Database Reader & Dev Tools

CA3: Music Player App

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Contents

Introduction

The following is an overview of assignment three of semester two of software development fundamentals. The assignment required that the author create a music app for a transition year group.

The author became familiar with a number of tools including Slack, Maven, Eclipse, DB Browser for SQLite, GitHub, GitHub Bash, and Trello. To that end the following accounts were created by the author:

GitHub: https://github.com/Realcolm/pythia

Trello: https://trello.com/b/ryendHM8/pythia-project-music-app

Throughout the assignment the author was required to hit a number of targets to ensure that the app functioned correctly. These included some of the following:

- Uses the JOpt library to process command line parameters.
- Have MVC classes for displaying User details from a database and a DAO class for database access.
- Have classes for creating a text-based menu and used Factory Method pattern to instantiate the menu items requested.
- Uses SQLite JDBC library to provide a database connection.
- Create MVC classes for Music view, a DAO class, a Music table and a MusicViewMenuItem class.
- Create MVC classes for Playlist view, a DAO class, a Playlist plus Plasslist x Music crosstable and a PlaylistViewMenuItem class.
- Create menu builder & MenuItemFactory.

The author was also tasked with creating a new database for the assignment that would be around a theme or genre. To this end the author created the following database with three tables;

Music

- User
- Music
- User music

Upon reflection this project stretched the authors understanding of software development but in a good way. Each challenge encounters forced the author outside their comfort zone and challenged them to thing logistically around the area of software development.

Although not completed to the full requirements, the author is eager to move see the end result of this music project once assignment four is completed.

Project Status

As mentioned in the introduction, the author was able to complete some elements of the assignment and not others.

- Basic app outline was created but the functionality is limited.
- Menu was created, to a point, but functionality is limited.
- A three-table SQLite database was created but connection to the app was not achieved.
- Jopt -d option for database file working with test database but not with new database.
- Jopt -v log in verbose mode is working with test database but now with the new database.
- Maven set up.
- GitHub account creation.
- Trello account creation.
- Eclipse set up.
- Connection to SQLite database was achieved.
- Jar file created.
- MVC classes created.
- Menu build. Partially successful. Encountered stumbling blocks with hinder progress.
- Run.bat file was created but may not have been implemented correctly.

It is the authors hope to, with guidance, over come the issues encountered and form full connection with database as required.

Learnings

As stated already in this piece, the author found elements of this assignment challenging. The step up to the next level was very obvious but as the app began to come together it became clearer how what we had done last term was an important element of the project.

A core component of the assignment was that the author gained a better understanding of the app development environment. Although the author wasn't able to progress the app to a standard that was hoped, there was a greater understanding of what a basic app development project consisted off[1].

- Programming logic (Java)
- User Interface (UI) components (XML & Java)
- Data Storage (SQLite)

Although daunting at first, getting a greater understanding of the basics of UI components was rewarding.

From the beginning of the course we have learned about the benefit of iterations when it comes to software development and it was a good learning experience to understand how GitHub enables a developer at any level. The capacity to roll back on commit's after a fix was come across to an earlier issue allowed the author to make progress at later stages in the assignment.

Having the project to complete was a great target even if the app did not come together as hoped. There are elements of a Minimum Viable Product (MVP) in place that will allow the author to learn more about the core concepts of app development going into CA4.

A greater respect for how any app/website comes together was achieved during the course of the assignment to date. After reaching the point where the different classes were getting build the author, mentally, began to understand the structure of what was being attempted.

Aspects like connecting to the database were initially a challenge but once there was a better understanding of full vs relative paths, database connection was achieved.

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[1]   https://www.codementor.io/codementorteam/5-ways-to-make-learning-android-development-easier-aak4812o3

Challenges

As mentioned in this submission, the author encountered a number of challenges during the curse of developing the required music app.

The key challenges could be broken down into two areas.

- Understanding concepts required.
- Understanding execution.

Being novice to this area, the author was always going to encounter issues learning an entirely new process. This was true for this project. As expected there was an extensive amount of knowledge required to create a full functional application. These ranged from understanding UI, Maven and Eclipse to learning how to use GitHub for commits.

Key to overcoming any challenge is the support available. The resources provided through Stack Overflow, the lecturer and other members of the author's course were invaluable for getting the app started and pointing towards bare concept MVP. That is not to say that there wasn't instances of freak out's when code wouldn't work or what seemed as a logical aspect of the course turned out to be troublesome.

