ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ
VISVESVARAYA TECHNOLOGICAL UNIVERSITY - BELAGAVI

A MINI PROJECT REPORT ON

"MUSIC PLAYER APPLICATION"

Submitted to Visvesvaraya Technological University in partial fulfillment of the requirement for the award of degree of

Bachelor of Engineering

in

Computer Science and Engineering.

Submitted by:

Mr. Abhiram Bharadwaj G S	4JN18CS002
Mr. Adithya Gujjar G A	4JN18CS004
Mr. Sagar D S	4JN18CS079
Mr. Shreyas Kunte S	4JN18CS096

Under the Guidance of:

Dr. Ravindra S Ph.D.
Associate Prof., CSE

Mrs. Thaseen Bhasith M.Tech.
Asst. Prof., CSE

Dr. Nirmala Shivanand Ph.D.,
Professor, CSE

Department of Computer Science & Engineering

Jawaharlal Nehru New College of Engineering

Shivamogga - 577 204

July 2021

National Education Society ®

Jawaharlal Nehru New College of Engineering

Department of Computer Science & Engineering

CERTIFICATE

This is to certify that the Mini-project Report entitled

"MUSIC PLAYER APPLICATION"

Submitted by:

Mr. Shreyas Kunte S 4JN18CS096

Student of 6th semester B.E under the supervision and guidance towards the partial fulfillment of the requirement for award of degree of the Bachelor of Engineering in Computer Science and Engineering of Visvesvaraya Technological University, Belagavi during the year 2020 – 2021.

Signature of Guides:

Dr. Ravindra S Ph.D.	**Mrs. Thaseen Bhasith** M.Tech.	**Dr. Nirmala Shivanand** Ph.D.,
Associate Prof., CSE	Asst. Prof., CSE	Professor, CSE

Signature of HOD:

Dr. Poornima K M B.E., M.Tech., Ph.D.,

Professor & Head, Department of CSE.

Name of Examiners	Signature with Date
1.	
2.	

ABSTRACT

This project is about the mp3 music player application development using Android . The biggest difference between the music player and the existing application is that it is completely free for the users to use . In order to solve the problem of complex functions large required memory of mobile phone music player on the current market , a new music player of simple , convenient , less required memory as well as user - friendly is developed . Based on the android technology , using the Kotlin language and eclipse programming tools lead to design and coding of music player . This media player allows the user to forward , backward play and pause an audio and we have also included the seek bar to move the audio forward or backward as required .This project has merits of high performance ,simple operation and run independently on the android devices .

ACKNOWLEDGEMENT

We would like to acknowledge our profound gratitude to all those who have helped in implementing this mini project.

We are grateful to our institution **Jawaharlal Nehru National College of Engineering** and **Department of Computer Science and Engineering** for imparting us the knowledge with which we can do our best.

We would like to thank our beloved guides **Dr. Ravindra S, Asst. Professor** and **Dr.Poornima K M, Professor and Head of Dept, CS&E, JNNCE** who have helped us a lot in making this project and for their continuous encouragement and guidance throughout the project work.

We would like to thank **Dr. K.M Poornima, HOD of CS&E Dept** and **Dr.Manjunatha P, The Principal, JNNCE, Shimoga** for all their support and encouragement.

Finally, we also would like to thanks the whole teaching and non teaching staff of Computer Science and Engineering.

Thanking you all,

Project Associates,

Abhiram Bharadwaj G S	4JN18CS002
Adithya Gujjar G A	4JN18CS004
Sagar D S	4JN18CS079
Shreyas Kunte S	4JN18CS096

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 OVERVIEW

Media Player is android application that can play various audio and video files. To make use of android OS with more public interest and make it more users friendly so all can use it. This project is to design and implement platform independent media player which can play most of the audio files like .mp3, .wav etc .

1.2 APPLICATIONS

- By using the Dynamic database like firebase we store the user information
- Allow the users to sort the songs based on the order in which they want to lister to them .
- The app should be connected to internet and display recommended or similar songs based on the user's playlist .
- Providing the basic functionalities like favourites , playlist , shuffle , repeat .
- This app will allow the users to categorise the songs into different genres like party songs , romantic songs , inspirational songs etc .

1.3 PROBLEM STATEMENT

Due to the fierce competition between music player applications, many developers tried to add many features, advertise and content to their respective music player in order to retain their users and attract new users. This trend has made it harder for users to get content from their music player .We are supposed to developed the android application app by improving the gesture control , sorting and searching features , playlist , shuffle , favourites , repeat etc .

