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MSCS 630 – Security Algorithms and Protocols

Project Proposal – *SoundCrypt*

I currently have the idea of creating a data encryption (or possibly a full encryption and authentication) Android application called SoundCrypt. The idea of this application would be to activate the microphone of an Android device and record the surroundings. Then the application would then encrypt the sound file using AES of at least 128 bits and then either store the audio file externally or directly in the database. If stored externally the application would then store the path to the audio file in MySQL. The main screen would list all of the audio files saved with options to play/delete/lock each of them. Selecting to play an audio file would query the database for the audio file directly or the path to said file and then play it. I plan to program this application using a combination of Java, Kotlin, and SQL in Android Studio/MySQL.

I would like to have some sort of threshold where once the sound file reaches a certain size, it will compress the file in order to save space in the database. Perhaps maybe splitting the audio files up and storing them in sequence with the ability to rebuild the sequence when you want to play the file; the logistics of which are to be worked out soon. The recording, encryption, and compression schemes are still unknown at the moment as I have not researched them yet. There will be a lot of research to do regarding this application because I will be working with multiple technologies that I have little to no experience with. I believe this will be a pretty good starting point in building an encrypted calling application. I would also like to one

day implement this system on a Samsung Gear Smartwatch using Tizen Studio which would allow encrypted calling and audio recording on a smartwatch could be a pretty nifty application à la an Ian Fleming James Bond spy novel.