AA Gymetrics

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CST-451 Capstone Project Requirements Document

Grand Canyon University

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**ABSTRACT**

In modern times, mental health of individuals has been on the decline. As more people are diagnosed with a variety of mental and emotional disorders, more attention comes to what can be done to improve mental health. As a result, many people turn to a variety of methods to cope, both healthy and unhealthy. One outlet that many turn to is working out. As a healthy alternative to many unhealthy forms of coping, working out regularly, promotes the advancement of physical health while also supporting a healthy form of self-care, which can in-turn, improve mental health and wellbeing.

As GCU expands, more students are on campus, leading to higher numbers of students utilizing the fitness centers on campus. Although there are quite a few fitness centers available, each individual may have preferences due to machines or tools and their availability in the gym. As aforementioned, with higher numbers of students, there are also certain times with higher concentrations of students working out simultaneously. This project aims to provide students with up-to-date information of the number of students currently in each fitness center. There are a number of students who complain about the crowded gyms on campus. With the high unlikelihood of GCU building more dedicated fitness centers, the hope of this project is to allow regular gym-goers to know in-real time, how crowded a gym is to help them make a decision on when and where to go to work out.

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| History and Signoff Sheet |

**Change Record**

|  |  |  |
| --- | --- | --- |
| **Date** | **Author** | **Revision Notes** |
| 9/30/22 | Arin Aihara | Initial draft for review/discussion |
| 11/30/22 | Arin Aihara | Update diagrams and various sections |
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| **Overall Instructor Feedback/Comments** |

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| **Overall Instructor Feedback/Comments** |

**Integrated Instructor Feedback into Project Documentation**

Yes  No

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Functional Requirements

**Use Cases**

|  |  |  |
| --- | --- | --- |
| **Use Case or User Story** | **Approval Date** | **Justification** |
|  |  |  |

The user stories reflected in the spreadsheet show an analysis of expectations that this application will meet from the perspective of a normal user, a privileged user, and an admin overseeing the fitness student worker program.

**\*Refer to User Stories Spreadsheet**

Non-Functional Requirements

**Use Cases**

|  |  |  |
| --- | --- | --- |
| **Use Case or User Story** | **Approval Date** | **Justification** |
|  |  |  |

**\*Refer to User Stories Spreadsheet**

Technical Requirements

**Use Cases**

Describe the tools and technologies used in the project.

|  |  |  |
| --- | --- | --- |
| **Technology or Tool** | **Approval Date** | **Justification** |
| Visual Studio Code v1.72.2 |  | Developer-friendly UI, useful extensions and integration of other technologies |
| Vue v3 |  | Supports reactive and dynamic pages and allows or intuitive creation of frontend and backend |
| Tailwind v3.1.8 |  | Allows for intuitive CSS construction and easy implementation into Vue framework |
| Javascript v3.8.3 |  | Primary language for coding logic |
| Node v16.17.1 |  | Necessary for usage of Javascript |
| Postman v10.0.25 |  | Utilized for testing of API capabilities and integration |
| Mongoose v6.8.0 |  | Utilized to connect to MongoDB in Node application |
| Express v4.18.2 |  | Used to start local server that connects to API |
| Axios v1.2.0 |  | Used to connect frontend Vue application to backend Node app |

The technologies chosen are a reflection of the development team’s eagerness to expand their knowledge into unfamiliar technology as well as display their ability to use technology they are already comfortable with. The technologies were also chosen to showcase the ability to use industry standard technologies.

Logical System Design

Diagram

Description automatically generated

The diagram above shows the different layers of the web application. As highlighted in the frontend services, there are templates, which provide the outline for each component. The components serve as pieces of or the pages themselves, depending on the utilization of each component. Among the many components that will be created (as highlighted further down in this document), there is a navbar component, a button component, and a popup window component. With these components, there is the opportunity for reusability to be implemented across pages. Computed properties allow for real-time logic to affect the page dynamically from user input, or a change in the information provided. The backend services are supported Node and will support the use of a REST API to pull data from the Mongo database.

Diagram

Description automatically generatedUser Interface Design

The sitemap portrays the web application’s navigation. From the landing page, the login and about page are accessible via the navbar. The navbar can also be used to go back to the home page from any of the other pages as well. Although other windows will show up such as popups, since navigation is the priority of this diagram, only the navigable pages are displayed.

Graphical user interface, table

Description automatically generated

After navigating to the website, users are met with the initial landing page. Although able to access the login page, without a valid login, no action will be made, to keep non-employees out of the employee-end views. Other sections of the website are made accessible through the navbar at the top of the page. Employees that login will be authenticated and will be met with error handling if there is a problem during login, as well as data validation during the entering of their email.

Graphical user interface, application, table

Description automatically generatedAfter successfully logging in, employees will be directed to the page for the associated gym that their shift is scheduled for. As an employee, they can check students in manually, if necessary, as well as check out students and logout. Both of these actions require confirmation. Again, other pages are accessible via the navbar such as the “Home” page or “About” section.

Diagram

Description automatically generated with low confidenceThe last page not covered is the About page. Notice that the navbar options vary depending on the status of logged in or not.

Reports Design

Below is a sample table of what could be expected of the logs from employee logins. A table as such would be stored in the database and would be offloaded every month to be archived.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employee Email | First Name | Last Name | Date | Login Time | Location |
| John.doe@gcu.edu | John | Doe | 10-22-22 | 14:34 | Chapparal |