1.4 OBJECTIVES

- Make it with a simple feature and run smoothly .
- It displays the media playing time with Track bar so that user may drag the media player as needed .
- Navigation through different screens
- Consists of play/pause/stop features .
- Interactive GUI .
- Playlist and favourites .
- User registration .

1.5 OVERVIEW OF ANDROID

Android architecture contains different number of components to support any android device needs. Android software contains an opensources Linux Kernel having collection of number of C/C++ libraries which are exposed through an application frameworks services. Among all the components Linux Kernel provides main functionality of operating systems functions to smartphones and Dalvik Virtual Machine(DVM) provide platform for running an android application.

The main components of android architecture are following:

- Applications
- Application framework
- Android Runtime
- Platform Libraries
- Linux Kernel

Applications:

Application is the top layer architecture. The pre-installed applications like home, contacts, camera, gallery etc and third party applications downloaded from the play store like games, chat applications etc.

Application Framework:

Application Framework provides several important classes which are used to create an Android application. It provides a generic abstraction for hardware access and also helps in managing the user interface with application resources.

Application Runtime

Android Runtime environment is one of the most important part of Android. It contains components like core libraries and the Dalvik Virtual Machine(DVM). Mainly , it provides the base of the application framework and powers our application with the help of the core libraries.

Platform libraries :

The Platform Libraries includes various C/C++ core libraries and Java based libraries such as Media, Graphics, Surface Manager, OpenGL etc. to provide a support for android development.

- **Media** library provides support to play and record an audio and video formats.
- **Surface manager** responsible for managing access to the display subsystem.
- **SGL** and **OpenGL** both cross-language, cross-platform application program interface (API) are used for 2D and 3D computer graphics.
- **SQLite** provides database support and **FreeType** provides font support.
- **Web-Kit** This open source web browser engine provides all the functionality to display web content and to simplify page loading.
- **SSL (Secure Sockets Layer)** is security technology to establish an encrypted link between a web server and a web browser.

Linux Kernel :

Linux Kernel is heart of the android architecture. It manages all the available drivers such as display drivers, camera drivers, Bluetooth drivers, audio drivers, memory drivers, etc. which are required during the runtime.

FEATURES OF ANDROID:

Android is a powerful operating system competing with Apple 4GS and supports great features. Few of them are listed below –

Beautiful UI :- Android OS screen provides a beautiful and intuitive user interface.

Connectivity :- GSM/EDGE , IDEN ,CDMA, EV -DO, UMTS, Bluetooth, Wi-fi , LTE, NFC and wimax.

Storage :- SQLite, a lite weight relational database, is used for data storage purpose.

Media Support:- H.263, H.264, MPEG-4 SP, AMR, AMR-WB, AAC, HE-AAC, AAC 5.1, MP3, MIDI, WAV, JPEG, PNG, GIF, and BMP.

Messaging :- SMS and MMS.

Web Browser:- Based on the open-source Web Kit layout engine, coupled with Chrome's V8 JavaScript engine supporting HTML5 and CSS3.

Multitouch:- Android has native support for multi-touch which was initially made available in handsets such as the HTC Hero.

Multi-Tasking:- User can jump from one task to another and same time various application can run simultaneously.

Resizable Widgets:- Widgets are resizable, so users can expand them to show more content or shrink them to save space.

Multi Language:- Supports single direction and bi-directional text.

GCM:- Google Cloud Messaging (GCM) is a service that lets developers send short message data to their users on Android devices, without needing a proprietary sync solution.

Wi-fi Direct:- A technology that lets apps discover and pair directly, over a high-bandwidth peer-to-peer connection.

Android Beam :- A popular NFC-based technology that lets users instantly share, just by touching two NFC-enabled phones together.

1.6 OVERVIEW OF KOTLIN

FEATURES:

1. Kotlin is Open-Source:

The very first thing you should know about Kotlin is that it is an open-source programming language. But, apart from being open-source, Kotlin also provides a single-click tool using which, developers can convert existing Java code. And if you're an Android app developer who is new to Kotlin and interested in learning it from scratch, we recommend starting with the beginner course available on Udemy and Udacity. These courses will help you to sharpen your skills.

