

A PROJECT REPORT ON

Car Rental System

SUBMITTED TO:

Geetanjali Group of Colleges

FRONT END :

C#.NET

BACK END :

SQL SERVER

AFFILIATED BY : Saurashtra

University

ACADEMIC YEAR :

2024-2025

PROJECT GUIDE:

Prof . Kishorsinh Vala

PREPARED BY:

Gajera Jaiman Valani

Mayank

Acknowledgement

- First of all we are sincerely thanked to Saurashtra University for giving a project as a particular subject.
- I am also greatly grateful to our Geetanjali Group of colleges
- I am also greatly grateful to our college. We would like to thanks **Prof. Brijesh Shah** (HOD) for providing us opportunity to prepare this project.
- To complete this project many persons help me. But I am specially thanked to Prof. Kishorsinh Vala for guiding my project analysis and development. They help me conceptualized the idea of the project and also helped me in streamline my work by providing me every facility required
- Not only college and guide help me but all the well wisher who gives me excellent support in during project.
- Thank to all.

Yours Faithfully,
Gajera Jaiman
&
Valani Mayank

Preface

- ❖ In 21st Century of Technology, Computer and related service is the most useful, automatic and highly speed of work. Bsc.It is course in which practical aspect is important as theoretical aspect. In the present world importance of education is increasing. The project training in a student's life is like a live experience in the industry. If we have experience then & then we get top of the level.
- ❖ Most Important Factor of **Bsc.It** Course is Project Work. The Project Work is Must for Every Student in Different Government or Private Organization during the Study Period.
- ❖ I am developing project in 5th Semester of **Bsc.it** I am the student of Geetanjali Group of Colleges Is Affiliated with Saurashtra University, Rajkot.
- ❖ This project report presents the development and implementation of a Car Rental System designed to streamline the process of renting and returning vehicles. The system is intended to automate various aspects of car rentals, including user authentication, car management, rental processing, and return handling. The project was undertaken to enhance efficiency and accuracy in managing car rental transactions and customer interactions.
- ❖ I have gone through and study necessary information, which is collected and presented in this report. I am trying my best in this project. I have taken almost care that are information provided in The project is true and project is in a smooth running condition and errorfree.

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Car Rental System

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Project Profile

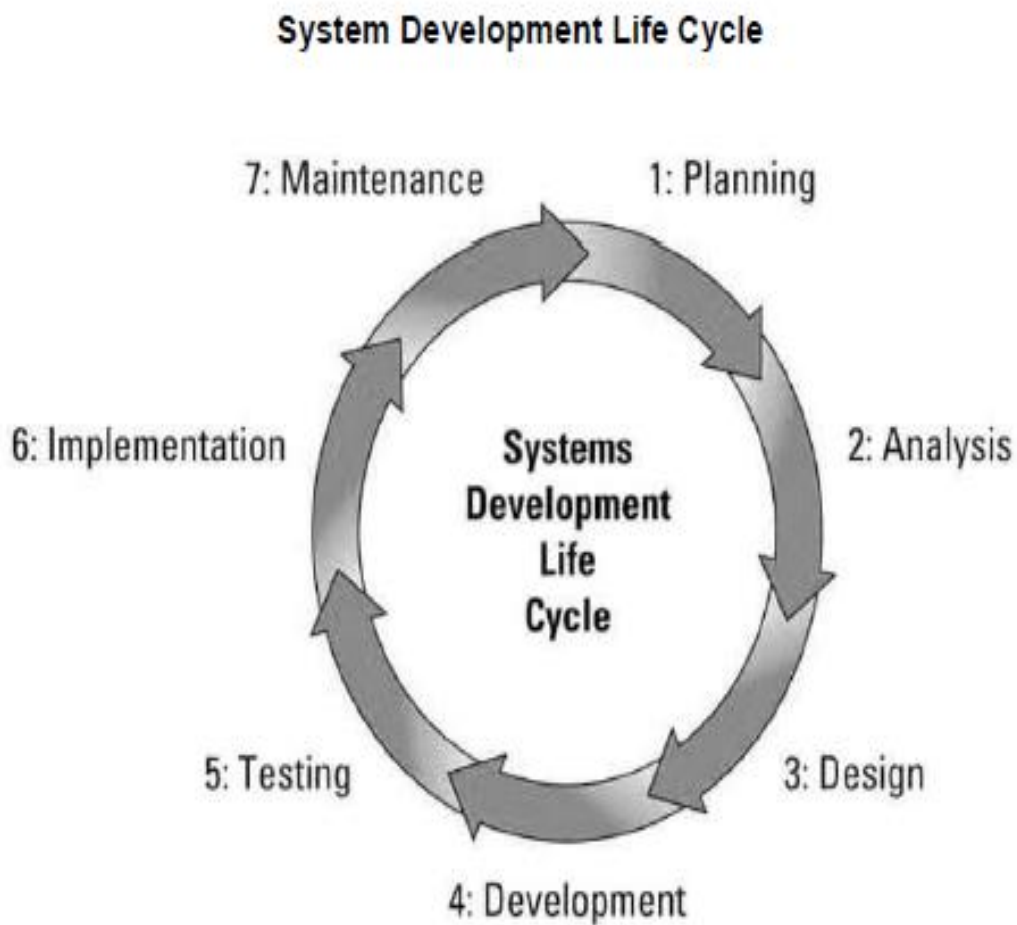
- **Project Title:** Car Rental System
- **Development Software:** Visual Studio 2022
- **Front End:** C#.NET
- **Back End:** SQL Server
- **Academic Year:** 2024-2025
- **Developed By:** Gajera Jaiman & Valani Mayank
- **Submitted To:** Geetanjali Group Of Colleges
- **Documentation Tool:** Microsoft Word
- **Operating System:** Windows 10

