

# CSci 463 Software Engineering

Spring 2025

Team: Carb

Jack Parrish

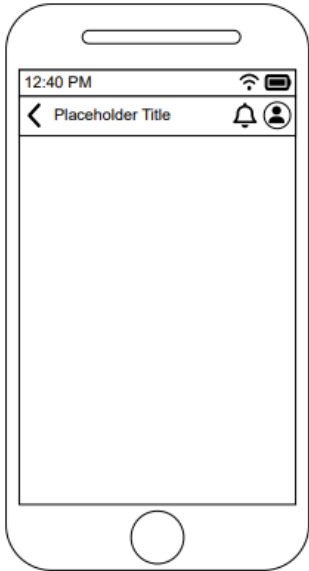
Mario Medeles

Gabriel Schiller

Project Report I

03•02•2025

# Interface Drawing (one or two examples)



Base Template






	My Profile
	Vehicle
	Locale
	Privacy Policy

Preferences

	20XX Make Model	
TODAY		
	Oil Change Due	2024/11/29 12:40PM
	Wiper Fluid Empty	2024/11/29 12:35PM
YESTERDAY		
	Tire Pressure Low	2024/11/28 12:40PM

Notifications

Low Fuel	
Your tank only has 18 miles...	
Geofence Exited	
At 12:40PM, vehicle 20XX...	
Low Fuel	
Your tank only has 22 miles...	
Battery Voltage Low	
Battery voltage was reported...	
Software Update	
Your vehicle has a pending...	

	20XX Make Model	
	Add/Remove Drivers	
	Set Nickname	
	Delete Vehicle	

Vehicle Settings

	Engine	ON
	Windows	CLOSED
	Sunroof	CLOSED
	Heated Seats	ON
	Trunk	OPEN

Vehicle Actions

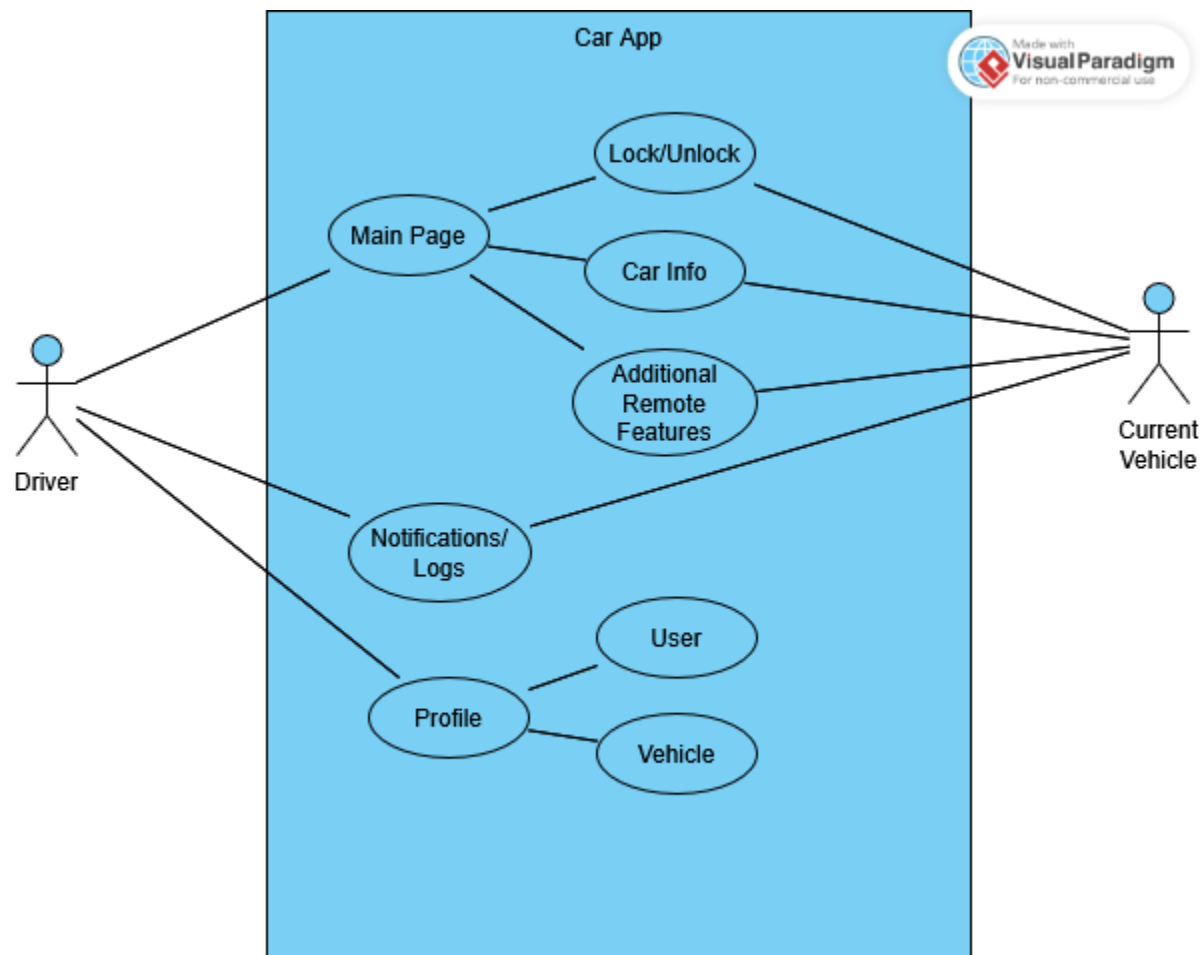
	Engine Temp	212 F
	Fuel Economy	26.4 MPG
	Miles Remaining	67.2 MI
	Engine RPM	2.7K RPM
	External Temp	32 F

