**COEN 6311 SOFTWARE ENGINEERING-WINTER 2025**

**SCOPE ACTIVITY**

**1. Purpose**

We are creating this solution to help the Concordia University community improve their health and wellness by offering a personalized, accessible fitness platform within the SoftGrid app, enabling students, faculty, and staff to achieve their fitness goals with ease.

**Stakeholders & their goals:**

* **Students**: Need an easy-to-use platform to fit fitness into their busy schedules. Goal: Achieve personal health and fitness goals.
* **Faculty & Staff**: Need a flexible wellness tool for a balanced work-life routine. Goal: Maintain health and reduce stress.
* **University Administration**: Need a tool that supports wellness initiatives and engages the campus community. Goal: Promote overall health and strengthen campus life.
* **Developers & Designers**: Need to create a seamless, functional app integrated with SoftGrid. Goal: Deliver a user-friendly, reliable platform.

**Client needs & the value we bring for them:**

* **Client Need**: Concordia University needs a solution to promote health, wellness, and engagement among students, faculty, and staff.
* **Value We Bring**: CUFitness provides a personalized, accessible, and integrated wellness platform that helps the university community achieve their health goals while fostering a sense of connection and support.

**Main deliverable at the end:**

The CUFitness application will fully integrate within **SoftGrid,** providing personalized fitness plans, nutrition tracking, and community-building features for Concordia’s students, faculty, and staff.

**Outcome:**

The outcome will be a healthier, more engaged Concordia University community with easy access to fitness and wellness resources, fostering improved physical and mental well-being. We believe, it will be exceeding stakeholders' expectations and long-term value through a reliable, scalable, and maintainable product.

**2. Usage**

**Working with CUFitness**

Users will interact with CUFitness by logging into the app, entering their goals, and using the personalized features such as workout plans, meal tracking, wellness resources, and community-driven challenges. The app’s design will allow for smooth navigation between different tools, fostering engagement and consistency in maintaining healthy habits.

**Epics and User Stories for CUFitness**

Epic 1: User Onboarding and Account Setup

* User Story 1.1: As a new user, I want to create an account and set up my profile, so I can begin tracking my fitness and nutrition goals.
* User Story 1.2: As a new user, I want to input my fitness level, goals, and preferences (e.g., dietary restrictions), so the app can recommend personalized workout plans and meal ideas.

Epic 2: Personalized Workout Plans

* User Story 2.1: As a user, I want to receive a daily/weekly workout plan tailored to my fitness level and goals, so I can stay motivated and track progress.
* User Story 2.2: As a user, I want the app to adjust my workout plan based on my performance (e.g., if I miss a workout or hit a milestone), so I can stay on track toward my goals.

Epic 3: Nutrition and Meal Tracking

* User Story 3.1: As a user, I want to log my meals and track calories, so I can monitor my nutrition and stay on track with my diet goals.
* User Story 3.2: As a user, I want to get meal recommendations based on my dietary preferences and fitness goals, so I can eat in a way that supports my health.
* User Story 3.3: As a user, I want the option to scan food barcodes, so I can quickly log nutritional information for packaged foods.

Epic 4: Social and Community Engagement

* User Story 4.1: As a user, I want to join fitness challenges and compete with friends or the wider community, so I stay motivated and accountable.
* User Story 4.2: As a user, I want to share my fitness progress (e.g., steps, workouts, achievements) with my social group, so I can get support and encouragement.
* User Story 4.3: As a user, I want to create or join campus fitness groups based on shared goals (e.g., running group, yoga group), so I can connect with like-minded individuals.

Epic 5: Wellness Resources and Mental Health

* User Story 5.1: As a user, I want access to guided meditation sessions and stress-relief exercises, so I can improve my mental well-being.
* User Story 5.2: As a user, I want to receive daily wellness tips or affirmations, so I can stay mentally focused and motivated throughout my day.

Epic 6: Progress Tracking and Insights

* User Story 6.1: As a user, I want to view a dashboard that shows my progress (e.g., workouts completed, calories burned, meals logged), so I can track my improvements over time.
* User Story 6.2: As a user, I want to set fitness goals (e.g., running a 5K, losing weight) and get progress reports, so I can stay motivated to achieve them.

Epic 7: Notifications and Reminders

* User Story 7.1: As a user, I want to receive reminders to complete my workouts and log meals, so I stay on track with my goals.
* User Story 7.2: As a user, I want to receive notifications about community events or new challenges, so I can participate and stay engaged.

Epic 8: Integration with SoftGrid

* User Story 8.1: As a user, I want to log in to CUFitness using my existing SoftGrid credentials, so I don’t need to create a new account.
* User Story 8.2: As a user, I want to integrate CUFitness data with my SoftGrid profile (e.g., fitness achievements, health data), so I can view everything in one place.

**Iteration and Refinement**

* In the first sprint, we may focus on the Onboarding and Account Setup Epic (User Story 1.1 and 1.2), as well as basic Personalized Workout Plans (User Story 2.1).
* In the second sprint, we can tackle the Nutrition and Meal Tracking Epic and continue developing Social and Community Engagement (User Story 4.1).
* By subsequent sprints, we’ll refine the Wellness Resources and Progress Tracking features.

This structure allows us to release a working version of CUFitness early on, providing users with essential features like personalized workouts and meal tracking while continuously adding more complex features like social engagement and wellness resources.