Project Requirement

- ❖ **Processor:** Intel core i3 or higher.
- ❖ **RAM:** 8 GB.
- ❖ **Hard Disk:** 250 GB or more

Technology Requirement

- **Platform:** Intel core i3 or higher.
- **Operating System:** Windows 10
- **Front End Tools:** C#.NET
- **Back End Tools:** SQL Server
- **Editing Tool:** Visual Studio 2022



1. Planning

- Define project scope and goals.
- Identify stakeholders (customers, staff, management).
- Conduct feasibility study (technical, operational, financial).
- Develop project timeline and budget.

2. Analysis

- Gather requirements through interviews and surveys.
- Document functional requirements (e.g., vehicle registration, rental).
- Identify non-functional requirements (e.g., performance, security).
- Create use cases and user stories for user interactions.

3. Design

- Design user interfaces with wireframes.
- Create database schema (tables for users, vehicles, billing).
- Create user interface wireframes and prototypes.

4. Development

- Set up the development environment.
- Implement backend logic and database connections.
- Develop frontend interfaces (Software).
- Integrate third-party services (billing processing).

5. Testing

- Conduct unit testing for individual components.
- Perform integration testing for component interaction.
- Execute system testing for overall application functionality.
- Conduct user acceptance testing (UAT) with stakeholders.

6. Implementation

- Migrate existing data if applicable.
- Conduct training sessions for users and staff.
- Launch the system and monitor for initial issues.

7. Maintenance

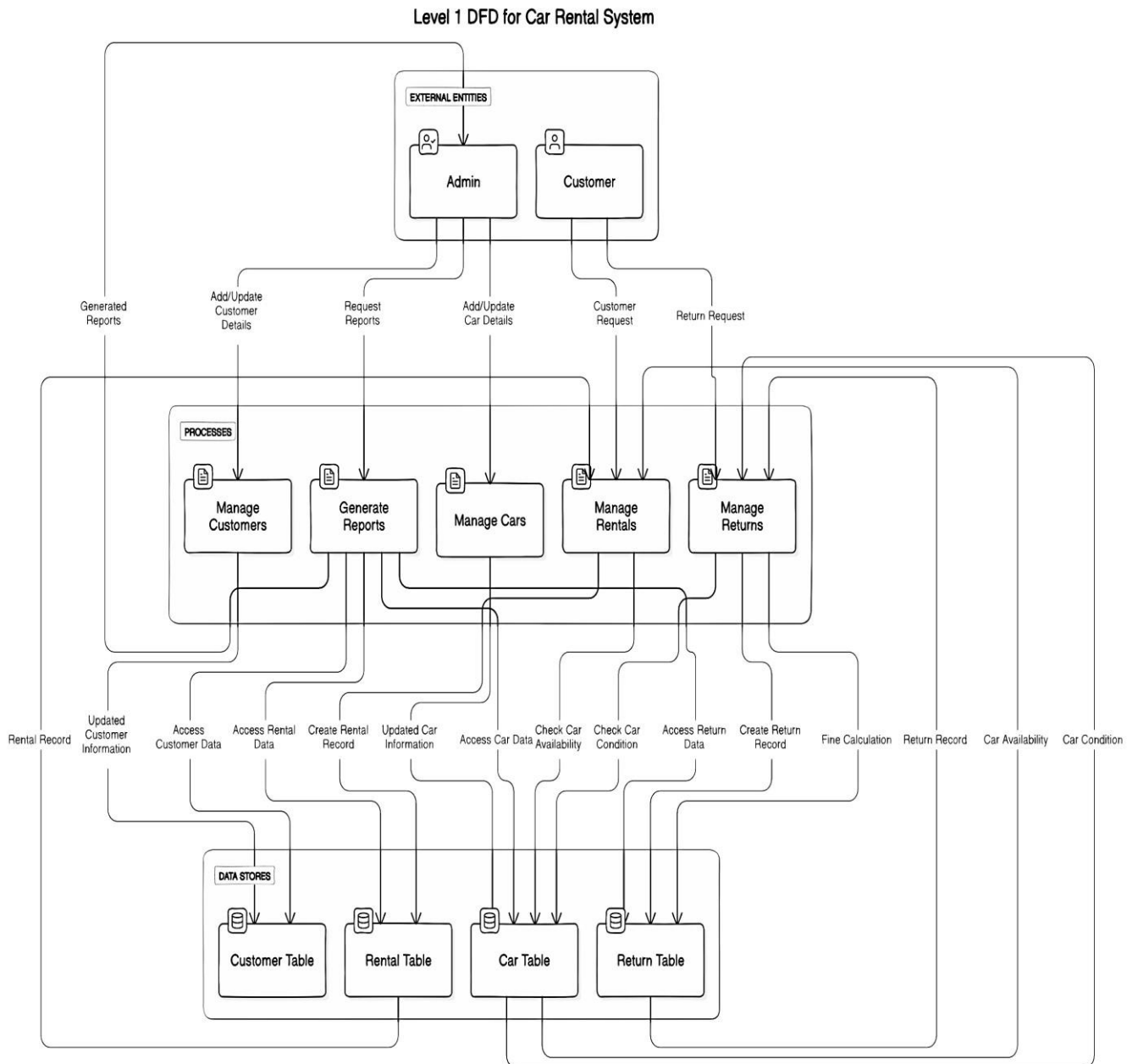
- Provide user support and address reported issues.
- Monitor system performance and optimize as necessary.
- Implement regular updates for features and security.
- Gather feedback for future enhancements.

