

Aim:

Write a C program to reverse elements of a single linked list.

Source Code:reverseElements.c

```
#include<stdio.h>
#include<stdlib.h>
struct node
{
    int data;
    struct node *next;
};
struct node *head=NULL;
struct node create();
void insert(struct node *);
void traverse();
int main()
{
    create();
    traverse();
    printf("Press 1 to reverse the order of singly linked list\n");
    reverse();
    traverse();
}
struct node create()
{
    int n,i;
    printf("Enter the total number of nodes: ");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        struct node *newnode=(struct node *)malloc(sizeof(struct node));
        printf("Enter the data of node %d: ",i);
        scanf("%d",&newnode->data);
        insert(newnode);
    }
}
void insert (struct node *newnode)
{
    newnode->next=NULL;
    if(head==NULL)
        head=newnode;
    else
    {
        struct node *temp=head;
        while(temp->next!=NULL)
            temp=temp->next;
        temp->next=newnode;
    }
}
void traverse()
```

```

{
    struct node *temp=head;
    if(head==NULL)
        printf("List is empty\n");
    else
    {
        printf("Data in the list\n");
        while(temp!=NULL)
        {
            printf("Data = %d\n",temp->data);
            temp=temp->next;
        }
    }
}
void reverse()
{
    struct node *prev,*cur;
    if(head!=NULL)
    {
        prev=head;
        head=head->next;
        cur=head;
        prev->next=NULL;
    }
    //cur->next=prev;
    while(head!=NULL)
    {
        head=head->next;
        cur->next=prev;
        prev=cur;
        cur=head;
    }
    head=prev;
}

```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Enter the total number of nodes: 5
Enter the data of node 1: 26
Enter the data of node 2: 394
Enter the data of node 3: 145
Enter the data of node 4: 624
Enter the data of node 5: 731
Data in the list 1
Data = 26 1
Data = 394 1
Data = 145 1
Data = 624 1
Data = 731 1
Press 1 to reverse the order of singly linked list 1
Data in the list
Data = 731

Data = 624
Data = 145
Data = 394
Data = 26

Test Case - 2
User Output
Enter the total number of nodes: 8
Enter the data of node 1: 21
Enter the data of node 2: 94
Enter the data of node 3: 214
Enter the data of node 4: 24
Enter the data of node 5: 45
Enter the data of node 6: 694
Enter the data of node 7: 321
Enter the data of node 8: 356
Data in the list 1
Data = 21 1
Data = 94 1
Data = 214 1
Data = 24 1
Data = 45 1
Data = 694 1
Data = 321 1
Data = 356 1
Press 1 to reverse the order of singly linked list 1
Data in the list
Data = 356
Data = 321
Data = 694
Data = 45
Data = 24
Data = 214
Data = 94
Data = 21