

AETHERNOVA: CONSISTENCY & HABIT TRACKING SYSTEM

Project Documentation & Technical Summary Pre-Qualification Assignment: Full-Stack Developer Role Submitted by: Mukund Sharma

Date: 28/02/2026

1. Project Overview

- Project Name:** AetherNova – High-Performance Consistency Tracker
 - Objective:** To build a clean, intuitive full-stack application that helps users track daily habits and stay consistent.
 - Core Aesthetic:** Cosmic Dark Mode / Glassmorphism (Premium SaaS feel).
 - Architecture:** Next.js 15 (App Router) + Express.js REST API + Prisma ORM + PostgreSQL.
 - Deployment:** Vercel (Frontend) + Render (Backend) + Supabase (Database).
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2. Technology Stack

Category	Technology
Frontend	Next.js 15 (React 19), Tailwind CSS 3.4, Framer Motion
Data Viz	Recharts (Responsive Weekly Graphs), Heatmap Grids
Icons & UI	Lucide React, Radix UI (Headless), Sonner (Toasts)
State Management	SWR (Optimistic UI), React Context (Auth/Theme/UI)
Backend	Node.js, Express.js (TypeScript)
Persistence	Prisma ORM, PostgreSQL (Supabase), Cloud Pooling
Security	JWT (httpOnly Cookies), Helmet, Rate Limiting, Zod
Animations	Canvas Confetti, Framer Spring Physics, CSS Shimmers
DevOps	Vercel (CI/CD), Render (Server), Git + GitHub

3. Mandatory Requirements Compliance

Requirement	Implementation Detail
User Authentication	Secure registration/login with password hashing (bcryptjs), input validation (zod), and session management via httpOnly secure cookies.
Habit Management	Full CRUD lifecycle. Users can create, edit (title/desc/category), and delete habits. Habits are strictly scoped to the authenticated user.
Daily Tracking	Atomic completion markers. Database-level unique constraints (habitId, date) prevent duplicate tracking. History is viewable via a 365-day heatmap.
Progress Dashboard	Dynamic calculation of current streaks, completion percentages, and weekly progress visualized via Recharts AreaChart.
Backend & DB	RESTful API structure with semantic status codes, clear data modeling, and strict error handling middleware.
Deployment	Publicly accessible at aethernova-consistency-tracker.vercel.app . Uses environment variables for secrets.

4. Bonus Features Implemented (Exceeding Requirements)

UX Improvements

- **Ultra-Density UI:** A custom precision polish pass ensuring the main dashboard fits within 100vh on laptops, eliminating unnecessary scrolling.
- **Framer Motion Animations:** Smooth layout transitions, spring physics on interactions, and staggered loading states.
- **Dark Mode & Glassmorphism:** High-end production aesthetic with blurred layers and vibrant glow accents.
- **Smart Empty States:** Custom designed illustrations and "Quick Action" buttons for new users.

Feature Enhancements

- **Intensity Domains:** 9 specialized habit categories with unique semantic styles.
- **Reflection Notes:** Ability to add/edit qualitative notes for every daily completion.
- **Habit Freezing:** "Snowflake" system to protect streaks during planned breaks.
- **Daily Motivation:** Deterministic motivational quotes that change every 24 hours.

Technical Enhancements

- **Docker Orchestration:** Full

docker-compose.yml setup for 1-command local environment initialization.

- **Rate Limiting:** Tiered protection using express-rate-limit to prevent brute-force attacks.
- **CI/CD Pipeline:** Automated testing and deployment workflows via GitHub Actions.
- **Vercel Rewrites:** Secure proxying to treat the backend as first-party for cookie delivery.

