Programming Lab Assignment 4

1. Album

- It has three fields, two **Strings** called **name** and **artist**, and an **ArrayList** that holds objects of type **Song** called **songs**.

- A constructor that accepts two Strings (name of the album and artist). It initialises the fields and instantiates songs.

- And three methods, they are:

  - **addSong**(), has two parameters of type **String** (title of song), **double** (duration of song) and returns a **boolean**. Returns true if the song was added successfully or **false** otherwise.

  - **findSong**(), has one parameter of type **String** (title of song) and returns a **Song**. Returns the **Song** if it exists, **null** if it doesn't exists.

  - **addToPlayList**(), has two parameters of type **int** (track number of song in album) and **LinkedList** (the playlist) that holds objects of type **Song**, and returns a **boolean**. Returns **true** if it exists and it was added successfully using the track number, or **false** otherwise.

  - **addToPlayList**(), has two parameters of type **String** (title of song) and LinkedList (the playlist) that holds objects of type **Song**, and returns a **boolean**. Returns **true** if it exists and it was added successfully using the name of the song, or **false** otherwise.

2. Song

- It has two fields, a **String** called **title** and a **double** called **duration**.

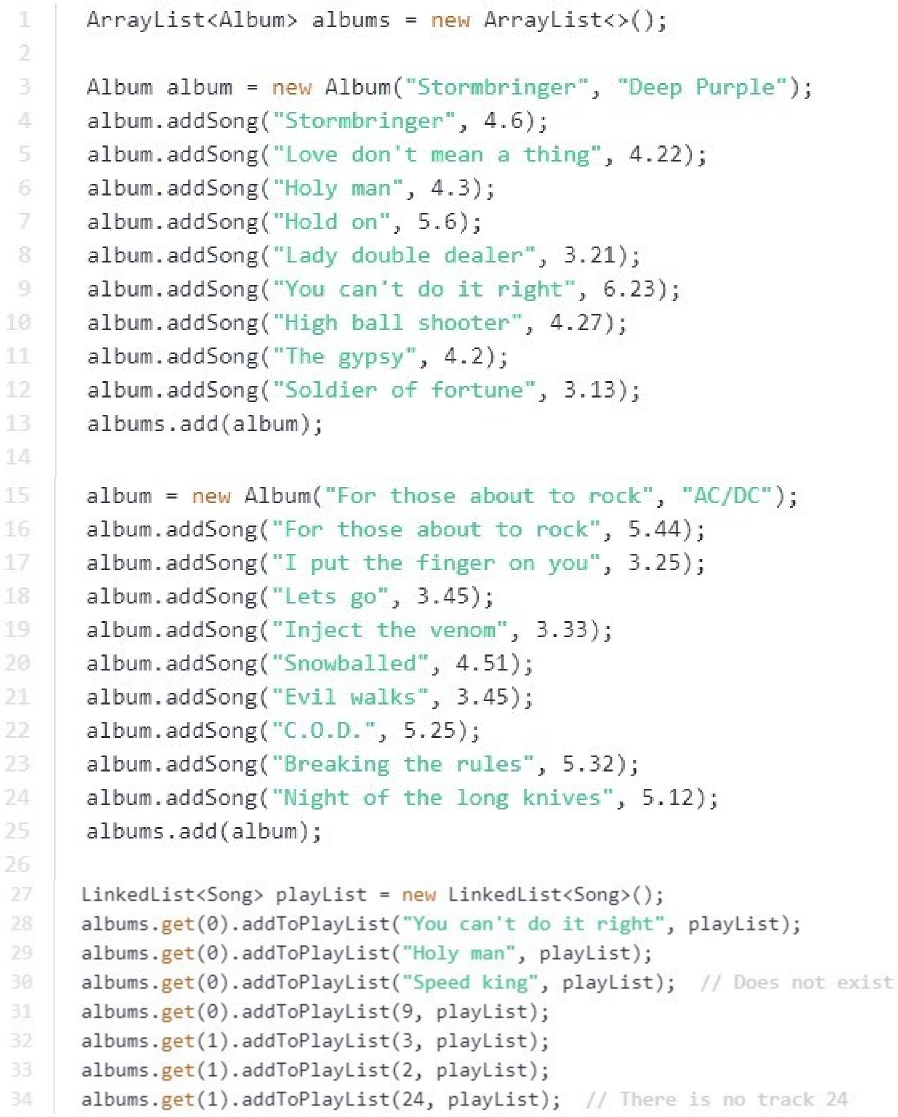
- A constructor that accepts a **String** (title of the song) and a **double** (duration of the song). It initialises **title** and duration.

- And two methods, they are:

  - **getTitle**(), getter **for title**.

  - **toString**(), **Songs** overriding toString method. Returns a **String** in the following format: "**title**: **duration**"

3. Sample Input



```
ArrayList<Album> albums = new ArrayList<>();

Album album = new Album("Stormbringer", "Deep Purple");
album.addSong("Stormbringer", 4.6);
album.addSong("Love don't mean a thing", 4.22);
album.addSong("Holy man", 4.3);
album.addSong("Hold on", 5.6);
album.addSong("Lady double dealer", 3.21);
album.addSong("You can't do it right", 6.23);
album.addSong("High ball shooter", 4.27);
album.addSong("The gypsy", 4.2);
album.addSong("Soldier of fortune", 3.13);
albums.add(album);

album = new Album("For those about to rock", "AC/DC");
album.addSong("For those about to rock", 5.44);
album.addSong("I put the finger on you", 3.25);
album.addSong("Lets go", 3.45);
album.addSong("Inject the venom", 3.33);
album.addSong("Snowballed", 4.51);
album.addSong("Evil walks", 3.45);
album.addSong("C.O.D.", 5.25);
album.addSong("Breaking the rules", 5.32);
album.addSong("Night of the long knives", 5.12);
albums.add(album);

LinkedList<Song> playList = new LinkedList<Song>();
albums.get(0).addToPlayList("You can't do it right", playList);
albums.get(0).addToPlayList("Holy man", playList);
albums.get(0).addToPlayList("Speed king", playList);  // Does not exist
albums.get(0).addToPlayList(9, playList);
albums.get(1).addToPlayList(3, playList);
albums.get(1).addToPlayList(2, playList);
albums.get(1).addToPlayList(24, playList);  // There is no track 24
```

TIP: In **Album**, use the **findSong**() method in **addSong**() and **addToPlayList**(**String**, **LinkedList**) to check if a song exists before proceeding.

TIP: Be extremely careful with the spelling of the names of the fields, constructors and methods.

TIP: Be extremely careful about spaces and spelling in the returned **String** from the **toString**() method.

NOTE: All fields are **private**.

NOTE: All constructors are **public**.

NOTE: All methods are **public** (except for **findSong**() which is **private**).

NOTE: There are no **static** members.