

Software Requirements Specification (SRS) Document

CarCtrl

5/6/25

Version 1

<https://github.com/alexachegue/car-ctrl/tree/final-project>

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1. Project General Description

CarCtrl is a service provider locator application designed to help customers find mechanics and auto service providers. The platform enables users to book services, leave reviews, and interact with providers. Service providers manage their availability, services, and respond to customer feedback. A system administrator oversees quality control by moderating reviews and managing provider credentials.

2. Product Features

The CarCtrl application simplifies the process of booking car services and maintaining vehicle records. It offers a streamlined experience for both customers and service providers. Key features and functions that define the essence of the application:

User and Service Provider Profiles: Customers create a profile that includes vehicle details (make, year, and model) to match them with relevant service providers. We offer a home page decoration based on their car model and color to keep users engaged and allows for personalization.

Categorized Service Search: Users can search from the main categories: Maintenance, Repair & Part Replacement, and Car Modification & Customization, from there they are given further subcategories to choose from. Subcategories further refine the search, allowing users to find providers that offer the selected service. Users can select multiple services and find a provider who services every one.

Appointment Booking and Tracking History: Users can book services based on provider ratings and availability. A history of past services is maintained for reference and rebooking.

Notifications and Reminders: Customers receive notifications about upcoming appointments. Providers have an availability calendar that displays scheduled appointments with relevant details (customer, vehicle, and service type).

Review and Rating System: Users can leave reviews for providers after service completion, and providers can respond to feedback. These are moderated. The star rating system motivates providers to use our platform.

3. Functional Requirements

Customer Functional Requirements

- FR0: The app will allow users to register an account with a username and password.
- FR1: The app will allow users to create and modify their profile with personal details, vehicle make, model, year, and color.
- FR2: The app will allow the user to browse a list of available service providers based on selected service categories.
- FR3: The app will allow users to view reviews and ratings for service providers.
- FR4: The app will allow users to book an appointment with a service provider.
- FR5: The app will allow users to receive notifications about upcoming appointments.
- FR6: The app will allow users to track their past service history.
- FR7: The app will allow users to write a review for a provider after service completion.

Provider Functional Requirements

- FR8: The app will allow providers to create, modify, or withdraw their profile from the system.
- FR9: The app will allow providers to list services they offer, categorized under maintenance, repairs, or customization.
- FR10: The app will allow providers to manage their availability and accept or reject appointment requests.
- FR11: The app will allow providers to view statistics on their services and customer base.
- FR12: The app will allow providers to respond to customer reviews.

System Administrator Function Requirements

- FR13: The app will have the SysAdmin manage user access, like banning users based on inappropriate activity.
- FR14: The app will have the SysAdmin moderate service listings and remove inaccurate or unqualified services.
- FR15: The app will have the SysAdmin moderate reviews and delete inappropriate reviews.
- FR16: The app will have the SysAdmin view system usage statistics.

4. Non-Functional Requirements

- NFR1: The application should load search results in under 2 seconds for 90% of queries.
- NFR2: The application should be responsive on web platforms.
- NFR3: The application must protect customer data.
- NFR4: The provider dashboard should handle up to 500 service listings per provider without performance degradation.
- NFR5: The appointment system should support real-time updates with a latency of less than 1 second to prevent double booking.
- NF6: Customer-provider messaging should be available during all working hours (7:00AM-9:00PM) with 99.9% uptime. Downtime during normal working hours should not exceed 5 seconds.
- NF7: Deleting fraudulent users should take no more than 5 seconds from initiation to completion.
- NF8: Flagged reviews should be reviewed within 24 hours.
- NF9: The system should maintain 99.8% uptime, ensuring minimal downtime for maintenance and updates.
- NF10: The system should be able to support up to 200 concurrent users without performance degradation.

5. Scenarios

I. Customer Scenarios

a. Customer - Alexa Chegue

i. Creating/modifying a customer profile, FR1

- Initial Assumption: The customer is on the web page and successfully registered an account with a username and password.
- Normal: The customer will be prompted to edit their profile section once registered.
 - **Creating:** The customer enters their personal information, including name, contact details, and vehicle details (make, model, year, color).
 - The system validates input data.
 - The customer submits changes and the system updates the database.
 - A confirmation message is displayed that changes have been made to their profile.
 - **Modifying:** The customer navigates to the profile section.
 - They update their personal information.
 - The system validates input data.
 - The customer submits changes, and the system updates the database.
 - A confirmation message is displayed that changes have been made to their profile.
- What Can Go Wrong: There is a failure that prevents data from being saved. Invalid input causes an error.
- Other Activities: Profile updates trigger personalized service recommendations based on new vehicle details.
- System State on Completion: Profile successfully updated and stored.

ii. Viewing Available Services, FR2, FR3

- Initial Assumption: Customer has logged into the application and completed their profile setup.
- Normal: The user will go to the Find Services tab to narrow down a service and find a provider.
 - The customer selects a category: Maintenance, Repair & Part Replacement, or Car Modification & Customization.
 - Subcategories are displayed, allowing them to refine their search.
 - A list of service providers is shown for that particular service(s).
 - The customer reads provider details and reviews.

