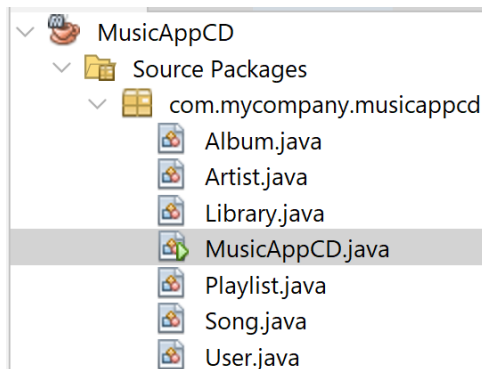# Task Week 6 Software Implementation & Testing

- Muhammad Syafiq Aqilla   1301224059
- Manutama Surya Jagadhita   1301224098
- Ananda Arti Widigdo   1301224386
- Bryan Dhaniel   1301224419
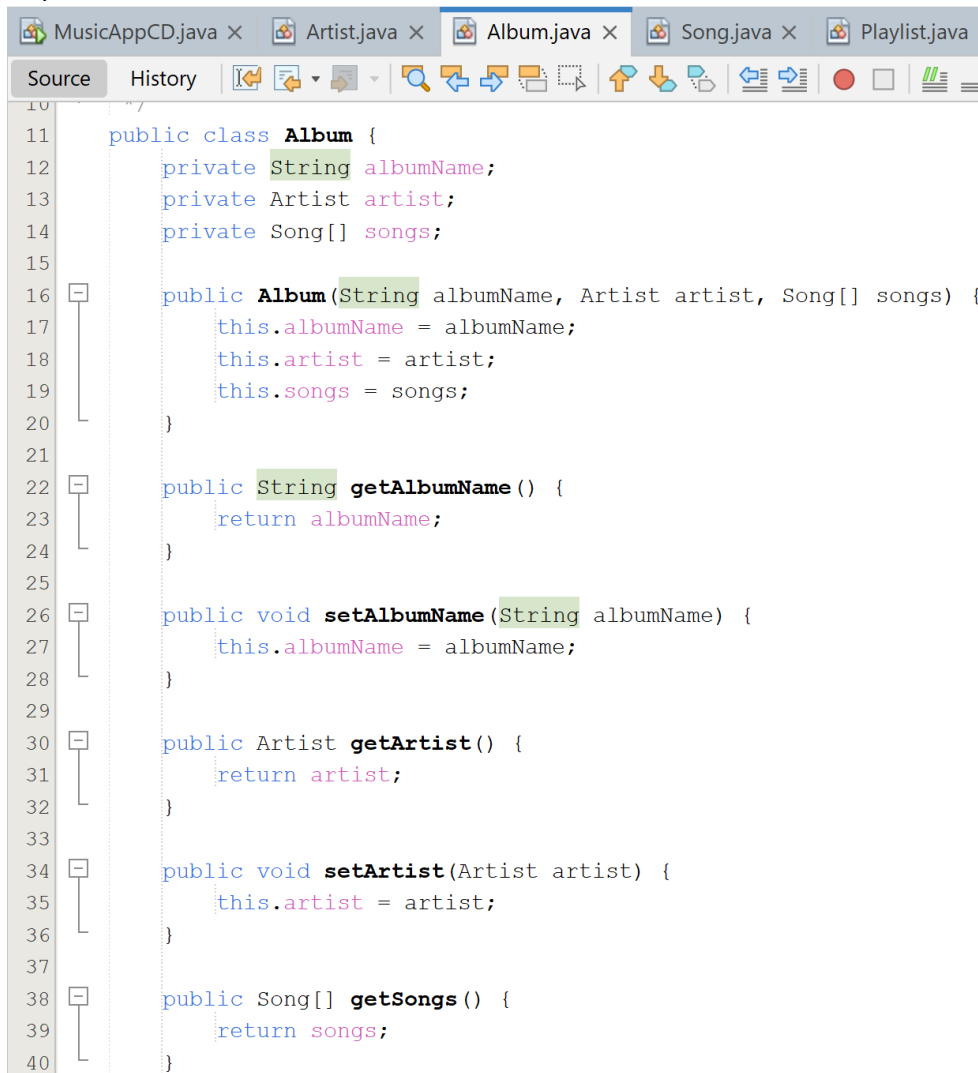- Romario Viegaz Fransisco Marcal   1301225492
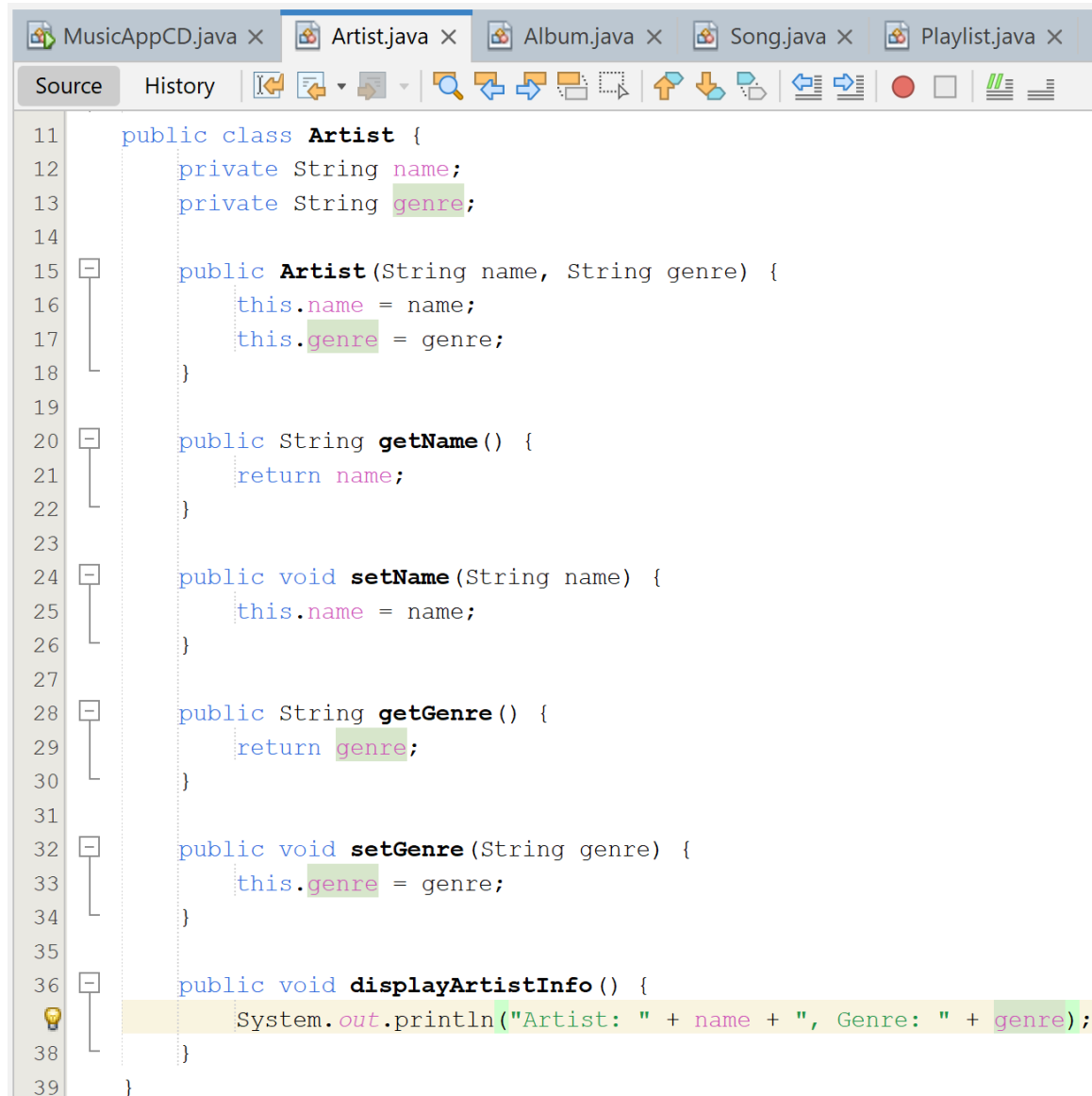

