S.No: 15	Exp. Name: ***Write the code to reverse elements of a single linked list***	Date:2023-06-15

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;
void create();
void display();
void reverse();

int main()
{
   struct node *temp;
   int x;
   create();
   display();
   printf("Press 1 to reverse the order of singly linked list\n");
   scanf("%d",&x);
   if(x==1)
   {
      reverse();
      display();
 }
   else
   {
      exit(0);
 }
}
struct node *newnode(int i)
{
   struct node *temp;
   temp=(struct node *)malloc(sizeof(struct node));
   if(temp==NULL)
   {
      printf("\n Node is not created ");
 }
   return temp;
}
void create()
{
   int i,n;
   printf("Enter the total number of nodes: ");
   scanf("%d",&n);
   struct node *temp,*ptr;
```


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```
    for(i=0;i<n;i++)
    {
       temp=newnode(i);
       printf("Enter the data of node %d: ",i+1);
       scanf("%d",&temp->info);
       temp->next=NULL;
       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=NULL,*next=NULL,*previous=NULL;
   current=start;
   while(current!=NULL)
   {
      next=current->next;
      current->next=previous;
      previous=current;
      current=next;
  }
   start=previous;
}
```

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