



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

**SESSION 2022/2023, SEMESTER 1
SECP3723-01 (SYSTEM DEVELOPMENT
TECHNOLOGY)**

INDIVIDUAL PROJECT

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1) System Introduction

A car booking system allows users to reserve and rent vehicles online or through a mobile application. The system usually includes features such as vehicle search, reservation management, payment processing, and customer account management. The system aims to simplify the car rental process and provide customers with a convenient and efficient way to rent vehicles. The system may also provide rental companies with tools to manage their fleet and track rental activity.

To rent a car, customers must create an account with the system by providing necessary information such as their email, password, full name, address, contact number, license number, and identification number. Once registered, customers can log into their account using their ID and password, view available cars, and make a reservation by filling out a booking form with their preferred car and rental dates. They can then check the status of their booking to see if it has been approved or rejected, with a waiting period of 1-3 business days for verification by the system administrator.

Customers can also modify or cancel their reservation and search for their booking using their booking ID. Additionally, they can update their profile information as needed. On the other hand, the administrator can manage the rental process by verifying rental statuses, adding vehicles, updating vehicle information, searching for customer bookings, and viewing a list of approved and unapproved bookings. Admin will also reflect the updated vehicle information on the customer's side.

2) System Design

System Use Case Diagram

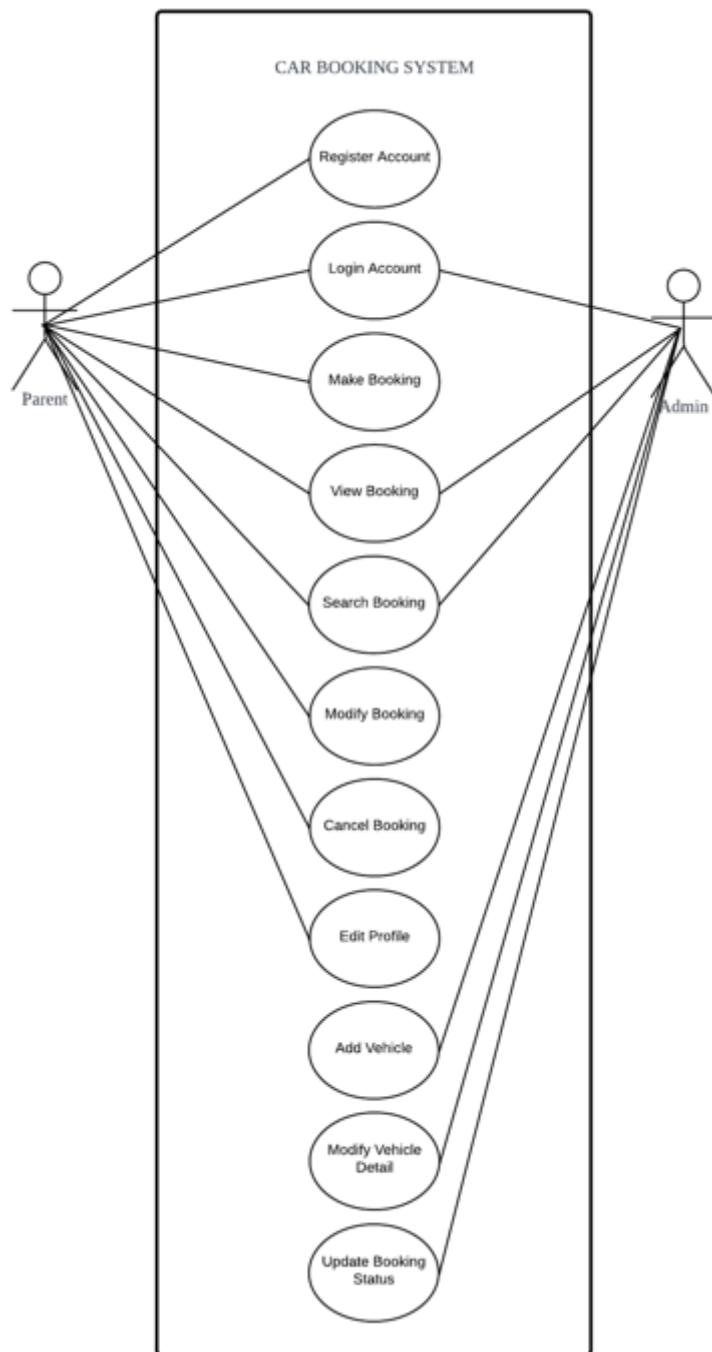


Figure 1

System ERD

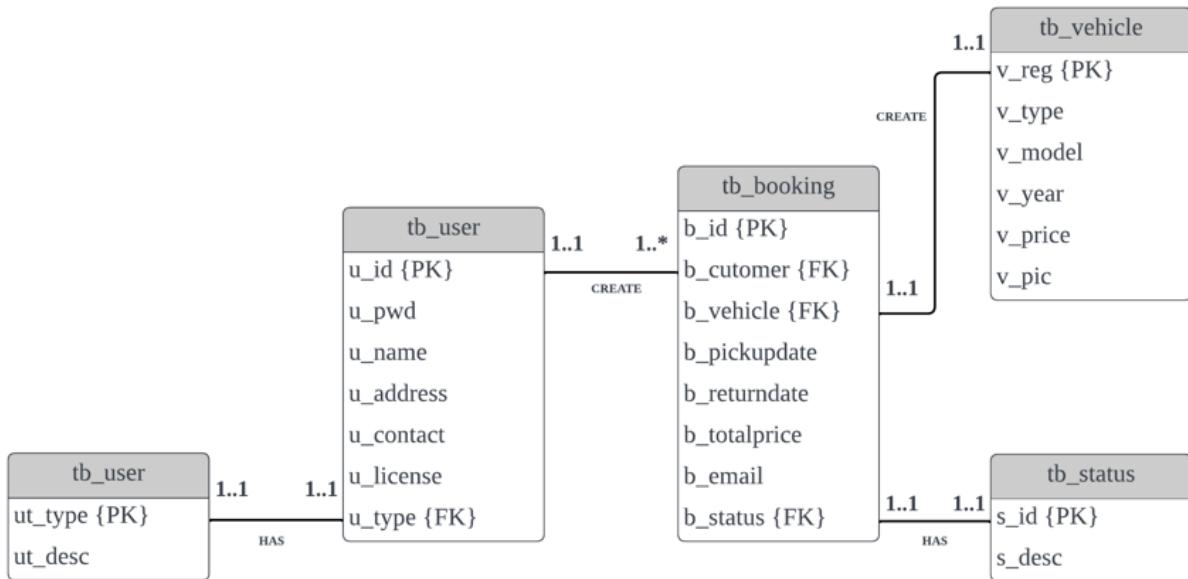


Figure 2

3) Development Software, Language, Technology, and Tools

3.1) Software

phpMyAdmin	phpMyAdmin is a free and open-source web-based tool for administering MySQL and MariaDB databases. It allows users to run SQL queries, import/export data, manage databases, tables, and fields, and manage user accounts. http://localhost/phpmyadmin/index.php?route=/database/structure&db=db_cbs1
Sublime	Sublime text is a fast and customizable text editor that supports multiple coding languages. It has a stylish user interface with features like multiple selections, distraction-free mode, split editing, and a minimap. https://www.sublimetext.com/3
