

# API

## Overview

Our REST API is written help users socialise and allow them to barhop between pubs. The main functions are:

1. **Find and Save Pubs:** When a user searches for a bar, the API compares their search to a list of pubs stored on the MongoDB database to see if it exists. If it doesn't exist, it retrieves the pubs details from Overpass (OpenStreetMap) and saves it. Only places that are classified as bars, nightclubs or pubs will be stored in the database.
2. **Generate routes:** The API can generate bar-hopping routes automatically using Overpass, the Haversine formula and the Greedy Algorithm or it takes a list of bars provided by the user and generates a route.
3. **Social Features:** Users can check in and check out of pubs and see where their friends have checked in as well.

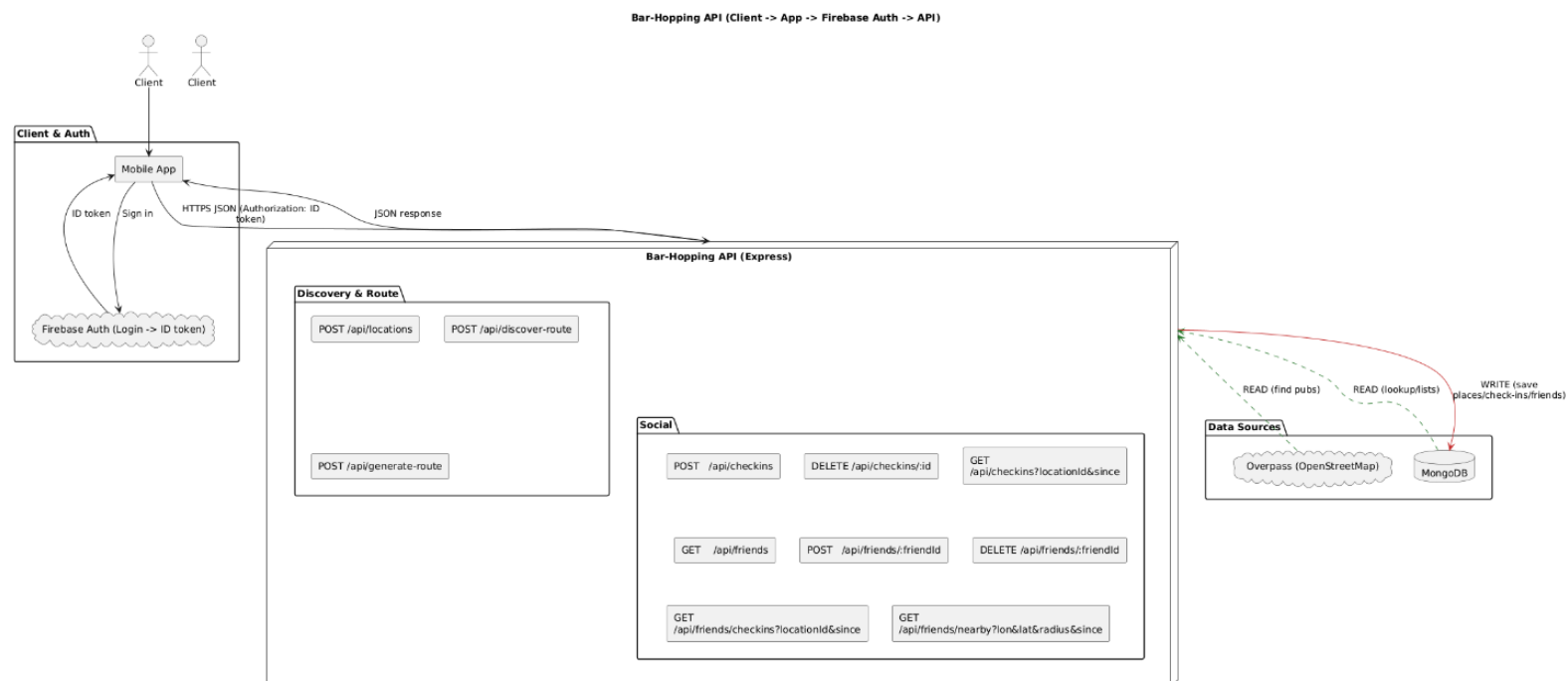


Figure 1: Overview of API Functionality

## Technology Stack

**Backend:** Node.js

**Database:** MongoDB

**External Data:** Overpass (OpenStreetMap)

**Authentication:** Firebase Authentication

**Hosting:** Render

## Endpoints

### *Route-Generator and Location Discovery*

- **POST:** `/api/locations` – lookup bars and save them to the database if they don't already exist.
- **POST:** `/api/discover-route` - Automatically look for pubs, given a selected starting point and generate an ordered route.
- **POST:** `/api/generate-route` - Generates a custom route of bars provided by the user.

