

Project on

VehicleVerse: Implying a universe of vehicles

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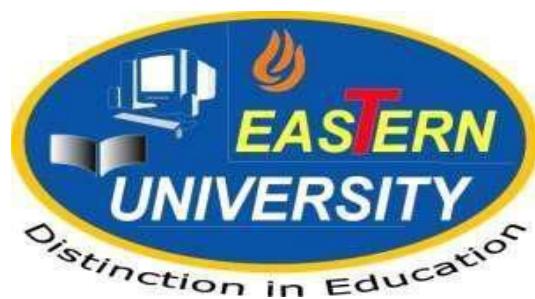
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In partial fulfillment of the requirements for the degree of Bachelor of Science in
Computer Science and Engineering



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Declaration

We hereby declare that the work presented in this project entitled "**VehicleVerse: Implying a universe of vehicles**" in partial fulfillment of the requirement for the degree of Bachelor of Science in Computer Science & Engineering under the Faculty of Engineering and Technology, Eastern University, Bangladesh is an authentic record of our own work carried out under the supervision of Professor Dr. Md. Mahfuzur Rahman. It is also declared that neither this report nor any part of it has been submitted elsewhere for the award of any kind of degree.

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Approval

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ABSTRACT

The “**VehicleVerse: Implying a universe of vehicles.**” is a comprehensive web-based platform designed to facilitate seamless buying, selling, and renting interactions between users interested in automobiles. Leveraging Django robust framework, this project aims to create a user-friendly and feature-rich marketplace that caters to both buyers and sellers of cars and bikes.

This marketplace provides an intuitive and secure environment for users to navigate, list, browse, search, and transact with automobiles. Users can register and log in to access a personalized dashboard, view vehicle listings for buy, sell and rent; and communicate with other users also can chat with our AI-powered chat bot.

For buyers, the project offers the capability to submit buying requests for specific vehicles. Sellers can review these requests and respond accordingly. The platform also includes a comprehensive listing section for cars and bikes, allowing sellers to create and manage listings, showcasing key details, images, and prices.

Additionally, the project integrates a rental listing system, enabling users to request rental for cars and bikes. User can contact owners to rent a bike or car, with driver or without driver based on availability. Users can also leave reviews for sellers that will be integrated into feature, enhancing the transparency and reliability of the platform.

In summary, “**VehicleVerse**” strives to provide a comprehensive platform that caters to the diverse needs of individuals interested in buying, selling, or renting cars and bikes. Through its user-friendly interface, robust functionalities, and secure environment, this project aims to redefine the way automobile transactions are conducted in a digital age.

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Chapter 1

Introduction

1.1 Introduction

In today's fast-paced world, the need for convenient and reliable transportation options is more important than ever. That's where "**VehicleVerse**" comes in, your one-stop online platform for all things automotive. "**VehicleVerse**" is an innovative web-based marketplace designed to simplify and enhance the way you buy, sell, and rent cars and bikes. Whether you're a passionate rider, a car enthusiast, or simply someone in search of the perfect vehicle, our platform offers a seamless and efficient experience tailored to your unique needs.

Key Features:

1. **Buy:** Explore an extensive catalog of new and used cars and bikes from trusted dealers and individual sellers. With detailed listings, comprehensive vehicle histories, and transparent pricing, making the right choice has never been easier.
2. **Sell:** If you're looking to sell your vehicle, "**VehicleVerse**" provides a user-friendly listing platform. Your vehicle will be visible to a vast network of potential buyers, making it effortless to connect with interested parties and close the deal.
3. **Rent:** For those seeking a temporary transportation solution, our rental section offers a wide range of cars and bikes for short or long-term use. It's the perfect way to experience a vehicle before making a purchase or simply enjoy the thrill of a different ride.

1.2 Motivation

At "**VehicleVerse**", we're not just building a platform; we're revolutionizing the way people experience the world of cars and bikes. Our project is about more than just transactions; it's about the dreams and aspirations that these vehicles represent. It's about the freedom, the exhilaration, and the journeys that start with the turn of a key or the twist of a throttle. What motivates us is the belief that we're not merely creating a website, but a gateway to a universe of possibilities. We're empowering people to explore, to find their perfect ride, and to connect with others who share their passion. This project is about enabling dreams, and that's a powerful and inspiring mission.

