



An Asset Management System for Increased Efficiency and Accountability

Authors: Matthew Bolding, Joey Flores, Zylar Niece, Emma Sanders
Advisors: Dr. Krishna Kadiyala and Dr. Bingyang Wei



Project Goal

Provide an asset management system, suitable for a wide range of users, so that Chalk Mountain Services of Texas, LLC. ("the company") may execute day-to-day business operations optimally and efficiently.

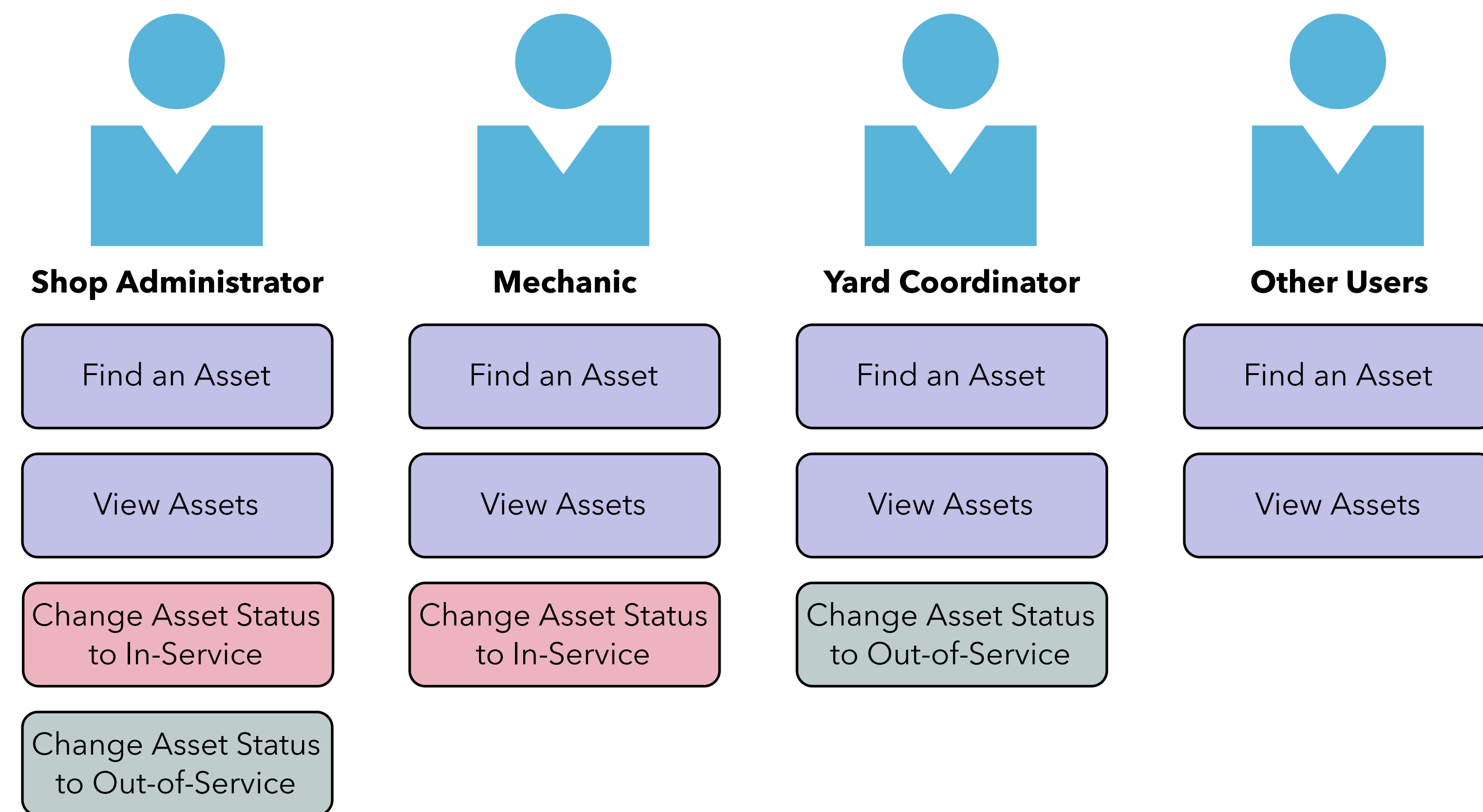
Problem Motivation

The company's assets, composed of tractors and trailers, need to have the correct state