### Data Flow: Discovery & Route Endpoints

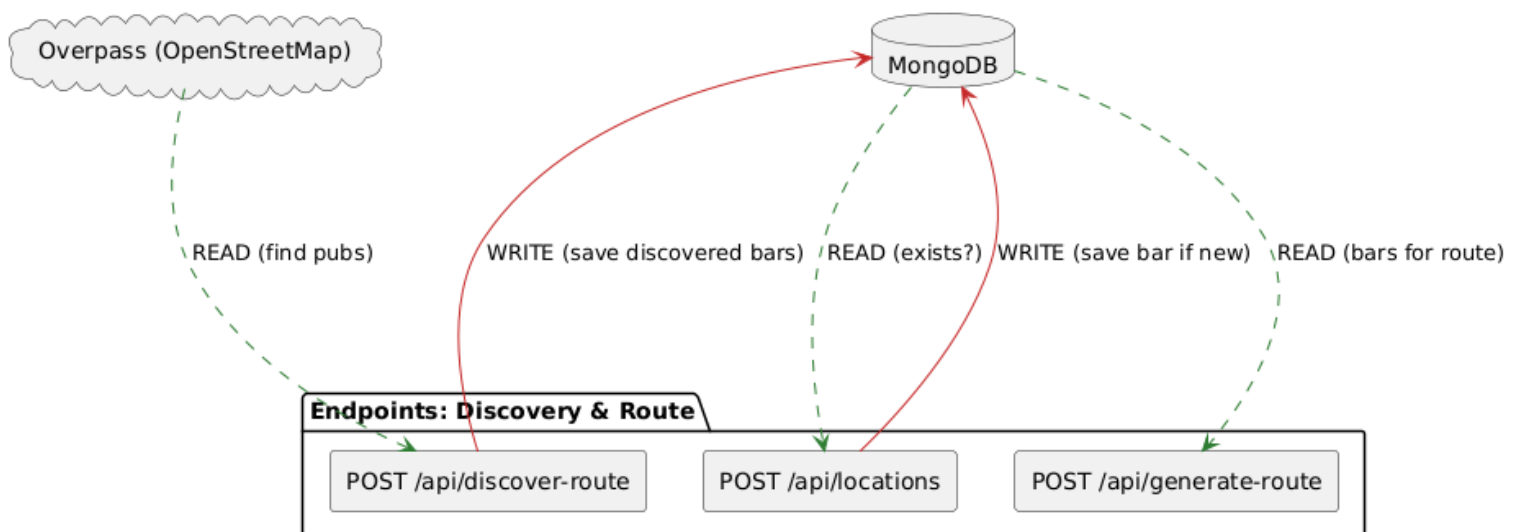


Figure 2: Data flow of Route Generator and Location Discovery Endpoints, showing interaction between Overpass and MongoDB

## Social

- **POST:** `/api/checkins` – Users can check-in to a bar.
- **DELETE:** `/api/checkins/:id` - Users can check-out of a bar.
- **GET:** `/api/friends` – Lists all users friends.
- **POST:** `/api/friends/:friendId` - Add/Follow a friend.
- **DELETE** `/api/friends/:friendId` - Remove/Unfollow a friend.
- **GET:** `/api/friends/checkins?locationId=...&since=3h` – See which friends have checked into a certain bar within a timeframe or more.

