ANDROID NOTES APPLICATION

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ABSTRACT

Taking a note is the process of capturing information in a source or event. This usually takes type of writing, jotting, wording, scanning, labelling and outline. Many apps have their own unique features, storage, editing, and sharing capabilities, and so on for the user to see which note-taking app will work best for their needs. Notes apps (also called note-taking apps) allow students to save all the notes and essentials digital information. Users can also scan the notes and attach multimedia to their notes to enrich the description and context. Android Notes app is an Android-based application that is built in the Java. A completely native app, using the latest features of the Android platform to provide the best user experience. It can be used to store important notes, daily activities, photos etc.

Keywords: Android, Notes, Scanlibrary, Scanner, Room Database, Sqlite, Java.

I.   INTRODUCTION

Android Notes Application aims to address the daily problem of taking notes at appropriate times when the event is fast paced and you do not have time to pull out your pen and paper. Taking a note is the process of taking information from a source or event. This often takes the form of writing, snapping, abbreviating, scanning, labelling, clarifying, and defining. Users may type on mobile devices just like they would on paper with note-taking apps. This is an Android-based application which is developed in Java. Completely native application, using the latest features of the Android platform to provide the best user experience. It can be used to store important notes, daily activities, photos etc. It uses device's local storage as a backend storage support to store user data and for scanning purpose, opencv based opensource scanlibrary is used. The notes app is an application, built for storing information and notes that are important to the person. It also includes creation, storage, sharing, retrieval and editing notes. This app can be used to store all notes and information digitally and helps to complete the written process digitally to save a lot of time.

II.   LITERATURE SURVEY

The leading note-taking apps make taking notes on the fly simple, whether it's for promotions, ideas, business details, or reminders. Notes-taking apps are becoming more common, not the least with widespread availability of mobile devices, not least smartphones. This means mobile applications for taking notes now allows you to write wherever you are, and there is a huge range of apps available. It does not matter if you are a telephone engineer, a secretary, or simply inspired by an idea while commuting - the ability to take notes on mobile phones can be a real benefit. Notepad application is an application, designed to store important information and notes in a device. It can be used to type on their devices just as they would on paper and you can add your to-do list in this app, some important notes for future reference, etc.

As summarized in [1], the purpose of the note-taking request is to ensure that you are able to capture the essence of information collection so you do not have to memorize everything word by word. Now as we live in a world where life without technology is unthinkable, our taking notes the practice has become digital. That's why we now have apps for taking notes. The best note-taking apps can help you make sure you do not forget the light of creative inspiration. Writing things down is everything well and good, but we find it very easy to lose our notes that way. But to keep your thoughts, ideas and electronic ideas keep them safe, secure and, best of all, searchable for you as soon as you need it. As note-taking technology becomes more sophisticated with the addition of pens and styli, we can expect to see an increase in note-taking devices in classrooms in different

ways. With the support of Android Studio, we can easily build Android Studio on various Android models and screen sizes.

On the other hand, we have used Java SDK to develop the native application with SQLite database to build the backend storage to store the data of users locally in their device itself. SQLite is an in-process library that delivers a self-contained, serverless, transactional SQL database engine with zero configuration. It is a zero-configuration database, which means that, like other databases, you do not need to configure it on your system. SQLite engine is not a stand-alone process like other databases; it can be linked statically or dynamically with your application depending on your needs. SQLite directly accesses its storage files.

To implement SQLite, we have used Room database. It is the room persistence library. It is an abstraction layer that sits on top of SQLite. In Android, the room is an ORM (Object Relational Mapper) for SQLite databases. It is a component of the Architecture. By implementing annotations, the room makes it easier for you to use SQLite. One advantage is that it eliminates the need for a developer to write a lot of boilerplate code to construct and manage databases. It also validates SQL queries at compile time. This means that if there is a SQL query error, the application will not compile. This keeps the developer from running into run-time issues. Java is used in this project because it is a general-purpose coding language that is object-oriented, class-based, and designed with minimum implementation dependencies in mind.

