Rajalakshmi Engineering College

Name: Grisha P
Email: 241901030@rajalakshmi.edu.in
Roll no: 241901030
Phone: 9150371403
Branch: REC
Department: I CSE (CS) FA
Batch: 2028
Degree: B.E - CSE (CS)

Scan to verify results

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 student_id;
    struct Node* next;
    struct Node* prev;
} Node;

typedef struct DoublyLinkedList {
    Node* head;
    Node* tail;
} DoublyLinkedList;

void insert_end(DoublyLinkedList* dll, int student_id) {
    Node* new_node = (Node*)malloc(sizeof(Node));
    new_node->student_id = student_id;
    new_node->next = NULL;
    new_node->prev = NULL;

    if (dll->head == NULL) {
        dll->head = new_node;
        dll->tail = new_node;
```

```
    } else {
        dll->tail->next = new_node;
        new_node->prev = dll->tail;
        dll->tail = new_node;
    }
}

void display(DoublyLinkedList* dll) {
    Node* current = dll->head;
    while (current != NULL) {
        printf("%d ", current->student_id);
        current = current->next;
    }
    printf("\n");
}

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

    DoublyLinkedList dll = { NULL, NULL };

    for (int i = 0; i < N; i++) {
        int student_id;
        scanf("%d", &student_id);
        insert_end(&dll, student_id);
    }

    display(&dll);

    return 0;
}
```

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