Car Rental Application

Team 16

12.04.2024

Data Requirements

Owners

For each owner, we record their name, email (which serves as the unique identifier for each owner), phone number, password and identification details. Owners are uniquely identified by their email address.

Clients

For each client (renter), we record their name, age, email (which serves as the unique identifier for each client), password, phone number, Driving License number and identification details. Clients are identified by their unique email address.

Cars

For each car, we record its make, model, year, license plate, VIN (Vehicle Identification Number, which is unique for each car), daily price, and the owner's email (a foreign key reference to the owner's record). Each car is identified by its unique VIN.

Rentals

For each rental, we record the start date, return date, VIN (a foreign key reference to the car), and the renter (using the client's email address as a foreign key reference to the client record). Each rental is identified by a composite key consisting of the start date, client email, and VIN may be used.

Application Requirements

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Managing Cars

Owners should be able to post a new car for rent, specifying car information (such as pricing, and car details).

Availability

If a car is currently rented, it should not be available for new rentals during that period.

Searching for Cars

The main functionality is a search interface for cars. Clients should be able to browse through available cars by scrolling the application page, viewing cars currently available for rent.
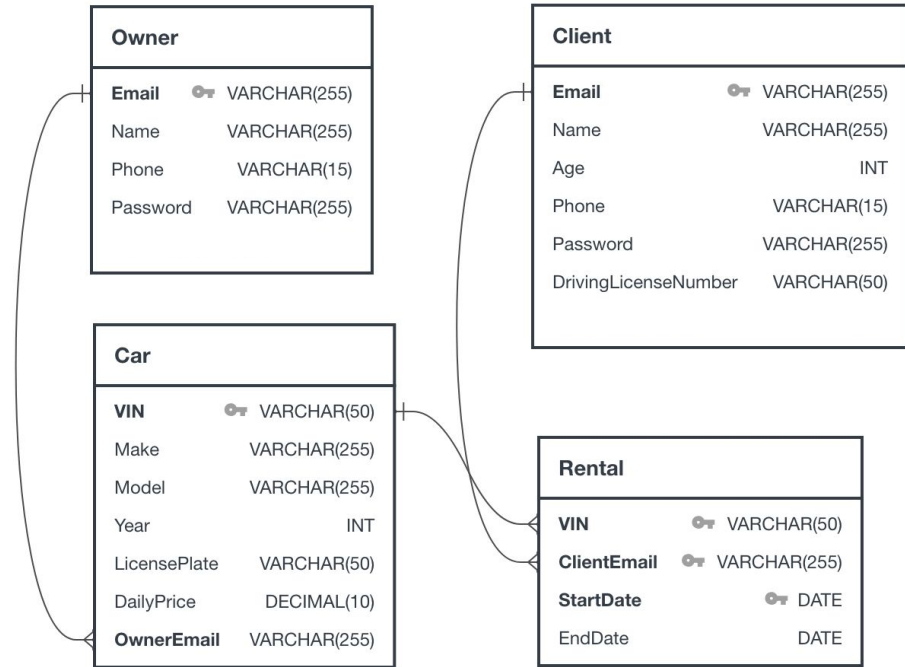
Renting a Car

The search interface should allow clients to rent a car that is available for the desired dates. The rental fee should be based on the car's daily price and the duration of the rental period.

