

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 num;  
    struct node * preptr;  
    struct node * nextptr;  
}*stnode, *ennode;
```

```
void DListcreation(int n);  
void displayDList();
```

```
int main()  
{  
    int n;  
    stnode = NULL;  
    ennode = NULL;
```

```
    scanf("%d", &n);
```

```
    DListcreation(n);  
    displayDList();
```

```

    return 0;
}

void DListcreation(int n)
{
    int i, num;
    struct node *fnNode;

    if(n >= 1)
    {
        stnode = (struct node *)malloc(sizeof(struct node));

        if(stnode != NULL)
        {
            scanf("%d", &num);

            stnode->num = num;
            stnode->preptr = NULL;
            stnode->nextptr = NULL;
            ennode = stnode;
            for(i=2; i<=n; i++)
            {
                fnNode = (struct node *)malloc(sizeof(struct node));
                if(fnNode != NULL)
                {
                    scanf("%d", &num);
                    fnNode->num = num;
                    fnNode->preptr = ennode;
                    fnNode->nextptr = NULL;

                    ennode->nextptr = fnNode;
                    ennode = fnNode;
                }
            }
        }
    }
}

void displayDList()

```

```
{
    struct node * tmp;
    int n = 1;
    if(stnode == NULL)
    {
        printf(" No data found in the List yet.");
    }
    else
    {
        tmp = stnode;

        while(tmp != NULL)
        {
            printf("%d ",tmp->num);
            n++;
            tmp = tmp->nextptr;
        }
    }
}
```

Status : Correct

Marks : 10/10