FileZilla	FileZilla is a free and open-source FTP client and server program for transferring files between a local computer and a server. It supports SFTP, FTPS, and FTP (SSH) protocols and has a user-friendly interface for transferring, managing remote files and folders, and setting up FTP connections. It also allows for resuming large file transfers and recording transfer activities.

	https://filezilla-project.org/download.php?type=client
Bootstrap	Bootstrap is a free, open-source CSS framework directed at responsive, mobile-first front-end web development. It contains HTML, CSS, and JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components. https://bootstrapstudio.io/student-pack

3.2) Language

HTML	HTML is a markup language used to create web pages and online content. It uses tags and attributes to specify web page structure, content, and style. HTML files contain text-based instructions for the web browser to display the content. HTML elements like headings, paragraphs, lists, images and links convey the type of content.
PHP	PHP is a server-side scripting language used to create dynamic web pages and applications. It manages sessions, communicates with databases, processes form data, and creates dynamic content. PHP code is executed on the server, and HTML, CSS, and JavaScript are rendered on the client's browser, allowing real-time updates without page refresh. PHP is popular, open-source, and compatible with most web servers, making it an accessible and affordable option for web development.
MySQL	Is an open-source relational database management system. Its name combines "My," the name of co-founder Michael Widenius's daughter My, and "SQL," the acronym for Structured Query Language.

3.3) Tools

CSS	CSS (Cascading Style Sheets) is a styling language used to enhance the appearance and design of HTML documents. It allows the HTML to be presented in an attractive and user-friendly manner. https://bootswatch.com
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3.4) Technology

XAMPP	XAMPP is an open-source tool stack of Apache, MariaDB, PHP, and Perl for developing and testing web applications locally on a computer. It allows developers to run a web server on their PC, eliminating the need for
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	<p>remote hosting for development and testing.</p> <p>https://www.apachefriends.org/download.html</p>
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4) Database Design

