Development and Research of Echo Music Player Application Based on Android

Mr.Nitesh Singh Bhati Sir
Asst. Prof., CSE
Delhi Technical Campus
Guru Gobind Singh Indraprastha University
New Delhi, India
e-mail:

Anand Kumar, Student
Delhi Technical Campus
Guru Gobind Singh Indraprastha University
New Delhi, India
e-mail: ak.cse101@gmail.com

Nikita Sharma, Student
Delhi Technical Campus
Guru Gobind Singh Indraprastha University
New Delhi, India
e-mail: nikkitasharmaa11@gmail.com

Abstract—First, Introducing the Android and then develop the Echo music player which is based on the Android platform through research and we will also discuss why Kotlin is used over Java. This music player has a smart feature like shake to change the songs, friendly interface, convenient operation. After the proper testing, the echo music player can satisfy the basic expectation of the users and runs stably.
Keywords—Android; Echo music player; Kotlin; Java

1.INTRODUCTION

The rapid innovation of the computer and communication technology It becomes more powerful day by day many kinds of rich content applications will be decorated on the mobile platform such as video calling, online reading and other online feature like remote accessibility and many more to utilized these technologies by using the best platform we required a strong platform to handle this intelligence of application. In November 2007, Google designed a software platform for mobile devices, which called Android. The goal to designed Android is to establish an open ecological system with a standardized mobile phone software platform in the mobile industry[1].

We designed and implemented a music player based on Android in this paper. It will contain a Splash screen ,Navigation drawer with the app logo section at the top along with links to All Songs, favourites , Settings and About Us where All songs screen (whereof the list all the tracks fetched from offline storage are displayed and a user can sort the tracks by name or recently added). Basically the app should be able to fetch and play .mp3 and .wav files and the favourites screen (where a list of all the favourite songs are displayed) and A Settings screen (where the Shake to change song' feature can be enabled or disabled).An 'About us' screen (where we will display information about the app developer and the app version) with the name of the track playing and play or pause feature. This would appear if the user has moved from the now playing screen to All songs screen or Favourites screen without pausing the track[2]. In the above the main and important feature of the music player is shake to change the music player which in implemented[3].

2. DESIGN AND IMPLEMENTATION OF MUSIC PLAYER

1.Software Architecture

The music player divided into two parts where the first part 1 front-end and the second part is back-end. Front - end is all about Interface of Echo music player which in implement by using the XML and the second part is the back-end of the music player which is implemented by using Kotlin programming language instead of the Java. The communication between front-end and back-end are via intent. An Intent is a messaging object you can use to request an action from another app component. Although intents facilitate communication between components in several ways [4]. The architecture of the music player is shown in Figure 1.

2. Software modules

The Echo music player have some module which is the Splash screen, Navigation drawer, All songs screen, Favourites screen, Setting screen, About us screen and now playing screen the block diagram shown in the Figure no. 2

A) Splash screen

This is the first screen that gets displayed when a user opens the app. It contains a linear gradient background and the app logo in the center of the screen. The user will see the screen for 1 second and then the home screen will open.

B) Navigation drawer

The navigation drawer provides the feature to the user for navigating to different screens within the app. The user is applicable to access the navigation drawer on all the app screen. navigation drawer contains Favourites, Settings, All songs, and about our screen.

C) All songs screen

All songs screen is the home screen of echo music player application that means when the app is launched user will see the all songs screen after the splash screen. Once the app is launched it will be fetched the all tracks mp3 and .wav from the offline storage and it will be displayed on the all songs screens in a list view. By default, all the tracks will be sorted by name and for each track in the list, the user should see the title of the track and the artist of the track. if there is no title, the track name will be displayed in place of the title. if there is no artist it will display unknown in the place of the artist. There will also be a line separating each.

D) Favorites screen

The favorite screen resembles the all songs screen. It will display all the tracks that have been marked favorite by the user. The user would be able to mark a track favorite or unlike it only on the now playing screen and if a user marks a track favorite and then later deletes it from the offline storage, the track should not appear on the favorite screen.

E) Settings Screen

The setting screen will have the option to enable or disable shake to change song features using a toggle button. The default state of shake to change the songs feature would be disabled. If the user enables the shake to change the songs feature, the app will remember it.so when the user kills the app and launched it again, the shake to change song should stay enabled

F) Now playing screen

The now playing screen is the actual music player in the app. It houses all the elements which let the user interact with the current playing track or next/previous track. It will open when the user clicks on a track on the all songs' screen or the favorites screen. It has the following features and functionalities which is track title and artist, play/pause button, next button, previous button, shuffle button, loop button, seek bar, make as favorites button, visualizer, back to list button and shake to change the song.

G) About us screen

The about us screen will display the information about the app developer and the app version. As the part of the app developer information, there is have a few lines about the developer.

