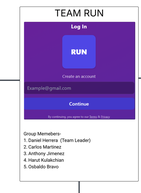


Required

1. User account creation and login using JWT authentication.
2. Secure password hashing using bcrypt.
3. Store and retrieve workout and hydration data using MongoDB Atlas.
4. Convert workout data into RPG character stats (strength, stamina, health).
5. Implement water intake logging with in-game health or stamina boosts.
6. Save user progress and coin rewards in the database.
7. Basic navigation between pages (home, dashboard, workout log, profile).
8. Frontend (HTML/Tailwind/JS) communicates with Node.js/Express backend through REST API.
9. Deploy the full-stack app using Railway.app.

Desired

1. Character customization (change outfit, colors, accessories).
2. Coin reward system to purchase in-game items (health potions, boosts).
3. AI-generated workout plan recommendations.
4. AI-generated enemy dialogue during battles.
5. Achievement badges for workout milestones.
6. Animated progress bars and stat updates.
7. Leaderboards or friendly challenges.
8. Notification reminders to log workouts or hydration.

Aspirational

1. Multiplayer RPG mode where users can battle friends.
2. Real-time AI personal trainer with feedback.
3. Smartwatch integration (heart rate, calories, activity sync).
4. Augmented Reality (AR) character mode.
5. Dynamic enemy difficulty based on user fitness level.
6. In-game marketplace for cosmetic upgrades.
7. Nutrition tracking (calories, protein, meal logging).
8. Advanced analytics dashboard with charts and long-term trends.

Brief Proposal:

Our team decided to continue working on our previous project, Workout RPG Tracker. This app is a very exciting idea because we want to combine fitness tracking with an RPG style character system. Users log their real workouts in the app, and their in game character grows based on what they do in real life. For example, if someone does push ups and records them their character's strength increases. If they train legs their characters leg stats improve. Our goal is to make working out feel more interactive and rewarding. We also want to build the water feature. Users will be able to log their daily water intake and drinking enough water will give their character boosts like extra health or stamina. This is a feature we decided to add and maybe add more than just water intake options. (pre workout or energy drinks, mostly thinking of popular drinks people will take) Our goal is to turn this from a basic concept into a more complete and well designed application that shows real growth in our skills we are learning from this class.

Tech Stack:

Frontend: HTML5, Tailwind CSS, and vanilla JavaScript
Backend: Node.js, Express.js, JWT (JSON Web Tokens), bcrypt (password hashing),
and CORS
Database: MongoDB Atlas (cloud-base NoSQL) and Mongoose
Development & Deployment: Git/GitHub and Railway.app (respectively)
Deployment feature - Need AI agent for knowledge source (can be used for the calculation of stats?)

Example We will Use in the App:

- **Dashboard** — weekly workouts/water/boss fights.
- **Log Workout** — choose body part, exercise, reps/weight, plays animation.
- **Water Tracker** — quick amounts + progress bar + buffs.
- **Raids/Boss** — zone unlocks, challenge boss, rewards.
- **Gear/Wardrobe** — unlock/equip gear.
- **Rest Mode** — appears after 3 missed days, resume button.
- **Settings** — permissions, HR device link.
- **Intakes** — Different intakes besides water.

Task Assignments (Team RUN)

- **Daniel Herrera** - Frontend/Editor/User Experience
- **Carlos Martinez** - Researcher/Database Developer
- **Anthony Jimenez** - Tester/User Experience
- **Daniel Herrera** - Frontend/Editor/User Experience
- **Osbaldo Bravo** - Tester/Researcher/Repo
  - Master/Helper/Project Manager
- **Harut Kulakchian** - Application Developer/Lead
  - Architect
- (Each person has there own role but we will be asking for help all around. The more we help each other the easier it will be to understand the roles)

Team Goals-

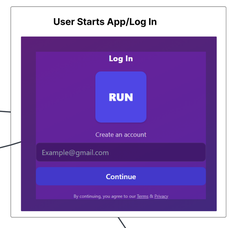
Daniel Herrera; Wants to learn how to do backend programming as well as using different tools such as AI or different programming languages to expand their library.
Carlos Martinez; Want to practice app development and learn about frontend frameworks
Anthony Jimenez; Hope to also strengthen GitHub skills and learn about ios development and get an understanding of different languages not previously used yet.
Daniel Herrera; Wants to learn how to do backend programming as well as using different tools such as AI or different programming languages to expand their library.
Osbaldo Bravo; Wants to strengthen GitHub skills and help with testing and repo management.
Harut Kulakchian; Wants learn application development and the tools used for it as well as wanting experience working in a team for a Project.