assigned to them—in-service or out-of-service. The current solution—one that's not mobile friendly—allows for any user to make modifications to any asset, the consequences of which cascades throughout the company; other systems rely on data maintained by this system. To remediate these problems, the new system:

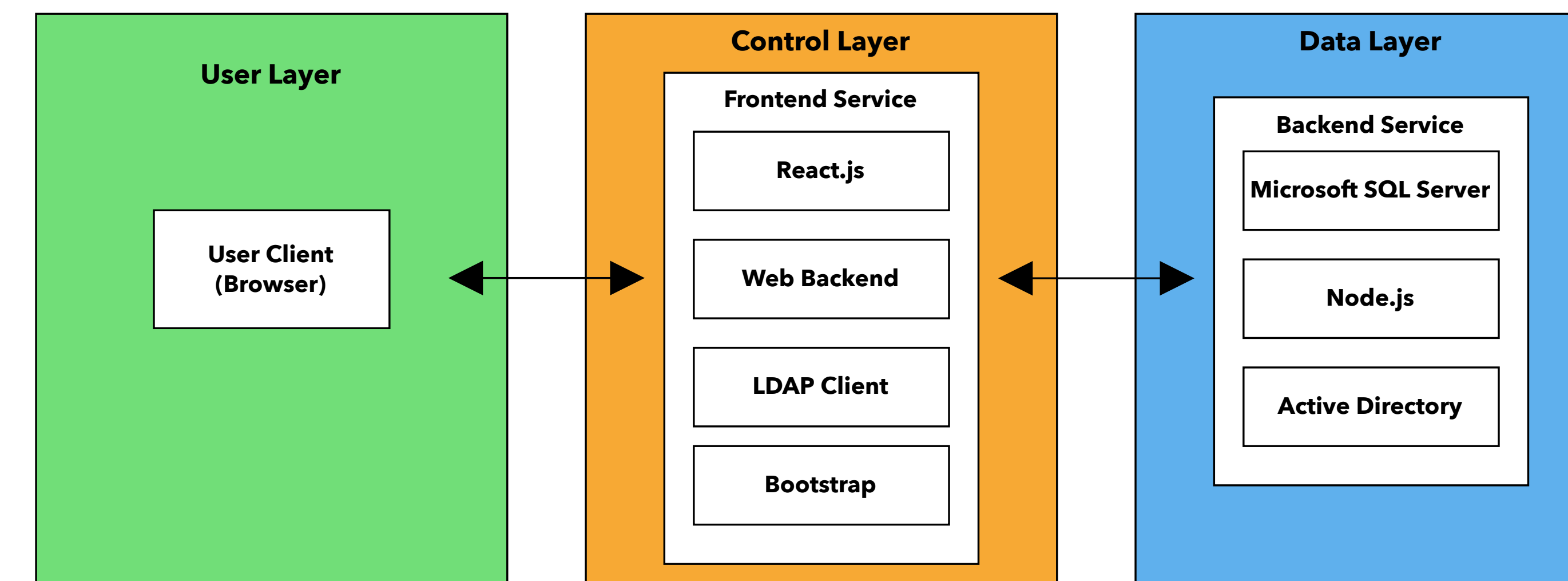
- implements role-based authentication;
- provides a mobile-friendly interface.

Through these changes, the company workflow is more efficient and each asset status change tags the appropriate user with the action.

