A

Mini Project Report

on

Car Management System (Car Matix)

Submitted in partial fulfillment of the requirements for the

degree

Second Year Engineering – Computer Science Engineering (Data Science)

by

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CERTIFICATE

This to certify that the Mini Project report on **Car Matix** has been submitted by **Priyom Ghosh (23107060), Laxmikant Koli (23107028)**, **Dev Maru (23107054)** and **Suman Manik (23107056)** who are bonafide students of A. P. Shah Institute of Technology, Thane as a partial fulfillment of the requirement for the degree in **Computer Science Engineering (Data Science)**, during the academic year **2024-2025** in the satisfactory manner as per the curriculum laid down by University of Mumbai.

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Chapter 1

Introduction

The Car Management System simplifies the management of car rentals, inventory, and customer details. Built using Java for the backend and MySQL for database management, the system ensures efficient operations.

Administrators can add, update, and remove cars, manage customer data, and handle rental transactions. The system also tracks vehicle availability and rental history, improving both user experience and business efficiency.

Java ensures platform independence and scalability, while MySQL provides secure and reliable data storage. This project automates car rental processes, reducing manual effort and increasing productivity for car rental services.

1.1. Purpose:

The Car Management System aims to automate car rental operations and improve the management of vehicles and customers. It simplifies adding, updating, and deleting car records, as well as handling customer information. The system enhances efficiency by reducing manual effort and improving productivity. Built using Java for the backend and MySQL for database management, it ensures reliability, scalability, and secure data handling. Ultimately, it streamlines operations for car rental businesses, offering a user-friendly and efficient solution for managing their fleet and customers.

1.2. Objectives:

- To allow user to register and create an account.
- To allow users to book cars and view their bookings also provide features to cancel their bookings.
- To enable users to search for available cars based on dates and preferences.
- To display available cars with details such as model, rental price, and availability.

1.3. Scope:

The scope of the Car Management System includes managing vehicle inventory, customer details, and rental transactions. It allows administrators to add, update, and remove car and customer records, track vehicle usage, and process rental bookings. The system supports user roles, ensuring secure access and data handling. Designed for scalability, it accommodates future growth in inventory and customer base, with potential for enhancements such as mobile support. Overall, it streamlines operations for car rental businesses, improving efficiency and data management.

Chapter 2

PROBLEM DEFINATION

Manual record-keeping in car rental businesses results in inefficiencies, frequent errors, and heightened security risks. Managing vehicles and customer details effectively becomes difficult, especially as the volume of data grows. This can lead to inaccurate records, missed bookings, and potential loss of important customer or vehicle information, severely impacting overall business operations.

As a car rental business expands, scaling its operations without an automated system becomes increasingly complex. Managing a larger fleet and a growing customer base manually is time-consuming and prone to mistakes. The lack of a streamlined system hampers operational efficiency, making it harder to track vehicle usage, ensure smooth bookings, and maintain accurate records of customers and cars.

Proposed System

The Proposed System for the Car Management System aims to automate and streamline car rental operations, replacing manual processes with an efficient digital platform. It will allow administrators to manage vehicle inventory, customer details, and rental transactions through a centralized system. Key features include seamless rental processing and customer data management. The system will also provide secure login roles for administrators and users, ensuring data privacy and control. Scalable and efficient, this system is designed to handle growing business needs, reducing human error, and improving operational efficiency for car rental services.

3.1. Features and Functionalities:

- **User Management**: Provides secure login with role-based access control for data privacy.
- **Vehicle Management**: Enables adding, updating, and removing car records with essential details.
- **Customer Management**: Stores and manages customer information for easy access and retrieval.
- **Scalability**: Allows for growth in vehicles and customers with future feature integrations.

Chapter 3

Project Outcomes

- Increased User Engagement: The registration system encourages more users to create accounts, fostering loyalty and personalized service.
- Efficient Booking Process: Users can seamlessly book, manage, and cancel car reservations, leading to higher booking rates and fewer manual interventions.
- Improved Search Experience: The ability to filter cars by dates and preferences helps users quickly find suitable options, reducing search time.
- Informed Decision-Making: Detailed car listings with models, prices, and availability empower users to make confident rental choices.
- Enhanced Customer Satisfaction: The convenience and transparency in booking and managing rentals boost user satisfaction and retention

Chapter 4

Software Requirements

The Car management system project requires specific software for development and deployment, as follows:

• **Java Development Kit (JDK):** Provides the libraries and tools needed for developing the Java-based frontend of the system.

