Personal Web Application
Interactive Portfolio
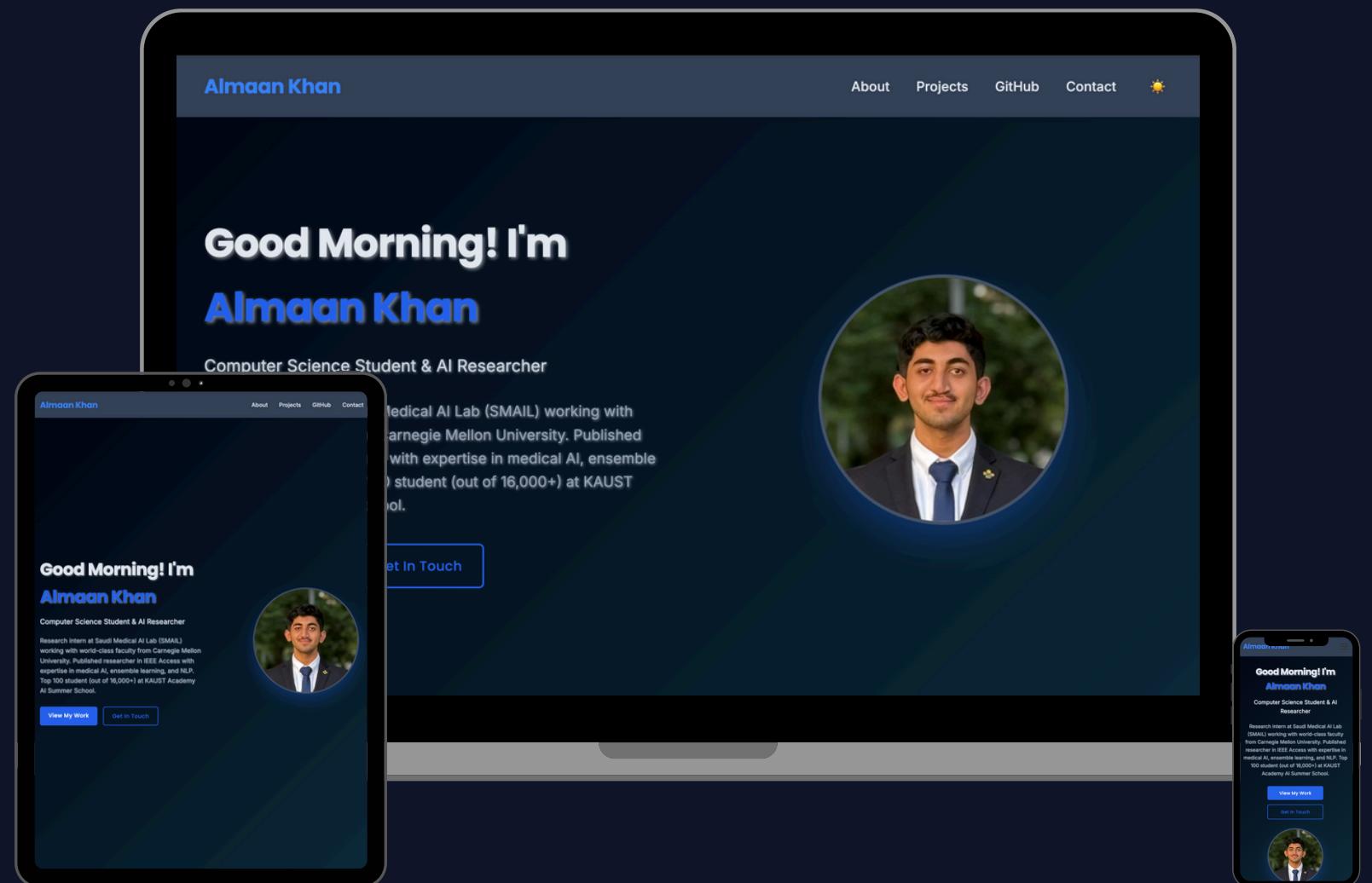
A robust, API-driven web application demonstrating advanced frontend development skills, state management, and modern architectural patterns.