The basic concepts of app development became clearer and clearer as the countdown to submission got closer and closer. But there is still a great deal for the author to understand. UI is an area of key interest for the author and although still a novice, this project gave a better understanding of the concepts.

Even though the author understood the conceptual requirements of designing the app and how it should function there was still areas that caused issues pertaining execution. This namely related to connecting the menu to the database, ironing out issues with the menu and other areas which need further training in.

Future Implementations

This assessment leads into assessment four which is where the author aspires to have a fully functioning app which showcases fully the database that has been created. To this end there are a number of aspects of the process behind the initial app development that the author would aim to rectify if the opportunity arose again.

Namely these would be the following.

- Clearer understanding of the process involved.
- Clearer understanding of the tools required.
- More practice sessions using the tools required.
- More lab work on each of the aspects of the project.
- Greater understanding of how to connect SQLite database to the app.
- Ability to see other working versions of the code required. Or alternatively, more practical examples of the app development process as it related to the app in question.

It is hoped by the author that the app once completed will include a number of the following features that are not yet defined by the author in their initial design. These include[2], but are not limited to, some of the following:

- Cover artwork of the songs to be displayed.
- Ability to share the songs with others using the app.
- Ability to rate the songs.
- Improved login functionality via traditional log in or social log in using OAuth.
- Ability to search for song titles, lyrics or artist.
- Improved user profile page. Ability to add user profile image.
- Ability to create new playlists.

As the authors knowledge of app development improves so two will their design hopes. User Interface is important but so two is User Experience (UX) which is another area that the author is keen to gain exposure to.

As Spotify is the market leader in music streaming apps [3] the author would like to learn further about their design. Particularly how aspects of their app experience might be implemented in what the author hopes to achieve with their own app.

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[2] https://developer.android.com/design/patterns/app-structure.html
[3] https://blog.prototypr.io/how-shazams-ux-has-changed-7edfde0f31b5?gi=9aa4ec7cba5c

Potential Additions

As mentioned in this submission, the author would like to progress the proposed app to a state whereby it has more functionality than it featured in its submitted state. To this end the author would like to implement the following potential additions. Further investigation would need to be undertaken to better understand the complexity of the additions.

1. Social sign in similar to many apps. This in theory will then allow the users to share their profiles with their friends/ fellow app users. Example below.
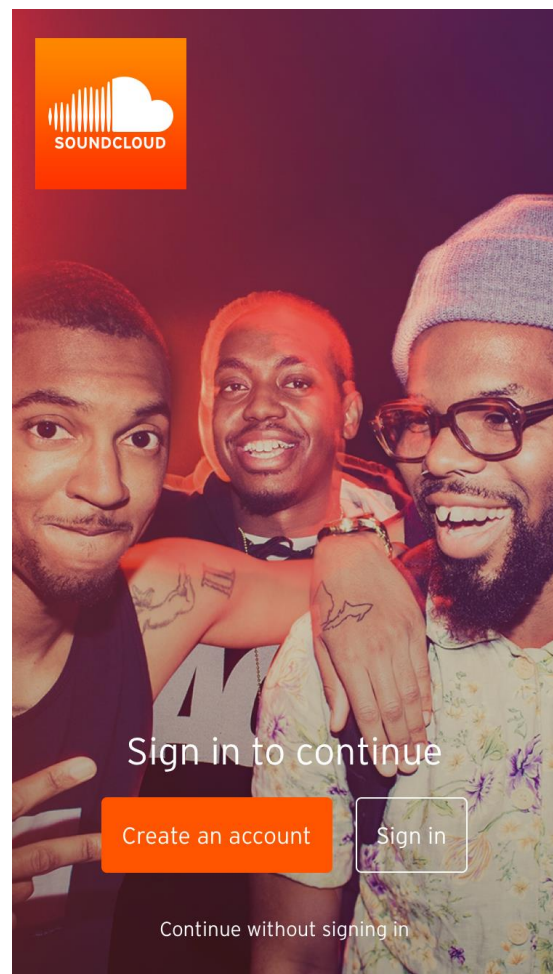
2. Ability to display album / single sleeve artwork. In theory the author would like to implement flat design / material design[4] in the future iterations of their app build. It is felt that this design would represent current app design practices.[5] Example below.

