

# Project Proposal: Wellness Habit App

## Problem Statement

Many people struggle to stay consistent with positive daily habits because motivation fades quickly and accountability is low. Most wellness apps are either too rigid or too passive, leaving users disengaged. Our app addresses this by combining three innovative, gamified micro-apps in a single platform, making habit-building playful, interactive, and intelligent.

## Project Objectives

- Deliver a wellness-focused Android app that integrates multiple micro-apps under one unified platform.
- Provide **ActivityJar**, a contextual AI-powered activity generator that adapts to the user's preferences, environment, and schedule.
- Provide **SnapTask**, an AI-powered activity verification system that uses before-and-after photos to ensure completion and boost accountability.
- Provide **Roamio**, a walking companion that sends users on daily scenic walks and tracks their progress.
- Use deep gamification mechanics (points, streaks, progress tracking, characters, badges, friend leaderboards) to sustain user engagement.
- Demonstrate advanced Android development skills through camera integration, location tracking, AI Integration, contextual data use, modular design, and gamified interfaces.

## Stakeholders

- **Instructor & Teaching Assistants** – Approve and evaluate the project for CP470.
- **Development Team (Students)** – Responsible for design, implementation, and testing.
- **End Users (Target Audience)** – Students, youth, and anyone seeking a fun and reliable way to build and stick to habits.

# Project Deliverables

- **Mobile Application (Android)**: A functional app serving as a host for multiple micro-apps.
- **ActivityJar**: Suggests tailored activities by combining categories (Explore, Nightlife, Play, Cozy, Culture), filters (solo, with friends, with family), and contextual layers (time of day, location, weather). Data sources include:
  - **Location**: Gathered through device permissions or user-provided.
  - **Time**: Current time or user-specified.
  - **Weather**: Fetched using the free Open-Meteo API.
  - Using this data, we run a web search via Tavily, then pass the results to **gpt-5-nano** to generate 3–10 activity ideas per category. Batch generation reduces costs by minimizing web searches.
  - **Cost Efficiency**: Tavily web search is \$0.01 per query after 1000 free api calls, while gpt-5-nano runs at \$0.00346 per api call in our testing. Generating all categories in a single batch significantly reduces Tavily costs. These numbers come directly from our testing, not theory, proving the viability of our design.
- **SnapTask**: Lets users complete activities with AI verification:
  - Default and custom activity options.
  - Before/after photo capture, with temporary local storage in case of API call failure.
  - Images are downscaled to reduce cost and latency.
  - GPT-4o analyzes photos with prompts based on activity details to verify completion.
  - Upon verification, users are awarded points; photos are deleted after confirmation.
  - **Cost Efficiency**: Using GPT-4o for image verification balances accuracy with cost. In our tests, downscaling images to 480p costs \$0.0025 per verification, while 720p costs \$0.0059. This allows us to choose the right balance between accuracy and expense. Images may also be converted into smaller file formats before sending to reduce API round trip latency.

- **Roamio:** Encourages users to walk daily by generating nearby scenic destinations:
  - Uses location data and Tavily web search to identify scenic locations.
  - GPT-5-nano selects a destination and provides a short narrative or backstory to motivate the user.
  - Tracks user steps and awards points based on distance traveled.
  - **Cost Efficiency:** Like ActivityJar, Roamio relies on Tavily searches (\$0.01 per call after 1000). With one search per day per user, the ongoing costs remain manageable and predictable.
- **Gamification Features:** Points, streaks, badges, and progress indicators across all micro-apps. Each micro-app has a unique bird avatar that “levels up” as points are earned. The home screen nest grows as the global score increases. Friend leaderboards and badge achievements create competitive and collaborative dynamics.
- **Extensible Framework:** Modular structure designed to hold and expand with future micro-apps.
- **Documentation & Demo:** Source code, design documents, and a demonstration presentation.

