

# 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**

```
// You are using GCC
```

```
#include <iostream>
```

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

```
class DoublyLinkedList {  
private:  
    Node* head;
```

```
public:  
    DoublyLinkedList() : head(nullptr) {}
```

```
    void Append(int id) {  
        Node* newNode = new Node{ id, nullptr, nullptr };  
        if (!head) {  
            head = newNode;  
            return;  
        }  
        Node* temp = head;  
        while (temp->next) {
```

```

        temp = temp->next;
    }
    temp->next = newNode;
    newNode->prev = temp;
}

void PrintIDs() {
    Node* temp = head;
    while (temp) {
        std::cout << temp->id << " ";
        temp = temp->next;
    }
}
};

int main() {
    int N;
    std::cin >> N;

    DoublyLinkedList list;

    for (int i = 0; i < N; ++i) {
        int id;
        std::cin >> id;
        list.Append(id);
    }

    list.PrintIDs();
    return 0;
}

```

**Status :** Correct

**Marks :** 10/10