

Aim:

Write a C program to reverse the links (not just displaying) of a linked list.

Note: Add node at the beginning.

Source Code:

reverseLinkedList.c

```
#include <stdio.h>
#include <stdlib.h>
struct Node {
    int data;
    struct Node* next;
};
static void reverse(struct Node** head_ref) {
    struct Node* prev = NULL;
    struct Node* current = *head_ref;
    struct Node* next = NULL;
    while (current != NULL) {
        // Store next
        next = current->next;
        // Reverse current node's pointer
        current->next = prev;
        // Move pointers one position ahead.
        prev = current;
        current = next;
    }
    *head_ref = prev;
}
/*Function to push a node */
void push(struct Node** head_ref, int new_data) {
    struct Node* new_node = (struct Node*) malloc(sizeof(struct Node));
    new_node->data = new_data;
    new_node->next = (*head_ref);
    (*head_ref) = new_node;
}
/*Function to print linked list */
void printList(struct Node* head) {
    struct Node* temp = head;
    while (temp != NULL) {
        printf("%d", temp->data);
        if (temp->next != NULL) {
            printf("->");
        }
        temp = temp->next;
    }
}
/* Driver program to test above function*/
int main(){
    /*Start with the empty list */
    struct Node* head = NULL;
    int i, count = 0, num = 0;
    printf("How many numbers you want to enter:");
```

```

scanf(" %d", &count);
for (i = 0; i < count; i++) {
    printf("Enter number %d:", i+1);
    scanf(" %d", &num);
    push(&head, num);
}
printf("Given linked list:");
printList(head);
reverse(&head);
printf("\nReversed linked list:");
printList(head);
}

```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
How many numbers you want to enter: 4
Enter number 1: 6
Enter number 2: 1
Enter number 3: 8
Enter number 4: 5
Given linked list:5->8->1->6
Reversed linked list:6->1->8->5

Test Case - 2
User Output
How many numbers you want to enter: 2
Enter number 1: 5
Enter number 2: 9
Given linked list:9->5
Reversed linked list:5->9