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Data Science

" Car Matix–Smart CAR RENTAL SYSTEM"

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Project Guide
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Contents

- Introduction
- Objectives
- Scope
- Features / Functionality
- Project Outcomes
- Technology Stack
- Block Diagram

1. Introduction

The topic of our presentation is a Car Management System, developed using Java. This system is designed to manage and maintain all the information related to cars, including vehicle details, customer details, and staff roles. The goal is to create a system that simplifies the management of car inventories for businesses or personal use, improving overall efficiency.

Problem Identified

- Inconvenient Booking Processes: Many car rental systems have outdated, cumbersome booking processes, leading to long wait times, frequent errors, and a poor user experience.
- Lack of User Authentication Levels: Initially, the system might not have properly differentiated between different user roles (e.g., admin, staff, customer), leading to security and access control issues.

Solution Proposed

- Streamlined Booking Interface: Develop an intuitive, user-friendly online platform that simplifies the booking process with easy navigation, instant confirmation, and clear information on car options and pricing.
- The solution is to implement Role-Based Access Control (RBAC), where Admin, Staff, and Customer roles have different access rights. Admins manage the system, staff handle rentals, and customers can search cars. Role validation ensures proper access control, enhancing security.

2. Objectives

- To allow user to register and create an account.
- To allow users to book cars and view 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.

3. Scope

- This project can be applied in urban and suburban areas to facilitate convenient and efficient car rental services for residents and visitors in cities and surrounding regions.
- This project can be utilized by various types of rental businesses including local car rental agencies, large rental chains, and franchise operations to modernize their booking and management systems.

4. Feature /Functionality

- The system caters to three types of users: customers, salespersons, and administrators, each with specific roles and functionalities.
- Manage staff, customers, and cars: Administrators have full control over staff management, customer data, and vehicle inventory.
- Car management: Add, update, delete, and view cars with relevant details.
- Customer management: Add, update, delete, and view customer information.
- Rental management: Assign cars, calculate rental costs

5. Outcome of Project

1. Users can create an account or log in to their existing account to access personalized features and manage their reservations.
2. Users can view detailed information about each vehicle specifications, pricing, mileage, engine, year manufacturer.
3. Enhanced efficiency for salespersons to manage inventory and rental orders.
4. Comprehensive control and reporting capabilities for administrators to manage the business effectively.
5. Improved customer experience by providing an easy-to-use platform for viewing and booking cars.

6. Technology Stack

- **Programming Language:**

Java: The core language used to develop the system, providing a robust, object-oriented structure to handle car rental operations efficiently.

