Block Diagram

HV_3:
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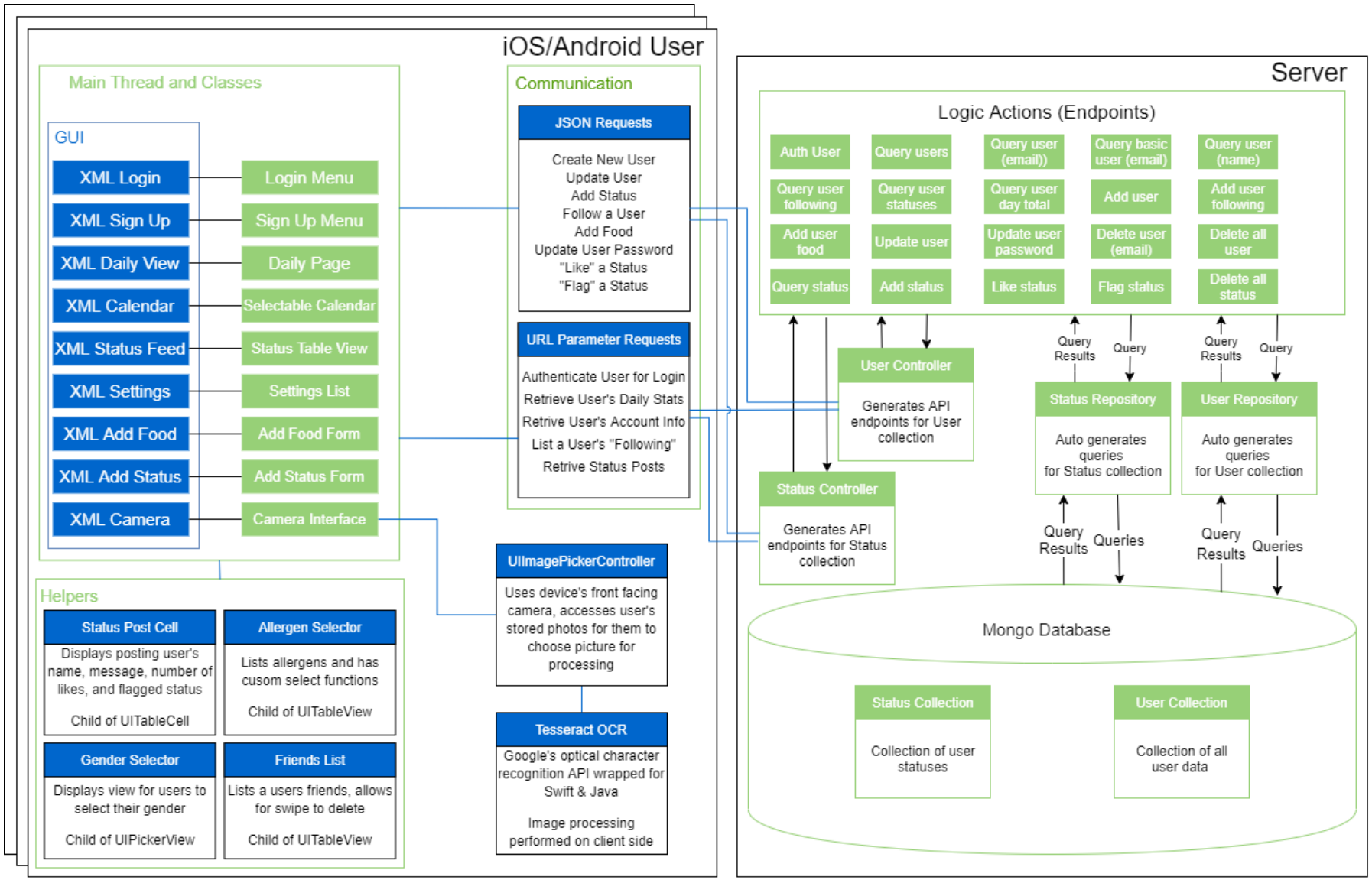
FoodBuddy