Problem Statement:

We realize that one of the hardest parts of getting into shape goes beyond just working out. There are other factors that go into your health such as what you should work out, when you should rest, and what you should eat. Things such as calorie counting, label reading, and resting can be difficult for someone to maintain and keep consistent.

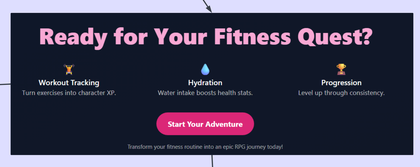
We initially came up with a project idea of a Workout RPG app. The app will track your workouts, but it will also have an RPG character in the app that will mimic you. The character will grow stronger as you log your workout. For example, if you do pushups and record them in the app your RPG character will grow with you. We also added a water intake feature. There is also a coin reward system that each user can accumulate in order to purchase items that can help them progress in the game such as health potions. To further enhance the project we will be implementing more AI capabilities such as recommending a workout plan for the user and possibly adding AI to the enemies the user fights by giving them dialogue.

This is the login/sign up page for the user

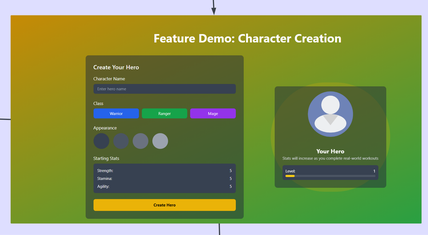


These steps will be skipped for returning users once the character is created

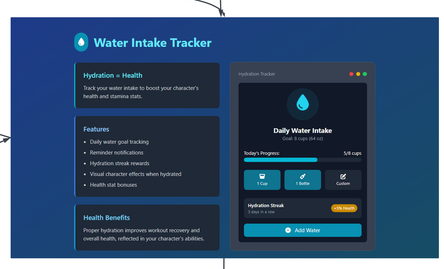
New users will be given a introduction to the app (can skip)

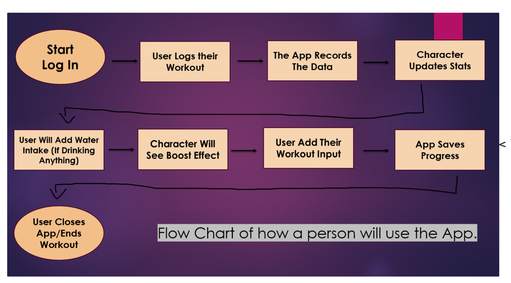


Users will be asked to create their first character following these options

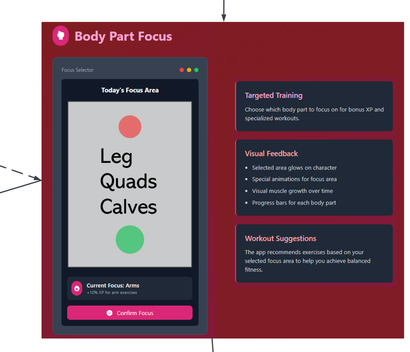


Users can track their water intake which will directly synchronize with their character and maybe be able to change from different intakes (juice, pre workout, soda)

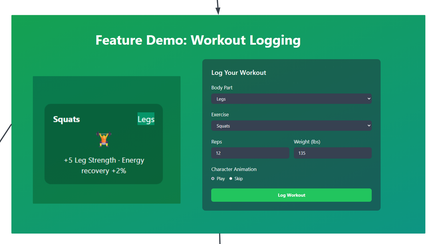


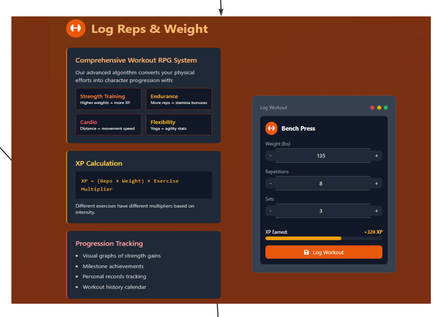


Users can select which body part to work out and will be given exercise suggestions and feedback

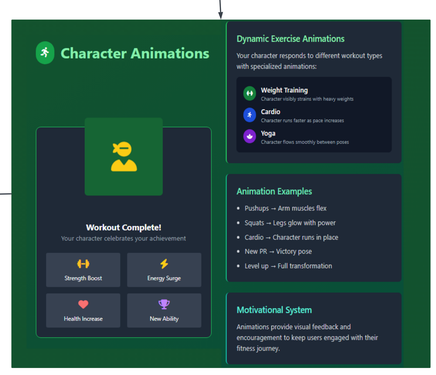


Users can log thier workouts then the app will reward the users characters with progression bonuses





After a exercise is logged into the app the user will see their progression towards thier exercise goal and thier character will be shown geting stronger depending on their work out



Example How the App will work from a user point of view.