Presented by Almaan Khan

Overview & Motivation

Motivation: To develop a fully interactive website that serves as a professional portfolio.

- ✓ **Professional Presence:** A polished interface reflecting high technical standards.

- ✓ **Dynamic Capability:** Moving beyond hardcoded content to real-time data fetching.

- ✓ **User Experience:** Prioritizing accessibility, responsiveness, and performance.

Technical Architecture

Frontend Core

Semantic HTML and CSS Grid/Flexbox variables. No frameworks were used in order to demonstrate deep understanding of the DOM.

Application Logic

Vanilla JavaScript utilizing Async/Await patterns, Event Delegation, and modular code structure.

Data Layer
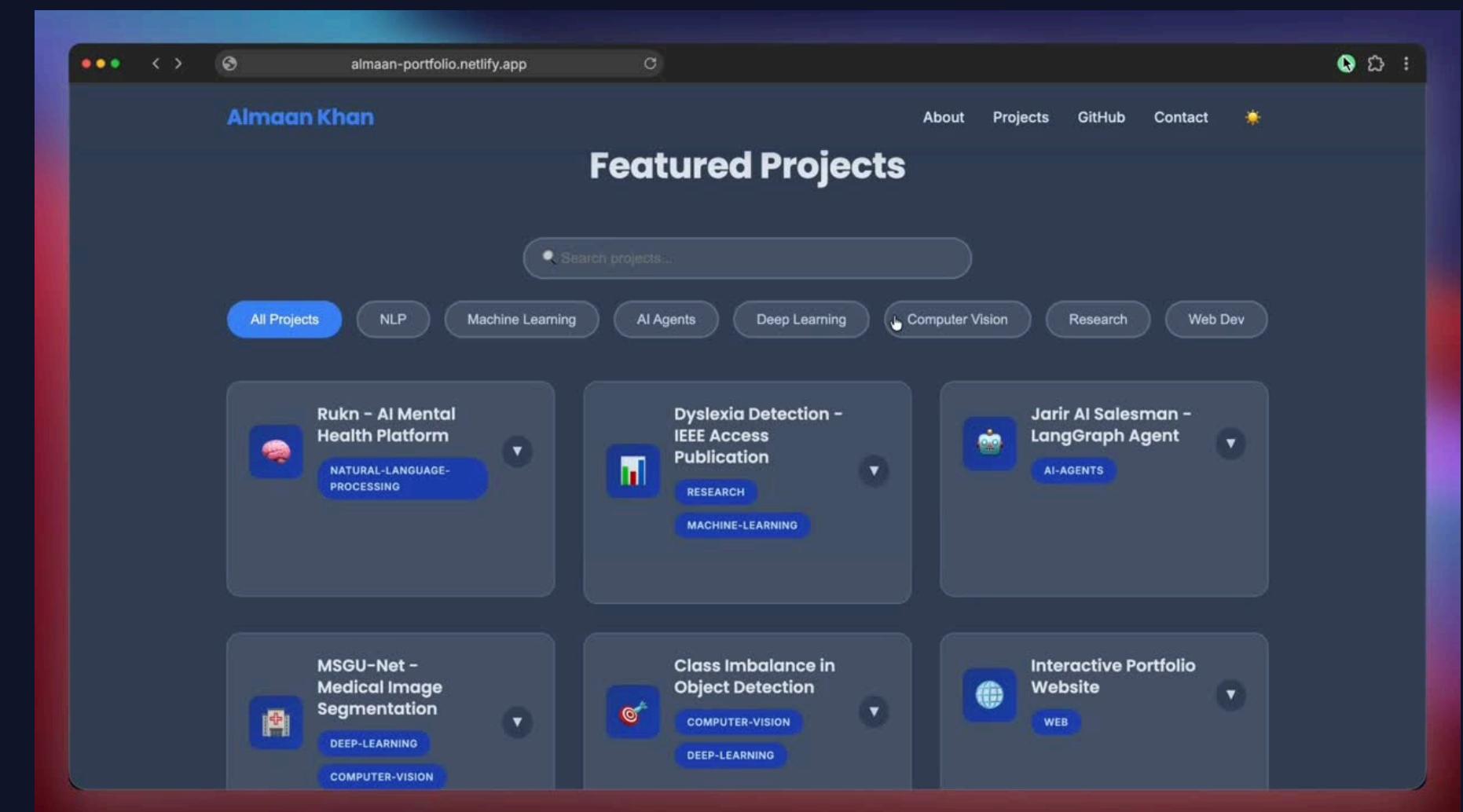
Hybrid approach using External APIs (GitHub) and LocalStorage for client-side caching and state persistence.