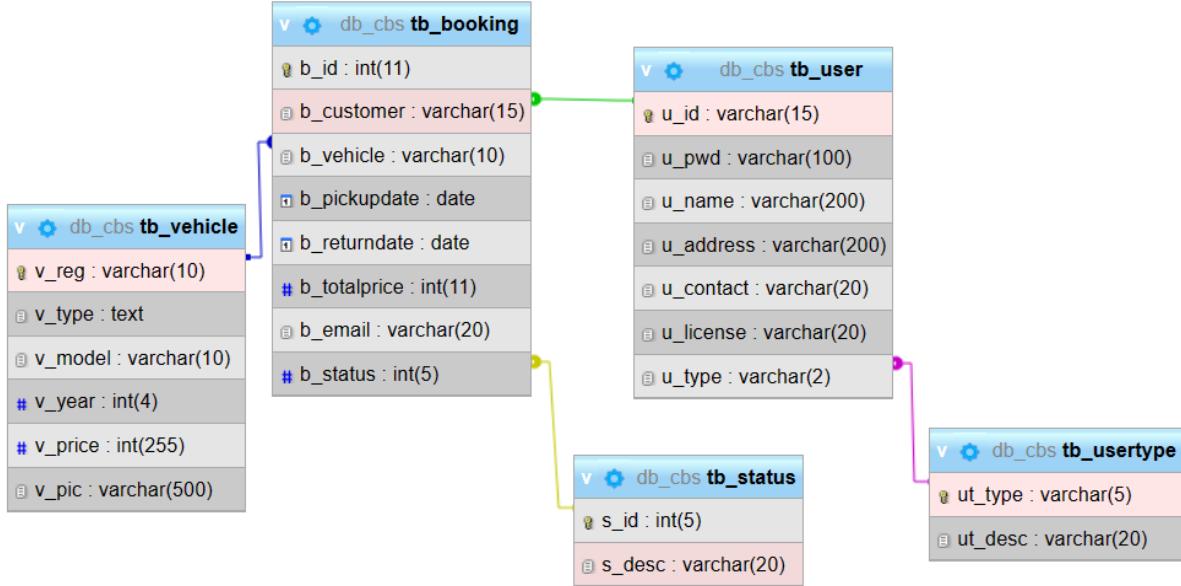


Figure 3: Database phpMyAdmin Designer

4.1) Database Table

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	b_id	int(11)			No	None		AUTO_INCREMENT	More
2	b_customer	varchar(15)	utf8mb4_general_ci		No	None			More
3	b_vehicle	varchar(10)	utf8mb4_general_ci		No	None			More
4	b_pickupdate	date			No	None			More
5	b_returndate	date			No	None			More
6	b_totalprice	int(11)			No	None			More
7	b_email	varchar(20)	utf8mb4_general_ci		No	None			More
8	b_status	int(5)			No	None			More

Figure 4: Booking Table

4.2) Database Table 2

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action		
<input type="checkbox"/>	1	s_id 	int(5)			No	None			 Change	 Drop	More
<input type="checkbox"/>	2	s_desc	varchar(20)	utf8mb4_general_ci		No	None			 Change	 Drop	More

Figure 5: Status Table

4.3) Database Table 3

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action		
<input type="checkbox"/>	1	u_id 	varchar(15)	utf8mb4_general_ci		No	None			 Change	 Drop	More
<input type="checkbox"/>	2	u_pwd	varchar(100)	utf8mb4_general_ci		No	None			 Change	 Drop	More
<input type="checkbox"/>	3	u_name	varchar(200)	utf8mb4_general_ci		No	None			 Change	 Drop	More
<input type="checkbox"/>	4	u_address	varchar(200)	utf8mb4_general_ci		Yes	NULL			 Change	 Drop	More
<input type="checkbox"/>	5	u_contact	varchar(20)	utf8mb4_general_ci		No	None			 Change	 Drop	More
<input type="checkbox"/>	6	u_license	varchar(20)	utf8mb4_general_ci		No	None			 Change	 Drop	More
<input type="checkbox"/>	7	u_type 	varchar(2)	utf8mb4_general_ci		No	None			 Change	 Drop	More

Figure 6: User Table

4.4) Database Table 4

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action		
<input type="checkbox"/>	1	ut_type 	varchar(5)	utf8mb4_general_ci		No	None			 Change	 Drop	More
<input type="checkbox"/>	2	ut_desc	varchar(20)	utf8mb4_general_ci		No	None			 Change	 Drop	More

Figure 7: User Type Table

4.5) Database Table 5

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action		
<input type="checkbox"/>	1	v_reg 	varchar(10)	utf8mb4_general_ci		No	None			 Change	 Drop	More
<input type="checkbox"/>	2	v_type	text	utf8mb4_general_ci		No	None			 Change	 Drop	More
<input type="checkbox"/>	3	v_model	varchar(10)	utf8mb4_general_ci		No	None			 Change	 Drop	More
<input type="checkbox"/>	4	v_year	int(4)			Yes	NULL			 Change	 Drop	More
<input type="checkbox"/>	5	v_price	int(255)			No	None			 Change	 Drop	More
<input type="checkbox"/>	6	v_pic	varchar(500)	utf8mb4_general_ci		No	None			 Change	 Drop	More

Figure 6: Vehicle Table

5) Development Steps

A. Requirement Gathering and Analysis

- i) Determine the user needs and gather information about the system's functionality and constraints of the system.
- ii) Learn and analyse the case study about the car booking system
- iii) Analyse system goals, purpose and user.
 - Goal: Provide a simple booking platform for customers to book a car.
 - Purposes: Create a systematic booking procedure between dealer and customer..
 - User: Customer and Admin

B. System Design

- Database design using database steps until the database achieves at least 3NF.
- Interface design by using some prototype or online template.

