

# Rajalakshmi Engineering College

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Batch: 2028

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## NeoColab\_REC\_CS23231\_DATA STRUCTURES

### REC\_DS using C\_Week 2\_COD\_Question 1

Attempt : 2

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;  
};
```

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

```
void insertAtEnd(struct Node** head, char item) {
```

```
    //type your code here
```

```
}
```

```
void displayForward(struct Node* head) {
```

```
    //type your code here
```

```
}
```

```
void displayBackward(struct Node* tail) {
```

```
    //type your code here
```

```
}
```

```
void freePlaylist(struct Node* head) {  
    //type your code here  
}
```

```
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**