MICHIGAN STATE UNIVERSITY

Project Plan Presentation
Citing Slavery Data Presentation

The Capstone Experience

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From Students…
…to Professionals

Project Sponsor Overview

- Michigan State University College of Law – global leader in legal education
- Professor Justin Simard – project creator and organizer
- Lindsey Simard and Cisco Meraki's engineering team

Project Functional Specifications

- Help legal professionals, historians, and educators better access court cases with:
  - Full-text search capabilities
  - Advanced sorting and filtering options
  - A modern and professional interface
- Provide new insights into cases that may have been overlooked by integrating LLM
- Automate the verification of citation data to enhance the accuracy and relevancy of cases

Project Design Specifications

- Primary function: Browse through historical slavery court case data featured on the site's various web pages

- Workflow: Home page search → Court Cases page → Individual case detail pages with expanded information, interactive maps, and AI-generated summaries

- Resources and contributors pages to provide more background information about the project

- Comprehensive search and filtering capabilities, allowing users to organize thousands of cases by shared criteria and access specific case information
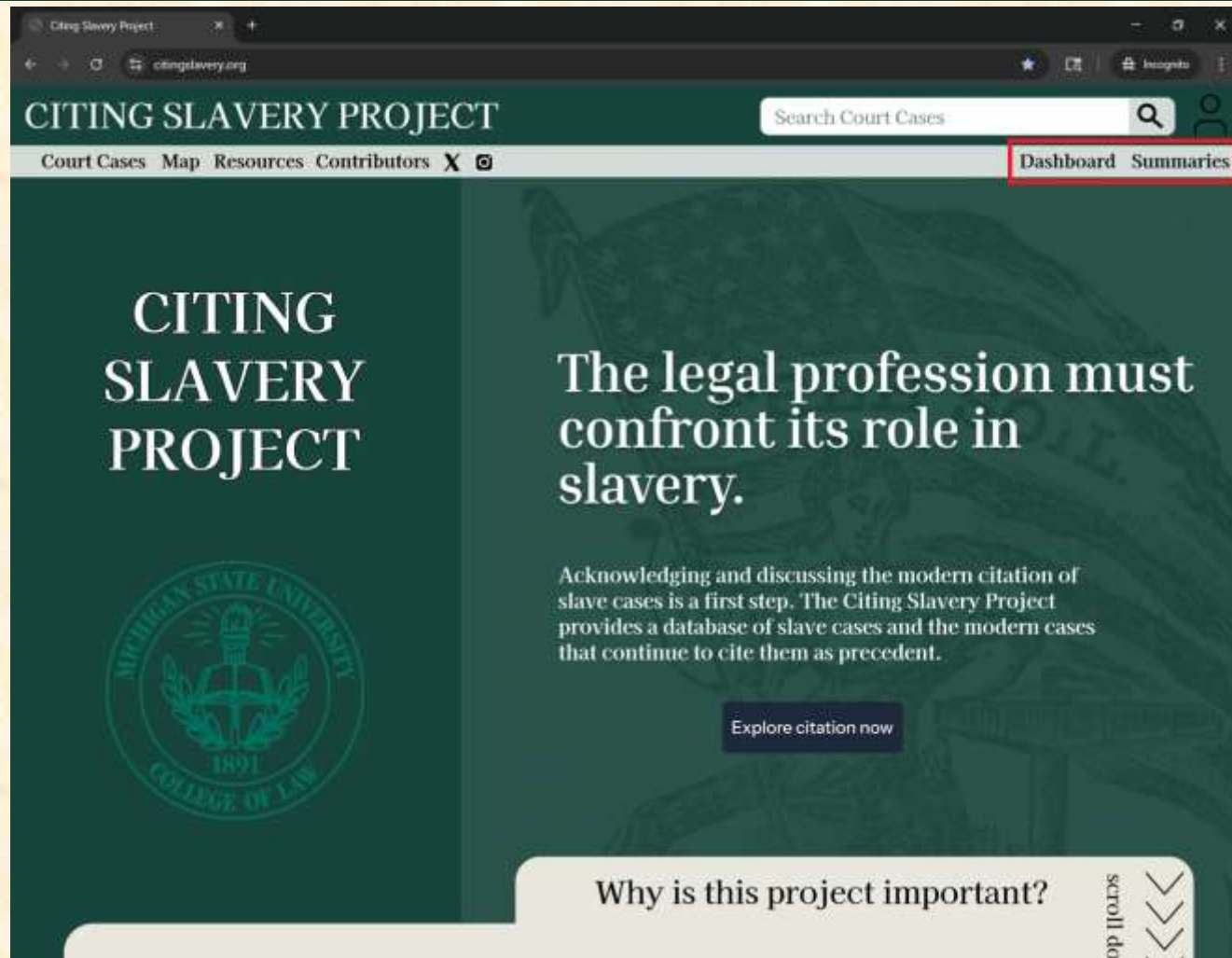
Screen Mockup: Landing Page
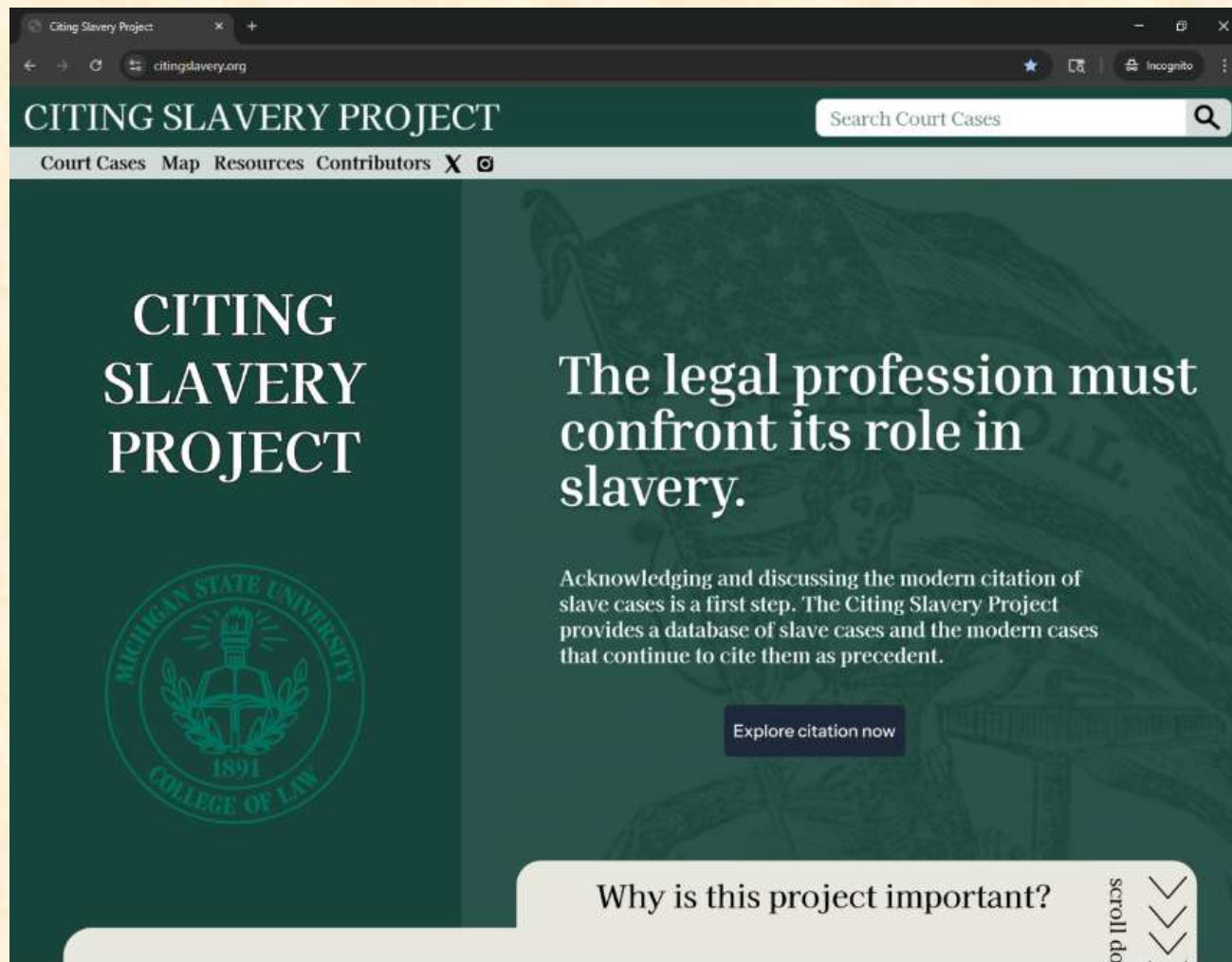
Screen Mockup: Admin Landing Page

