LAB - 4

=) Insertion in a Linked List.

```
#include <stdio.h>
#include <stdlib.h>
void push();
void append();
void display();
void insert_at_pos();
struct node
{
        int data;
        struct node *next;
};
struct node *head = NULL;

void main()
{
        int ch;
        while(ch!=6)
        {   printf("1. Insert at begin 2. Insert at end 3. Insert in
                                              middle and 4.Exit \n");
            printf("Enter your choice :");
            scanf("%d", &ch);
            switch (ch)
            {
                case 1 :
                        push();
                        break;
                case 2:
                        append();
                        break;
                case 3:
                        insert_at_pos();
                        break;
                case 4:
                        display();
                        break;
            }
        }  ~~printf~~
        printf(" Exited");
}

void push()
{
        int data;
        struct node *new_node = (struct node *)
                        malloc(sizeof(struct node));
        printf("Enter data: ");
        scanf("%d", &new_node -> data);
        new_node -> next = head;
        head = new_node;
}

void append()
{
        int data;
        struct node *last = head;
        struct node * new_node = (struct node*)
                    malloc(sizeof(struct node));
        printf("Enter data: ");
        scanf("%d", &new_node -> data);
        new_node -> next = NULL;
        if(head == NULL)
            new_node = head;
        else
        {  while (last ->next != NULL)
                last = last -> next;
           last = new_node;
        }
}

void insert_at_pos( )
{
    int data;
    int pos;
    struct node *temp = head;
    struct node* ptr = (struct node *) malloc
                       (sizeof(struct node));
    printf("Enter data:");
    scanf("%d", & ptr -> data);
    printf(" Enter the position:");
    scanf("%d", &pos);
    if(pos==1)
    {
        ptr -> next = temp;
        ptr = head;
    }
    else
    {
        for (int i=2; i<pos-1 ; i++)
        {
            temp = temp -> next;
            ~~new~~ ptr -> next = temp -> next;
            temp->next = ptr;
            ptr -> next = NULL;
        }
    }
}

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

N.P
18/1/24

OUTPUT:

```
1. Insert from beginning 2. Insert at end
3. Insert at particular position 4. Display 5. Exit
Enter choice : 1
Enter the data to be inserted : 5
Enter choice : 2
Enter the data to be inserted : 4
Enter choice : 2
Enter data : 6
Enter choice : 3
Enter data : 7
Enter position : 2
List :
5 -> 7 -> 4 -> 6 -> NULL
Enter choice : 5
Exited
```