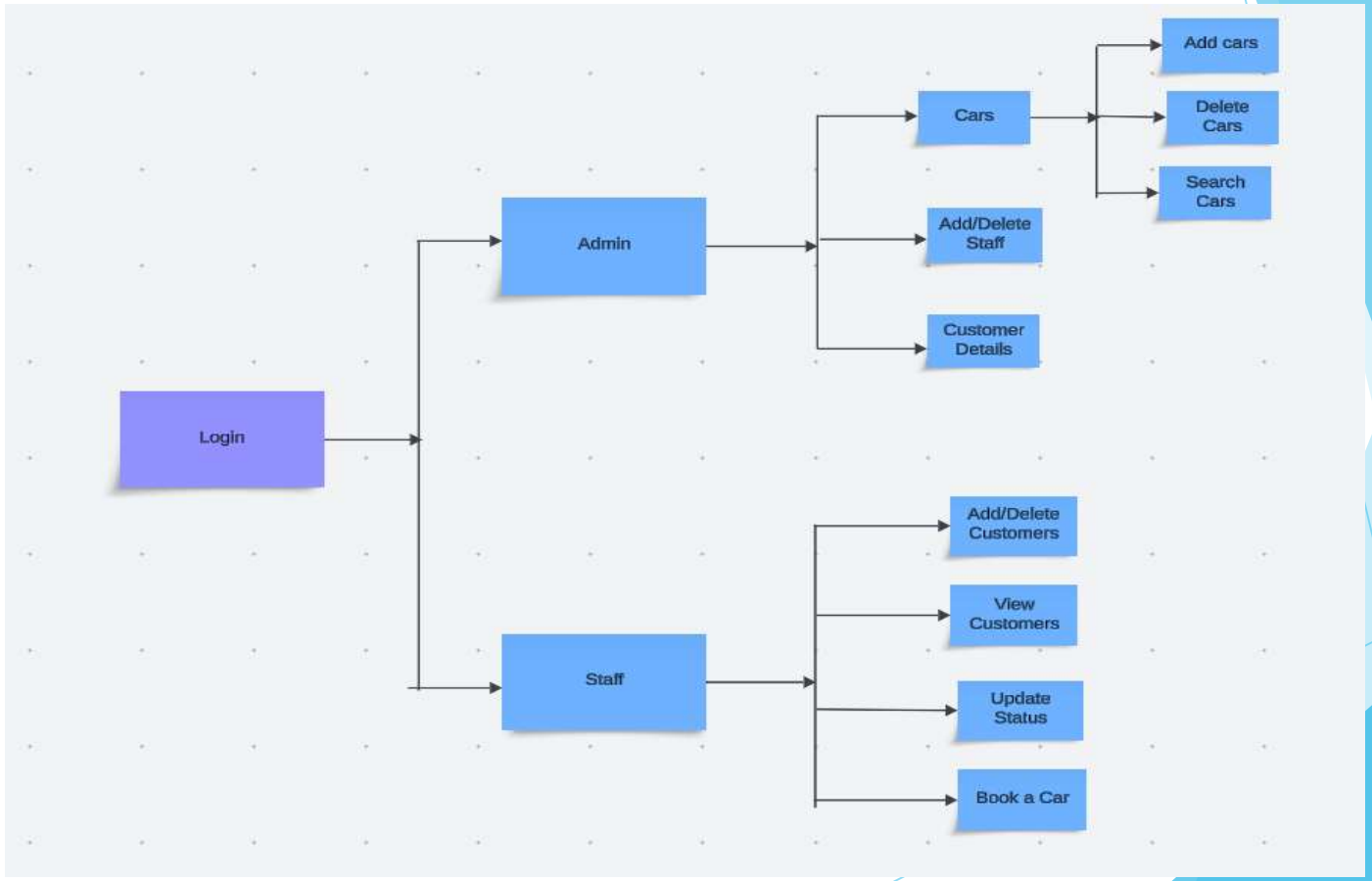
- **Integrated Development Environment (IDE):**

NetBeans: A powerful IDE used for the development of the graphical user interface (GUI) and to manage the entire project workflow.

- **Graphical User Interface (GUI):**

Java Swing/JavaFX (via NetBeans): The front-end interface that provides an interactive and user-friendly experience for customers, salespersons, and administrators.

