TopherTime Studios -PMTB(Tawab Berri), DAL(Alex Luo), DJM(Jonathan Metzler), DJL(Jacob Lukose)
SoftDev
P05: Le Fin
2025-05-07
Time Spent(on design doc): 3
TARGET SHIP DATE: 06/09/2025

DESIGN DOCUMENT v0

I. Description

Our project will be focused on creating a replica of GeoGuessr by using GoogleMaps StreetView panoramas. During each round the server picks a random StreetView coordinate and shows the panorama next to an interactive world map (depending on the region the user has selected). The player drops a marker on where they think the street is located and submits. The game then reveals the location, draws a distance line, and awards points based on the distance between the true location and the user's location. Our game will have multiple regions and a timed mode. A stretch of our project is to include a TimeGuessr where users will have to guess a place and time based on historical/famous images.

A. Program Components

1. Flask/Middleware
    a. Handles URL routes and serves web app while managing session flow.
    b. Session Management: Keeps track of logged-in states and user data inputs for obesity predictions
2. SQL Database
3. (Stretch) Data Visualization (Apex Charts)
    a. Visualizes a players statistics (e.g., their historical performance, most played regions, etc)
4. API Functionality
    a. Handles google maps api–api feeds map footage and location for games
5. Front End
    a. HTML templates to display data from Flask routes
    b. Foundation provides grids and styling for multi-screen UI
    c. Integrates with ApexCharts such that data visualization is well structured within the UI
    d. LESS CSS Modules

B. Database Organization

users

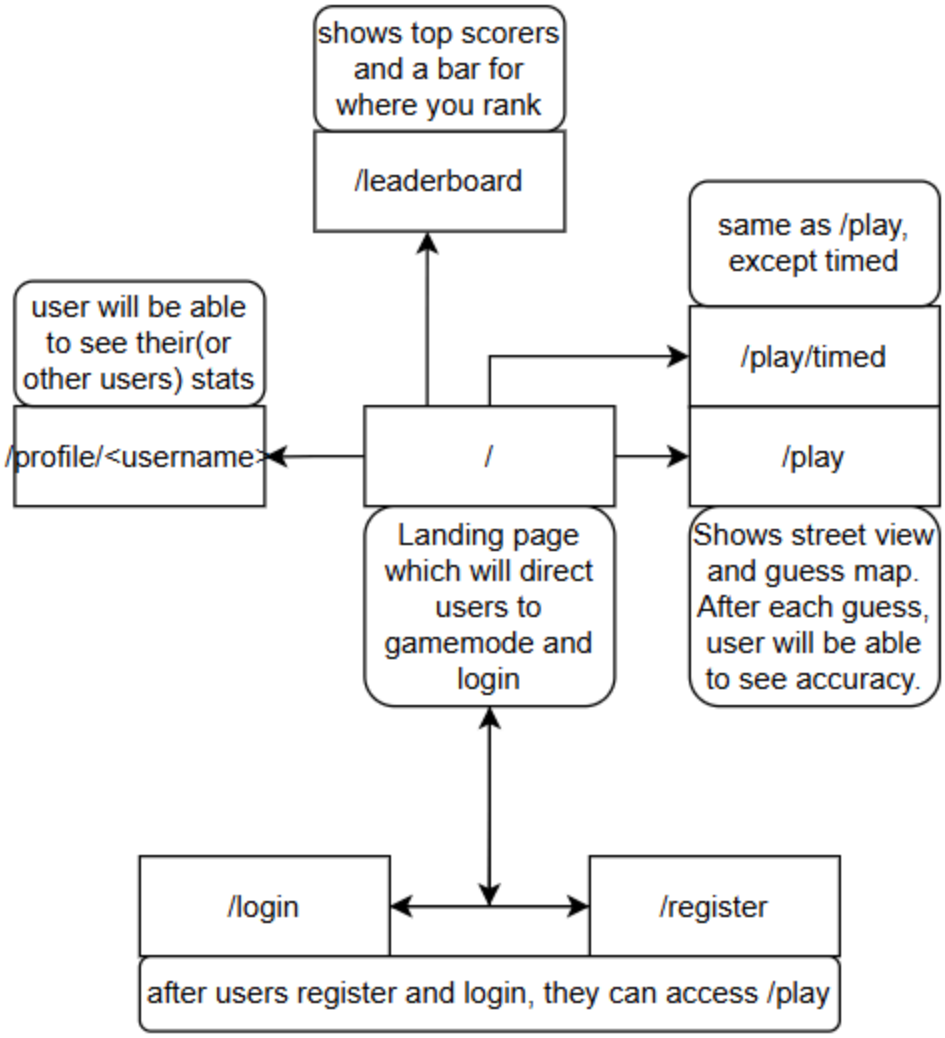
user_id	username	hash	joined
INTEGER UNIQUE AUTOINCREMENT	TEXT UNIQUE	TEXT	TIMESTAMP