2. Kotlin Supports Full Java Interoperability:

One of the major as well as the best features of Android Kotlin is its deep interoperability with Java. This, in fact, has attracted many Java developers as well as Android app developers to learn Kotlin . It basically runs on JVM and also supports Java libraries as well as tools, providing full Java inter operability .Both the languages co-exist, and this makes it easier for developers to be productive. Developers can easily compile one Android project in both languages with the help of this feature – interoperability function .

It can show 100% interoperable. So, if you need access to a Kotlin method from a Java class or vice versa, you can do it without any extra parameters

3. Kotlin Comes With Lazy-Loading Feature:

The lazy-loading feature basically increases the start-up time, which is very useful when using it for Android development . In simple words, it's the best solution for all developers who want to reduce their Android app start-up time so that their apps' content can be shown faster . With the lazy-loading feature, Android developers can load the only resources into main memory which are necessary. If you are looking for this feature, then Kotlin is the best choice . For example, if you have a shopping app, the majority of users will only browse your selection, that means you could have the payment API be lazy loaded.

4.Data Classes in Kotlin:

The necessity of a class is always argued by programming language designers/makers. Typically, a data class in Java contains lots of boilerplate code which developers have to skip in order to find out the real use of that class. But now in Kotlin, Android developers can write the equivalent of the same Java code in a simple manner, and with lesser code. Therefore, the data classes in Kotlin are also known to be one of the useful features.

5.Collection Filtering:

We all know that when working with an API, we developers need to deal with quite often. But by using Kotlin's collection filtering feature, it's easier to tell what your resulting list should contain.

ADVANTAGES OVER JAVA:

1. It's Completely Interoperable With Java: As already mentioned above, one of the biggest conveniences with using Kotlin is that it's compatible with Java ! With all its tools and frameworks, you can just add these to your Kotlin projects — nice and easy —with no need to change the entire project in Java.

2. Safer Code:

We've already settled that Kotlin's code is more concise, therefore it goes without saying that a concise, compact, and clear code is implicitly a safer code ! Being more compact, it allows fewer errors.

3. It Comes With a Smarter and Safer Compiler:

Adding a good compiler has been one of Kotlin's development team's main goals when they created this programming language.

4. It's Easier to Maintain: It's not for no reason that Kotlin's a “one-stop language” for all application development — it supports lots of IDEs, Android Studio included. Therefore, you're free to use all those already tried and tested development tools that you're comfortable with for maintaining your codebase at scale. This is another one of those "hard-to-resist-to" advantages of Kotlin over Java.

5. It's Been Created to Boost Your Productivity: Another one of the key advantages of Kotlin over Java is that it has been built with developer productivity in mind. And, it goes without saying that enhanced productivity goes back to concise code itself, including to its intuitive syntax and its overall clean language design. It'll take you less time to write new code in Kotlin, to deploy it and to maintain it at scale.

6. It “Spoils” You with Better Support for Functional Programming:

7. It Has Null in Its Type System:

Nullability issues have been one of Java's well-known sore points. Since it's a common thing in Android for the absence of certain values to be represented as “null,” Kotlin comes to address these issues by placing null right in its type system.

ROLE OF KOTLIN IN APP DEVELOPMENT:

Kotlin is the preferred language for Android development in 2021. Both Java and Kotlin can be used to build performant, useful applications, but Google's libraries, tooling, documentation, and learning resources continue to embrace a Kotlin-first approach; making it the better language for Android today.

CHAPTER 2

DESIGN AND IMPLEMENTATION

2.1 FUNCTIONAL REQUIREMENTS

Hardware Requirements:

1) Windows : Windows 10

2) Processor : Intel (R) Core(TM) i5-7200U CPU@ 2.50 GHz 2.70 GHz

3) RAM : 8GB

4) System type : 64-bit Operating system, x64-based Processor

Software Requirements:

1) Platform : Android studio - version 4.2

2) AVD Manger :

- ☆ Name : Pixel 3a API 30
- ☆ Resolution : 1080x2220 ; 440 dpi
- ☆ API : 30
- ☆ Target : Android 11.0 (Google play)
- ☆ CPU/ABI : x86
- ☆ Size on disk : 12GB

3) Minimum SDK : API 25 : Android 7.1.1 (Lollipop)

