Bilkent University

Department of Computer Engineering

CS 353 - Database Systems

Project Report

Music Player Database

Proposal Report

Group 13

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Proposal Report

Feb 25, 2018

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1. Introduction

This report is about our project proposal about the Music Player Database which will explain the basic functionalities and the reach of the project. This report contains information about the aim of our project, its functional - non functional requirements, limitations, restrictions, how it will be designed and how the database will be used within the project.

E/R diagram will be the basis of our database design, we will base our changes, updates and codes according to E/R diagram. The report is accessible at:

https://eren-aslanturk.github.io/Music-Player-Database/

2. Project Description

Music Players, especially modern ones which are connected to internet, are expected to have vast array of information about music, artists, users and events. Just for one track people want to know the album, album's properties, artist's properties and price of it. Also there may be some upcoming albums or concerts. Therefore it should have a database so that it can be controlled and updated easily with consistent flow of information. More and more people choose online music players and systems over traditional ways as it is much easier to use and pay. People use Bandcamp to have information about artists and concerts, iTunes to buy albums or Spotify to subscribe, listen and see what others are listening. Spotify is the most complete of them which has tons of information and features which can be useful for end users. To imitate such a system we need a well-established database which can be updated and changed with ease.

The database is going to provide a lot of information to end users. First of all record companies will be able to enlist their artists and their own compilation albums and price them accordingly. Artists will be able to add albums and concerts for themselves. Artists and record companies will also their biography and concert lists so that people can see them with ease. An artist may or may not work with a record company and choose to list their album or EP with a price or free. Tracks can also be separately priced but we are planning to automate this process according to album's price and how many songs is in that album. To provide a fluid experience some data, like a company's artist's concert, will be stored in one place but can be

accessed by both entities. Aim of this is to speed up the process and conserve storage space at the same time. Playlists can be created and shared by users. To have a functioning and fluid music player, we will use database system's mechanics respond end users accordingly.

3. Requirements

3.1 Functional

The projected music player database system assumes 4 different types of user which are namely Listener, Artist, Label, and Organizer. All users have a profile. A wallet system will be provided by the system to allow any user to include purchase information to account to be able to use for specific features available such as gift packs and time limited tracks in the app.

3.1.1 Listener

Listeners are able to purchase the tracks or albums, make playlists out of them, attend concert events, comment on tracks, and follows a friend or an artist profile. They can publish the playlists to the public or make lists only visible to itselves. Listeners are also able to see upcoming concerts near them or their favorite artists concerts with the information of how many people are coming to the event, and their friends activities related to it.

- Users will be able to check information such as music interest and profile details of another users, artists and custom publishers.

- Users will be able to access released music products of artists or singers to keep up especially as follower fans.
- Users will be available to purchase time limited tracks, and send as gift to another users as a gift pack.

3.1.2 Artist

Artists can releases their tracks or albums on system. They can be under the charge of a music label, or independent. They can be organized by organizers to participate a concert event.

3.1.3 Label

Labels are basically music agents. They are able to group number of artists under the label of them and make profit from listeners' purchases. They can releases album or a track of number of artists, and they are able to publish them on their profile. They can announce new albums, tracks, and artists to the listeners. They are authorized to do what artists are able to do in the system as well.

3.1.4 Organizer

Organizers are a type of user. They have the profile to announce upcoming concerts to public essentially. Organizer type user account is in order to create events on system that is open to listeners to attend. They are authorized to see the profiles of attending listeners to the event.

3.2 Non-Functional

- Usability: The interface design will be attractive and handy for the user for the best experience with the program.

- Performance: Effective use of internet will help users to easily access and smoothly listen tracks from albums from all around world in the app. Additionally, by regaining the used storage for application system files on the memory, it should process contents faster and load frames per second more efficiently.

- Security: Since the system includes purchase operations, the security is one of the main concern. Password limitations in terms of length and complexity, and other issues related to linked bank account for online purchases should be maintained by system.

- Legal requirements: since our system has a wallet and a cash flow implementation should be done according to the rules of online money transfer

- Reliability: Our application should be able to handle hundreds maybe thousands of users activity simultaneously without crashing. It should have a acceptable mean time of failure and ability to detect faults.

4. Limitations

- Listeners and organizers should not be able to publish a track.

- Playlists are limited to contain at most 100 tracks.

