**CS673 Software Engineering** 

**Team 3 - Health and Wellness Tracker**

**Project Proposal and Planning**

| **Team Member** | **Role(s)** | **Signature** | **Date** |
| --- | --- | --- | --- |
| Chris Ceravolo | Team Lead | ***Chris Ceravolo*** | 9/23/2024 |
| Zihao Qian | Security | ***Zihao Qian*** | 9/23/2024 |
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| Yu Luo | Design & Implementation | ***Yu Luo*** | 9/23/2024 |
| Amanda Yee | QA | ***Amanda Yee*** | 9/23/2024 |
| Kenny Light | Requirements | ***Kenny Light*** | 9/23/2024 |

**Revision history**

| **Version** | **Author** | **Date** | **Change** |
| --- | --- | --- | --- |
| 0 | Team 3 | 9/11/2024 | All sections |
| 1 | Amanda Yee | 9/21/2024 | Updated ‘Functional Requirements’ based on Samantha’s feedback |
| 1 | Edward Lee | 9/23/2024 | Update to officially decide on Heroku |
| 2 | Edward Lee | 10/06/2024 | Update Configuration Management |
| 2 | Chris Ceravolo | 10/07/2024 | - Update requirements  - Update management plan |
| 3 | Chris Ceravolo | 10/14/2024 | - Update requirements (with some descriptions and acceptance criteria written by Amanda and Kenny on Jira)  - Update management plan |

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# Overview

*(Please give an overview of your project. It should include the motivation, the purpose and the potential users of the proposed software system, the basic functionality of the proposed software system and the possible technology stack to be used.)*

**Title:**

* Health and Wellness Tracker

**Motivation:**

* There is a growing awareness of the importance of taking care of your health and wellness. It can be easy to lose track of our own diet, exercise, and wellness routines when life gets busy. This project seeks to provide a straightforward and user-friendly system that helps users stay accountable, motivated and on track.

**Potential users:**

* Anybody who wants to better track their personal health and wellness data
* Potentially additional user-types such as personal trainers and nutritionists

**Description:**

* This project is a web application designed to help users track their health and wellness, such as steps taken, water intake, sleep, exercise routines, and diet. Users can set daily / weekly goals in each of these areas and monitor their progress toward achieving their goals.

**Tech Stack:**

* **Front end:** React
* **Back end:** Node.JS, express.js, mongo database cloud connection
* **Web Deployment:** Heroku
* **Management software:** Jira
* **Testing:** Jest

# **Related Work**

*(Please describe any similar software systems that you have found through the online research, and the differences between your software and those software systems.)*

* **MyFitnessPal**
  + There are many existing health and wellness apps currently in the market. A lot of these apps, like MyFitnessPal, have a lot of functionality which can sometimes feel overwhelming due to excessive features. This project will focus on simplicity and ease of use while still providing essential functionality, and we can use existing apps to get ideas of features to incorporate.
* **Health (Apple)**
  + We can learn from Apple Health for its simple, clean and intuitive interface also uses simple, easy-to-read graphs to visualize data, which helps user navigate and understand their health information.
* **Duolingo**
  + Future iterations of this app could take inspiration from Duolingo engagement features—such as providing healthy competition and sending reminders and messages of encouragement to the user

# Proposed High level Requirements

# [**Jira Board Link**](https://seprojects-cs673olf24team3.atlassian.net/jira/software/projects/HW/boards/1/timeline?shared=&atlOrigin=eyJpIjoiNWZjMTE5ZDBhMTI3NGZiYzlmMjRmNzk1ZmZmYTMzMjEiLCJwIjoiaiJ9)

* 1. **Functional Requirements**  
     (For each functional requirement, please give a feature title and a brief description using the following format: As (a role), I want to (action), so that (value).)
     1. **Essential Features** (the core features that you definitely need to finish):

(For each essential features, please give a rough estimation in terms of person hours or an range of person hours)