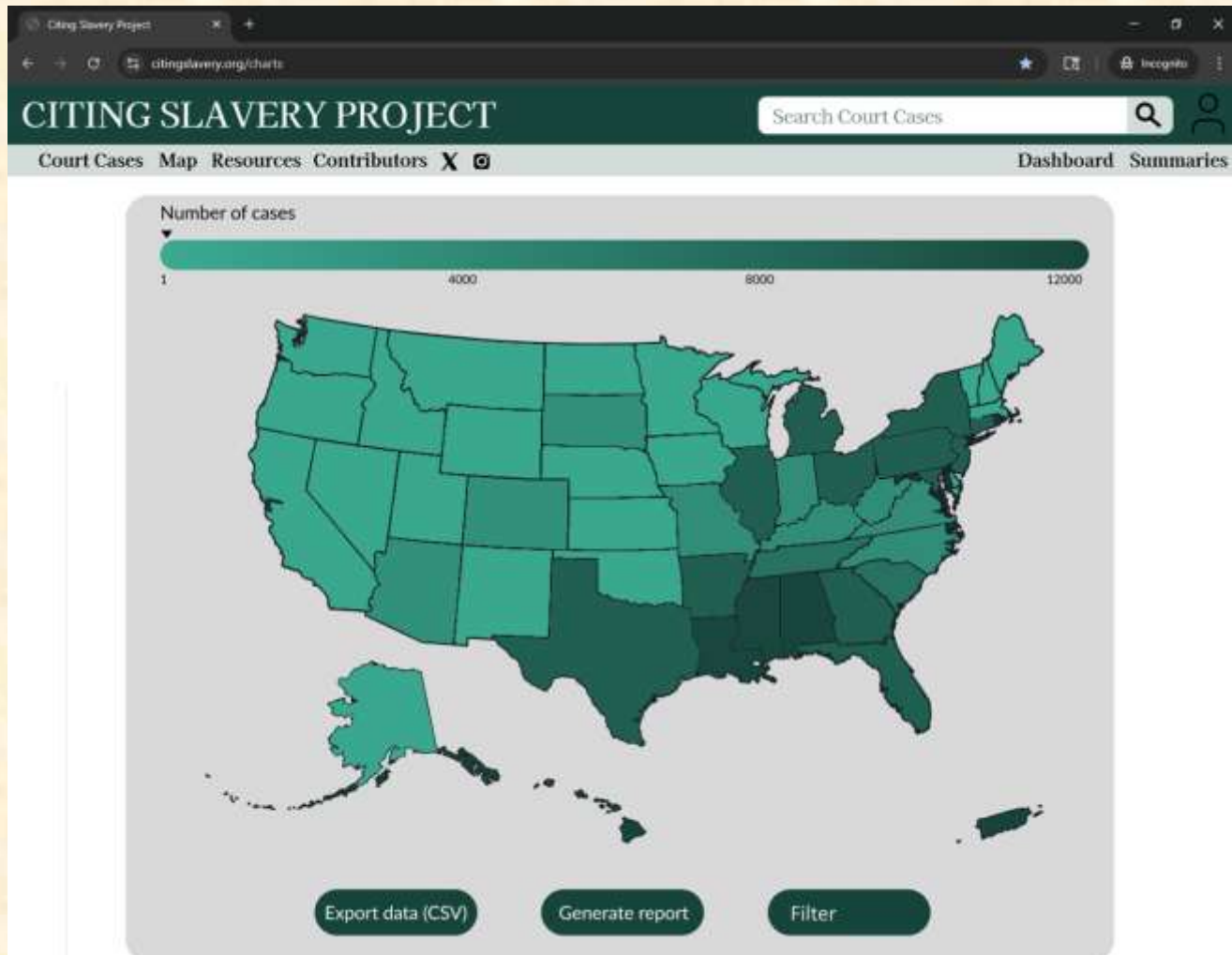# Screen Mockup: Court Cases Page