III.   EXPERIMENTAL SETUP

For this project, we have used Android Studio, Java SDK and Room Database for storage support to store the user data. Scanlibrary is used basically to detect the edges of the paper while scanning the notes. Given below is the short information of everything we have used in the project.

- Android Studio: According to [10], Android Studio is Google's official integrated development platform (IDE) Android operating system, built on JetBrains' IntelliJ IDEA software and built specifically Android upgrade. Available for download on Windows, macOS and Linux based applications systems or as a subscription-based service by 2020. It replaces Eclipse Android Development Tools (ADT) as the main IDE for Android application development.

- Java SDK: Java SDK stands for Java Software Development Kit. It is a software development kit for developing software in Java. It is one of three technology packages used by Java, namely JVM, JRE and JDK. JDK contains a set of development tools that help to develop java-based software. There are several versions, but Java 8 is the most widely used. SDK tools include libraries, combinations, debugger, processes, API, code samples, guidelines etc. SDKs are varied; has a different kind of platform.

- SQLite Database: [9], SQLite is a type of database engine. It is a lightweight database that enables users to interface with a relational database. SQLite stores a database in a single file, which separates it from other database engines. This allows for a high level of accessibility: duplicating a database is as simple as copying the file that stores the data, and sharing a database can be as simple as sending an email attachment. SQLite is a significantly lighter version of SQL database, and most SQL operations do not run-on SQLite database.
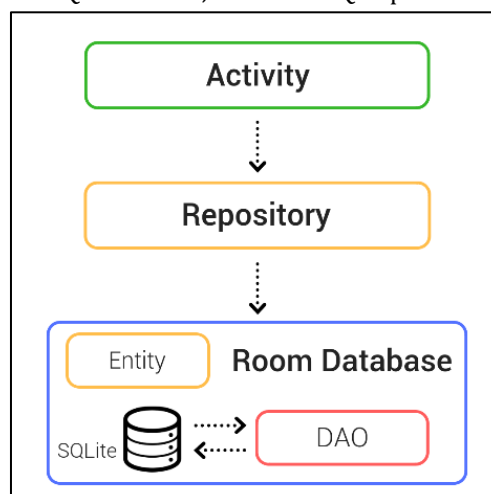

Figure 1: Room database model.

- Scanlibrary: [2], [8], ScanLibrary is an Android scanning library built on [1] OpenCV. By using the library, we will be able to select edges and crop the paper based on the four selected edges, and adjust the view rotation of the cropped image.

Table 1. Project Requirements

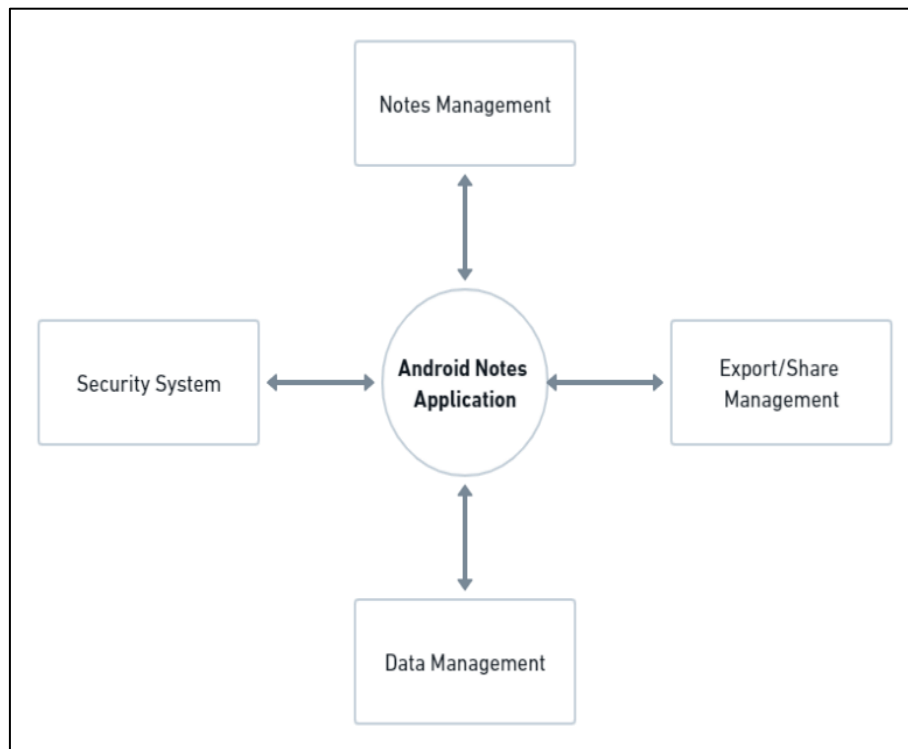| Sr. No	Hardware and Software Requirements	
	Name of Equipment	**Specification**
1	Computer System	8 GB RAM or more, 8 GB of available disk space minimum
2	Keyboard	-
3	Mouse	-
4	Windows/Mac/Linux	Windows – 8/10/11, MacOS 10.14 or higher
5	Android Studio + Android SDK + Android Emulator	2020.3.1 version or above
6	Java	Java JDK 1.8 or above