iOS/Android User
Main Thread and Classes
GUI
XML Login
Login Menu
XML Sign Up
Sign Up Menu
XML Daily View
Daily Page
XML Calendar
Selectable Calendar
XML Status Feed
Status Table View
XML Settings
Settings List
XML Add Food
Add Food Form
XML Add Status
Add Status Form
XML Camera
Camera Interface
Helpers
Status Post Cell
Displays posting user's name, message, number of likes, and flagged status
Child of UITableCell
Allergen Selector
Lists allergens and has cusom select functions
Child of UITableView
Gender Selector
Displays view for users to select their gender
Child of UIPickerView
Friends List
Lists a users friends, allows for swipe to delete
Child of UITableView
Communication
JSON Requests
Create New User
Update User
Add Status
Follow a User
Add Food
Update User Password
"Like" a Status
"Flag" a Status
URL Parameter Requests
Authenticate User for Login
Retrieve User's Daily Stats
Retrive User's Account Info
List a User's "Following"
Retrive Status Posts
UIImagePickerController
Uses device's front facing camera, accesses user's stored photos for them to choose picture for processing
Tesseract OCR
Google's optical character recognition API wrapped for Swift & Java
Image processing performed on client side
Server
Logic Actions (Endpoints)
Auth User
Query users
Query user (email))
Query basic user (email)
Query user (name)
Query user following
Query user statuses
Query user day total
Add user
Add user following
Add user food
Update user
Update user password
Delete user (email)
Delete all user
Query status
Add status
Like status
Flag status
Delete all status
User Controller
Generates API endpoints for User collection
Status Controller
Generates API endpoints for Status collection
Query Results
Query
Status Repository
Auto generates queries for Status collection
User Repository
Auto generates queries for User collection
Queries
Mongo Database
Status Collection
Collection of user statuses
User Collection
Collection of all user data

Design Descriptions

iOS/Android User

The iOS application uses a “Main” thread to execute all GUI changes/updates/etc. Each class has functions that alter the GUI in some form, and these functions are dispatched to the Main thread for these updates. In Android, these pages all have an individual XML file associated with them, whereas in iOS the XML file encompasses many pages or “View Controllers” in one storyboard file. The view controllers or activities contain the logic processing for accepting user button presses, text fields, and more and sends/receives information to the server via the established endpoints.

Helpers

Since we are developing two front-end applications, the helpers will look different for each iteration, but the core functionality is essentially the same. We have a helper for a status post, which allows for uniform distribution of the fields within a status object. This helper is used to display a list of all statuses posted by a following user. Another helper is the allergen selector, which lists all supported allergens and allows the user to choose which ones pertain to them. This is used when the user first creates an account, and later in the allergen settings also. Similar to the allergen list is the following list, which lists all users that the logged in user is following. This is found in the settings menu, where the user can add or remove other users as following. The last helper is the gender selector, which on iOS takes the form of a UIPickerView, which is a sort of scrolling selector with set options. On Android this takes the form of a dropdown menu. This is used on account creation and in the user’s account settings.

Communication

The created endpoints for our server are a mix of POST requests that require a JSON body and GET requests that only accept URL parameters. Almost every page in our application sends or receives data or both, since we are attempting to save as little as possible on the user’s device. For user passwords we are first encrypting with SHA512 before sending to the server.

Server-side Controllers

Our Mongo database prefers to use embedded tables, so many of our original table designs are embedded within users, meaning we need less controllers overall. Therefore our only two needed controllers are the User controller, which performs all actions involving user data, and the Status controller, which performs actions related to retrieving and posting statuses.

Database Field List

User Table:

email: String – Stores the user's email
name: String – Stores the user's full name
password: String – Stores the user's SHA512 encrypted password
userType: String – Determines if the user is a moderator or admin or regular
height: Int – User's height in inches
weight : Int – User's weight in pounds
calorieLimit: Int – User's daily calorie limit for tracking
age: Int – User's age in years
gender: String – User's selected gender
lifestyle: String – User's lifestyle choice from Active, Moderate, Inactive
allergens: List<String> – List of what the user is allergic to
following: List<String> – List of which user's emails the user is following
foods: List<Food> – List of food objects added by that user
    name: String – Food's name
    calories: Int – Number of calories in that food
    sodium: Int – Milligrams of sodium in that food
    carbs: Int – Grams of carbohydrates in that food
    protein: Int – Grams of protein in that food
    fat: Int – Grams of fat in that food
    cholesterol: Int – Milligrams of cholesterol in that food
    amount: Int – How many servings the user consumed of that food
calendar: Map<String, Day> – List of days where the user added food

Status Table:

id: Long – A unique ID for that status
email: String – The email associated with the account that posted the status
timestamp: String – A timestamp of when the status was created
flagged: Boolean – Whether the status has been flagged as inappropriate
message: String – The user's post or message displayed as the status
likes: Int – Number of total likes for that status