Car Rental System

Data Flow Diagram

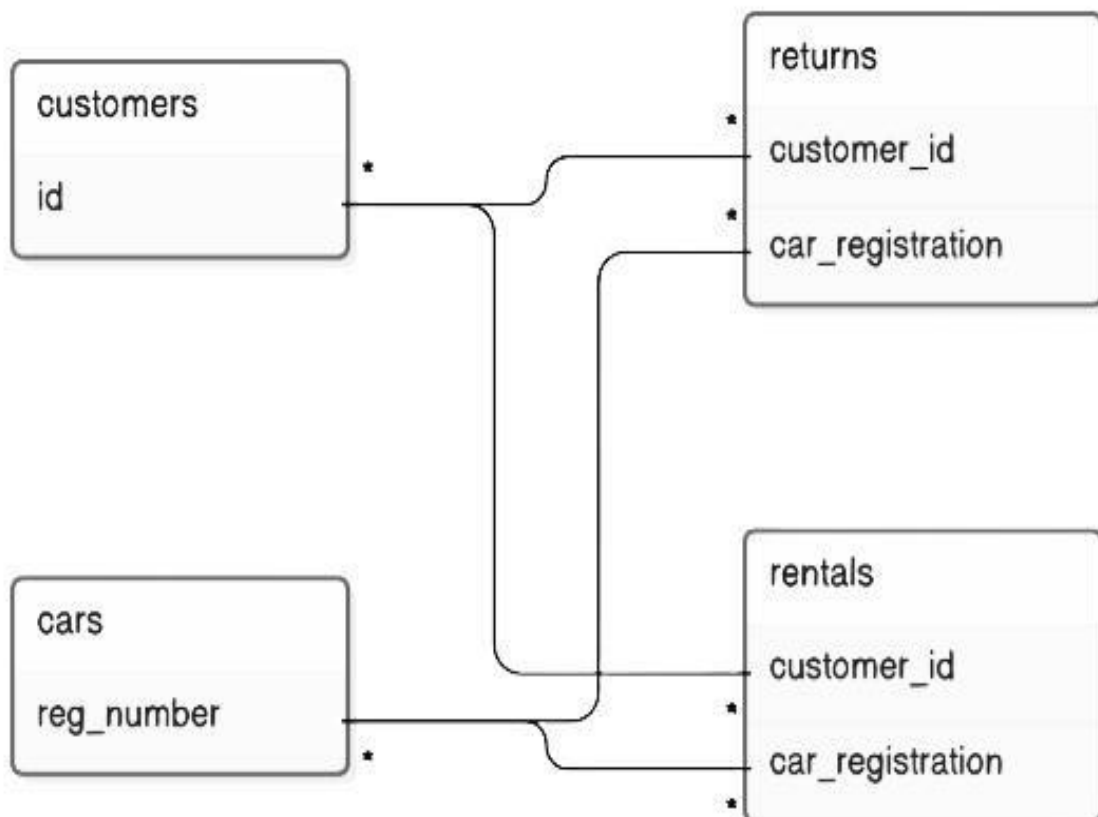
Data Flow Diagram

DFD Level (1)



E-R Diagram

- An entity Relationship Diagram (ERD) is a data modeling technique that graphically illustrates an information system's entities and the relationship between those entities . An ERD is a conceptual and representation model of data used to represent the entity from work infrastructure .



