("%d", &val);
    struct node * ptr = head;
    if(head -> data == val)
    {
        head = ptr -> next;
        free(ptr);
        printf(" Node deleted \n");
        return;
    }
    while(ptr -> data != val)
    {
        ptr = ptr -> next;
        if(ptr -> next == NULL)
        {
            ptr -> prev -> next = NULL;
            free(ptr);
            printf(" Node deleted \n");
            return;
        }
    }
}
```

```
    ptr -> prev -> next = ptr -> next
    ptr -> next -> prev = ptr -> prev;
    free (ptr);
    printf ("Node deleted \n");
}

void display()
{
    struct node * p = head;
    while (p != NULL)
    {
        printf ("%d -> ", p -> data);
        p = p -> next;
    }
    printf ("NULL\n");
}

void main()
{
    int ch;
    printf (" Enter 1. Insert \n 2. Delete \n 3. Display
            4: Exit \n");

    while (ch != 4)
    {
        printf ("Enter choice :");
        scanf ("%d", &ch);
        switch (ch)
        {
            case 1 : insert_left();
                     break;
```

```
        case 2 : delete() ;
                 break;

        case 3 : display();
                 break;
    }
}
```

output :

```
Enter:
1 : insert
2 : delete
3 : display
4 : exit
Enter your choice
1
Enter the pos
1
Enter the val
1
```

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Enter your choice
1
Enter the pos
1
Enter the data val.
2
Enter your choice
1
Ent the pos
1
Enter the val
3
Enter your choice.
1
Enter the pos.
2
Enter the val
4
Enter the data to delete.
Ent. deleted