1.3 Objectives

The primary objective of the “**VehicleVerse**”, project is to create a comprehensive and user-friendly web-based platform that facilitates the seamless buying, selling, and renting of cars and bikes. Our goal is to:

1. **Simplify the Automotive Experience:** We aim to simplify the process of acquiring, selling, or renting vehicles, making it convenient, transparent, and efficient for both buyers and sellers.
2. **Enhance Trust and Safety:** We are committed to providing a secure environment by verifying sellers and rental providers, ensuring transparent information, and implementing a reliable review and rating system.
3. **Foster Community and Connection:** “**VehicleVerse**”, intends to create a thriving community of car and bike enthusiasts, bringing together buyers, sellers, and renters, while fostering a sense of camaraderie and shared passion for all things automotive.
4. **Promote Informed Decision-Making:** Our platform is designed to offer comprehensive information, enabling users to make well-informed decisions regarding their automotive needs.
5. **Embrace Innovation:** We aspire to stay at the forefront of technology, continuously innovating and adapting to the evolving needs and preferences of our users. By achieving these objectives “**VehicleVerse**”, aims to become a trusted and dynamic hub for all automotive enthusiasts, providing them with the tools and resources to navigate the world of cars and bikes with confidence and excitement.

The main features of our website are:

1. Admin can log in, add/remove/restrict any users, add/remove/change sell/rent post.
2. User can register, log in and log out.
3. Visitor can see home and rent post without login.
4. User can view sell post and filter according to their interest.
5. User can add/update/remove sell post.
6. User can view rent post and filter according to their interest.
7. User can add/update/remove rental post.
8. User can also have limited access to admin site.
9. User can chat with AI-Powered Chat bot which can give accurate information than chatgpt-3.

1.4 Tools

1. Local server
2. Visual studio

- **Front-end**

1. React
2. react-bootstrap
3. JavaScript

- **Back-end**

1. Django
2. Rest API
3. Python
4. SQLite3
5. Botpress

1.5 Methodology

Methodology for Developing "VehicleVerse":

1. Project Initiation:

- **Project Definition:** Creating an online platform for buying, selling, and renting vehicles.

2. Requirement Analysis:

- **Stakeholder Interviews:** Identify and interview stakeholders to gather requirements, focusing on user registration, login, posting vehicles for sell/rent, and viewing vehicle listings.

3. System Design:

- **Database Design:** Created a database schema to store user information, vehicle listings, rental listings, payment and payout transaction store.
- **User Interface Design:** Designed user interfaces for registration, login, posting, and viewing vehicle listings.

4. Development:

- **Frontend Development:** Developed web and mobile app interfaces for registration, login, posting, and viewing listings.
- **Backend Development:** Created API endpoints using Django rest framework for user registration, login, posting vehicles, and listing vehicles for both sell and rent, payment and payout.
- **Security Implementation:** Implemented security measures, including authentication and authorization.

5. Testing and Quality Assurance:

- **Testing:** Conducted testing for all features, including registration, login, posting, and viewing listings.
- **Bug Fixes:** During testing found the POST method is not working and after that fixed the bug.

6. User Training and Documentation:

- Created documentation of API's
- We will provide training sessions for users if necessary.

7. Post-Launch:

- **Continuous Improvement:** Gather user feedback and analytics to identify areas for improvement.
- **Regular Updates:** Implement updates, fix bugs, and add new features.
- **Community Building:** Consider building a user community or forum for interactions.

To complete this project in time, we wanted to meet the goal in such way:

1.5.1 Project Schedule

Activities	Duration (in Week)	Total week
Brainstorming	Week 1, Week 2	2
Problem identification	Week 3, Week 4	2
System Analysis	Week 5, Week 6, Week 7	3
System Design	Week 8, Week 9, Week 10	3
Database Design	Week 11, Week 12, Week 13	3
Backend part & connection with database	Week 14, Week 15, Week 16	3
Front-end Design	Week 17, Week 18, Week 19	3
Test case	Week 20, Week 21	2
Website Released	Week 22	1

Table 1.5.1 Project Schedule

1.6 Expected Outcome

1.6.1 The Challenge

Here are some challenges that we faced:

- **Market Competition:** The automotive marketplace is highly competitive, with many established players. Standing out and gaining a foothold in the market can be challenging.
- **Regulatory Compliance:** Automotive sales and rentals are subject to numerous regulations, including legal and safety standards. Ensuring compliance with these regulations can be complex and time-consuming.
- **User Trust and Safety:** Building trust in your platform and ensuring the safety of users in transactions is a significant challenge. Addressing fraud, scams, and disputes is crucial.
- **Data Security:** Given the sensitive nature of financial and personal information involved in transactions, robust data security is a must to protect both your platform and users.
- **User Verification:** Verifying the identities of both sellers and renters is essential for security and trust but can be challenging to implement effectively.

