PROJECT PROPOSAL

Ride Along

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Date: 9/25/23

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Car Companion Software Product Proposal

Project Overview

With the increase in car prices and repairs in recent years, car owners want to prolong their vehicle's durability for as long as possible while also finding the best time to sell your vehicle for the best value. In addition, buyers are having issues finding vehicles at fair market values and not overpaying for a depreciating car. We, Team Spec, plan to create "Ride Along," a single page web application that captures all major events of a car during ownership. We will focus on three phases of a car's life cycle: early, middle, and end phase. The early phase facilitates vehicle acquisition then uploads its specifications into our system. The middle phase tracks vehicle maintenance, modification, and damage. The application features and calculations uniquely personalize a user's experience. Lastly, the end phase appraises a vehicle and allows for a car owner to obtain the most value for his car . Web apps such as CarMax and Kelley Blue Book focus on the early and end phases, with little to no focus on the middle phase of the car. Moreover, CarMax excludes salvage titled vehicles, yet our application estimates price ranges accordingly and provides transparency behind that title.

Project Value

The main value of this application is to have a smoother experience in looking for vehicles to buy as users have the ability to view detailed information of the listed car and the ability to contact the vendors. Moreover, the application provides a detailed management system for maintaining vehicles that you own and also helps users in donating, or selling their cars at the end of their vehicle life cycle.

Project Vision

The vision behind our application is to create a customer first application that can improve our customers' experience with their cars while helping educate those who aren't as knowledgeable in car maintenance as well as those who are enthusiastic about cars. The goal of our project is to provide users a quick and succinct way to access detailed car knowledge and analysis of their own car. We also aim to provide a better experience for buying, selling and maintaining cars for normal vehicle owners. The application strives to expand more into supporting vendors, dealerships, and renters in managing their vehicle inventory as well as helping normal vehicle owners in contacting or directing them to dealerships. We also hope to make things easy for vehicle owners at the end of their vehicle ownership life cycle by easing up the process of donating or selling their vehicle for parts.

Project Scope

Ride Along will be a single-page web application compatible with the latest Chrome version 116.0.5845.179 for Windows, macOS, and Linux. The application will also support mobile devices allowing for users to access through their phones, tablets, or computers on the latest mobile Chrome Version 117.0.5938.60. The application will only be available within Southern California counties, Los Angeles County and Orange County, using USD as currency and the imperial system for measurement, as of release the application will support Pacific Standard Time (PST) while the default language will be American English.

Target Users and Markets

Ride Along's target audience include: new drivers (those who are looking to buy a new car), vehicle owners, car enthusiasts, car buyers, vendors, and rental fleets. With this target audience, we aim to target the car market and more specifically, any regular car owners.

User Management

Account Creation

For account creation, we will have a button that allows them to enter an account creation page. We will request an account name, email, username, and password from the user, then check to see if the username or account name is already taken. If neither is taken, then we can log all of these to the Data Store. The password specifically will be hashed to ensure that we are storing it in a secure fashion. If the user account creation is successful, we will display a message explaining this as such, then send them back to the login page. If the user account creation fails, for example, if the username is already taken, we will immediately let them know and keep them on the same page. We will also log the details for their current attempt. For both successes and failures, we will log how long they spent trying to create the account, starting from the moment they clicked the login button, to the moment they either succeeded or moved to another page.

Account Deletion

Users can request an account deletion by pressing the "Request for Account Deletion" button. This will make the system ask for a username, password, and email one more time as a fail-safe. After those 3 fields are provided with input, a "Confirm" button will

pop up, when the user presses this button, the system will log the timestamp and verify all three of these fields with the data in the datastore and trigger an automatic account deletion.

Request for User Data

Users will be able to request all the data Ride Along has recorded about them and their vehicles at their request. When requested, Ride Along will email with all the data we have stored on them.

Authentication

During the log-in process, after the user fills out both fields for username and password, the system will pop up the “Login” button allowing the user to click it. When the button is clicked, the system will log the timestamp when it was clicked as well as the username and password provided by the user. The system will find the exact same username in the datastore if the user name is found, the system continues to hash the provided password to check with the password in the datastore, otherwise, the system will return “Username not found”. If the hashed password is found in the data store, the user has succeeded in logging in and will be directed to the homepage corresponding to the role of the account. There are 3 scenarios in which users can log out: inactivity for 15 minutes will make the system automatically log the timestamp and log out the account, closing the window will also trigger this automatic process, and lastly, the user can also log out by pressing the “Logout” button.