- What Can Go Wrong: Database query failure prevents the retrieval of provider information. Some provider information is outdated or missing.
- Other Activities: Customers may filter results by location. (NC area).
- System State on Completion: Customer successfully views provider listings and their ratings.

iii. Booking a Service, FR4, FR5

- Initial Assumption: Customer has selected a service and an available provider.
- Normal:
 - Customer selects a service from a provider's profile.
 - They choose an available time slot from the provider's schedule.
 - The customer confirms the booking and submits it.
 - The system processes the request and sends a confirmation notification
- What Can Go Wrong: The provider's availability changes. Booking confirmation fails due to server issues.
- Other Activities: The system may suggest alternative time slots if preferred time is unavailable.
- System State on Completion: Appointment is recorded and a notification is sent to the customer.

iv. Tracking Past Service History, FR6

- Initial Assumption: The customer has previously booked and completed at least one service appointment.
- Normal:
 - The customer logs into the app and accesses the Service History section
 - A list of past services is displayed, including provider details, service type, and date.
 - The customer selects an entry to view more details.
- What Can Go Wrong: Service history fails to load due to a database error. Missing or incorrect service detail information.
- Other Activities: Customers may filter history by date range or service type, rebook a past service, or leave a review if they have not already.
- System State on Completion: The customer successfully accesses and reviews their past service records.

v. Writing a Review, FR7

- Initial Assumption: Customer has completed a service appointment with a provider.
- Normal:
 - The customer navigates to their past appointments

- They select a completed service and access the “Write a Review” option.
- They input a rating (1-5 stars) and a text review.
- The system validates the input and submits the review.
- The review is posted to the provider’s profile.
- What Can Go Wrong: Review submission fails due to connection issues. Review content is flagged for moderation.
- Other Activities: The review affects the provider's overall rating. Other customers can view the review.
- System State on Completion: Review is posted and visible to other users.

II. Provider Scenarios

b. Provider - Damaris Hilario

i. Create/modify/withdraw provider profile:

- Initial Assumption: The provider has access to the web application and is on the sign-up page.
- Normal: The provider will enter their name, contact information, business details, and specialty services.
 - The system validates the input and stores the provider's profile.
 - The provider receives a confirmation message upon successful registration.
- What Can Go Wrong:
 - The provider enters invalid or missing information. The system will display an error message promoting correctness.
 - The provider’s email is already registered, so the system will notify the provider and suggest logging in instead.
- Other Activities: The provider can opt to sign up using a third-party authentication if available.
- System State on Completion: The provider has an active account and can now login and manage their services.

ii. Create services:

- Initial Assumption: The provider has an active account and is logged in.
- Normal: The provider navigates to “Manage Services” and selects “Add New Service.”
 - The provider enters service details (name, description, price, availability).
 - The provider clicks “Submit,” and the system confirms and stores the service.

- The provider receives a confirmation message upon successful addition.
 - What Can Go Wrong:
 - The provider leaves required fields empty. The system will display an error message and prevent submission until filled out.
 - The provider enters an invalid price (e.g., negative price). The system will prompt for a correction.
 - Other Activities: The provider can save a draft of the service and return later to complete it.
 - System State on Completion: The new service is now listed and available for customers to view and request.
- iii. Manage appointment request:
- Initial Assumption: The provider has an active account, listed services, and received at least one appointment request.
 - Normal: The provider logs into their dashboard and navigates to the Activity Center.
 - The system displays a detailed list of pending appointment request (customer name, requested service, date, time, and vehicle information)
 - The provider reviews the requests and selects either Accept or Reject for each.
 - If Accepted, the system updates the appointment status and sends a confirmation notification to the customer.
 - If Rejected, the system notifies the customer and allows them to request a different time or provider.
 - What Can Go Wrong:
 - If a provider does not answer within a given time frame (e.g., 24 hours), the system automatically labels the request as expired and notifies the customer.
 - If the provider's schedule is full, the system prevents overbooking and recommends alternative time periods.
 - If there is a system error while processing an acceptance or rejection, the provider receives an error message and is prompted to retry.
 - Other Activities:
 - Requests can be filtered by the provider according to their status (Pending, Accepted, Completed, or Canceled).
 - The provider and the customer may collaborate together to reschedule an appointment.