1.6.2 The Outcome

The successful implementation of the “VehicleVerse” project can lead to a range of positive outcomes for both the business and its users:

- Convenience and Accessibility:** Users will enjoy a more convenient and accessible way to buy, sell, and rent cars and bikes, reducing the time and effort required for these doing separately.
- Trust and Safety:** A robust user verification system and transparency in transactions will enhance trust and safety, reducing the risk of scams and fraudulent activities.
- Economic Opportunities:** The platform can open up economic opportunities for individuals looking to sell or rent their vehicles, potentially generating income for a broader segment of the population.
- Community Building:** “VehicleVerse” can foster a vibrant community of automotive enthusiasts, connecting people with shared interests and passion.

CHAPTER 2

PROJECT SPECIFICATION

2.1 Introduction

“VehicleVerse: Implying a universe of vehicles Web Application” is our gateway to a world of automotive possibilities. Our web-based platform redefines the way you buy, sell, and rent cars and bikes, offering convenience, trust, and a vibrant community of enthusiasts. Whether you're a buyer, seller, or renter, your destination for a seamless, safe, and exhilarating journey through the world of automobiles. Welcome to the future of automotive experiences.

2.2 Feasibility

Preliminary investigation examines project feasibility and the likelihood the system will be useful to the organization. The main objective of the feasibility study is to test the technical, operational, and economical feasibility of adding new modules and debugging the old running system. All system is feasible if they have unlimited resources and infinite time. There are aspects in the feasibility study portion of the preliminary investigation:

- **Technical Feasibility**
- **Operational Feasibility**
- **Economic Feasibility**

2.2.1 Technical Feasibility

Technical Feasibility centers on the existing computer system hardware, software, etc., and to some extent how it can support the proposed addition. This involves financial considerations to accommodate technical enhancement. Technical support is also a reason for the success of the project. The techniques needed for the system should be available and it must be reasonable to use. Technical Feasibility is mainly concerned with the study of function, performance, and constraints that may affect the ability to achieve the system. By conducting an efficient technical feasibility, we need to ensure that the project works to solve the existing problem area.

2.2.2 Operational Feasibility

People are inherently instant to change and computers have been known to facilitate change. An estimate should be made as to how strong a reaction the user staff is likely to have towards the development of the computerized system. The staff is accustomed to computerized systems. These kinds of systems are becoming more common day by day for evaluation of the software engineers. Hence, this system is operationally feasible. As this system is technically, economically, and operationally feasible, this system is judged feasible.

2.2.3 Economic Feasibility

The role of interface design is to reconcile the differences that prevail among the software engineer's design model, the designed system meets the end user's requirement in an economical way at minimal cost within the affordable price by encouraging more of the proposed system. Economic feasibility is concerned with comparing the development cost with the income/benefit derived from the developed system. In this, we need to derive how this project will help the management to make effective decisions. Economic Feasibility is mainly concerned with the cost incurred in the implementation of the software. Since this project is developed using Python, JavaScript, react-bootstrap and SQL Server which is more commonly available and even the cost involved in the installation process is not high. Similarly, it is easy to recruit persons to operate the software since almost all people are aware of Python, Django, SQL Server. Even if we want to train the persons in these areas the cost involved in training is also much less. Hence this project has good economic feasibility. The system once developed can be used efficiently. Otherwise, there is no meaning for developing the system. For this, a careful study of the existing system and its drawbacks is needed. The user should be able to distinguish the existing one and the proposed one, so one must be able to appreciate the characteristics of the proposed system, the manual one is not highly reliable and also is considerably fast. The proposed system is efficient, reliable, and quickly responding.

2.3 System Design

In this phase, a logical system is built that fulfills the given requirements. The design phase of software development deals with transforming the client's requirements into a logically working system. Normally Design is performed in the following two steps:

1. Primary Design Phase:

In this phase, the system is designed at the block level. The blocks are created on the basis of analysis done in the problem identification phase. Different blocks are created for different functions emphasis is put on minimizing the information flow between blocks. Thus, all activities that require more interaction are kept in one block

2. Secondary Design Phase:

In the secondary phase the detailed design of every block is performed.

The general tasks involved in the design process are the following:

1. Design various blocks for overall system processes.
2. Design smaller, compact, and workable modules in each block.
3. Design various database structures.
4. Specify details of programs to achieve desired functionality.
5. Design the form of inputs and outputs of the system.
6. Perform documentation of the design.
7. System reviews.

2.4 General Function Description

For us the more helpful way to analyze the big picture and its relations between system elements is through diagrams, which basically help to discover or explore the relations while allowing us to ignore or hide uninteresting details. To conclude, we can say that it is the most essential value of the UML and can be said that also the simplest value of the UML or any diagramming language.

