MICHIGAN STATE UNIVERSITY

Project Plan Presentation

AI Tool for Enhancing Medical Education

The Capstone Experience

Team Corewell Health

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From Students…
…to Professionals

Project Sponsor Overview

- Corewell Health: non-profit health system based in Michigan
  - 60,000+ employees
    - 11,500+ physicians
    - 16,000+ nurses
  - 21 hospitals and 300+ outpatient locations

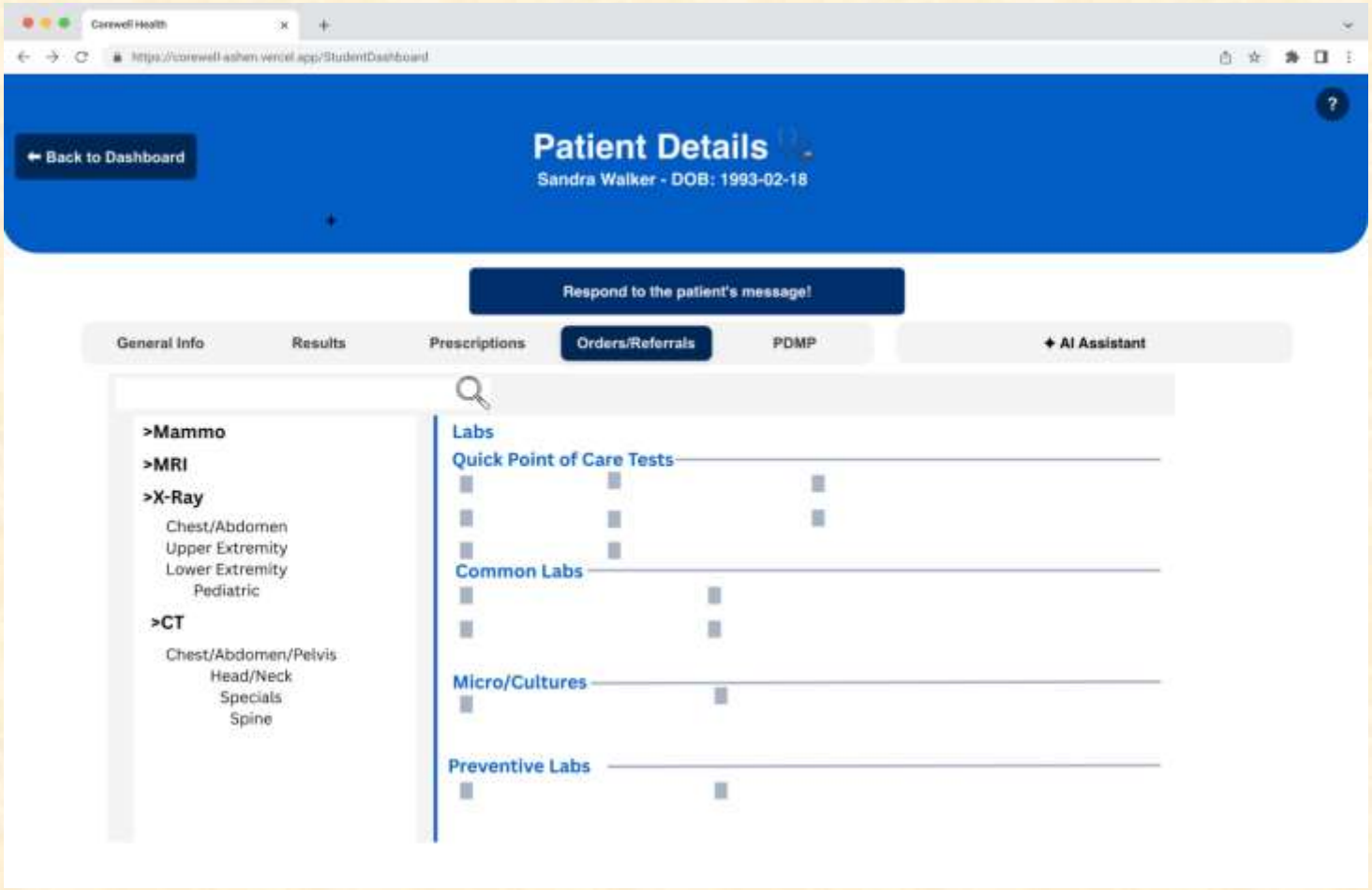
Project Functional Specifications

- Overall goal: Improve patient care by accurately depicting real world scenarios.
- Our project accurately replicates an EHR, giving medical students simulated patients that need actual responses that will be rated by an AI.
- This system generates exam style questions based on realistic patient scenarios.
- We are building off of the previous iteration to make an even more robust educational program by adding a patient emergency tier-list, featured patients created by staff/students, communication with AI staff, receiving advice from an AI Doctor, a color-coded rating system, realistic health maintenance charts, a star rating system with an analysis dashboard, and etc.