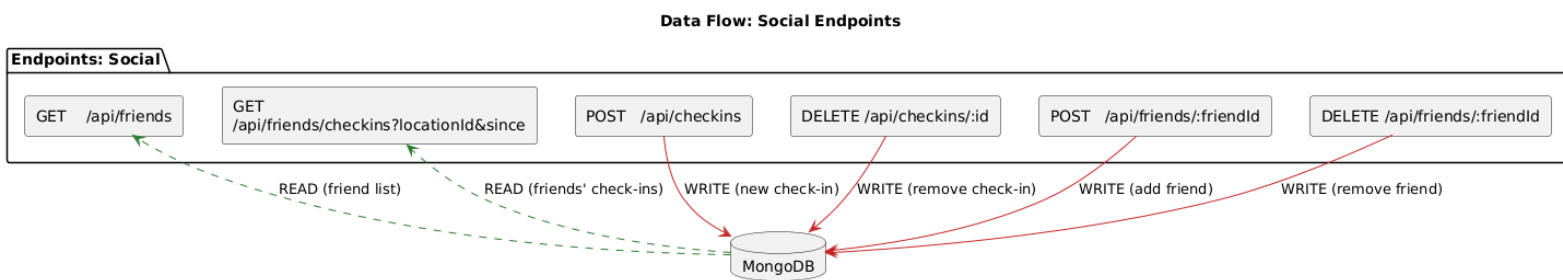


Figure 3: Data flow showing Social endpoints of the API and MongoDB

## Data Model

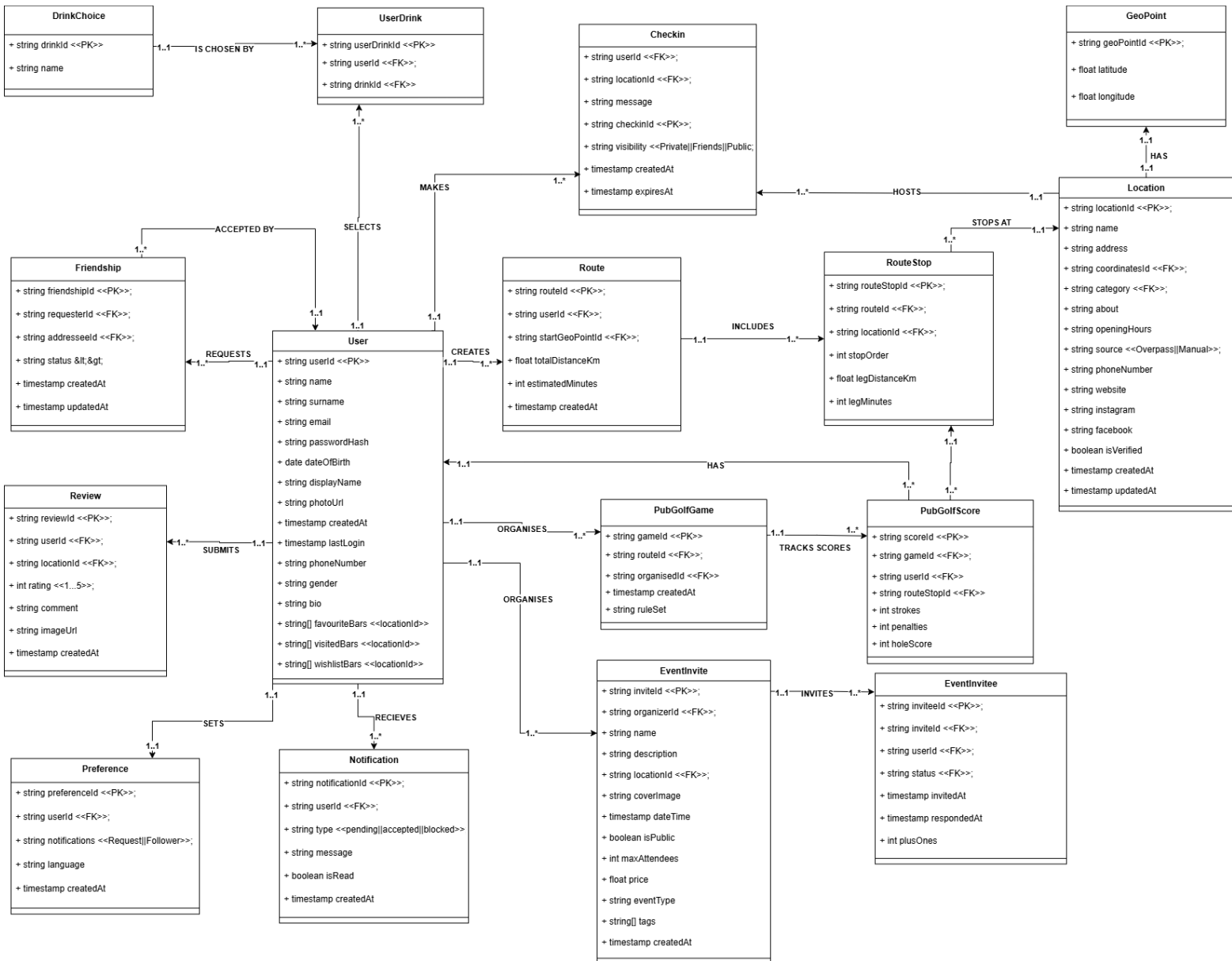


Figure 4: UML class diagram of the MongoDB schema