CARFIX

i220617-i220987-i220903

...INTRODUCTON

The problem of: Difficulty in efficiently scheduling and booking car repair services, often relying on phone calls or in-person visits, leading to delays and inconvenience for car owners.

A successful solution would be: A flexible, cost-effective, and user-friendly web-based system (CarFix) that allows car owners to book mechanic services online, view real-time availability, and track repair progress. The system would enable mechanics to manage their schedules, receive bookings, and communicate with customers efficiently. Users would access the system remotely via a web browser, ensuring convenience and reducing the need for physical or phone-based interactions.

FUNCTIONAL REQUIREMENTS ...

. **Mechanic Profile Viewing**

FR-010: The system shall display a list of mechanics with basic details (skills, ratings, location) accessible to car owners.

FR-011: The system shall allow users to view detailed mechanic profiles, including experience, certifications, and customer reviews.

FR-012: The system shall display mechanic ratings as a 1–5 star average and update them based on user feedback.

FR-013: The system shall provide navigation to return to the mechanic list from a detailed profile view.

Booking Management

FR-014: The system shall allow users to book a mechanic by selecting a mechanic, date, and time slot from available options.

FR-015: The system shall check mechanic availability and prevent double-booking of time slots.

FR-016: The system shall confirm bookings and display them on the user's dashboard and mechanic's schedule.

FR-017: The system shall allow users to select services (e.g., oil change, tire repair, brake repairs) during booking and associate them with the appointment.

FR-018: The system shall allow users to cancel a booking via the dashboard.

FR-019: The system shall notify the mechanic of cancellations and update their availability.

FR-020: The system shall allow users to reschedule an appointment by selecting a new date and time from available slots.

FR-021: The system shall update the booking details and mechanic's schedule upon rescheduling.

Service Selection

FR-022: The system shall provide a list of basic services (e.g., oil change, tire repair) for users to select during booking.

FR-023: The system shall calculate and display an estimated cost for selected basic services.

FR-024: The system shall provide a list of specialized services (e.g., brake repairs) for users to select during booking.

FR-025: The system shall provide a detailed cost estimate for selected specialized services.

Mechanic Search and Filtering

FR-032: The system shall allow users to search for mechanics by basic service type (e.g., oil change) and display matching mechanics sorted by rating.

FR-033: The system shall allow users to search for mechanics by specialized service type (e.g., brake repairs) and display matching mechanics sorted by proximity or ratings.

FR-034: The system shall allow users to refine search results with filters (e.g., location, availability).

FR-035: The system shall allow users to filter mechanics by availability within a specified time window and update the list in real-time.

Payment Processing

FR-036: The system shall allow users to pay for basic and specialized services online using a payment method (e.g., credit card) after a repair.

FR-037: The system shall process payments and confirm them with a receipt.

FR-038: The system shall store payment history in the user's dashboard.

FR-039: The system shall generate and deliver digital receipts (via email or dashboard) containing service details, amount, date, and mechanic name.

FR-040: The system shall allow users to download or print receipts

Non-Functional Requirements

Performance

- NFR-001: The system shall load the mechanic list and profiles within 2 seconds under normal conditions.
- NFR-002: The system shall process booking requests and confirmations within 5 seconds.
- NFR-003: The system shall handle at least 1,000 concurrent users without performance degradation.

Security

- NFR-004: The system shall encrypt user passwords and sensitive data (e.g., payment information) during storage and transmission.
- NFR-005: The system shall implement secure authentication to prevent unauthorized access to user and admin accounts.
- NFR-006: The system shall comply with relevant data protection regulations (e.g., GDPR, CCPA) for storing and processing personal information.

Usability

- NFR-007: The system shall provide an intuitive interface, ensuring users can complete registration, booking, and profile updates with no more than 3 clicks from the homepage.
- NFR-008: The system shall be accessible on both desktop and mobile devices with a responsive design.
- NFR-009: The system shall provide clear error messages (e.g., invalid email, incorrect login credentials) to guide users.

