Project (II) Proposal on

Librivox Audiobook

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ABSTRACT

The "Librivox Audiobook" mobile app gives users access to over 19,000 free audiobooks from the Librivox API. Built with Flutter and Dart, and using Firebase for the database, this app helps users find popular, most listened to, and latest audiobooks. It features an audio mini player that users can control from anywhere in the app, easy user interface and business logic management, offline downloads, and the ability to save favorite audiobooks. Users can search for audiobooks by title or author, create playlists, share them publicly, or keep them private. The app includes audio controls like skipping silence, changing speed, and adjusting pitch. It also supports background playback, so users can listen while using other apps. This project aims to create a user-friendly and enjoyable audiobook platform with various helpful features.

[Keywords: Audiobook, Flutter, Dart, Firebase, Librivox, Audio Player, Mobile App]

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION TO DOMAIN

Audiobooks have become a popular way for people to enjoy literature, providing an alternative to traditional reading that can be enjoyed while commuting, exercising, or doing household tasks. With the rise of smartphones and portable audio devices, the accessibility and convenience of audiobooks have significantly increased. Librivox, a platform offering free audiobooks from the public domain, is a valuable resource that makes thousands of audiobooks available to everyone.

The "Librivox Audiobook" mobile application aims to benefit from the Librivox API, providing users with easy access to over 19,000 free audiobooks. This app is developed using Flutter and Dart, ensuring a smooth and responsive user experience across different mobile devices. Firebase is utilized for managing the user's details like wishlist audiobooks of user and user's playlist.

The app's main features include displaying popular audiobooks, the most listened-to audiobooks of the week, and the latest releases. Users can view details of each audiobook such as the title, author, downloads, rating, descriptions, and tags for each audiobook. Also, the app offers an audio mini-player that can be controlled from any route within the application, enhancing usefulness and convenience. Users can rate and review audiobooks, create playlist and Wishlist their favourite audiobooks. Background playback ensures continuous audio playback, even when users switch to other applications or lock their device.

The project is free and open-source, ensuring that everyone can use it without ads or subscription fees. This aligns with the ethos of Librivox, providing access to literature for all.

1.2 PROBLEM STATEMENT

In today's busy world, many people don't have enough time or easy ways to read books. This can be because of busy schedules, or not having books around, or books are too expensive. Audiobooks are a helpful solution because they let you listen to your favourite books while doing other things.

But finding lots of different audiobooks to listen to can be hard and expensive. Some audiobook apps we have to pay for, and we might not have all the books we want. Plus, it can be tricky to find new books we'd like, adjust how we listen to them, or listen offline.

Because so many people use smartphones and want things they can enjoy right away, there's a big need for an audiobook app that's easy to use and has lots of great features. This app should have tons of free audiobooks, find many books, let us listen smoothly without any interruptions, and keep track of what we like to listen to on different devices.

The problem we are solving is providing access to loads of audiobooks, a smooth player, the ability to listen offline, wishlist options, search functionality, and the ability to create private or public playlists, etc-all for free and without any annoying ads. By using technology and thinking about what users want, we can make listening to audiobooks more fun and accessible for everyone.

1.3 OBJECTIVES

Following are the objectives of our application:

- Provide access to large no. of audiobooks (more than 19000) for free
- Provide offline downloads of the audiobooks
- Provide wishlist functionality so user can wishlist their favourite audiobooks
- Provide search functionality so user can search audiobook they want to listen to from the book title or author name
- Allow users to create both private and public playlists for organizing their audiobook collections.
- Ensure a completely ad-free experience for users.

1.4 AIM AND MOTIVATION

The aim of this project is to give access of 1000s of audiobooks free and with no ads to everyone.

We are motivated by the desire to make books available to more people. In today's busy world, many people find it hard to sit down and read a book. Audiobooks are a great solution because they let people listen to books while they're commuting, working out, or doing other activities. However, many audiobook services are expensive, offer limited free options, and have annoying ads.

We believe that everyone should be able to enjoy books without having to pay a lot or deal with ads. By making a free, ad-free audiobook app, we want to make it easier for everyone to access and enjoy literature. We are also passionate about using technology to create an app that is not only useful but also easy to navigate.

