Requirements

**Android App:**

*Functional requirements:*

-The user shall be able to create an account from within the app.

-The user must provide the application with a username and password in order to log in to the app and use the services.

-The Android app shall allow the user to add existing users to the user's friend list.

-The Android app shall allow the user to invite friends to the service via email.

-The Android app shall track listening information from streaming services, if available, and send it to the server.

-The Android app shall retrieve listening habits of the user from the server, upon request from the user.

-The Android app shall retrieve listening habits of the users friends from the server, upon request from the user.

-The user shall be able to manually add a song to their listening habits.

-The Android app shall be able to display songs friends have listened to as queried from the database by the server.

-The Android app shall be able to display the top songs for all the friends of the logged in user.

-The Android app shall be able to display a list of all friends of the logged in user.

*Non-functional requirements:*

-The Android app shall connect to the server with a secure TCP connection.

-The Android app must provide the server with a username and hashed password of the user.

-The Android app shall rely on the local database if the connection is lost and a connection to the server cannot be re-established.

-The Android app will only provide information about the logged in user if a connection to the server is not present.

-The Android app shall request database updates every 5 minutes to synchronize the user's table in the remote database with the local sqlite database.

-The Android app shall use a different operating system then the server.

-The Android app shall use a different programming language then the server.

**Server:**

*Functional requirements:*

-The server shall handle requests to the database for the listening habits of users.

-The server shall transmit the acquired listening data to the database for later usage.

-The server shall verify the login credentials provided by the user.

*Non-functional requirements:*

-The Server shall accept incoming TCP connections from the android app, and only the android app.

-If a connection is not already established, the server shall connect to the database after a query is requested from the Android application.

-The server shall close the connection to the database after 15 minutes of inactivity.

-The server shall verify the validity of a user.

-The server shall ping the connected users every 10 seconds to ensure the connection is still valid.

-The server shall close connections to users that do not respond to 10 consecutive pings.

-The server shall be able to support 25 simultaneous user connections.

-The server must respond to the Android app with updates to the user table for the local sqlite database of the Android app.

**Database:**

*Functional requirements:*

-The database shall keep records of all users.

-The database shall securely store the user’s login credentials.

-The database shall query user’s requests.

*Non-functional requirements:*

-The database shall store the most recent 100 units of acquired listening data of each user.