• **NetBeans IDE:** Used for writing, testing, and debugging Java code, NetBeans offers an integrated environment to streamline development processes.

• **MySQL Database Server:** Manages and stores employee and payroll data, handling SQL queries and transactions for backend operations.

• **MySQL Workbench:** A graphical tool for database design, management, and maintenance, facilitating schema design and query execution.

• **Java Runtime Environment (JRE):** Required to run the Java application on user machines, ensuring smooth operation in the production environment.

Chapter 5

Project Design

The image shown in the below figure 5.1 shows the flow in which the project in which there are staff and admin page in which admin page have cars, add/delete staff and customer details with staff page having add/delete customers, view customers, update booking status, book a car.

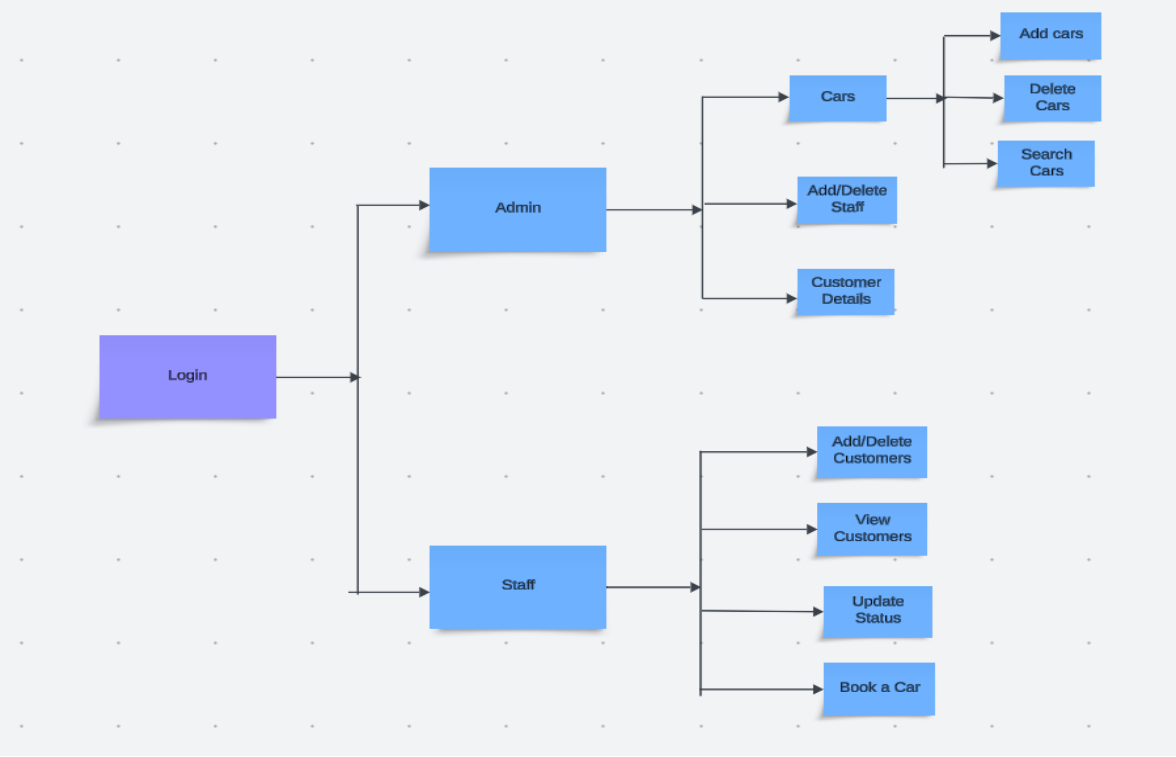

Figure 5.1 Block Diagram of Carmatix

Chapter 6

Project Scheduling

The below figure 7.1 is the Grant Chart which explains the project completion and the date on which we have done as 7-9-24 we had completed Group formation and Topic finalization and on 7-23-24 we had identified the functionalities of Mini project and on 8-6- 24 discussed the project topic and on 8-20-24 we designed the graphical user Interface and on 9-10-24 we did the Presentation and on 9-17-24 we did the database Design and on 9- 24-24 we did Database Connectivity and on 10-01-24 we did integration and on 10-8-24, we did presentation 2.

