

Mobile Computing Project: Final Submission Description

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1. Project Introduction

"Guess Songs" is a music & game application that combines a music player and a song-guessing game that is highly playable. Users can play songs from an online music library, and they can also upload music to the online library via the client. All songs featured in the song-guessing game are sourced from the online library.

The guessing game features three modes: Classic, Endless, and Multiplayer.

-Classic Mode: allows a single player to complete a song-guessing game consisting of 10 random questions.

-Endless Mode: features the ability to answer an unlimited number of questions within a limited time, with the highest score of all players being recorded on the client-side leaderboard. The leaderboard updates in real-time.

-Multiplayer: enables multiple players to compete in the same game. After creating a 3-player room, all three players will compete in the same game, and their scores will be

communicated. 2. Tools Used

Development Environment: Android Studio, Java

Database: Firebase Real-time Database (see Figure 1)

(Access Link: <https://guess-songs-7513e-default-rtdb.firebaseio.com>)

(Firebase Console Access Link:

<https://console.firebase.google.com/project/guess-songs-7513e>)

User Authentication: Firebase Authentication

Music Storage: Alibaba Cloud Object Storage Service (OSS) (see Figure 2)

Audio Playback: Media Player (import android.media.MediaPlayer)

3. UI Design

- Designed a bottom navigation bar.
- Allowed language to follow the system settings.
- Implemented a multifunctional music player bar.
- Redesigned buttons and backgrounds.
- Created and utilized custom icons.

4. Main Features

- Online music library
- Multiplayer gameplay
- Music player

5. Source Code

- **Resources: No sourced code**
- The entire project was developed independently by me, with only assistance from ChatGPT.

6. New Features Implemented Between BETA and FINAL Versions:

1. Completed multiplayer mode (the previous phase only implemented room connectivity, this phase completed the game functionality).
2. Completed Endless Mode and its leaderboard.
3. Integrated the use of the online music library for song storage (OSS + Real-time Database).
4. Added a music player feature (allows querying, playing, pausing, and switching music).
5. Added a user-upload functionality (the library is updated in real-time, and newly uploaded songs appear in the guessing game).
6. Designed innovative UI, including the navigation bar and music player bar.

7. Relevant Screenshots

Firgure1: Firebase Console Project



Figure 2: My OSS Setup

