

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

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
struct Node {  
    int data;  
    struct Node* next;  
    struct Node* prev;  
};
```

```
void insert(struct Node** head, int data) {
```

```
    struct Node* new_node = (struct Node*)malloc(sizeof(struct Node));  
    new_node->data = data;  
    new_node->next = NULL;  
    new_node->prev = NULL;
```

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

```

    struct Node* last = *head;
    while (last->next != NULL) {
        last = last->next;
    }

    last->next = new_node;
    new_node->prev = last;
}

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

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

    struct Node* head = NULL;

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

    display(head);

    return 0;
}

```

Status : Correct

Marks : 10/10