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Grupa: 406

Rent Car Spring Boot API

Rent Car is an API designed to offer the main features necessary for managing a rent car company. The app's main purpose is to accomodate the needs of small to medium rent car companies by offering them a solid infrastructure which would allow them to manage their vehicle fleets, employees, clients and rentals. Rent Car API is a robust backend solution, implemented using Java and the Spring eco system.

Business Requirements:

1. User Authentication and Authorization
    - Users should be able to sign up and log in as either employees or clients.
    - Employee accounts should have different access levels for administrative tasks.
    - Clients should only be able to view and manage their own rental history and details.
2. Vehicle management
    - The system should allow employees to add, update, and delete vehicle information, including make, model, year, and availability status.
    - Normal users should be able to see the details of the various vehicles.
3. Rental management
    - Employees should be able to create, modify, and delete rental bookings.
    - Clients should be able to view available vehicles, select a rental period, and place a booking
4. Employee management
    - Administrators should have the ability to add, edit, and remove employee accounts.
    - Employee accounts should include information such as name, contact details, and role within the company.
5. Client management
    - Clients should be able to create, update, and delete their accounts.
    - The system should store client information securely, including contact details and payment preferences.
6. Payment processing
    - The application should support secure payment transactions for rental bookings.
    - Clients should have the option to save payment methods for future use.
7. Error handling
    - The application should provide a robust error handling mechanism, that allows users to easily understand that an error has occured.
    - Users shall receive different error messages (i.e. administrators should be able to see more detailed error messages than normal users).
8. Reservation confirmation and notifications

- Clients should receive confirmation emails or notifications upon successful rental bookings.
- Employees should be notified of new bookings and changes to existing reservations.

9. Availability Tracking
    - The application should track vehicle availability in real-time to prevent double bookings.
    - Employees should be able to mark vehicles as unavailable during maintenance or repairs.
10. Feedback & Review system
    - Clients should have the option to leave reviews and ratings for both vehicles and service quality.
    - Employees should be able to respond to client feedback and address any issues promptly.

Because of the limited time available, we have narrowed down the business requirements to 5 MVP features (Minimum Viable Product).

MVP Features

1. Basic CRUD Operations for Vehicles:
    - Implement endpoints for viewing, updating, deleting, and adding vehicles.
    - System should automatically validate a newly added vehicle.
2. Rental Management:
    - Implement endpoints for creating, updating, and canceling rentals.
    - System should automatically check if a car can be rented or not (if it's available).
3. Employee management:
    - Implement endpoints for viewing, adding, and removing employees.
    - System should automatically check and validate the newly added employees.
4. Client Management:
    - Implement endpoints for viewing, adding, and removing clients.
    - System should automatically check and validate the newly added clients.
5. Error Handling:
    - Implement robust error handling for API requests, providing clear error messages to users.
    - A global error handling mechanism shall be implemented.