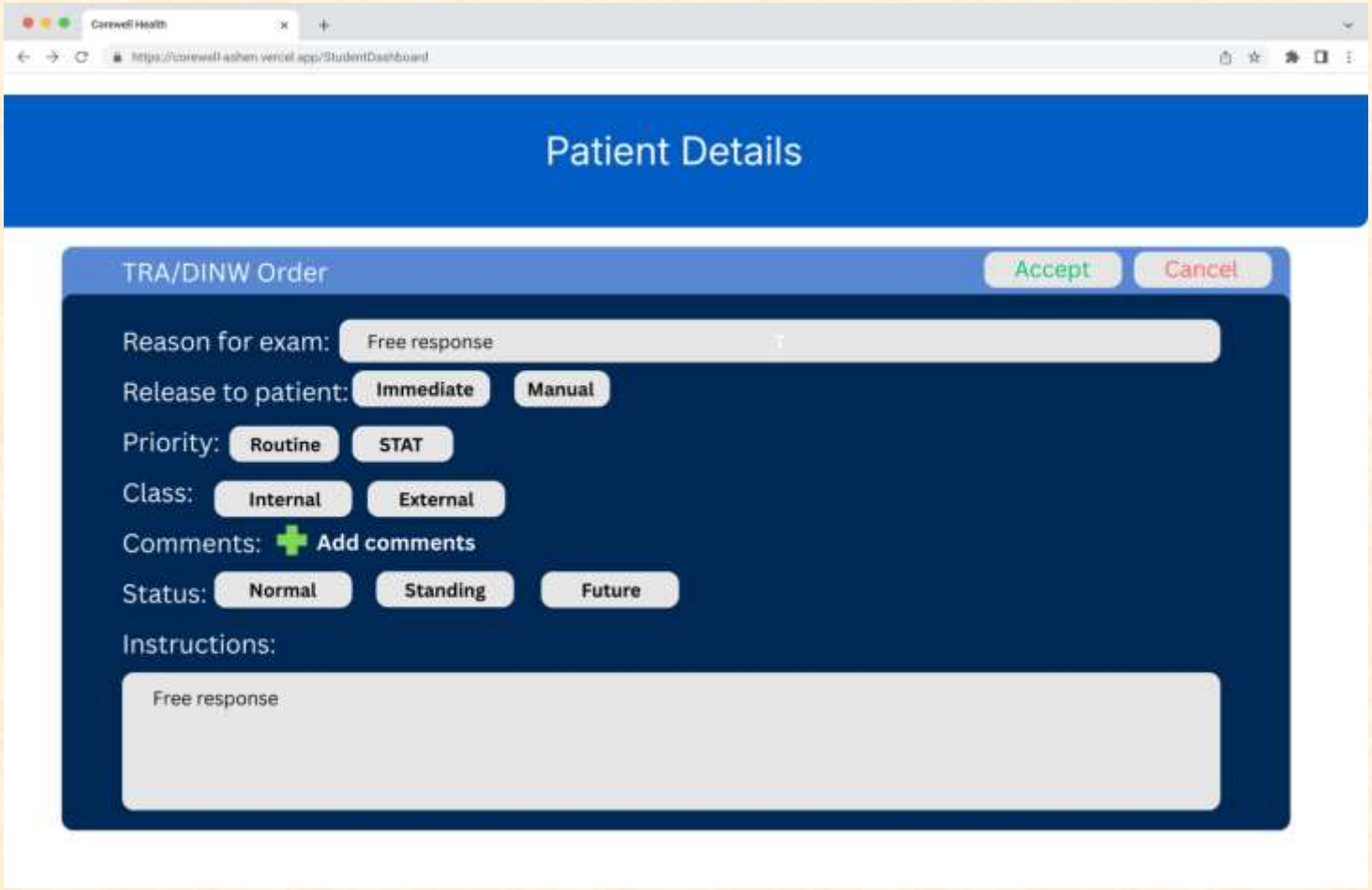
Project Design Specifications

- Featured Patients/Database Access
- Updated and improved orders and referrals