C. Database Creation

- Create entities in the phpMyAdmin.
- Put all the attributes according to the database design earlier into their specific entity.
- Create all the relationships between the entity.

D. Developing

- Write the code into Sublime using PHP language.
- Use the XAMPP to create the live server and use it for the developing phases.
- Use Bootstrap as a template for the design.

E. Testing and Maintaining The System

- Repeat the system testing process on various devices multiple times.
- Evaluate the application's functionality and performance to meet all desired specifications.
- Have a third-party user of the system validate its functionality.
- Confirm that the system adheres to all requirements and is operating efficiently.
- Address any problems identified during the testing phase.
- Ensure the system's security, stability, and performance and rectify any problems that arise.

F. Implementing and Evaluating The system

- Recognize and make changes to improve the application's functionality and user experience.
- Confirm that the application is set up correctly and has all the necessary security measures.

6) System Interface For All Users

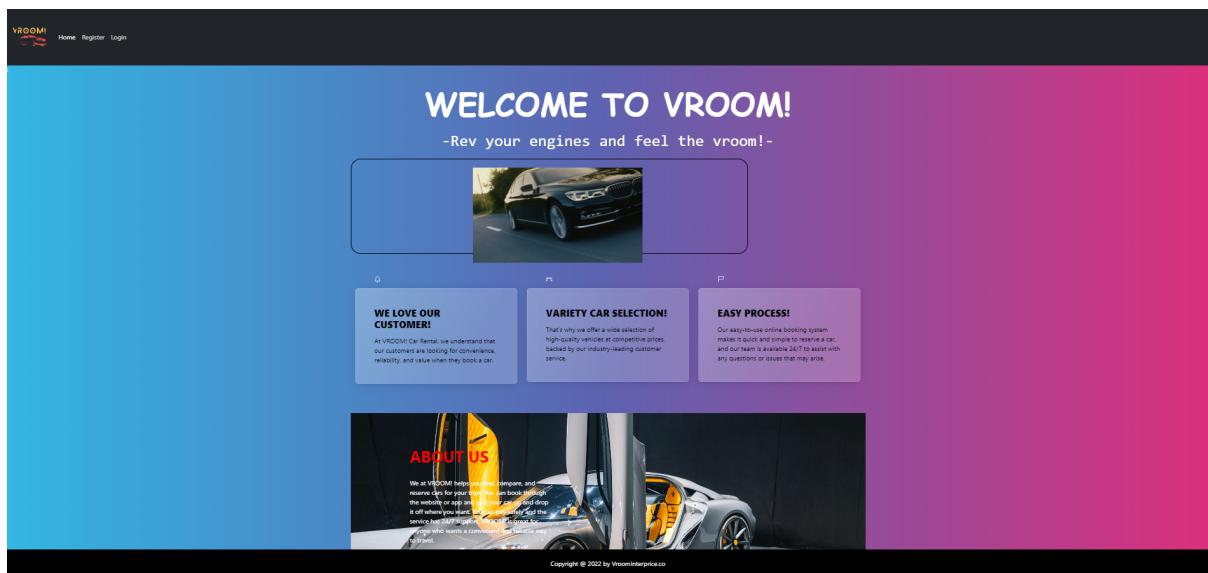
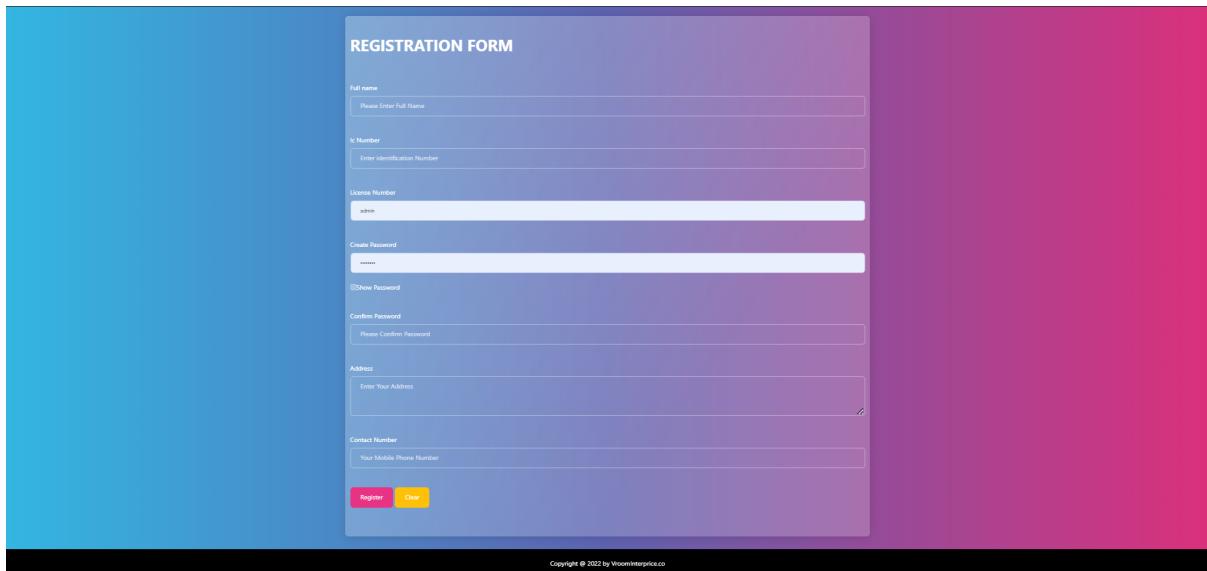
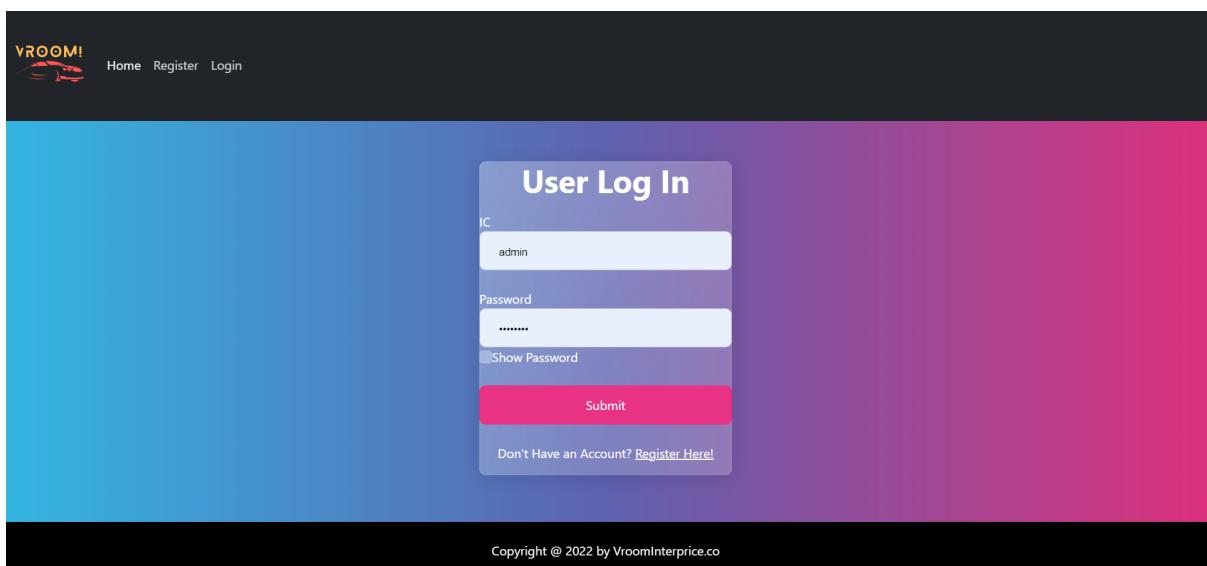