Role Management

The Authorized users will be able to request one of the two special roles from the admin users. Since both Car renters and Car dealerships are businesses, we will assume they both have addresses. While viewing their profile, they will have access to the option of filling out a form to request special access. They will submit a request with the business type, name and address of their business, and some type of contact information (email or phone number) for their representative. An admin will be able to approve or deny a request, based on whether they deem it to be legitimate or not. An administrator is able to revoke the role at any point, up to their discretion. We will log the time spent filling out the form, and the contents of the form.

Authorization

Before loading any page, the system will check on the permission of different users to make sure that each account has the correct functionality corresponding to the assigned roles.

User Types and Responsibilities

Administrator

The Administrator will manage all other user types as well as have administrative properties such as viewing telemetry data, deleting users, and access to all authenticated user features.

Authenticated User

The authenticated user will be any user that has authenticated themselves and thus will be authorized to use mostly all features available aside from features specific to the Vendor, Renter, and Administrator user types. The role is needed in order for users to create an account specific to themselves and able to record all data they input.

Vendor

Authenticated users that have the “Vendor” specific role are authorized to have vendor-specific features that make managing inventory easier for them. The role is needed in order to create a smoother experience for managing vehicles being sold on the marketplace while providing vital information to buyers on the application.

Renter

Authenticated users that have the “Renter” specific role will be authorized to use renter-specific features, like fleet management providing a better experience in observing rental vehicles status and their need for maintenance. Similar to the Vendor, the role is needed in order to allow rental companies to have an easier time to track rentals status and service schedules.

Unauthenticated User

The unauthenticated user role is for users who are not authenticated and by doing so lack the authorization needed to browse the majority of our application. The unauthorized user

role is needed as it decides what information you have before becoming or logging into your authenticated user role.

	User Types				
User Roles	**Unauthenticated**	**Authenticated**	**Vendor**	**Renter**	**Administrator**
Create User	No	Yes	Yes	Yes	Yes
Delete User	No	Request	Request	Request	Yes
Create Vehicle Profile	No	Yes	Yes	Yes	Yes
Delete Vehicle Profile	No	Yes	Yes	Yes	Yes
Service Log Input	No	Yes	Yes	Yes	Yes
Adding/Updating Personal Car Information	No	Yes	Yes	Yes	Yes
View Service Log History	No	Yes	Yes	Yes	Yes
Maintenance Service Reminder	No	Yes	Yes	Yes	Yes
Cost Center: Vehicle Market Analyzer	No	Yes	Yes	Yes	Yes
Cost Center: Cost Estimate	No	Yes	Yes	Yes	Yes
Part and Repair Estimates	No	Yes	Yes	Yes	Yes
Enhancements and Modifications	No	Yes	Yes	Yes	Yes

Vehicle Profile Marketplace	Limited Access: to search only	Yes	Yes	Yes	Yes
Donate Vehicle	No	Yes	Yes	Yes	Yes
Scrap Vehicle	No	Yes	Yes	Yes	Yes
Notification Function	No	Yes	Yes	Yes	Yes
Car Buying Info	No	Yes	Yes	Yes	Yes
Car News Center	No	Yes	Yes	Yes	Yes
Car Health Ranking	No	Yes	Yes	Yes	Yes
Certified/ Uncertified Vehicles	No	Yes	Yes	Yes	Yes
User Directions	No	No	Yes	Yes	Yes
Inventory/Fleet Management View	No	No	Yes	Yes	Yes
Fleet/All Profile Vehicle Estimate	No	No	Yes	Yes	Yes
Car Recommendation and Comparisons	No	Yes	Yes	Yes	Yes
Dealership Support	No	Yes	Yes	Yes	Yes
Viewing Telemetry Data	No	No	No	No	Yes
Managing User Roles	No	No	No	No	Yes

Phase 1 Release (MVP)

Usage Dashboard

The Usage dashboard will be an Admin user-specific feature that allows them to see details about logged info, and general usage of the app. They will be able to see the following Data items: All logins, successful and failed; All Account creation attempts, successful and failed; The top 3 most visited pages by time length (Where do people spend the most time); The top 3 most visited pages by frequency (How many times is each page clicked on). The user will also be able to select the timespan in which they are viewing the details, specifically in the intervals of 6 months, 12 months, and 24 months. Every time we open and close this feature, we log how long, and what time spans we checked. If the feature fails, the application will log to a data store.

