S.No: 22	Exp. Name: ***Reversing the links of a linked list***	Date:2023-06-18

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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)
        {
         next = current->next;
          current->next = prev;
          prev = current;
           current = next;
        }
         *head_ref = prev;
}

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;
}

void printList(struct Node* head)
{
    struct Node* temp = head;
     while (temp != NULL)
      {
          printf("%d", temp->data);
           if ( temp -> next != NULL)
            {
                printf("->");
            }
             temp = temp->next;
      }
}
```

```
int main()
{
    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

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