Data Dictionary

Database Tables:

- User Login
- Customer Registration
- Car Registration
- Rental Table
- Return Table

User Login:

Column Name	Data Type	Constraints
User Name	varchar(50)	-
Password	varchar(50)	-

Car Table

Field Name	Data Type	Constraints
Reg Number	VARCHAR(10)	-
Brand	VARCHAR(50)	NOT NULL
Model	VARCHAR(50)	NOT NULL
Available	VARCHAR(50)	NOT NULL
Price	VARCHAR(50)	NOT NULL

CUSTOMER REG:

Field Name	Data Type	Constraints
Customer ID	INT	PRIMARY KEY
Customer Name	VARCHAR(100)	NOT NULL
Customer Address	VARCHAR(255)	NOT NULL
Phone Number	VARCHAR(15)	NOT NULL

RENTAL TABLE:

Field Name	Data Type	Constraints
Rent ID	INT	PRIMARY KEY
Car Registration	VARCHAR(10)	-
Customer Name	VARCHAR(100)	NOT NULL
Rent Date	DATETIME	NOT NULL
Return Date	DATETIME	NOT NULL
Rent Fees	INT	NOT NULL

RETURN TABLE:

Field Name	Data Type	Constraints
Return ID	INT	PRIMARY KEY
Car Registration	VARCHAR(10)	NOT NULL
Customer Name	VARCHAR(100)	NOT NULL
Return Date	DATETIME	NOT NULL
Delay	VARCHAR(50)	NOT NULL
Fine	INT	NOT NULL

