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 data;
   struct Node* prev;
   struct Node* next;
};

struct Node* head = NULL;
struct Node* tail = NULL;

void insertAtEnd(int value) {
   struct Node* newnode = (struct Node*)malloc(sizeof(struct Node));
   newnode-> data = value;
   newnode->prev = NULL;
   newnode->next = NULL;

   if(head == NULL) {
      head = newnode;
      tail = newnode;
   }
   else{
      tail->next = newnode;
```

```
        newnode->prev = tail;
        tail = newnode;
    }
}

void displayList() {
    struct Node* temp = head;
    while(temp != NULL) {
        printf("%d ", temp->data);
        temp = temp->next;
    }
}

int main() {
    int n,data;
    scanf("%d", &n);

    for(int i=0; i<n; i++) {
        scanf("%d", &data);
        insertAtEnd(data);
    }

    displayList();
    return 0;
}
```

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