**Case Study: Car Rental Management System**

**Objective:**

Develop a menu-based console application to assess your proficiency in Core Java, MySQL, and JDBC. The application will simulate a car rental management system, allowing users to manage cars, customers, and rentals.

**Functionalities:**

1. **Car Management:**
   * Add a new car
   * View car details
   * Update car information
   * Delete a car
2. **Customer Management:**
   * Register a new customer
   * View customer details
   * Update customer information
   * Delete a customer
3. **Rental Management:**
   * Rent a car to a customer
   * Return a rented car
   * View rental details
   * Calculate rental charges

**Database Schema:**

* **Car Table:**
  + car\_id (Primary Key)
  + make
  + model
  + year
  + daily\_rate
* **Customer Table:**
  + customer\_id (Primary Key)
  + name
  + email
  + phone\_number
  + address
* **Rental Table:**
  + rental\_id (Primary Key)
  + car\_id (Foreign Key references Car Table)
  + customer\_id (Foreign Key references Customer Table)
  + rental\_start\_date
  + rental\_end\_date
  + total\_charge

**Requirements:**

* Develop a menu-based console application using Core Java.
* Use JDBC for interactions with the MySQL database.
* Implement menu options for managing cars, customers, and rentals.
* Ensure that the application updates the rental status in the Car table appropriately after a car is rented or returned.
* Calculate rental charges based on the daily rate and rental duration.
* Handle exceptions effectively and provide user-friendly error messages.
* Ensure the application code is clean, well-documented, and follows standard coding conventions.

**Submission:**

* Submit the complete source code along with a README file that provides setup and usage instructions.
* Share your project by uploading it to a public GitHub repository.
* Provide the link to the GitHub repository to the coaches.