ER Diagram
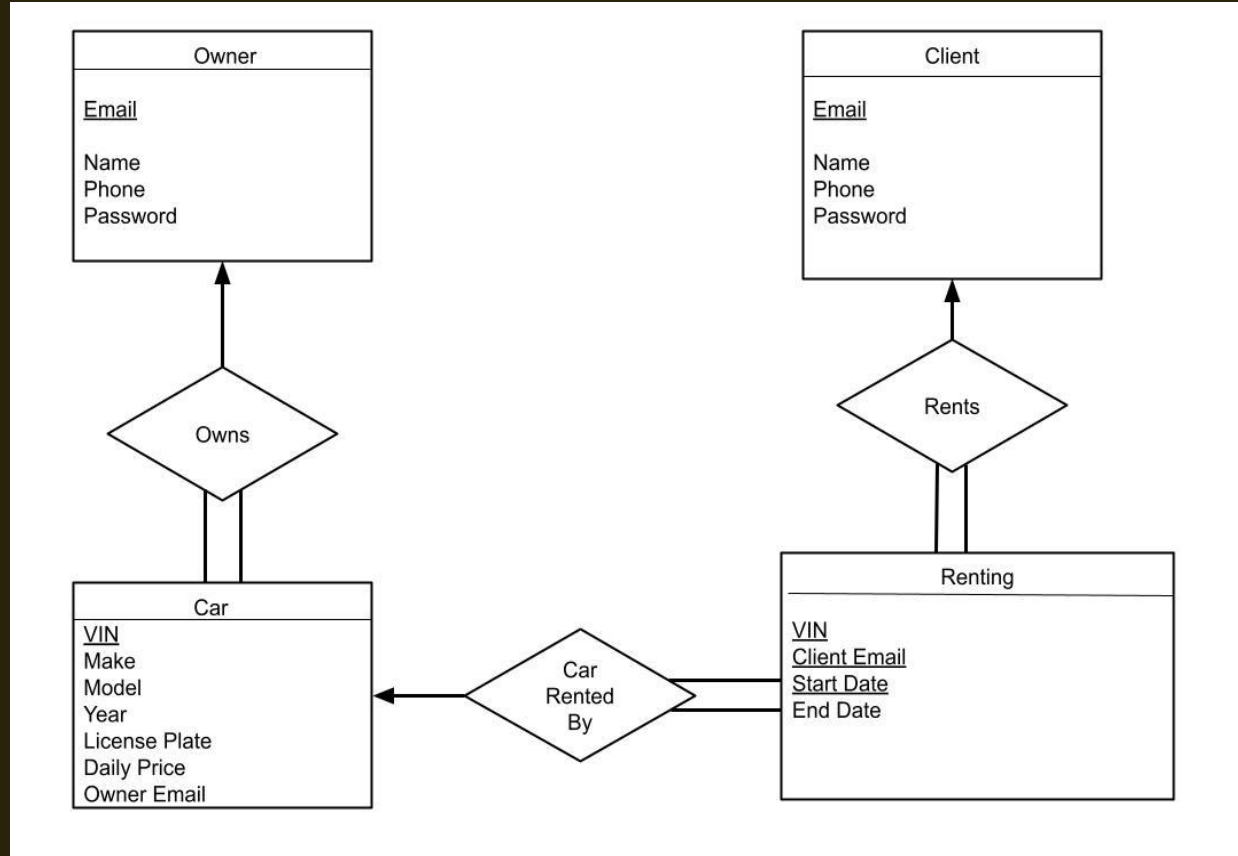
Relational Schema

Front End

We designed and structured the web application's pages using HTML, ensuring a clear and user-friendly layout. This foundational work provides the framework for integrating other technologies like CSS and JavaScript to enhance functionality and design.

We have a home page and then we divided the pages into two distinct interfaces: one for the client and another for the owner. This separation ensures that each user group has access to the specific features and information relevant to their needs.