4) Language : Kotlin

2.2 DESIGN

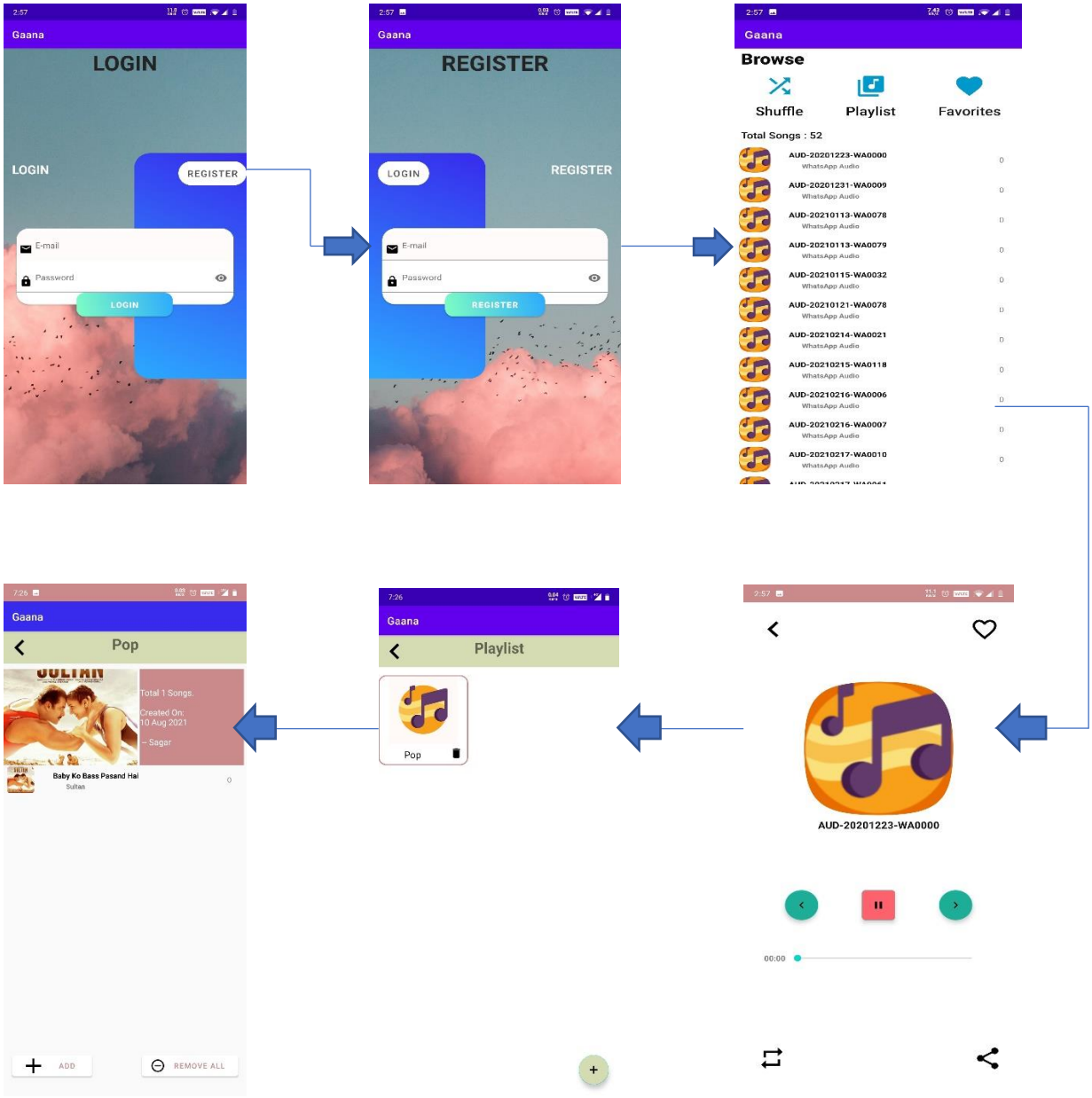

Fig 2.1 Blueprint

In Fig 2.1 shows the Blueprint of our Music Player Application , where the user can register by giving the email and password credentials and can play any songs .

2.3 FIRESTORE

2.3.1Overview of firebase

Firebase can power your app's backend, including data storage, user authentication, static hosting, and more. Focus on creating extraordinary user experiences. We will take care of the rest. Build cross-platform native mobile and web apps with our Android, iOS, and JavaScript SDKs. You can also connect Firebase to your existing backend using our server-side libraries or our REST API. Real-time Database − Firebase supports JSON data and all users connected to it receive live updates after every change. Authentication − We can use anonymous, password or different social authentications. Hosting − The applications can be deployed over secured connection to Firebase servers .