- System State on Completion: The provider has handled their appointments requests, ensuring availability aligns with their schedule. Customers receive timely responses to their booking requests.
- iv. View customer statistics:
- Initial Assumption: The provider has at least one active service listed.
 - Normal: The provider logs into their dashboard and selects “View Statistics.”
 - The system retrieves and displays customer engagement (e.g., number of service requests, average rating, customer feedback).
 - The data can be used by the provider to evaluate the effectiveness of their services.
 - What Can Go Wrong:
 - There are no service listings, leading to an empty statistics page. The system displays a message encouraging them to add a service.
 - Problems with the network stop data from loading. The system will advise retrying and alert the provider.
 - Other Activities: Statistics can be filtered by service or date range by the provider.
 - System State on Completion: The provider has gained insight into customer interactions and service performance.
- v. Reply to review:
- Initial Assumption: A customer has left a review on one of the provider’s services.
 - Normal: The provider logs in and navigates to “View Reviews.”
 - The provider selects a review and clicks on the “Reply” button.
 - The provider types a response and submits it.
 - The system validates and stores the reply, making it visible under the review.
 - What Can Go Wrong:
 - When a review is tagged for moderation, the provider makes an effort to respond. They will be informed by the system that the replies are disabled.
 - The provider’s reply exceeds the character limit or contains restricted words.
 - Other Activities: The provider can edit or delete their reply.
 - System State on Completion: The provider’s response is now visible to customers.

III. Admin Scenarios

C. Admin- Ganiyu Ibrahim

I. Admin Home Page:

- Initial Assumption: Admin will be able to log in to the homepage and be able to manage site
- Normal: The admin logs in and begins to navigate to see any new accounts created on the site or begins to see any accounts that needed to be flagged
- What Can Go Wrong: The admin can forget there log in and be forced to recreate there account
- Other Activities: The admin can flag any accounts that deem to be outside of service, can delete any comments that are reported
- System State of Completion: The admin is able to pass through the login screen with no complications

II. Managing Accounts:

- Initial Assumption: Admin will be able to see any accounts that have been flagged or any new accounts that have been made.
- Normal: The admin begins to go on a tab titled “view accounts” and is able to see the accounts that are created and flag the ones that have been reported and see the reason why it was reported.
- What Can Go Wrong: The admin can end up deleting an account that had no report basis and was maybe flagged for no reason.
- Other Activities: The admin can begin to see the type of service the customers have received.
- System State of Completion: The admin is able to click on and view the accounts from clicking on the “view accounts” tab.

III. Managing Mechanic Services:

- Initial Assumption: Admin will be able to view the types of services each mechanic provides
- Normal: The admin begins to click on any particular mechanic of their liking, and begins to see what service they provide, they could be prompted with that particular mechanic being a person who “changes oil”, “changes tires”, etc.
- What Can Go Wrong: The admin can begin to click on a particular mechanic and his service is not listed causing the admin to be cautious of that particular mechanic
- Other Activities: The admin can input the services of a particular mechanic if the mechanic is not able to

- System State of Completion: The admin is able to click on and view the service of the mechanic without any issues or problems.

IV. Managing Reviews:

- Initial Assumption: Admin will be able to see any reviews posted by any customers and flag any post that deemed to be inappropriate
- Normal: The admin will be able to see all reviews made by the customer and begin to scan through and see if the review is in any way inappropriate for viewing and can then delete the comment made by that person
- What Can Go Wrong: The admin can be prompted with a error message on not being able to delete the inappropriate message
 - The message could be encrypted by the creator which can deny access to an admin being able to delete or flag it.
- Other Activities: the admin can begin to step in and respond back to the customer if things begin to get out of hand between the customer and mechanic
- System State of Completion: The admin will not be able to see the message on the site anymore once they decide to delete it.