- Messages to staff and healthcare providers
- Priority patients
- Star Rating system + Analytics dashboard

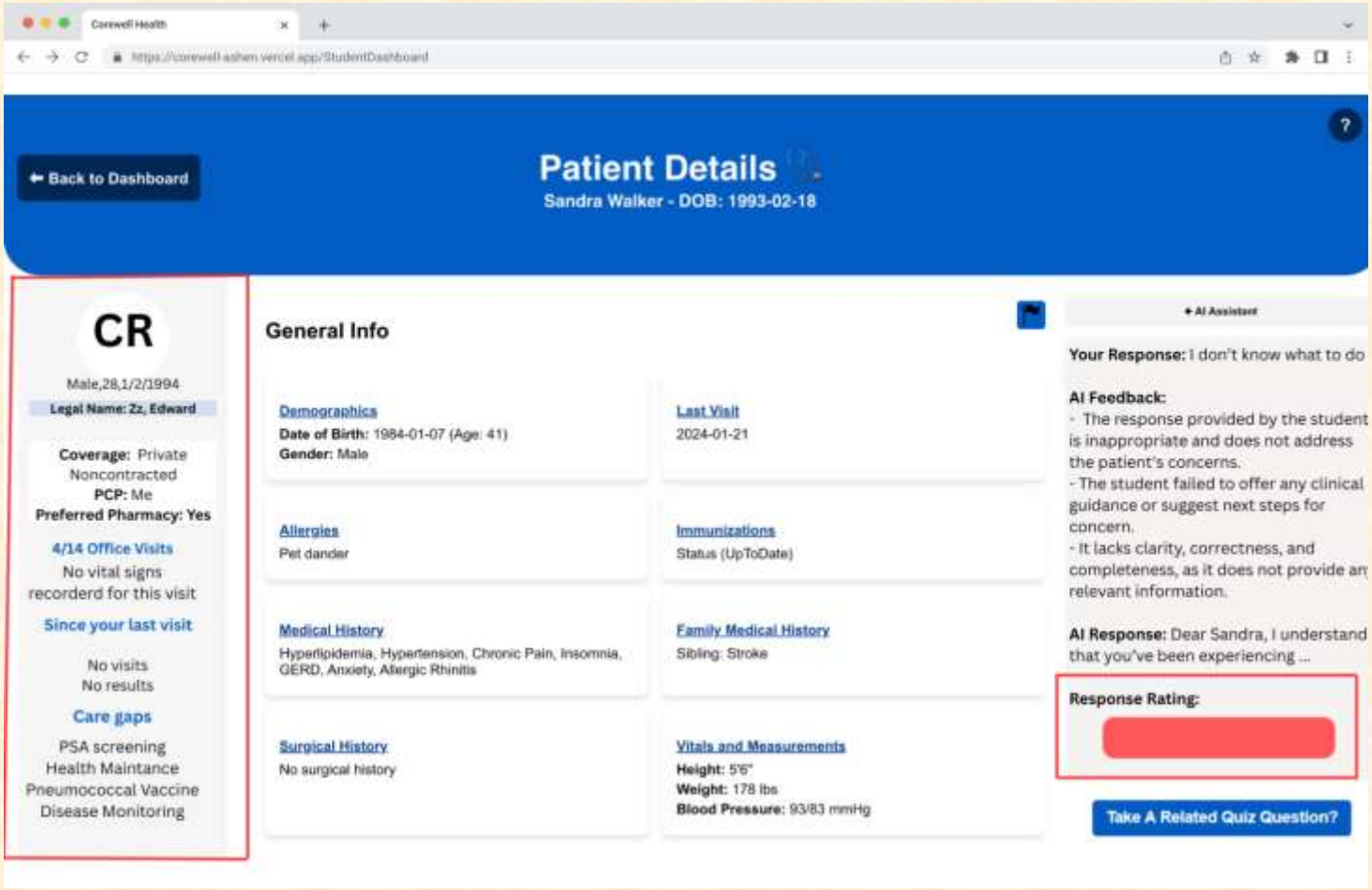
Screen Mockups: Order/Referrals Screen 1