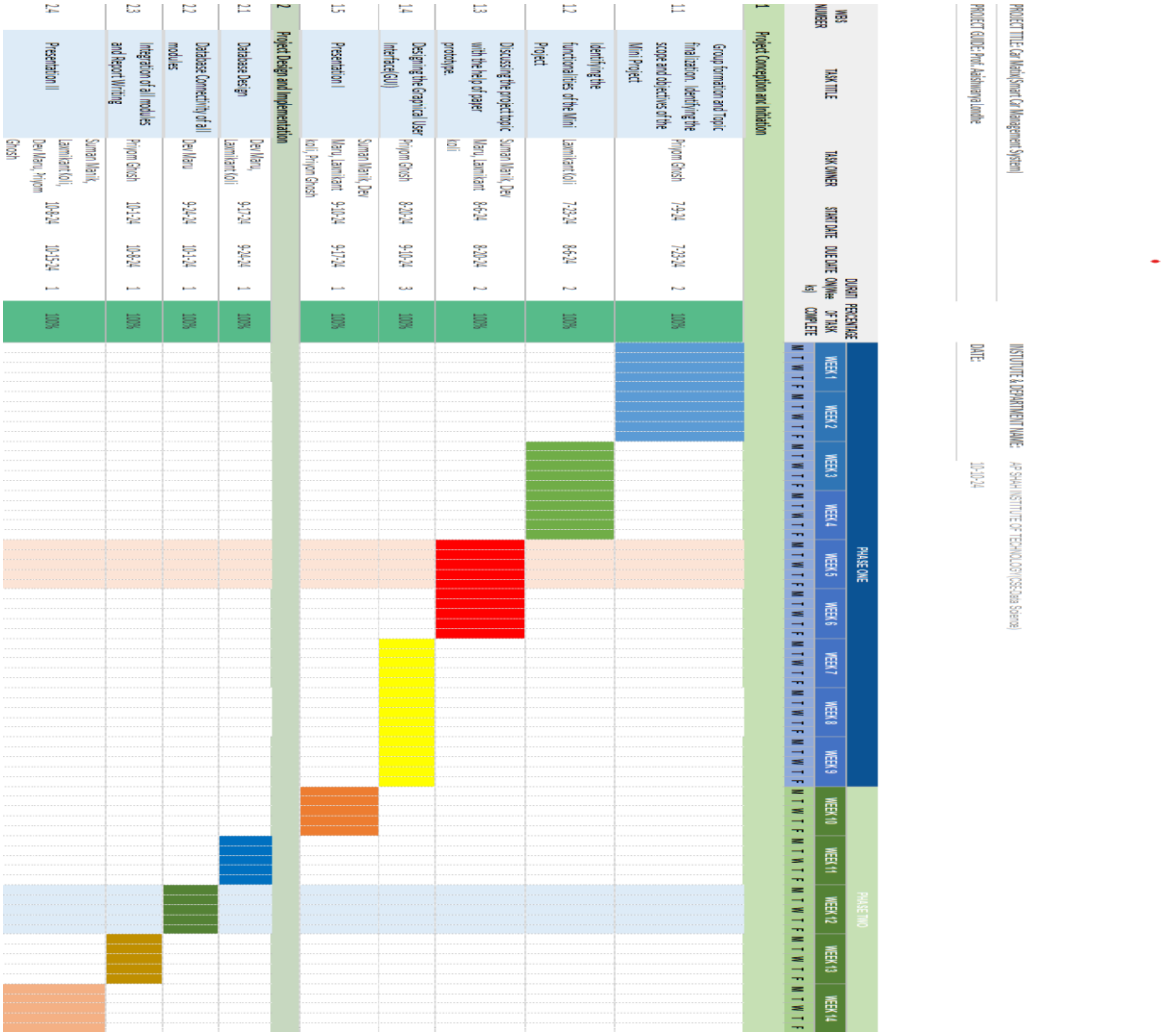

Figure 6.1 Gantt Chart

Chapter 7

Result

The figure 7.1 shows admin details page where you can search for admins present in the system by their unique admin id.

