Rajalakshmi Engineering College

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NeoColab_REC_CS23231_DATA STRUCTURES

REC_DS using C_Week 1_COD_Question 6

Attempt : 2
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

John is tasked with creating a program to manage student roll numbers using a singly linked list.

Write a program for John that accepts students' roll numbers, inserts them at the end of the linked list, and displays the numbers.

Input Format

The first line of input consists of an integer N, representing the number of students.

The second line consists of N space-separated integers, representing the roll numbers of students.

Output Format

The output prints the space-separated integers singly linked list, after inserting the roll numbers of students at the end.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 5
23 85 47 62 31

Output: 23 85 47 62 31

Answer

```
// You are using GCC
#include <stdio.h>
#include <stdlib.h>

// Node structure for the singly linked list
struct Node {
    int roll_number;
    struct Node* next;
};

// Function to create a new node
struct Node* createNode(int roll_number) {
    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->roll_number = roll_number;
    newNode->next = NULL;
    return newNode;
}

// Function to insert at the end of the linked list
void insertAtEnd(struct Node** head, int roll_number) {
    struct Node* newNode = createNode(roll_number);
    if (*head == NULL) {
        *head = newNode;
    } else {
        struct Node* current = *head;
        while (current->next != NULL) {
            current = current->next;
        }
```

```
        current->next = newNode;
    }
}

// Function to display the roll numbers
void display(struct Node* head) {
    struct Node* current = head;
    while (current != NULL) {
        printf("%d ", current->roll_number);
        current = current->next;
    }
    printf("\n");
}

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

    struct Node* head = NULL;

    // Inserting roll numbers at the end
    for (int i = 0; i < N; i++) {
        int roll_number;
        scanf("%d", &roll_number);
        insertAtEnd(&head, roll_number);
    }

    // Displaying the roll numbers
    display(head);

    // Freeing memory
    struct Node* current = head;
    while (current != NULL) {
        struct Node* temp = current;
        current = current->next;
        free(temp);
    }

    return 0;
}
```

Status : Correct *Marks : 10/10*