

C project.c C cproject.c C exp10dynamic.c

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 struct Node {
5     int data;
6     struct Node* next;
7 };
8
9
10 void insert(struct Node** head, int value) {
11     struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
12     newNode->data = value;
13     newNode->next = NULL;
14
15     if (*head == NULL) {
16         *head = newNode;
17     } else {
18         struct Node* temp = *head;
19         while (temp->next != NULL)
20             temp = temp->next;
21         temp->next = newNode;
22     }
23 }
24
25
26 void display(struct Node* head) {
27     if (head == NULL) {
28         printf("List is empty.\n");
29         return;
30     }
31     printf("Linked List: ");
32     while (head != NULL) {
33         printf("%d -> ", head->data);
34         head = head->next;
35     }
36     printf("NULL\n");
37 }
38
39 int main() {
40     struct Node* head = NULL;
41     int choice, value;
42
43     while (1) {
44         printf("\nMenu:\n");
45         printf("1. Insert\n");
46         printf("2. Display\n");
47         printf("3. Exit\n");
48         printf("Enter your choice: ");
49         scanf("%d", &choice);
50
51         switch (choice) {
52             case 1:
53                 printf("Enter value to insert: ");
54                 scanf("%d", &value);
55                 insert(&head, value);
56                 break;
57             case 2:
58                 display(head);
59                 break;
60             case 3:
61                 printf("Exiting...\n");
62                 exit(0);
63             default:
64                 printf("Invalid choice. Try again.\n");
65         }
66     }
67
68     return 0;
69 }
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE PORTS

```
PS C:\Users\abiga\OneDrive\Desktop\Absproj> cd "c:\Users\abiga\OneDrive\Desktop\Absproj\" ; if ($?) { gcc exp10dynamic.c -o exp10dynamic } ; if ($?) { .\exp10dynamic }
```

Menu:

- 1. Insert
- 2. Display
- 3. Exit

Enter your choice: 2

List is empty.

Menu:

- 1. Insert
- 2. Display
- 3. Exit

Enter your choice: 1

Enter value to insert: 25

Menu:

- 1. Insert
- 2. Display
- 3. Exit

Enter your choice: 2

Linked List: 25 -> NULL

Menu:

- 1. Insert
- 2. Display
- 3. Exit

Enter your choice: 3

Exiting...

```
PS C:\Users\abiga\OneDrive\Desktop\Absproj> █
```

## Experiment - 10.

### Dynamic Memory Allocation

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

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

void insert (struct Node** head, int value) {
    struct Node* newNode = (struct Node*) malloc (sizeof (struct Node));
    newNode → data = value;
    newNode → next = NULL;
    if (*head == NULL) {
        *head = newNode;
    } else {
        struct Node* temp = *head;
        while (temp → next != NULL)
            temp = temp → next;
        temp → next = newNode;
    }
}
```

```
void display (struct Node* head) {
    if (head == NULL) {
        printf ("List is empty.\n");
        return;
    }
    printf ("Linked list: ");
    while (head != NULL) {
        printf ("%d → ", head->data);
        head = head->next;
    }
    printf ("NULL\n");
}

int main () {
    struct Node* head = NULL;
    int choice, value;
    while (1) {
        printf ("\n Menu:\n");
        printf ("1. Insert\n");
        printf ("2. Display\n");
        printf ("3. Exit\n");
        printf ("Enter your choice: ");
        scanf ("%d", &choice);
        switch (choice) {
            case 1:
                printf ("Enter value to insert: ");
                scanf ("%d", &value);
                insert (&head, value);
                break;
            case 2:
                display (head);
                break;
        }
    }
}
```

case 3 :

```
printf ("Exiting ... \n");
```

```
exit (0);
```

default :

```
printf ("Invalid choice. Try again. \n");
```

```
}
```

```
{
```

```
return 0;
```

```
}
```