* Login
  + Implemented (Y/N): Y
  + Parent feature: Manage Profile
  + Description: As a user, I want to log in to the app securely so that I can access my personal profile and data without having to reenter my information every time I use the app.
  + Acceptance Criteria:
    - Given the user is not logged in yet, when the user correctly types in their username and password and clicks “Sign in,” then the website will route the user to the home page which will will display their personalized dashboard with relevant health and wellness data
    - Given the user is not logged in yet, when the user incorrectly types either their username or password and clicks “Sign in,” then the page will display an error message indicating that the username or password is incorrect, and the user will remain on the login page without being logged in
  + Hours: 12
  + Points: 3
* Create Profile
  + Implemented (Y/N): Y
  + Parent feature: Manage Profile
  + Description: As a user, I want to create a profile so that my data persists between logins and I can keep track of my progress.
  + Acceptance Criteria:
    - Given that I am on the the login page, when I select the “create profile” button, I am taken to the create profile page.
    - Given that I am on the create profile page, when I enter data into the form and hit submit, then I will be redirected to the home page.
    - Given that I am logged in, then I will be able to view my profile data in the manage profile page.
  + Hours: 8
  + Points: 2
* Edit Profile
  + Implemented (Y/N): Y
  + Parent feature: Manage Profile
  + Description: As a user, I want to be able to edit my profile details including age, gender, weight, height, activity level, and fitness goals, so that I can keep my profile information up-to-date and ensure that my personalized recommendations and progress tracking are accurate.
  + Acceptance Criteria:
    - Given I am a logged-in user on the profile editing page, when I access the profile editing form, then I should see input fields for age, gender, weight, height, and all fields should be marked as mandatory.
    - Given I am filling out the profile editing form, when I enter valid data into all mandatory fields and submit the form, then my profile should be updated successfully, and I should receive a confirmation message.
    - Given I am on the profile editing page, when I submit the form with missing or invalid data (e.g., non-numeric values for weight/height or incomplete mandatory fields), then I should see appropriate error messages indicating which fields need correction.
  + Hours: 8
  + Points: 2
* Add Goals
  + Implemented (Y/N): Y
  + Parent feature: Manage Goals
  + Description: As a user, I want to be able to add a goal for one of the health data items (sleep, steps, weight, water intake, or exercise) so that I can track my progress over time.
  + Acceptance Criteria:
    - Given the user is logged in and the “Create Goal” button is available, when the user clicks on the “Create Goal“ button, then a page will display a form requesting:
      * Sleep Goal (Hours)
      * Weight Goal (lbs)
      * Steps Goal (Step Count)
      * Water Intake Goal (Glasses)
      * Excercise Goal (Minutes)
    - Given the user is logged in and has added all requested information into the goal form, when they click on the “Save” button, then the goal will be posted to the database and will be displayed in the given user’s Goals section (assumption here is the Goals section has been set up, if not we can just check the database to see if the goal was added successfully)
  + Hours: 8
  + Points: 2
* Edit Goals
  + Implemented (Y/N): Y
  + Parent feature: Manage Goals
  + Description: As a user, I want to be able to edit my goals to allow myself the flexibility to adjust the rigor of my wellness routines.
  + Acceptance Criteria:
    - Given the user is logged in, when the user navigates to the manage goals page, 5 form inputs will appear for the possible goals categories (weight, steps, sleep, water, and exercise) containing the user’s existing goal values.
    - Given the user has edited some data about their goals in the form input fields, when the user hits submit, then a success message will appear.
    - Given the success message has appeared (and given the user has entered some daily data for the past week), when the user navigates to the home page they will see their goal updated on the charts.
  + Hours: 8
  + Points: 2
* Submit Daily Summary Health Data Form
  + Implemented (Y/N): Y
  + Parent feature: Manage Health Data
  + Description: As a user, I want to submit a daily summary of my health data (such as exercise and sleep) so that I can track my daily progress toward my wellness goals.
  + Acceptance Criteria:
    - Given I am logged into my Peak Performance homepage and the “Enter Daily Summary” button is present, when I select the “Enter Daily Summary” button, then the Daily Summary form will appear.
    - Given I am logged in and viewing the Daily Summary form and the submit button is available along with the following required form fields: “Weight—lbs” “No. Steps,” “Sleep—hrs,” “Water—glasses,” and “Exercise—mins,” when I input integers into all of these fields and press the submit button, then the daily summary of my health data will be added to the Peak Performance database and will appear as a line item in my Health Data History page.
  + Hours: 8
  + Points: 2
* Edit Submitted Health Data
  + Implemented (Y/N): Y
  + Parent feature: Manage Health Data
  + Description: As a user I want to be able to edit the health data I submitted so that I can fix any mistakes and more accurately capture my wellness routine.
  + Acceptance Criteria:
    - Given the user is logged in, when the user is on the Manage Daily Data page and deletes an entry, then that entry should be removed from the daily\_entries MongoDB database and no longer show up on the Manage Daily Data page
  + Hours: 8
  + Points: 2
* View Submitted Health Data
  + Implemented (Y/N): Y
  + Parent feature: Manage Health Data
  + Description: As a user of the health and wellness tracking application, I want to be able to view the daily entries of my health metrics that I have input so that I can understand my progress over time.
  + Acceptance Criteria:
    - Given the user is logged in, when the user is on the Manage Daily Data page, then they should be able to see all of their historical daily entries that they have entered
  + Hours: 8
  + Points: 2
* Time Series Dataviz
  + Implemented (Y/N): Y
  + Parent feature: Progress Dashboard
  + Description: As a user of the health and wellness tracking application, I want to be able to view my daily entries in a chart format so that I can understand my progress over time.
  + Acceptance Criteria:
    - Given the user is logged in and has entered daily data for at least one of the last seven days, when the user is on the Home page, then they will see five different graphs (exercise, sleep, water, weight, steps) that chart their most recent daily health entries against their goals
    - Given the user is logged in and has NOT yet entered any daily data, when the user is on the Home page, then they will see a message reminding them to enter their daily data for the past week
  + Hours: 12
  + Points: 3
    1. **Desirable Features** (the nice features that you really want to have too):
       - Homepage UI Improvements
         1. Implemented (Y/N): Y
         2. Parent feature: Manage Profile
         3. Description: As a user, I want to be greeted with my name when I log into the application so that it is a more personalized experience
         4. Acceptance Criteria:

Given the user is logged in, when they navigate to the Home page then they are greeted with “Welcome <first name>”

* + - * 1. Hours: 2
        2. Points: 1
      * Increased Password Security
        1. Implemented (Y/N): Y
        2. Parent feature: Manage Profile
        3. Description: As a user of the health and wellness tracking application, I want to be required to create a strong password during registration or password reset, so that my account is better protected against unauthorized access.
        4. Acceptance Criteria:

Given the user is creating a new account or resetting their password, when the user enters a password, then the system should validate the password against defined security criteria (e.g., minimum length, inclusion of uppercase letters, lowercase letters, numbers, and special characters).

Given the password entered by the user does not meet the security criteria, when the user attempts to submit the form, then the system should prevent the form submission and provide feedback indicating which requirements were not met (e.g., "Password must be at least 8 characters long and contain a number, an uppercase letter, and a special character.").

Given the user has entered a password that meets the security criteria, when the user submits the form, then the system should accept the password and proceed with registration or password reset.

Given the user enters a weak password, when the user is typing, then the system should provide real-time feedback on password strength (e.g., showing "Weak", "Medium", or "Strong").

* + - * 1. Hours: 4
        2. Points: 1
      * Search and Add Friends:
        1. Implemented (Y/N): N
        2. Parent feature: Join Community
        3. Description: As a user, I want to add friends so that I can share my progress towards my goals and encourage others to progress toward their goals.
        4. Acceptance Criteria:

N/A

* + - * 1. Hours: 8
        2. Points: 3
      * Notifications Receiver Panel
        1. Implemented (Y/N): N
        2. Parent feature: Receive Encouragement
        3. Description: As a user, I want to receive notifications of encouragement to help me remember to work towards my goals when life gets busy.
        4. Acceptance Criteria:

N/A

* + - * 1. Hours: 8
        2. Points: 2
      * Streak Tracker Notifications
        1. Implemented (Y/N): N
        2. Parent feature: Receive Encouragement
        3. Description: As a user, I want to be warned when I am about to lose a streak so I can stay engaged with my wellness routine.
        4. Acceptance Criteria:

N/A

* + - * 1. Hours: 8
        2. Points: 2
      * Edit Profile Visibility
        1. Implemented (Y/N): N
        2. Parent feature: Customize Settings
        3. Description: As a user, I want to be able to control what information other users on the app can see about me so that I can keep my personal health data secure.
        4. Acceptance Criteria:

N/A

* + - * 1. Hours: 6
        2. Points: 2
      * Detailed Goal Statistics
  + Implemented (Y/N): N
  + Parent feature: Progress Dashboard
  + Description: As a user I would like to view my progress towards specialized categories for nutrition and workout goals so that I can assess the progress of my wellness routine at a finer resolution.
    - Example: % Distribution of workouts across strength, flexibility, and endurance
    - Example: % Focus on areas of body
  + Acceptance Criteria:
    - N/A
  + Hours: 8
  + Points: 2
    - * Task Reminders
  + Implemented (Y/N): N
  + Parent feature: Receive Encouragement
  + Description: As a user, I want to be reminded when I have a task due to complete a goal so that I can avoid losing progress on my wellness routine.
  + Acceptance Criteria:
    - N/A
  + Hours: 8
  + Points: 2
    1. **Optional Features** (additional cool features that you want to have if there is time):
       - Create Custom Workouts
  + Implemented (Y/N): N
  + Parent feature: Fitness Form
  + Description: As a user, I would like to set goals around my own workouts that are not available for me to choose in the app so that I can fully integrate the Health and Wellness Manager with my routine.
    - There will be specialized data associated with each Workout object, perhaps with scores ranking focus on parts of the body or other special data. So user may need to input some of this custom info in order to create a custom workout.
  + Acceptance Criteria:
    - N/A
  + Hours: 12
  + Points: 3
* Dashboard Elements Adjustable by Timeframe:
  + Implemented (Y/N): N
  + Parent feature: Progress Dashboard
  + Description: As a user, I would like to adjust the scale of the progress dashboard (from daily, to weekly, to monthly, etc.) so that I can gain a more comprehensive view of how my wellness routine has progressed.
  + Acceptance Criteria:
    - N/A
  + Hours: 8
  + Points: 2
* Nutrition Form
  + Implemented (Y/N): N
  + Parent feature: Manage Health Data
  + Description: As a user, I want to document what I eat and drink quickly, without entering too much data, so that I can easily track my progress toward my dietary goals.
  + Acceptance Criteria:
    - N/A
  + Hours: 8
  + Points: 2
* Fitness Form
  + Implemented (Y/N): N
  + Parent feature: Manage Health Data
  + Description: As a user, I want to document my exercises quickly, without entering too much data, so that I can easily track my progress toward my fitness goals.
  + Acceptance Criteria:
    - N/A
  + Hours: 8
  + Points: 2
* Competitive Leaderboard
  + Implemented (Y/N): N
  + Parent feature: Join Community
  + Description: As a user I would like to engage in healthy competition with other users of the Health and Wellness Manager so that I may be inspired to workout more and eat healthy.
  + Acceptance Criteria:
    - N/A
  + Hours: 24
  + Points: 3
* Suggest Daily Calories and Workouts
  + Implemented (Y/N): N
  + Parent feature: Receive Suggestions
  + Description: As a user, I want to receive goal suggestions from the app so that I can explore unexpected possibilities for my wellness routine.
  + Acceptance Criteria:
    - N/A
  + Hours: 12
  + Points: 3
* Specialized Preferences on User Profile:
  + Implemented (Y/N): N
  + Parent feature: Create Profile
  + Description: As a user I want to be able to set specialized preferences in my user profile so that the app can create more customized suggestions for my wellness routine.
    - Example: Preference for cardio workouts
  + Acceptance Criteria:
    - N/A
  + Hours: 12
  + Points: 3
* Specialized Goal Categories:
  + Implemented (Y/N): N
  + Parent feature: Goal Form
  + Description: As a user, I want to be able to set specialized goal categories to customize my experience and align my
    - Example: % fresh fruits and vegetables
    - Example: Targeting exercises by strength, endurance, or flexibility
    - Example: Targeting exercises by part of the body
    - Creating specialized categories will require coordination with the overall UML diagrams, and other aspects of the project such as data visualization
  + Acceptance Criteria:
    - N/A
  + Hours: 12
  + Points: 3
* Add Friends to Goals:
  + Implemented (Y/N): N
  + Parent feature: Goal Form
  + Description: As a user I would like to collaborate with goals on my friends to increase the fun factor of my wellness routine and help to hold myself accountable.
  + Acceptance Criteria:
    - N/A
  + Hours: 8
  + Points: 2
* Smart Nutrition Data Entry
  + Implemented (Y/N): N
  + Parent feature: Nutrition Form
  + Description: As a user, I want the app to find the nutritional value of things that I eat so that I don’t have to manually enter calories for every single meal.
    - Connection to USDA data
    - Enter barcode number and get data from https://world.openfoodfacts.org/data
  + Acceptance Criteria:
    - N/A
  + Hours: 8
  + Points: 2
* Goals Calendar
  + Implemented (Y/N): N
  + Parent feature: Progress Dashboard
  + Description: As a user, I want to check a calendar so that I can see what goals I have achieved in the past and plan toward the goals I have scheduled in the future.
  + Acceptance Criteria:
    - N/A
  + Hours: 24
  + Points: 3
  1. **Nonfunctional Requirements**
     1. **Security requirements**
        + Encrypt user email and passwords in database (Hash Functions)
        + Use strong password requirements
        + Use HTTPS
        + “Sanitize” form input data to prevent cross site scripting (XSS) attacks
        + Manage user access if implementing multiple roles
        + Minimize data collection and avoid collecting unnecessary data