7.Block Diagram



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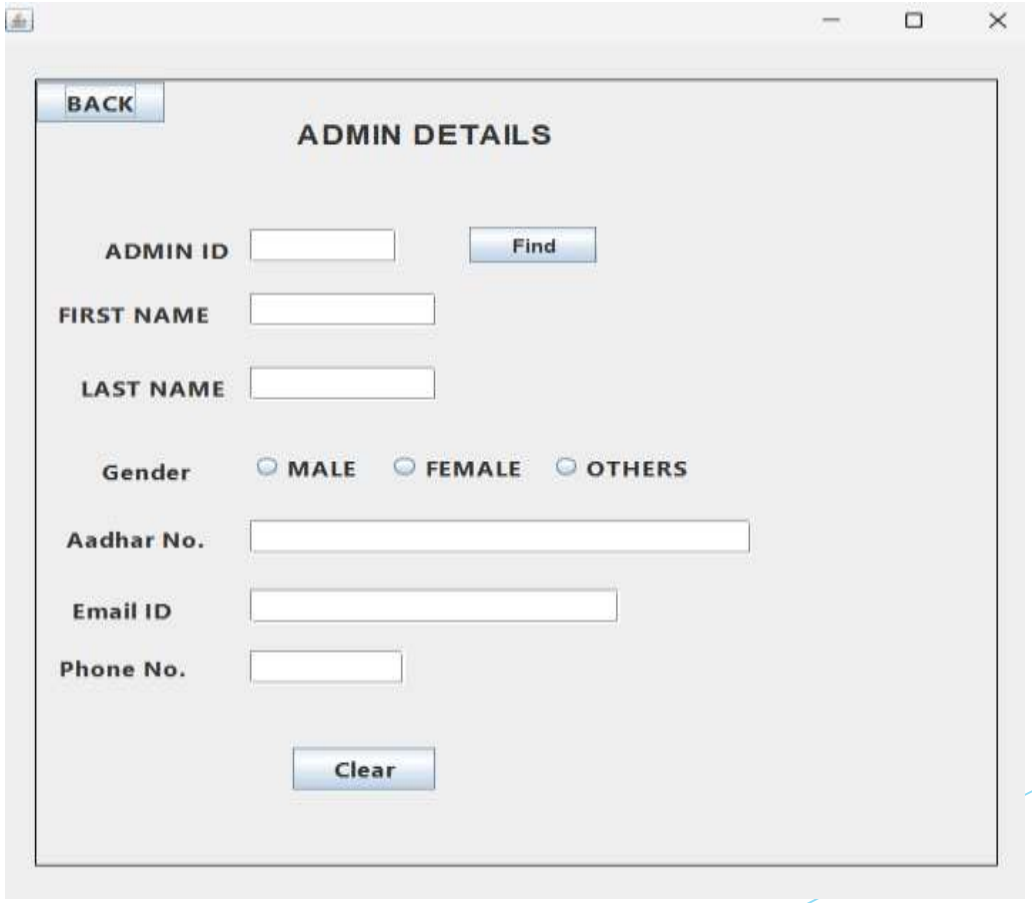