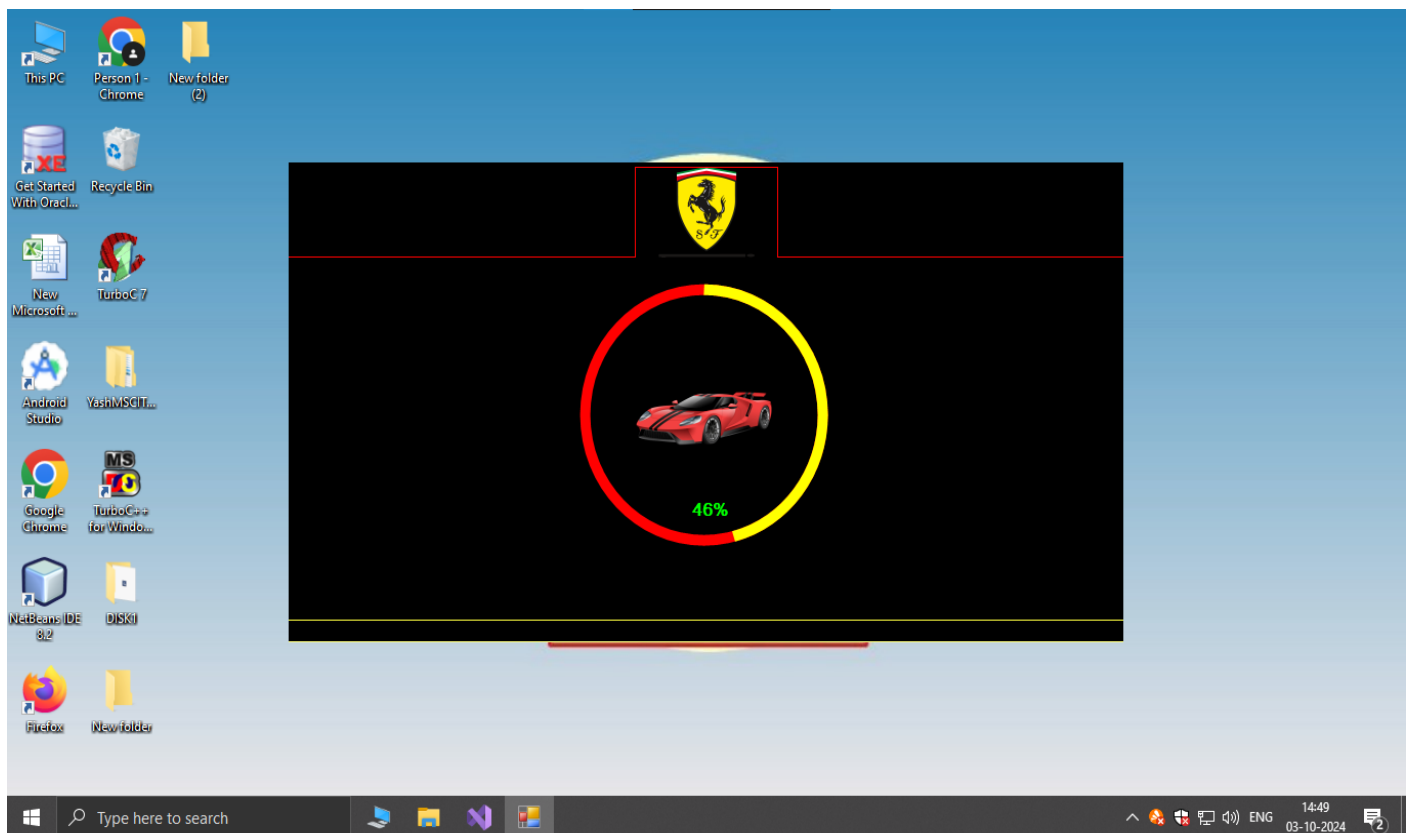
Car Rental System

Test Cases

Case Name	Case Description	Actual Output	Test Result
Login	Log in with valid credentials.	User is logged in and redirected to the homepage.	Pass
Login Invalid	Attempt to log in with invalid credentials.	Error message indicating invalid login credentials.	Pass
Register User	Register a new user with valid details.	User is successfully registered and can log in.	Pass
Register Existing User	Attempt to register a user with an already existing email.	Error message indicating the email is already in use.	Pass
Rent Car	Rent a car with valid details.	Car is successfully rented, and details are recorded.	Pass
Return Car	Return a rented car within the rental period.	Car is successfully returned, and the rental record is updated.	Pass
View Rental History	View the rental history for a user.	A list of all past rentals for the user is displayed.	Pass
View Car Details	View details of a specific car.	Details of the specific car are displayed.	Pass
Search Car	Search for cars based on various filters (e.g., make, model).	List of cars matching the search criteria is displayed.	Pass
Add Admin	Create a new admin user.	Admin user is created and has admin privileges.	Pass
Remove Admin	Remove an existing admin user.	Admin user is removed from the system.	Pass
View Available Cars	View a list of cars available for rent.	List of currently available cars is displayed.	Pass
Add Car	Add a new car to the inventory.	Car is successfully added and listed in the available cars.	Pass
Remove Car	Remove an existing car from the inventory.	Car is successfully removed from the inventory.	Pass
Update Car Details	Update details of an existing car.	Car details are updated and saved.	Pass

Screen Shots

Loading Page:



➤ This is the loading page for the software.

Screen Shots

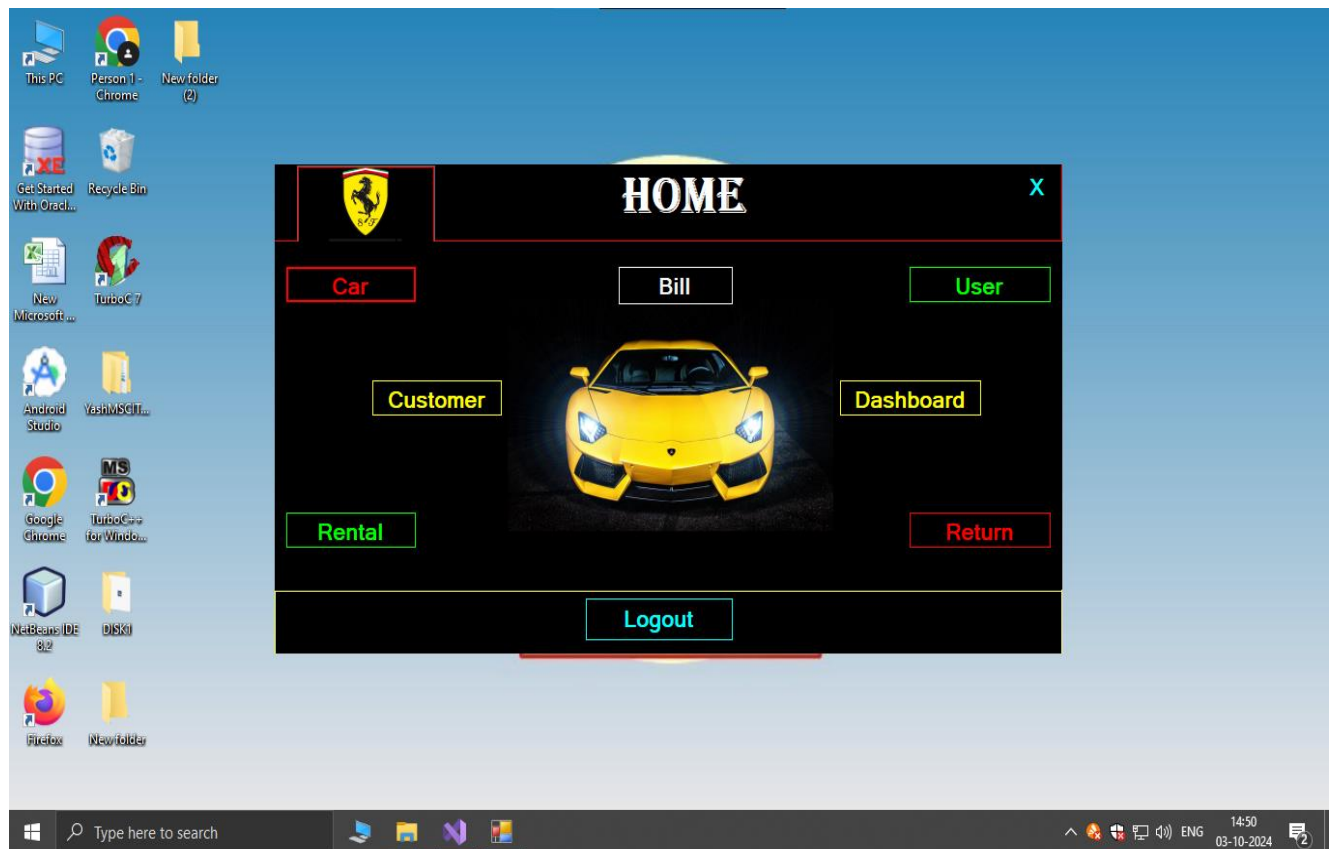
Login Page:



- This is the login page for the software.
- Admin can login using this page.