# **Management Plan**

## Objectives and Priorities

*(Please describe your project objectives with highest priority first. Project Goals can include but not limited to complete all proposed (essential) features, deploy the software successfully, the software has no known bugs, maintain high quality, etc )*

* We will aim to complete all proposed essential features.
* We will aim to complete some desirable features as time allows.
* Optional features will likely not be completed, but will provide useful activities in the event that we have more time than we anticipate.
* We are aiming to deploy this software as a web application.
* While we aim to produce a polished user interface, we will only design a responsive interface if there is time. More than likely, this will be a statically-sized webpage designed for desktop.
* We will aim to have no known bugs in the final product.

## Risk Management (need to be updated constantly)

*(Please write a summary paragraph about the main risks your group identified and how you plan to manage these risks. Then use the separate google sheet for detailed risk management. The template is provided in the same folder with this file. Please provide the link to the sheet.)*

As a team, we have identified several key risks for our project. One major risk is if one or more team members drops out from the class as that could affect our ability to meet the project goals we have set. Balancing schedules is also a concern, as each team member’s home and work life could interfere. We plan to keep constant communication via Discord if any scheduling conflicts arise and reschedule where necessary.

Given the six week project timeline, there is also a major risk that we will not achieve our goals due to scope creep, unclear requirements, and improper planning. We plan to mitigate these risks by having a clear project plan available to all team members via Jira.

In addition, there is technology competence risk with team members having varying levels of experience with React, Git and unit testing which could slow down development. We plan to individually upskill on these and also support each other through this learning process.

**Risk Management Sheet Link:** https://docs.google.com/spreadsheets/d/1B9yetc2xfoqSk5BoeNpZyjAfAHsmus2A/edit?usp=drive\_link&ouid=106673150530746711200&rtpof=true&sd=true