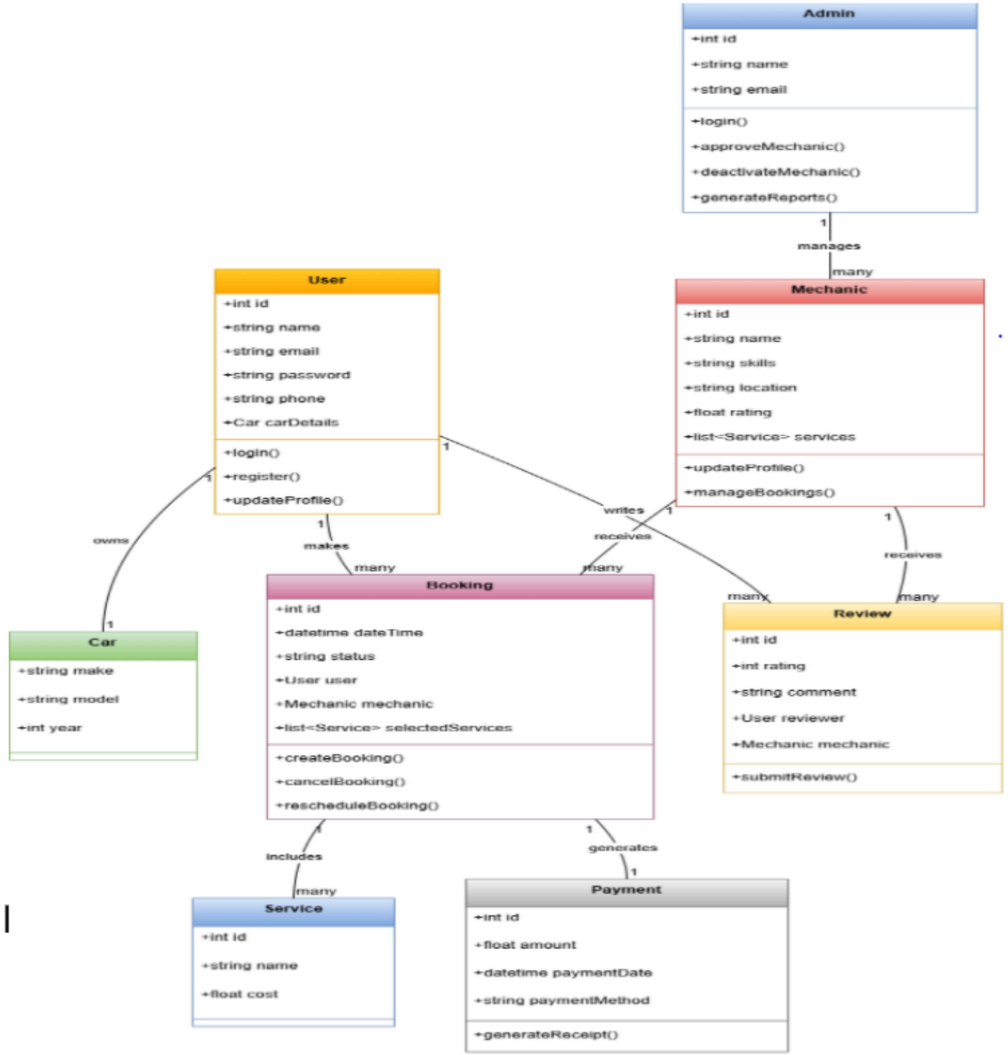
Reliability

- NFR-010: The system shall have an uptime of at least 99.9% to ensure availability for booking and payments.
- NFR-011: The system shall prevent data loss during booking cancellations or rescheduling by maintaining consistent updates to schedules.

