

Design Document: LevelUp – AI Skill Journey Web App

Hemang Murugan, Adrian Halgas

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1 Project Description

The goal of **LevelUp** is to design and implement a full-stack learning application that helps users build new skills through AI-generated adaptive challenges. The system allows users to create personalized *learning journeys* based on their interests, skill level, time commitment, and personal goals.

Each journey is divided into levels, and each level presents a task generated by an AI model that becomes progressively more challenging based on user feedback. The backend is powered by **Node.js + Express** and stores data in **MongoDB**. The frontend is implemented in **React** using hooks for state management and asynchronous data fetching.

The app is deployed publicly at:

<https://web-dev-project-3.onrender.com>

Primary objectives:

- Provide a personalized, gamified learning experience.
- Generate adaptive AI tasks for continuous improvement.
- Track progress across multiple journeys and levels.
- Offer intuitive UI with clear progression and feedback loops.

Technologies:

- **Frontend:** React (Hooks), ES6 Modules, CSS Modules.
- **Backend:** Node.js, Express.js, MongoDB (3 collections: Users, GameData, Levels).
- **AI Integration:** Google Generative AI (Gemini 2.5 Flash) for adaptive task generation.
- **Deployment:** Render.

2 User Personas

Persona 1: Skill Seeker (Primary User)

Role A motivated learner looking to build or improve a skill such as cooking, communication, or memory training.

Goals Learn new skills through small, daily challenges with measurable progress.

Frustrations Overwhelming large goals, lack of motivation, non-personalized content.

Scenario The user signs up, selects “Public Speaking,” sets a 30-min/day goal, and begins completing adaptive challenges daily.

Persona 2: Busy Professional

Role Working individual with limited time wanting structured micro-learning.

Goals Build habits through manageable tasks, e.g., 15-minute daily learning challenges.

Frustrations Apps that require too much setup time or complex navigation.

Scenario Uses the app during commute breaks to complete quick AI-generated tasks.

Persona 3: Student

Role College student wanting to improve productivity or academic skills.

Goals Learn through practice and track progress visually.

Frustrations Generic task lists, no adaptive difficulty, lack of motivation.

Scenario Selects “Memory Training,” rates challenges daily, and sees the difficulty auto-adjusting.

Persona 4: Mentor or Instructor

Role Teacher or coach evaluating learner progress.

Goals Understand how learners engage with personalized tasks and difficulty trends.

Frustrations Lack of analytics or progress history.

Scenario Reviews journey history (completed tasks, difficulty ratings, and adaptive progression).

Persona 5: Researcher or Developer

Role Developer exploring AI-driven personalization.

Goals Understand how adaptive task generation impacts learning outcomes.

Frustrations AI recommendations without context.

Scenario Observes prompt logic and evaluates how Gemini-generated tasks evolve with user input.

3 User Stories

1. As a user, I want to **sign up and log in** so that my progress is saved across sessions.
2. As a user, I want to **create a skill journey** by specifying skill, level, time, and goal so that the system can generate a personalized training plan.
3. As a user, I want the app to **generate AI tasks** so that I get meaningful, context-aware challenges.
4. As a user, I want to **rate task difficulty (1–5)** so that the AI can adapt future levels accordingly.
5. As a user, I want to **view my current level and challenge** on a clear dashboard so that I know what to do next.
6. As a user, I want to **see my progress history** (completed tasks and ratings) for motivation and reflection.
7. As a user, I want to **edit my profile** (name, email, password, avatar) so that I can maintain accurate personal information.
8. As a user, I want to **delete my account** if I no longer wish to use the app.
9. As an admin, I want to **view and manage users** to ensure a healthy database and demonstrate CRUD functionality.

4 Mockups / Wireframes

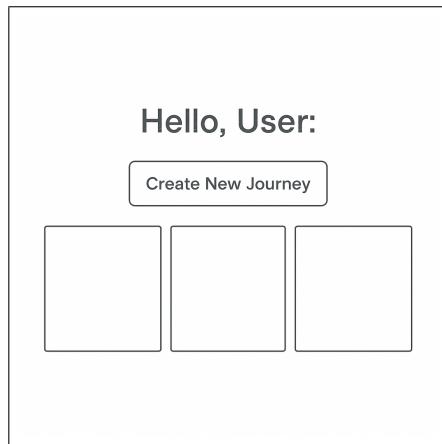


Figure 1: Dashboard

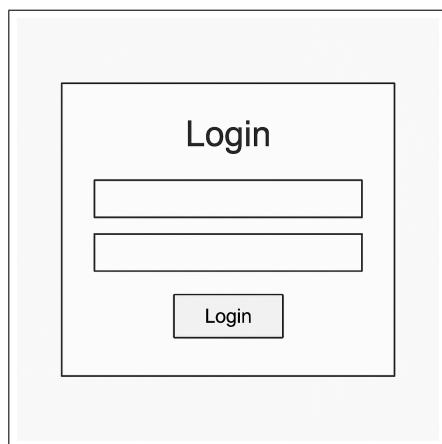


Figure 2: Login

Sign Up

Name

Email

Password

Confirm Password

Figure 3: Signup

Create Your Journey

Skill

Experience Level

Time Commitment

Personal Goal

Figure 4: Level Creator

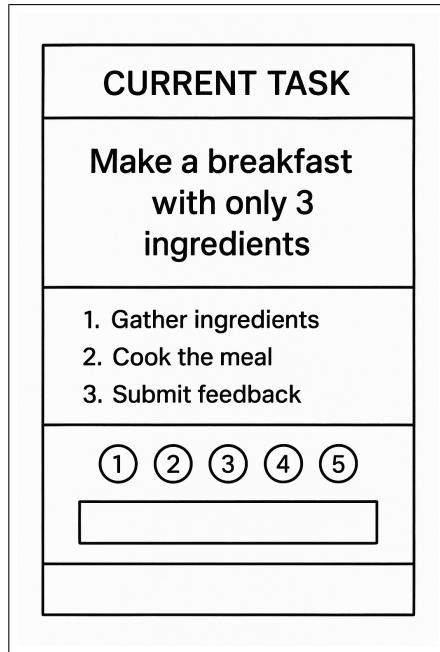


Figure 5: Game Screen

5 Conclusion

The **LevelUP** project integrates AI-driven learning, adaptive progression, and gamified feedback into a unified web experience. Users can track personalized skill development journeys that grow in complexity over time. The architecture demonstrates practical full-stack development using Node.js, Express, MongoDB, and React with clean modular organization and code style compliance (ESLint + Prettier).