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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;
   struct Node* prev;
}Node;

Node* createNode(int data)
{
   Node* newnode = (Node*)malloc(sizeof(Node));
   newnode->data = data;
   newnode->next = NULL;
   newnode->prev = NULL;
   return newnode;
}

void insertEnd(Node** head,int data)
{
   Node* newnode = createNode(data);
```

```
    if(*head == NULL)
    {
        *head = newnode;
        return;
    }

    Node* temp = *head;
    while(temp->next != NULL)
    {
        temp = temp->next;
    }
    temp->next = newnode;
    newnode->prev = temp;
}

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

int main()
{
    int n,value;
    Node* head = NULL;
    scanf("%d",&n);

    for (int i=0;i<n;i++)
    {
        scanf("%d",&value);
        insertEnd(&head,value);
    }
    displayList(head);

    return 0;
}
```

Status : Correct *Marks : 10/10*