2.3.2 AUTHENTICATION

Developing an authentication system for your application generally takes immense manpower and time. Even after development, you need to deploy personnel to maintain the efficiency of the authentication system.

Firebase provides an authentication management tool that helps you build a secure and error-free authentication. It allows you to create and manage a custom authentication system in no more than 15 lines of code at the extreme.

You can allow the user authentication in a variety of ways including

- Email Login
- Facebook Account login
- Phone Numbers
- Twitter account Login

2.3.3 Firebase structure

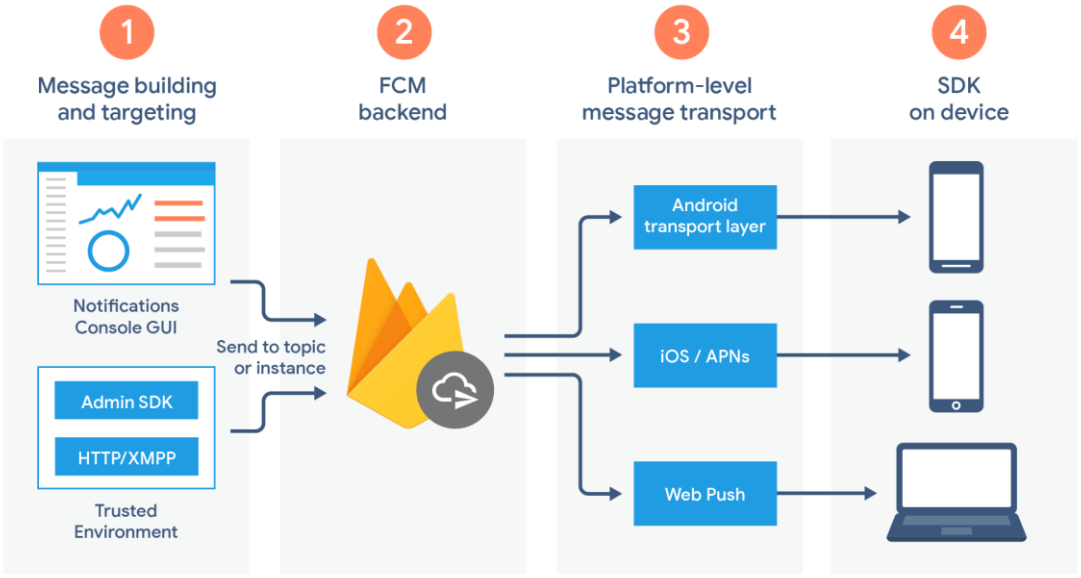

Fig 2.2 Structure of a Firebase

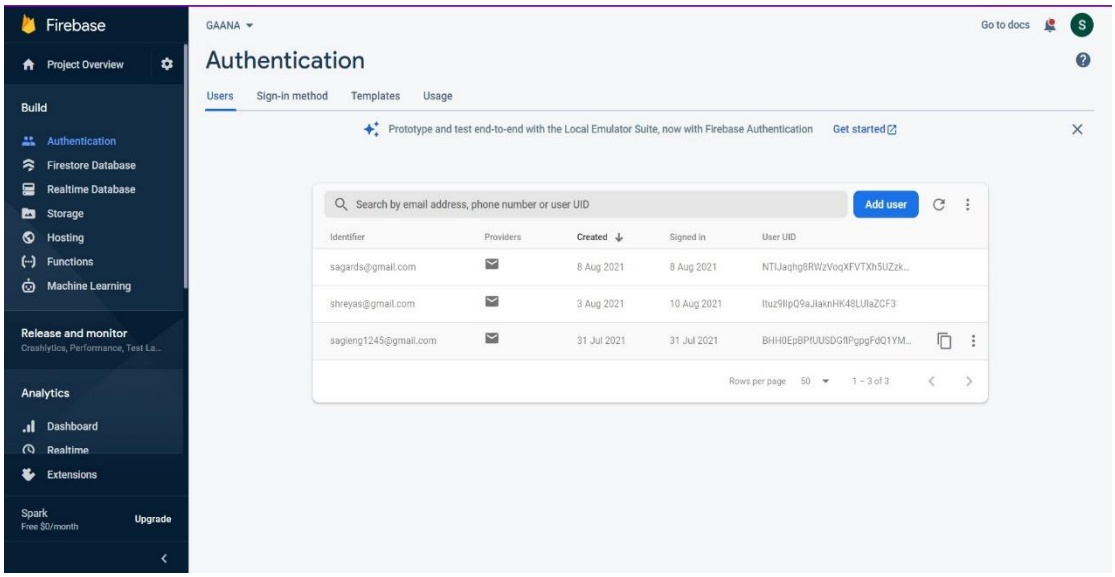

Fig 2.3 Data stored in firebase