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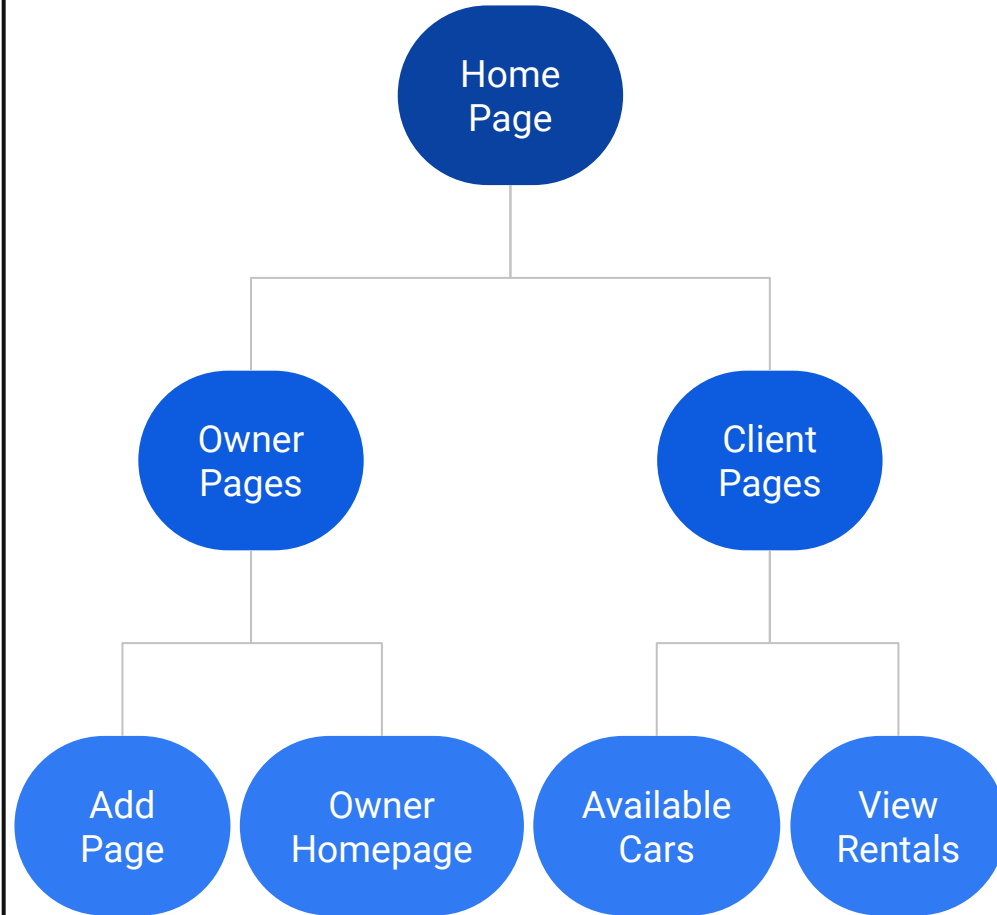
Home Page

First page of the application
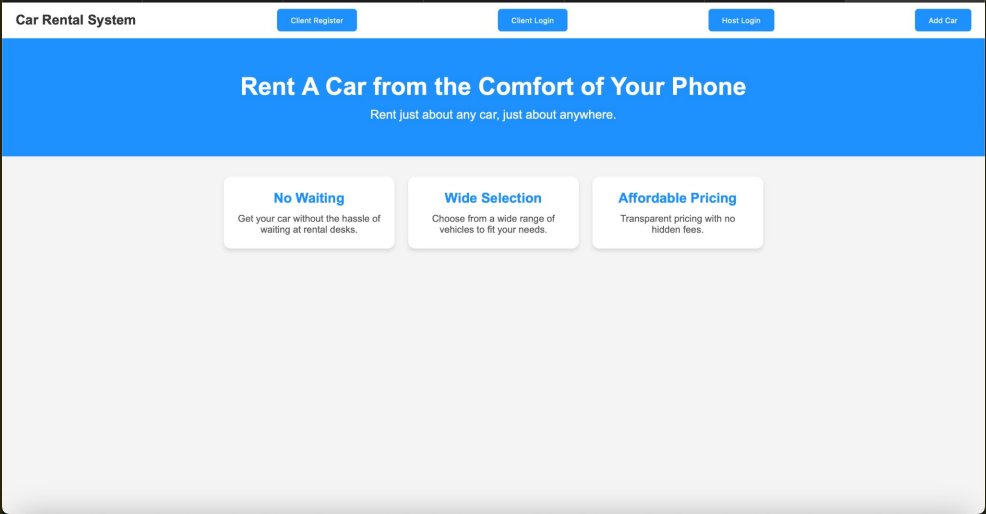
Owner Pages

Owner Login

Owners Cars

Add Car Page

Host Login

Email:

Password:

Login

Don't have a owners account? Register here.

