Car Rental System

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C#

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B.sc Information Technology
(Sem-5)

System Requirements (Hardware and Software)

Hardware Requirements:

- Processor: Intel Core i3 or higher
- RAM: 4GB or higher
- Hard Disk: 500GB or higher
- Monitor: 15" or larger
- Keyboard and Mouse

Software Requirements:

- Operating System: Windows 10 or higher
- .NET Framework 4.7 or higher
- Integrated Development Environment (IDE): Visual Studio 2019 or higher
- Database: SQL Server
- Additional Libraries: Entity Framework

Description About Project

Project Description:

customer information. The goal of the project is to simplify the administrative tasks involved in renting out cars, improving efficiency and customer service.

Key Features:

- Car Inventory Management
- Customer Management
- Rental Booking and Management
- Reporting and Analytics
- User Authentication and Authorization

The project uses C# for the backend and frontend development, leveraging the .NET Framework to create a robust and user-friendly application. The user interface is built using Windows Forms for a seamless and interactive experience.

Database Description

The database for the Car Rental System consists of several tables that store information related to user logins, cars, customers, rentals, and returns. The primary database used is SQL Server, which provides reliable and scalable data management.

Tables and Their Descriptions:

1. UserLogin Table:

- **Table Name:** userlogin
- **Fields:**
  - id (Primary Key, Integer, NOT NULL)
  - username (Varchar, NOT NULL, UNIQUE)
  - password (Varchar, NOT NULL)
  - user_role (Varchar, NOT NULL) // 'admin', 'employee'

2. Car Table:

- **Table Name:** cartbl
- **Fields:**
  - id (Primary Key, Integer, NOT NULL)
  - make (Varchar, NOT NULL)
  - model (Varchar, NOT NULL)
  - year (Integer, NOT NULL)
  - registration_number (Varchar, NOT NULL, UNIQUE)
  - daily_rental_rate (Decimal, NOT NULL)

3. Customer Table:

- **Table Name:** customertbl
- **Fields:**
  - id (Primary Key, Integer, NOT NULL)
  - first_name (Varchar, NOT NULL)
  - last_name (Varchar, NOT NULL)
  - phone_number (Varchar, NOT NULL, UNIQUE)
  - email (Varchar, NULL)
  - address (Text, NULL)

4. Rental Table:

- **Table Name:** rentaltbl
- **Fields:**
  - id (Primary Key, Integer, NOT NULL)
  - car_id (Foreign Key, Integer, NOT NULL)
  - customer_id (Foreign Key, Integer, NOT NULL)
  - rental_date (Date, NOT NULL)
  - return_date (Date, NULL)
  - total_cost (Decimal, NOT NULL)
  - status (Varchar, NOT NULL) // 'rented', 'returned'

5. Return Table:

- **Table Name:** returntbl
- **Fields:**
  - id (Primary Key, Integer, NOT NULL)
  - rental_id (Foreign Key, Integer, NOT NULL)
  - return_date (Date, NOT NULL)
  - condition (Varchar, NOT NULL)
  - additional_costs (Decimal, NULL)

List of Views (Pages)

- **Home Page:**
  - Overview of the system
  - Quick links to main functionalities
- **Login Page:**
  - User login form
- **Dashboard:**
  - Overview of current rentals, available cars, and quick actions
- **Car Management Page:**
  - List of all cars
  - Add, edit, and delete car details
- **Customer Management Page:**
  - List of all customers
  - Add, edit, and delete customer details
- **Rental Booking Page:**
  - Form to create new rental bookings
  - View and manage current and past bookings
- **Return Processing Page:**
  - Process car returns
  - View and update return details
- **Payment Page:**
  - Process rental payments

    - View payment history
- **Reports Page:**
    - Generate and view various reports on rentals, cars, and customers
- **Admin Panel:**
    - Admin functionalities for managing users and system settings