Personal Vehicle Profile

Authenticated users such as Car Owners, Vendors, and Rentals can create specific profiles for each vehicle with detailed information such as: manufacturer, maker, trim-level, year, license plate and VIN number. Optionally, users can input the vin number and we can retrieve the manufacturer, maker, and year of the car via VehicleDatabases API. Optionally, users can also upload their vehicle pictures. One user can have multiple vehicle profiles, each for a particular vehicle they own. At the moment, the user may only make profiles for gasoline powered 4 wheeled consumer automobiles according to our definition of "vehicle" as specified in the glossary. Each vehicle profile

will also be updated with all the information from their own sub 3 features: Vehicle Modification Tracking, Maintenance Reminder, and Tracker and Vehicle Repair. If the feature fails, the application will log to a data store. If any required information is not provided by the user, the application will ask the user to provide more information about the car. When a user creates a vehicle profile, the application will log information to the data store.

Service Log

Maintenance, Repair, and Modification History Input

Authenticated users will be able to input Maintenance or Repairs done to their Vehicle on their Vehicle Profile in two different ways: User input or through a reputable service provider. The service log input will be split into two different parts as well: Maintenance Log and Repair Log. The Maintenance log will cover anything that is under the Vehicle Maintenance definition in the glossary which covers components of a car that are expected and designed to wear down or be replaced during the cars life-cycle. The user will be able to pick from a list that will display these supported maintenance services: Fluid (oil, coolant, brake Fluid, power steering fluid, and transmission fluid), mechanically wearing parts (Brakes pads/rotors, Tires, Windshield wipers, belts/chains, Air filter, spark plugs, PCV valve) , and non mechanical maintenance (Tire Pressure, tire alignment, Tire rotations rotations, Battery health, inspection of struts/shocks).

The Repair Log will instead rely on user input due to the sheer amount of services that could qualify as repairs. The Repair Log will feature a service name and service description to allow users to document the repair they did and how it was implemented.

As mentioned earlier, whether the input is a Repair Log or Maintenance Log input, the user will be able to upload a receipt or document alongside to keep track of the services done. After an input of an maintenance log or repair log is made, the log will be submitted into the Vehicle Profile's Maintenance History or Repair History. If a user has made modifications or enhancements to a car , the user will be to use the same concepts listed above for their Modifications Log on their Vehicle Profile. The user will have to provide the service or modification made and a description of what was changed on the vehicle. Additionally if the user wants to provide, they can upload a receipt or document. After the input is finished, it will be uploaded to the modification and enhancement history of the Vehicle Profile. If the feature fails, the application will log to a data store. If any necessary user input is not provided, the application will ask the user to provide more information. When a Service Log input is made, the application will log information to the data store.

Maintenance, Repair, and Modification History

After a user inputs information concerning Maintenance, Repairs, or Modifications , the Vehicle Profile will generate a universal History log divided into three categories as mentioned above. The history log will possess a search bar to allow for finding particular services by the services title or part of the description. Search filters will be included in the history log and allow for users to filter based on category type (Maintenance, Repair, or Modification), date, and mileage. The information will remain private only to the user unless they wish to sell the car, to which the information will be uploaded to the Vehicle Marketplace. The History Log will serve as a record keeper of all the services done to a

vehicle to serve as both: the main feature to remind users of a service needing to be done and as well as a one stop place to see all services done to the car they own. If the feature fails, the application will log to a data store and the user is able to restart the process from the beginning.

Maintenance Service Reminder

A Maintenance Service Remainder will be created in two different ways: The mileage of the car or based on recommended time intervals. Choosing to do reminders in two different ways allows for users who don't want to input mileage for the car to receive time based updates while those who enter their mileage to receive reminders based on their mileage inputted. At minimum, users will have to enter their mileage 3 times in order for the system to calculate an average weekly mileage for the website to base the calculations off of. Mileage input can be determined from Maintenance, Repair, or Modification history as users will have to input the mileage when a log for either of three inputs is made. Users will receive notifications from the Notification Center through text, email, or on the Vehicle Profile bell icon. If the feature fails, the application will log to a data store and the user is able to restart the process from the beginning. When a reminder is sent, the application will log information to the data store.

