Riphah International University Islamabad

Assignment# 2

Subject: DSA

Submitted to: Mam Habiba

Submitted by: Fatima Nazir-45317

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Doubly Link List Music Playlist

```
struct Song {
    string title;
    Song* next;
    Song* prev;

    Song(string t) : title(t), next(nullptr), prev(nullptr) {}
};

class Playlist {
private:
    Song* head;
    Song* tail;

public:
    Playlist() : head(nullptr), tail(nullptr) {}

    void addSong(const string& title) {
        Song* newSong = new Song(title);
        if (!head) {
            head = tail = newSong;
        } else {
            tail->next = newSong;
            newSong->prev = tail;
            tail = newSong;
        }
        cout << "Added: " << title << "\n";
```

```
void deleteSong(const string& title) {
    Song* current = head;
    while (current) {
        if (current->title == title) {
            if (current == head) head = head->next;
            if (current == tail) tail = tail->prev;
            if (current->prev) current->prev->next = current
                ->next;
            if (current->next) current->next->prev = current
                ->prev;
            delete current;
            cout << "Deleted: " << title << "\n";
            return;
        }
        current = current->next;
    }
    cout << "Song not found: " << title << "\n";
}

void displayPlaylist() {
    if (!head) {
        cout << "Playlist is empty.\n";
        return;
    }
    Song* current = head;
```

```
        while (current) {
            cout << "Now playing: " << current->title << "\n";
            current = current->prev;
        }
    }

    ~Playlist() {
        Song* current = head;
        while (current) {
            Song* next = current->next;
            delete current;
            current = next;
        }
    }
;

nt main() {
    Playlist playlist;
    int choice;
    string songTitle;

    do {
        cout << "\nMenu:\n";
        cout << "1. Add Song\n";
        cout << "2. Delete Song\n";
        cout << "3. Display Playlist\n";
```

```
    cout << "3. Display Playlist\n";
    cout << "4. Navigate Forward\n";
    cout << "5. Navigate Backward\n";
    cout << "6. Exit\n";
    cout << "Enter your choice: ";
    cin >> choice;

    switch (choice) {
        case 1:
            cout << "Enter song title: ";
            cin.ignore();
            getline(cin, songTitle);
            playlist.addSong(songTitle);
            break;
        case 2:
            cout << "Enter song title to delete: ";
            cin.ignore();
            getline(cin, songTitle);
            playlist.deleteSong(songTitle);
            break;
        case 3:
            playlist.displayPlaylist();
            break;
        case 4:
            playlist.navigateForward();
```

```
    switch (choice) {
        case 1:
            cout << "Enter song title: ";
            cin.ignore();
            getline(cin, songTitle);
            playlist.addSong(songTitle);
            break;
        case 2:
            cout << "Enter song title to delete: ";
            cin.ignore();
            getline(cin, songTitle);
            playlist.deleteSong(songTitle);
            break;
        case 3:
            playlist.displayPlaylist();
            break;
        case 4:
            playlist.navigateForward();
            break;
        case 5:
            playlist.navigateBackward();
            break;
        case 6:
            cout << "Exiting program.\n";
            break;
        default:
```

Output

```
Menu:
1. Add Song
2. Delete Song
3. Display Playlist
4. Navigate Forward
5. Navigate Backward
6. Exit
Enter your choice: 1
Enter song title: abc
Added: abc

Menu:
1. Add Song
2. Delete Song
3. Display Playlist
4. Navigate Forward
5. Navigate Backward
6. Exit
Enter your choice: 3
Playlist:
- abc

Menu:
1. Add Song
2. Delete Song
```

```
4. Navigate Forward
5. Navigate Backward
6. Exit
Enter your choice: 3
Playlist:
- abc

Menu:
1. Add Song
2. Delete Song
3. Display Playlist
4. Navigate Forward
5. Navigate Backward
6. Exit
Enter your choice: 4
Now playing: abc

Menu:
1. Add Song
2. Delete Song
3. Display Playlist
4. Navigate Forward
5. Navigate Backward
6. Exit
Enter your choice:
=== Session Ended. Please Run the code again ===
```