Screen Shots

Home Page:



- This is a home page. It's used rent car, add car, return car, create users and all.

Screen Shots

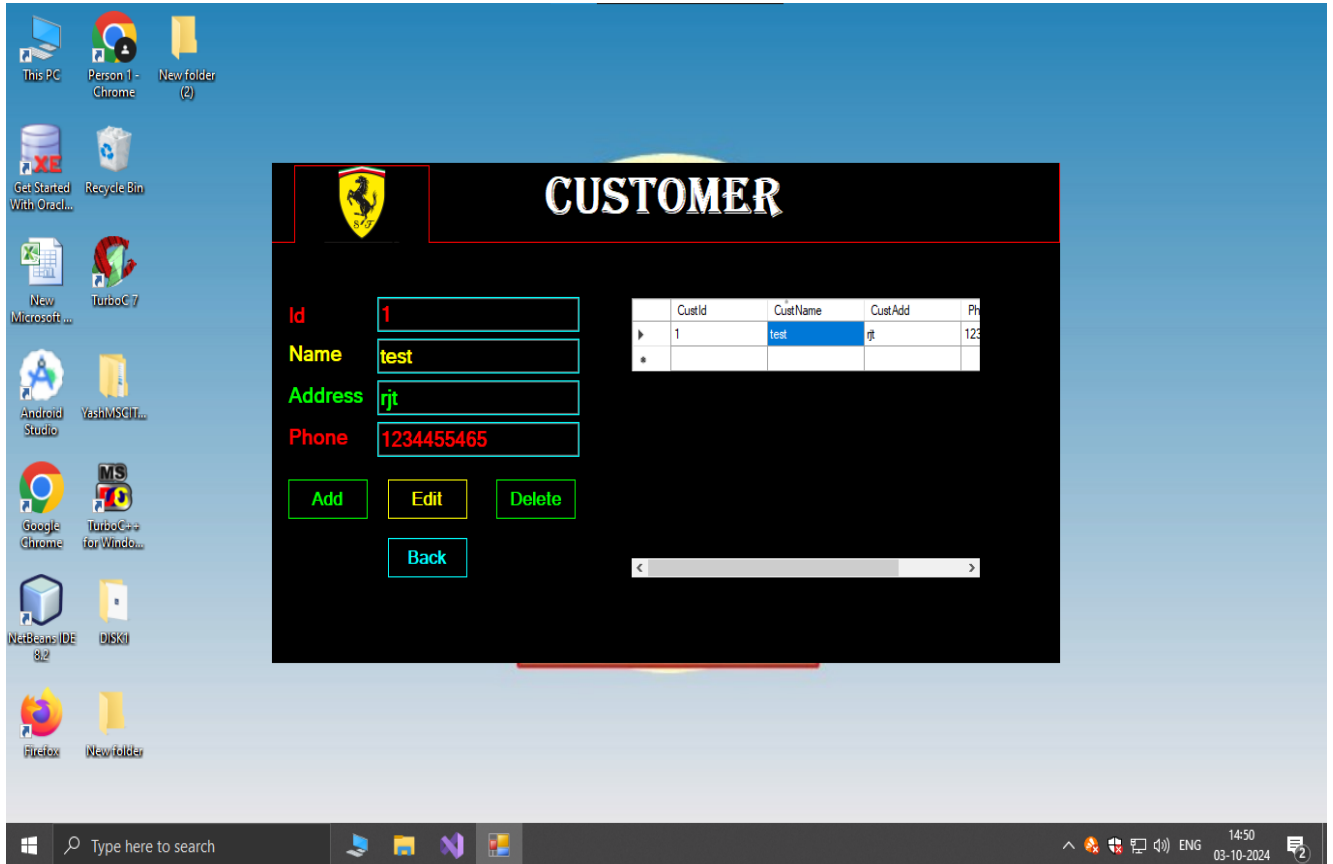
Car Register:



➤ This page is used to register car details.

Screen Shots

Customer Page:



The screenshot shows a Windows desktop with a blue background. A web application window titled "CUSTOMER" is open, featuring a Ferrari logo on the left. The application has a dark theme with red, yellow, and green text and buttons. It includes input fields for "Id", "Name", "Address", and "Phone". Below these fields are buttons for "Add", "Edit", "Delete", and "Back". To the right of the input fields is a table with columns "CustId", "CustName", "CustAdd", and "Ph". The table contains one row with the values "1", "test", "rjt", and "123".

CustId	CustName	CustAdd	Ph
1	test	rjt	123

➤ This page is used to upload details of Customer.