**3. Quality Requirements:**

1. Security Stories

* 1.1: Implement user authentication to secure accounts and prevent unauthorized access.
* 1.2: Encrypt sensitive user data to protect privacy and comply with regulations.
* 1.3: Use HTTPS to secure data exchanges between the app and server.

2. Performance Stories

* 2.1: Optimize load time by reducing external dependencies and minimizing data fetches.
* 2.2: Implement caching to improve performance by storing frequently used data locally.
* 2.3: Optimize database queries to ensure fast data retrieval.

3. Scalability Stories

* 3.1: Design app architecture to handle growth in users without performance drops.
* 3.2: Implement cloud storage to manage increased data needs.
* 3.3: Set up auto-scaling to handle peak traffic loads.

4. Reliability & Availability Stories

* 4.1: Set up monitoring and alerts to detect and respond to system issues.
* 4.2: Implement data backup to ensure user data can be restored if lost.
* 4.3: Design failover strategies to maintain service during outages.

5. Technical Debt Stories

* 5.1: Refactor authentication code to improve maintainability and reduce complexity.
* 5.2: Clean up unused code to enhance performance and security.
* 5.3: Update libraries to ensure compatibility and fix vulnerabilities.

6. Compatibility Stories

* 6.1: Ensure cross-platform compatibility to work on both iOS and Android.
* 6.2: Test responsiveness to ensure UI works across different screen sizes.

7. Maintenance & Updates Stories

* 7.1: Set up CI/CD pipeline to automate testing and deployment.
* 7.2: Implement automated tests to reduce bugs and ensure feature stability.

**4. Initial Product Backlog**

**Main epics and user stories:**

Epic 1: User Onboarding and Account Setup

* User Story 1.1: Create an account and set up my profile.
* User Story 1.2: Input fitness level, goals, and preferences for personalized recommendations.

Epic 2: Personalized Workout Plans

* User Story 2.1: Receive a customized workout plan based on my fitness level and goals.
* User Story 2.2: Adjust my workout plan if I miss a session or hit a milestone.

Epic 3: Nutrition and Meal Tracking

* User Story 3.1: Log meals and track calories.
* User Story 3.2: Get meal recommendations based on my dietary preferences and goals.

Epic 4: Social and Community Engagement

* User Story 4.1: Join fitness challenges and compete with others.
* User Story 4.2: Share fitness progress with friends and social groups.

Epic 5: Progress Tracking and Insights

* User Story 5.1: Track progress through a dashboard.
* User Story 5.2: Set fitness goals and get progress reports.

Epic 6: Wellness Resources

* User Story 6.1: Access wellness resources (e.g., meditation, stress-relief exercises).
* User Story 6.2: Receive daily wellness tips or motivational content.

Epic 7: Notifications and Reminders

* User Story 7.1: Receive reminders for workouts and meal logging.
* User Story 7.2: Get notifications about community challenges and events.

Epic 8: Integration with SoftGrid

* User Story 8.1: Log in with SoftGrid credentials.
* User Story 8.2: View fitness achievements within SoftGrid.

**Technical Stories in the Backlog**

1. Security Stories

* 1.1: Implement user authentication to secure user accounts and prevent unauthorized access.
* 1.2: Encrypt sensitive user data (e.g., fitness progress, personal information) to protect privacy and comply with data protection regulations.
* 1.3: Use HTTPS to ensure encrypted communication between the app and the server, preventing data interception.

2. Performance Stories

* 2.1: Optimize app load time by reducing the number of external dependencies and minimizing initial data fetches.
* 2.2: Implement local data caching to improve performance by storing frequently accessed data and reducing server requests.
* 2.3: Optimize database queries to ensure fast data retrieval, even with large user datasets (e.g., meal logs, workout history).

3. Scalability Stories

* 3.1: Design app architecture to handle increasing users and data without performance degradation.
* 3.2: Implement cloud storage to scale data management as user-generated content grows (e.g., workout videos, progress photos).
* 3.3: Set up auto-scaling infrastructure to handle traffic spikes and ensure stability during high user activity.

4. Reliability & Availability Stories

* 4.1: Set up automated monitoring and alerts to detect system failures or performance issues and respond quickly.
* 4.2: Implement a data backup strategy to ensure regular backups and data recovery in case of failures.
* 4.3: Design a failover system to ensure app availability even during server outages, reducing downtime.

5. Technical Debt Stories

* 5.1: Refactor the user authentication module to improve code readability, maintainability, and reduce complexity.
* 5.2: Clean up and remove unused code to enhance app performance and reduce potential security vulnerabilities.
* 5.3: Update outdated libraries and dependencies to ensure compatibility with newer technologies and reduce security risks.

6. Compatibility Stories

* 6.1: Ensure compatibility to make sure CUFitness works smoothly on both iOS and Android devices.
* 6.2: Test the app on various screen sizes and resolutions to ensure a responsive design across all devices.

7. Maintenance & Updates Stories

* 7.1: Implement a CI/CD pipeline to automate testing and deployment, ensuring fast, reliable updates.
* 7.2: Set up automated unit tests to ensure feature stability and prevent bugs from being introduced during updates.

**5. User Experience:**

Mockup Inspiration:

* SoftGrid App Style: The SoftGrid app is known for clean, simple layouts with effective use of cards, icons, and intuitive navigation. You can design CUFitness with a similar approach, using large interactive cards to represent workouts, meals, and challenges. Here are some sample those we can follow,

**A screenshot of a phone

Description automatically generated**

**Screens screenshots of a mobile app

Description automatically generated**

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