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CS 5374 Software Construction

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Team 3 Sprint 1 Project Report

**Project Explanation**

Muscle Mind is an interactive quiz game designed to test players’ knowledge of fitness, health, and nutrition while keeping them physically engaged. The intended audience of Muscle Mind are individuals who are motivated to self-improve. This self-improvement includes learning in a casual setting where aspects of physical fitness push them to actively learn while getting physical activity. As per the game, players are challenged with a variety of time questions, and incorrect answers lead to physical exercise penalties such as push-ups or squats, making it both an educational and physically engaging experience. There are three main features to be completed by the end of this project. The first feature is that registered users can create their own quizzes. This will be done by having the user create an account, manually enter a question, enter 4 multiple answers, and specify which is the correct answer. Quizzes can be no longer than 10 questions. The first feature will be implemented as part of the first iteration/cycle. The other two features will be implemented in the second iteration/cycle. The second main feature is when the user takes a quiz and answers a question incorrectly, a countdown timer and text displaying an exercise for the user to perform will be displayed on the screen. Finally, the third and final feature will be that players can receive a grade report of their score for each quiz that will be overridden each time the user takes the quiz. For example, if they take a quiz with 10 questions the first time and get an 80%, this means they performed 2 exercises, but when they take it a second time and score a 90% the 80% will be overridden.

**Solution Design**

The team approached designing a solution by communication and free exchange of ideas. Through communicating, we evaluated our individual skills and reached the conclusion that using specific technologies that align with our abilities would be efficient. For example, we will use HTML, CSS, JavaScript, and Redux for the front end, Flask, MySQL for the backend, and Pytest for testing. Using Redux for state management will assist in maintaining the complex state of the application, since users can log in, create quizzes, and do the exercise penalties. This will help with the organization and predictability of UI behavior. For the backend, Team 3 decided on Flask and MySQL because of their simplicity and effectiveness. Flask allows rapid development and easy integration with the frontend, and MySQL’s lightweight nature allows for managing user data and quizzes. Python was selected since members David Duru and Logan Armendariz have experience with it, and Pytest was chosen as a natural consequence for testing due to integration with Python. An assumption of Team 3 is that users will find the exercise penalties engaging. If users visit our product without aspirations to improve their physical fitness and prefer a more serious setting for studying concepts extensively, they may feel dissatisfied and look elsewhere for services.

**Reviews**

Team 3 reviewed the design by online communication and having meetings every Friday at 5:00 P.M. While not everyone was able to attend the meetings due to external responsibilities such as work, school, or family, team 3 reviewed the design by going through the design review checklist step by step. We started by checking if the design matched the project goals by covering all the main features and ensuring that the frontend and backend were well-connected, and that using Flask, MySQL, and JavaScript would make things easier to build and maintain. The reviews ended with some quick notes on what needed to be tweaked, and we made those changes to stay on track with our goals for the sprint.

**Sprint Retrospection**

Overall, communication went well, though some of the members said they’d rather use Microsoft Teams than Discord. Since most of the team is fine with Discord, we’re sticking with it for now, but we’ll switch to Teams if it becomes an issue. Ruben Martinez, the team leader, set up a OneDrive to keep everyone in the loop and ensure nobody misses updates. He also set up the GitHub repository with a README file outlining the key features and technologies used for the project. Additionally, team 3 created the code review checklist, design review checklist, and the coding standards document from scratch. Finding a good document by looking online for templates was challenging since none of them could meet our needs or were overly complex. Time management was a bit of a problem this sprint, so next time we’ll break down tasks into smaller pieces and set clearer deadlines. On the bright side, we did a good job defining what needs to be done for the first iteration, which should help us stay on track moving forward.