Java Implementation

1. Make Java Class for Each Class

2. Implementation


```java
public class Album {
    private String albumName;
    private Artist artist;
    private Song[] songs;

    public Album(String albumName, Artist artist, Song[] songs) {
        this.albumName = albumName;
        this.artist = artist;
        this.songs = songs;
    }

    public String getAlbumName() {
        return albumName;
    }

    public void setAlbumName(String albumName) {
        this.albumName = albumName;
    }

    public Artist getArtist() {
        return artist;
    }

    public void setArtist(Artist artist) {
        this.artist = artist;
    }

    public Song[] getSongs() {
        return songs;
    }
```

```java
42          public void setSongs(Song[] songs) {
43              this.songs = songs;
44          }
45
46          public void displayAlbumInfo() {
47              System.out.println("Album: " + albumName + " by " + artist.getName());
48              System.out.println("Songs in the album: ");
            for (int i = 0; i < songs.length; i++) {
50                  songs[i].displaySongInfo();
51              }
52          }
53
54      }
```

```java
11      public class Artist {
12          private String name;
13          private String genre;
14
15          public Artist(String name, String genre) {
16              this.name = name;
17              this.genre = genre;
18          }
19
20          public String getName() {
21              return name;
22          }
23
24          public void setName(String name) {
25              this.name = name;
26          }
27
28          public String getGenre() {
29              return genre;
30          }
31
32          public void setGenre(String genre) {
33              this.genre = genre;
34          }
35
36          public void displayArtistInfo() {
              System.out.println("Artist: " + name + ", Genre: " + genre);
38          }
39      }
```
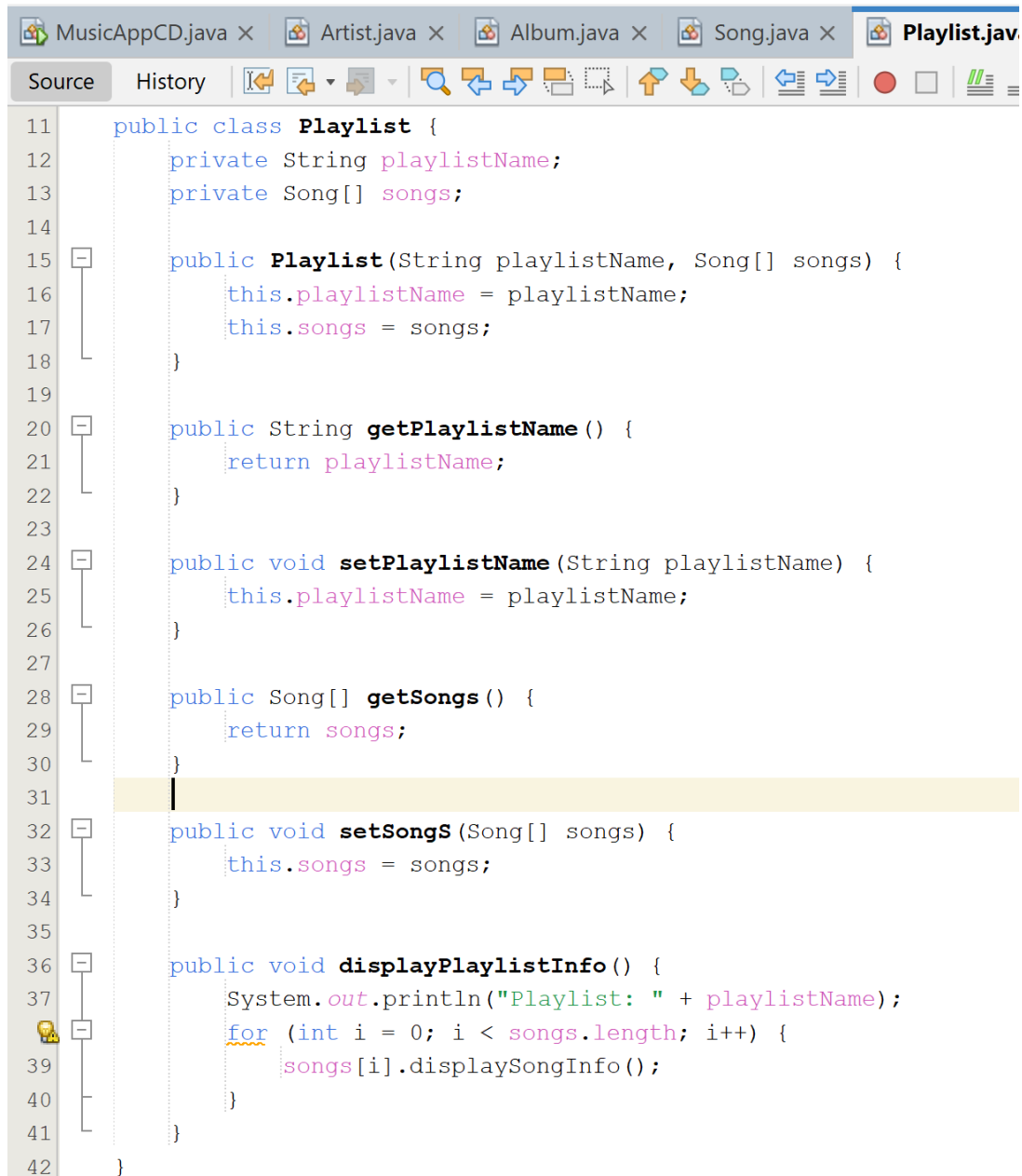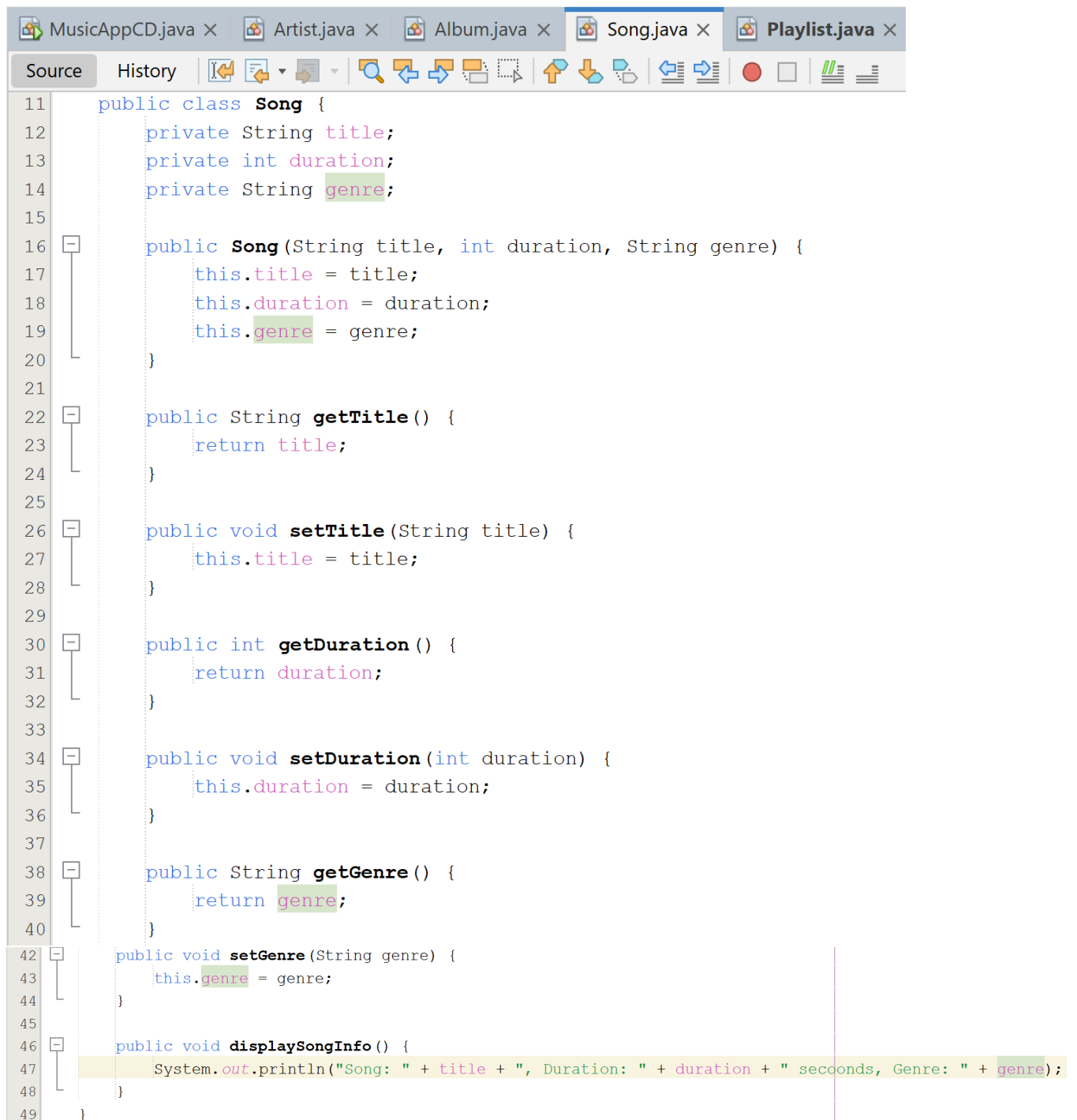
```java
public class Library {
    private User user;
    private Playlist[] playlists;
    private Album[] albums;

    public Library(User user, Playlist[] playlists, Album[] albums) {
        this.user = user;
        this.playlists = playlists;
        this.albums = albums;
    }

    public User getUser() {
        return user;
    }

    public void setUser(User user) {
        this.user = user;
    }

    public Playlist[] getPlaylists() {
        return playlists;
    }

    public void setPlaylists(Playlist[] playlists) {
        this.playlists = playlists;
    }

    public Album[] getAlbums() {
        return albums;
    }

    public void setAlbums(Album[] albums) {
        this.albums = albums;
    }

    public void displayLibraryInfo() {
        System.out.println("Library of " + user.getUsername());
        System.out.println("Playlists:");
        for (int i = 0; i < playlists.length; i++) {