	Franklin Roosevelt
	frank@whitehouse.gov
	George Washington
	george@whitehouse.gov
	Abraham Lincoln
	abe@whitehouse.gov
	Add New Driver

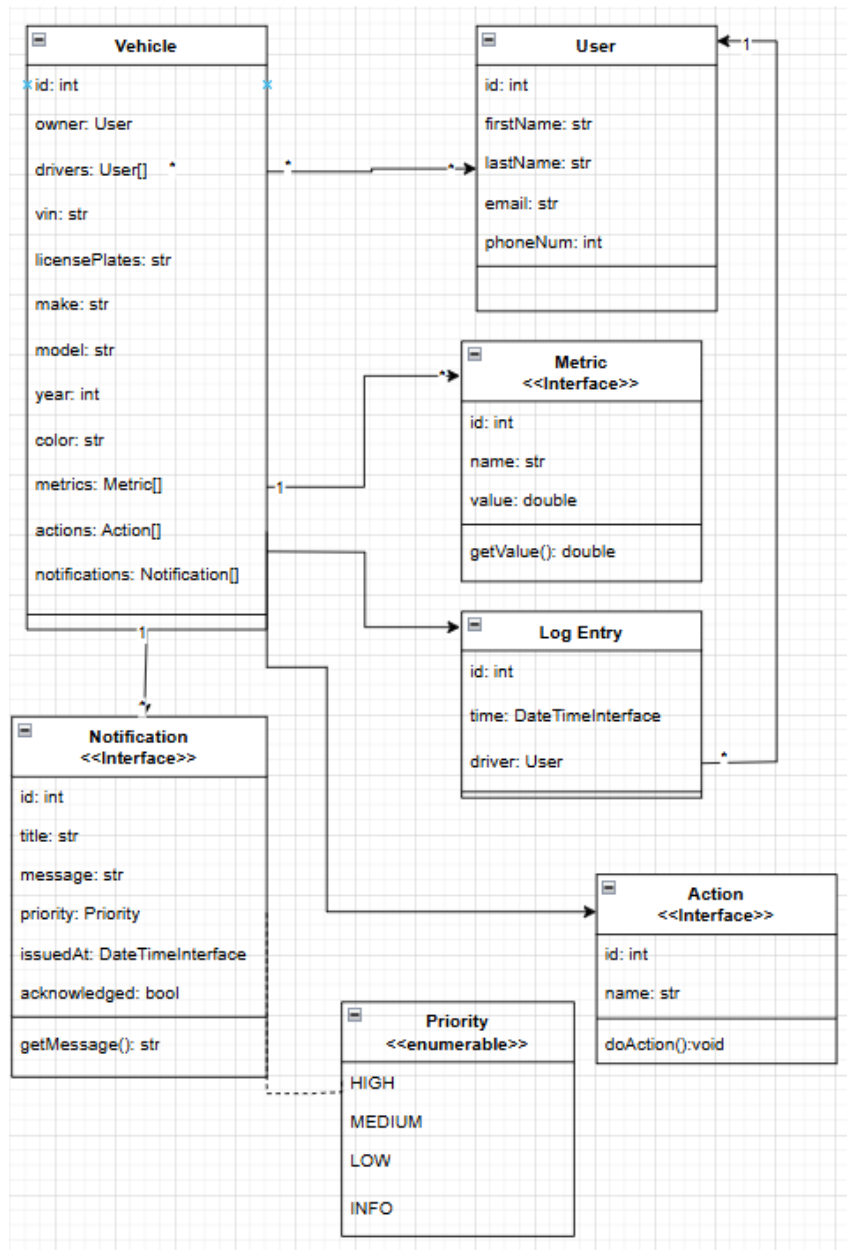
Driver Management

	20XX Make Model	
	Internal / External Temp	38/32 F
	Available Fuel	2.5 Gal / 67.2 Mi
	Last Drive	Nov. 29, 12:48PM
	Lock / Unlock	
	Metrics	
	Actions	

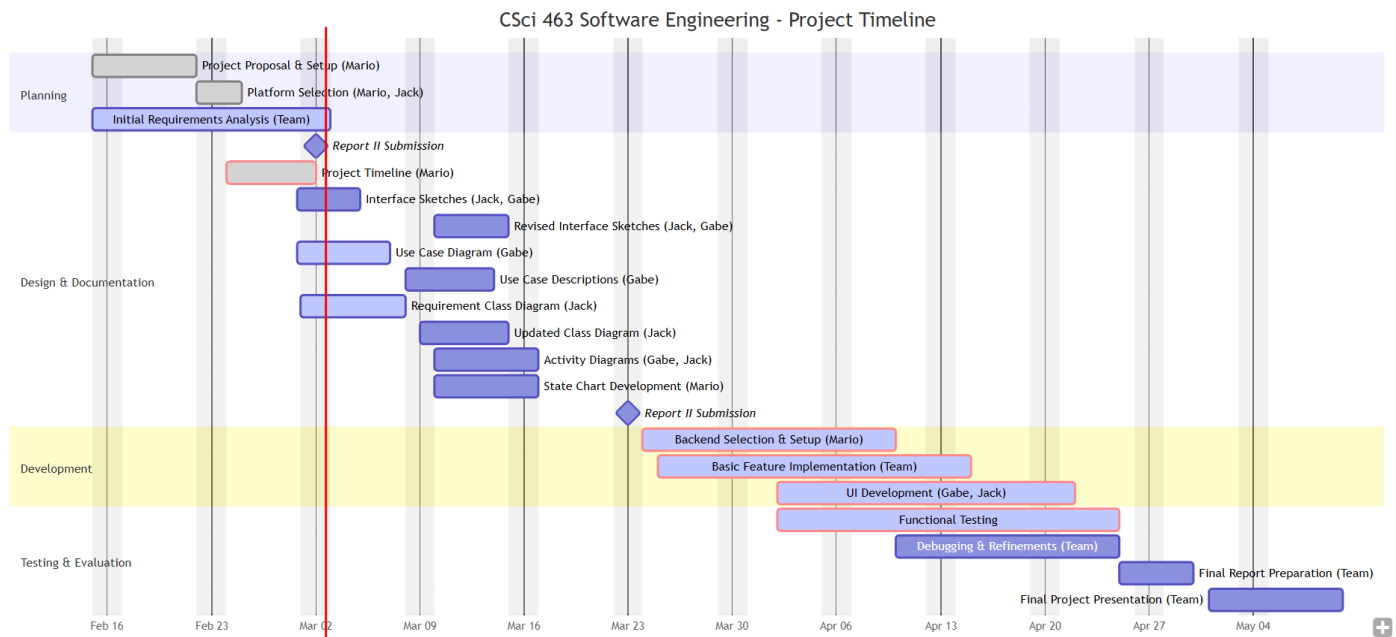
# Use Case Diagram (tool drawn) - Gabe



# Requirement Class Diagram (problem description) - Parrish



# Project Gantt Chart (tool drawn)



## Statement of issues encountered + resolutions

During the initial development phase, there were several problems that our team encountered, and which required careful planning and coordination to resolve. These problems revolved around the selection of tools, choice of platform, scheduling, and coordination within the team.