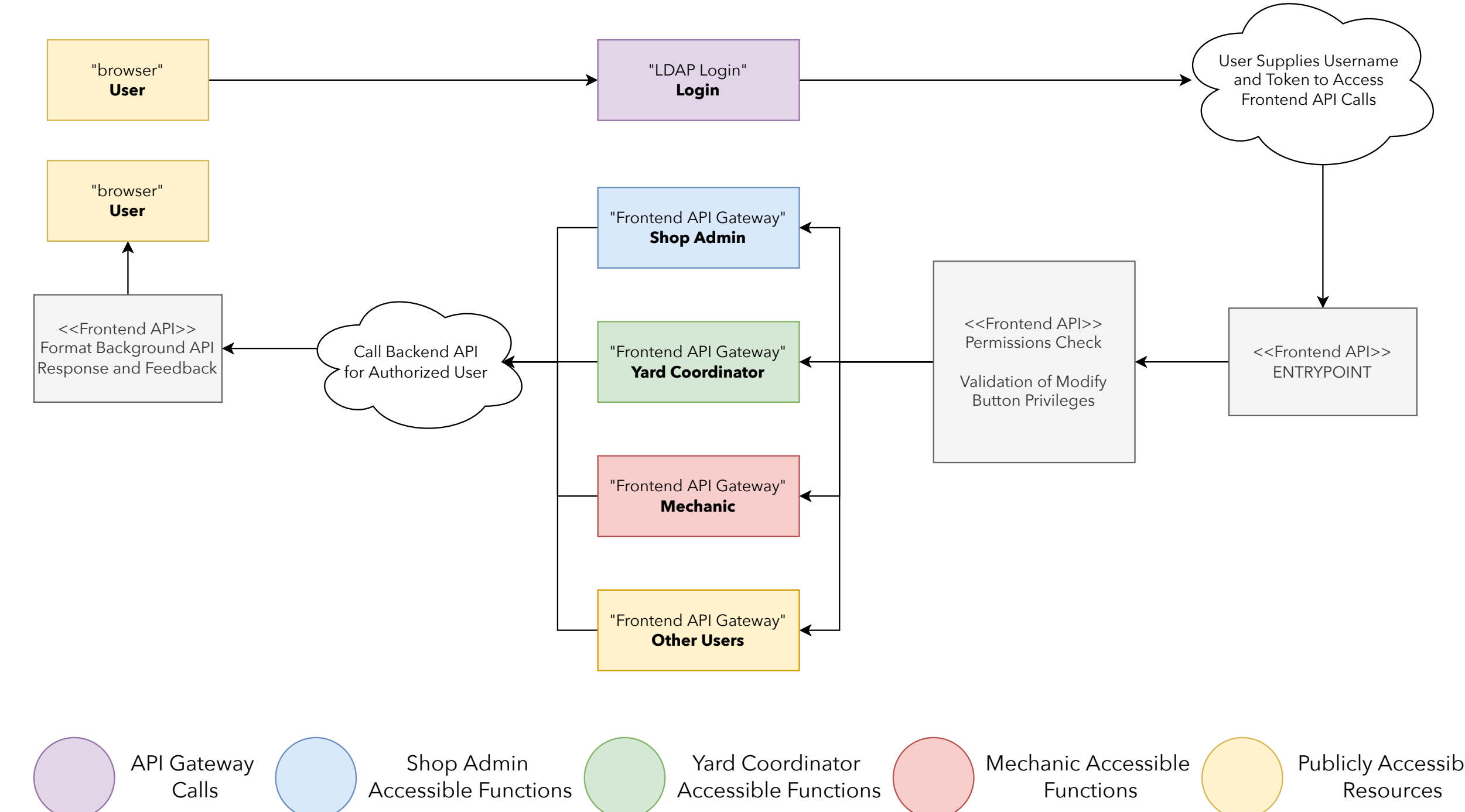
Use Case Diagram



System Architecture



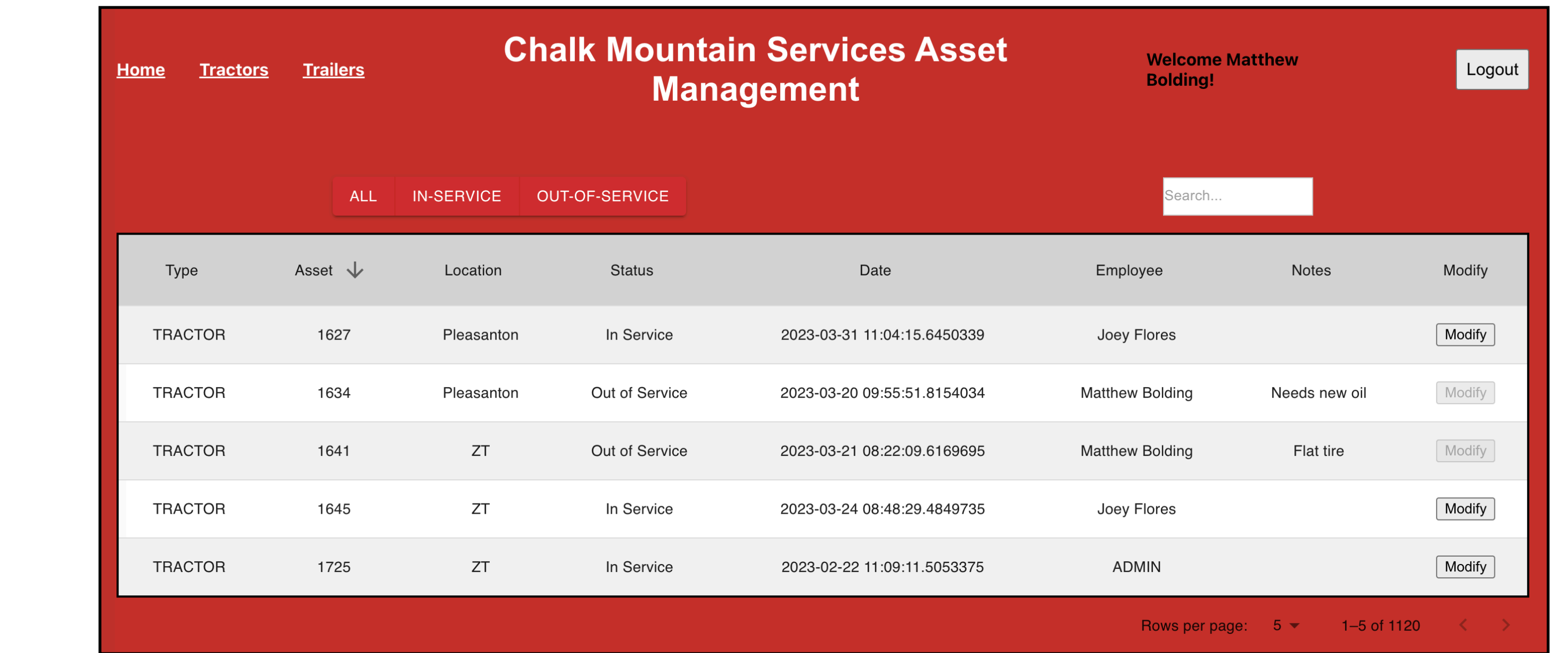
Front End



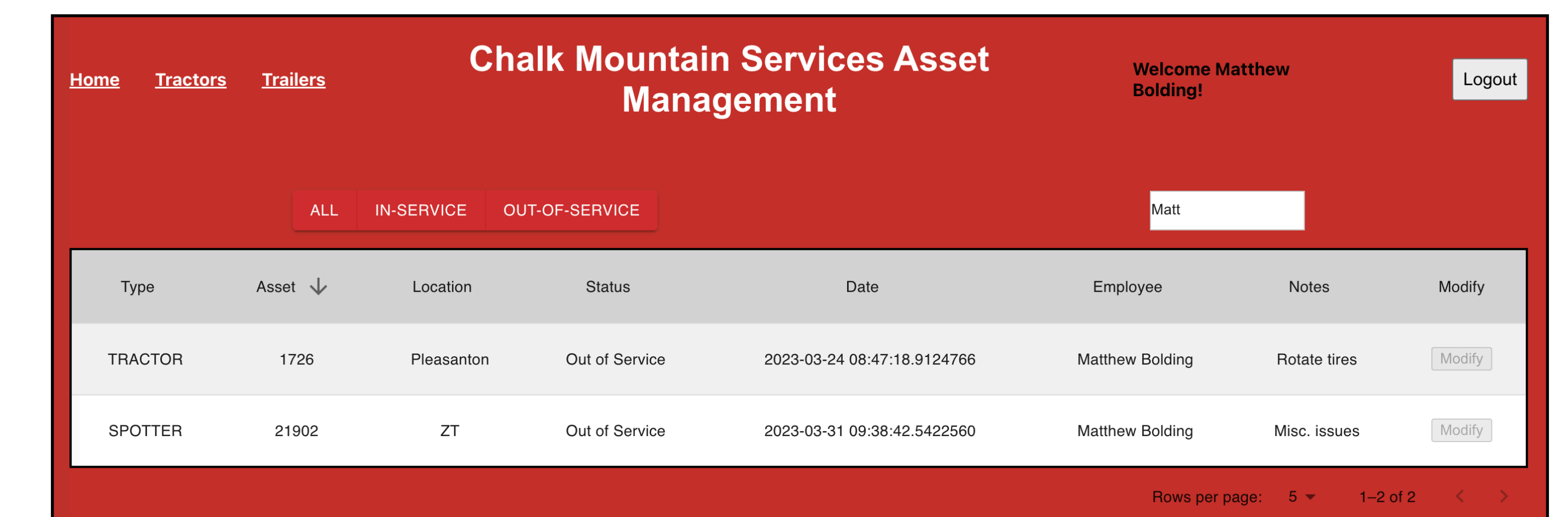
Back End

Tables				
Equipment Table	Request Table	Note Table		
smallint UNITID nvarchar(15) UNITNUMBER smallint COSTCTCODE nvarchar(20) LOCATION nvarchar(20) TYPE	uniqueidentifier REQUEST_ID nvarchar(50) USER nvarchar(50) TIME nvarchar(15) UNITNUMBER bit STATUS	uniqueidentifier NOTE_ID nvarchar(15) UNITNUMBER nvarchar(max) NOTES nvarchar(50) TIME		
SelectedAssets				
nvarchar(20) TYPE nvarchar(15) UNITNUMBER nvarchar(20) LOCATION bit STATUS nvarchar(max) NOTES nvarchar(50) USER				
Stored Procedures				
dbProcViewAssets	dbProcViewTrailers	dbProcViewTractors	dbProcViewAssetsCount	dbProcViewTractorsCount
varchar(50) SortColumn varchar(4) SortOrder int PageSize int pageNumber bit StatusBit varchar(128) SearchText returns List<SelectedAssets>	varchar(50) SortColumn varchar(4) SortOrder int PageSize int pageNumber bit StatusBit varchar(128) SearchText returns List<SelectedAssets>	varchar(50) SortColumn varchar(4) SortOrder int PageSize int pageNumber bit StatusBit varchar(128) SearchText returns List<SelectedAssets>	bit StatusBit varchar(128) SearchText returns int dbProcViewTrailersCount bit StatusBit varchar(128) SearchText returns int	bit StatusBit varchar(128) SearchText returns int dbProcGetAssetStatus nvarchar(15) UNITNUMBER returns bit