1.5 SCOPE AND APPLICATIONS

The "Librivox Audiobook" project will develop a mobile app for Android and iOS using Flutter and Dart, with Firebase for backend support. The app will offer access to a vast library of free audiobooks via the Librivox API, featuring a smooth audio player, offline listening, user authentication, wishlist functionality, search options, and playlist management. Key features include personalized recommendations, review and rating systems, background playback, and an ad-free experience. Continuous updates will enhance functionality based on user feedback.

The "Librivox Audiobook" app is designed for everyone, providing a lot of collection of free, ad-free audiobooks. General users can enjoy a wide range of books without any cost or interruptions. Students will find it useful for accessing educational audiobooks, making it easier to learn and study on the go. Commuters and busy professionals can listen to their favourite books during travel or while multitasking. The app is also a great resource for visually impaired users who rely on audiobooks for reading. Language learners can use it to improve their listening and comprehension skills by accessing books in their target language.

1.6 FEASIBILITY STUDY

A feasibility study is an analysis that evaluates the practicality and potential success of a proposed project or system.

1.6.1 TECHNICAL FEASIBILITY

Librivox Audiobook is doable because we're using modern tech like the Dart and Flutter. These tools help us make the application smooth, flexible, seamless user experiences, and compatibility across various devices. By using the Librivox API to access lots of audiobooks and Firebase for storing user’s data, we will be making app work well and give users great experience.

1.6.2 ECONOMICAL FEASIBILITY

The economic feasibility of the Librivox Audiobook project is favourable, as it is designed as a free and open-source (FOSS) app, with no intention of generating revenue directly. Users have the option to support developers through platforms like Patreon, but the app itself will not have any financial transactions. This approach minimises operational costs and eliminates the need for monetization strategies. Additionally, the project's focus on providing a valuable resource to users aligns with the ethos of open-source development, fostering community contributions and collaboration. Overall, the project's economic model is sustainable and conducive to its mission of making literature accessible to all.

1.6.3 OPERATIONAL FEASIBILITY

Operational feasibility for the Librivox Audiobook app is high. Users can effortlessly browse, listen to audiobooks, and manage their preferences. As the app grows in popularity, it can seamlessly adapt to accommodate increased user traffic and content demand. The app's user-friendly interface and robust backend infrastructure contribute to its operational efficiency, allowing for smooth day-to-day operations and scalability to meet evolving user needs.

CHAPTER 2: LITERATURE REVIEW

The literature review explores existing research and applications related to audiobooks. It provides an overview of the current state of these technologies and their applications, identifying gaps that the "Librivox Audiobook" project aims to fill [1]. In the time when corporations are investing relentlessly in centralizing content and constraining individuals' freedoms to engage with and share the content, the decentralized and distributed model of Librivox consistently works to preserve crucial models of openness and access not only in their finished product, but also their workflow and production [2].

Audiobooks have surged in popularity over the past decade, driven by the increasing usage of smartphones and audio devices. According to the Audio Publishers Association, the audiobook industry has seen continuous growth, with more users preferring audiobooks due to their convenience and the ability to multitask while listening. Several studies have highlighted the benefits of audiobooks, including improved comprehension and increased access to literature for people with visual impairments or reading difficulties [3] .Users can also appreciate the ability to listen to books while commuting, exercising, or performing other activities [4].

Numerous platforms offer audiobook services, including Audible, Google Play Books, and Librivox. Each platform has its strengths and limitations. Audible is the subscription-based service with a vast collection of audiobooks, including exclusive titles. However, it is relatively expensive and requires a monthly fee. Google play book audiobooks for purchase without a subscription, but the cost per audiobook can be high and Librivox(unofficial) provides free public domain audiobooks, read by volunteers. It is a valuable resource but lacks the modern features and user experience found in commercial apps.