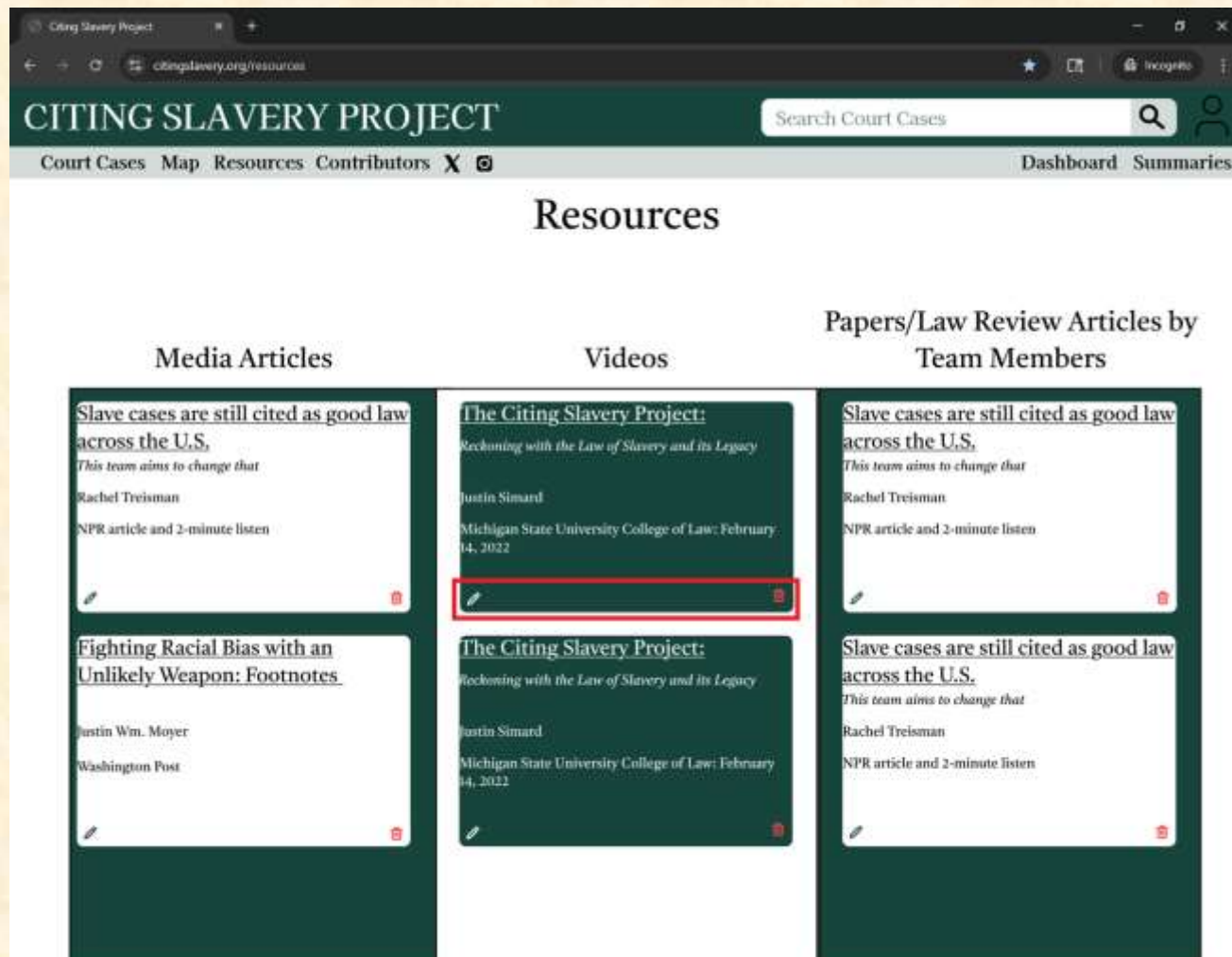
Screen Mockup: Case Detail Page