4   https://blog.prototypr.io/googles-material-design-vs-apple-s-flat-design-which-is-better-16a94aed6e2
5 https://design.google/
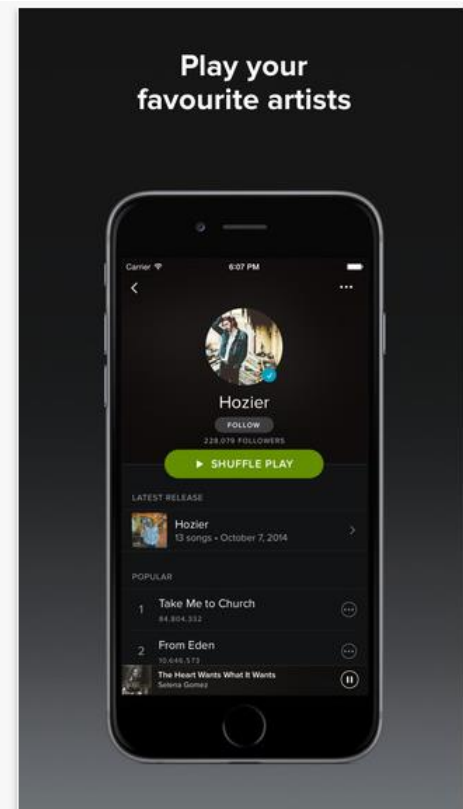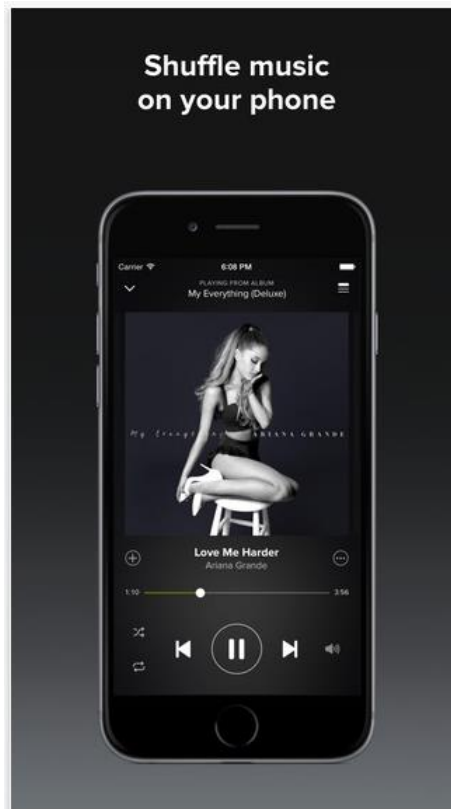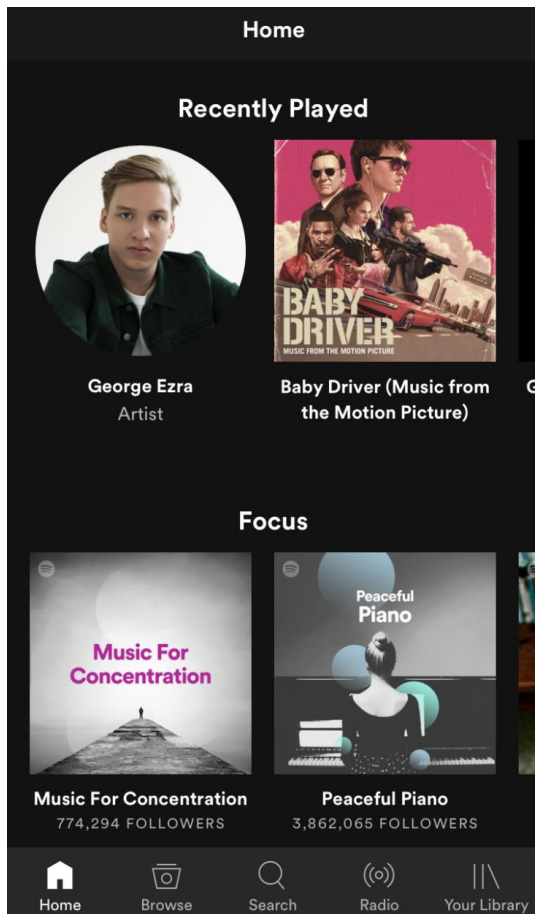
3. Include ability to upload images to users profile page. Once more this would require further investigation into the complexity of the suggestion. Example below.