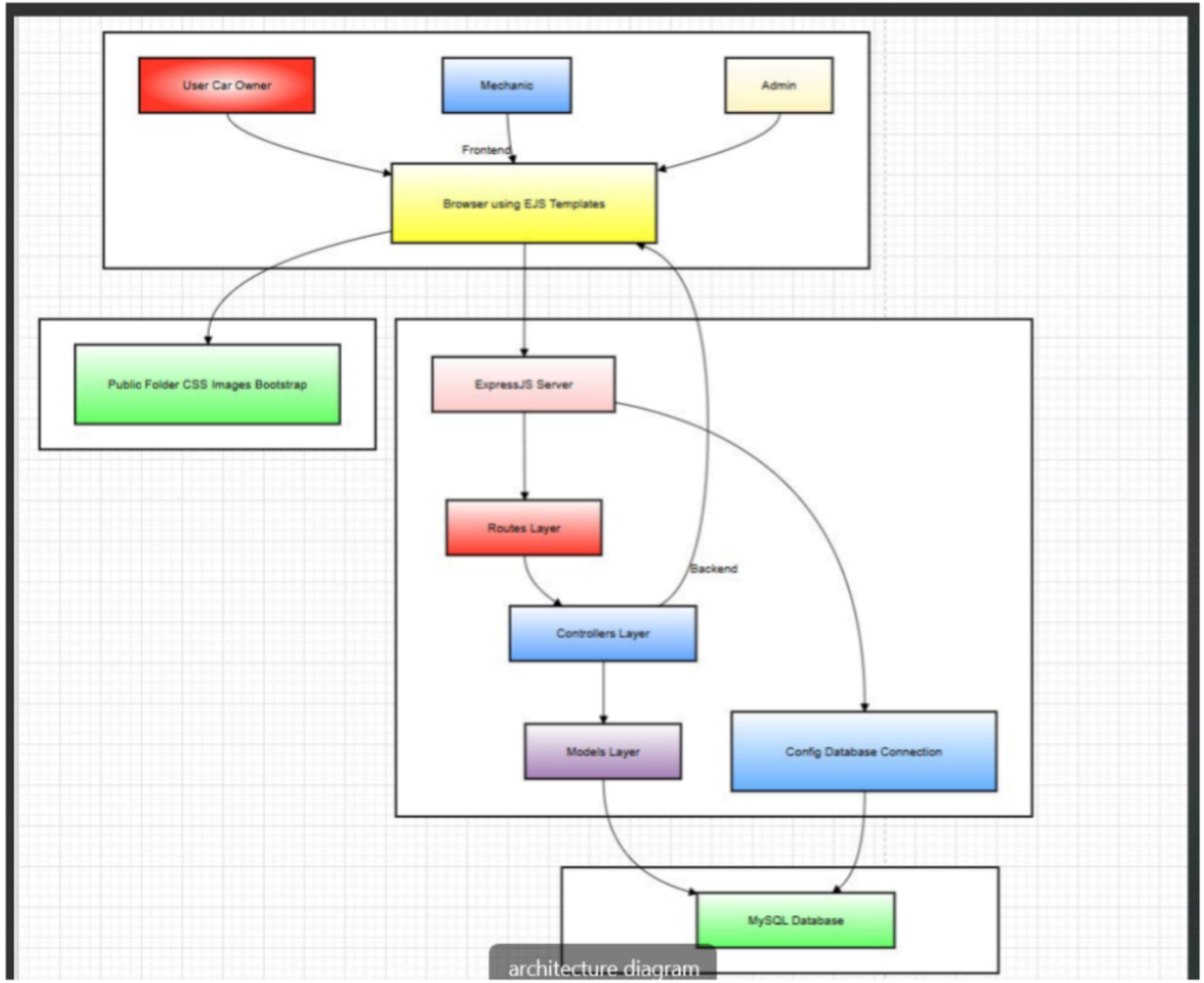
Maintainability

- NFR-013: The system shall allow updates to service lists (basic and specialized) and cost estimates without requiring downtime.
- NFR-014: The system shall log all admin actions (e.g., mechanic approvals, account removals) for audit purposes.