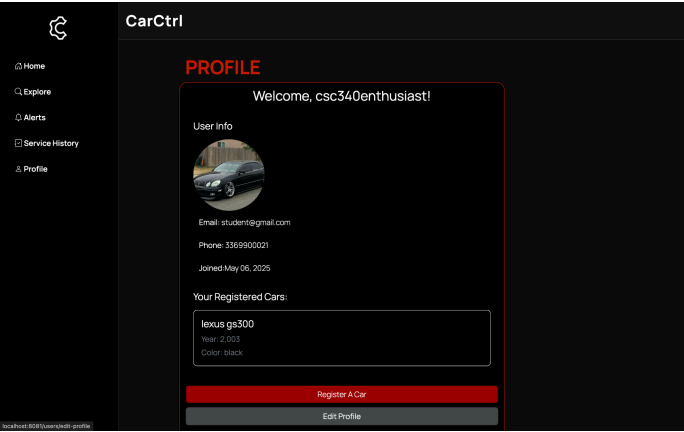
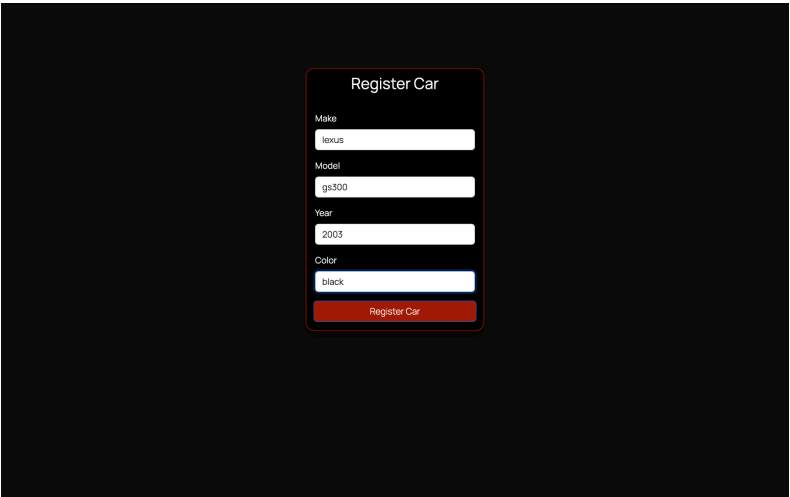
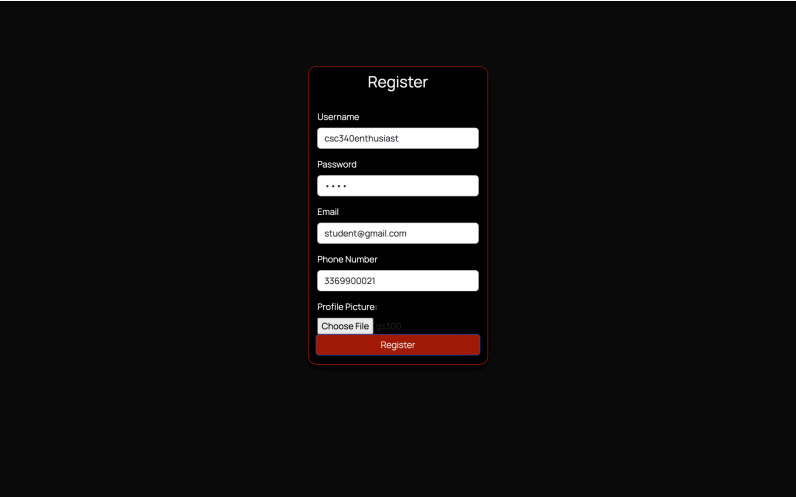
V. Tracking Customer Usage:

- Initial Assumption: Admin will be able to notice the percentage of users on the site and keep track of the customers that frequently use the app
- Normal: The admin will be able to see a customer, for example, “lisa” and see her usage percentage on the site.
- What Can Go Wrong: The percentage tracker could be completely off, causing data to be very skewed and not accurate
- Other Activities: The admin can begin to notice if there is unusual usage percentage ratings within customers
- System State of Completion: The admin being able to see all of the percentages and seeing all the customers that are frequently on the app at a certain point in time.