In Fig 2.2 shows the database stored in the firebase .When we register with particular details such as Username, password, Email, ,those details will be stored in the firebase. When we try to login with the earlier registered credentials, it fetches the database from firebase and then login.

2.4 Implementation

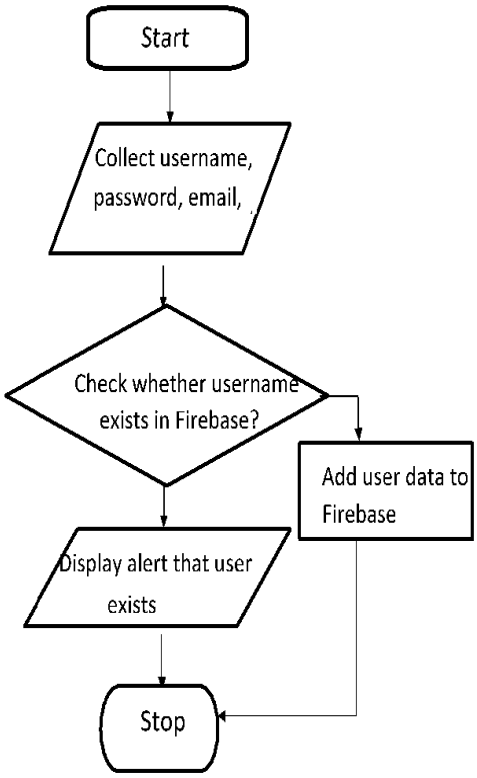

Fig 2.4 Flowchart Of Firebase

In Fig 2.4 shows the flowchart of the firebase where the data of users like email and password will be stored .

CHAPTER 3

RESULTS AND SNAPSHOTS

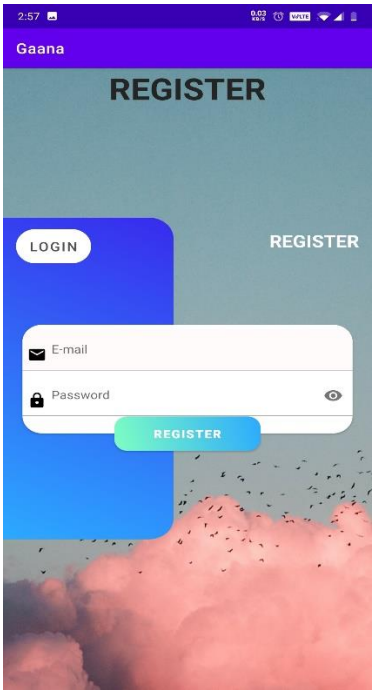

Fig 3.1 Register Page.

In Fig 3.1 is the register page where the user have to get registered first with proper username, password, email id, phone number and address and then press register button to get register.

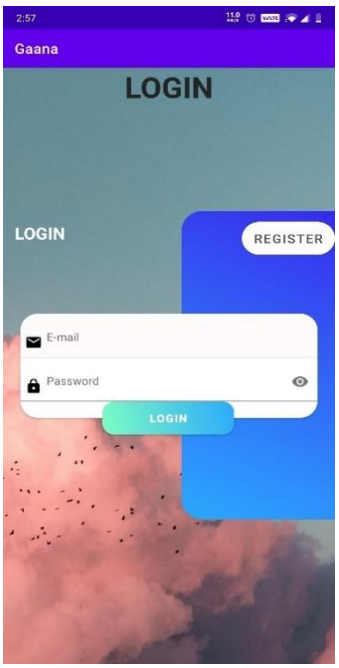

Fig 3.2 Login page.

In Fig 3.2 is the login page for the existing users who have registered earlier with the app. To login we have to enter the proper credentials. Even if one of the credentials entered is wrong, login fails.

