PIANO SCORE INFORMATION SYSTEM

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ABSTRACT

Piano master is an android application that has been designed to improve learning and appreciation of the piano through incorporation of interactive sheet music, professionally recorded sound in one simple to use interface. The application gives an opportunity to find famous pianists, see their repertoire, and listen to music following the sheet at the same time. It was created in Android Studio based on Kotlin programming language, and is using SQL to store local information on logins and Firebase to store music files and synchronize them in real-time. The testing results revealed high stability, usability, and applicability in supporting all-round learning experiences in the play of piano music.

1 INTRODUCTION

There is a problem with the online learning of piano as it might be necessary to separate the audio and sheet representation. To address this Piano Master was designed to combine both into one mobile application. The aim of this app is to develop the study process of piano students, either young and new learners, or more experienced, to facilitate the studying and increase the appreciation of music as well.

2 PROBLEM STATEMENT

There are current piano learning applications that only play the sounds when someone reads the notes on a sheet music separately; hence the learner cannot

see what they are listening to. This is a loss in efficiency of learning because the student is not able to correlate what they hear in real time with what they read.

3 OBJECTIVES

i. Creating an Android application that combines both good audio with sheet music and information about renowned pianists and its history.

ii. In order to present a well-developed and convenient piano education system.

iii. To involve real-time synchronization of audio and sheet music to increase learning experiences of digital pianos.

4 METHODOLOGY

The project adopted the Incremental Development Model. This model allows the system to be developed and delivered in small, functional segments, enabling flexibility, continuous improvement, and user feedback integration throughout the development process. It was chosen to minimise risks and ensure that each functional module is tested and refined before the final system integration.

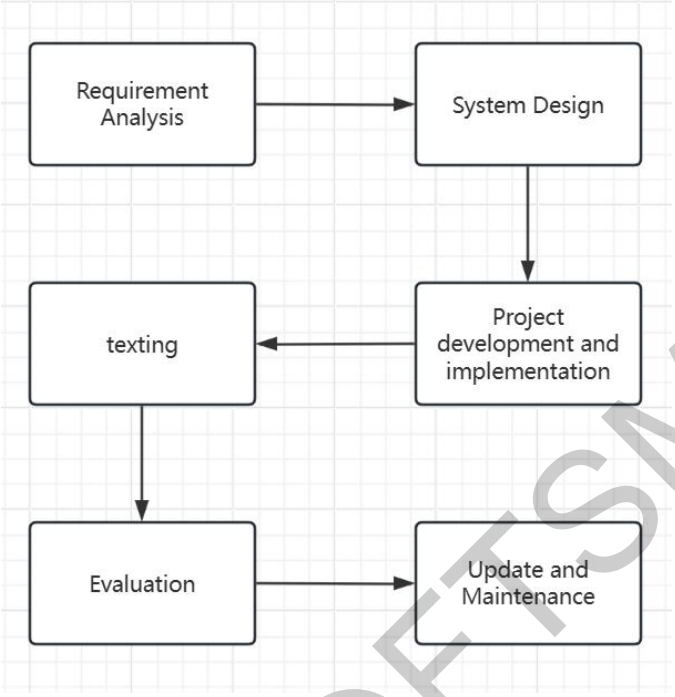

Figure 4.1 Method Diagram

4.1 Analysis Phase

This was done by carrying out a user requirement analysis to get to know what the features that would be required by piano learners ought to be. The results showed that intuitive interface, audio integration of scores and access to information about pianists is required.

4.2 Phase of Design

The ModelView-Controller (MVC) architecture system was considered to achieve the clear and maintainable structure of the code of the application. The prototypes produced were of low fidelity used to build user-friendly interface prior to the complete development.

4.3 Development Stage

Android Studio was applied to write the app in Kotlin. The management of the local login data was executed with the help of SQL, whereas the music data and synchronization were stored and managed with the help of Firebase.

4.4 Testing and Implementation Phase

Test were done in White box, black box and user acceptance. The tests covered the aspects of logging in, showing sheet music, audio match, data safety as well as its usability on different Android devices.

4.5 Evaluation Phase

After its completion, the prepared application was submitted to the head of the project to be reviewed. It was well appreciated in terms of usability and functionality.

5 RESULTS

The Piano Master application developed successfully has the following main features:

1. **Registration and Login**

Registration and Login are accomplished with their name, email and password.

