Rajalakshmi Engineering College

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NeoColab_REC_CS23231_DATA STRUCTURES

REC_DS using C_Week 2_COD_Question 4

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Ravi is developing a student registration system for a college. To efficiently store and manage the student IDs, he decides to implement a doubly linked list where each node represents a student's ID.

In this system, each student's ID is stored sequentially, and the system needs to display all registered student IDs in the order they were entered.

Implement a program that creates a doubly linked list, inserts student IDs, and displays them in the same order.

Input Format

The first line contains an integer N the number of student IDs.

The second line contains N space-separated integers representing the student IDs.

Output Format

The output should display the single line containing N space-separated integers representing the student IDs stored in the doubly linked list.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 5
10 20 30 40 50
Output: 10 20 30 40 50

Answer

```c
// You are using GCC
#include<stdio.h>
#include<stdlib.h>
struct Node{
    int studentID;
    struct Node* prev;
    struct Node* next;

};
struct Node* createNode(int studentID){
    struct Node* newNode=(struct Node*)malloc(sizeof(struct Node));
    newNode->studentID=studentID;
    newNode->prev=NULL;
    newNode->next=NULL;
    return newNode;
}
void insertNode(struct Node** head, int studentID){
    struct Node* newNode=createNode(studentID);
    if(*head==NULL)
    {
        *head=newNode;
    }
    else{
        struct Node* temp=*head;
```

```c
        while(temp->next!=NULL){
            temp=temp->next;
        }
        temp->next=newNode;
        newNode->prev=temp;
    }
}
void displaylist(struct Node* head){
    struct Node* temp=head;
    while(temp!=NULL){
        printf("%d ",temp->studentID);
        temp=temp->next;
    }
    printf("\n");
}
int main(){
    int N;
    scanf("%d",&N);
    struct Node* head=NULL;
    for(int i=0;i<N;i++){
        int studentID;
        scanf("%d",&studentID);
        insertNode(&head,studentID);

    }
    displaylist(head);
    return 0;
}
```

Status : Correct   ***Marks : 10/10***