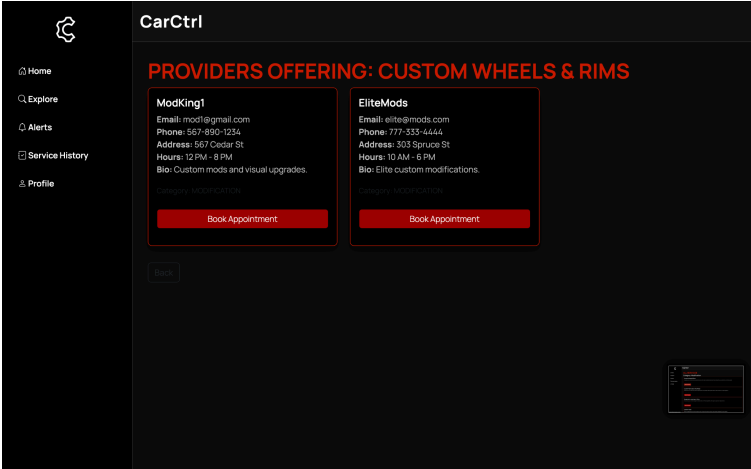
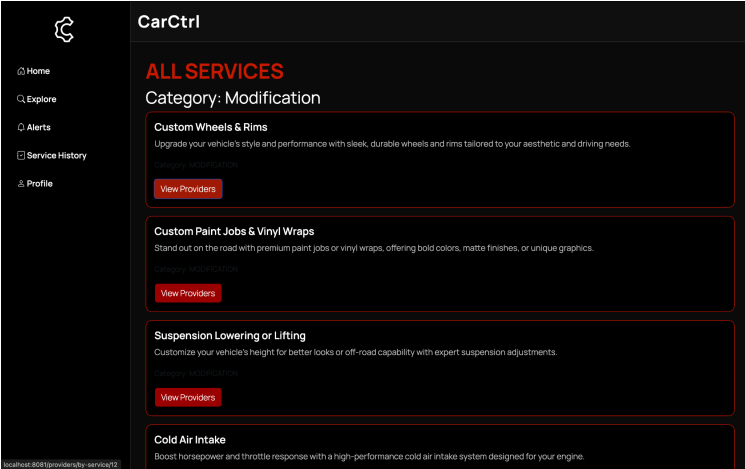
6. Scenarios With Screenshots