User Stories: (examples)

1. As someone who plays games and goes to the gym, I want a tracker that keeps me incentivized so that I stay consistently in the gym.
Acceptance Criteria:
a. User can tie progress to an account.
b. User can let built-in software have certain permissions.
c. User can create a character.
Tasks:
a. Create an account using email/password
b. Enable tracking permissions such as heart rate, steps, breathing, and water intake
c. Create and design a character in a design area UI

2: As someone who struggles with warming up, I want a plan that will have warm-ups that will keep me engaged.
Acceptance Criteria:
a. User can choose a "Warm-Up" option
b. User can choose between set warm-ups or create their own
c. User can choose to display a timer or a video for the warm-ups chosen
d. User can see a character animation do it alongside him
Tasks:
a. Make a button that will lead to a set of warm-up options such as a light warm-up, or heavy warm-up.
b. Will log the warm up and update stats accordingly
c. Displays the created character and animates the character doing the warm-ups

User Stories (Continued):

3. As someone who forgets to track my current workout, I want to be able to log my workout in a way that keeps me consistent and honest
Acceptance Criteria:
a. User can choose what body part
b. User can enter the number of repetitions and weight
c. User can see character stats increase as information is logged
d. User can see character do animations based on the workout
Tasks
a. Have body parts listed that the user can choose from
b. Show workouts related to the body part that the user can choose from
c. Be able to enter a custom amount of repetitions and weights for the workout chosen
d. Play an animation of the character doing the workout chosen
e. Increase the body part stats for the created character based on the info that the user inputs

4. As someone who struggles drinking enough water, I want to be able "game-ify" the task so that I am no longer struggling with it
Acceptance Criteria:
a. User can choose a water intake option
b. User is able to choose the amount of water
c. User is able to see a water intake progress bar
d. User can see the effect it has on character in raids/battles
Tasks:
a. Have a water icon displayed on screen that can be pressed
b. Show amounts of water (cups/bottles/ounces/etc.) that can be pressed and be able to input an amount
c. Play an animation showing the progress bar filling up
d. Have and show battle buffs from the amount of water drank

User Stories (Continued):

5. As someone who can struggle with going to the gym, I want to see how not going can affect my character so that I have incentive to go consistently
Acceptance Criteria:
a. User can see stats lower
b. User can see chance of raid success lower
Tasks:
a. Have a custom schedule and track if user did not go and lower stats accordingly
b. Show a raid success percentage and have it lower according to how many days/what type of day is missed

6. As someone who likes seeing consistency rewarded, I want a way to visualize my own diligence so that I would want to keep going
Acceptance Criteria:
a. User can see a 3/7/15/30 day consistency pop up
b. User can see a new map zone unlocked per each goal met
c. User can visually see the map unlock through an animation
Tasks:
a. Create a pop up that displays on each goal achieved
b. Have zones blocked until each day-streak is met
c. Display an animation for each zone unlocking that plays after achieving each goal

User Stories (Continued):

7. As someone who enjoys progressing to beat a boss, I want a way to see my progress reach a goal so that I can challenge a boss
Acceptance Criteria:
a. User can fight a boss at the end of a raid
b. User will be able to see if boss can be challenged based on stats
c. User can choose a reward after each boss beaten
d. User can choose to see or skip the battle animation and outcome
Tasks:
a. Have a boss as a battle at the end of a raid
b. The boss should be able to be challenged if the character reached the required stats
c. Cap the character reward to not be too powerful
d. Create a reward kit to choose between after defeating the boss
e. Show a battle animation and outcome but let the user have the choice to skip it

8. As someone who enjoys earning rewards through effort, I want to unlock and equip gear so that I can feel my progress making my character stronger
Acceptance Criteria:
a. User can unlock gear by meeting specific goals or milestones
b. User can equip or change gear once unlocked
c. User can view achievements related to unlocking gear
d. Equipping gear should increase character stats
Tasks:
a. Track milestone achievements and display them in a side slide notification
b. Lock gear until the required stats or goals are met
c. Create a wardrobe where new items appear once unlocked
d. Implement stat boosts when gear is equipped

User Stories (Continued):

