

Data Structures & Algorithms

Title:

CA Project

Team Details:

Nicholas Angelo Herminio Alves
Student ID: x22133470

GitHub Link:

[NiicholasAlves/DSA Project \(github.com\)](#)

Summary:

In this project, we have designed a music management application that allows users to organize their songs into playlists based on different criteria such as genre. The application utilizes interfaces and classes to manage the songs effectively.

Interfaces:

We have defined two interfaces: Playlist and Song. The Playlist interface declares methods for adding, removing, and manipulating songs within a playlist. The Song interface declares methods for retrieving information about a song, such as title, artist, and genre.

Classes:

- We have implemented the SongImpl class to represent individual songs with attributes like title, artist, and genre. This class implements the Song interface, providing concrete implementations for the methods declared in the interface.
- Additionally, we have implemented the LikedPlaylist class to represent playlists of liked songs. This class implements the Playlist interface, providing methods for managing liked songs such as adding, removing, and printing the playlist.

Management of Songs:

- Users can add songs to their liked playlist, which serves as the primary collection of songs.
- Songs can be added to genre-specific playlists based on the user's preferences.
- Users can search for songs within their liked playlist by entering a search query. The application displays the details of the found song, if any.
- Users can move songs within their playlists, such as moving the last song added to the liked playlist to the appropriate genre playlist or changing the order of songs within a playlist.
- Additionally, users can delete the last song added to the liked playlist

Overall, the design of the application ensures efficient management of songs by utilizing interfaces (Playlist and Song) and classes (SongImpl and LikedPlaylist). The modular design allows for easy extension and maintenance of the application, making it scalable to accommodate additional features or improvements in the future. With its user-friendly interface and robust functionality, the music management application provides users with a seamless experience in organizing and enjoying their music collection.

Class Diagram