5. Live Environment Links

- **Live Dashboard:** aethernova-consistency-tracker.vercel.app
- **Backend API:** aethernova-consistency-tracker.onrender.com
- **GitHub Repository:** github.com/mukund06s/aethernova-consistency-tracker

6. Engineering Decisions & Assumptions

- **Decision (Secure Auth):** Opted for httpOnly cookies over localStorage to eliminate XSS-based token theft, meeting high security standards.
- **Decision (Normalized Dates):** Used ISO YYYY-MM-DD strings for tracking to ensure consistency across user timezones, preventing "disappearing" completions.
- **Assumption:** User devices have JavaScript enabled (required for Next.js reactivity and Framer Motion).
- **Assumption:** A "day" is defined by the user's local system clock

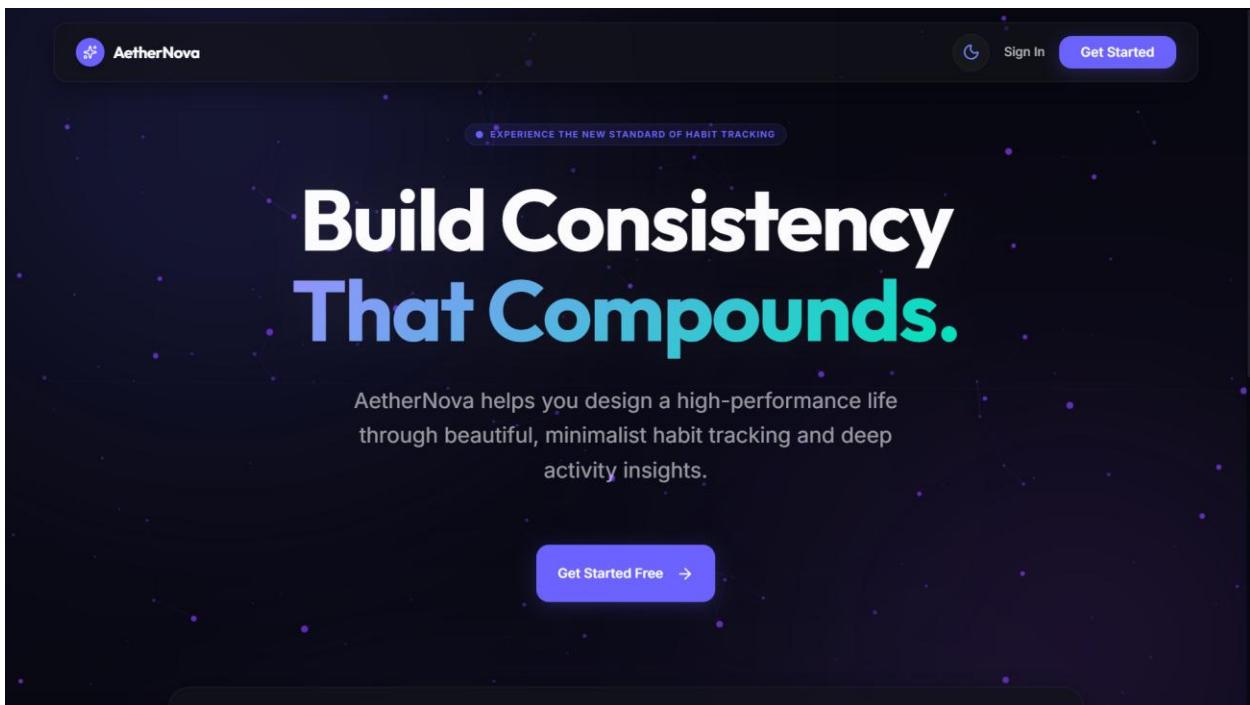
7. Project Structure & Code Quality

The codebase follows a modular, type-safe architecture:

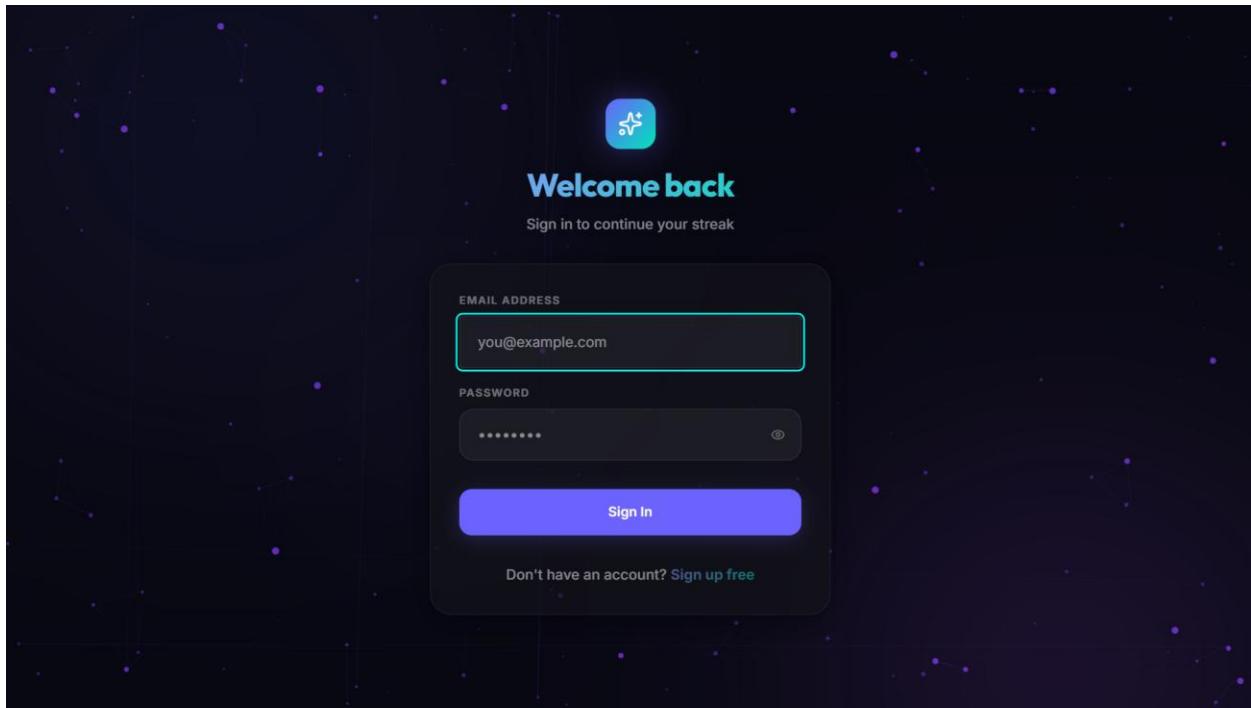
- **Modular Components:** Focused React components with clear prop interfaces.
- **Custom Hooks:** Business logic separated from UI (e.g., useChat, useAuth).
- **Singleton Prisma:** Resilient database connection strategy to prevent leakages in high-concurrency environments.