scores

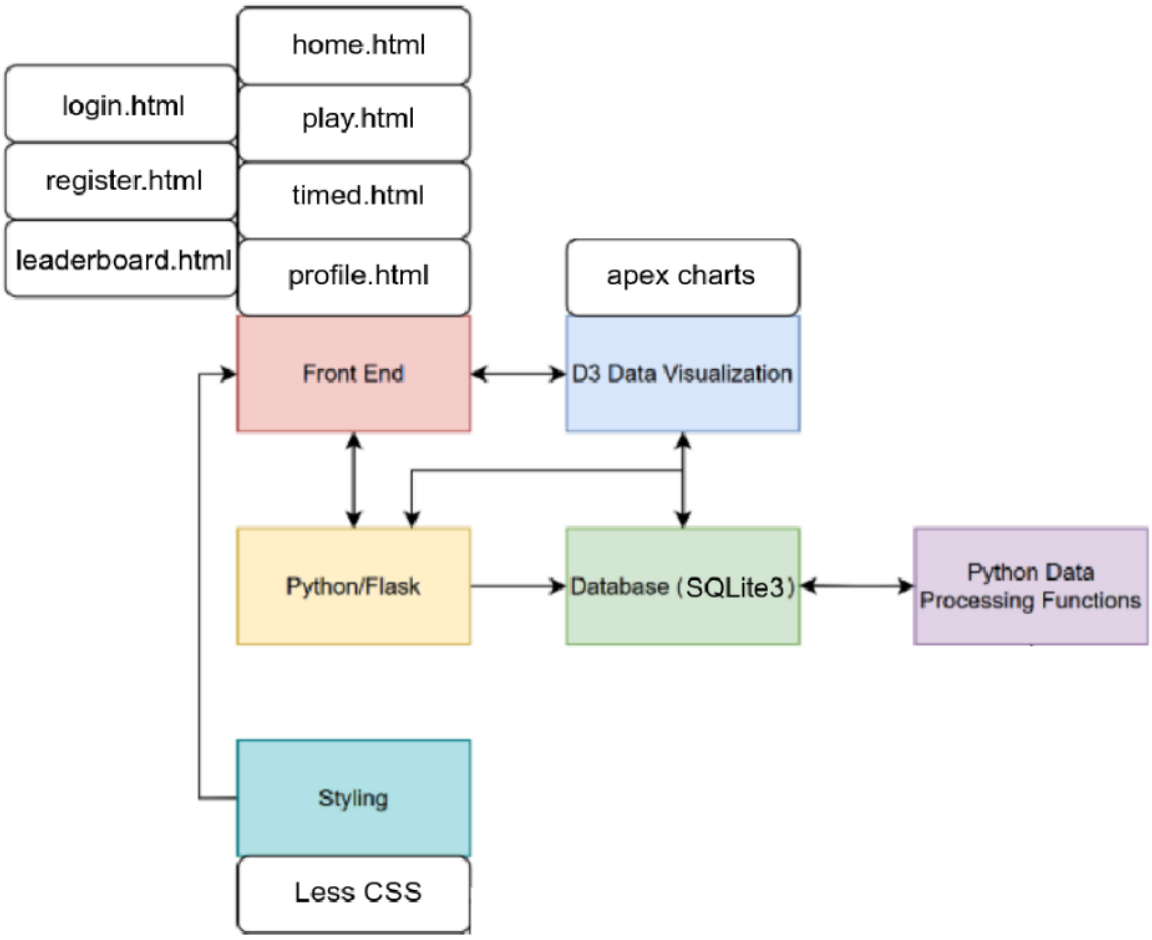
score_id	user_id	region	mode	points	distance	created
INTEGER UNIQUE AUTOINCREMENT	#	TEXT	TEXT	#	REAL	TIMESTAMP

C. Site Map + Descriptions

1. (/) - shows the user different regions and different game modes (i.e., timed). Users will see their options of gameplay and will be directed to login to play.
2. (/play) - shows street view and guess map. After each guess, user will be able to see their distance line, points earned, etc
3. (/play/timed) - same ui as /play, but the user is timed
4. (/profile/<username>) - users will be able to see their total games, average distance, best score, and top 5 personal records. Users will also be able to see visualizations of these statistics.
5. (/leaderboard) - shows best scores for untimed, timed, and competitive
6. (/login) - Allows the user to log into their existing account
7. (/register) - Allows the user to create an account



D. Component Map



E. Frontend Framework: Foundation

1. Why Foundation?
    a. Easy-to-use and easy-to-follow tutorials
    b. A vast amount of CSS and JS components that will make things look and feel good
2. How Foundation?
    a. Grid System: Structure layout of pages like the dashboard and graph visualizers (Website will be able to adapt to size changes)
    b. Pre-designed Components: Buttons, Forms, etc
    c. JS Plugins: Modal Windows for confirmation messages

F. (stretch) Data Visualization Library: Apexcharts

a. Provides flexibility and graph interaction.
b. Allows for data binding for real-time updates
c. Easy to use and looks clean

G. APIS

a. GoogleMaps (Maps + Streetview): Panorama display and interactive map

H. TED TALK USAGE (LESS CSS)

1. Allows for efficient theme control instead of editing a lot of style rules.
2. Mixins allow for a nice look in our Street-View pane, map, and score modals
3. There are nested selectors and built in calculations.

I. Task Breakdown

1. Project Manager - Tawab Berri
    a. Housekeeping and facilitating productivity
    b. Assisting in Database with DJM
2. FRONTEND Lead - Alex Luo
    a. Creating styled templates that represent a nice replica of GeoGuessr
    b. Using LESS CSS and foundation to style said templates
    c. Data visualization for users (stretch)
3. API/Middleware Lead - Jacob Lukose
    a. Creating functions to streamline integration of GoogleMaps API and flask app
    b. Making sure that front end is served adequately with the correct values for FRONTEND lead
4. Database Lead - Jonathan Metzler
    a. Creating SQLITE database and lat/long presets for players
    b. Ensuring that there is a solid db for users
    c. Creating helper functions for API Lead