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

```
// You are using GCC
#include<stdio.h>
#include<stdlib.h>

typedef struct node{
   int data;
   struct node *next, *prev;
}nd;

void append(nd **head, int val, nd **tail){
   nd *node=(nd*)malloc(sizeof(nd));
   if (node==NULL)return;
   node->data=val;
   node->next=NULL;
   node->prev=NULL;
   if (*head==NULL && *tail==NULL){
      *head=node;
      *tail=node;
      return;
   }
   (*tail)->next=node;
   node->prev=*tail;
   *tail=node;
}
```

```
void display(nd *head){
    while(head!=NULL){
        printf("%d ", head->data);
        head=head->next;
    }
    printf("\n");
}

int main(){

    nd *head=NULL;
    nd *tail=NULL;

    int n;
    scanf("%d", &n);
    for(int i=0; i<n; i++){
        int val;
        scanf("%d", &val);
        append(&head, val, &tail);
    }
    display(head);

    return 0;
}
```

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