Server Design Document

Data Communications: Big Brother 3000

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# Server Class Diagram



The diagram above illustrates the classes involved in the server application:

* **TCP Socket**; socket that is connected to an android client that's being tracked by our app.
* **Android Server**; listens for any new TCP connections, and accepts them. Forwards data from sockets to its corresponding android client object to deal with.
* **Android Client**; holds state information regarding the connection, and .
* **Mediator**; receives updates from android clients, and forwards the updates to all registered observers, which are the database, and the web server.
* **Database**; stores the history of all collected GPS records. Inserts any GPS updates from the mediator into the database.
* **Web Server**; listens for new web socket connections, and accepts them. Forwards any updates to all sockets as the web server is notified from the mediator.
* **Web Socket**; socket that's connected to a web browser that's currently watching the website that displays the android device positions.

# Server Pseudo Code

## Android Server

### Asynchronous Routine

1. when a new TCP connection is made

create a new Android Client object, that's mapped to the new TCP connection

1. when new data from a TCP connection arrives

forward the data from the TCP connection to the corresponding Android Client object

1. when a TCP connection is terminated

remove the TCP connection's corresponding Android Client

## Web Server

### Initialize

1. Register with the mediator as an observer

### Asynchronous Routine

1. when notified that a new android client has connected

add the android client to the connected clients list

1. when notified that an existing android client has disconnected

remove the android client from the list of connected clients

1. when notified of a GPS update from a connected android client

send the GPS update to all connected Web Sockets

1. when a new Web Socket connection is made

send the new connection a list of all connected android clients corresponding Android Client object

## Database

1. when notified of a GPS update from a connected android client

insert the GPS update into the database

## Android Client

### Initialize

1. notify the mediator that a new android client has connected

### Received Data

1. parse information into GPS update information
2. notify the mediator of the GPS update

### Destroy

1. notify the mediator that an existing android client has disconnected

## Mediator

### Register

1. add the registering object to a list of registered objects

### Receive GPS Update

1. sends the GPS update to all registered objects

### New Android Client Connected

1. sends the connection update to all registered objects

### Existing Android Client Disconnected

1. sends the disconnection update to all registered objects