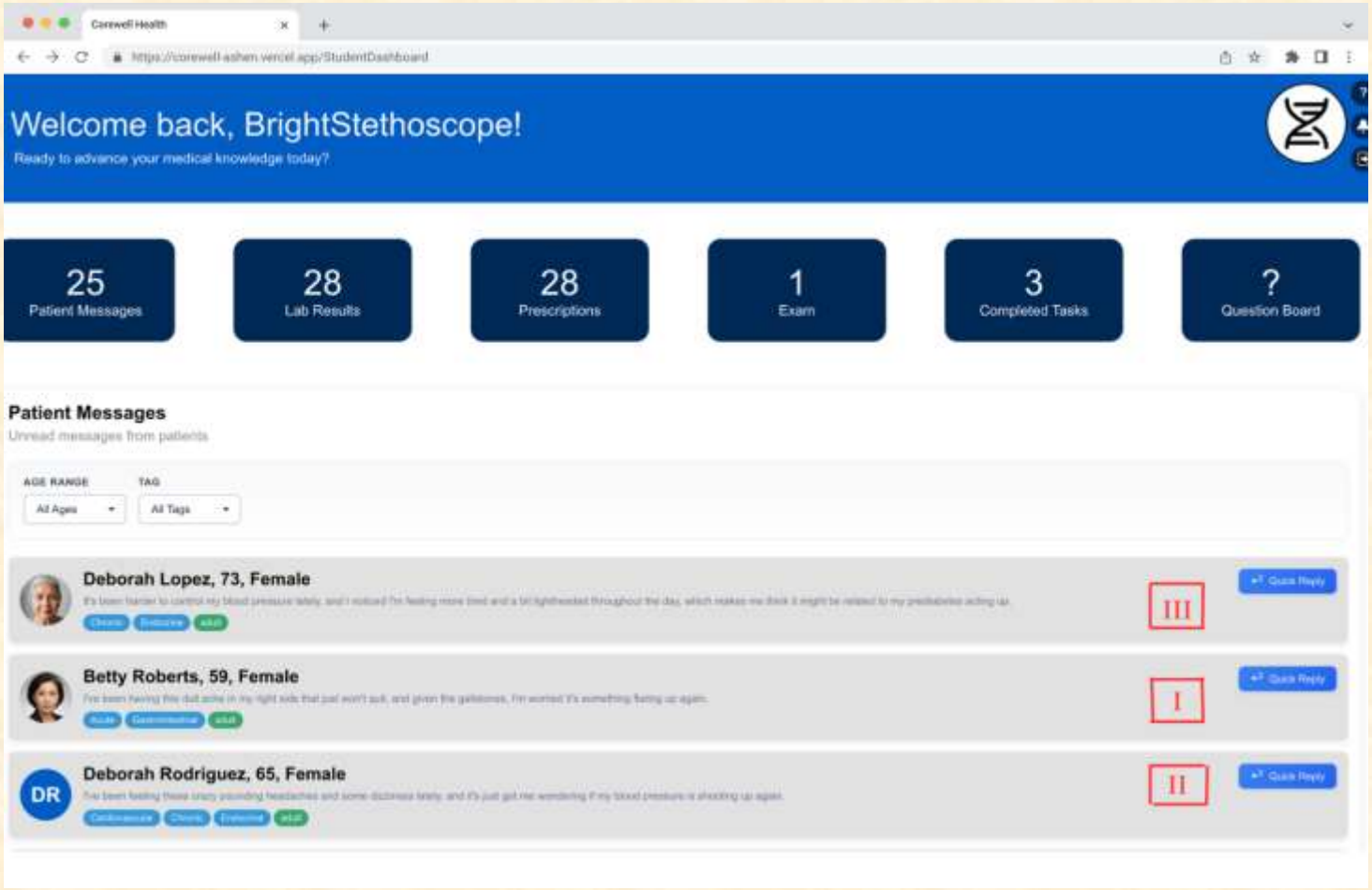
Screen Mockups: Order/Referrals Screen 2