Screen Shots

Rental Page:

The screenshot shows a Windows desktop with various icons on the left. The 'RENT CAR' application window is open, featuring a Ferrari logo and a title bar. The form contains the following fields:

- Id**: 1
- CarReg**: bmwtop2332
- CustId**: 1
- CustName**: test
- RentalDate**: 30 September 2024
- ReturnDate**: 04 October 2024
- Fee**: 100

To the right of the form is a table with the following data:

RentId	carReg	CustName
1	bmwtop2...	test

At the bottom of the window are three buttons: **Add** (green), **Delete** (red), and **Back** (blue). The Windows taskbar at the bottom shows the search bar, task view, and system tray with the date 03-10-2024 and time 14:51.

- This page is used to give cars on rent.
- This page also shows all the rental details.

Screen Shots

Bill Page:

The screenshot shows a Windows desktop with various icons on the left and a taskbar at the bottom. A window titled 'BILL' is open, featuring a Ferrari logo in the top-left corner. The window contains a form with the following fields and values:

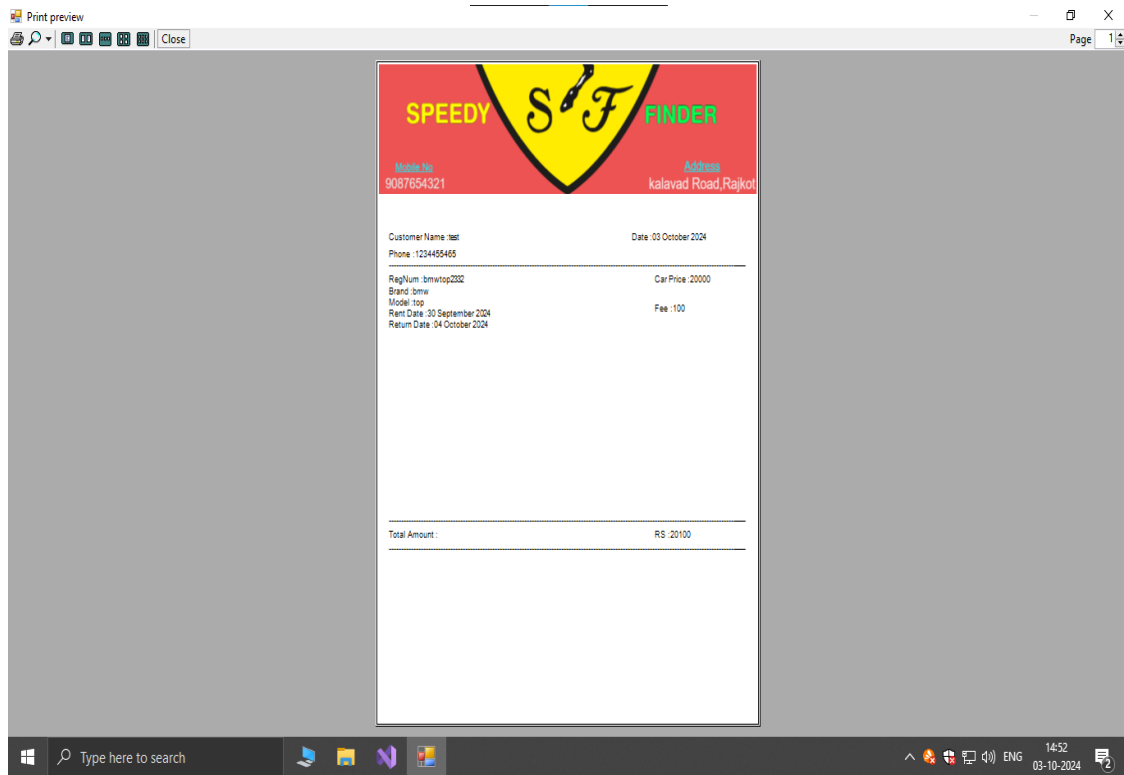
Field	Value
Name	test
Phone	1234455465
RentalDate	30 September 2024
ReturnDate	04 October 2024
Fee	100
RegNo	bmwtop2332
Brand	bmw
Model	top
Price	20000
Total	20100

Below the form, there are three buttons: 'Print', 'Preveiw' (misspelled), and 'Back'. A date selector shows '03 October 2024'. The taskbar at the bottom shows the Windows logo, a search bar, and several application icons. The system tray on the right shows the time '14:51' and the date '03-10-2024'.

➤ This page Generates Bills.

Screen Shots

Bill Preview Page:



➤ This is Page shows Preview of Bill.