CLASS DIAGRAM

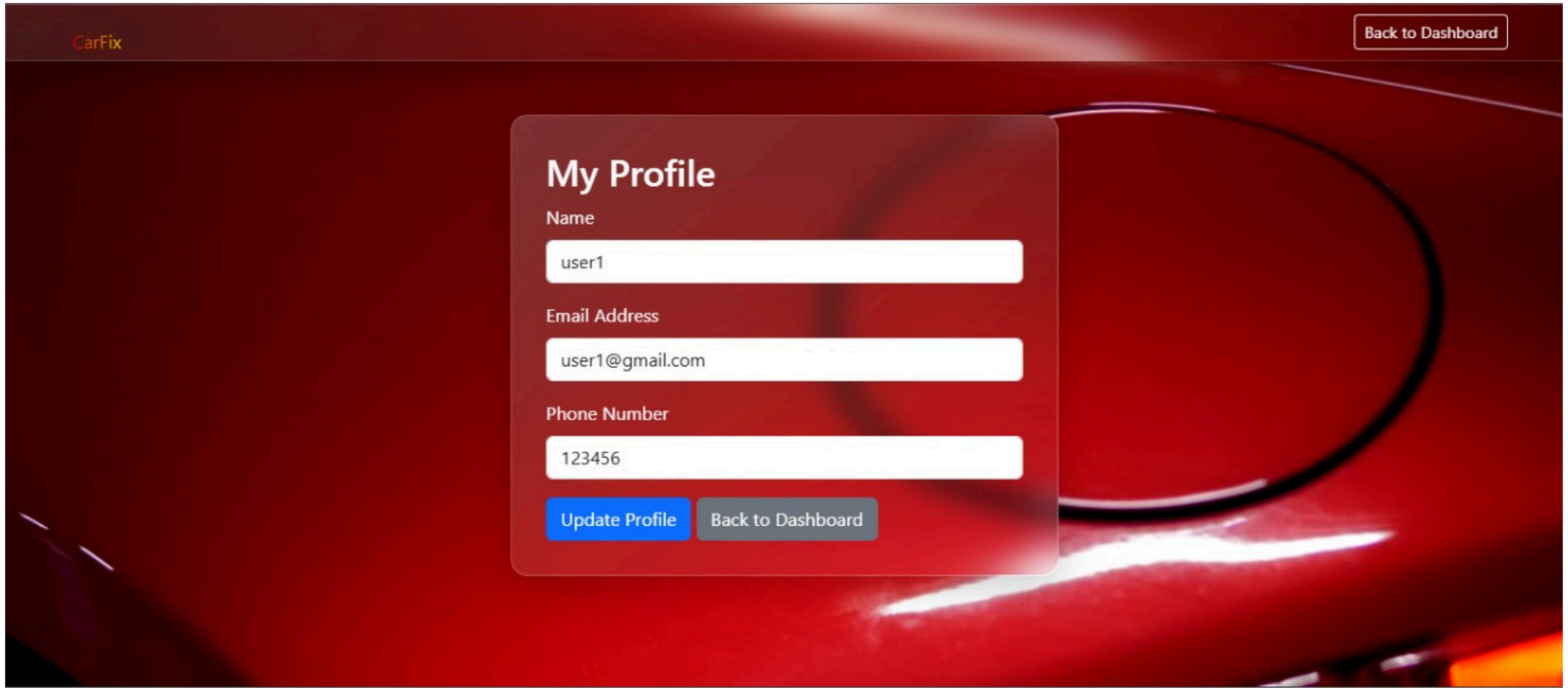


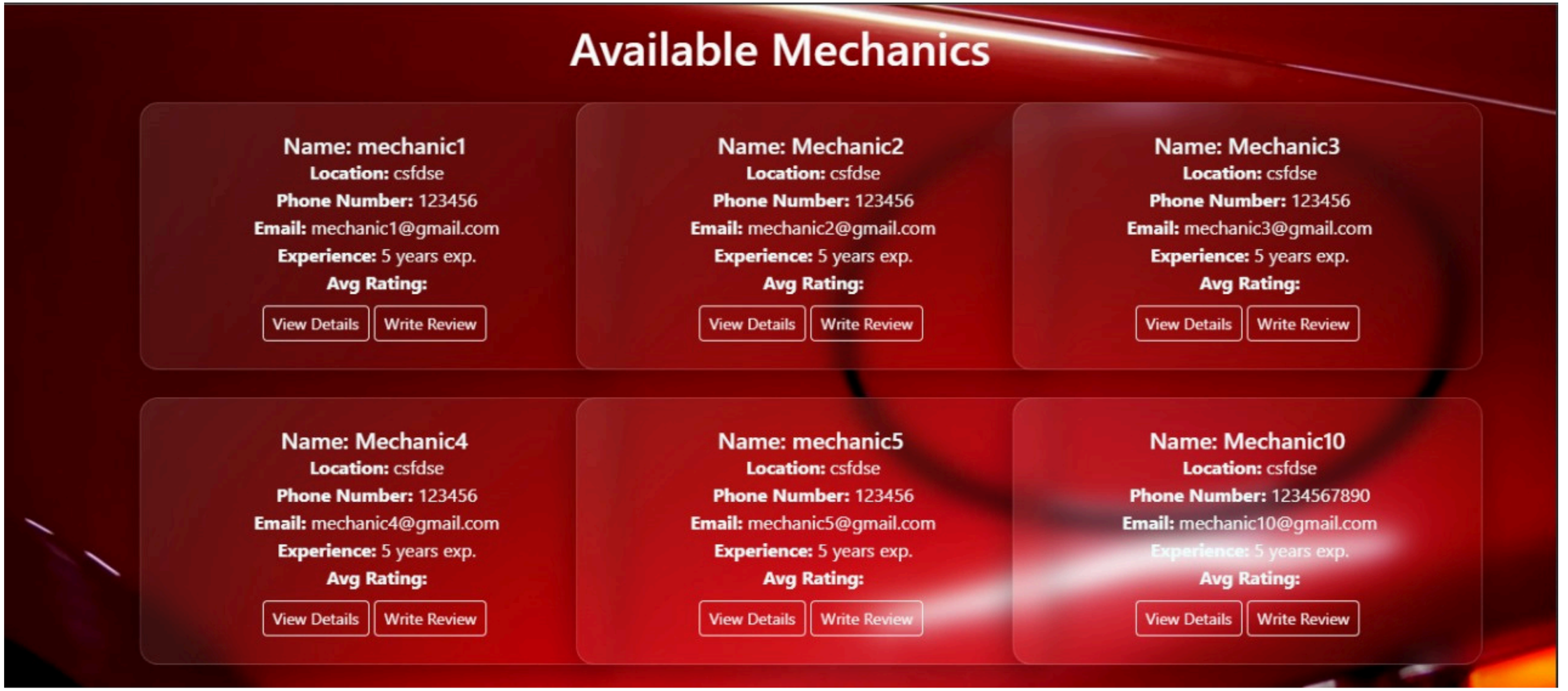
ARCHITECTURE DIAGRAM



architecture diagram

ACTION IMPLEMENTATION




Available Mechanics
Name: mechanic1
Location: csfdse
Phone Number: 123456
Email: mechanic1@gmail.com
Experience: 5 years exp.
Avg Rating:
View Details
Write Review
Name: Mechanic2
Location: csfdse
Phone Number: 123456