CHAPTER 3: SYSTEM DESIGN

3.1 USE CASE DIAGRAM

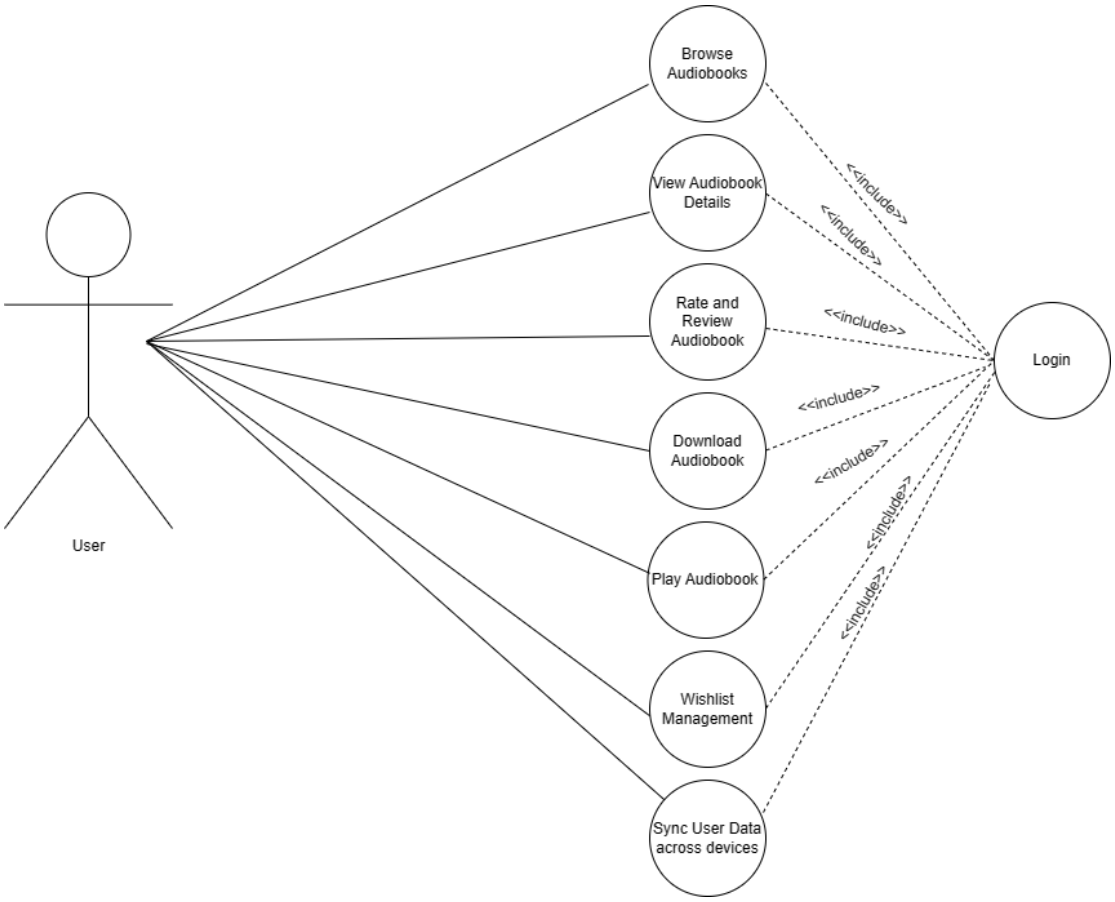

Figure 1 Use case diagram

In the application, the main usecase for user is they should first login and after login, they can browse audiobooks. They can view each audiobook details, rate and review that audiobook and download the audiobook for offine access, play audiobook, and wishist their favourite audiobook. The user details like playlist of user and wishlist of users are saved on the database and can be sync across various device.

