Final Thoughts

Stuff We Intended To Implement

- *Admin app for the cipher library*: ultimately what we would have put into this command-line tool was either already present in the main tool, `lb_app.java`, refactored into the enciphering library, or simply was not necessary.

- *Cipher management*: initially we wanted users to be able to create their own ciphers inside of the app itself, but ultimately we didn't have time to do so.

- *Importing/exporting cyphers from storage*: we had planned for the user to be able to pull .cyph files from the storage of their Android device and be able to use those in their chats. The functionality was created, but ultimately we didn't have time to implement it.

- *Push notifications*: we would have liked to implement these, especially since they are supported by the Parse backend, but we didn't have time. The current method of polling the database at set intervals is needlessly network-intensive and also causes stuttering in the app.

- *Internal cipher library:* we planned to have some internal structure that would maintain a set of cipher files that could be called upon at any time. This was the driving force behind having an admin app, and the reason there is both a `-f` and `-F` flag in the main command-line app.

Unexpected Functionality that we Implemented

- *Using a non-relational database as the backend (MongoDB)*: if we had made a conscious decision on what database to use as a backend, we probably would have chosen a relational model, since most of us are familiar with SQL. However, the Parse Server deployment that Heroku offers automatically set up a MongoDB database, so we went with that instead.

- *Having all chats visible*: while not something we would support in an actual release, allowing users to view chats they aren't part of allows us to show off the enciphering/deciphering functionality.

Lessons Learned

- Android development is very, very time consuming, especially when having next to no experience with it.

- To do more research before defining the functionality that we want. There are some aspects of the command-line tool that were added early on with the idea that they

would make it easier for the app to interface with the library. However, for various reasons and limitations of the Android platform, we did not go that route.

- `rm -rf multiple-enciphering-tool && git clone github.com/jse13/multiple-enciphering-tool`