

Alfred Jophy

CS27

1.

Linked List

Source Code

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

struct NODE{

    int data;
    struct NODE* next;
};
typedef struct NODE NODE;

NODE* start=NULL;

void append_LIST(int data){
    int pos=0;

    NODE* ptr = malloc(sizeof(NODE));
    ptr->data=data;
    ptr->next=NULL;

    if(start==NULL){
        start=ptr;
    }
    else{
        pos=1;
        NODE* temp=start;
        while(temp->next){
            pos++;
            temp=temp->next;
        }
        temp->next=ptr;
    }

    printf("Node Inserted at %dth position\n",pos);
}

void display_LIST(){

    printf("START ->");
    for(NODE* i=start;i;i=i->next)
        printf("{ %d } -> ",i->data);
}
```

```

        printf("\b\n");
    }

    void free_LIST(){
        NODE* temp=NULL;
        for(NODE* i=start;i;i=i->next){
            free(temp);
            temp=i;
        }
        free(temp);
    }

    int main(){

        int num;
        int c;

        while(1){
            printf("\n1. Append to list \n2. Display list\n3. Exit\n");
            printf("Choice : ");
            scanf("%d",&c);


            switch(c){
                case 1: printf("Enter number : ");
                        scanf("%d",&num);
                        append_LIST(num);
                        break;

                case 2: display_LIST();
                        break;

                case 3: free_LIST();
                        return 0;
                        break;
                default: printf("Invalid Choice\n");
            }
        }
        free_LIST();
        return 0;
    }

```

Output

```
Sem_3/Data_Structures/7 on  master [?]  
> ./list.o 16:50:31  
  
1. Append to list  
2. Display list  
3. Exit  
Choice : 1  
Enter number : 6  
Node Inserted at 0th position  
  
1. Append to list  
2. Display list  
3. Exit  
Choice : 1  
Enter number : 8  
Node Inserted at 1th position  
  
1. Append to list  
2. Display list  
3. Exit  
Choice : 1  
Enter number : 4  
Node Inserted at 2th position  
  
1. Append to list  
2. Display list  
3. Exit  
Choice : 1  
Enter number : 0  
Node Inserted at 3th position  
  
1. Append to list  
2. Display list  
3. Exit  
Choice : 2  
START ->{ 6 } -> { 8 } -> { 4 } -> { 0 } ->|  
  
1. Append to list  
2. Display list  
3. Exit  
Choice : 3
```