

MICHIGAN STATE

UNIVERSITY

Project Plan Presentation

Centralized Comment History Microservice

The Capstone Experience

Team UWM

Brad Deaner

Aaryan Walia

Macaulay Dailey

Melvin Thomas III

William Arnold

Alex Banker

Department of Computer Science and Engineering
Michigan State University

Spring 2025



*From Students...
...to Professionals*

Project Sponsor Overview



- Headquarters in Pontiac, Michigan
- Nation's number one wholesale mortgage lender for 8 consecutive years
- CEO is Michigan State alumnus Matt Ishbia
- UWM has their own podcast called "Good. Better. Broker."
- Their Breslin conference room has boards taken from the Breslin Center at MSU



Project Functional Specifications

- It makes comments more easily searchable by decoupling comment history from several monolithic applications
- Users will be able to search comments by employee, client name, loan number, and date/time of transaction
- Users will also be allowed to view previous versions of currently edited comments

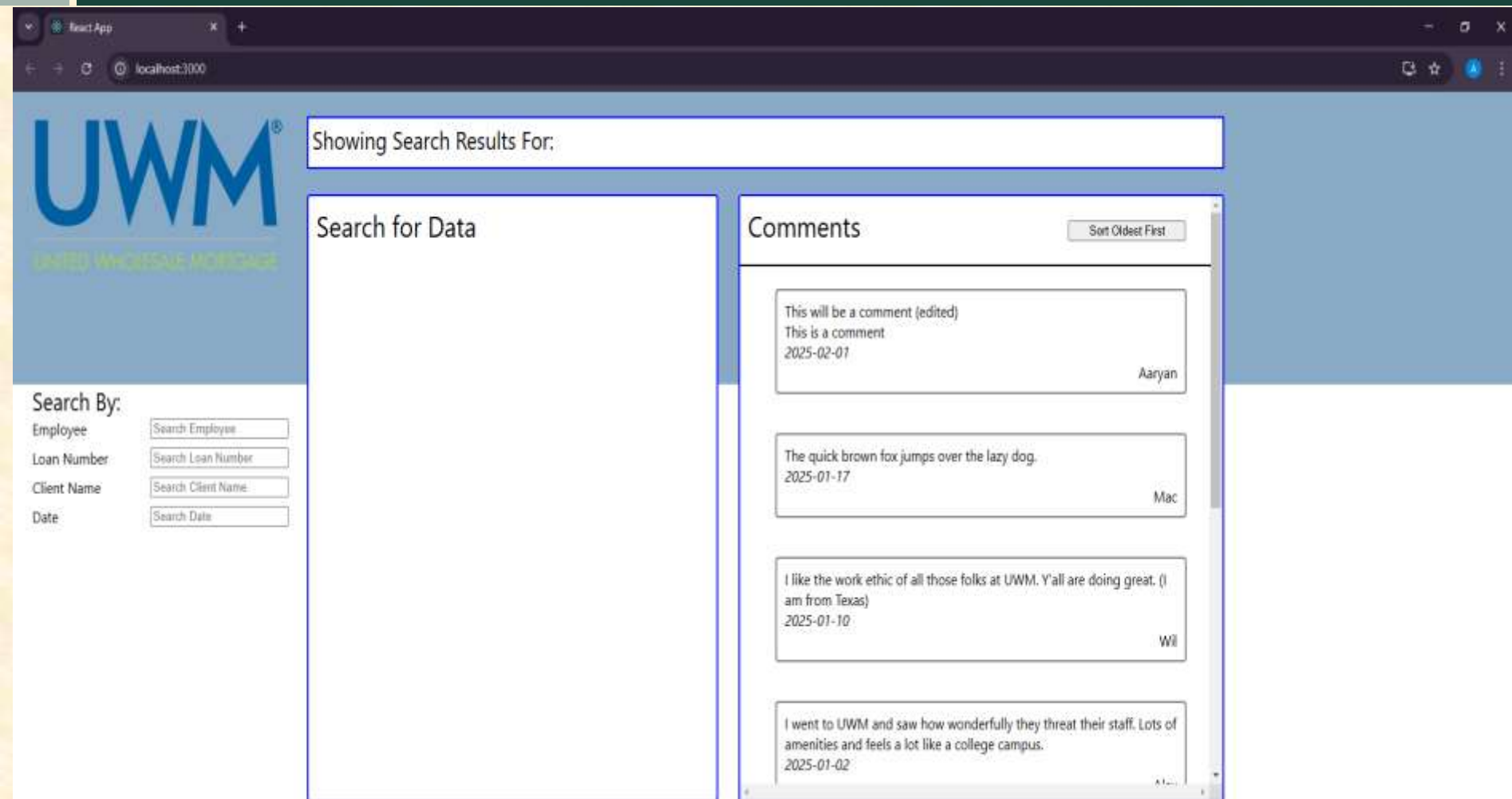


Project Design Specifications

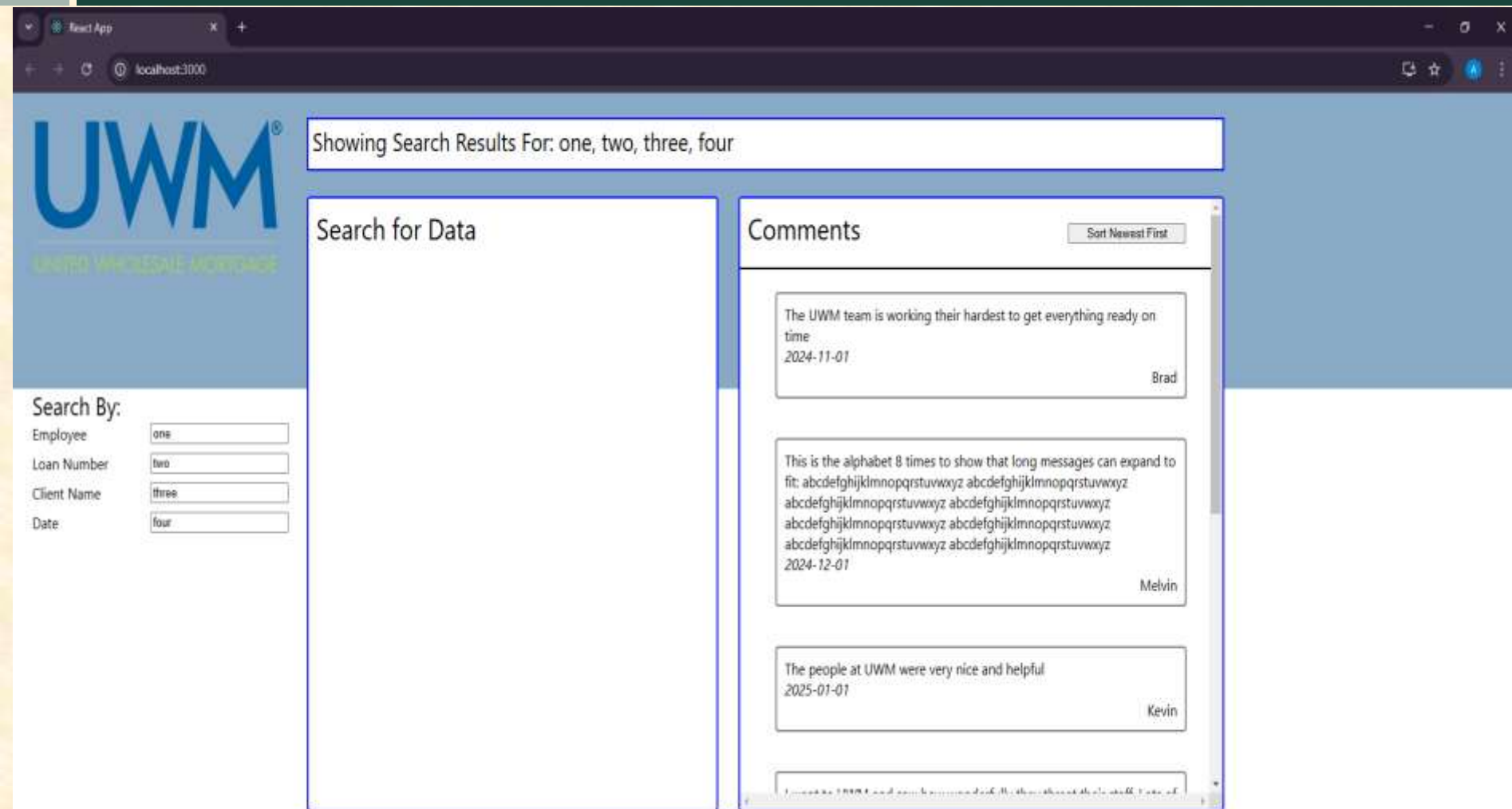
- Comprehensive search bar with multiple searchable attributes will be available to users
- The comments will be displayed on the right-hand side of the screen along with their previously edited versions, who wrote them, and the date/time it was written
- A download drop box will be available to specific users and will allow them to drag and drop their comment history files into the program
- Center will have relevant employee data, varies depending on the comment