**Tool Selection for Diagramming** – Our team experimented with different diagramming tools initially in order to come up with use case diagrams, class diagrams, and other project documentation. This created formatting inconsistencies, making it difficult to achieve uniformity in different deliverables. To remedy this, we decided to allow team members to use their preferred tools while ensuring documentation is available for team-wide review. We conducted weekly team meetings to review each diagram as a team with open comments, questions, and concerns to normalize our documentation before submission.

**Mermaid Gantt Chart Integration Issues** – One challenge in our documentation process was the integration of the Gantt chart with Mermaid syntax. There was a learning curve initially in constructing a properly formatted Gantt chart based on correct syntax. Some attempts resulted in errors or incomplete charts. We resolved this by referencing official Mermaid documentation, sample projects, and external tutorials to correct formatting issues. Using this process, we successfully planned an accurate and pictorially consistent project schedule.

**Development Platform Decision** – Among the key discussion points of the team was the way to integrate work done previously by a former team member into our project. Since the initial CSci 363 group had broken up into two separate groups for CSci 463, there were concerns as to how to correctly and evenly use the work that was already completed without simply copying. We resolved this by holding discussions with the initial group members and the course instructor. We clarified that while we could use the earlier work as a reference, we ought to ensure our efforts were unique and creative. Hence, we set out to redesign and expand the existing work to reflect our creativity without losing focus on the project's objectives.

**Scheduling and Task Distribution** – As in most student-run projects, one of the greatest obstacles was coordinating between members who had varying academic and extracurricular commitments. Finding common meeting times and communication became a problem. To get around this, we agreed upon using Discord as the primary communication service for quick discussions and updates. In addition, we employed shared word documents for teamwork and a GitHub repository for version control and central project file storage. This allowed all members easy access to project material at all times and task distribution was always clear.

## Statement of expected accomplished by next report

For the project phase, the following are some important milestones outlined by our team in order to achieve consistent progress and be in line with the project goals:

**Finalization of Use Case Diagram** – Gabe is to finalize and approve the use case diagram in a way such that all functionality and interactions in the system are properly represented. The task would involve revising earlier feedback, applying necessary changes, and ensuring that the diagram clearly indicates the desired workflow of the system. After finalization, it would be sent for checking.

**Development of the Requirement Class Diagram** – Parrish will create the class diagram to accurately represent the system requirements. This will entail the identification of major entities, relationships, and attributes needed for backend organization and core functionalities development. The diagram will serve as a foundation for further development and database organization.

**Creation of the First-Time UI Mockups** – Parrish and Gabe will work together to develop system interface prototype sketches. The mockups will be based on the work already developed by Parrish's group in CSci 363, with respective modifications to align the design with this project's unique requirements. The goal should be to provide a clean-cut and intuitive interface supporting the application's projected functionalities.

**Backend Framework Selection** – The final decision about the backend infrastructure will be made by the team by comparing some of the different options, i.e., Firebase, a local machine SQLite database, or any other available data management solutions. Scalability, ease of integration, and support for the application architecture will be considered while making the final decision.

**Installation of Basic Features** – The first developmental process will involve the installation of basic features on the mobile app. At a minimum, the system should have the ability to remotely start and stop the engine of the car, as that feature is central to the overall project and will be a pivotal component of the demonstration.

**Clear Understanding of Project Requirements** - We will seek clarification from the instructor on any vague or open-ended requirements, especially concerning optional features, proper output display, and expected implementation depth.

**Test Environment Setup** – A structured testing framework will be set up to ensure the application is working and safe. This will include the development of test cases to ensure various system features, boundary conditions, and security vulnerabilities. The

goal is to prepare the application for the final demo by identifying and resolving any possible issues early in the process.

Project Documentation Refining – Mario will be responsible for ensuring all project documentation is current and applicable. This includes refining the project timeline, updating class diagrams, and ensuring use case descriptions reflect any new design revisions. Having accurate and up-to-date documentation will simplify development and implementation as the project progresses.