I. Alexa Chegue: Customer Scenarios

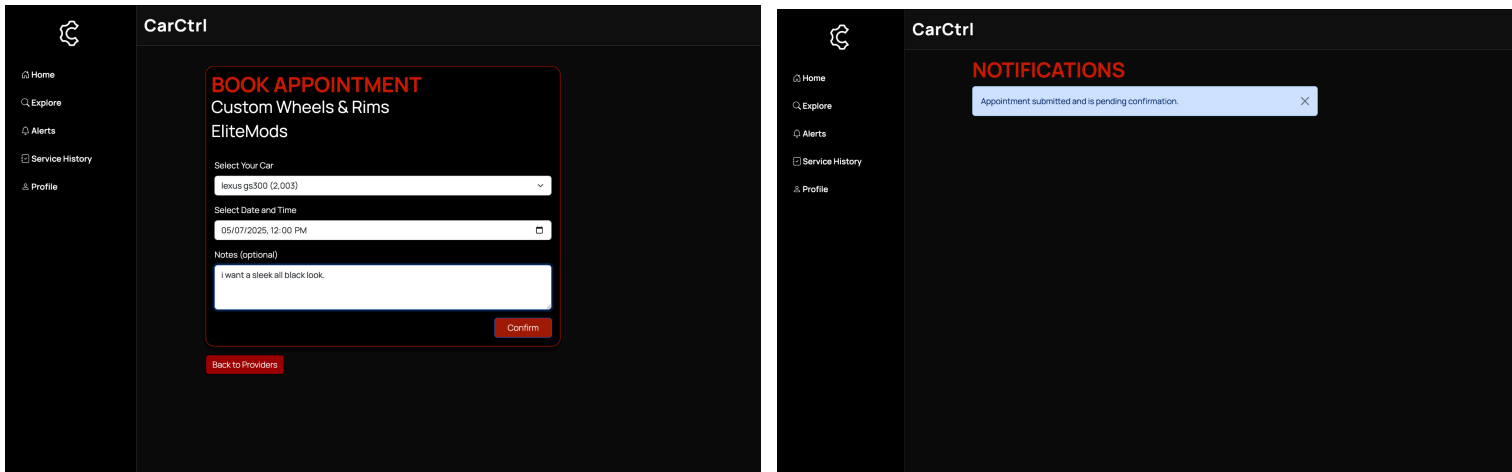
i. Create/modify user profile



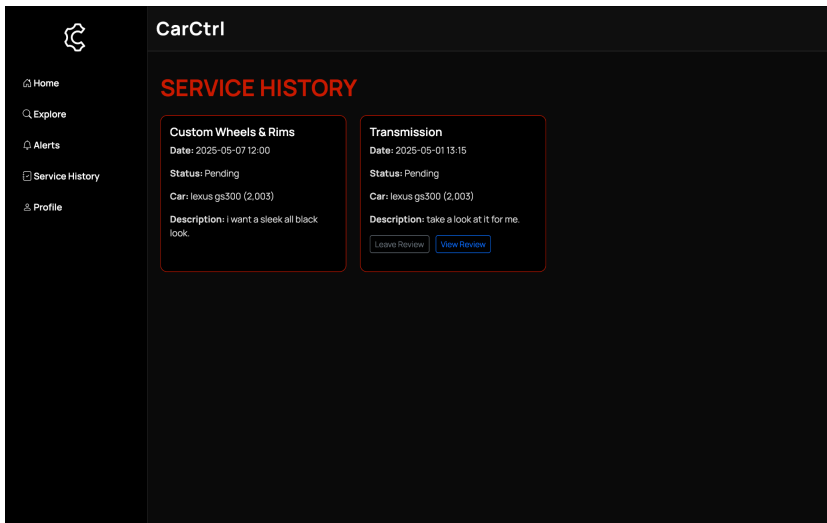
ii. View available services



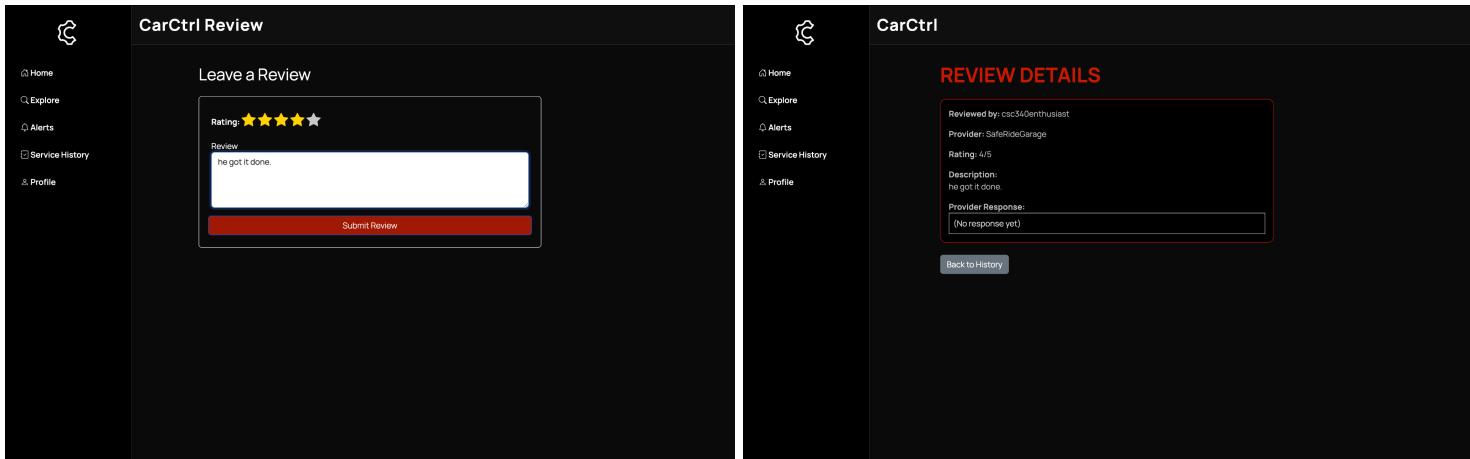
iii. Book a service with an offering provider



iv. Track past service history



v. Write a review



II. Damaris Hilario-Provider Scenarios

i. Create/modify provider profile

Register

Username

AutoShop

Password

Email

AutoShopname@example.com

Phone Number

(334)-456-7890

Register

Login


Username

AutoShop

Password

Login

[Don't have an account? Register](#)



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[Services](#)

[Alerts](#)

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[View Statistics](#)





AutoShop

AutoShop

We specialize in providing high-quality car repair and maintenance services, ensuring your vehicle stays in excellent condition.

Contact Information

Address: 123 Address St. Greensboro, NC.

Email: info@auto-shop.com

Phone: (334)-456-7890

Operating Hours: 7:00am-8:00pm

Status: ACTIVE


Active Since: 2025-05-06

Edit Contact Info

Services You Provide

Tire Rotation

Inspection



- Home
- Profile
- Appointments
- Services
- Alerts
- Reviews
- View Statistics

Edit Provider Profile

Name

AutoShop

Email

mail@email.com

Phone

(334)-456-7890

Address

123 Address St. greensboro, NC,

Operating Hours

7:00am-8:00pm

Bio

We specialize in providing high-quality car repair and maintenance services, ensuring your vehicle stays in excellent condition.

