

Opt-Out Challenge 5

Reading Assignment: How to Program Java

- Chapter 17 – Files, Streams and Object Serialization
- Chapter 18 – Recursion
- Chapter 19 – Searching, Sorting and Big O
- Chapter 20 – Generic Collections
- Chapter 21 – Generic Data Structures
- Chapter 22 – Custom Generic Data Structures

Programming Challenge

This programming challenge contains two components. First, you must create a Java server that can receive information from clients. Second, you must program an Android application that records local observations and sends them to the server when connected to a Wi-Fi network.

As in previous challenges, upon accepting a connection, the server should create a table for the remote client using SQLite. The server should subsequently enter every entry reported by the Android device into the database. Again, you may want to leverage the Java Database Connectivity (JDBC) API in your implementation.

The Android app should have two modes of operation. A sense mode where the device periodically records measurements into a local SQLite database. And, a transfer mode that takes every new entry present in the local database and transfers it to the server. Be sure to include a flag with every observation sequence to indicate whether this data was previously transferred to the remote database. If you need to borrow an Android device, we may be able to accommodate the first few requests.

Code

1. Implement the server in Java.
2. Using IntelliJ IDEA, Git, and GitHub, commit your code for the server as a project labeled `Challenge5server` under `Students/<GitHubID>/`.
3. Using Android Studio, Git, and GitHub, commit your application for the client as a project labeled `Challenge5android` under `Students/<GitHubID>/`.
4. As part of your demonstration, you will have to use an SQLite visualizer to showcase the content of the table before and after the connection.