- Publishers (artists and labels) cannot download more than 20 tracks for an artist each month

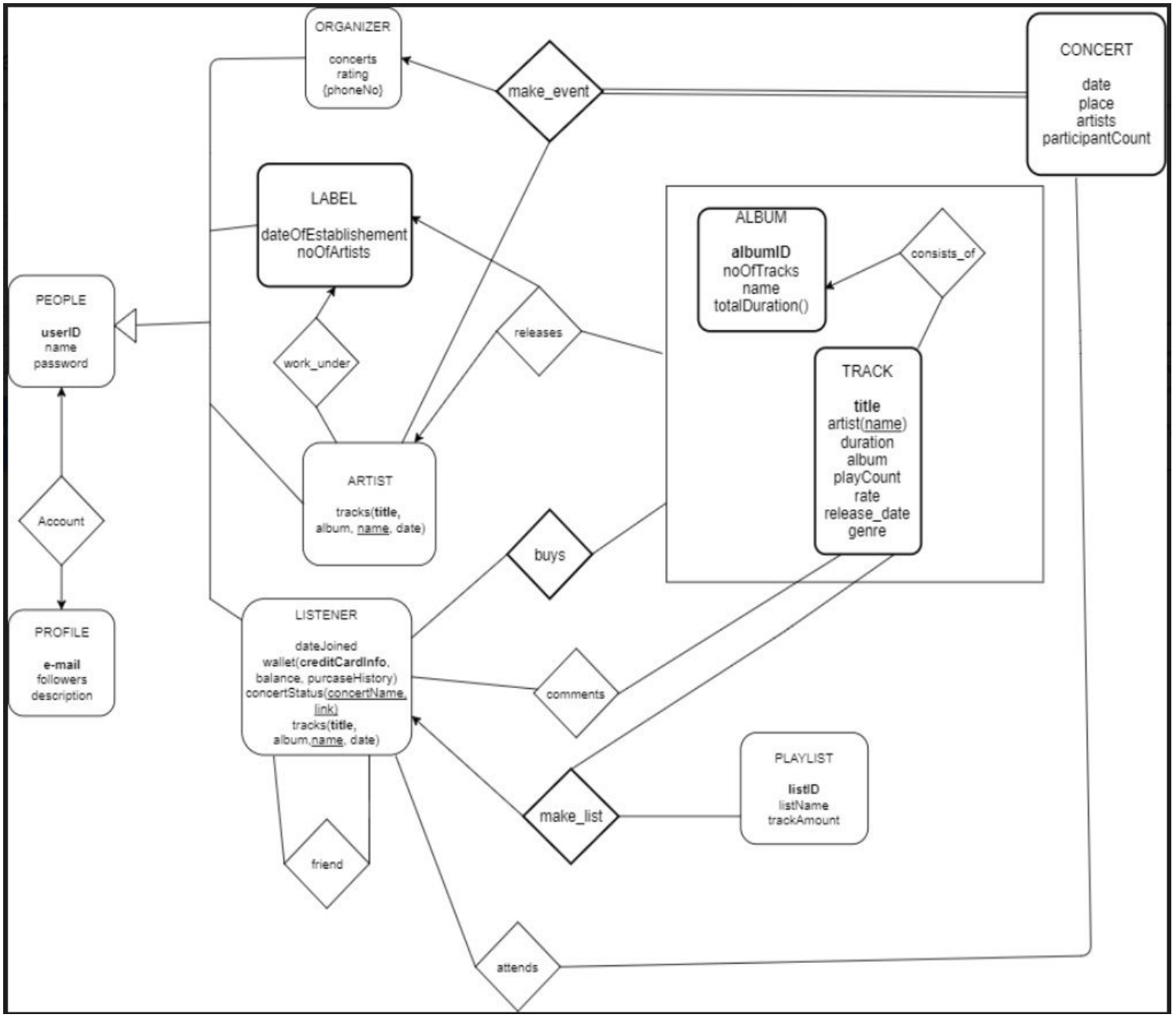
- A user shall not play tracks more than one at the same time.

- A user is not allowed to multi-login from different devices at the same time period (only one loginning to an account per user at a time).

- Listeners and labels are not authorized to organize concert events and its private attributes.

5. Diagram

5.1 E/R Diagram



6. References

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- https://www.apple.com/lae/itunes/
- https://bandcamp.com/
- https://eren-aslanturk.github.io/Music-Player-Database/