Figure 7: Main Page



The screenshot shows a dark-themed main page with a light blue header bar. The header contains the Vroom logo, a search bar with placeholder text 'Search', and navigation links for 'Home', 'About', 'Services', 'Contact', and 'Logout'. Below the header is a large, semi-transparent call-to-action button with white text that reads 'Get Started'.

Figure 8: Account Register Page



The screenshot shows the account registration page. At the top, there is a navigation bar with the Vroom logo, 'Home', 'Register', and 'Login' links. The main content area has a light blue gradient background and features a registration form titled 'REGISTRATION FORM'. The form includes fields for 'Full name', 'V Number', 'License Number', 'Create Password', 'Confirm Password', 'Address', and 'Contact Number'. It also includes 'Show Password' checkboxes and 'Register' and 'Clear' buttons at the bottom. A copyright notice 'Copyright @ 2022 by VroomInterprice.co' is at the bottom.

Figure 9: User Login Page

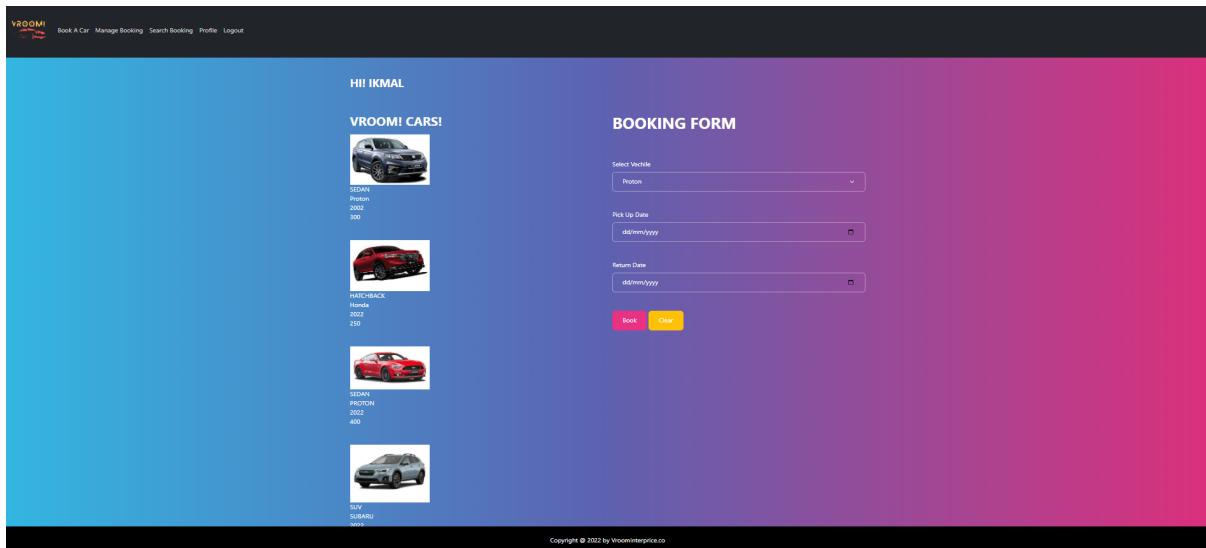


Figure 10: Customer Main Page

YOUR BOOKING						
BOOKING ID	VEHICLE	PICKUP DATE	RETURN DATE	TOTAL PRICE	STATUS	OPERATION
20	Proton	2023-01-29	2023-01-30	300	REJECTED	<button>Modify</button> <button>Cancel</button>
36	Perodua	2023-01-30	2023-02-06	2800	REJECTED	<button>Modify</button> <button>Cancel</button>
37	Honda	2023-01-31	2023-02-01	250	RECEIVED	<button>Modify</button> <button>Cancel</button>