Live Demo: Smart Filtering

Real-Time Search & Categorization

The application features a dual-filtering system that allows users to narrow down projects by category and keyword simultaneously.

- ✓ **Debounced Input:** Search queries are debounced (300ms) to optimize rendering performance.

- ✓ **Combined Logic:** Filters work in tandem i.e. searching within a selected category respects both constraints.

- ✓ **Instant Feedback:** The UI updates immediately without page reloads.
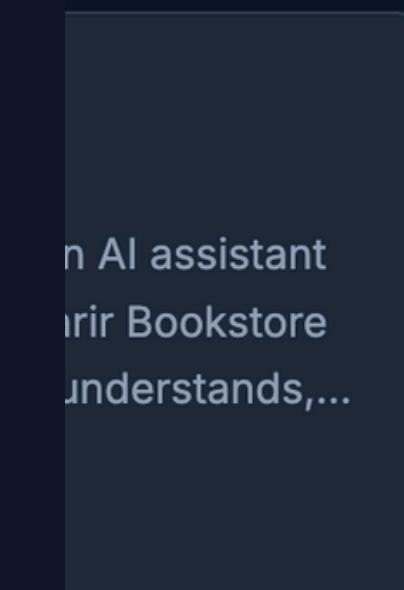
API Integration
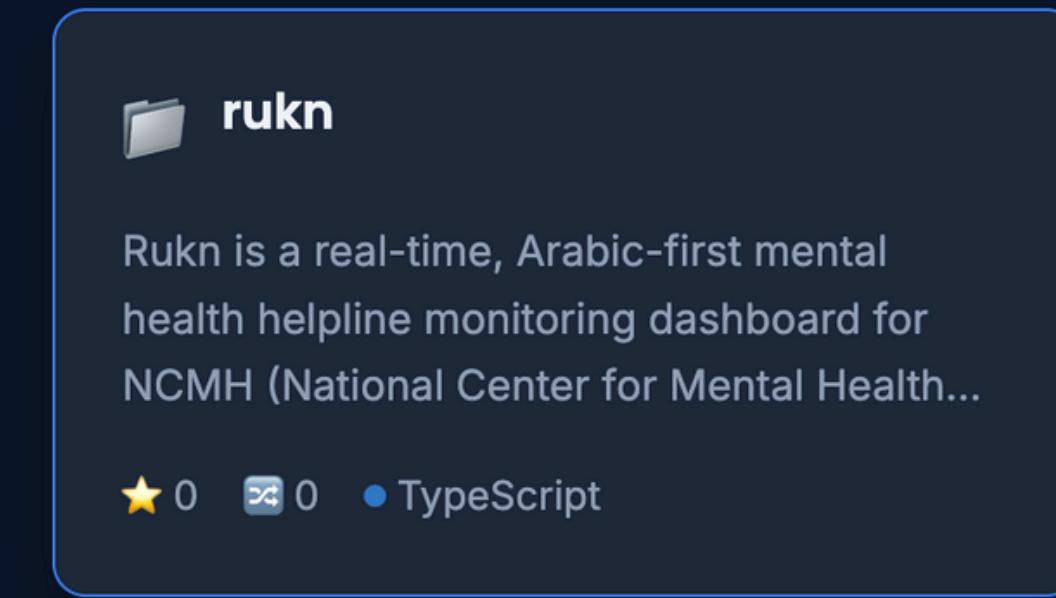
- ✓ **Robust Fetching:** Integrates with GitHub via the Berrysauce proxy to retrieve pinned repositories.