9. As someone who wants an easier way to track workouts, I want to use my heart rate sensor so that my workouts log automatically without extra effort
Acceptance Criteria:
a. User can connect a smartwatch or other bluetooth heart rate device.
b. App can read and retrieve heart rate data during workouts
c. Heart rate data is automatically logged
d. System prevents fake workout entries
Tasks:
a. Implement Bluetooth connection to heart rate sensors
b. Retrieve and process heart rate data in real-time during workouts
c. Auto log heart rate as workouts progress
d. Disable manual logging when auto logging is active to prevent fake entries

10. As someone who wants to track my leg workouts, I want to log squats so that I can see my character get stronger and recover energy faster
Acceptance Criteria:
a. User can select "legs" and then "squats" to log the workout
b. Logging squats increases the leg strength stat
c. Character plays a squat animation when the workout is logged
d. Leg strength stat visually updates on the character (strength/armor appearance)
Tasks:
a. Create a menu to log squats under the "legs" workout category
b. Update leg strength stat and energy recovery rate when squats are logged
c. Animate the character performing squats upon logging
d. Add visual indicators (strength or armor) to reflect increased leg stats

User Stories (Continued):

11. As someone who forgets to stay hydrated, I want water reminders during my workout so that I can maintain my performance and health
Acceptance Criteria:
a. User can enable or disable water reminders
b. User can set custom interval timers for reminders
c. Notifications alert the user to drink water during sessions
d. User can mute reminders or pause them with a "Break" option
e. User can confirm water intake or skip the reminder
Tasks:
a. Add a toggle to enable/disable water reminders
b. Implement customizable interval timers for alerts
c. Send notifications with customizable text during workouts
d. Create a "break" button to pause notifications until the user returns
e. Provide options to confirm "intake" or "skip" for each alert

12. As someone who likes personalizing my character, I want to unlock customization options so that I can change my character's appearance as I progress
Acceptance Criteria:
a. User unlocks character customization at level 10
b. User can apply new outfits or looks once unlocked
c. New styles unlock at specific milestones
d. Custom appearances can be saved to the profile
e. Some items remain locked until earned
f. Character model updates immediately when customization is applied
Tasks:
a. Enable outfit customization when the user reaches level 10
b. Create a menu to apply and change character appearances
c. Unlock additional styles at milestone levels
d. Save and load custom appearances for the character profile
e. Lock certain gear or styles until requirements are met
f. Update the character model dynamically when changes are applied

User Stories (Continued):

13. As someone who wants to improve my back strength, I want to log pull ups so that I can see my character grow stronger with each workout
Acceptance Criteria:
a. User can select "back" and then "pull ups" to log the workout
b. Logging pull ups increases the back strength stat
c. Character performs a pull up animation when the workout is logged
d. Back strength stat updates visually on the character
Tasks:
a. Add a menu option under "back" workouts to log pull-ups
b. Update the back strength stat when pull ups are recorded
c. Play the correct pull up animation on the character upon logging
d. Ensure the character model reflects increased back strength after workouts

14. As someone who likes to track my progress, I want to see a weekly activity summary so that I can review my workouts, hydration, and boss fights in one place
Acceptance Criteria:
a. User can tap "my week" to view a weekly summary
b. Weekly logs display all workouts, water intake, and boss fights
c. Stats are color coded by day for easy tracking
d. Each day shows accurate and detailed data
e. Daily entries are interactive for more information
Tasks:
a. Create a "my week" section to display weekly activity
b. Generate and update weekly logs automatically
c. Apply color coding to differentiate stats for each day
d. Ensure daily entries display precise workout, water, and boss fight data
e. Make daily entries interactive, allowing users to tap for more details

User Stories (Continued):

15. As someone who might miss workouts, I want a rest mode to appear after missing several days so that I can visually see my character resting and feel motivated to return
Acceptance Criteria:
a. Rest mode activates and is visually shown if the user skips 3 or more consecutive days
b. An XP progress bar pauses while rest mode is active
c. App sends a "Come back!" notification to encourage returning
d. Streak resets after 3 missed days, but rest mode remains visible until activity resumes
e. Character displays a clear resting animation or scene during rest mode
f. Rest mode screen provides an option to resume workouts and restart the streak
Tasks:
a. Implement a rest mode screen that appears when the streak is broken
b. Pause XP progression and display a visual indicator (dimmed screen, sleeping character, etc.)
c. Send motivational "Come back!" notifications at set intervals
d. Reset the streak counter after 3 missed days while keeping rest mode active
e. Animate the character in resting state until the user logs a new workout
f. Add a "resume workout" or similar button to exit rest mode and restart progress