            playlists[i].displayPlaylistInfo();
        }
        System.out.println("Albums:");
        for (int i = 0; i < albums.length; i++) {
            albums[i].displayAlbumInfo();
        }
    }
}
```

```java
11   public class Playlist {
12       private String playlistName;
13       private Song[] songs;
14
15       public Playlist(String playlistName, Song[] songs) {
16           this.playlistName = playlistName;
17           this.songs = songs;
18       }
19
20       public String getPlaylistName() {
21           return playlistName;
22       }
23
24       public void setPlaylistName(String playlistName) {
25           this.playlistName = playlistName;
26       }
27
28       public Song[] getSongs() {
29           return songs;
30       }
31
32       public void setSongS(Song[] songs) {
33           this.songs = songs;
34       }
35
36       public void displayPlaylistInfo() {
37           System.out.println("Playlist: " + playlistName);
38           for (int i = 0; i < songs.length; i++) {
39               songs[i].displaySongInfo();
40           }
41       }
42   }
```

```java
11    public class Song {
12        private String title;
13        private int duration;
14        private String genre;
15
16        public Song(String title, int duration, String genre) {
17            this.title = title;
18            this.duration = duration;
19            this.genre = genre;
20        }
21
22        public String getTitle() {
23            return title;
24        }
25
26        public void setTitle(String title) {
27            this.title = title;
28        }
29
30        public int getDuration() {
31            return duration;
32        }
33
34        public void setDuration(int duration) {
35            this.duration = duration;
36        }
37
38        public String getGenre() {
39            return genre;
40        }
42    public void setGenre(String genre) {
43        this.genre = genre;
44    }
45
46    public void displaySongInfo() {
47        System.out.println("Song: " + title + ", Duration: " + duration + " seconds, Genre: " + genre);
48    }
49  }
```

```java
public class User {
    private String username;
    private String email;
    private Library library;

    public User(String username, String email) {
        this.username = username;
        this.email = email;
    }

    public String getUsername() {
        return username;
    }

    public void setUsername(String username) {
        this.username = username;
    }

    public String getEmail() {
        return email;
    }

    public void setEmail(String email) {
        this.email = email;
    }

    public Library getLibrary() {
        return library;
    }

    public void setLibrary(Library library) {
        this.library = library;
    }

    public void displayUserInfo() {
        System.out.println("User: " + username + ", Email: " + email);
        if (library != null) {
            library.displayLibraryInfo();
        }
    }
}
```

