

# The Room

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## Introduction

This project is a android application, it provides several functionalities and features such as, playing music, writing down notes, generate strong passwords, display pictures and calculate simple math problems. There are 5 main Activities in this application and each are responsible for one of the features mentioned.

In order to run the project, simply open the project from root folder (it's called room), then, select any AVD device (Pixel 7 Pro API 30 Emulator is preferred) select and drag all the content inside the folder named "sample data" and drop it on the emulator, this will copy some sample MP3 and JPG files inside the emulator (files/downloads), this makes it easier to evaluate the functionalities of the application.

## Design Rationale

### Main Activity

For the design of the app many efforts have been made to make it appealing to the eye, in the main activity 5 cards are used to separate different activities from each other, all activities are constructed with the Drawer Layout to enable users to use a delicate navigation menu to be able to navigate through the application with ease.

At the top of the screen in the main activity there exists a clickable video which contains hyperlinks (Intents) to other activities which are not important enough to have a card in the main activity.

All the notes made by the user through the notes activity is stored in a database which is an imported library called Room Database.

### Music Player

This activity is using fragments to separate songs and albums from each other, it does it because users can access their songs and albums faster and easier.

When a song is clicked a music service is started along with a custom notification which enables them to skip and stop songs with more flexibility.

## Note Taker

The Notes Activity takes advantage of a database to store user's notes inside it, all notes will remain inside the database unless the user deletes them or the entire application gets deleted.

all the notes inside this activity will be assigned a random color each time a change is made to the activity to make it more attractive.

## Calculator, Password Generator, Gallery

These activities might not have any novel design features but they might come in handy in case the user is in need of one of them.

## Novel Features

This application has many novel features, besides the ones mentioned above :

Music player activity is able to extract album arts from music files use them for label (cover) and album separation.

In the share us activity when the user clicks on the video they can share the app with others by communicating to other applications installed on the phone.

In gallery and music player activities a library is used to extract the main colors from an image and use the base color of the image as a background color which makes the image better to see.

## Challenges and Future Improvement

The developer was faced with many challenges whilst developing this application, such as the use of the database or using services for music player and extracting their cover art, these issues were addressed by using external libraries and resources as well as searching for answers day and night.

There are many areas where this application can be improved, however I believe the main problem with this app is the absence of the settings activity, there simply wasn't enough time to implement the settings activity as the developer had to make major changes to the code to adapt it to new features such as dark mode, sound options, profiles, permissions and so on.

Right now if you try to play a song and go to home activity with navigation menu two problems can be observed, first is that the initial video for application will play no matter what, second the played music and video's music will overlap and produce a unpleasant sound. Developer has tried to fix these issues but with the time they had left they were unable to address them.

However this application can be improved easily as any developer can just add new cards in the main activity thus add more features to the application to make it like a room where you have everything you need (an entire operating system within one application :) )