Project Plan Presentation
Electronic Laboratory User's Guide (eLUG) Modernization

The Capstone Experience

Team Henry Ford Innovations eLUG

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Spring 2025

Project Sponsor Overview

- Henry Ford Health eLUG- Detroit, MI.

- One of the nation's leading healthcare systems recognized for its dedication to medical innovation, research, and patient care.

- Electronic Laboratory User's Guide (eLUG), used in the Department of Pathology provides clinicians with essential test ordering, specimen handling, and regulatory compliance information.

- Project focuses on modernizing the Center for Precision Medicine (CPM)- within eLUG, ensuring that clinicians can easily access and interpret specialized genetic, molecular, and precision diagnostic tests that play a crucial role in personalized medicine.

Project Functional Specifications

- The eLUG provides clients with information about HFH laboratories and gives them access to a comprehensive testing catalog.
  - Current testing catalog is extremely outdated- Hard to Navigate and not user friendly.
- The eLUG is valuable because it ensures that doctors have access to guides on how to properly collect and handle specimen samples.
- Our goal is to improve the user experience, we will accomplish this by:
  - Creating a mobile app.
  - Ability to share page links.
  - Multimedia.

Project Design Specifications

- Designed to modernize parts of the current eLUG (2003).

- Scope of the project changed on 1/31, modernizing 3 performance laboratories:
  - Cytogenetics, Molecular Genetics, and Molecular Pathology.

- Modernization will include recent changes log, admin page, and updated test descriptions.

Screen Mockup: Report List Page

Screen Mockup: Test Description Page

Screen Mockup: Home Page
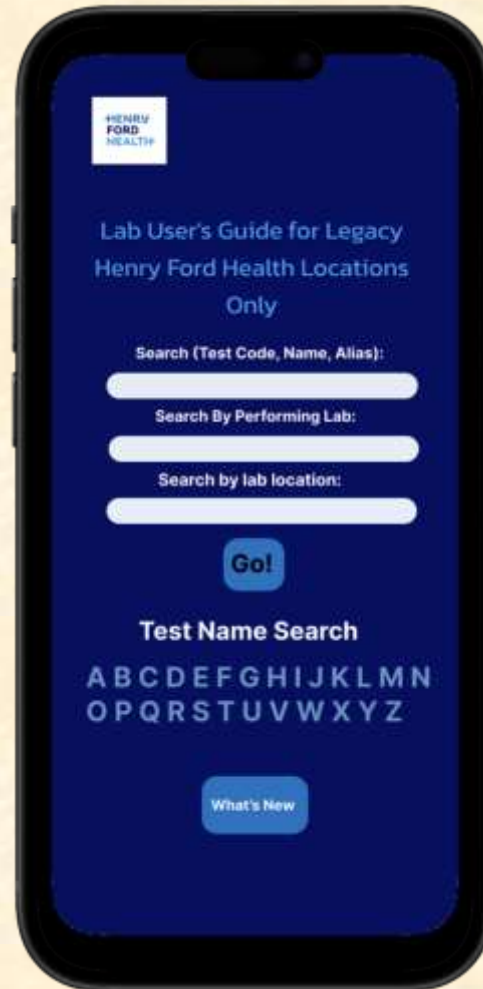
Screen Mockup: Report List Pages

Screen Mockup: Test Description Page
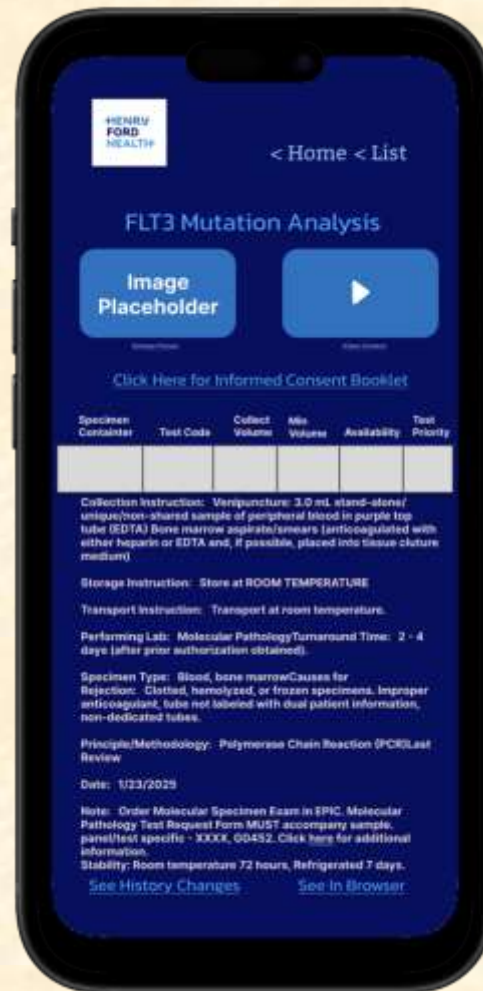
Screen Mockup: History Page

Project Technical Specifications

- Design and User Interface
  - HTML, CSS, JavaScript for web application.
- iOS app
- Speed
- Security
- Database

