

Implement a `MusicLibrary` class in Java that will manage a collection of music tracks. The class should only use `ArrayList<T>` collections to store both tracks and playlists. Implement basic operations on collections, including adding and removing elements, searching, and displaying content. In the `main` method, show example usage of the class.

- `ArrayList<String>` for storing music tracks
- `ArrayList<Playlist>` for storing playlists

Main solution elements:

1. Helper class `Playlist`

- Stores the playlist name and a list of tracks

2. Operations on the track collection:

- `addTrack` - adds a new track to the main list (checks if the track already exists using the `contains` method)
- `removeTrack` - removes a track from the main list and from all playlists (uses the `remove` method)
- `displayTracks` - displays all tracks using a `for` loop
- `searchTracks` - uses loops and `find` (filter method) to find tracks containing the given phrase

3. Operations on the playlist collection:

- `createPlaylist` - creates a new playlist (checks existence using a loop)
- `findPlaylist` - helper method to find a playlist by name (uses a loop)
- `addTrackToPlaylist` - adds a track to a specific playlist
- `displayPlaylist` - displays the contents of a playlist
- `displayAllPlaylists` - displays a list of all playlists using a `for-each` loop
- In the example in the `main` method, we show how to:

4. Create a library through the parameterized constructor

5. Add tracks to the main collection

6. Create playlists

7. Add tracks to playlists

8. Search for tracks containing a specific phrase

9. Remove tracks (also from playlists)

Example main method:

```
public class Program {  
    public static void main(String[] args) {
```

```
// Create a new music library
MusicLibrary myLibrary = new MusicLibrary("Rock Collection",
"John Smith");

// Add tracks to the library
myLibrary.addTrack("Led Zeppelin – Stairway to Heaven");
myLibrary.addTrack("Queen – Bohemian Rhapsody");
myLibrary.addTrack("Pink Floyd – Comfortably Numb");
myLibrary.addTrack("AC/DC – Back in Black");
myLibrary.addTrack("Metallica – Nothing Else Matters");

// Display all tracks
myLibrary.displayTracks();

// Create playlists
myLibrary.createPlaylist("Favorites");
myLibrary.createPlaylist("Party");

// Add tracks to playlists
myLibrary.addTrackToPlaylist("Queen – Bohemian Rhapsody",
"Favorites");
myLibrary.addTrackToPlaylist("Pink Floyd – Comfortably Numb",
"Favorites");
myLibrary.addTrackToPlaylist("AC/DC – Back in Black", "Party");
myLibrary.addTrackToPlaylist("Metallica – Nothing Else Matters",
"Party");

// Display all playlists
myLibrary.displayAllPlaylists();

// Display the contents of the "Favorites" playlist
myLibrary.displayPlaylist("Favorites");

// Search for tracks with the phrase "Queen"
myLibrary.searchTracks("Queen");

// Remove a track from the library
myLibrary.removeTrack("AC/DC – Back in Black");

// Check if the track was removed from the playlist
myLibrary.displayPlaylist("Party");

System.out.println("Total number of tracks in the library: " +
myLibrary.getTrackCount());
System.out.println("Total number of playlists: " +
myLibrary.getPlaylistCount());
```

}

}