**Updates:**

* Closed “Personnel: Loss of team members”
  + We have made it to iteration 3 successfully
* Closed: “Personnel: Schedule clashes home and work life”
  + We managed several schedule disruptions, such as Chris’ trip to LA and Kenny’s hurricanes resiliently by communicating through Discord consistently
* Closed “Communication: Duplicate work”
  + We managed this through communication in Discord and we all made distinct contributions, detailed in the progress report and discussed in our final presentation Project Management section
* Closed “Requirements: Unclear Requirements”
  + We clearly closed all essential and some desirable requirements as we had aimed to do from Iteration 0.
* Closed “Requirements: Scope Creep”
  + We managed requirements on an ongoing basis during weekly meetings, simplifying where necessary
* Closed “Management: Improper Planning”
  + We have completed the majority of our application. In the next week there remains only fine tuning of details, or the addition of desirable/optional features. We effectively adjusted scope as necessary throughout the design and implementation process. Automated deployment helped us to see what was possible along the way.
* Closed “Technology Competence: Not familiar with React”
  + All of us have committed code and used React successfully
* Closed “Technology Competence: Not familiar with unit testing”
  + All of us have written tests. Our application must pass tests in order to deploy.
* Closed “Technology Competence: Not familiar with Git”
  + We are all using Git as we contribute to our repository on GitHub
* Closed “Design and Implementation: Messy Code”
  + We ensured consisted quality of code through frequent review of pull requests
* Closed “Testing: Not enough testing”
  + We sufficiently covered a percentage of statements in the client and server side as documented in STD and final presentation.
* Closed “Integration & Deployment (I&D): Not enough time for I&D”
  + We set up an automated pipeline and have been testing deployment throughout the development process. Our final application will deploy.
* Closed “I&D: Hosting Service”
  + We are using Heroku successfully

## Timeline (this section should be filled in iteration 0 and updated at the end of each later iteration) [Jira Board Link](https://seprojects-cs673olf24team3.atlassian.net/jira/software/projects/HW/boards/1/timeline?shared=&atlOrigin=eyJpIjoiNWZjMTE5ZDBhMTI3NGZiYzlmMjRmNzk1ZmZmYTMzMjEiLCJwIjoiaiJ9)

Requirements in this timeline are summarized at the highest parent level (e.g. Manage Profile includes Log In, Create Profile, and Edit Profile). Please refer to the “Proposed High Level Requirements” section or Jira for a more detailed breakdown.

| **Iteration** | **Functional Requirements(Essential/Disable/Option)** | **Tasks (Cross requirements tasks)** | **Estimated/real person hours** |
| --- | --- | --- | --- |
| 0 | - Planning & Analysis | Establish project idea and requirements  Define tech stack  Assign roles  Set up Jira  Set up Figma board | N/A hours planned  46.5 hours actual |
| 1 | - Manage Profile  - Manage Goals  - Manage Health Data | Create UML diagram  Database schema  Set up Cloud hosting  Test deployment of a simple page  Demonstrate connection to database  Establish testing  Set up Docker  CI/CD | 60 hours planned  155 hours actual |
| 2 | - Login/Logout  - V1 of Time Series Dataviz  - Refinement of Manage Profile, Manage Goals, and Manage Health Data | - Created React application  - Set up MongoDB database and defined initial schemas  - Created pages for Add User, View Users, Add Goals that connect to external DB  - Created screens for Login and Add Daily Health Data Entry  - Set up Docker  - Set up Jest testing framework and created initial unit tests | 60 hours planned  203 hours actual |
| 3 | - Homepage UI Improvements  - V2 of Time Series Dataviz  - Improved Password Security  - Actual Login Security | - Edit goal functionality + testing  - Updated UI  - Charts hook up to user data + testing  - Additional tests  - Cookie instead of local storage  - Stronger password security  - Filled in requirement details  - Final presentation and documentation | 60 hours planned  133 hours actual |

# **Configuration Management Plan**

## Tools

*(In this project, we will use Git and Github as the version control tools. Please also specify any other tools to be used, e.g. IDE tools, CI/CD tools, container tools, SAST or DAST tools, and any other DevOps tools)*

In this project, we will use GitHub for version control. When new changes are pushed to the “main” branch, we will trigger GitHub actions to deploy the changes in the application. The GitHub plugin can also be used for user convenience in the IDE of their choice.

We will be using Figma to design the UI for our Health and Wellness Manager web app. By using Figma, we can visualize the overall structure and user interface of the web app, ensuring that the design is user-friendly and consistent.

* 1. **Code Commit Guideline and Git Branching Strategy***(Please briefly describe criteria for the code commitment and the branching strategy used, e.g. what are the branches to be used, how the pull request will be used etc. Here is an article to give you some basic knowledge about different git branching strategies:* [*https://www.flagship.io/git-branching-strategies/*](https://www.flagship.io/git-branching-strategies/)*)*

A “dev” branch will be used for all new features. Each individual team member will create a branch off of this branch (ex. “elee-ticket-id”) and merge their new change in. Tested features ready for use will be merged to the “main” branch by creating a release branch (ex. release1). A check is placed on pull requests to main from dev, where the application must successfully deploy to Heroku.