Cost Center

Vehicle Market Analyzer

The application will analyze different statistics: car company index fund trends, current inflation rate, vehicle sales report quarterly and specific car models/brands buying or selling price in order to give users a recommendation on when is a good time to sell cars

as well as giving the statistics of the market to back up our statement on the price of the vehicles compare to the current market situation. This includes the history of vehicle prices, across specific models over time to show depreciation. Moreover, we can also suggest specific car brands/models that are the current top selling and show the rating of how popular the car that the user has is compared to the current market. The recommendation will compare similar segment models across brands (Honda Civic to Toyota Corolla), and same brand cars across segments (Honda Civic to Honda Accord). This feature will help users that have vehicle profiles with us to take advantage of the upswing of the car market. For the data access, we will utilize the https://www.goodcarbadcar.net/ dataset to find information relating to the variables mentioned above. If the feature fails, the application will log to a data store. If there was any information missing the user is able to input the missing information. When the user accesses the feature, the information will be logged to the data store.

Car Cost Estimate

The application will help users by giving them cost estimates about selling their vehicle. This way users can make an informed choice of selling. To get these estimates, first we are going to use the "Goodcarbadcar" dataset to get the prices of cars being sold across the US/Canada to get a baseline price of the vehicle. We are also going to use at least one other API to ensure we are not reliant on any specific source, in the case that it goes defunct. To adjust the price of the vehicle based on the specific car in question, we will have the user input a series of other details, such as whether any repairs are needed, condition of the vehicle, and through a vehicle history report to see if it's been in any accidents. We will take into account whether the repairs are essential or not, and how

much each of them costs in order to then return an accurate estimate for the price of this particular vehicle. This has advantages over other car pricing websites like Carmax, as we can give an immediate estimate without any need for walkins, while improving usability in general. If the feature fails, the application will log to a data store and the user is able to restart the process from the beginning. When the user accesses the feature, the information will be logged to the data store.

Part and Repair Estimates

This feature is to record any parts that require replacement that falls into the "repair" category as defined in the glossary. This feature will initially provide general pricing information for the part that the user is looking to repair, acquired through online resources, so that the user can get an idea as to how much it they should be paying. The user can then record what parts were ordered, the price, the source, as well as the date that the repair is made. Optionally users can choose to upload pictures to provide further details. For the API, we plan on using the "[Amazon Scraping API](https://apify.com/junglee/free-amazon-product-scraper/changelog)" to find listed price of parts. This feature will also provide users with information on how much the repair can affect the price of their vehicles. If the feature fails, the application will log to a data store and the user is able to restart the process from the beginning. When the user browses the feature, the information will be logged to the data store.

Enhancements and Modifications

Users manually record any installed third party parts with as much detail as possible including: the parts, the price, the source, the material as well as the date that user did the modification. This will log the information and update the car value accordingly. The feature will also gives warning to user as well as provide the percentage that the modded parts can affect the car's price if they fall into any of these default 26 categories (number of supported features are subjected to change in the future): Extreme negative camber ("Wonky wheels"), Car lowered, Modified exhaust, Custom paint job/wrap, Novelty decals, Underbody neon lights, Spinning rims, Novelty horns, Bucket or racing seats, Colorful alloys, Spoilers, Custom interior, Eyelashes on headlights, Tinted headlights, Christmas antlers, Custom number plate, Tinted windows, Car stickers or bumper stickers, Modified sound system/speakers, Parking sensors, Reversing/parking camera, Integrated satellite navigation, Heated seats, Bluetooth, Heated door mirrors, Sunroof. For the API, we plan on using the "[Amazon Scraping API](https://apify.com/junglee/free-amazon-product-scraper/changelog)" to find listed prices of modifications or enhancements. If the feature fails, the application will log to a data store and the user is able to restart the process from the beginning. When modifications are browsed, the application will log to the data store.