Project System Architecture
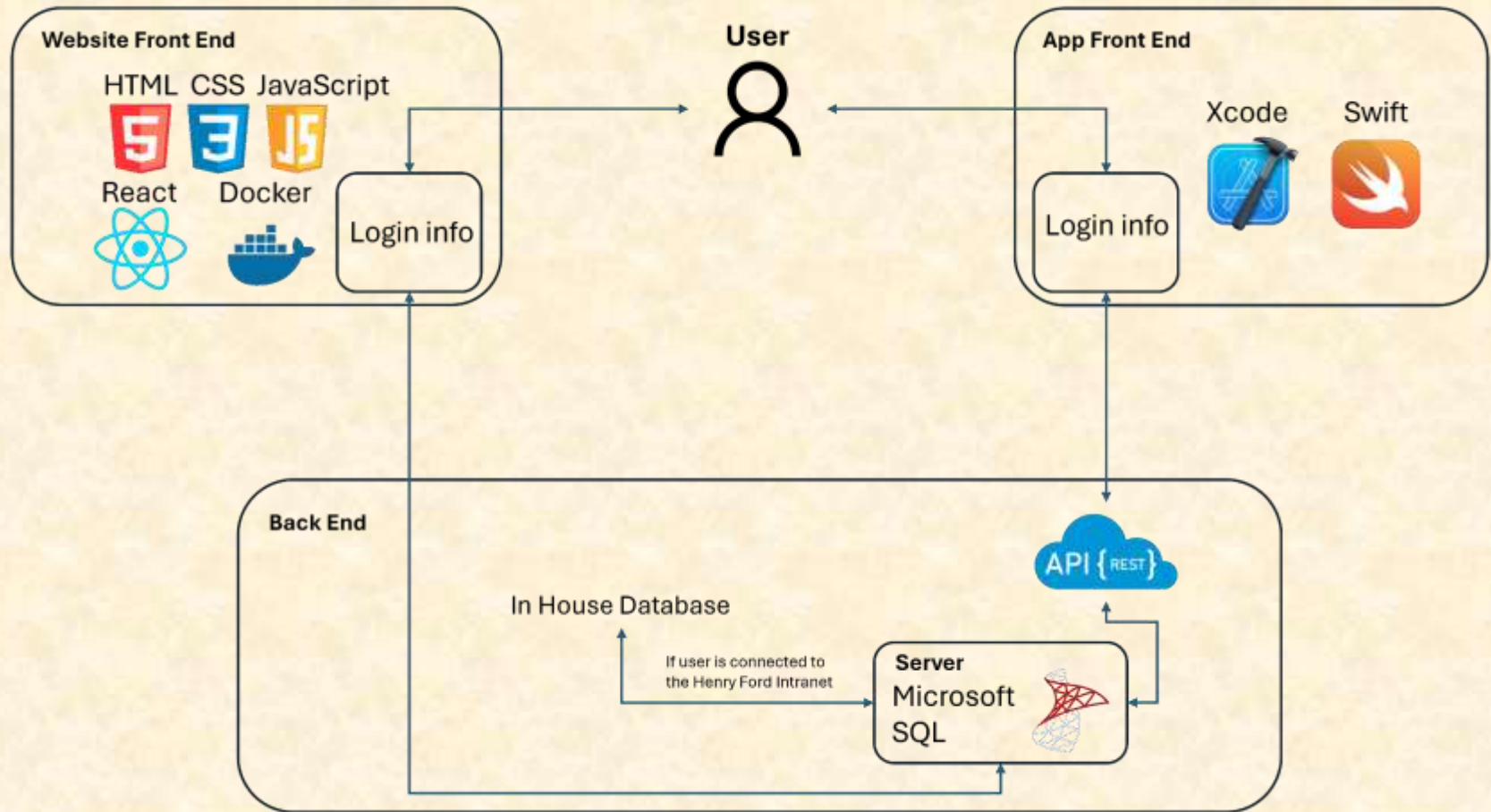
Project System Components

- Hardware Platforms
  - Mobile Devices- Used for testing mobile applications.
  - Local Dev Machines (Laptop/Desktops)- Used to write code, run tests, and develop web and mobile applications.
  - Staging and Production Environments- Servers for testing before deployment.
- Software Platforms/Technologies
  - Microsoft SQL and Flask for backend/database management.
  - HTML/CSS/JavaScript for front end and web development.
  - XCode and Swift for iOS development.
  - GitLab for version control.
  - Docker for creating and running applications in isolated environments.

Project Risks

- Risk 1- Data Breaches
  - The application will be used in the healthcare sector, meaning data security is crucial.
  - Mitigation- Implement role-based access control (RBAC) for sensitive information.
- Risk 2- Mimic the Format of Real Database
  - Working with potentially private medical data. We may not receive access to all of HFH's data and will have to fill in some of the missing data ourselves.
 - Mitigation- Create our own SQL server with example test data.
- Risk 3- Accurate Data
  - Inaccurate test data can lead to serious consequences for both patient care and hospital liability.
  - Mitigation- Ensure that every piece of information is reviewed and approved before going live. Create a log for when the most recent data was pulled.
- Risk 4- Lack of images that differentiate tests
  - The descriptions of the laboratory equipment are often very vague. This can cause confusion for clinicians when two pieces of equipment fit the same description.
  - Mitigation- Include images and detailed descriptions of equipment so clinicians can properly identify what to use.

Questions?

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