

PROJECT PROPOSAL

INVENTORY

MANAGEMENT PLATFORM

PROJECT MANAGER

Mimi Rai is a graduating M.S. Data Science student at Colorado School of Mines and previously completed a B.S. in Computer Science with a Data Science focus. Their experience includes building software for CRM platforms, data engineering and governance, full-stack web development, and integrating AI/LLM capabilities into production applications, including work in early-stage startup environments.

COMPANY BACKGROUND: RAI TECH

Rai Tech is a technology startup focused on integrating practical AI into everyday software systems to help business owners make better decisions. The company builds products with simple, intuitive workflows and clean interfaces that reduce operational friction while increasing visibility into what matters.

Rai Tech's mission is to make AI accessible and valuable for organizations of all sizes, not only large enterprises or highly technical teams. The first product area centers on inventory operations, analytics, and lightweight client management, with AI features designed to deliver clear insights and actionable recommendations. By combining solid product design with dependable data foundations, Rai Tech aims to help teams spend less time managing tools and more time running their business.

PROJECT OVERVIEW

This project will deliver a web-based inventory management application that supports small businesses and also works for individuals who want an organized way to track materials/items. The core experience will make it easy to log inventory, track item status and movement, and visualize trends with clean reporting. If time allows, the platform will integrate AI through forecasting and decision support based on a business's historical inventory behavior, plus an LLM-powered assistant that helps users interpret reports and take next steps.

SCOPE OF WORK

- **Inventory catalog (CRUD)**: Create, edit, archive, and search items/materials with key attributes
- **Status & workflow tracking**: Track item state with simple updates and an audit-friendly history where feasible
- **Transactions / adjustments**: Support inventory changes with timestamps and basic attribution
- **Role-based access control (RBAC)**: Provide distinct experiences and permissions for admins/managers vs. workers/standard users (ex. who can adjust inventory, manage users, view analytics).
- **Dashboards & reporting**: Build clean, targeted charts and tables for common inventory questions
- **Low-stock & reorder support**: Provide configurable reorder thresholds and a reorder list (optionally notifications/export)
- **Forecasting (time series/statistics)**: Use historical consumption/usage data to forecast future purchasing needs and recommend reorder quantities/time windows
- **LLM assistant (guided insights)**: Integrate an LLM API to provide plain-language explanations of trends and suggested actions grounded in the user's data
- **Testing & quality checks (as time allows but encouraged)**: Add basic automated tests (unit/integration) and linting/formatting to support maintainability

STUDENT BENEFITS

- **Real product work:** Students will contribute directly to a real platform being built with production intent, mirroring the pace and collaboration style of a startup environment
- **Clear structure & support:** Students will receive an MVP definition, wireframes, sprint timelines, and well-scoped tasks, plus guidance from developers actively working in the same codebase
- **Modern, end-to-end experience:** The work spans product thinking, backend + database design, frontend UX, analytics, and applied AI. This work builds strong portfolio material for internships and new-grad roles
- **Mentorship beyond the code:** When time permits, Rai Tech can provide mentorship on resumes, interviewing, and how to present this experience effectively in applications
- **Flexible workload planning:** Expectations will be adjusted based on the team's background and the realities of student schedules, with an emphasis on consistent communication and steady progress

WORK EXPECTATIONS

- **Collaboration:** Students will work in a shared codebase alongside other developers; tasks will be owned individually but solved collaboratively when helpful (pair programming encouraged)
- **Code quality & maintainability:** The goal is not just “working code,” but readable, testable, scalable implementations with good engineering practices
- **Responsible AI use:** AI tools are welcome for learning and productivity. Students are expected to review, understand, and adapt any AI-generated output to match project standards
- **Communication & initiative:** Students should proactively surface blockers, dependencies, and time constraints, and come to check-ins ready to discuss progress and next steps

TECHNICAL SKILLS

REQUIRED (MUST HAVE)

- **Git/GitHub proficiency:** Comfortable with branches, pull requests, code reviews, and resolving merge conflicts
- **Baseline statistics / data science fundamentals:** Able to work with basic modeling concepts and time series or regression at an introductory level (or be ready to ramp quickly)

NICE TO HAVE

- **Web development exposure:** Any experience with building web apps (frontend, backend, APIs) and running services locally
- **Database fundamentals:** Comfort with schema design, queries, and data integrity concepts
- **Data visualization:** Experience creating charts/dashboards and thinking clearly about what to measure and how to present it
- **LLM integration interest:** Curiosity about prompt design, evaluation, and building safe, efficient AI-assisted features

Note: The project's focus is building the platform, but students without the required foundations should plan to allocate extra time to learn core technical concepts.

ADDITIONAL NOTES

- **Intellectual property:** Team members will be required to sign an IP agreement
- **Preferred team size:** 3-4 students
- **Work location:** Remote
- **Meeting cadence:** Regular check-ins aligned with sprint structure