Figure 11: Customer View Booking Page

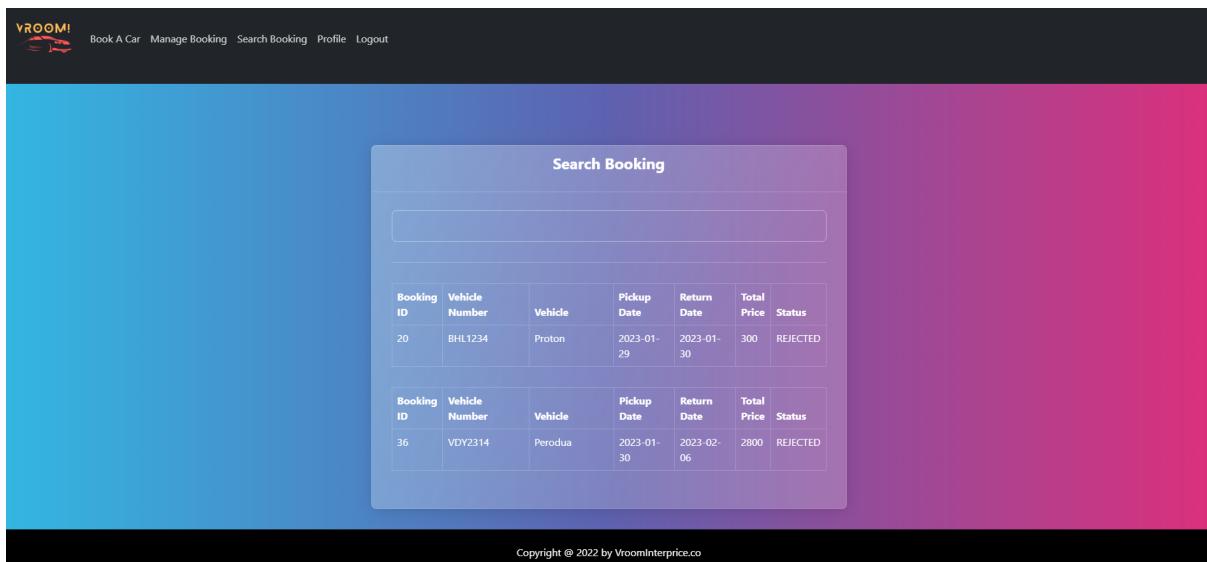


Figure 12: Customer Booking Search

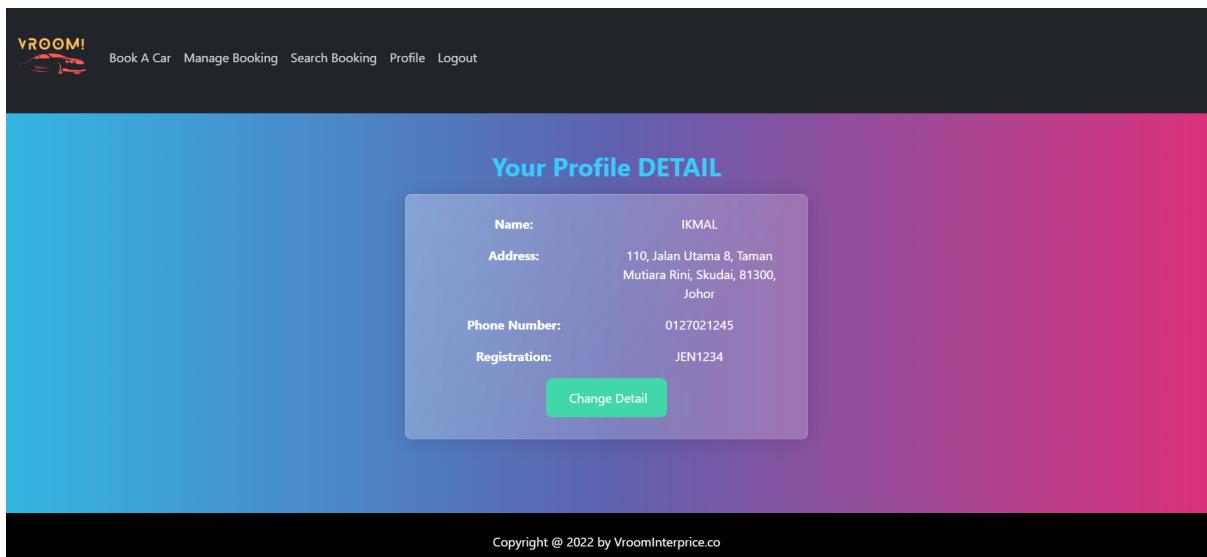


Figure 13: Customer Profile Details

Edit Profile Details

Full Name
IKMAL

Change Password
.....
 Show Password

Confirm Change Password
Please Confirm Password

Address
110, Jalan Utama 8, Taman Mutuara Ria, Skudai, 81300, Johor

Contact Number
0127012345

Licence Number
JN1234

Modify

Figure 14: Customer Modify Profile

YOW! Welcome To Work! MUHAMMAD HARITH HAKIM BIN OTHMAN

CUSTOMER 5

BOOKING 3

VEHICLE 5

ADMIN 1

BOOKING APPROVAL

BOOKING ID	NAME	VEHICLE	PICKUP DATE	RETURN DATE	TOTAL PRICE	STATUS	OPERATION
37	IKMAL	Honda	2023-01-31	2023-02-01	250	RECEIVED	APPROVAL

Figure 15: Admin Dashboard

BOOKING LIST DASHBOARD

BOOKING ID	NAME	VEHICLE	PICKUP DATE	RETURN DATE	TOTAL PRICE	STATUS	OPERATION
20	IKMAL	Proton	2023-01-29	2023-01-30	300	REJECTED	<button>CHANGE</button>
36	IKMAL	Perodua	2023-01-30	2023-02-06	2800	REJECTED	<button>CHANGE</button>

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Figure 16: Admin Booking List Dashboard

VEHICLE INVENTORY DASHBOARD

REGISTRATION NUMBER	VEHICLE	TYPE	MODEL	YEAR	PRICE	OPERATION
BHL1234		SEDAN	Proton	2002	300	<button>MODIFY</button> <button>DELETE</button>
JEN2367		HATCHBACK	Honda	2022	250	<button>MODIFY</button> <button>DELETE</button>
JWQ 9091		SEDAN	PROTON	2022	400	<button>MODIFY</button> <button>DELETE</button>

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Figure 17: Vehicle Inventory DashBoard