IV.   MODELING AND ANALYSIS

- **Data Flow Diagram:**
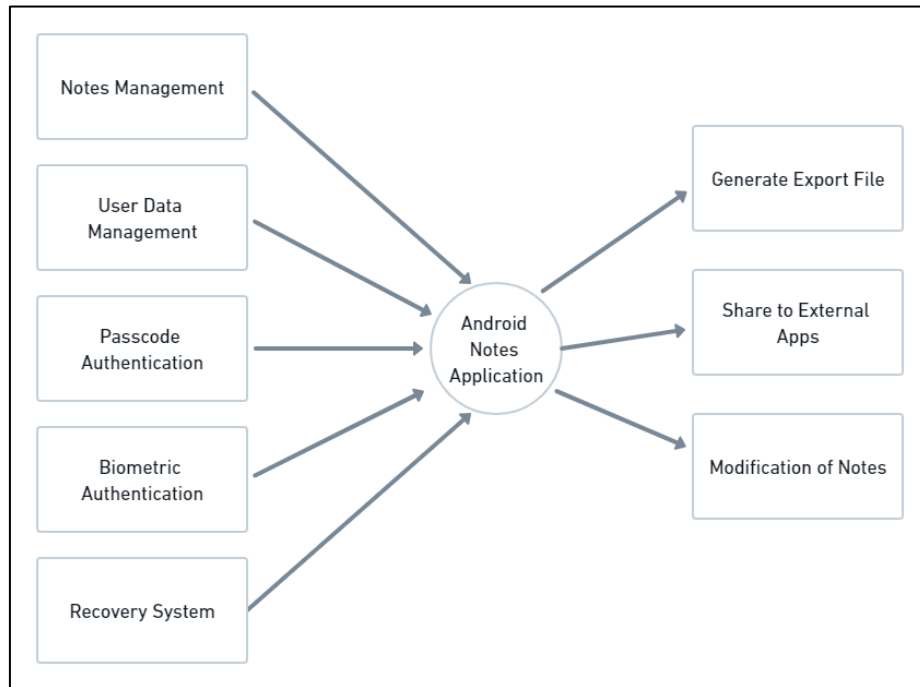

Figure 2: DFD Level 0.

Figure 3: DFD Level 1.

