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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* prev, *next;
}node;
node* tail = NULL;
void insert(node** head, int value) {
   node* newnode = (node*)malloc(sizeof(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;
   }
}
```

```
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***