3.2 BLOCK DIAGRAM OF SYSTEM DESIGN

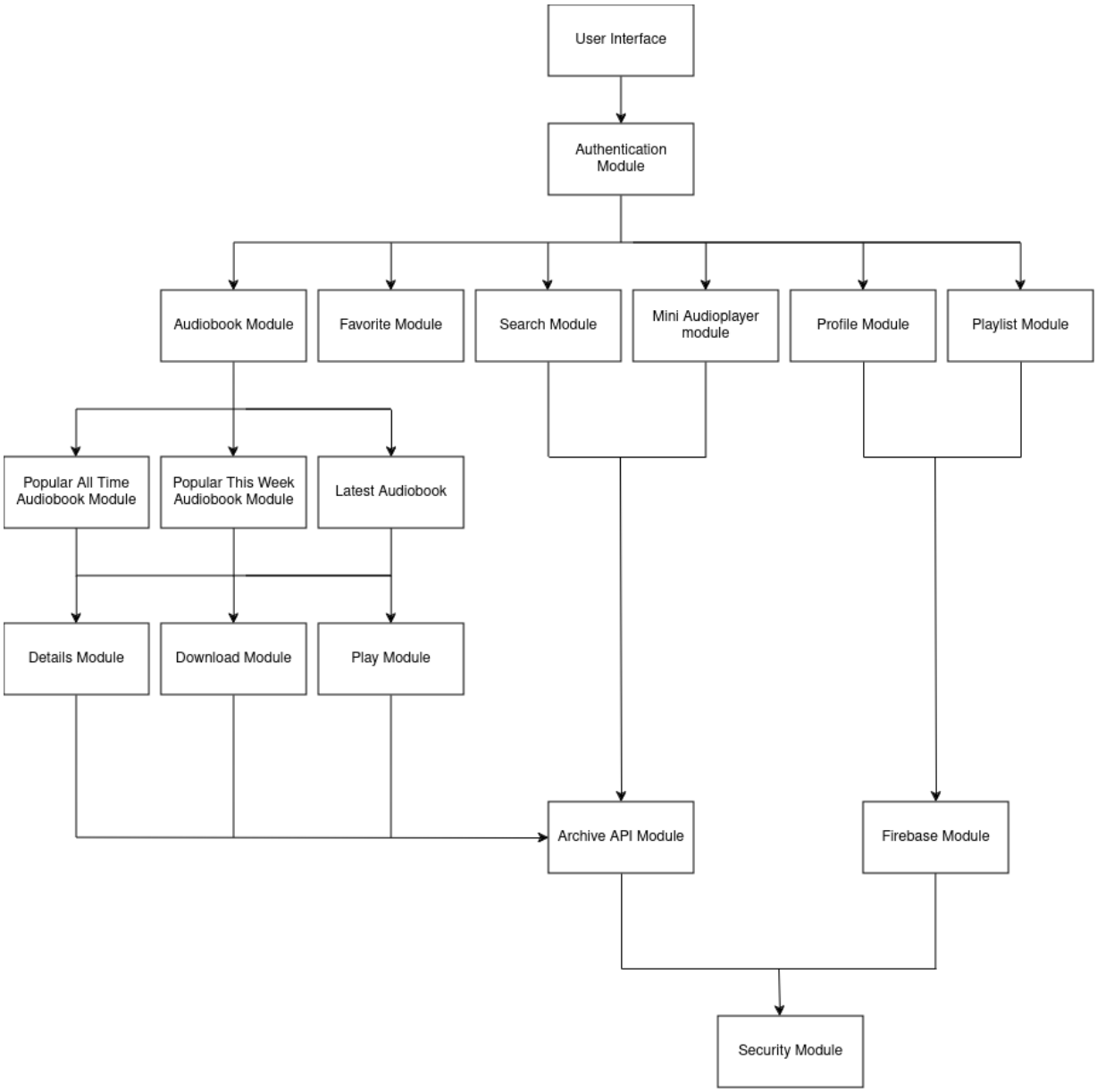

Figure 2 Block diagram of system design

The system design of Librivox Audiobook involves a user-friendly mobile application built with Flutter allowing users to browse audiobooks, search audiobooks, and play audiobooks easily. The backend handles user authentication via Firebase which serves as database as well to store user's playlist and favourites.

The Audiobook Module is further divided into submodules for displaying popular audiobooks, audiobooks most listened to this week, and the latest audiobooks. Each audiobook has detailed information managed by the Details Module, with the

Download Module facilitating offline access and the Play Module handling audio playback.

Supporting these functionalities are the Archive API Module for accessing Librivox data, the Firebase Module for backend services such as real-time database management and user data storage, and the Security Module ensuring data protection and secure interactions.