Figure 5.1.1 Login page

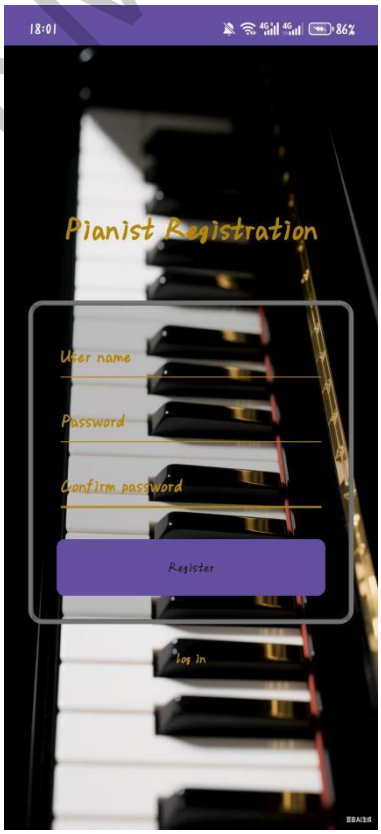

Figure 5.1.2 Registration page

Figure 5.1.3 Account modification entry

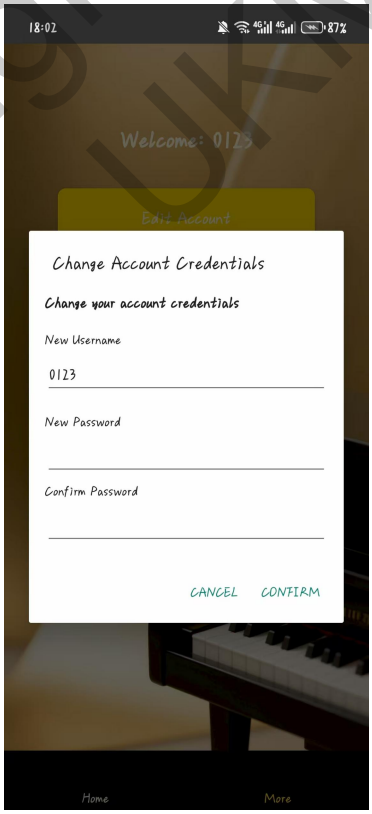

Figure 5.1.4 Password Modification Page

2. Pianist Display

These are lists of famous pianist with photograph and biography.

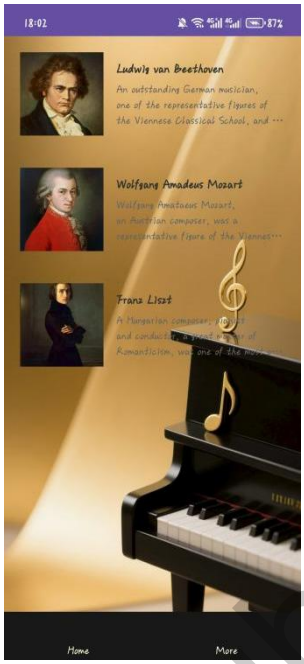

Figure 5.2.1 List of pianists

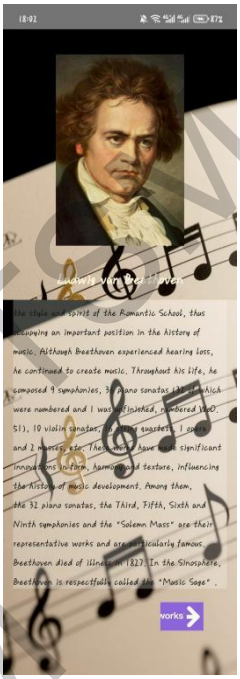

Figure 5.2.2 Pianist's Detailed Information

3. Repertoire Displa

Users are able to see the lists of pieces according to each of the pianists.

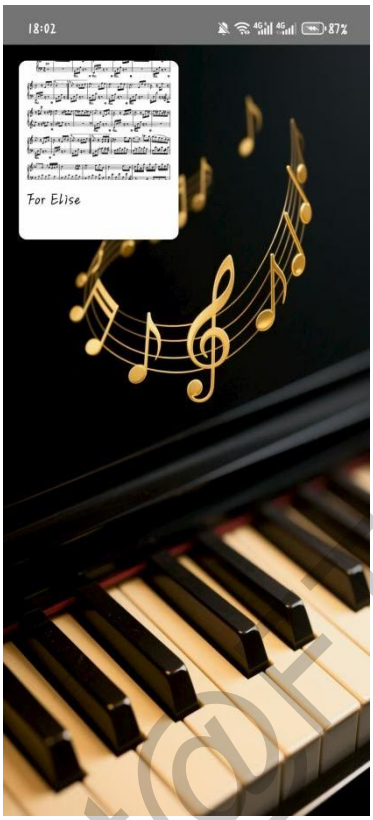

Figure 5.3 Pianist's Works Information

4. Synchronized Audio and sheet music

A user can hear the music and follow the sheet music at the same time.

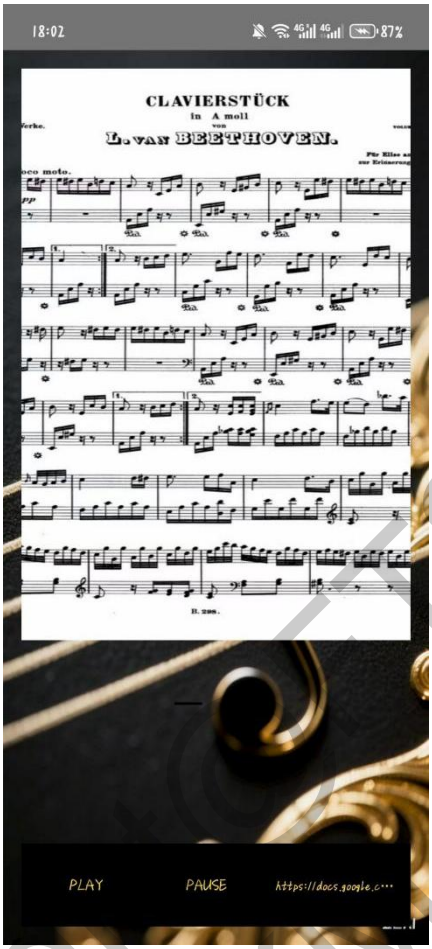

Figure 5.4 Sheet music and music playback

5. Easy to navigate interface

An uncluttered and straight forward interface that is easy to navigate.

6 CONCLUSION

To wrap it up, it can be stated that the Piano Master project successfully realized its primary goals as sheet music and audio integration offered a more efficient piano learning platform. Admittedly, possible limitations encountered including restricted library of music to the ones in the public domain setting and the absence of the foundational feedback based on the use of AI allow assuming that the app serves as a good starting point as a work in progress. The assumption is that Piano Master will help students of any level of playing pianos.

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