

Rajalakshmi Engineering College

Name: Vithyavarshini P
Email: 240801387@rajalakshmi.edu.in
Roll no: 240801387
Phone: 9361308913
Branch: REC
Department: I ECE AF
Batch: 2028
Degree: B.E - ECE

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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>
typedef struct Node {
    int data;
    struct Node* prev;
    struct Node* next;
} Node;
Node* head = NULL;
Node* tail = NULL;

void append(int data) {
    Node* newNode = (Node*)malloc(sizeof(Node));
    newNode->data = data;
    newNode->next = NULL;
    if(!head) {
        newNode->prev = NULL;
        head = tail = newNode;
    } else {
        tail->next = newNode;
        newNode->prev = tail;
        tail = newNode;
    }
}
```

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

```
int main() {  
    int n, data;  
    scanf("%d", &n);  
  
    for(int i = 0; i < n; i++) {  
        scanf("%d", &data);  
        append(data);  
    }  
  
    display();  
    return 0;  
}
```

Status : Correct

Marks : 10/10