Email: mechanic2@gmail.com
Experience: 5 years exp.
Avg Rating:
View Details
Write Review
Name: Mechanic3
Location: csfdse
Phone Number: 123456
Email: mechanic3@gmail.com
Experience: 5 years exp.
Avg Rating:
View Details
Write Review
Name: Mechanic4
Location: csfdse
Phone Number: 123456
Email: mechanic4@gmail.com
Experience: 5 years exp.
Avg Rating:
View Details
Write Review
Name: mechanic5
Location: csfdse
Phone Number: 123456
Email: mechanic5@gmail.com
Experience: 5 years exp.
Avg Rating:
View Details
Write Review
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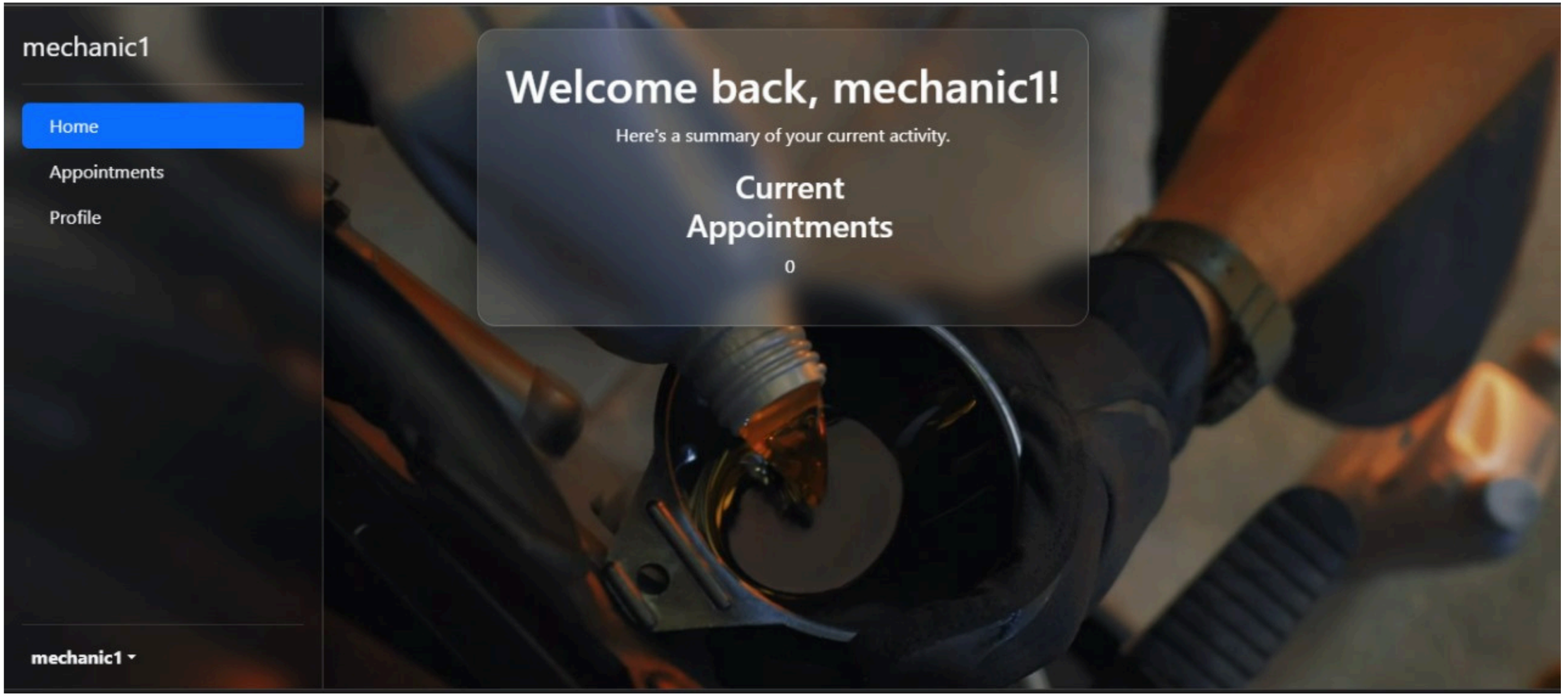
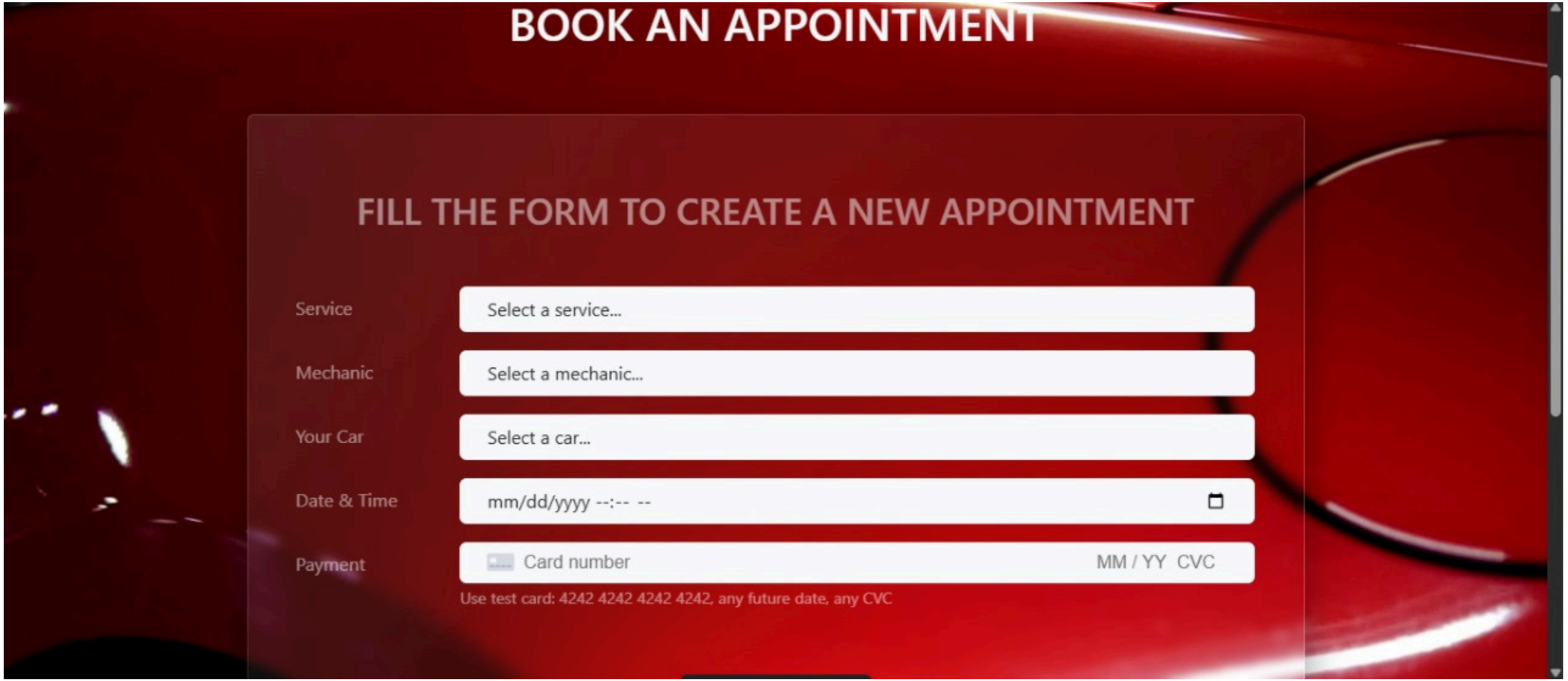
Location: csfdse
Phone Number: 1234567890
Email: mechanic10@gmail.com
Experience: 5 years exp.
Avg Rating:
View Details
Write Review