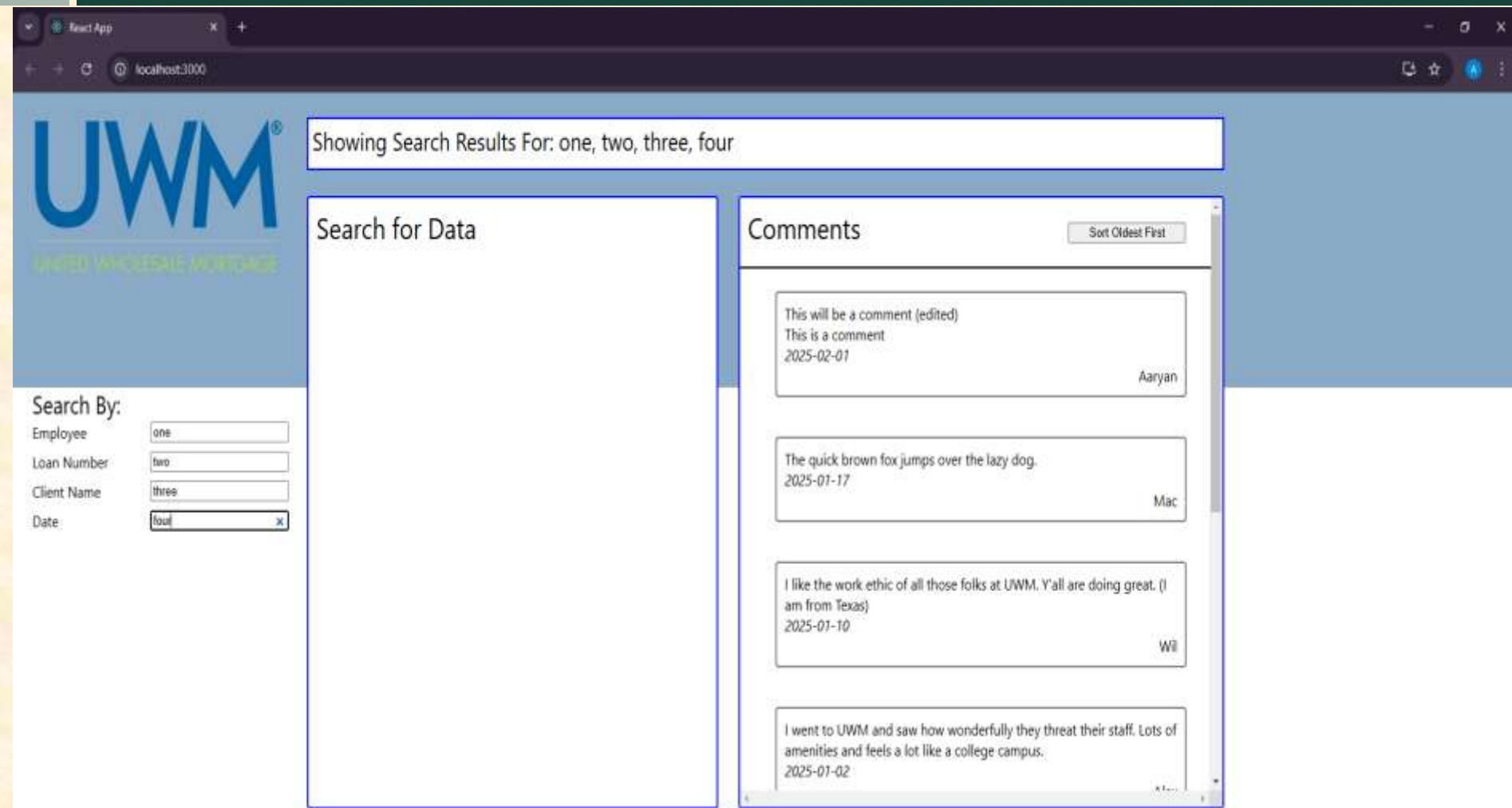
Screen Mockup: User Home Page Sorted by Newest First



