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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
#include<stdio.h>
#include<stdlib.h>
typedef struct node{
    int data;
    struct node* prev;
    struct node* next;
}node;
node* tail=NULL;
void insert(node** head,int value)
{
    node* newnode=(node*)malloc(sizeof(struct node));
    newnode->data=value;
    newnode->prev=NULL;
    newnode->next=NULL;
    if(*head==NULL)
    {
        *head=tail=newnode;
        return;
    }
    else{
        tail->next=newnode;
        newnode->prev=tail;
        tail=newnode;
    }
```

```c
}
void display(node* head)
{
    node* temp=head;
    while(temp!=NULL)
    {
        printf("%d ",temp->data);
        temp=temp->next;
    }
    printf("\n");
}
int main()
{
    node* head=NULL;
    int n;
    scanf("%d",&n);
    for(int i=0;i<n;i++)
    {
        int val;
        scanf("%d",&val);
        insert(&head,val);
    }
    display(head);
}
```

Status : Correct   *Marks : 10/10*