**PennWest California Vulcan Activity Tracker**

**CMSC-4900-001-Senior Project I**

**Fall 2025**

**Project Requirements**

**October 20th, 2025**

**Instructor Comments/Evaluation**

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**Abstract**

The Vulcan Activity Tracker is intended to serve as an athletic activity management system for PennWest California students. By entering student email credentials, a free interactive environment is accessible. While there are many activity tracking applications, a lot of the features people would find useful are stuck behind a paywall. We want to make these features available to the user for free, as college students have enough costs to worry about as it is.

**Introduction**

**Background:**

A common problem for all undergraduate students is the need for organization systems. Students balance multiple classes, jobs, friendships, family life, and workout schedules. Whether a student is a Vulcan athlete with a rigid exercise plan or has recreational and personal goals to meet, finding a place to track progress is often blocked behind apps with monthly subscriptions. The Vulcan Activity Tracker is the result of identifying both the problem of organization and access to athletic activity planning. This senior project application aims to replace exercise tracking apps, such as Strava. The Vulcan Activity Tracker aspires to fulfil the features of recording workouts, viewing performance analysis, and following leaderboards. With the social aspect of friendly competitions, this application seeks to bring the students tother into an athletic community.

**Overview/Objectives of Project:**

The objective of the Vulcan Activity Tracker is to implement various features that encourage athletic participation and are helpful for recording training schedules. The Vulcan Activity Tracker is intended to be a web-based application that implements a user-friendly dashboard combined with contained database system for student credentials and activity data. The front-end or client side of this application will have 3 main components. A User Profile will allow students to add activities, statistics, and notes regarding their workout progress. Students will be able to view past activity history. The second client-side feature will be group interaction. Students will be able to make groups of other Vulcan Activity Tracker users, filtering by friends. clubs, and activities. Users will be able to record who participated with them in the activity. The third client-side feature will be a leaderboard. This leaderboard will show top users and the most popular activities, adding a fun competitive feature to the Vulcan Activity Tracker. Fun friendly competition will inspire users to perform their best at selected activity to get a spot on the application leaderboard.

On the back end of the Vulcan Activity Tracker, a server, API framework, and database will be implemented to power this web-based application. The use of internal functions and frameworks eliminates the security flaw of outsourcing code. By maintaining and controlling a database for the Vulcan Activity Tracker, data injection can be catered to PennWest student needs. An API framework will allow for fast data transfer, considering all https protocols. Organizing the server by APIs, services/data handlers, and database schema will allow for a streamlined development strategy.

**Constituents / Team Details & Dynamics**

Every member of this team is needed in order for this project to succeed and achieve the goal that has been set for it. Each member has selected a phase to take leadership in based on prior experience and their own feelings of where they think their strengths can be best utilized. Each member is listed below:

|  |  |  |
| --- | --- | --- |
| **Team Member:** | **Major:** | **Leadership Phase:** |
| John Gerega | CS | Proposal |
| Margo Bonal | CS | Specifications/Design |
| Luke Ruffing | CS | Requirements |
|  |  |  |

The team will stay in constant communication through a Discord server, which is the primary source of communication, but phone numbers are saved too in case of technical issues with Discord. Team meetings will mostly be virtual, but due to our overlapping majors we do end up seeing each other in person quite frequentlyas well. The team will share code, documents, and other resources through a git repository, which every member has access to.

**Application Domain**

**Project Context**

**Glossary**

**Initial Business Model**

**Operational Environment**

**Description of Data Sources**

**Use Case UML Diagrams & Descriptions**

**Initial Requirements**

**Functional**

**Nonfunctional**

**Documention**

**Testing / Revisions**

**List of References**

Strava, Inc. (2025, Sept 11). ***Strava* (Version 428.0.1)** *[Website and Mobile App]*

[**https://www.strava.com**](https://www.strava.com)

**Appendix I: Technical Glossary**

**Appendix II: Team Details**

**Appendix III: Workflow Authentication**

**Appendix IV: Report from Writing Center**