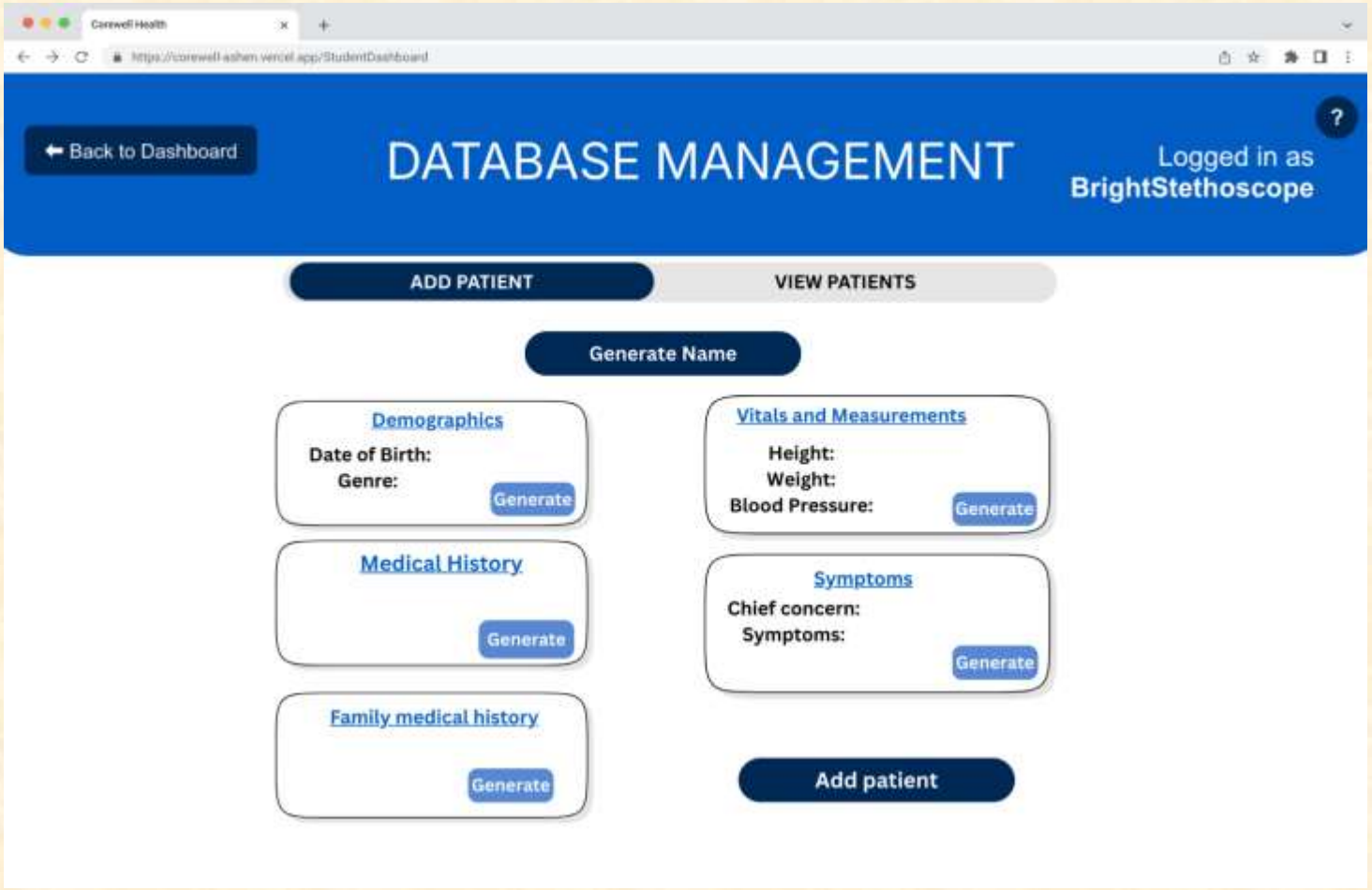
Screen Mockups: Patient Details



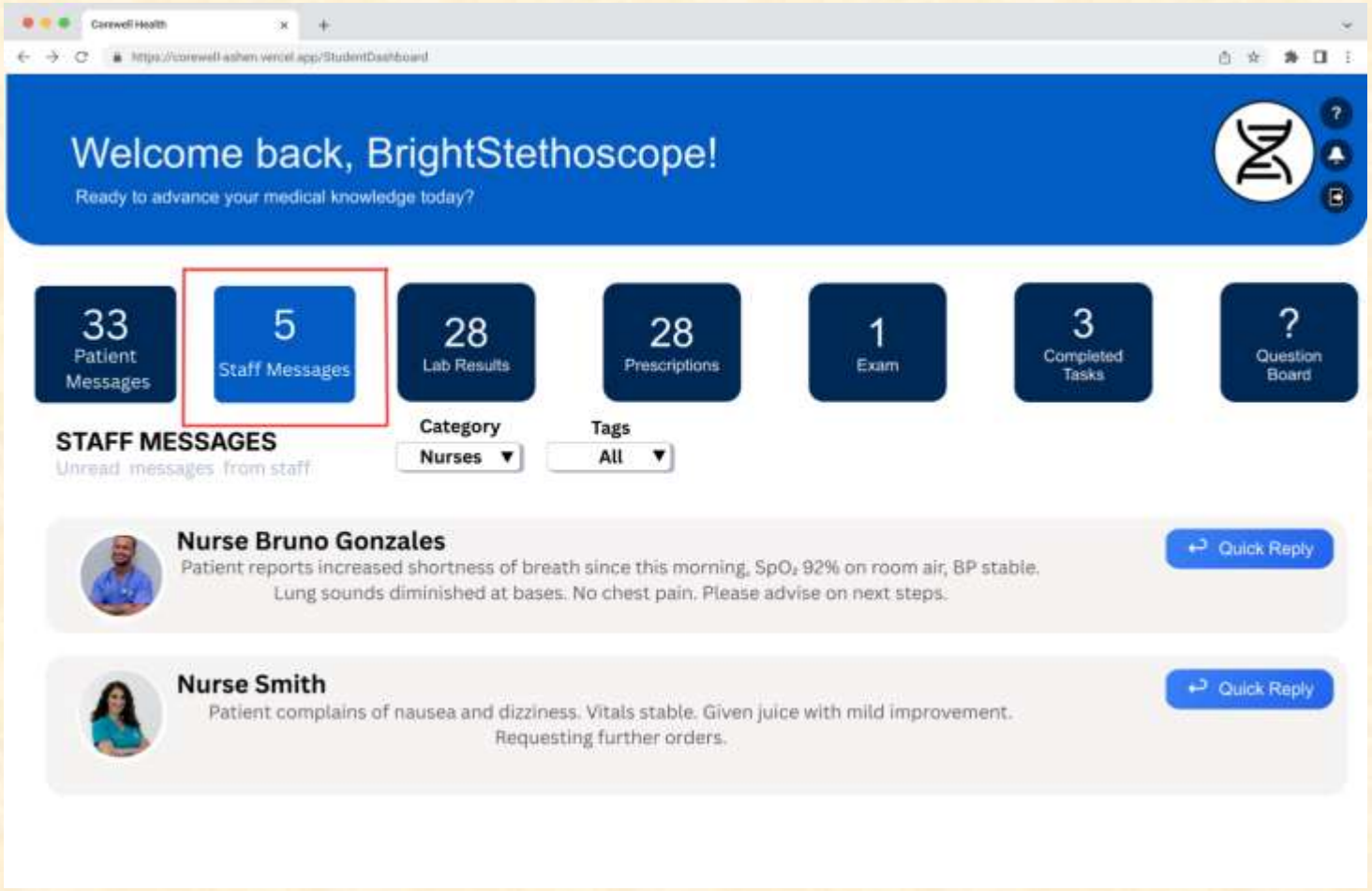
Screen Mockups: Priority Dashboard



Screen Mockups: Featured Patients/DB Access



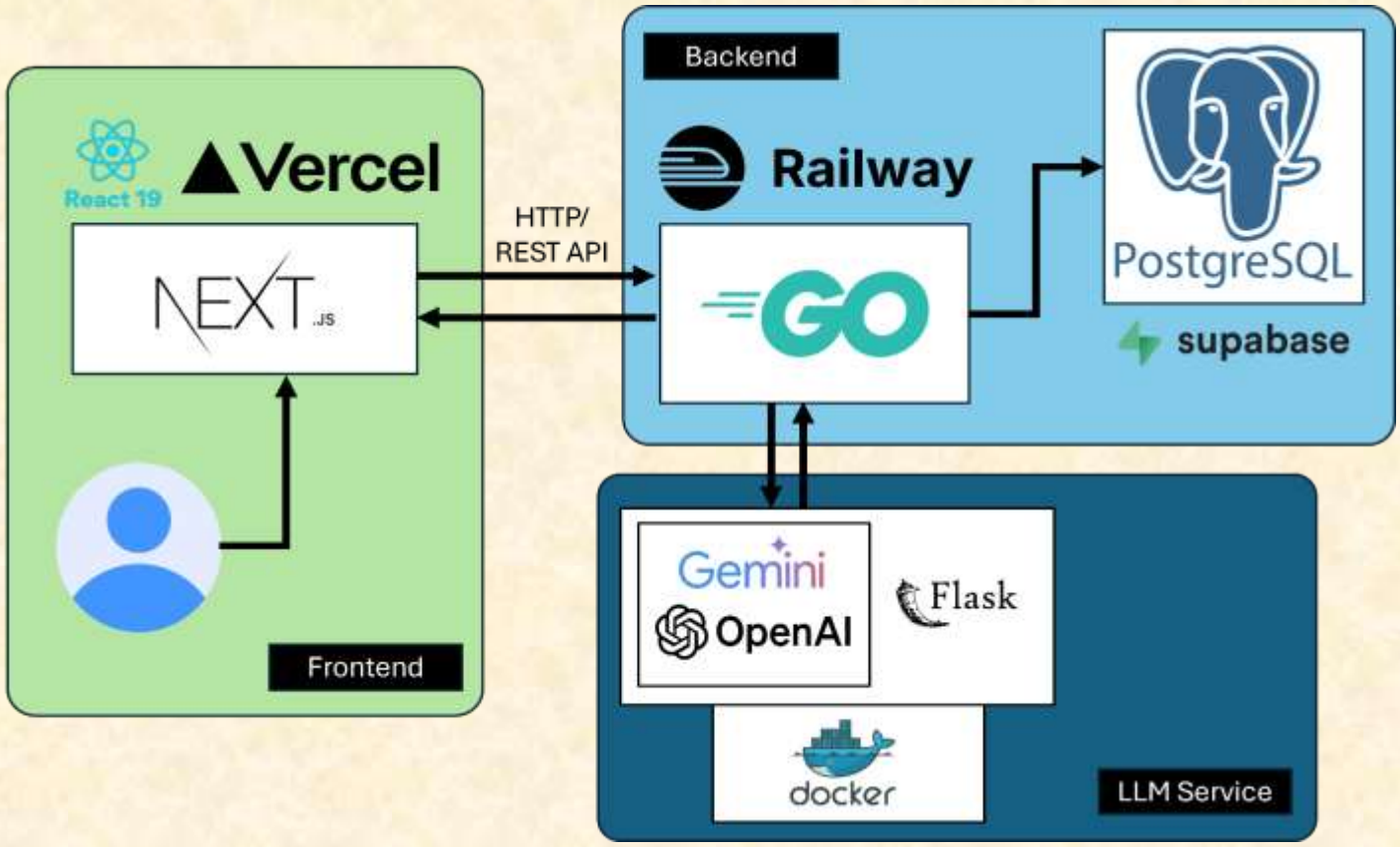
Screen Mockups: Staff Messages Mockup



Project Technical Specifications

- Frontend
  - Next.js and React 19
  - Hosted through Vercel
- Backend/DB
  - Go
  - Hosted on Railway
  - Db built on PostgreSQL, managed via Supabase
- Flask-LLM Microservice
  - Docker

Project System Architecture



Project System Components

- Software Platforms / Technologies
  - OpenAI/Gemini
  - Vercel
  - Railway
  - Docker
  - Supabase

Project Risks

- Risk 1: Guaranteeing Medical Accuracy for Added Specialties