3.3 ER DIAGRAM

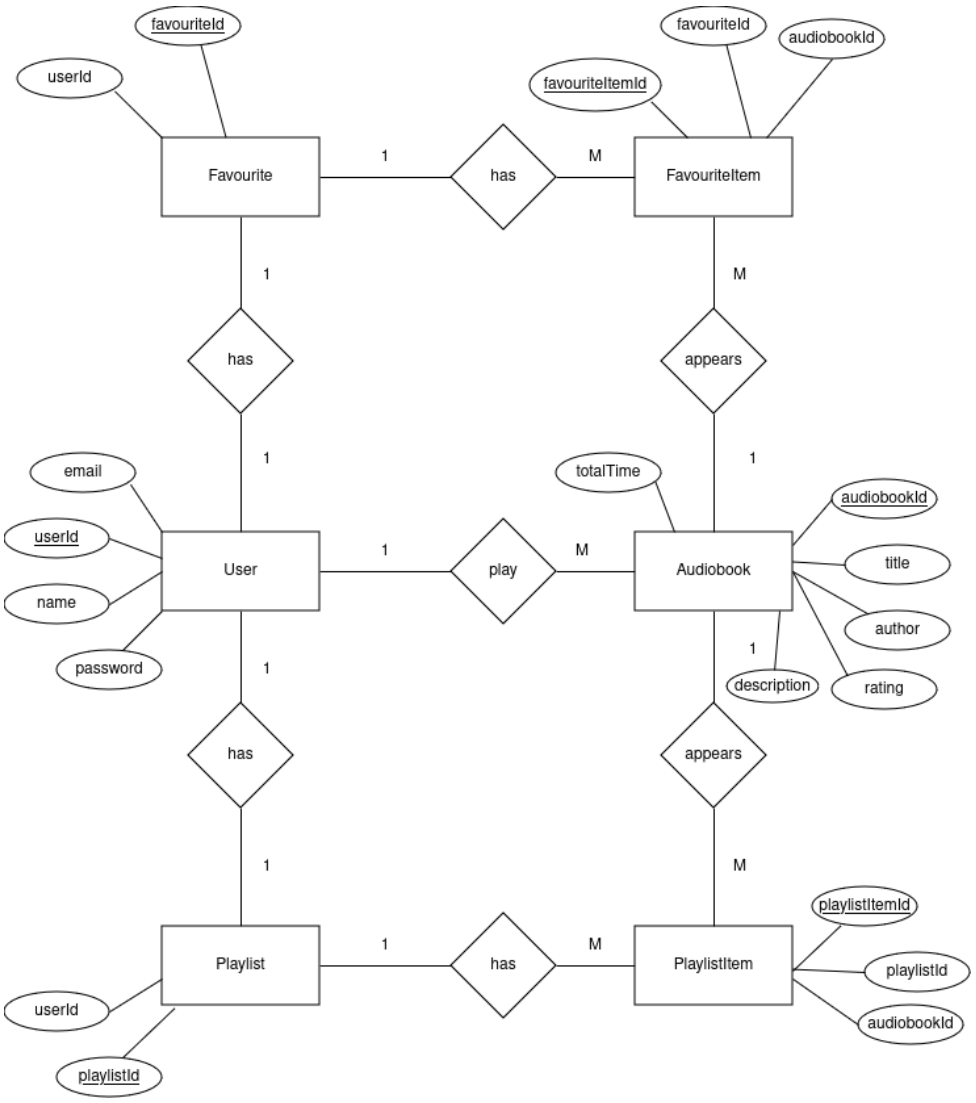

Figure 3 ER Diagram

The ER diagram illustrates the relationships between entities in the "Librivox Audiobook" application. The User entity, identified by userId, includes attributes like

email, name, and password. Users can create Favorites and Playlists, each identified by favouriteId and playlistId, respectively. Favorites contain multiple FavouriteItems linked to audiobooks via audiobookId. Similarly, Playlists consist of PlaylistItems, each tied to audiobooks. The Audiobook entity, identified by audiobookId, includes attributes like title, author, description, rating, and totalTime. Users can play audiobooks, establishing a relationship between User and Audiobook entities.

CHAPTER 4: EXPECTED OUTPUT

The "Librivox Audiobook" app is expected to deliver the following:

- **Extensive Audiobook Library**: Access to over 19,000 free audiobooks from the Librivox API, categorized into popular, most listened, and latest releases.
- **Detailed Audiobook Information**: Each audiobook will display detailed information, including title, author, description, rating, downloads, and tags.
- **Search Functionality**: Users will be able to search for audiobooks by title or author, making it easy to find specific content.
- **Audio Miniplayer**: A persistent audio miniplayer that can be controlled from any route within the application, ensuring seamless playback control.
- **Offline Listening**: Users will be able to download audiobooks for offline listening, ensuring access without an internet connection.
- **Favorites and Playlists**: Users can wishlist audiobooks and create playlists. Playlists can be made public or kept private.
- **Advanced Audio Controls**: Features like speed adjustment, pitch change, silence skipping, and more, using the audio_player and audio_service libraries.
- **Background Playback**: Audio playback will continue even when the app is running in the background or when other apps are being used.

CHAPTER 5: CONCLUSION

The "Librivox Audiobook" project represents a significant step towards making literature more accessible and enjoyable for a wide audience. By offering a free, open-source, and feature-rich platform, the app not only provides access to a vast collection of audiobooks but also sets a standard for user experience in the realm of free audiobook applications. The project's success underscores the potential of modern mobile development frameworks like Flutter and the importance of leveraging open-source technologies to create impactful applications.

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