8. ScreenShots

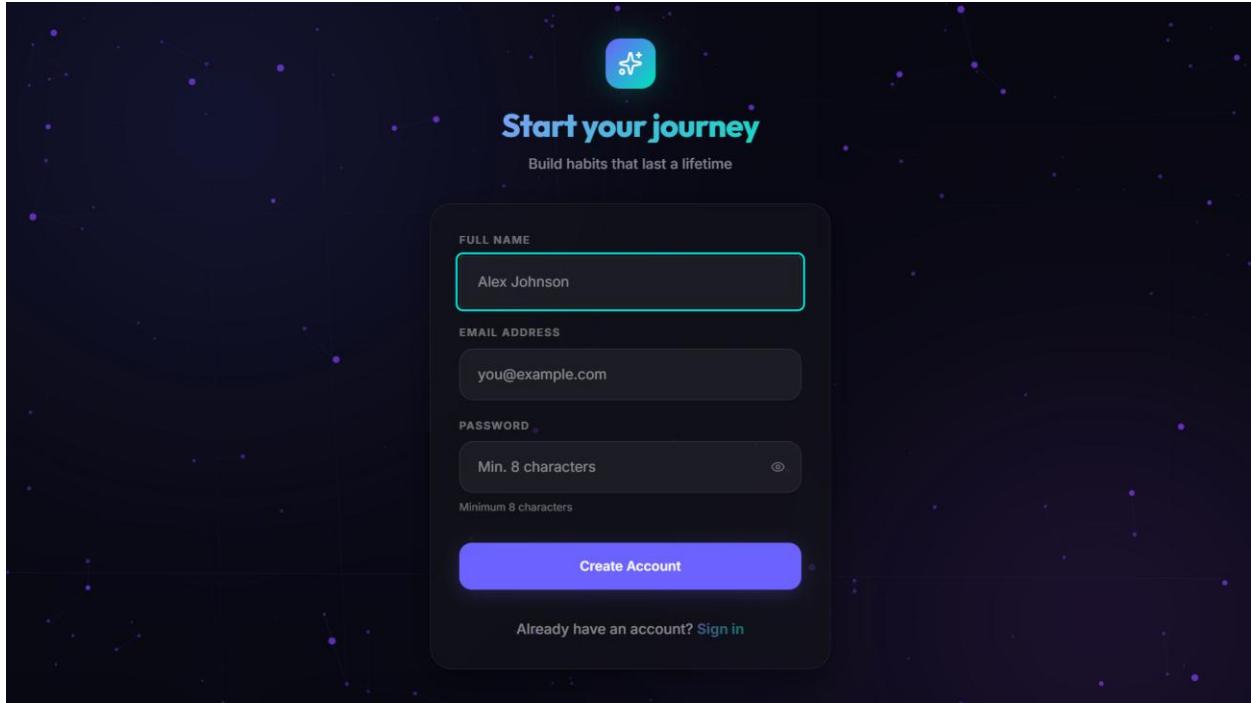
- **Home Screen:**



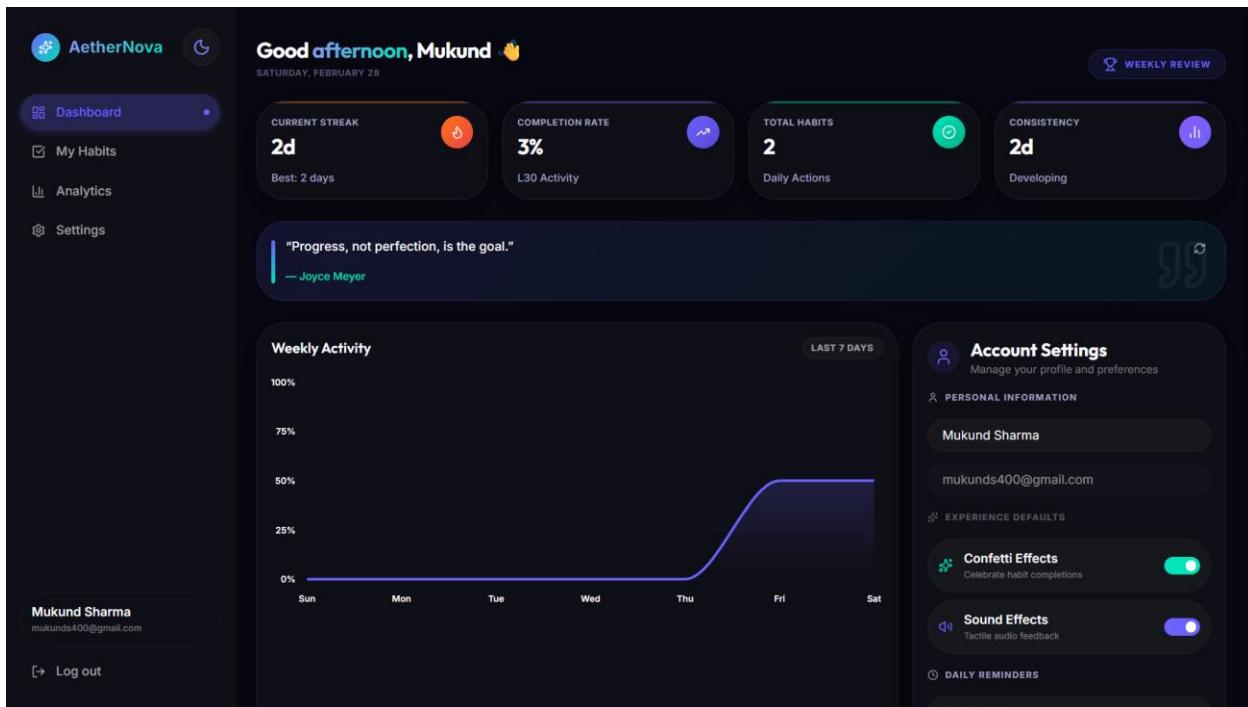
- Login Screen



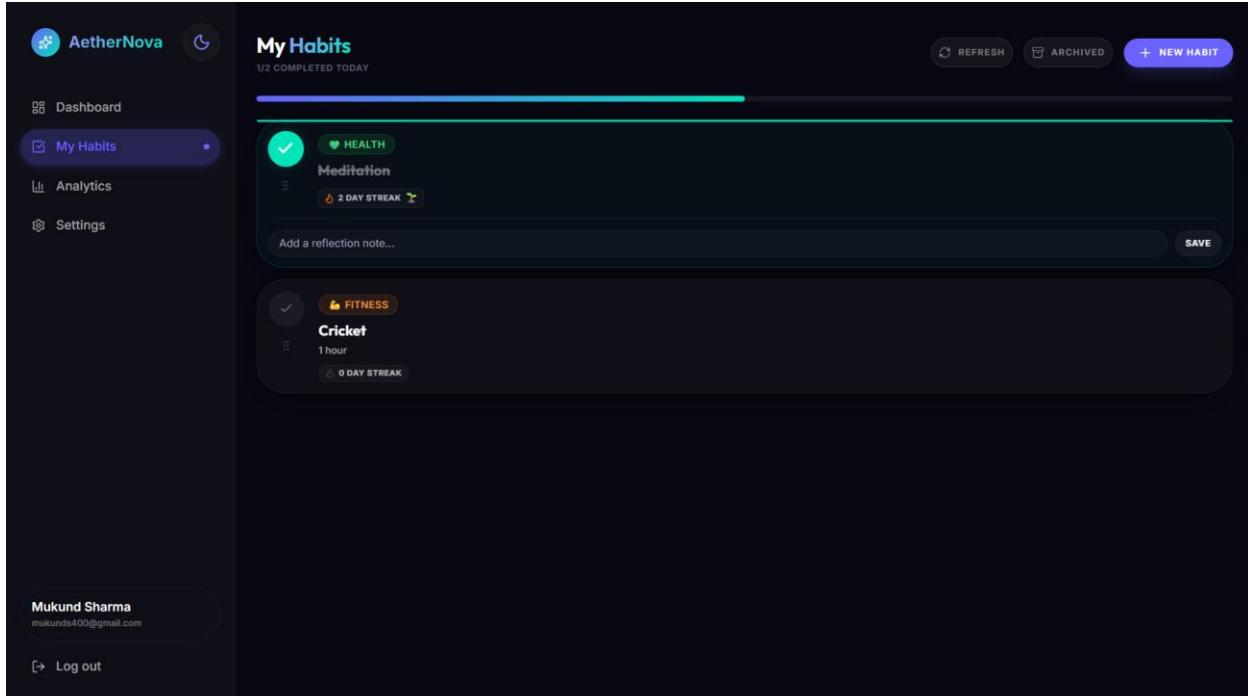
- Sign Up Screen



- Dashboard Screen



- Habit Screen



- Analytics Screen

AetherNova

Insights & Analytics
DEEP DIVE INTO YOUR HABITS AND MOMENTUM.

BEST DAY
Friday
Historically your most productive day.

CONSISTENCY
7%
Average completion rate this fortnight.

TOP CATEGORY
Health
Where you're focusing most of your energy.

Completion Progression

Category Success Rates

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[Logout]

- Setting Screen

AetherNova

EXPERIENCE DEFAULTS

- Confetti Effects** Celebrate habit completions
- Sound Effects** Tactile audio feedback

DAILY REMINDERS
09:00 AM

Consistency Map
Your activity over the last 90 days

Live Tracking

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[Logout]