Android Application Server Design

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Project Overview

- Client app – Aaron Zhao

  - Written in Java in Android Studio

  - Lets users post and view listings for textbooks

  - Google oAuth simple sign-in

  - Barcode scanner for easy data entry

- Server – Gabriel Esposito

  - Written in Python around a MySQL database

  - Implements a REST-like API for the app to communicate with

  - Persistent data storage in the database

  - Authenticates with Google to make sure requests come from the app

Why?

- Trends in textbook pricing show a dramatic increase in recent years, and we believe students shouldn't have to pay these high prices.

Server Environment

- Ubuntu 14.04 server provided by Dr. Mock

- Python 2.7
- MySQL 14

Server Design

- Wrap around an existing MySQL installation and allow for SELECT, INSERT, etc

- REST-like API philosophy means one connection per query
    - REpresentational State Transfer

- Respond with JSON formatted data

- Return errors for client debugging
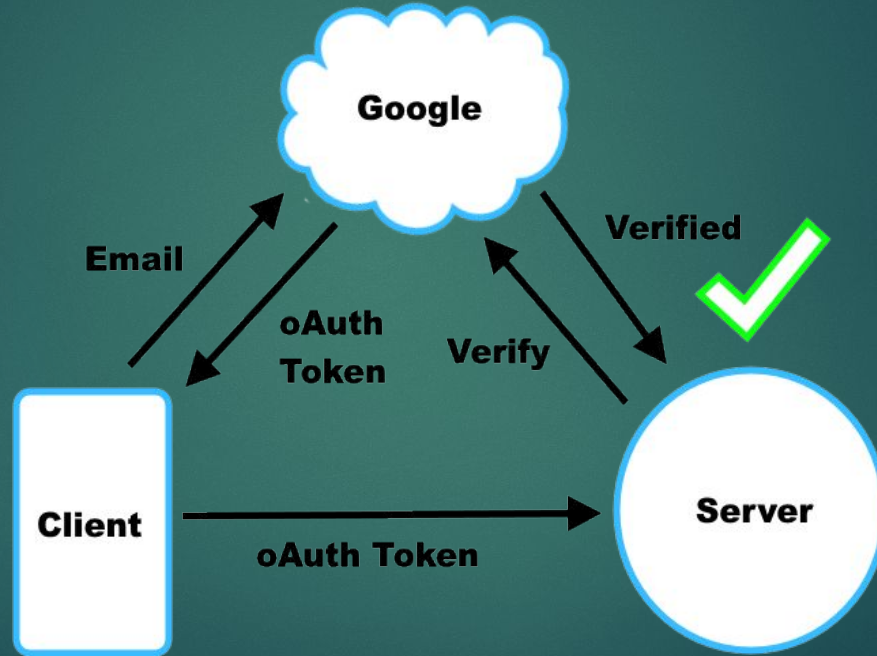
- Modules: google's webapp and oauth2client

Data Flow

Clients

Python HTTP Server

SQL Wrapper

Android

Android

Android

REST API

MySQL DB
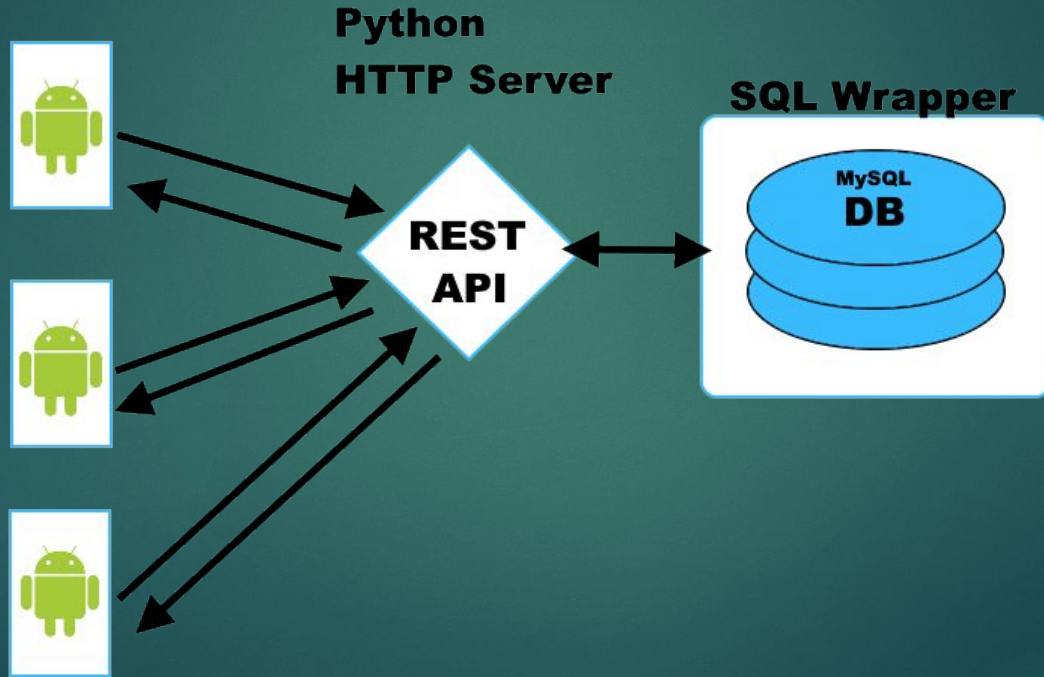
Client Authentication

Security & Uptime

- Handle errors properly for maximum uptime

- OAuth provides trust between user and server

- Listen & act on connection
  - No unnecessary resources taken up

- Unfinished: HTTPS

Results:

- Needed a little more time for touch ups, but got the majority done

- If we were to release this app on the Play Store we would need to secure communications to the server

- Currently the server is stable and works with our app well

Questions?