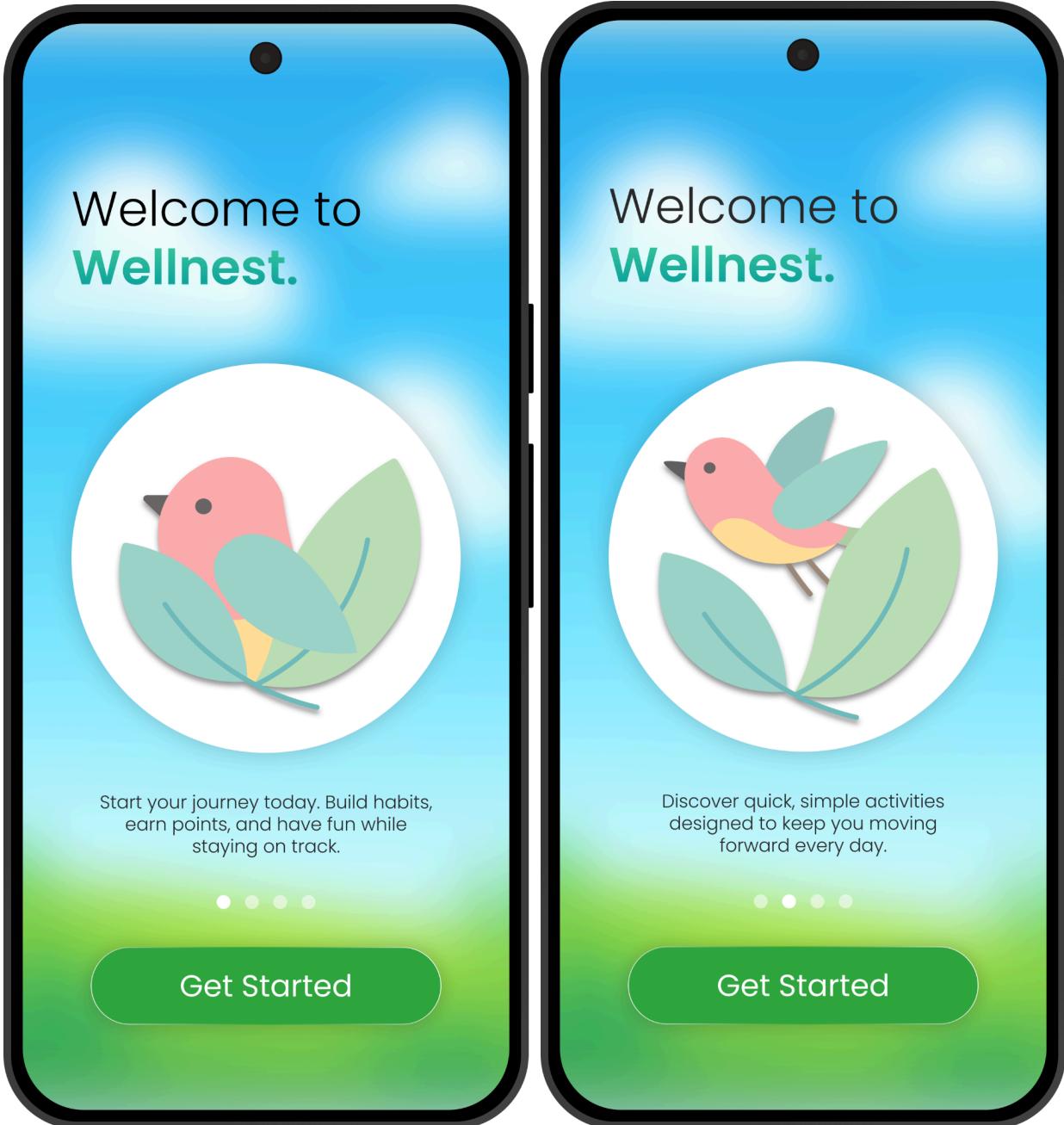
## Approval Criteria Alignment

- **Important Problem/Application:** Tackles the widespread challenge of sustaining motivation and accountability in personal wellness.
- **Innovative Approach:** Unlike typical wellness apps, ours integrates multiple micro-apps under one platform. Each micro-app is unique: ActivityJar generates context-aware activities with real-world data, SnapTask employs AI-driven proof-of-completion, and Roamio motivates outdoor exploration. Together, they create a playful, gamified system that is unlike anything else on the market.
- **Technical Challenges:** Contextual activity generation, API integrations (Open-Meteo, Tavily, Openai), AI-based image verification, camera/photo handling, modular multi-micro-app architecture, secure local storage, and gamification logic.
- **High-Quality Design:** Clean UI/UX with a playful nest-and-bird metaphor, modular design, API efficiency considerations, and extensibility.
- **Reliability & Ease of Use:** A seamless onboarding flow, simple navigation, intuitive interaction patterns, and responsive performance ensure the app is easy to understand and enjoyable to use.

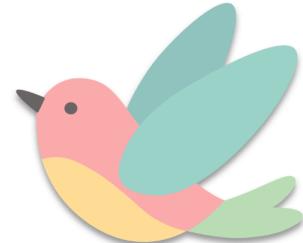
In summary, this project is innovative because it doesn't just track habits, it reimagines how people stay motivated. Our design leverages tested API cost models, modular architecture, and advanced AI to deliver context-aware activities, AI-verified completions, and daily exploration, all tied together by a deeply gamified experience with birds, nests, streaks, badges, and leaderboards. Most wellness apps are passive and uninspired; ours is playful, social, and proven to be technically viable.

