Experiment 13: Stack using Linked List

CODE:

```c
#include <stdio.h>

#include <stdlib.h>

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

struct Node* top = NULL;

void push() {
    int value;
    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
    if(!newNode) {
        printf("Stack Overflow\n");
        return;
    }
    printf("Enter value to push: ");
    scanf("%d", &value);
    newNode->data = value;
    newNode->next = top;
    top = newNode;
    printf("Value pushed successfully\n");
}
```

```c
void pop() {
    if(top == NULL) {
        printf("Stack Underflow\n");
        return;
    }
    struct Node* temp = top;
    printf("Popped element: %d\n", top->data);
    top = top->next;
    free(temp);
}

void display() {
    struct Node* temp = top;
    if(temp == NULL) {
        printf("Stack is empty\n");
        return;
    }
    printf("Stack elements:\n");
    while(temp != NULL) {
        printf("%d\n", temp->data);
        temp = temp->next;
    }
}

int main() {
    int choice;
    while(1) {
        printf("\n--- Stack Menu ---\n");
        printf("1. Push\n2. Pop\n3. Display\n4. Exit\n");
        printf("Enter your choice: ");
```

```c
        scanf("%d", &choice);

        switch(choice) {

            case 1: push(); break;

            case 2: pop(); break;

            case 3: display(); break;

            case 4: exit(0);

            default: printf("Invalid choice\n");

        }

    }

}
```

OUTPUT:

```
--- Stack Menu ---
1. Push
2. Pop
3. Display
4. Exit
Enter your choice: 1
Enter value to push: 50
Value pushed successfully

--- Stack Menu ---
1. Push
2. Pop
3. Display
4. Exit
Enter your choice: 3
Stack elements:
50

--- Stack Menu ---
1. Push
2. Pop
3. Display
4. Exit
Enter your choice: 2
Popped element: 50

--- Stack Menu ---
1. Push
2. Pop
3. Display
4. Exit
Enter your choice: 4
```