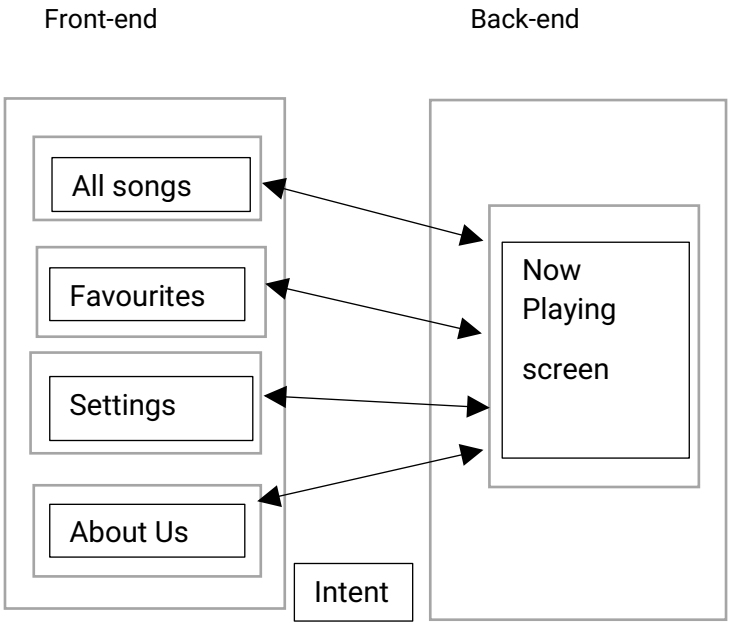

Figure 1. the architecture of Echo music player

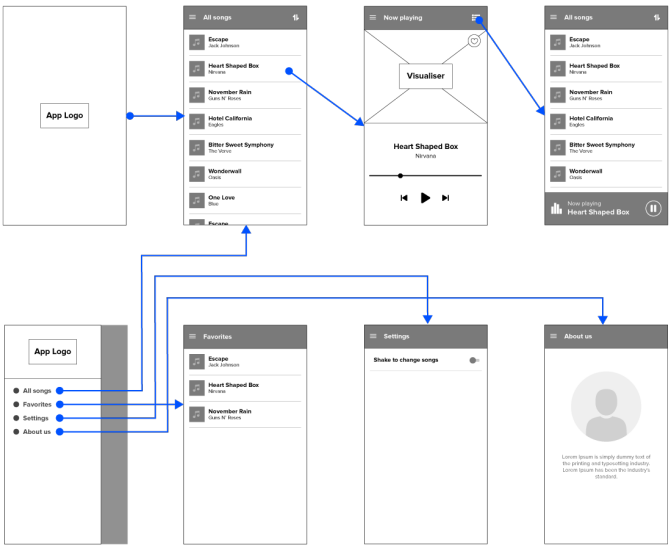

Figure 2. the block diagram of Echo music player

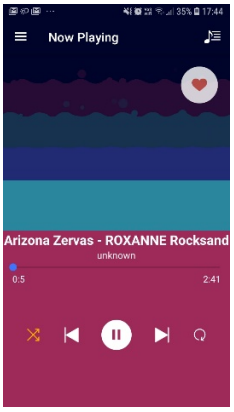

Figure 3

3. ECHO MUSIC PLAYER APPLICATION DEVELOP BY USING KOTLIN INSTEAD OF JAVA BASIC REASON

If it is required to add some extra features in a class, in most programming languages, a new class is derived. An extension function is a member function of a class that is defined outside the class.

```
fun fail(message: String): Nothing
{ throw IllegalArgumentException(message) }
val s = person.name ?: throw IllegalArgumentExcepti
on("Name required")
```

Checked exceptions can break the logic or flow of the code [6].
Especially in codes with a lot of callback methods, using checked exceptions can generate lost flow of code.
Secondly, In the case of large software, checked exceptions lead
to less productivity and little or no increase in code quality
[5].

4.TEST

We tested the music player after implementing it. The Echo music player can achieve the functions we designed, such as showing the app logo , all songs screen , visualizer ,etc. It will fetch the music from the offline storage and sorted into the all playing screen which is played by the user and the songs will change when the user shake the mobile and enable it into the settings The result is shown in Figure 3

5. CONCLUSION

The Echo music player application works in a very smart way like it have shake to change the next songs feature and it requires the minimum memory for installation into the Android devices.
After reviewing many papers and analysing existing techniques, we have reached the conclusion that our project will benefit the people owning the phones which have minimal hardware specifications or memory specifications and user's will also benefit the Material design UI of the application.

REFERENCES

[1] Pan Yong-Cai, Liu Wen-Chao, Li Xiao.Development and Research Of Music Player Application Based on Android[A].In:2010
International Conference on Communications and Intelligence
Information Security[C].USA: IEEE Computer Society's Conference Publishing Services,2010:23-25

[2] Agrawal, S ."Android development training ", Internshala, 24 Sept.2018,https://trainings.internshala.com/android-training, Accessed 14 Feb. 2019.

[3] Sharma, A ." Khitk Music Hatk" GitHub, Dec 25, 2017, https://github.com/khitk9738/Khitk_MuSic_HatK/blob/master/java/akki/dem/ShakeDetector.java

[4] Google.Android developers[DB/OL].https://developer.android.com/guide/components/intents-filters

[5] "Kotlin", viewed on 23 March 2020 from https://kotlinlang.org/docs/reference/exception.html

[6] E.Penternko,n.d, "catching exceptions with less code in kotlin", viewed on 23 march, 2020 from

https://jonnyzzz.com/blog/2017/02/15/catchall/