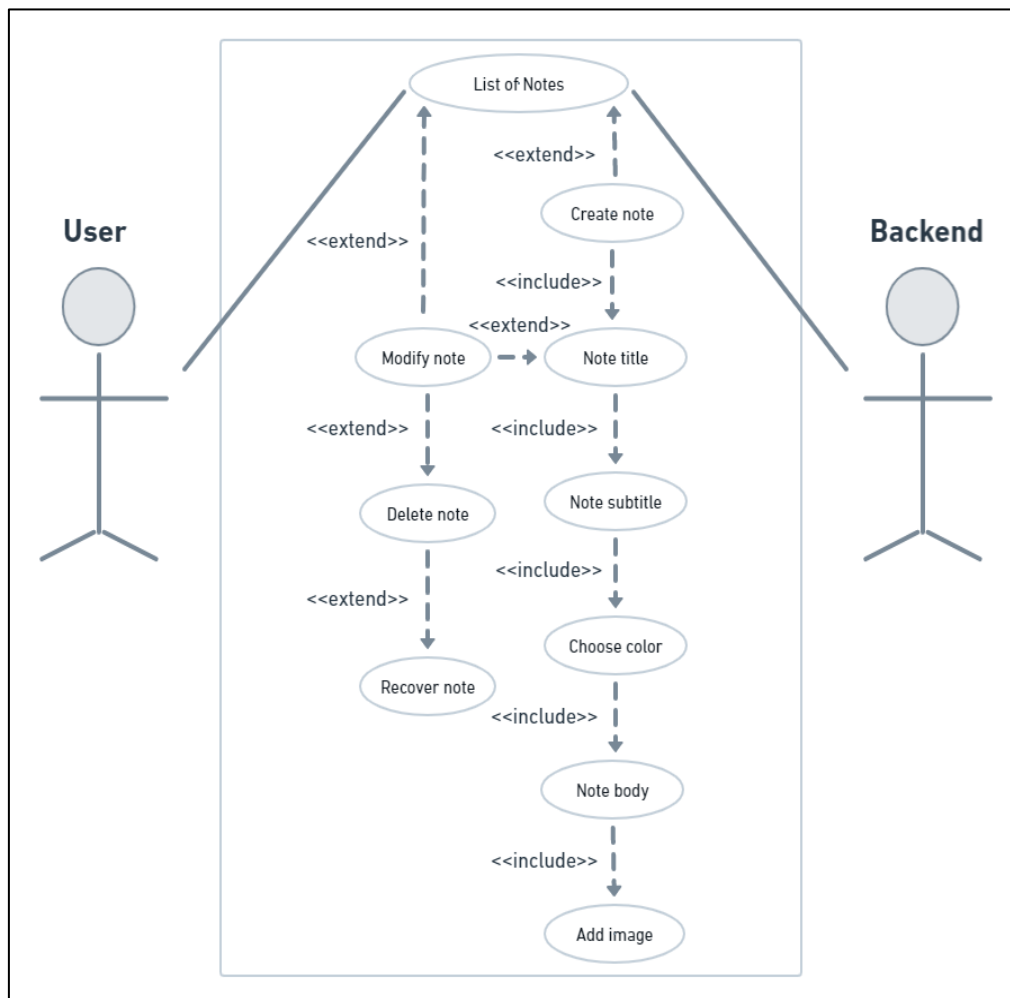- **Use Case Diagram:**

Figure 4: Use Case Diagram.
