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

```
#include <stdio.h>
#include <stdlib.h>
struct Node {
    int studentID;
    struct Node *next;
    struct Node *prev;
};
struct Node* createNode(int studentID) {
    struct Node *newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->studentID = studentID;
    newNode->next = NULL;
    newNode->prev = 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;
        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**