Status

Active


Active Since

05/06/2025

Save Changes

Cancel

ii.Select/Manage services:



- Home
- Profile
- Appointments
- Services
- Alerts
- Reviews
- View Statistics

Services You Provide

Tire Rotation

Category: MAINTENANCE

Extend tire life and improve performance with routine rotations.

Remove

Inspection

Category: MAINTENANCE

Comprehensive vehicle inspection to ensure safety and reliability.

Remove

Alignment & Suspension

Category: MAINTENANCE

Ensure a smooth and safe ride with expert alignment and suspension services.

Remove

Battery Replacement

Category: REPAIR

Replacing old or dead car battery.


Remove

+

Manage Your Services

Add or remove services from your profile.

Manage Services



- Home
- Profile
- Appointments
- Services
- Alerts
- Reviews
- View Statistics

Services You Provide

Battery Replacement

Category: REPAIR

Replacing old or dead car battery.

Remove

Alignment & Suspension

Category: MAINTENANCE

Ensure a smooth and safe ride with expert alignment and suspension services.

Remove

Inspection

Category: MAINTENANCE

Comprehensive vehicle inspection to ensure safety and reliability.

Remove

Tire Rotation

Category: MAINTENANCE

Extend tire life and improve performance with routine rotations.

Remove

Other Available Services

Brakes

Category: REPAIR

Ensure your safety with comprehensive brake services, including pad replacement, rotor inspection, and hydraulic system maintenance.

Add This Service


Transmission

Category: REPAIR

Get smooth shifting and reliable performance with expert transmission repairs, fluid changes, and diagnostics.

Add This Service


iii. Manage appointment request:



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Your Appointments

Customer	Car	Service	Description	Date	Status
tomcat	chevrolet corvette	Inspection	im gonna need its yearly one done.	2025-05-07 11:20	Scheduled
may6user	lexus ls300	Inspection	just needs an inspection.	2025-05-12 15:20	Scheduled
alexac	honda accord	Alignment & Suspension	it's been moving to the side funny.	2025-05-02 15:40	Pending <button>Accept</button>
alex	dodge dakota	Battery Replacement	it only needs a swap	2025-05-03 10:50	Pending <button>Accept</button>
tomcat	chevrolet corvette	Battery Replacement	it needs a new one.	2025-05-03 12:30	Pending <button>Accept</button>
alexac	honda accord	Battery Replacement	i'm looking to exchange the battery.	2025-05-06 14:45	Pending <button>Accept</button>



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CarCtrl – Provider


YOUR ALERTS

[primary] Appointment submitted and is pending confirmation.
Created: 2025-05-04 10:25

[primary] Appointment submitted and is pending confirmation.
Created: 2025-05-04 12:40


[primary] Appointment submitted and is pending confirmation.
Created: 2025-05-04 12:42

iv. View customer statistics:




[Home](#)
[Profile](#)
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[Reviews](#)
[Statistics](#)

Your Service Statistics




Tire Rotation

Total Requests: 0
Average Rating: 0.0




Inspection

Total Requests: 1
Average Rating: 4.0



Alignment & Suspension

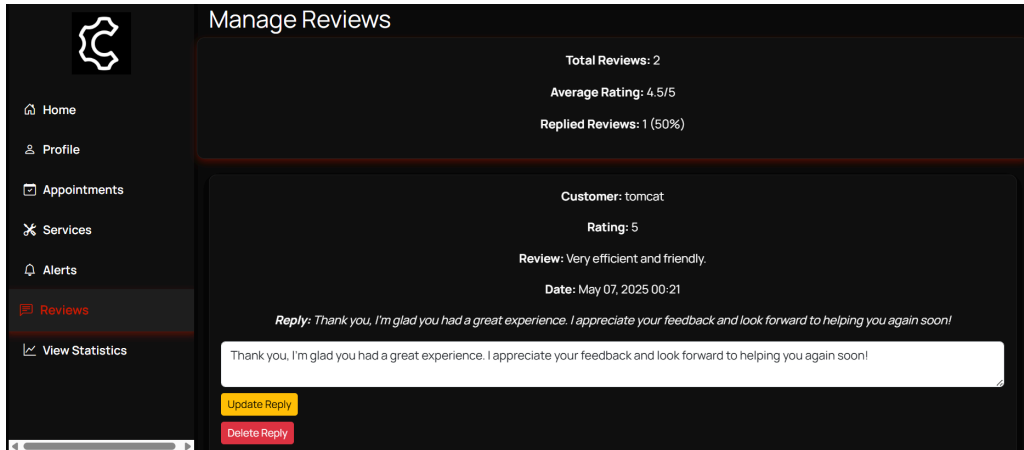
Total Requests: 0
Average Rating: 0.0



Battery Replacement

Total Requests: 0
Average Rating: 0.0

v. Reply to review:



III. Ganiyu Ibrahim - Admin Scenarios

Admin login screen, must have valid username and password

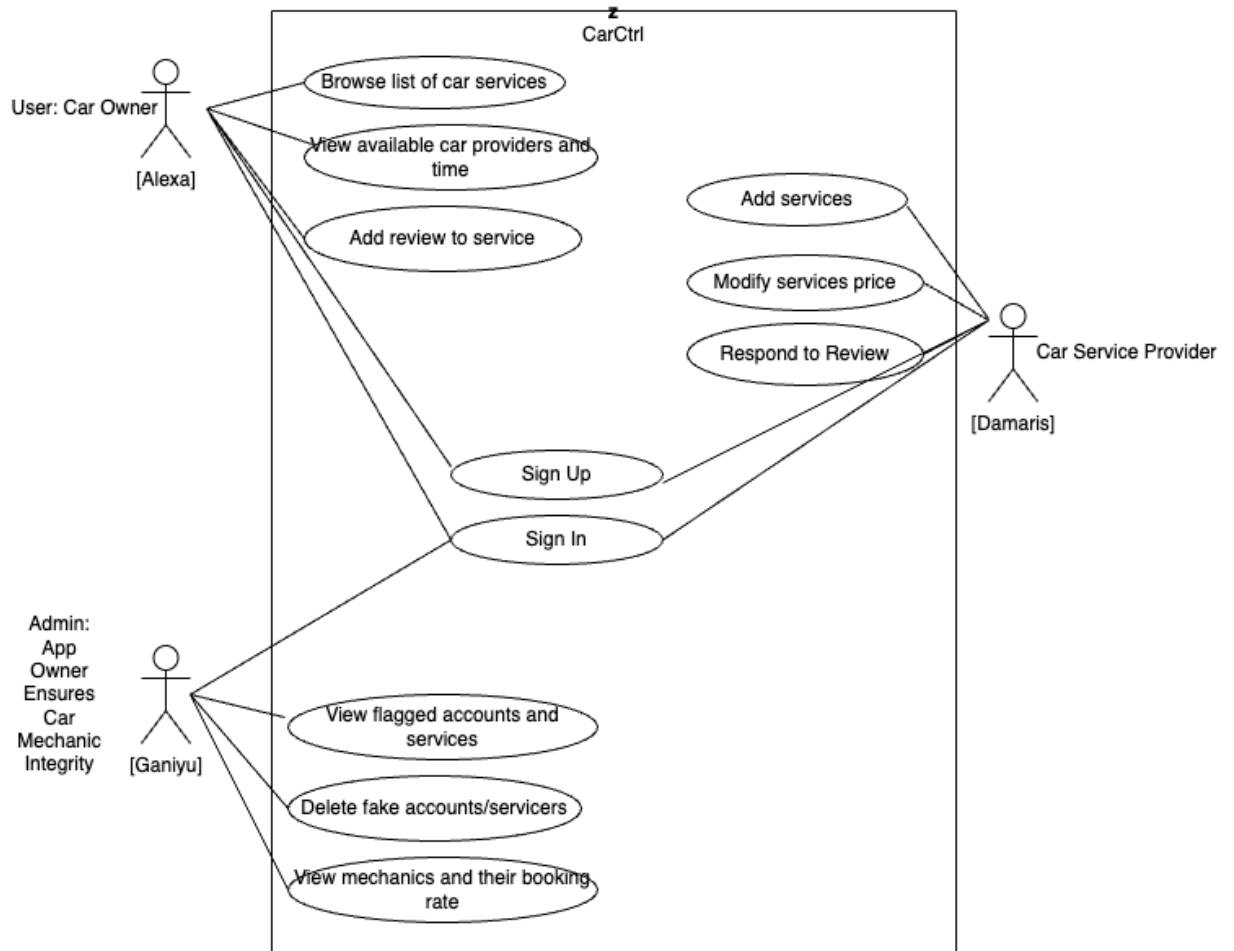
All Admins		
ID	Username	Email

Once admin is logged, they are able to see all the admins

The manage service and manage reviews are were working, but are not at the moment

7. Design Document

1. Use-Case Model



2. Database Scheme

