

# **EnNotes**

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### **Abstract:**

This paper talks about my work in creating an android application that will allow the user to store confidential information in encrypted format using AES(Advances Encryption Standard). This will use the standard android API and be backward compatible till android version 21.

### **Background and/or Related Work:**

There are many applications in android play store that provides options to save and organize notes. I am planning to extend this in to creating an application that will not show the notes in plain text, till the user authenticates with a finger print or password. This application also has potential to be a digital locker for storing all kinds of data.

### **Methodology:**

- User will be prompted to set an initial password if it is not set already, and it will be persisted in the database. Password will also be hashed using SHA-256 and salted.
- After an initial password is set or if the password already exists user is redirected to the home screen where the existing notes will be displayed decrypted as cards.
- In the home screen a list of notes saved in the SQLite database will be shown in an encrypted format when the user clicks on an option, they will be redirected to another screen where a decryption floating button will be provided. Notes will be displayed in a 2 column card layout using recycler view in android.
- User will have to authenticate using finger print to decrypt the content of the note.
- At the bottom of the main screen a simple floating button to add a new note will be displayed.
- When the user saves the data, it will be encrypted using AES and persisted in a SQLite database.

- App uses the standard crypto api provided by java to handle the encryption and decryption of the user data.

### **Experiments:**

- I was able to successfully use the finger print api to provide the option of decrypting the password like I mentioned in my milestone document.
- I was not able to complete working on different input from users.
- I was not able to use any other sensors provided by a smart phone to embed in this application.
- Retina scanning is a technology that has impressed me and I believe the application can be developed to use this to encrypt and decrypt the contents.
- This source code can also be developed as a library to include in other apps so some parts of the application alone can be encrypted for the users.

### **Limitation:**

- I was not able to complete providing an option to delete a notes, code is kind of half baked in a different branch, will be developed and merged in to master branch later.
- Application can only work with user text and not any other form of input as of now.
- Key and data is saved in the same database, posing a security risk.

### **Conclusion:**

I have learned a great deal from this project about android development, and how security plays such an important part in preserving the users privacy and content. EnNotes can prevent should surfing and accidental glances from users on your phone, which truly secures your data. Your content is available to you with or without the network in a encrypted way.

I believe EnNotes can be a useful tool for users to confidently save and retrieving data offline and securely.

## **References:**

- Google keep app design for my design elements
- Inspiration for the app  
<https://www.nytimes.com/2018/10/10/style/why-you-cant-stop-looking-at-other-peoples-screens.html>
- Snippets of code used in creation of the app and reference for building the app.  
<https://developer.android.com/>