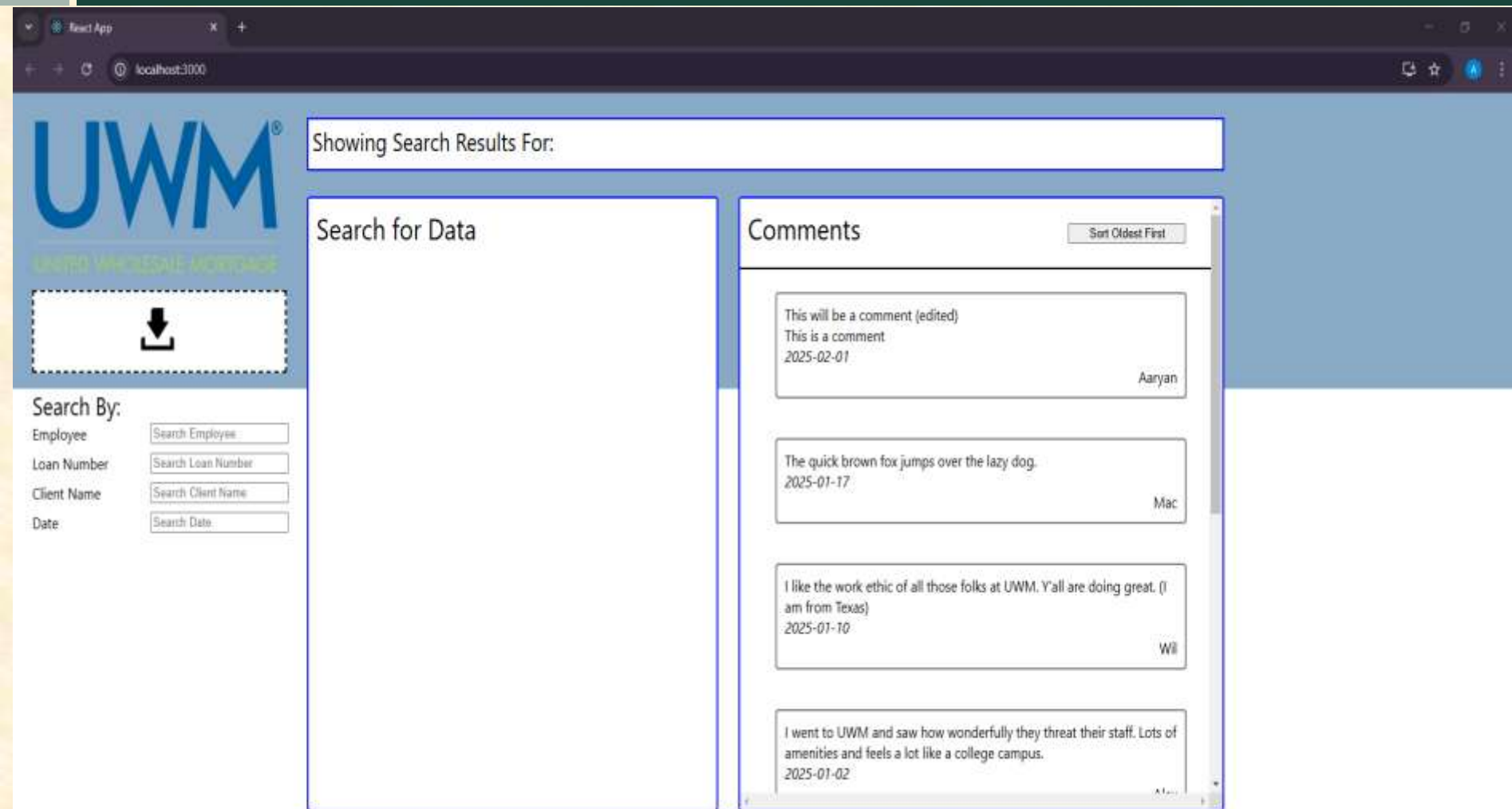
Screen Mockup: User Home Page Sorted by Oldest First