2.5 Requirements

Hardware requirements:

Number Description 1 PC with at least 4 GB RAM

Software requirements:

1. Visual Studio
2. Google Chrome

2.5.1 Requirements for a Web Development Process

From experience in developing Web applications have derived a list of requirements for a Web development process. The most important requirements are to provide end-user involvement, prototyping, change management, immediate response, risk minimization, no administrative overhead and transparency and guidance. Knowing the end user's requirements is essential for the development of successful Web applications. In defining the main goals for the development of a Web application, the customer is not the actual end-user and, therefore, he or she is not able to define all the requirements that are important to the end-user. Prototyping is used to leverage the involvement of end-users in Web application development. Prototyping produces a preliminary version of the required system that can be reviewed by end users. After review, the prototype is added to and altered to produce another version closer to the one that is wanted. Figure gives a diagram of the prototyping process.

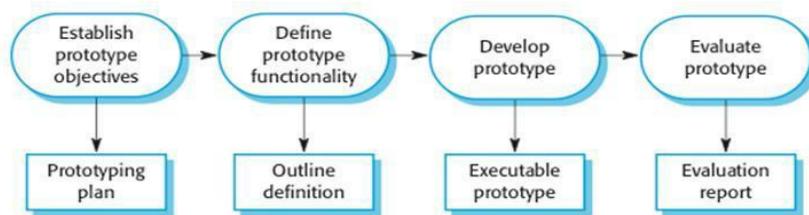


Figure 2.5.1 Prototyping process

Project development prototyping is essential because finding the way to the solution is a much faster and more effective way to speed up the process of the project and find the best option for the best results. Prototyping in our case influences the project development process.

2.6 Modeling

Modeling is like building a representation of things in the “real world” and allowing ideas to be investigated. In fact, a model is more likely a way of expressing a particular view of a system.

Mainly modeling is used to:

- understand the problems involved in building some system
- an aid to communication between those involved in the project
- a component of the methods used in development activities such as the analysis of the requirements.

The way modelling is used in this project is called Unified Modelling Language(UML) which is a standard language for specifying, visualizing, constructing, and documenting the artefacts of systems, as well as for business modelling and other non-software systems. The UML represents a collection of best practices that have proven successful in the modelling of large and complex systems. It is an important part of developing system and their development process. The UML uses mostly graphical notations to express the design of projects, it helps project teams communicate, explore potential designs, and validate the architectural design of the system.

The primary goals in the design of the UML were:

1. Provide users with a ready-to-use, expressive visual modelling language so they can develop and exchange meaningful models
2. Provide extensibility and specialization mechanisms to extend the core concepts.
3. Be independent of particular programming languages and development Processes.

Provide a formal basis for understanding the modelling language.

2.7 Main Functionalities

Use Cases are text stories, widely used to discover and record requirements. Use cases need to be more detailed or structured and emphasize the user's goals and perspective. A use case diagram in the Unified Modelling Language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. The roles of the actors in the system can be depicted. The Figure below shows the functionality of the university management system, where the user and administrator have different functionalities to run. While the user is modifying or upload/download or delete files in a system modifying or upload/downloading and deleting files in a system while a user is logged in, then for our administrators have more rights to control the system. Namely administrator has the right to add, modify or delete users in a system or add new projects and definitely available to modify projects as the user or add new projects to the system. The Figure below illustrates exactly what kind of possibilities or options are for the user and administrator of the system

2.8 Challenges

To do our project we faced some problems and challenges-

- While calling the API
- While managing authorization and authentication of user
- While customizing Django admin panel for different users
- While adding chat bot which is AI-powered like chatgpt but more accurate and informative than chatgpt

CHAPTER 3

SYSTEM DESIGN AND ANALYSIS

3.1 Use Case Modeling and Description

A use-case model is a model of how different types of users interact with the system to solve a problem. As such, it describes the goals of the users, the interactions between the users and the system, and the required behavior of the system in satisfying these goals.

A use case diagram consists of the system, the related use cases, and actors and relates these to each other to visualize: what is being described? (System), who is using the system? (Actors) and what do the actors want to achieve. (Use cases), thus, use cases help ensure that the correct system is developed by capturing the requirements from the user's point of view.
Here are the actors using the system:

- 1) Admin
- 2) User

Every time one of these users tries to log in there will be username and password verification. If there is something wrong with their username or password, there will be a login error shown.

