Concepts of programming language (Fall 2018)
Assignment 2: OOP and Databases

Guidelines:

- Assignment total grade is 100 mark.
- This assignment is a team of three from the same lab.
- Please submit your solutions via Acadox.
- You should submit a zip file (name this file with your id), put in these files "py" files (codes) for each problem.

Amy loves music. She wanted to organize her favorite music. So she decided to build an application to play and organize them. She named her app "Musicly". It has list of playlists. Each playlist has name, list of songs and description. A song has name, band, featured artist/s, album, release date, genres, lyrics, length. An album has title, band name, number of songs on the album and list of songs. A band consists of one or more artists. An artist has name, date of birth. A song can be single or in album. It can also have two bands singing for example David Guetta - Titanium ft. Sia, David Guetta is the artist and Sia is the featured artist.

Musicly can be a great app if it has these features:

1. It can view playlists.

   For example:

   -Playlists-
   - Sad Songs — Tracks: 2
   - Anime Tracks — Tracks: 5
   - Mixed Albums — Tracks: 10
   - Relaxing Music — Tracks: 1
   - Acoustic Music — Tracks: 7

2. It can view albums.

   For example:

   Same view as playlists which shows the list with number of tracks/songs each album includes.

3. It can view artists (Lists only names of artists).

4. It can view a song with its full description (name, release date, lyrics etc…)

Song: Titanium
Band/Artist: David Guetta
Featured artist/band: Sia
Album: Nothing but the Beat
Release date: 2011
Genres: House, electronic.

5. Amy can pick one playlist to view its description and the list of songs describing song's name and length only.

   For example:

Sad songs
This list includes sad tracks from anime.

Never meant to belong Duration: 3:45
Sadness and sorrow Duration: 4:55

6.
   - Name ascending/descending
   - Artist
   - Album
   - Genre
   - Release date.

7. Play certain album.
8. Play all songs to certain band.
9. Play all songs to certain artist whether his songs were in a band or solo.
10. Play all songs to certain genre.
11. Add new playlist with description and name.
12. Add new songs to playlist.
13. Add new artist.
14. Add new album.
15. Remove song from playlist.
16. Delete playlist/ song/album/artist.

Musicly can actually play songs in the playlist by shuffle or in a specific order as mentioned above. To help Amy not waste her time organizing her playlists, you should store it in a database. Input can be via a menu list and Amy chooses from this list.

Can you help Amy?

Flow of UI that you might have in Musicly.

Welcome To Musicly
1. Playlists 2. Artists 3. Albums 4. Library

> > 1

Welcome To Musicly
<< Playlists >>

- Sad Songs Tracks: 2
- Anime Tracks Tracks: 5
- Mixed Albums Tracks: 10
- Relaxing Music Tracks: 1
- Acoustic Music Tracks: 7

1. View playlist
2. Back to Home
3. Add Playlist
4. Delete Playlist

Requirements:

1. In this assignment you will implement this program by Python, SQLite for database (or any Python API you prefer).
2. You will draw an ERD diagram that describes your database tables and fields.
3. You will draw a class diagram for your classes and their relationships (Inheritance, composition, etc…)
   Upload both diagrams with your program code in the same zipped file on Acadox.
4. Name this zipped/rar file with this format
   Major_Minor_G#_ID1_ID2.zip
   i.e. CS_IS_4_20133331_2013332.zip
5. You can use these dataset as input https://en.m.wikipedia.org/wiki/List_of_best-selling_albums

6. You can also use winsound for playing Amy's songs for windows users and ossaudiodev for linux users.

Links:

https://docs.python.org/3.1/library/winsound.html

https://docs.python.org/3.1/library/ossaudiodev.html