Car Rental System

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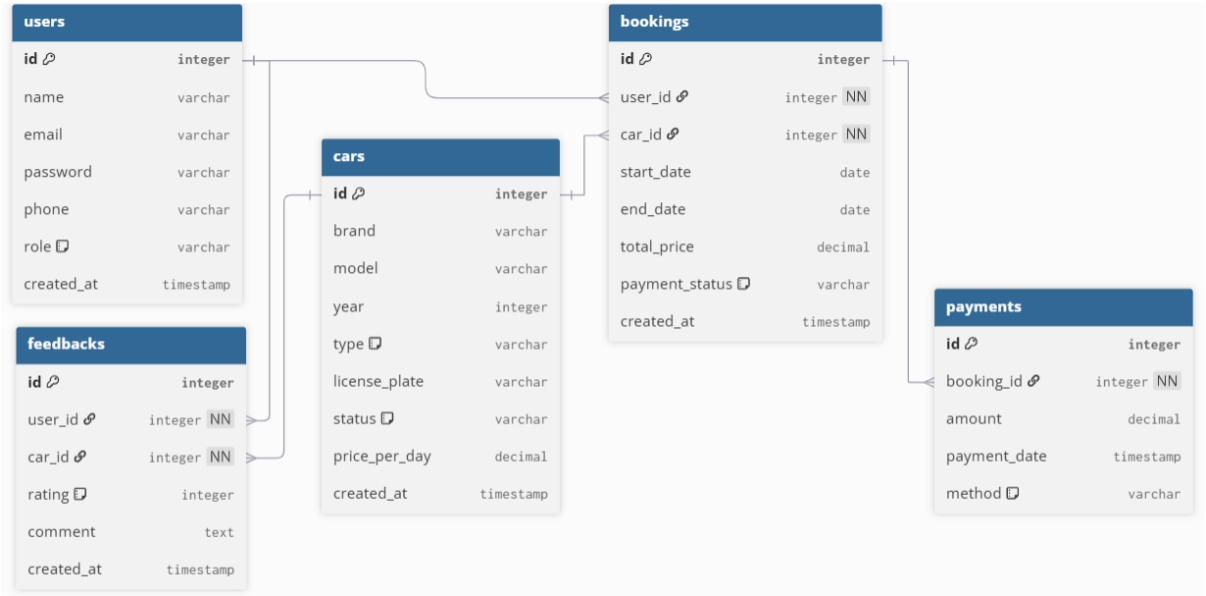
1. Description of the Project

Our car rental service is a one-stop solution for affordable and flexible vehicle rentals. From cars to heavy-duty lorries, we provide options for individuals, families, businesses, and new drivers. With easy booking, secure payments, and competitive pricing, we make transportation more accessible, fair, and convenient.

2. ER Diagram



3. **Verbal Description of each entity type and relationship type in the ER diagram**

Entity Types

User - Represents the customers and administrators of the system.

- Attributes:
    - id
    - name
    - email
    - password
    - phone
    - role
    - created_at

- Each user can make multiple bookings and can also leave feedback for different cars.

Car - Represents the vehicles available in the rental system.

- Attributes
    - id
    - brand
    - model
    - year
    - type
    - license_plate
    - status
    - price_per_day
    - created_at

- Each car can be booked multiple times by different users and can receive multiple feedbacks.

Booking - Represents a reservation of a car by a user for a specific period.

- Attributes
    - id
    - user_id
    - car_id
    - start_date
    - end_date
    - total_price
    - payment_status
    - created_at

- Each booking is linked to exactly one user and one car.
- Each booking has exactly one payment.

Payment - Represents the payment made for a booking.

- Attributes
    - id
    - booking_id
    - amount
    - payment_date
    - method

- Each payment corresponds to exactly one booking.

Feedback - Represents reviews or ratings that users leave about cars.

- Attributes
    - id
    - user_id
    - car_id

- rating
- comment
- created_at

- Each feedback is given by a user about a specific car.

Relationship Types

1. **User – Booking**
    - **One-to-Many**: A user can have many bookings, but each booking belongs to exactly one user.
2. **Car – Booking**
    - **One-to-Many**: A car can be booked many times over time, but each booking is for one car only.
3. **Booking – Payment**
    - **One-to-One**: Each booking has exactly one payment record, and each payment corresponds to one booking.
4. **User – Feedback**
    - **One-to-Many**: A user can write multiple feedbacks, but each feedback is linked to exactly one user.
5. **Car – Feedback**
    - **One-to-Many**: A car can have multiple feedbacks from different users, but each feedback belongs to one car.

6. Sample Data

User Table

id	name	email	password	phone	role	created_at
1	Alice Johnson	alice@domain.com	hashed_pwd1	1234567890	CUSTOMER	2025-01-10 09:00:00
2	Charlie Admin	admin@domain.com	hashed_pwd2	3456789012	ADMIN	2025-01-15 08:30:00

Car Table

id	brand	model	year	type	license_plate	status	price_per_day	created_at
1	BMW	545e	2021	sedan	ABC-123	AVAILABLE	45.00	2025-01-05 08:00:00
2	Mercedes	Glc 350e	2019	SUV	CBA-321	RENTED	50	2025-01-07 08:00:00

Booking Table

id	user_id	car_id	start_date	end_date	total_price	payment_status	created_at
1	1	1	2025-02-01	2025-02-05	225.00	PAID	2025-01-25 12:00:00
2	2	2	2025-02-10	2025-02-12	100.00	PENDING	2025-01-28 15:30:00

Payment Table

id	booking_id	amount	payment_date	method
1	1	225.00	2025-01-25 12:30:00	CARD
2	2	100.00	2025-02-01 09:00:00	CASH

Feedback Table

id	user_id	car_id	rating	comment	created_at
1	1	1	5	Great car!	2025-02-06 10:00:00