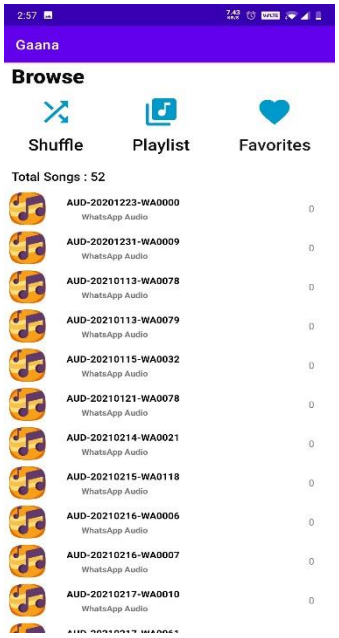

Fig 3.3 Songs List (Using Recycler View).

In Fig 3.3 Here we have created the list of songs using recycler view , when we press a particular songs its gets navigated into another page .

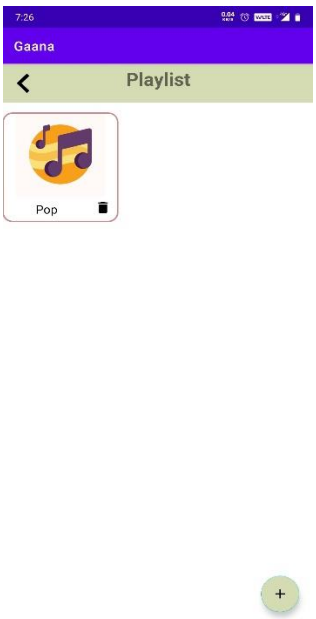

Fig 3.4 Playlist

In Fig 3.4 Playlist is a list of audio files that can be played back on a media player either sequentially or in a shuffled order .

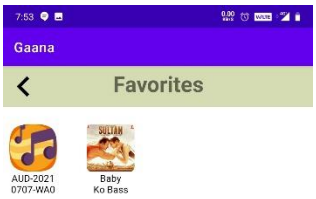

Fig 3.5 Favourites

In Fig 3.4 Favourites songs which we will click in the songs activity page will be added in the favourite list.

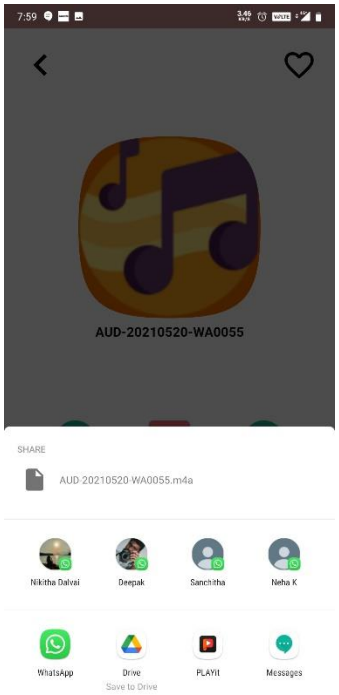

Fig 3.6 Share

In Fig 3.5 it is shown that we can share the particular song to any person using different apps like Whatsapp , Drive, Snapchat, Messages, Instagram etc. The song can be shared as link or file.

CHAPTER 4

CONCLUSION AND FUTURESCOPE

4.1 CONCLUSION

Through the development of music player on Android platform, we get a clear understanding of overall process of the system. The core part of the music player is mainly composed of main interface, file browsing and song listing, Grasping the development of the music player has had the preliminary scale small features. Music player system realized the basic function of player: play, pause, rewind and fast forward a, volume adjustment is performed through the Android System Itself, play mode, song search, seek bar, This development implicated the popular mobile terminal development technology. This is the combination management of Java language in the open source mobile platform based on Linux system configuration file. The system realized the music player programming. This design of music player based on Android system requires elaborate design of the music player framework, by adopting ANDROID STUDIO 4.2.1 Kotlin language as technical support of this system, with the Android plug-in tools, and combination of Latest Android SDK version lead to the comprehensive and smoothly design and development of the mobile terminal

4.2 FUTURESCOPE

- Make it with a simple feature and run smoothly .
- Support gesture control .
- Support quick search .
- Further we can dynamically add the song using rest API's .
- Deploying the app in the AppStore.

REFERENCES

[1] youtube . (https://youtu.be/_WtHGJR1IeA)

[2] Various open source materials from Internet.

[3] . Discussion among the group and with guide.

[4] Android Documentation (https://developer.android.com/docs)