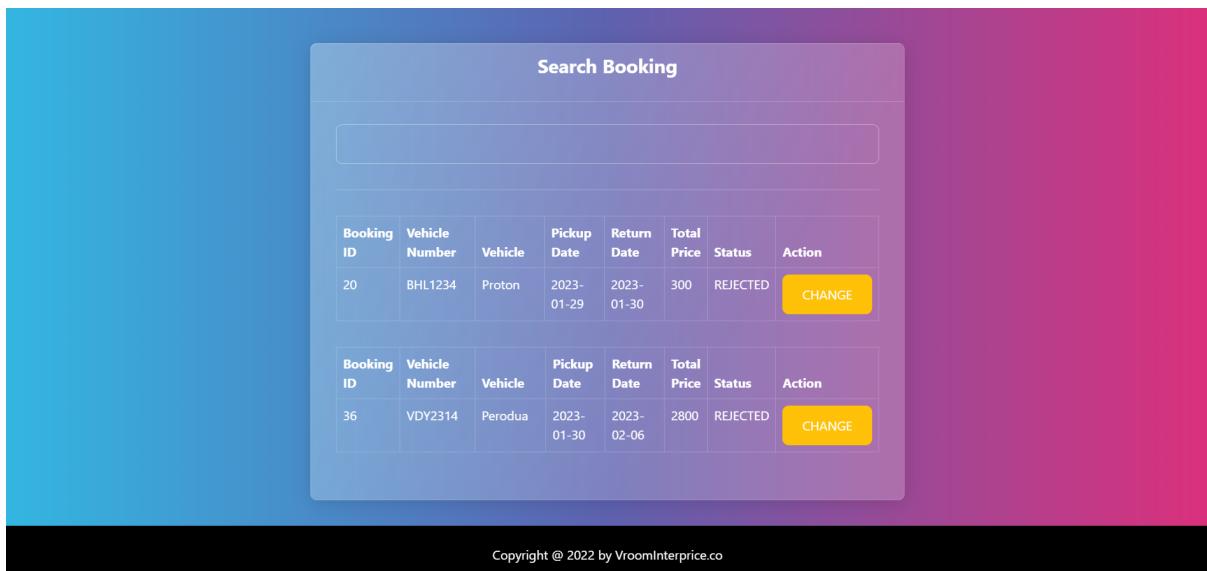


Figure 18: Admin Booking Search

The screenshot shows a form titled "Edit Vehicle Details" for a vehicle with registration number BHL1234. It includes fields for "Insert Image" (with a "Choose File" button and a placeholder "No file chosen"), "Price" (with a "Enter New Price" input field), and a "Modify" button.

Registration Number: BHL1234

Insert Image

Choose File No file chosen

Price

Enter New Price

Modify

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Figure 19: Admin Modify Vehicle Details

BOOKING DETAIL

BOOKING ID	20
CUSTOMER NAME	IKMAL
CUSTOMER CONTACT	0127021245
CUSTOMER ADDRESS	110, Jalan Utama 8, Taman Mutiara Rini, Skudai, 81300, Johor
VEHICLE	Proton
PICK-UP DATE	2023-01-29
RETURN DATE	2023-01-30
TOTAL PRICE	300
APPROVAL	RECEIVED

PROCESS

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Figure 20: Admin Approval Booking Detail

7) Localhost Setup

a) Sublime Text

We need to download the software for the code writing. We use PHP and HTML language for web system development.

<https://www.sublimetext.com/3>

b) XAMPP

Next, we need XAMPP Control Panel for the local hosting and database software.

<https://www.apachefriends.org/index.html>

c) phpMyAdmin

Click the admin button of MySQL to enter into the database software.

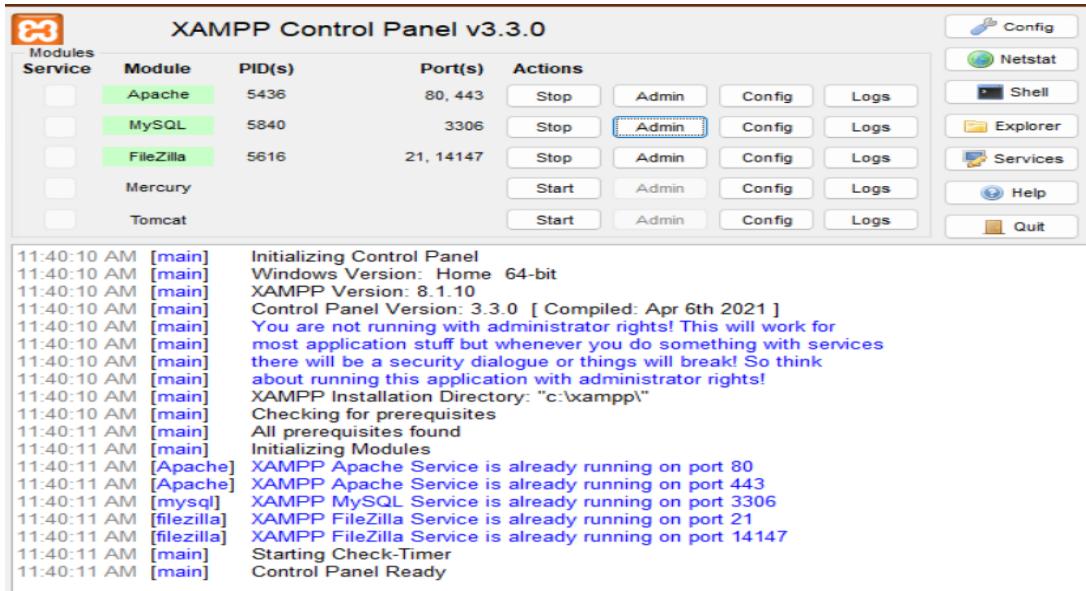


Figure 21: XAMPP Interface

- d) Create a new database. In this case, the database will be named “db_cbs”.
- e) Create all the entities and attributes in the database.
- f) View Web page on the web using localhost: <http://127.0.0.1/cbs/>

8) User Credential

Admin

Ic Number	Password
020208870039	ADMIN123

Customer

Ic Number	Password
020327011456	hai
020208870040	hai

9) URL

<http://harithhakim.000webhostapp.com>