Vehicle Profile Marketplace

The Vehicle Profile Marketplace is an area of the website where unauthenticated and all authenticated users can access and browse Vehicle Profile's are listed for sale by car owners, vendors, or rental fleets. To make things convenient for users, this marketplace only allowed vehicles that are normal and driveable without the need of severe

maintenance or make over, hence this marketplace will not include any car parts listing. The Vehicle Profile Marketplace will list public Vehicle Profile information such as current mileage, make, model, and color. In addition, they will list the vehicle's Car Health Ranking ,existing Service Log (Maintenance History, Repair History and CarFax document), and if implemented if the profile is certified or uncertified. In the Vehicle Marketplace, there will be a search bar that can be filtered by : lowest price, highest price, only certified vehicles, uncertified vehicles, make, model, year, mileage, color, location (Los Angeles and Orange Counties) as well as cars that are either for sale or for rent. In order to gain purchase car information , the user must be an Authenticated user and will utilize the buy car information feature to access the information. In addition, Users will be able to find parts relating to their car based on the Scrap Your Car functionality. The Vehicle Profile Marketplace will include basic listing management that is uploaded to publish the profile to the marketplace and remove to take down the post once the car has been sold since normal users who are not vendors do not need detail tracking for their posts. If the feature fails, the application will log to a data store and the user is able to restart the process from the beginning. As the Vehicle Marketplace is browsed, the application will log the information to the data store.

Donate Your Car

If a user wants to donate a car , the website will prompt the user of which charity beneficiary the user wants to donate to based on the https://calrecycle.ca.gov/recycle/vehicles/ website. Once chosen, the website will list the charities that we will send an email to based on the beneficiary you have chosen. If the

user agrees to donate the car based on the information given, the website will automate an email sending the users contact information and Vehicle Profile information to the donation centers and will contact the user from then on for more information. If the feature fails, the application will log to a data store and the user is able to restart the process from the beginning. The automatic information that was sent will be logged to the data store and also sent to the user.

Scrap Your Car

There will be two sides of this feature, those being Seller (current Car Profile Owner) and Buyer (Authenticated or Unauthenticated User seeking parts). The Seller will have the ability to list their car, based on their profile, as “Available for scrap”. Once they list it as such, Buyers users will be able to request specific parts from the car. Buyer’s will also be able to ask to view the car for parts, in general, which the Seller can accept, decline, or turn off requests for this. We can use previous tools to give price suggestions as to how much the Seller should sell each part for. We can also use an API to find out what parts a car contains, as part numbers. Once the part has been sold, the user can mark it as such, so that other Buyers can no longer request that part (unless the car contains multiple of it, ie…. wheels). The Seller will be able to view what parts there are remaining on the vehicle, and what parts have been sold. We are going to choose a list of essential and desirable parts. The currently supported parts will be the Engine, Transmission, Catalytic Converter, Wheels and Tires, Car Seats, Front and Rear Bumpers, Doors, Airbags, Tailgates (From trucks) or Trunk Lids (from cars), The Headlight and Taillight housings, and the Radio/Infotainment system. For all supported parts, the user must provide a

descriptor for their quality (such as “new”, “used”, “worn”, “damaged”), and pictures to back up that claim. This ensures the buyer does not buy mistaken parts, and the seller provides quality parts. The user can however, sell more than just those parts, although we will not directly support them in the app. For non supported parts, the user must provide: a descriptor for their quality (such as “new”, “used”, “worn”, “damaged”); a picture of the parts; the part name/number; the Make/Model/Year of the vehicle; and a (optional) description as to what it is. This may be useful for parts that may not necessarily be on every vehicle, such as parts of a carpet/upholstery, or if a buyer wants to buy specific interior body panels. The user can list new/spare parts from other vehicles as well, using the same process, as long as they specify the Make/Model/Year of the vehicle they belong to, along with the Name/Part Number. If the user is missing any parts from their vehicle that do not fall under our supported category, that did not have a listing (ie… if a part broke during their normal usage), they will have a notes section for their vehicle where they can specify that. The Buyers will have the ability to search both for parts or vehicles in general, filtered by specific vehicles. They will get a list of people within their county that have either the parts or have the vehicle that may contain the parts they need. The Buyer will be able to make requests to the Sellers in order to ask if the car has a part and they are willing to sell it. If the feature fails, the application will log to a data store and if any information is missing it will allow the user to input that missing information. All information on parts that are being scrapped will be logged with time stamps.

Notification Function

The Notification Function will provide users with the ability to receive real-time updates of details about their Vehicle Profile. The function will be only allowed to be used by users with a Car Vehicle Profile thus only Car Owner, Vendors, or Rental user types. The function will consist of two main functionalities: sending notifications via messaging device such as SMS or email and updating to the notification function icon on the Vehicle Profile. The Notification Function will let users know of important updates relating to the Car News Center and Maintenance Reminders. Users will have the ability to toggle off notifications for messaging devices if needed through the website. If the feature fails, the application will log to a data store and the alert will be sent again if the first one did not go through. All notifications that are sent will be logged to the data store with time stamps and messages.