- ✓ **Timeout Protection:** Implements AbortController to kill requests taking longer than 6 seconds, preventing UI hangs.

- ✓ **Graceful Degradation:** If the API fails or times out, the system seamlessly falls back to pre-defined static data, ensuring the section is never empty.

Latest GitHub Repositories

Check out my recent open-source projects and contributions

n AI assistant
rir Bookstore
understands,...

📁 **rukn**
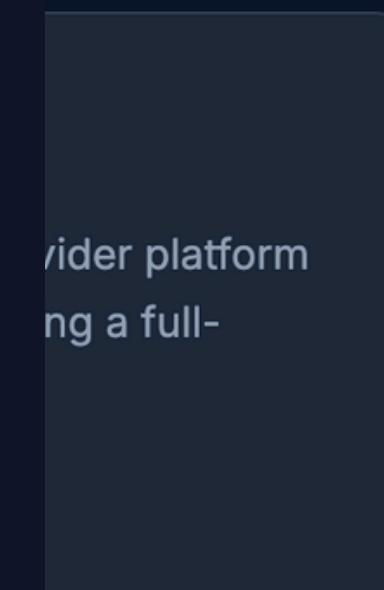
Rukn is a real-time, Arabic-first mental health helpline monitoring dashboard for NCMH (National Center for Mental Health...

⭐ 0   ⤭ 0   ● TypeScript

📁 **msgu-**

MSGU-Net is a framework for specifically de

⭐ 0   ⤭ 0   ●

vider platform
g a full-

📁 **soccer-kfupm**

SOCCER@KFUPM is a web application designed to provide KFUPM users with an interactive platform to explore soccer...

⭐ 0   ⤭ 0   ● JavaScript

📁 **event-**

A simple even GUI to perform tasks.

⭐ 0   ⤭ 0   ●

AI Integration Highlights

- **Boilerplate Acceleration (GitHub Copilot):** Rapidly generated repetitive HTML structures and CSS media queries, speeding up the initial layout phase by ~40%.

- **Architectural Advisory (ChatGPT):** Assisted in designing the "Stale-While-Revalidate" caching strategy and the timeout logic using AbortController.

- **Code Quality (Claude):** Provided critical reviews on accessibility (ARIA labels) and suggested performance optimizations for animations.

- **Ethical Use:** AI was used as a pair programmer. All logic was verified, understood, and integrated manually to ensure code quality.

Technical Deep Dive

Challenges, Innovations, and Lessons Learned

Challenges & Solutions

⚠️ The Challenge

Unreliable External APIs: Was unable to retrieve pinned repos using GitHub REST API. Only the GraphQL-based API can send such data.

✅ The Solution

Alternative API: Used the Berrysauce proxy API to retrieve pinned repositories from GitHub.