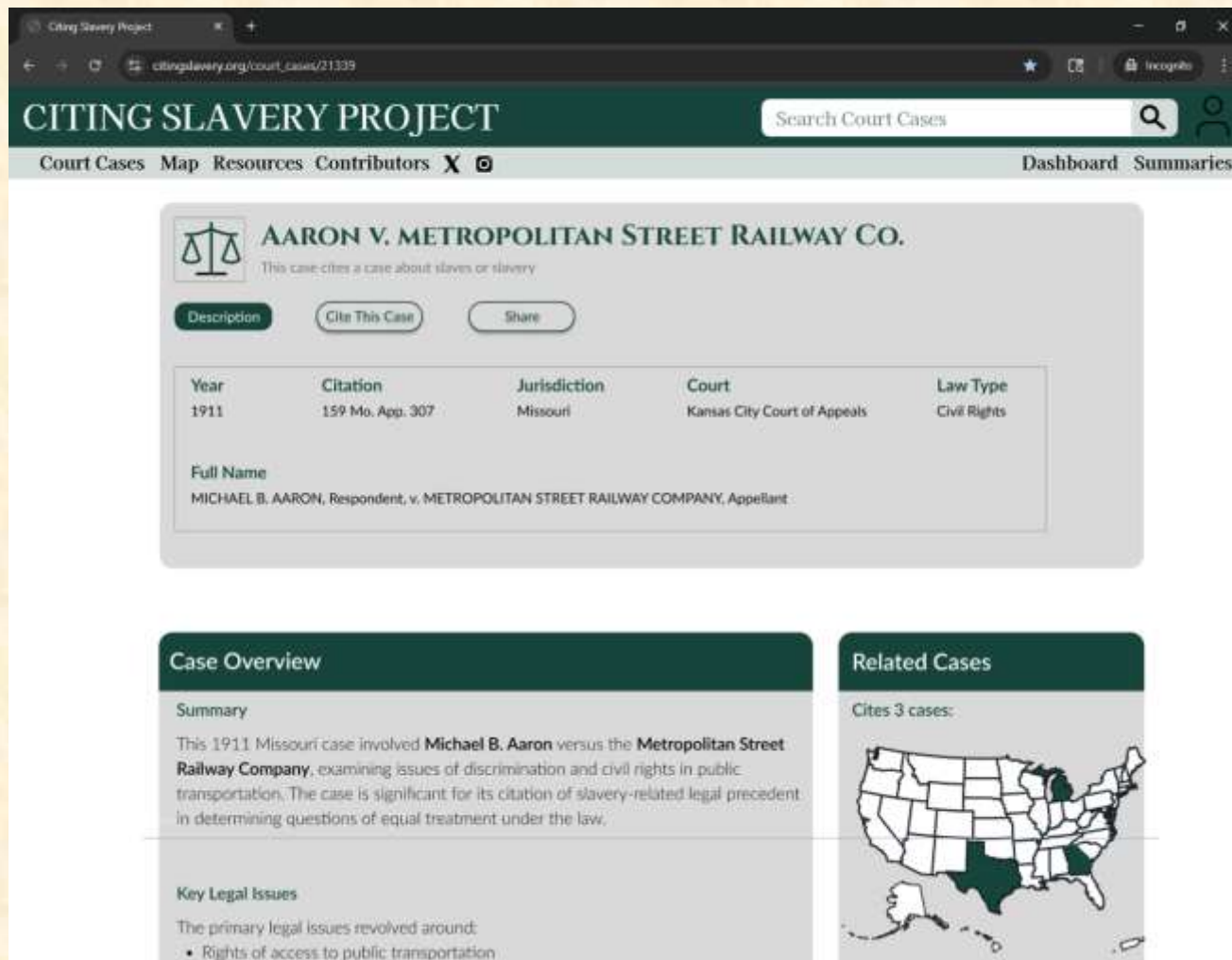
Screen Mockup: Map Page