Pull requests will contain the Jira ticket ID and a summary of the feature. Hotfix pull requests to “main” will have the “Hotfix” label applied to them, with the defect and summary of the fix being in the title.

## Deployment Plan if applicable

*(If you plan to deploy your application (e.g. your web application), briefly describe how you plan to deploy your application).*

Pushes to the “main” and “dev” branches will trigger deployment through GitHub actions to Heroku.

# Quality Assurance Plan

## Metrics

*(Describe the metrics to be used in the project to measure the quality of your software. Each metric should be measurable and quantifiable. Examples of metrics include product complexity (LOC, # of files, # of classes, # methods, cyclomatic complexity, etc.), defect rate (# of defect per KLOC), # of test cases, test case pass rate, cost (# of person hours used), # of user stories completed, etc.* ***The result of these metrics should be reported in the progress report/ iteration summary sheet****)*

| **Metric Name** | **Description** |
| --- | --- |
| Number of commits | Measures the number of commits made to the repository in each iteration |
| File Count | Measures the total number of files created |
| Test Coverage % | Measures the percent of statements covered by test code |
| Test Case Count | Measures the total number of test cases created |
| Jira Ticket Completion Count | Measures the total number of Jira tickets completed by the team |
| Cost | Measures the collective number of hours spent by the team on developing the web application |

* 1. Coding Standard

*(Describe any coding standard to be used)*

* + 1. camelCase for variables, functions, and object properties
    2. PascalCase for classes
    3. UPPER\_CASE for constants
    4. lowercase-kabob for file names
    5. Write clear and concise comments

## Code Review Process

*(Everyone should review all documents to be submitted. Here you will mainly describe how the code review will be done. Who will review the code, e.g. design or implementation leader will review all code or team members review each other’s code. Do you use pull requests for the code review? Is there a checklist to help review? What feedback should the reviewer provide?)*

Pull requests (PR) will be required for a code review and each PR will require **at least one** approval by another team member. When a PR is ready to be reviewed, post in the #team3 Discord channel and someone in the team should respond that they will review it.

The reviewer should ensure that the pull request fulfills the requirements of the related Jira ticket. The reviewer should also provide feedback if they foresee the code changes having negative downstream impacts.

## Testing

*(Both manual testing and automated testing should be considered. Both unit testing and integration testing should be considered. Briefly describe the testing tools/framework to be used, the personnel involved (e.g. the QA leader will focus on the integration testing and each developer will unit test their own code), when and what types of testing will be performed, the testing objectives, etc)*

Each developer will be responsible for writing unit tests for classes/methods that they develop. The objective here is to catch errors early in the development process and ensure that each piece of the application functions as expected in isolation. We plan to use Jest.

Integration testing will be considered with the objective to oversee the interaction between components and ensure the application as a whole is running as expected. For example, we will need to verify that the data flowing from the back end to the front end is working properly. The QA leader will be responsible for this and this will be done manually before the release of each project iteration.

## Defect Management

*(Describe the tool to be used to manage the defect (e.g github issues). The types of defects to look at. The actions or personnel for defect management.)*

To manage any defects in our application, we will use Jira to track them by creating a new ticket for the given defect. The main type of defects we will be looking out for are functional defects where a feature/functionality is not working as expected. UI/UX defects will also be considered for any issues related to the user interface or user experience.

For defect management, when a team member identifies a defect they should immediately record the defect via a Jira ticket that contains a description of the problem and a proposed fix. The team leader will prioritize defect handling, based on severity and downstream impact, and assign a team member to handle the ticket. The developer will work on the ticket, make the fix and commit the necessary changes to the codebase. The PR reviewer will verify the defect is fixed before approving the changes.

# **References**

*(For more details, please refer to the encounter example in the book or the software version of the documents posted on blackboard.)*

* Coding Standards: <https://www.syncfusion.com/blogs/post/top-javascript-naming-convention>

# **Glossary**

*(Any acronym used in the document should be explained here)*

N/A