Strava Data Analyzer Web App

By connecting with Strava's open API, I've created a Flask web app to analyze data from my activities in ways not made available through the Strava website or mobile app. This web app was deployed with Google App Engine and is currently live at the link below. Next on the roadmap for this project is a tool to find optimal segments in my area where I can achieve a top-10 finish.

Blood Test Manager Full Stack iOS App

Inspired by my requirement for lifetime anticoagulation medication, I developed a full-stack iOS application to manage and visualize my INR (International Normalized Ratio) blood test results. The first iteration of this project utilized Storyboard UI, Node.js server, and MongoDB database. The second iteration utilized SwiftUI and Firebase to implement multiple user accounts and authentication logic.

Commute Predictor Machine Learning Model

By combining bicycle commute data over the past year from Strava with historical Calgary weather data, I trained and validated various machine-learning models to predict my commute time based on current weather conditions. A GUI was used to input current weather and display my predicted commute time which is accurate to within 1 minute and 38 seconds. This project also employs web scraping to autofill certain current weather fields.

Airline Booking System Web App

A full-stack web application designed to simulate the process of booking a flight through an airline. The system comes with extended functionality of managing existing bookings, and system admin abilities to modify flight and crew details. This project was part of the coursework of my MEng program.

Snake Game Desktop Application

Recreating the classic Snake video game by employing an object-oriented approach to handle the Snake, Apple, and various screens that the user will see. This game includes additional features such as difficulty selection and high score tracking between sessions. I have bundled this project as a Mac application that you can download and play for yourself! (To open the app, you will need to navigate to "Privacy & Security" in System Settings and select "Open Anyways".)

Service Ticket Database

Created a Java program which utilizes JDBC driver to connect to and populate a local MySQL database with over 15,000 randomly generated service tickets. This database was then connected to a business intelligence software, Looker Studio, to visualize and derive various metrics from the database including ticket Priority and Mean Time to Repair (MTTR).

NBA Player Efficiency Analysis

A common measure of a cyclist's ability is their Functional Threshold Power (FTP), which is often measured in Watts/Kilogram. My partner, Sean, and I decided to apply a similar method of analysis on publicly available NBA player tracking data to determine which players can score the most points requiring the least amount of power required to do so. As expected, this metric favoured smaller players such as point guards, especially those with high 3-point shooting ability like Steph Curry and Trae Young. However, some larger players, like Zion Williamson, were still able to defy this trend based on pure scoring ability.