Project Title	Online Booking System for Car Rentals
Technologies	MERN
Domain	Industry
Project Level	Medium

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1. Problem Statement:

Design a web application “Online Booking System for Car Rentals” to allow users to rent cars anywhere in the world.

1.1. What is a Car Rental Booking System?

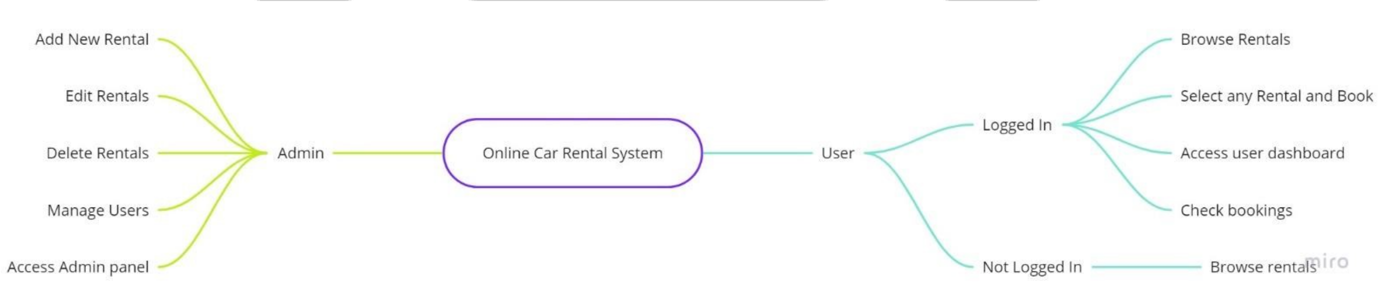
A car rental reservation system is an online booking tool created for individuals, car operators, as well as for firms to hire cars on a small to large scale. Customers may quickly book cars on this secure platform, and the administrators can manage the rental car fleets. Getting a rental car helps people get around despite the fact they do not have access to their car or don't own a car at all.

You might have used **Ola Rentals** to rent a car for a specified time to go somewhere.

Now that you understand what a car rental booking system is, let’s discuss some of the functionality of the “**Online Booking System for Car Rentals**” that you will design.

1. To create a web-based system that will enable customers to register and book cars online and will help the company to run its vehicle rental operations successfully.
2. There has to be a user dashboard for logged-in users and an admin dashboard for admins/managers.
3. Users must be able to see the available cars and can rent any of the available cars after they log in and fill in their necessary details.
4. The dashboard should also show them the rental period that the user has chosen while renting the car.

5. The admins can add/edit/delete any of the cars available for rent.
6. All non-logged-in users must be able to browse the cars available for renting and see the relevant info for any specific car.
7. The project should be very easy to use with a clean UI.



Low-Level design

1.2. Project Objective

- This online car rental option is really simple to use, completely functional, and versatile. It also saves a ton of time, money, and labor.
- Eco-friendly: Monitoring car activity and corporate operations as a whole becomes simple and involve the least amount of paperwork.
- The program functions as an always-open office.
- It improves the management's effectiveness in providing customers with high-quality services.

1.3. Scope of The Project

1. The car rental system maintains detailed data on the vehicles and the clients, including the length of time and the type of vehicle rented.

2. Customers can book cars online, rent cars online, and have the vehicles delivered to their doorstep once they have registered as members, or they can go to the pickup location to pick the vehicles up.

3. To automate the manual task of user paperwork and store the user data securely in the cloud instead of storing it in books.

1.4. Functional and Non-Functional Requirements: -

1.4.1. Functional Requirements

1. **User Registration:** The users must be able to register for the application by filling out the necessary details.

2. **Online Reservations:** The users should be able to log in to make a reservation or an online booking.

3. **Dashboard:** The admin should be able to see all the information such as the total number of cars, number of cars available to rent, number of cars booked/rented along with the information of the person who booked/rented the car.

4. **User Account:** The registered users should have access to the user area where they can see their bookings (both past and future)

1.4.2. Non-Functional Requirements

1. **Security:** The system should have a certain level of security such that not anybody can have access to sensitive information and the passwords should be properly encrypted in case of a data breach.

2. **Robustness:** If the user’s system crashes, a backup of the user data must be stored on remote database servers to enable recovery.

3. **Performance:** The application must be lightweight and the UI should be fast and responsive.

1.5. Use Case Table

Authentication System	Register, Login, logout	User and Admin
Search Form	Search/Find cars	User
Chat Form	Send Message	User
Monitor	Total Bookings	Admin
Booking Status	Check personal Booking	User and Admin
Manage	Users, Cars, and Bookings	Admin

Table 1. Use Case

2. Project Evaluation metrics:

2.1. Code:

- You are supposed to write code in a modular fashion ● Safe: It can be used without causing harm.
- Testable: It can be tested at the code level.
- Maintainable: It can be maintained, even as your codebase grows.
- Portable: It works the same in every environment (operating system).
- You have to maintain your code on GitHub.
- You have to keep your GitHub repo public so that anyone can check your code.
- Proper readme file you have to maintain for any project development.
- You should include the basic workflow and execution of the entire project in the readme file on GitHub.
- Follow the coding standards.

2.2. Database:

MongoDB is a source-available cross-platform document-oriented database program. Classified as a NoSQL database program, MongoDB uses JSON-like documents with optional schemas.

2.3. API Details or User Interface:

You have to expose your complete solution as an API or try to create a user interface for your model testing. Anything will be fine for us.

2.4. Deployment:

Deploy the application on your preferred service.

2.5. Solutions Design:

You have to submit complete solution design strategies in High-level Document (HLD), Lowlevel Document (LLD), and Wireframe documents**.**

2.6. System Architecture:

You must submit a system architecture design in your wireframe and architecture documents.

2.7. Optimization of solutions:

Try to optimize your solution on the code level, and architecture level, and mention all of these things in your final submission.

Mention your test cases for your project.

3. Submission requirements:

3.1. High-level Document:

You have to create a high-level document design for your project. You can reference the HLD form below the link.

Sample link: HLD Document Link

3.2. Low-level document:

You have to create a Low-level document design for your project; you can refer to the LLD from the link below.

Sample link: LLD Document Link

3.3. Architecture:

You have to create an Architecture document design for your project; you can refer to the Architecture from the link below.

Sample link: Architecture sample link

3.4. Wireframe:

You have to create a Wireframe document design for your project; refer to the Wireframe from the link below.

Demo link: Wireframe Document Link

3.5. Project code:

You have to submit your code to the GitHub repo in your dashboard when the final submission of your project.

Demo link: Project code sample link

3.6. Detail project report:

You have to create a detailed project report and submit that document as per the given sample.

Demo link: DPR sample link

3.7. Project demo video:

You have to record a project demo video for at least 5 Minutes and submit that link as per the given demo.

3.8. The project LinkedIn a post:

You have to post your project details on LinkedIn and submit that post link in your dashboard in your respective field.