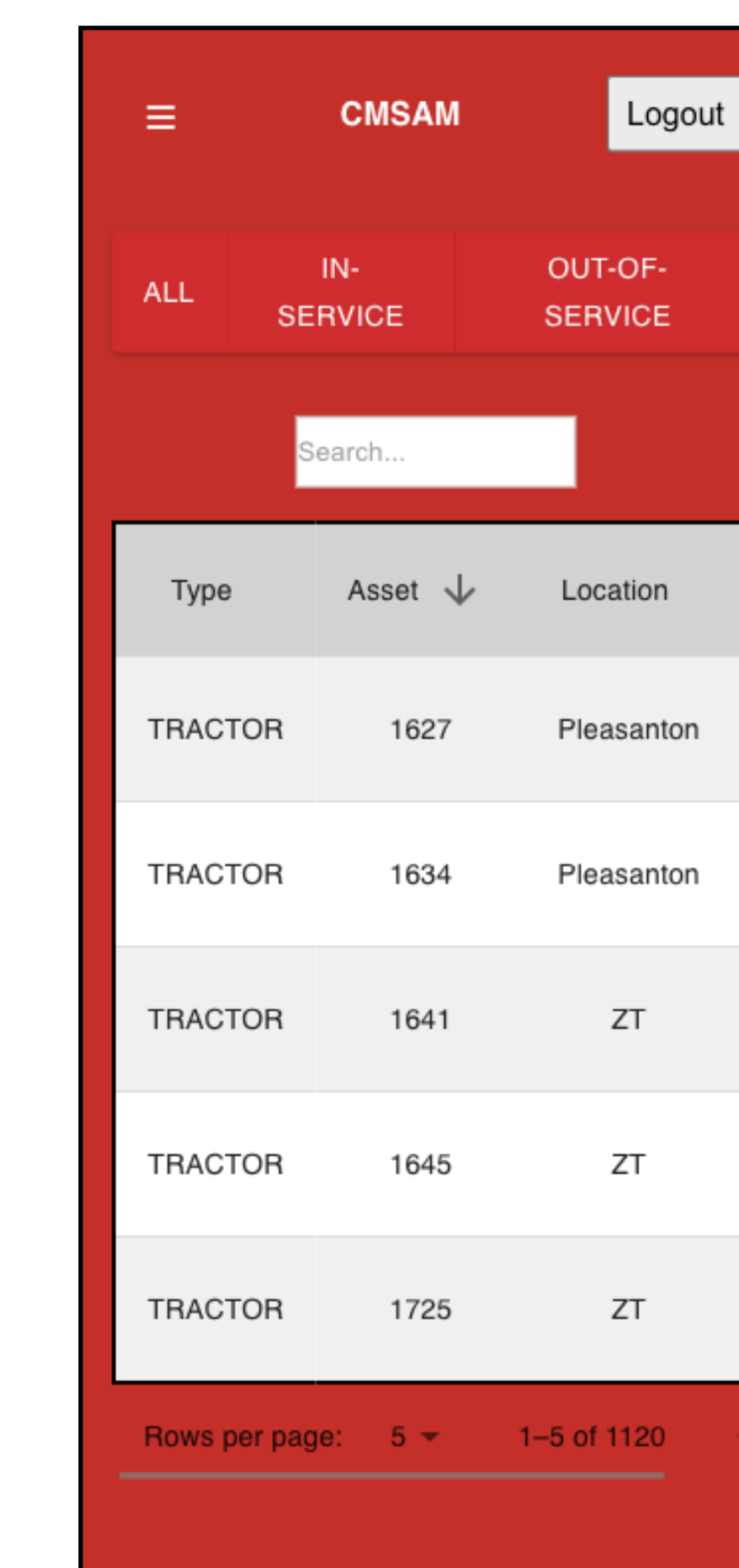
Screenshots



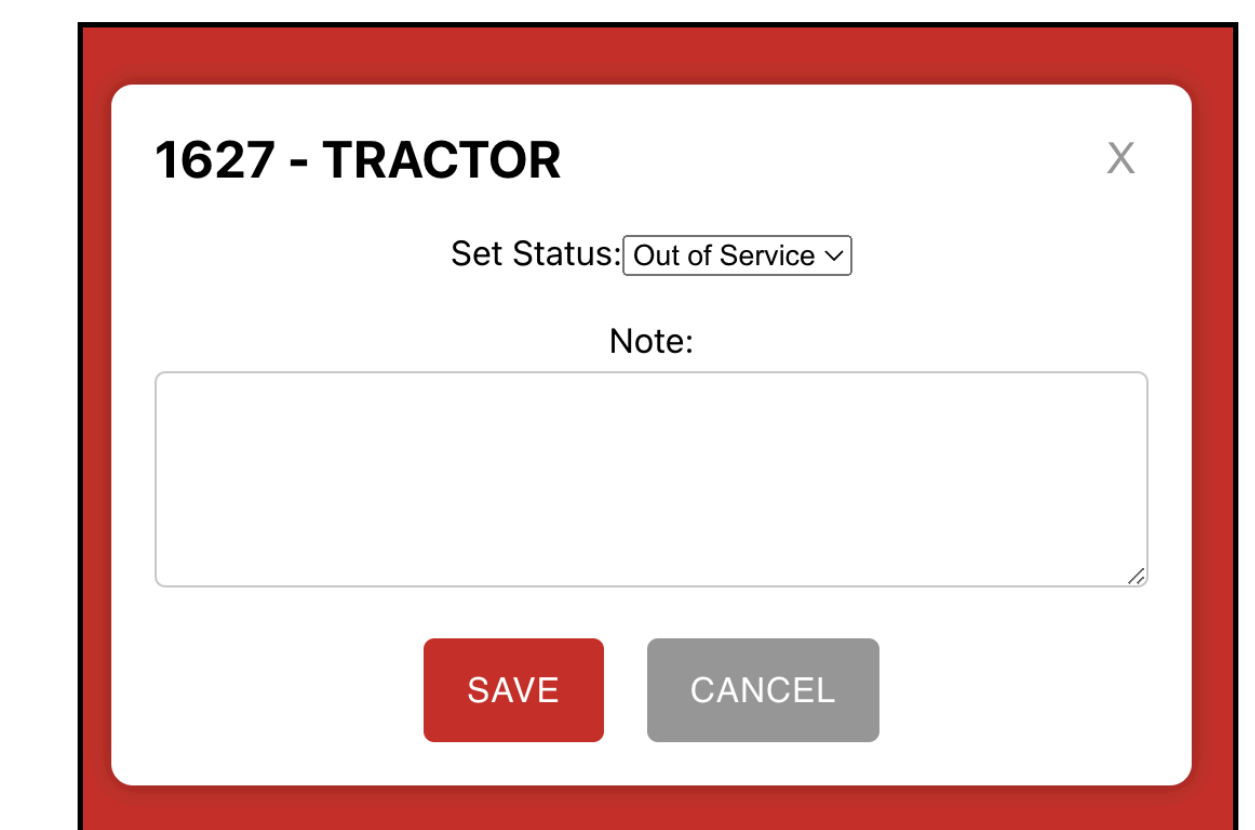
Role-Based Authentication



Search Functionality



Mobile-Friendly Interface



Modifying Asset Status



Sign in Page for Role-Based Access

Technologies Used



Challenges

- Configuring Lightweight Directory Access Protocol to interface with Active Directory.
- Constrained to working in a remote desktop environment.
- Implementing role-based access with security groups.
- Learning how to work with Microsoft SQL Server.

Acknowledgements

The team would like to thank the following individuals:
• **Dr. Krishna Kadiyala, Dr. Bingyang Wei, Dorian Dhano:** for providing excellent feedback throughout the iterative design process, encouraging us to keep our sights on the highest priority goals, and answering any question we might have.