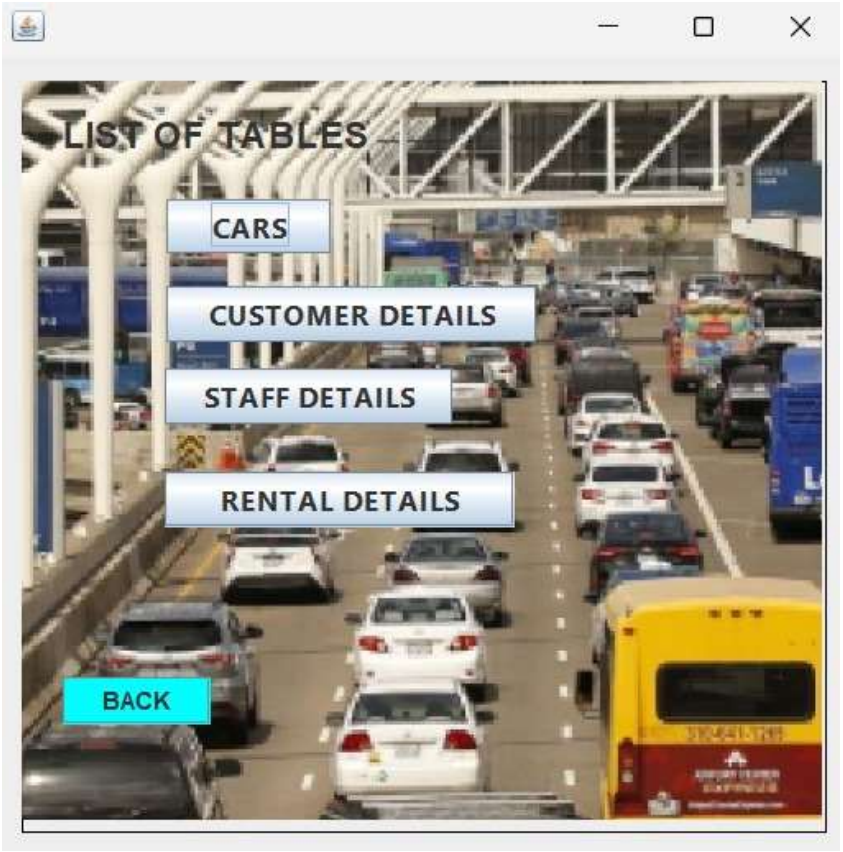
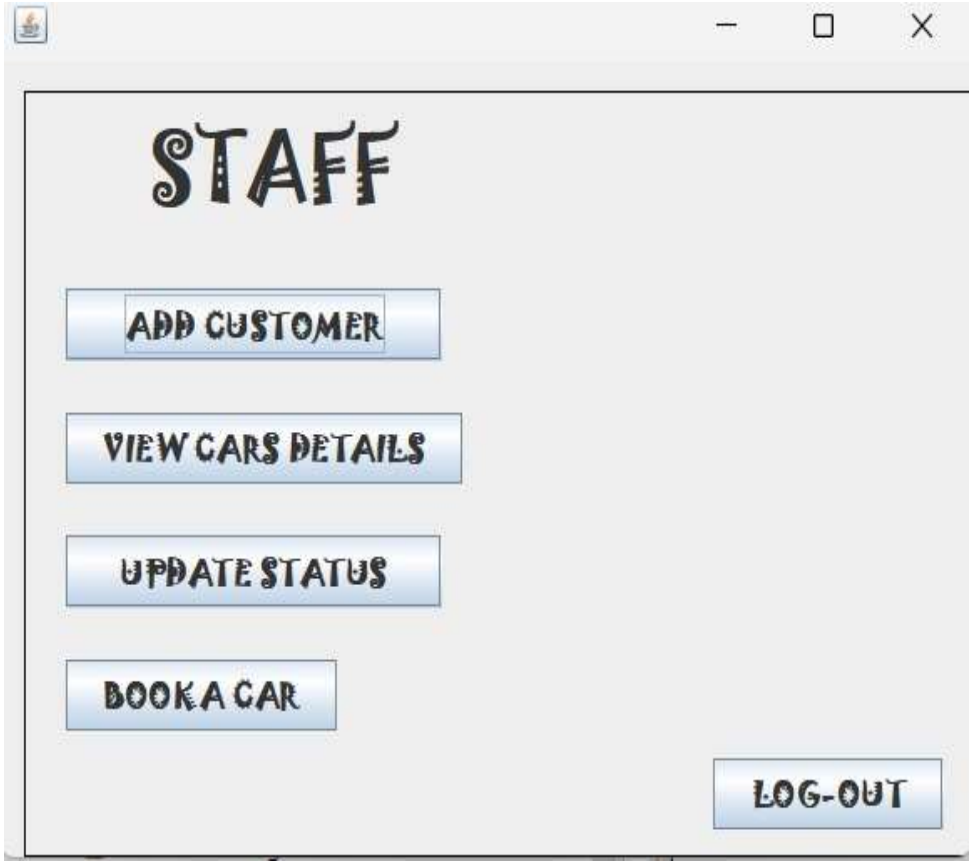