  - Description: As we expand beyond family medicine to include pediatrics and other specialties, ensuring medical accuracy becomes more complex. Incorrect information in specialized cases could mislead students and compromise their clinical education.
  - Mitigation: Cross-reference AI-generated content against trusted medical databases like UpToDate and AAP guidelines before presenting cases to students. Create a feedback loop ("Rate the AI") to improve future AI prompts.
- Risk 2: Existing AI Feedback Model Enhancement
  - Description: Current AI feedback model provides generation evaluations that don't adequately address the nuances of different clinical scenarios or student skill levels. This limits the educational value and may not help students' identity specific areas for improvement.
  - Mitigation: Implement task-specific evaluation criteria by adding granular tags to each task type (ie. Prescription, lab result, patient question) that guide AI to provide targeted feedback. Integrate the new star rating system with an analysis dashboard to collect student feedback on AI response quality.
- Risk 3: Live Deployment of Application
  - Description: Transitioning from development/staging environment to live production deployment introduces risks around data migration, environment configurations, and ensure zero downtime for students actively using the system.
  - Mitigation: Conduct thorough staging environment testing with realistic data loads before production development. Schedule deployments during low-usage periods (weekends, late nights) to minimize student impact. Maintain detailed rollback procedures and database backup protocols to quickly recover from deployment failures.
- Risk 4: Integration with Existing Healthcare System Data and Compliance Requirements
  - Description: As application expands to multiple medical schools and healthcare institutions, each organization may have different EHR systems, HIPAA compliance, and IRB protocols for educational tools. Being able to integrate into these systems is very complex and failure to meet any of these may halt deployment.
  - Mitigation: Work with Corewell Health's compliance team early to understand HIPAA requirements and obtain necessary approvals. Design the system to use synthetic data (take a real patients' data but remove name, address, SSN etc.)

Questions?