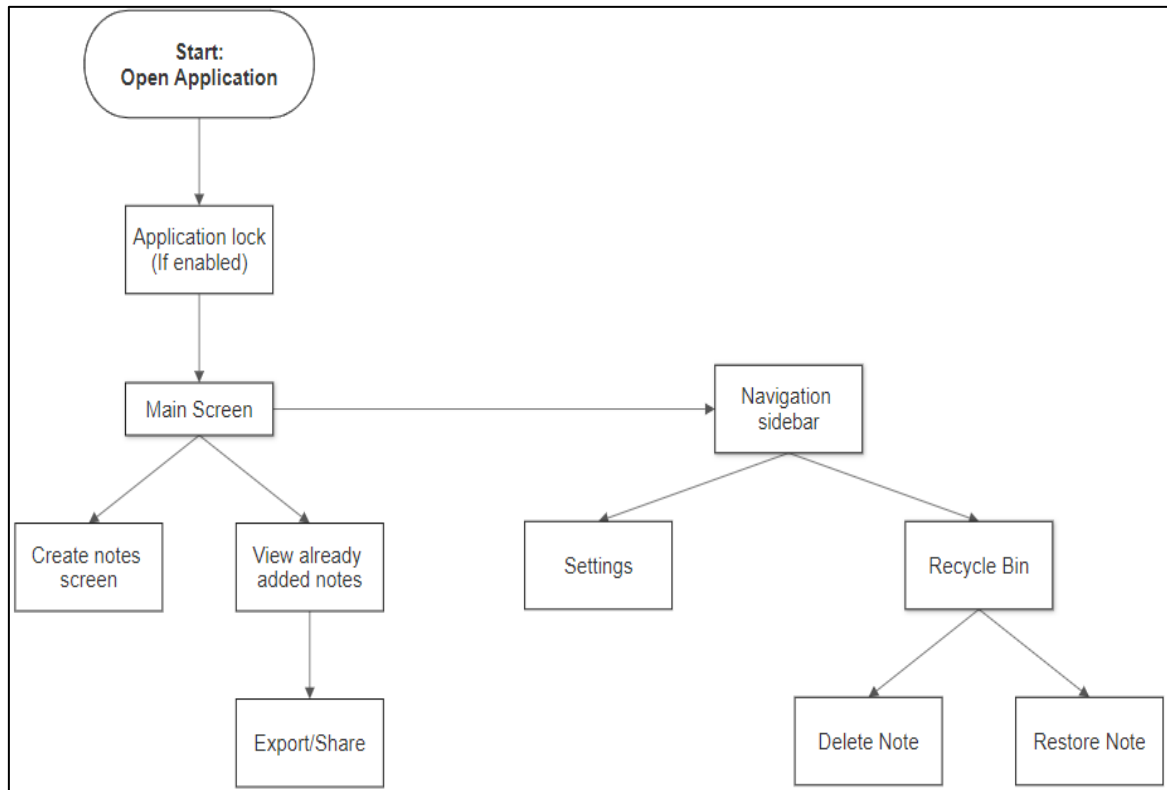
- **Project Architecture Flowchart:**

Figure 5: Application Flowchart.