Car Rental System   Add Car

Your Cars

Toyota Camry (2020)

License Plate: ABC123

Daily Price: $30

Update Price

Delete

BMW X7 (2017)

License Plate: FEJ 8237

Daily Price: $100

Update Price

Delete

Audi A7 (2014)

License Plate: FD32 324

Daily Price: $35

Update Price

Delete

McLaren P1 (1972)

License Plate: KJG 3293

Daily Price: $1000

Update Price

Delete

Ferrari LaFerrari (2020)

License Plate: FKDJS 34

Daily Price: $500

Update Price

Delete

Lexus LFA (2010)

License Plate: YO YO YO

Daily Price: $25.75

Update Price

Delete

Add a Car

Brand:

Model:

Year:

Price per Day:

VIN:

License Plate:

Owner Email:

Add   Cancel

Client Pages

Client Login

Client Login

Email:
aamirkmerchant@gmail.com

Password:
•

Login

Don't have an account? Register here.

Client Searching

Available Cars

Acura MDX (1970)
License Plate: R4o33nm
Daily Price: $75
Rent this car

Volkswagen Passat (2020)
License Plate: lin34
Daily Price: $60
Rent this car

Honda Pilot (2021)
License Plate: HSA AD98
Daily Price: $99.99
Rent this car

BMW X7 (2017)
License Plate: FEJ 8237
Daily Price: $100
Rent this car

Audi A7 (2014)
License Plate: FD32 324
Daily Price: $35
Rent this car

McLaren P1 (1972)
License Plate: KJG 3293
Daily Price: $1000
Rent this car

Ferrari LaFerrari (2020)
License Plate: FKDJS 34
Daily Price: $500
Rent this car

Ford Explorer (2025)
License Plate: SJK 8283
Daily Price: $10.99
Rent this car

Client Management Rentals

Manage Rentals

Enter your email: aamirkmerchant@gmail.cor Fetch Rentals

Toyota Camry (2020)
**Start Date:** 2024-12-01
End Date: 2024-12-04
Daily Price: $50
Total Cost: $150
Return/Cancel

Back End

SQLite3

SQL
database
engine
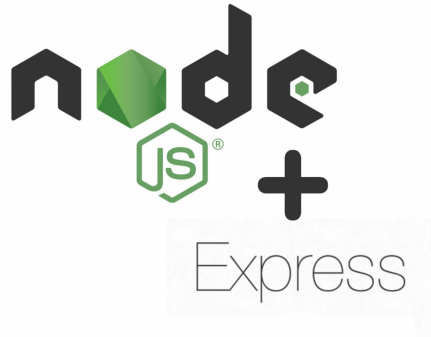
We used Node JS and Express to build the back end, ensuring efficient handling of server-side operations including database interactions, route handling, and API. For database creation, we opted for sqlite3, providing a lightweight and reliable solution for data storage and management.
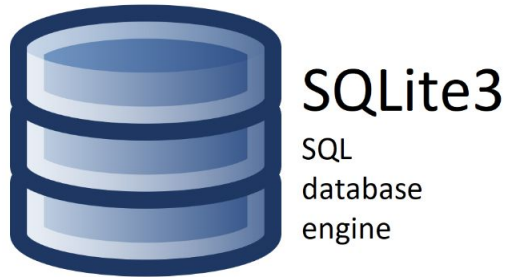
Insertion Queries

Owner registration

```
INSERT INTO Owner (
    Email,
    Name,
    Phone,
    Password,
    IdentificationDetails
)
VALUES (?, ?, ?, ?, ?);
```

Car rental

```
INSERT INTO Rental (
    VIN,
    ClientEmail,
    StartDate,
    EndDate
)
VALUES (?, ?, ?, ?);
```

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Selection Queries

Available Cars

```sql
SELECT *
FROM Car
WHERE VIN NOT IN (
    SELECT VIN
    FROM Rental
);
```

Client rentals

```sql
SELECT R.VIN,
       C.Make,
       C.Model,
       C.Year,
       C.DailyPrice,
       R.StartDate,
       R.EndDate
FROM Rental R
INNER JOIN Car C
    ON R.VIN = C.VIN
WHERE R.ClientEmail = ?;
```

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Deletion Queries

Return/Cancel a Rental

```
DELETE FROM Rental
WHERE VIN = ?
    AND ClientEmail = ?;
```

Thank You for your attention

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