Screen Shots

Return Page:

RETURN

Cars on Rent

RentId	carReg	CustName	Ret
1	bmwtop2...	test	30-0
2	bmwtop2...	test	30-0

Id 1

Carid bmwtop2332

Name test

ReturnDate 30 September 2024

Delay 9

Fine 2250

Returned Cars

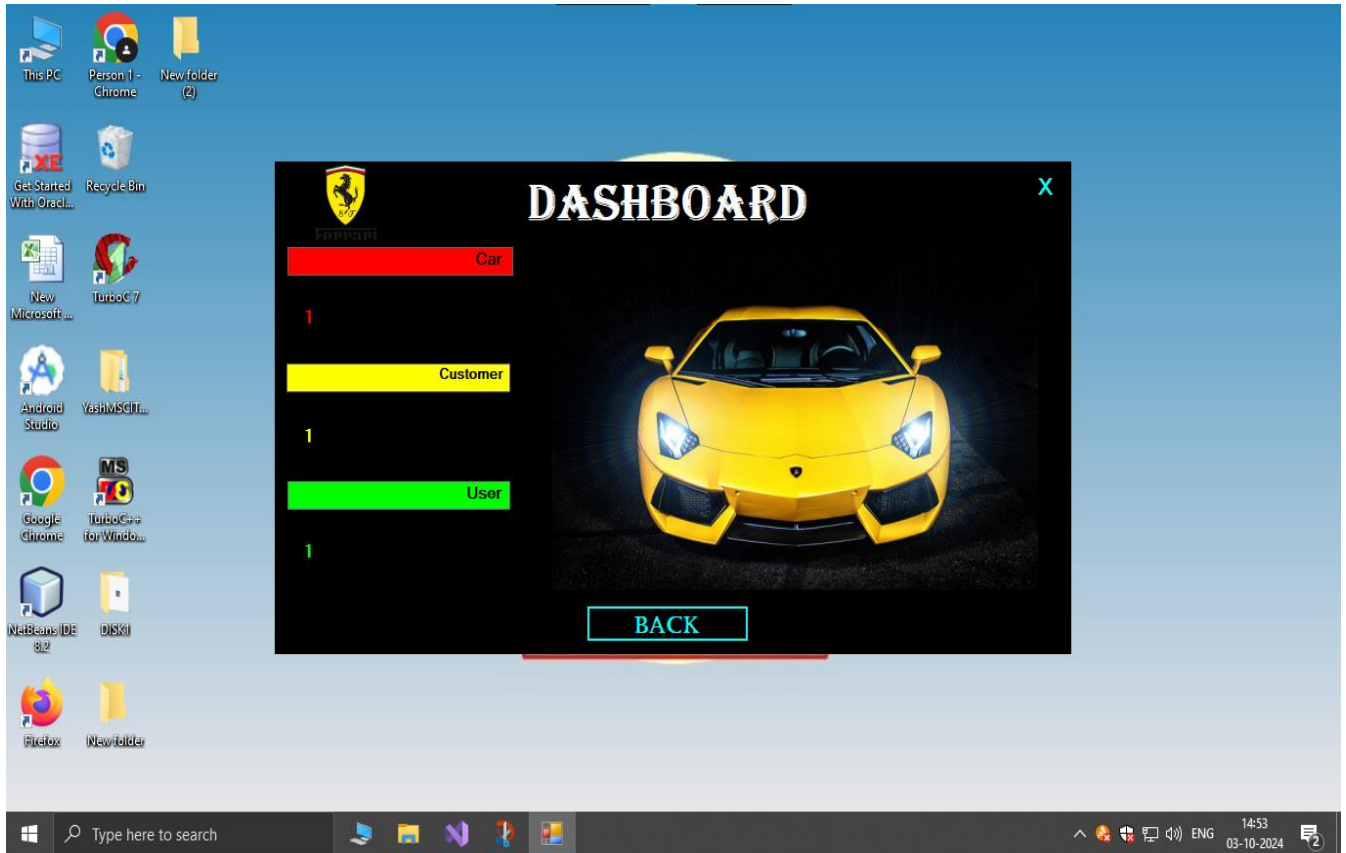
ReturnId	carReg	CustName	Ret
1	bmwtop2...	test	30-0

Add **Delete** **Back**

- This Page is used to Return Car and it also shows all the details of Rented Cars and returned cars.
- You can also add FINE to the late Returns.

Screen Shots

Profile Page:



➤ This is a Dashboard Page.

Screen Shots

User Register Page:

USER REGISTER

Id

Name

Password

Id	Uname	Upass
1	admin	admin
*		

➤ This is Page is used to create users.

Future Enhancement

- **Dynamic Pricing Model**
 - Adjust rental rates based on demand and other factors.
- **AI-Based Recommendations**
 - Offer personalized car recommendations based on user preferences.
- **Subscription Model**
 - Provide monthly rental plans with benefits and discounts.
- **Enhanced Analytics Dashboard**
 - Track rental patterns, user demographics, and financial performance.
- **Customer Feedback System**
 - Allow users to rate and review their rental experience.

Webliography

□

- ❖ <https://learn.microsoft.com/en-us/dotnet/>
- ❖ <https://learn.microsoft.com/en-us/dotnet/csharp/programming-guide/concepts/>
- ❖ <https://stackoverflow.com/>
- ❖ <https://www.geeksforgeeks.org/csharp-programming-language/>