Screen Mockup: Resources Page

Project Technical Specifications

- TypeScript-based SvelteKit front end with Ruby on Rails back end, and PostgreSQL database for storing data

- CourtListener API for historical court data aggregation, OpenAI LLM for automated case summary generation

- Devise gem provides modular authentication with three access levels: guest, student, and admin users

- Complete deployment on Railway hosting provider for front-end, back-end, and database services

Project System Architecture
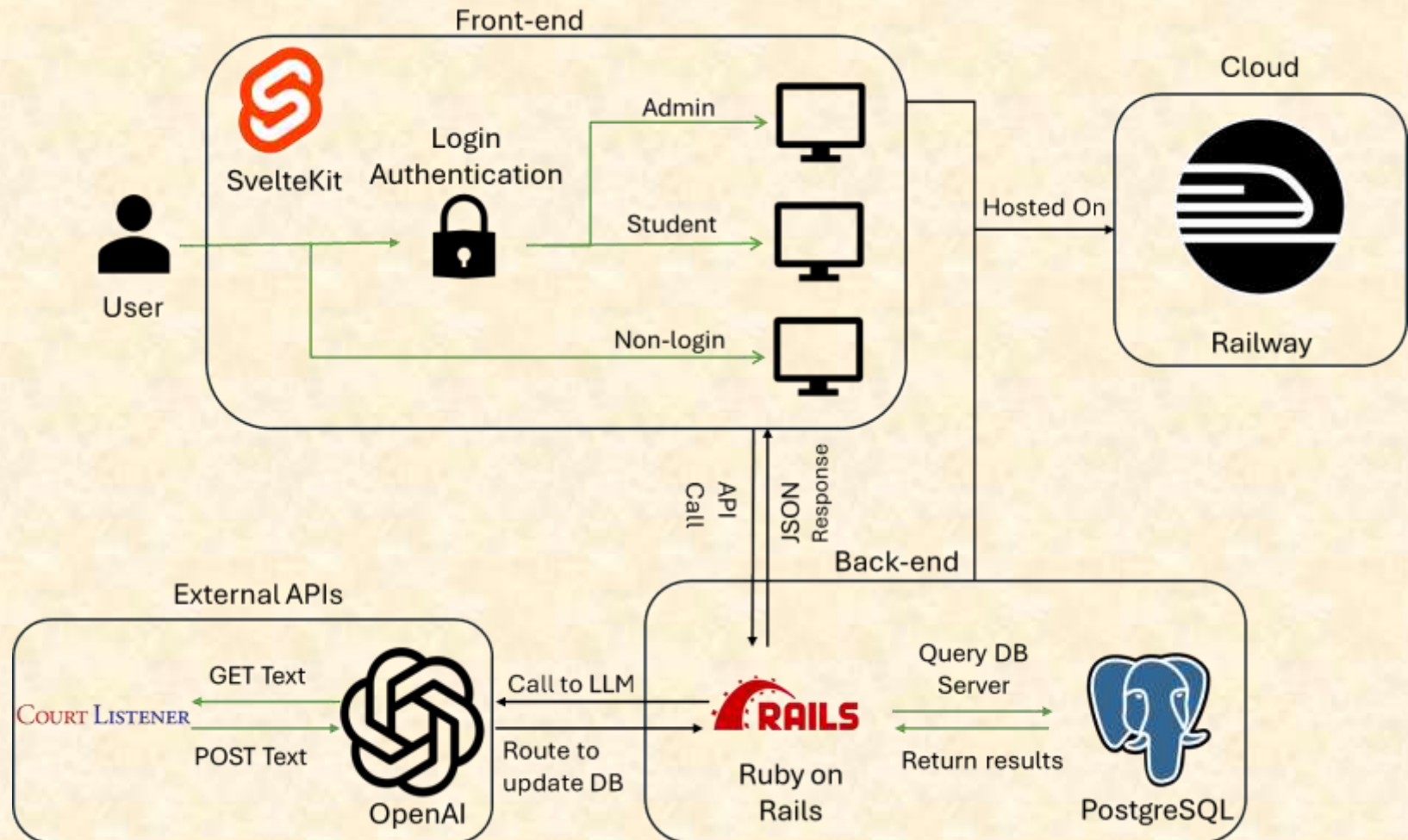
Project System Components

- Software Platforms / Technologies
  - Front-end: SvelteKit with TypeScript
  - Back-end: Ruby on Rails
  - Database Management: PostgreSQL
  - Cloud Infrastructure: Railway
  - External APIs:
    - CourtListener API
    - OpenAI

Project Risks

- Authentication & API Flow
  - Existing Rails/Devise system designed for HTML responses must be adapted for JSON API requests from Svelte front end
  - Convert Rails endpoints to JSON format, implement session cookies on Svelte client/server, add CSRF validation

- Data Accuracy
  - Database contains thousands of unvalidated court cases and citations from multiple sources requiring mass validation
  - Cross-validate case consistency using external API services, leverage team expertise to automate error detection

- LLM Hallucinations
  - Risk of AI generating false information when cases lack sufficient metadata for accurate summaries
  - Implement RAG restricting LLM sources to database only, clearly indicate insufficient data cases rather than generating summaries

- Versatility/Compatibility
  - Ensure responsive design and accessibility compliance for disabled users across all screen sizes
  - Design all mockups with mobile/tablet compatibility, leverage Cisco team expertise, implement ARIA labels, and use Lighthouse Chrome Extension for accessibility testing

Questions?