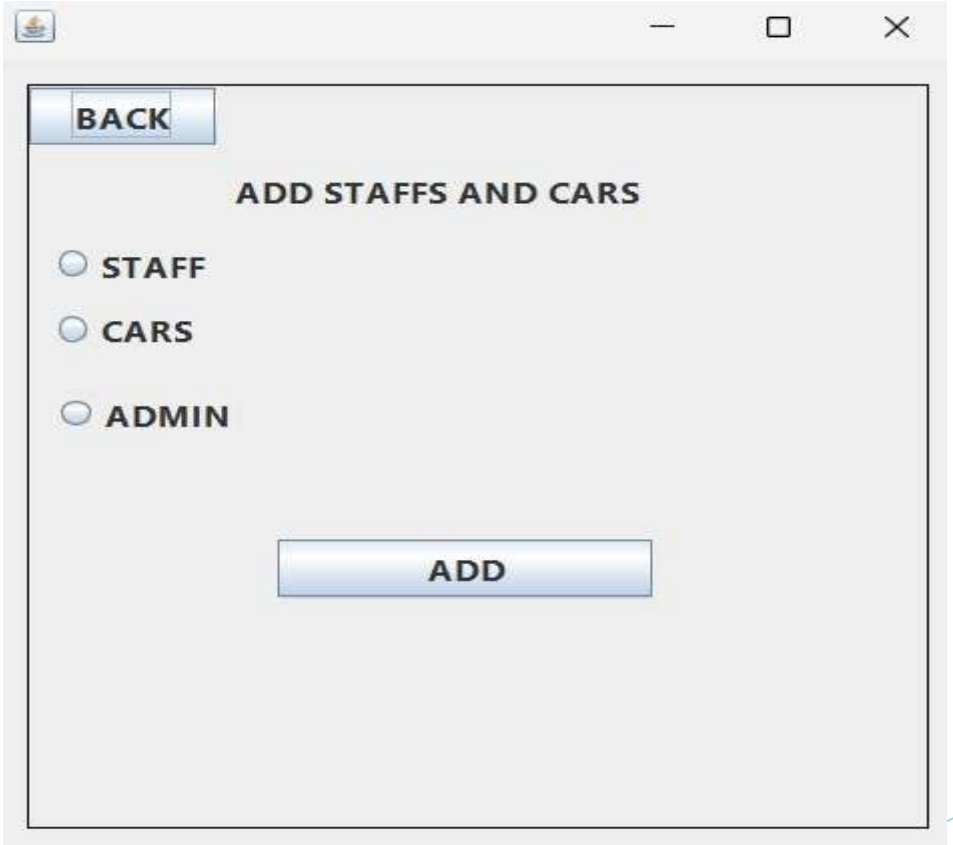
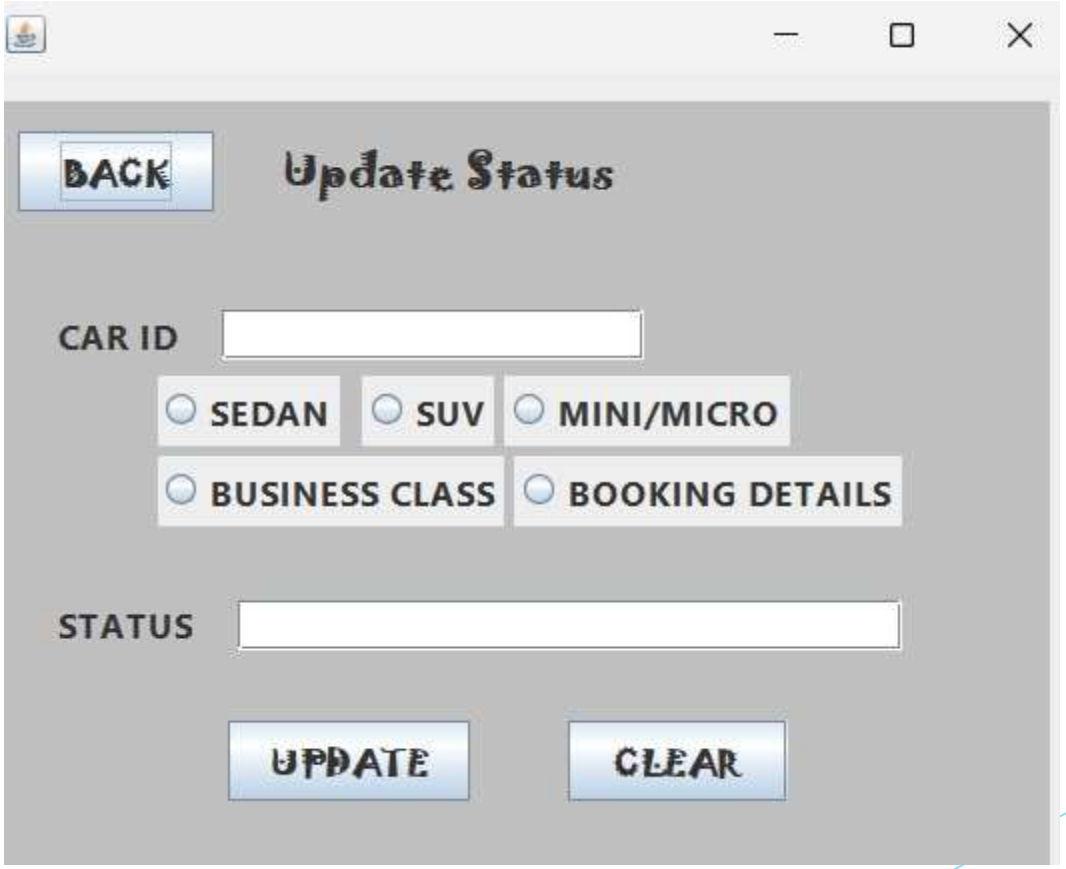