mechanic1
Home
Appointments
Profile
mechanic1
Welcome back, mechanic1!
Here's a summary of your current activity.
Current Appointments
0


BOOK AN APPOINTMENT
FILL THE FORM TO CREATE A NEW APPOINTMENT
Service
Select a service...
Mechanic
Select a mechanic...
Your Car
Select a car...
Date & Time
mm/dd/yyyy --:-- --
Payment
Card number
MM / YY CVC
Use test card: 4242 4242 4242 4242, any future date, any CVC


CarFix
Dashboard
Book Appointment
View Mechanics
My Profile
Logout
Welcome Back!
Current Appointments
You have no upcoming appointments.
Book Now
Recent History
Date
Service
Mechanic
Status
Apr 29, 2025
Tire Rotation
mechanic1
canceled
Apr 27, 2025
Oil Change
mechanic1
completed

Work Division

Muhammad Moiz:

User implementation+Documentation

Aniq Noor:

Mechanic implementation+Documentaion

Shayan:

Admin implementation+Documentation

Lesson Learnt

- Importance of Planning and Design
- Modular Code Structure Matters
- Team Communication is Key
- Version Control is Essential
- Database Schema Should Reflect Real-World Use Cases
- EJS is Powerful but Requires Discipline
- Error Handling and Validation Improve UX
- Testing Early Prevents Later Headaches
- Documentation is Not Optional
- User Feedback is Valuable

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QUESTIONS & ANSWER

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THANK YOU