

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 info;
    struct node*next;
};
struct node*start=NULL;
struct node*new_node();
void create();
void display();
void reverse();
int main()
{
    int choice;
    create();
    display();
    printf("Press 1 to reverse the order of singly linked list\n");
    scanf("%d",&choice);
    reverse();
}
struct node*new_node()
{
    struct node*temp;
    temp=(struct node*)malloc(sizeof(struct node));
    temp->next=NULL;
    return temp;
}
void create()
{
    struct node *temp,*ptr;
    int i,n;
    printf("Enter the total number of nodes: ");
    scanf("%d",&n);
    for(i=1;i<n+1;i++)
    {
        temp=new_node();
        printf("Enter the data of node %d: ",i);
        scanf("%d",&temp->info);
        if(start==NULL)
        {
            start=temp;
        }
        else
        {
            ptr=start;
            while(ptr->next!=NULL)
```

```

        {
            ptr=ptr->next;
        }
        ptr->next=temp;
    }
}
void display()
{
    struct node *ptr;
    ptr=start;
    printf("Data in the list\n");
    while(ptr!=NULL)
    {
        printf("Data = %d\n",ptr->info);
        ptr=ptr->next;
    }
}
void reverse()
{
    struct node*current,*next,*prev,*ptr;
    current=NULL;
    next=NULL;
    prev=NULL;
    current =start;
    while(current!=NULL)
    {
        next=current->next;
        current->next=prev;
        prev=current;
        current=next;
    }
    start=prev;
    ptr=start;
    printf("Data in the list\n");
    while(ptr!=NULL)
    {
        printf("Data = %d\n",ptr->info);
        ptr=ptr->next;
    }
}

```

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