Output

```
--- exec:3.1.0:exec (default-cli) @ MusicAppCD ---
User: manutama, Email: manutama@gmai.com
Library of manutama
Playlists:
Playlist: My Favorites
Song: Blinding Lights, Duration: 200 secoonds, Genre: Synthwave
Song: Save Your Tears, Duration: 215 secoonds, Genre: Synthwave
Albums:
Album: After Hours by The Weekend
Songs in the album:
Song: Blinding Lights, Duration: 200 secoonds, Genre: Synthwave
Song: Save Your Tears, Duration: 215 secoonds, Genre: Synthwave
------------------------------------------------------------------------
BUILD SUCCESS
------------------------------------------------------------------------
Total time:  2.453 s
Finished at: 2024-10-23T12:02:10+07:00
------------------------------------------------------------------------
```

Class Diagram

User
- username
- email
- library

+ getUsername()
+ setUsername()
+ getEmail()
+ setEmail()
+ displayUserInfo()

1 1

Artist
- name
- genre

+ getName()
+ setName()
+ getGenre()
+ setGenre()
+ displayArtistInfo()

Library
- user
- playlists[]
- albums[]

+ getUser()
+ setUser()
+ getPlaylists()
+ setPlaylists()
+ displayLibraryInfo()

1 1

1..* 1..*

1..* 1..*

Album
- albumName
- artist
- songs[]

+ getAlbumName()
+ setAlbumName()
+ getArtist()
+ setArtist()
+ displayAlbumInfo()

Playlist
- playlistName
- songs[]

+ getPlaylistName()
+ setPlaylistName()
+ getSongs()
+ setSongs()
+ displayPlaylistInfo()

1..* 1..*

1..* 1..*

Song
- title
- duration
- genre

+ getTitle()
+ setTitle()
+ getDuration()
+ setDuration()
+ displaySongInfo()