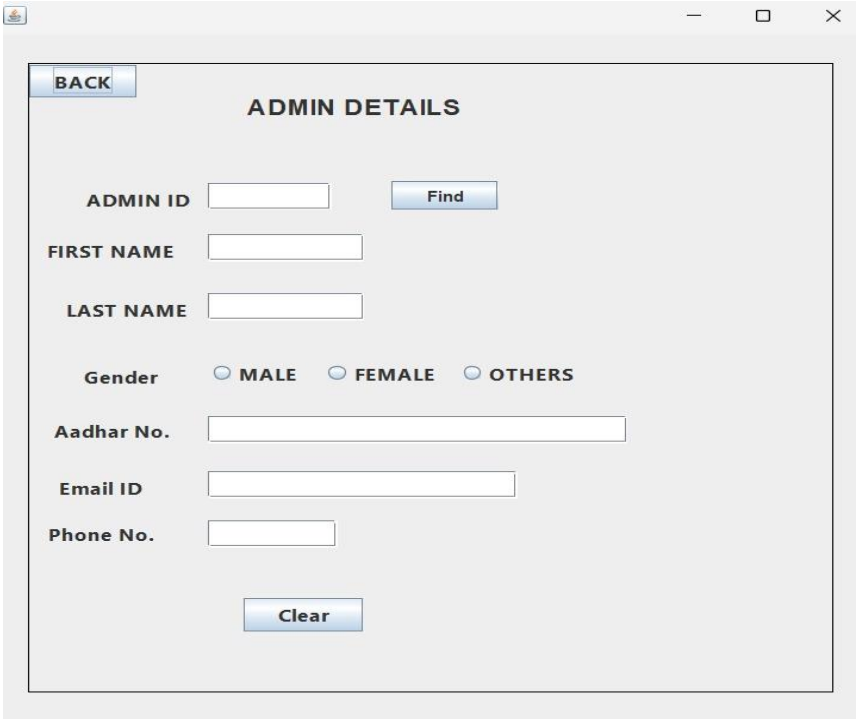

Figure7.1 Admin Details Page

The figure 7.2 shows the list of tables inside admin page were you can search for cars, customer details, staff details.

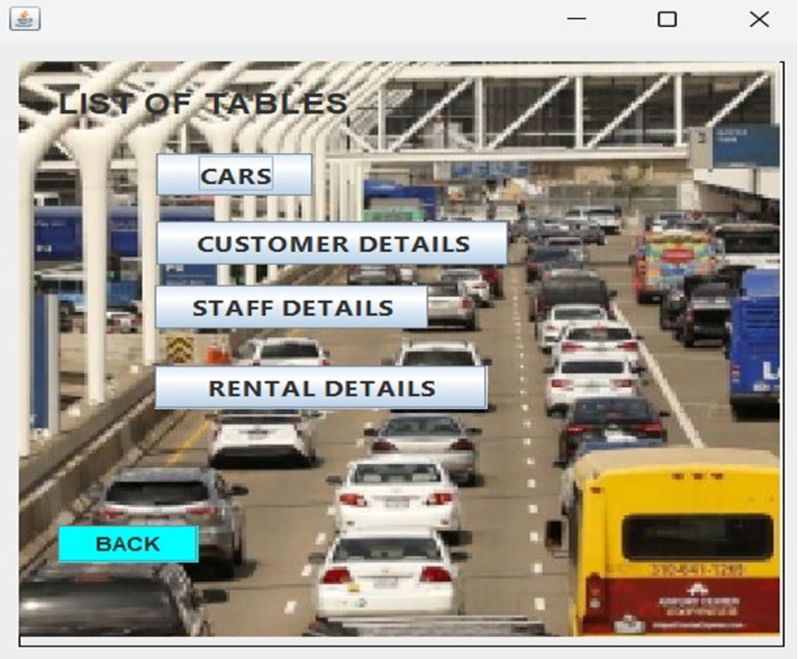

Figure7.2 List of Tables

The below figure 7.3 shows the staff buttons were you can add/delete customer, view car details, update booking status, and book a car.