Screen Mockup: User Home Page Showing Search Bar Mechanic



Screen Mockup: Employee Home Page With Download Box

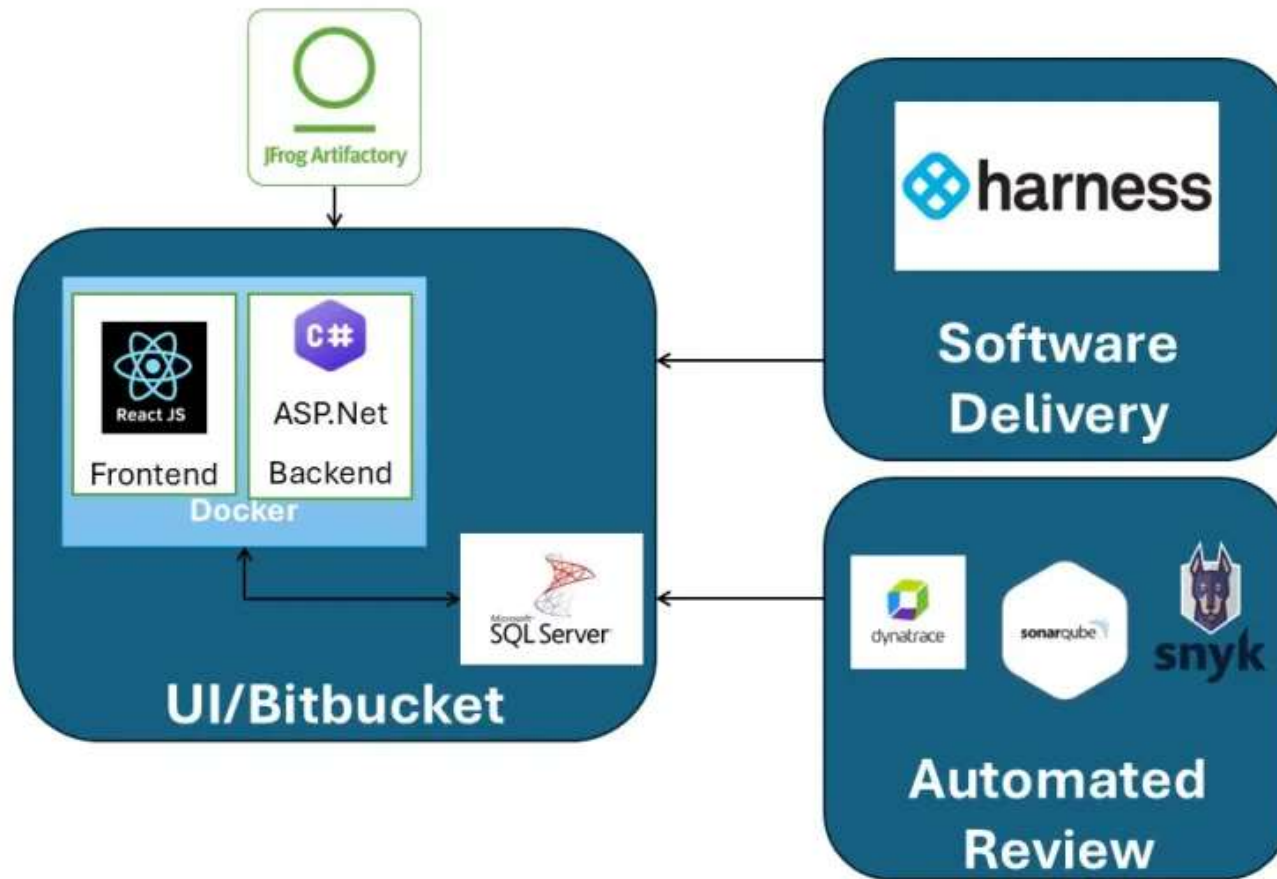


Project Technical Specifications

- Comment service made using UWM's proprietary architecture
- Multiple security extensions added to ensure sensitive company data remains safe
- Will support existing company programs and work cycle



Project System Architecture



Project System Components

- Infrastructure
 - Docker: Allows containerization of processes
 - RedHat: Enterprise Linux platform
 - Bitbucket: Git-based source code repository hosting service
 - Snyk: Highlights vulnerabilities in code
 - Dynatrace: Automatically checks applications and infrastructure for security efficiency
 - SonarQube: Extension which automatically reviews code
 - Harness: Software delivery platform
 - JIRA: Project management tool
 - Microsoft SQL Server Management Studio: Local and cloud management of SQL code and features
 - Artifactory: Manager of software packages and artifacts
 - ASP.NET Core: C# framework for building different applications that is used by UWM
 - API Endpoints: Enables service communication
- Software Platforms / Technologies
 - Microsoft Teams, Outlook, PowerPoint
 - Visual Studio 2022: Primary IDE for coding
 - C#: Primary coding language for backend
 - SQL: Database system
 - React: JavaScript library for UI frontend



Project Risks

- Risk 1
 - Decoupling data from the database while retaining data integrity
 - Testing on a separate server with dummy data, collaborating with the existing database team
- Risk 2
 - Ensuring data stored remains efficient and accessible
 - Referencing existing algorithms in UWM's code database while keeping it adaptable to our needs
- Risk 3
 - Keeping the private data of UWM secure by preventing data leaks and other security flaws
 - Utilizing provided security analysis software and avoiding common security mistakes
- Risk 4
 - Ensuring that the history of comments remains in the correct order even after editing
 - Associating a created-on date that remains constant while assigning each comment a date reflecting its last edit



Questions?

?

?

?

?

?

?

?

?

?

