Rajalakshmi Engineering College

Name: Pranav Narayanan
Email: 240701393@rajalakshmi.edu.in
Roll no:
Phone: 9500579427
Branch: REC
Department: I CSE FD
Batch: 2028
Degree: B.E - CSE

Scan to verify results

NeoColab_REC_CS23231_DATA STRUCTURES

REC_DS using C_Week 2_COD_Question 1

Attempt : 1
Total Mark : 10
Marks Obtained : 0

Section 1 : Coding

1. Problem Statement

Your task is to create a program to manage a playlist of items. Each item is represented as a character, and you need to implement the following operations on the playlist.

Here are the main functionalities of the program:

Insert Item: The program should allow users to add items to the front and end of the playlist. Items are represented as characters.Display Playlist: The program should display the playlist containing the items that were added.

To implement this program, a doubly linked list data structure should be used, where each node contains an item character.

Input Format

The input consists of a sequence of space-separated characters, representing the items to be inserted into the doubly linked list.

The input is terminated by entering - (hyphen).

Output Format

The first line of output prints "Forward Playlist: " followed by the linked list after inserting the items at the end.

The second line prints "Backward Playlist: " followed by the linked list after inserting the items at the front.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: a b c -

Output: Forward Playlist: a b c
Backward Playlist: c b a

Answer

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

struct Node {
   char item;
   struct Node* next;
   struct Node* prev;
};

struct Node* head = NULL;
struct Node* tail = NULL;

void insertAtEnd(char item) {
   struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
   newNode->item = item;
   newNode->prev = NULL;
   newNode->prev = NULL;

   if (head == NULL) {
```

```
        head = tail = newNode;
        newNode->prev = tail;
        tail = newNode;
    }
}

void DisplayForward() {
    struct Node* temp = head;
    printf("Forward Playlist:");
    while(temp != NULL) {
        printf(" %c", temp->item);
        temp = temp->next;
    }
    printf("\n");
}

void DisplayBackward() {
    struct Node* temp = tail;
    printf("Backward Playlist:");
    while(temp != NULL){
        printf(" %c", temp->item);
        temp = temp->prev;
    }
    printf("\n");
}
int main() {
    struct Node* playlist = NULL;
    char item;

    while (1) {
        scanf(" %c", &item);
        if (item == '-') {
            break;
        }
        insertAtEnd(&playlist, item);
    }

    struct Node* tail = playlist;
    while (tail->next != NULL) {
        tail = tail->next;
    }
```

```
    printf("Forward Playlist: ");
    displayForward(playlist);

    printf("Backward Playlist: ");
    displayBackward(tail);

    freePlaylist(playlist);

    return 0;
}
```

Status : Wrong ***Marks : 0/10***