Innovative Implementations
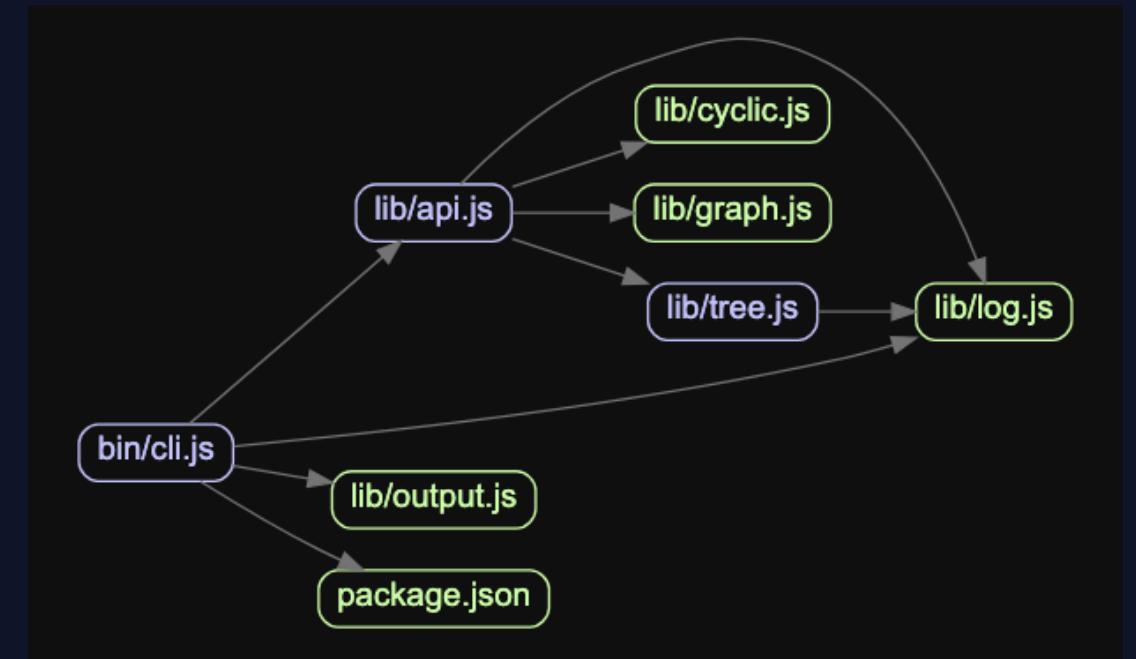
Smart Caching

Timestamp-based cache validation reduces network requests.

Request Abort

Prevents hanging promises with AbortController logic.


Zero Dependencies
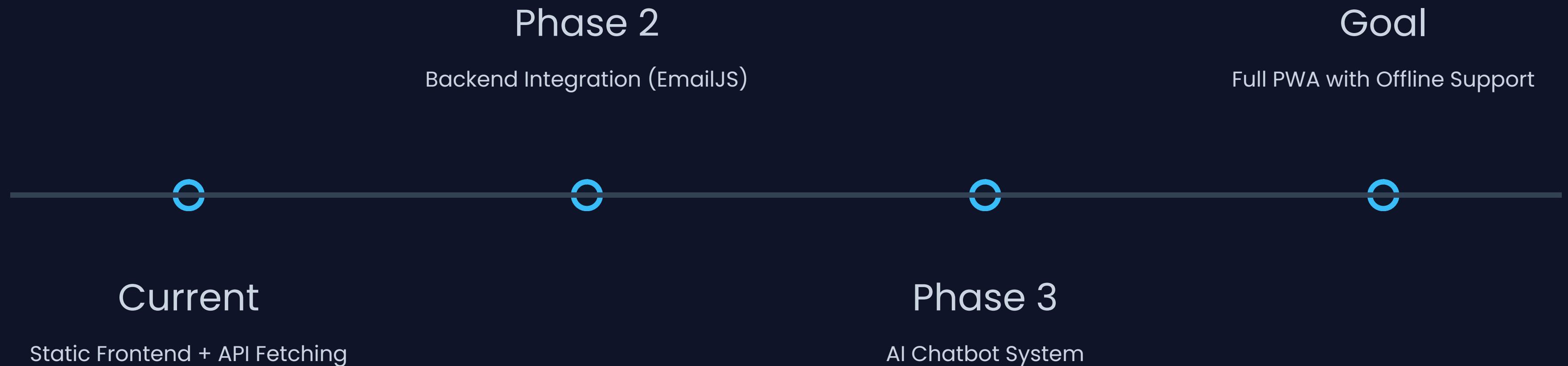
Achieved complex interactivity with 0kb of external JS libraries.

Lessons Learned

"

"Building without frameworks forced a deeper understanding of the DOM, async patterns, and browser APIs."

~ Almaan Khan

Project Roadmap

Phase 2

Backend Integration (EmailJS)

Goal

Full PWA with Offline Support

Current

Static Frontend + API Fetching

Phase 3

AI Chatbot System

Thank You!

The project is now a production-ready, performant, and accessible web application.

github.com/A1maan   almaan.khan@outlook.com   almaan-portfolio.netlify.app