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/* Program to Reverse elements in Single Linked List*/

#include<iostream>
#include<stdlib.h>
using namespace std;

struct node
{
 int data;
 struct node *link;
};
struct node *root=NULL;

void append() // Function to insert nodes
{
 struct node *temp;
 temp=(struct node *)malloc(sizeof(struct node));
 cout<<"Enter Node Data"<<endl;
 cin>>temp->data;
 temp->link=NULL;

 if(root==NULL)
  root=temp;
 else
 {
  struct node *p;
  p=root;
  while(p->link!=NULL)
   {
     p=p->link;
   }
  p->link=temp;
 }
}

int length() // Function to find length of list
{
 struct node *temp;
 int count=0;
 temp=root;
 if(temp==NULL)
  cout<<"List is Empty"<<endl;
 else
 {
  while(temp!=NULL)
  {
    count++;
```

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    temp=temp->link;
   }
  }
  return count;
}


void display() // Function to display list
{
  struct node *temp;
  temp=root;
  if(temp==NULL)
   cout<<"List is Empty"<<endl;
  else
  {
   while(temp!=NULL)
   {
    cout<<temp->data<<"->";
    temp=temp->link;
   }
   cout<<"NULL"<<endl;
  }
}

void reverselist() //Function to reverse list
{
  int i,j,temp,len;
  len=length();
  i=0; j=len-1;
  struct node *p, *q; // Using two pointers
  p=q=root;

  while(i<j) //reversal test condition
  {
   int k=0;
   while(k<j)
   {
    q=q->link; //Points q to the last node
    k++;
   }

   temp=p->data; //swapping logic
   p->data=q->data;
   q->data=temp;

   i++; j--; //increment i and decerement j
```

```
    p=p->link; //move pointer p to next node
    q=root; //move pointer q to root
   }
}



int main()
{
  int n;
  cout<<"Enter Number of Nodes"<<endl;
  cin>>n;
  for(int i=1;i<=n;i++)
    append();
  cout<<"Displaying nodes before reversal"<<endl;
    display();
  cout<<"Reversing list....."<<endl<<endl<<endl;
    reverselist();
  cout<<"Displaying list after reversal"<<endl<<endl;
    display();

  exit(0);

}
```