BACK
ADMIN DETAILS
ADMIN ID
Find
FIRST NAME
LAST NAME
Gender
MALE
FEMALE
OTHERS
Aadhar No.
Email ID
Phone No.
Clear

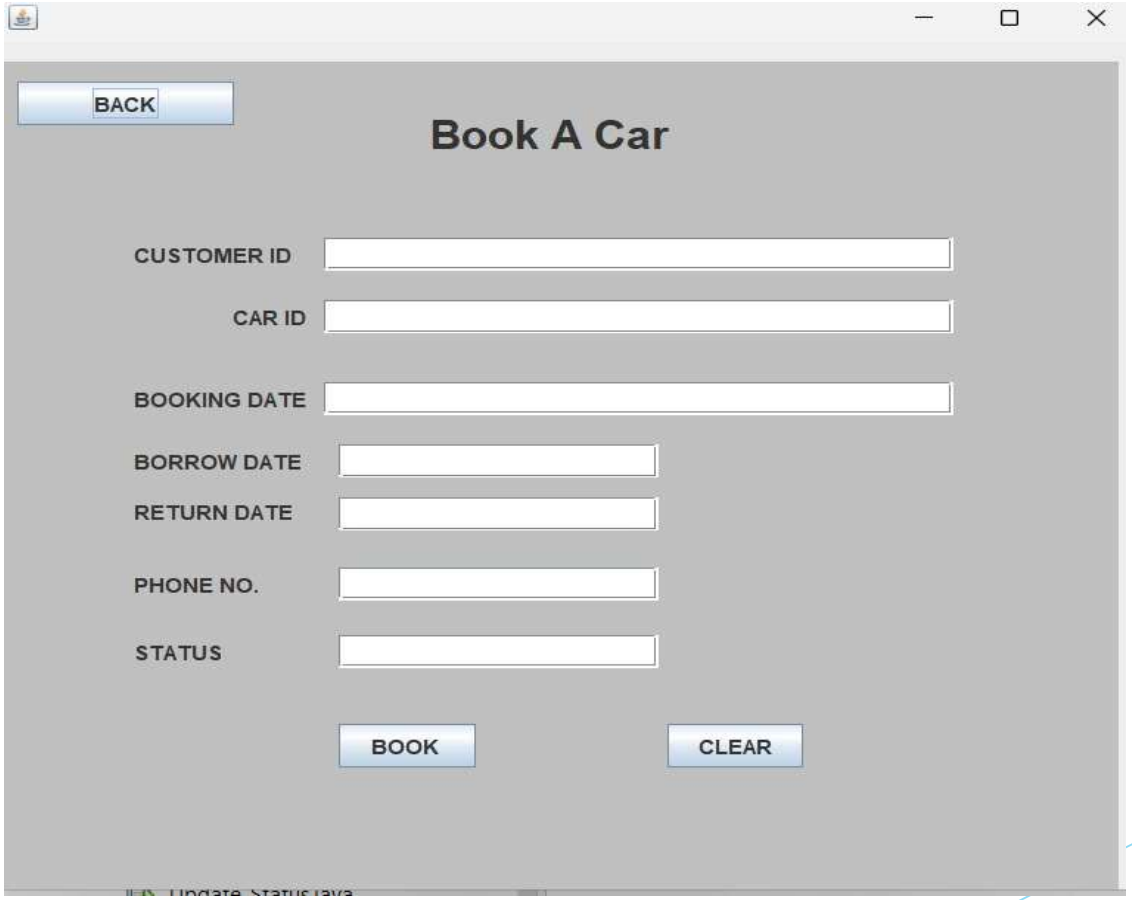

LIST OF TABLES
CARS
CUSTOMER DETAILS
STAFF DETAILS
RENTAL DETAILS
BACK


STAFF
ADD CUSTOMER
VIEW CARS DETAILS
UPDATE STATUS
BOOK A CAR
LOG-OUT

BACK
CAR DETAILS
CAR ID
FIND
TYPE OF CAR
SEDAN
SUV
BUSINESS CLASS
MINI/MICRO
CAR NUMBER
CAR NAME
MILAGE
ENGINE CAPACITY
YEAR OF MANUFACTURE
STATUS
CAR RENTAL RATE
QUANTITY
PRICE
CLEAR


BACK
ADD STAFFS AND CARS
STAFF
CARS
ADMIN
ADD


BACK
Update Status
CAR ID
SEDAN
SUV
MINI/MICRO
BUSINESS CLASS
BOOKING DETAILS
STATUS
UPDATE
CLEAR


BACK
Book A Car
CUSTOMER ID
CAR ID
BOOKING DATE
BORROW DATE
RETURN DATE
PHONE NO.
STATUS
BOOK
CLEAR

Thank You!!!