Communication Establishment

If a user decides to buy or rent a specific car profile they can press the “Contact” button, the application will open a chat session with the seller/renter so both sides can communicate regarding the vehicle and whether the buyer wants to ask any detailed questions about the car they are going to buy, renting duration, or when the car is available for rent. Moreover, the application will also show the seller/renter contact information as well as the approximate location by giving the city in which the seller/renter is located. When both sides reach a deal and the seller/renter presses the “Confirm sell” or “Confirm rent” button, the application will give an exact location from seller/renter to the buyers as well as direction from user location to the seller. Of course,

if the buyers change their mind even after this, the seller/renter can always press “Cancel sell” or “Cancel rent” which will close the session with the buyers and change the status (“Available”,“Sold”, “Rented”) of the vehicle profile on the market . This feature will also work for any car parts that users want to buy. If the feature fails, the application will log to a data store and the user will be able to contact the other user again. When communication is made, information by users will be logged and saved into a data store.

Car News Center

In order for Vehicle Profile owners to keep up to date with information surrounding their car, the vehicle profile will have a tab that will display current up to date news with their car filtered from newest to oldest. The News tab will be populated by using a News API to find articles with information relating to the current car you have a profile for. In addition, the News tab will also display information relating to Safety Recalls on your car and connect to the NHTSA API “https://www.nhtsa.gov/nhtsa-datasets-and-apis” in order to find all information relating to a safety recall for users to have up to date information relating to their car. Application will also cross check with both user maintenance log in the record and from CarFax document to see if users’ vehicles have already been sent for recall. Furthermore, users can search among the data for any recalls within the last 5 to 10 years from any specific car brands or any specific car models. If the feature fails, the application will log to a data store and it will retry to retrieve the data again from the News API. The news about recalls will be logged and stored into a data store.

Car Health Rating

Make an estimate of your car's health, based on how close to the maintenance schedule the car owner performs their maintenance, and use this to assign them a "Car Health Rating Score". They will be able to see specifically what maintenance items contributed to their current score, and their score will only be based on the 10 most recent maintenance events. The user will earn more or less points based on whether they are performed early, on time, or late. They will also have the option to upload their score to the "Leaderboards". There will be different leaderboards available, based on various attributes, such as Zip Code (Possibly Anonymized for privacy reasons), Make, Model. If the feature fails, the application will log to a data store and the user will be able to retry to get an estimate on their car's health. All current details with the rating score data will be logged and saved into a data store.

Phase 2 Release

Certified/Uncertified Vehicles

The application will use Optical Character Recognition to recognize the VIN number and license plate on the uploaded receipts by the user to confirm it with the one on the vehicle profile. Users that routinely upload these receipts for confirmation will receive a higher rating from the application to display on their profiles compared to the one that maintains the cars themselves without any receipts. As for car profiles, the application can use the provided VIN number by the users to cross check with NHTSA API "https://www.nhtsa.gov/nhtsa-datasets-and-apis" and provide "Certified" if we were able to confirm the information of the car and "Uncertified" if we couldn't receive any

information from the provided VIN number. If the feature fails, the application will log to a data store and the user will be able to restart the process of getting the data from Optical Character Recognition. All the evidence used to certify the vehicle will be logged into a data store.

User Directions

The application can provide directions for the buyer to any seller on the application as well as any dealership that has a profile on the application. The application will also locate all dealerships within these 3 counties: Orange County and Los Angeles County depending on the location in which the users reside. All dealerships and sellers location will be listed to users with the one that has a profile within the application will be prioritized over the one without a profile with us. Users can choose which dealership or sellers to see with more detailed directions if they wish to. We will use a Google maps API "https://developers.google.com/maps/documentation/javascript" for map and route information. If the feature fails, the application will log to a data store and the user is able to request for the directions again. Whenever a user request for directions the request will be logged into a data store with a timestamp.

Inventory/Fleet Management (Vendor/Renters exclusive)

People with Vendor and Renter accounts will get access to inventory management and fleet management respectively. These are role specific use abilities that are going to be designed to aid them in their own individual line of work.