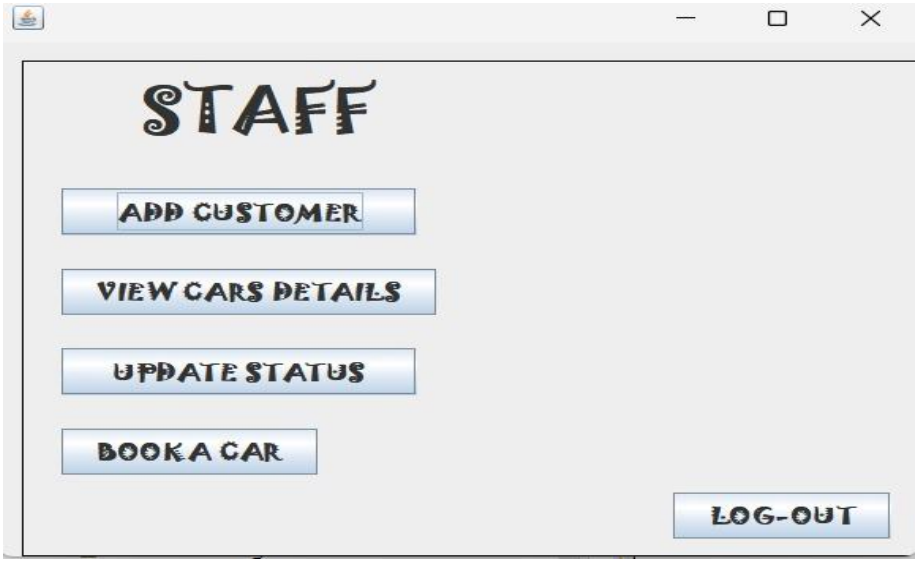

Figure 7.3 Staff Page

The figure 7.4 shows the page where the staff will be booking the car for the customers which is stored in the database.

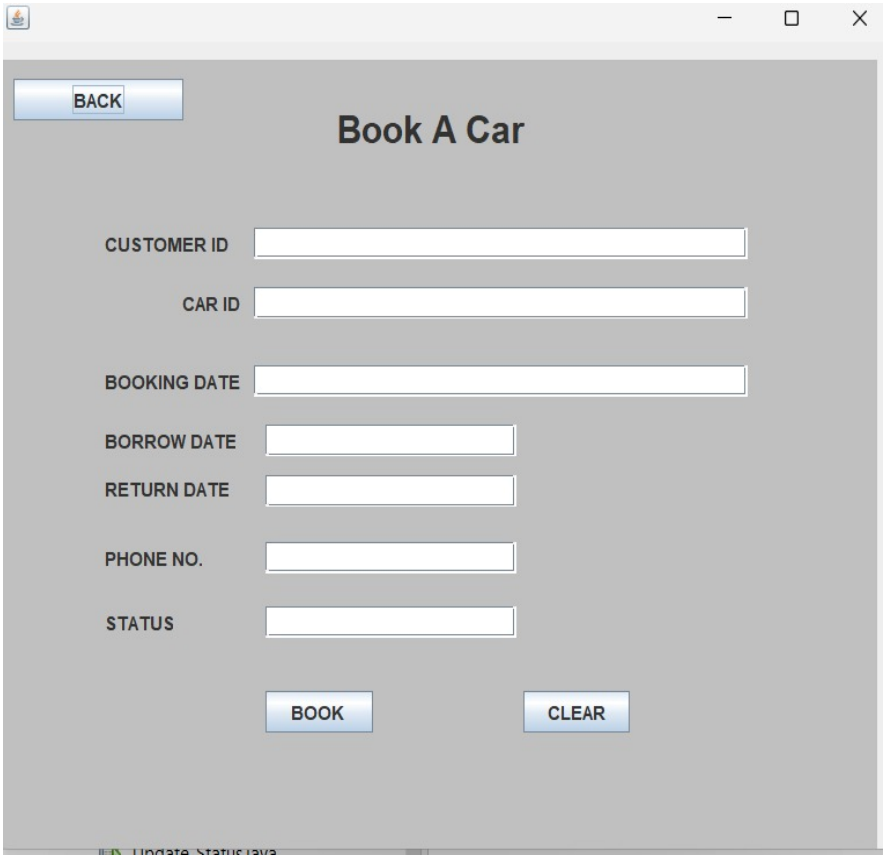

Figure 7.4 Book a Car

Chapter 8

Conclusion

Our project demonstrates its success in automating car rental operations, improving efficiency, accuracy, and customer experience. The system streamlines vehicle management, customer handling, and rental transactions, while ensuring secure data storage and access through Java and MySQL. It provides real-time vehicle availability, detailed reports, and supports informed decision-making. Additionally, the system is scalable, accommodating business growth, and offers enhanced data security through role-based access control. Overall, the project delivers a user-friendly, efficient solution that reduces manual effort and supports future expansion for car rental businesses.

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