- **Project Architecture Algorithm:**

1) Open application

2) Application lock if enabled

3) Home Screen

a. View already added notes

1. Export/Share

b. Create new note

1. Export/Share

4) Navigation Sidebar

a. Settings

b. Recycle Bin

1. Restore note

2. Delete note

c. Home Screen

V.   USER INTERFACE DESIGN

Home Page   **Create Note**   **Side Menu**

Recycle Bin   **Recycle Bin Note**   **Settings**
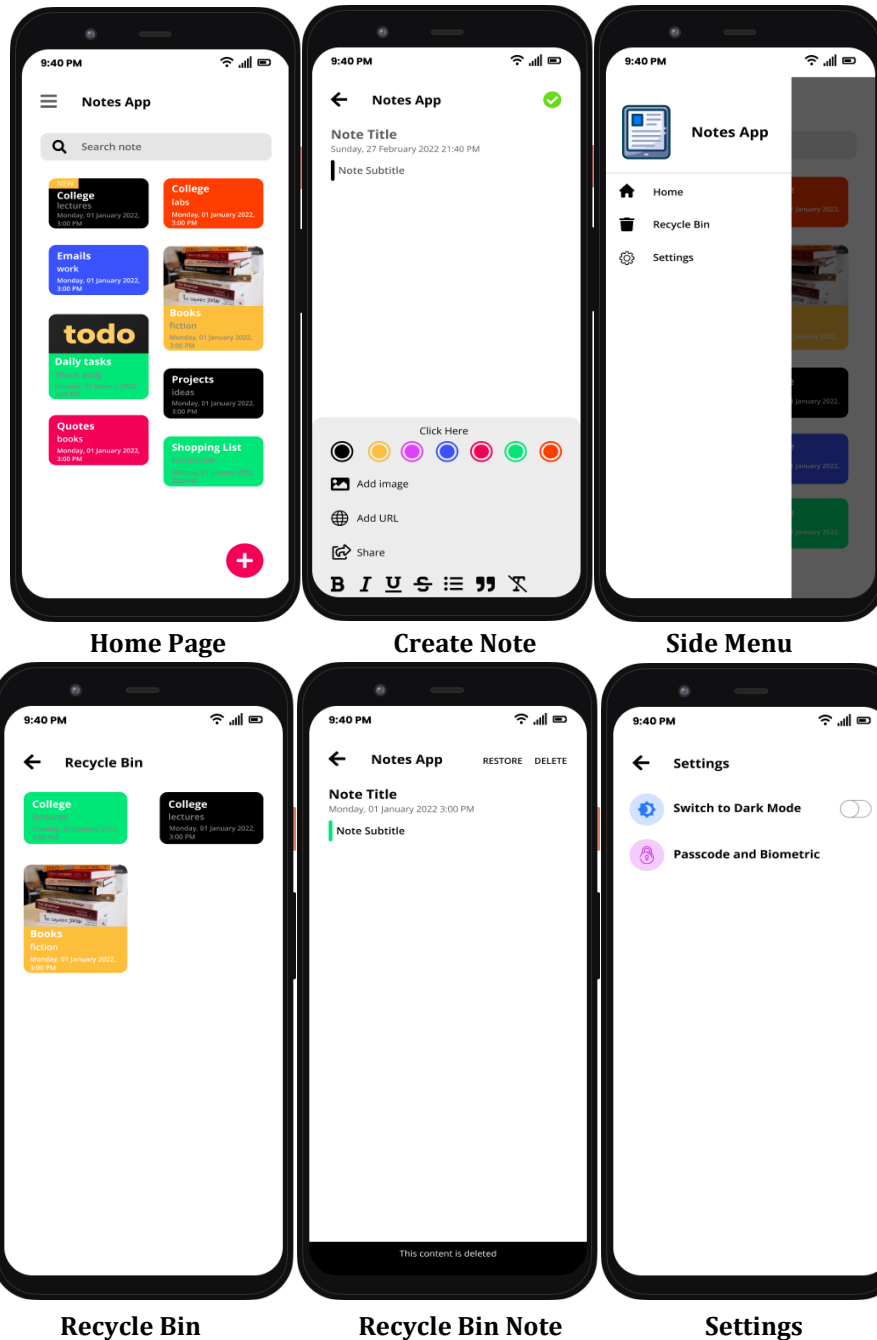
VI.   FUTURE SCOPE

We should expect to see an increase in note-taking gadgets in the classroom in various forms as note-taking technology grows more sophisticated with the addition of scribe pens and styli. We can see the possibility for transferring complicated material, such as handwritten text or drawings, digitally, with the rise of online, hybrid, and blended learning courses. Tools outside of the notetaking realm are also taking up note-taking features. For example, eBooks are now using notetaking features such as annotating, highlighting, and underlining to mimic the experience of reading a physical book.

VII.   CONCLUSION

From the research we understood that, currently, the popularization of the internet has led to a decline in revenue in the paper industry, but the pen and pencil industry's revenue has grown in recent years. These conflicting numbers are inconclusive in regards to whether or not students are abandoning paper-based

notetaking. Many students are taking advantage of the electronics in the classroom. In conclusion, major benefits of the project are:

- No reach limitations, it provides a user-friendly GUI which results in retaining of users.
- Media attachment support and inbuilt scanner to scan notes.
- Flexibility for users to generate various files of notes such as .png, .pdf, .txt
- Inbuilt Passcode and biometric security.
- Lightweight SQLite database.

VIII.   REFERENCES

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[9]   https://developer.android.com/training/data-storage/room

[10]   https://developer.android.com/docs