Inventory Management (For Vendors)

Through the Inventory management feature, the vendor's will have a specialized dashboard for their entire car inventory. They will have additional attributes they can track, such as the vehicle's listed price, what offers they have received for each individual vehicle (and notes on any extra conditions they have to fulfill), and the status of their vehicles. The vehicle's listed price is the price the dealership put on the tag/window/sticker. It is the advertised price for the vehicle, but it is not necessarily the price they have been offered, nor is it the price they will be selling it at. They will be able to keep a record of the current listed price, along with the date it was assigned, and all previous assigned prices and dates. We can record offers received for the car. These will have many details on the offer, such as who has made the offer, how much the offer was for, whether they are demanding any special requests (and how much those will cost the Vendor), and whether the vendor would like to prioritize this offer. We can add 3 levels of priority, those being High, Medium, and Low, based on the Vendor's choice. We can also record Vehicle status, and the date each status was assigned. Each Vehicle will have a couple different statuses, those being "No Offers Received", "Offers Received, "Sold, Missing Paperwork", and "Sold, Finalized". The Vendor will be able to filter each specific category. These categories represent points in the vehicle's sales process that may need attention. If the feature fails, the application will log to a data store and the user will be able to restart the process. Any inventory management updates will be logged into the data store.

Fleet Management (For Renters)

Through our Fleet management tools, we will have the ability for Vehicle Renters to keep track of their fleet and manage details about each vehicle through a special dashboard.

They will be able to keep track of the Status of each vehicle, the four main statuses being “Ready To Rent”, “Maintenance needed”, “Out Of Fleet”, and “Currently being rented”. The default state for a vehicle will always be either “Ready To Rent” or “Maintenance Needed”, and the User can manually move the vehicle from those states to either “Currently Rented” or “Out Of Fleet”. The Renter will also have a Renter’s log for each vehicle, where every time the car is rented, we create a new entry. “Maintenance Needed” is a state that is automatically applied when the vehicle is due for any maintenance. This state does not prevent the Renter from renting the car anyways, as some maintenance can be postponed. “Ready To Rent” is the default state, and is applied to any vehicle that has no maintenance due and has not been flagged as “Currently being rented” or “Out of Fleet”. “Currently being Rented” is for vehicles that have been rented to a client. The Renter is able to track details such as who the car has been rented to, and the mileage at the moment it was rented out. “Out of Fleet” is for vehicles that are not currently available for rent. This may be the case if a vehicle has been involved in an accident, and is out for repairs, or if the Renter simply does not want to rent the car out for any reason. The Renter’s Log will record the following attributes for each lease of the vehicle: Mileage when rented, Mileage when returned, Person it was rented to, and a notes section, to record if anything odd was reported about this lease. If the feature fails, the application will log to a data store and the user will be able to restart the process. Any fleet management updates will be logged into the data store.

Car Recommendations and Comparisons

This will be a specialized type of search that will give the user specific recommendations as to what type of vehicle they should be looking at. We will ask them a series of questions, such as their budget, current vehicle trends (what cars are popular at this time), vehicle requirements (5 vs 7 seats, truck bed, large trunk space, etc…), and what situations they may be using the car in, to ensure we can pick a couple of choices for cars tailored to them. We will be using a car sales dataset to calculate what cars are popular right now, in order to help them find what other consumers are looking at right now. We will also be implementing a sub feature where when they get a list of cars they are interested in, they can compare features from each vehicle with another, helping them judge what would be best for them. They can also compare the vehicles to any vehicle profile they currently have, and other vehicle profiles that have been published by other users. The databases that will be used for this feature will be both "https://vehicledatabases.com/vehicle-specifications-api" and "https://www.goodcarbadcar.net/". If the feature fails to show any cars for comparison, the application will log the error to a data store and will allow the user to start from the beginning. The user specific recommendation data will be saved and stored into the data store.

Dealership Support

The Dealership support feature would allow users to communicate with a dealership user type for receiving specific car maintenance or car parts for their vehicle through a chat feature. The user would contact dealerships through the dealership profile and would be

able to send a chat with a representative of said dealership and be able to request maintenance or parts. The dealership, if they want or can schedule a service, can then update their own records allowing for a quick and easy form of communication between Car Owners and dealerships for a reputable service. If a dealership doesn't have an account with us, but they do have an email address, we can provide the customer information and the support they want by sending an email to the dealership. And if the dealership doesn't have an email address, we can provide the contact information of the dealership such as a phone number so a user can still schedule services. If the feature fails to communicate with the dealership it will log the error into a data store and the user will have to retry to contact the dealership. The communication between the dealer and user will be logged into a data store with a timestamp.