# App Mockup

## Welcome Page



Welcome to  
**Wellnest.**



Stay motivated with streaks, progress tracking, and rewards that celebrate your wins.



Get Started

Welcome to  
**Wellnest.**

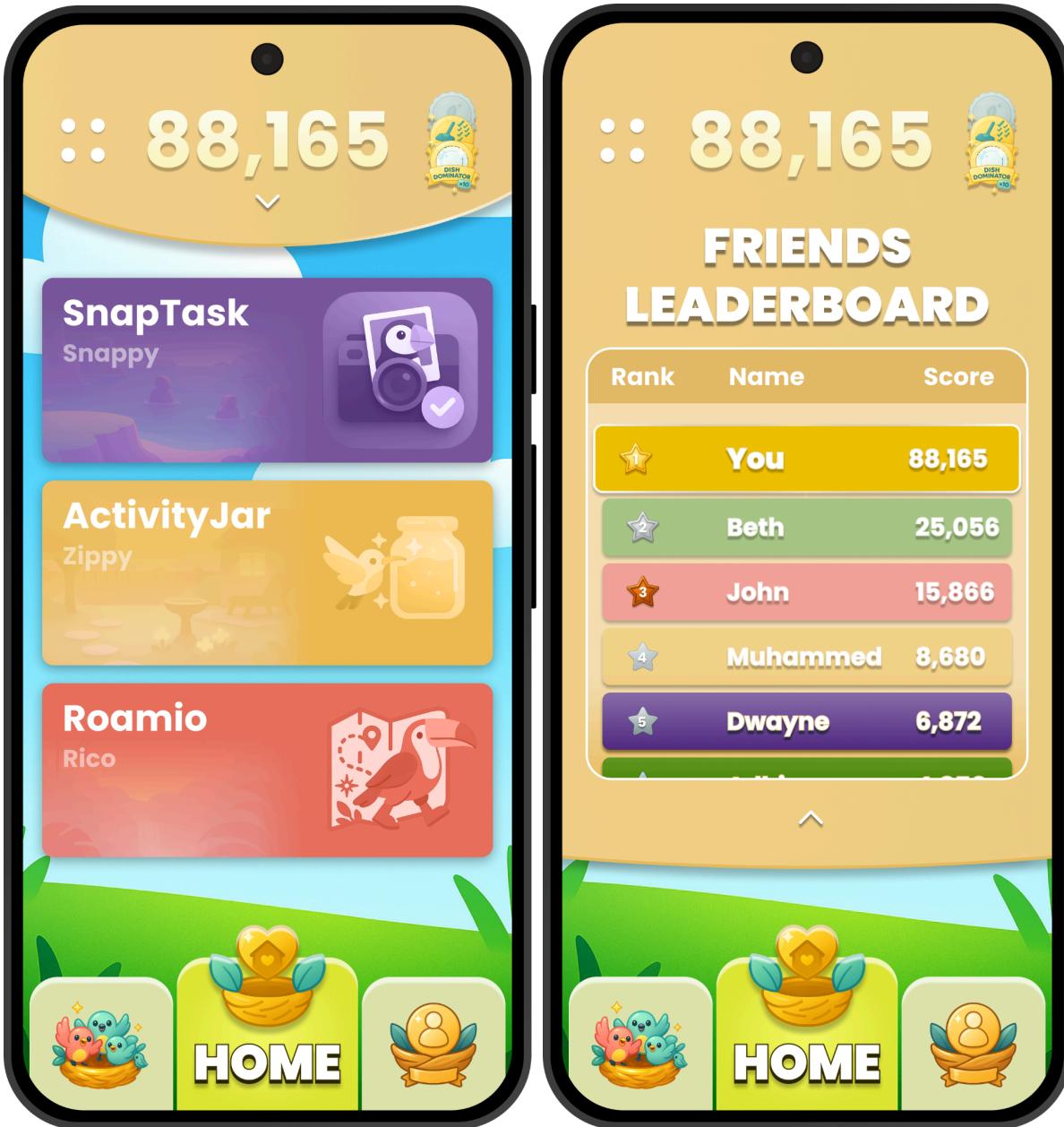


Join a community of people turning small steps into lasting change  
your adventure starts now.



Get Started

Home Page



## SnapTask Page