3.1.1 Use Case Diagram

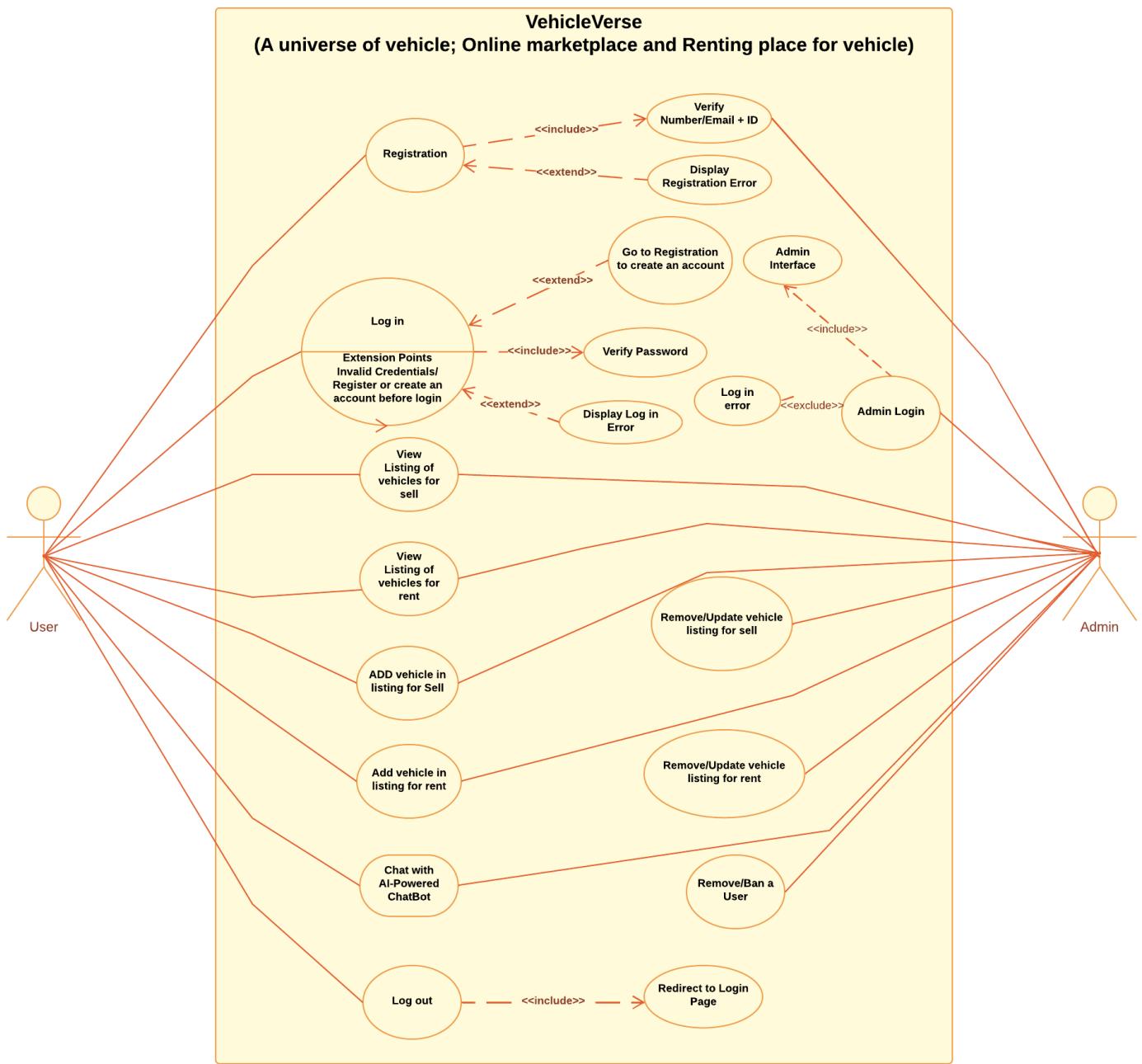


Figure: 3.1.1 Use case Diagram

Use case description of Admin

Goal	Admin can login into the system and will manage sell and rental post along with user management.
Success and condition	Admin successfully login into the system and will manage sell and rental post along with user management.
Failed end condition	Admin failed to login and contact with system owner.
Secondary actor	Admin

Table: 3.1.1 Use case description of Admin

Use case description of User or Customer

Goal	Customer or User can login to the system. Customers User add post for sell or rent, also can see the vehicle to buy or rental.
Success and condition	Customer User successfully login into the system.
Failed end condition	If the customer or user fails to login then will not be able to do any task.
Primary actor	Customer or User
Main Scenario	Customer or User browses the system Login successfully See sell/rental post, profile ADD sell/rental post

Table: 3.1.2 Use case description of User or Customer

3.2 Block Diagram

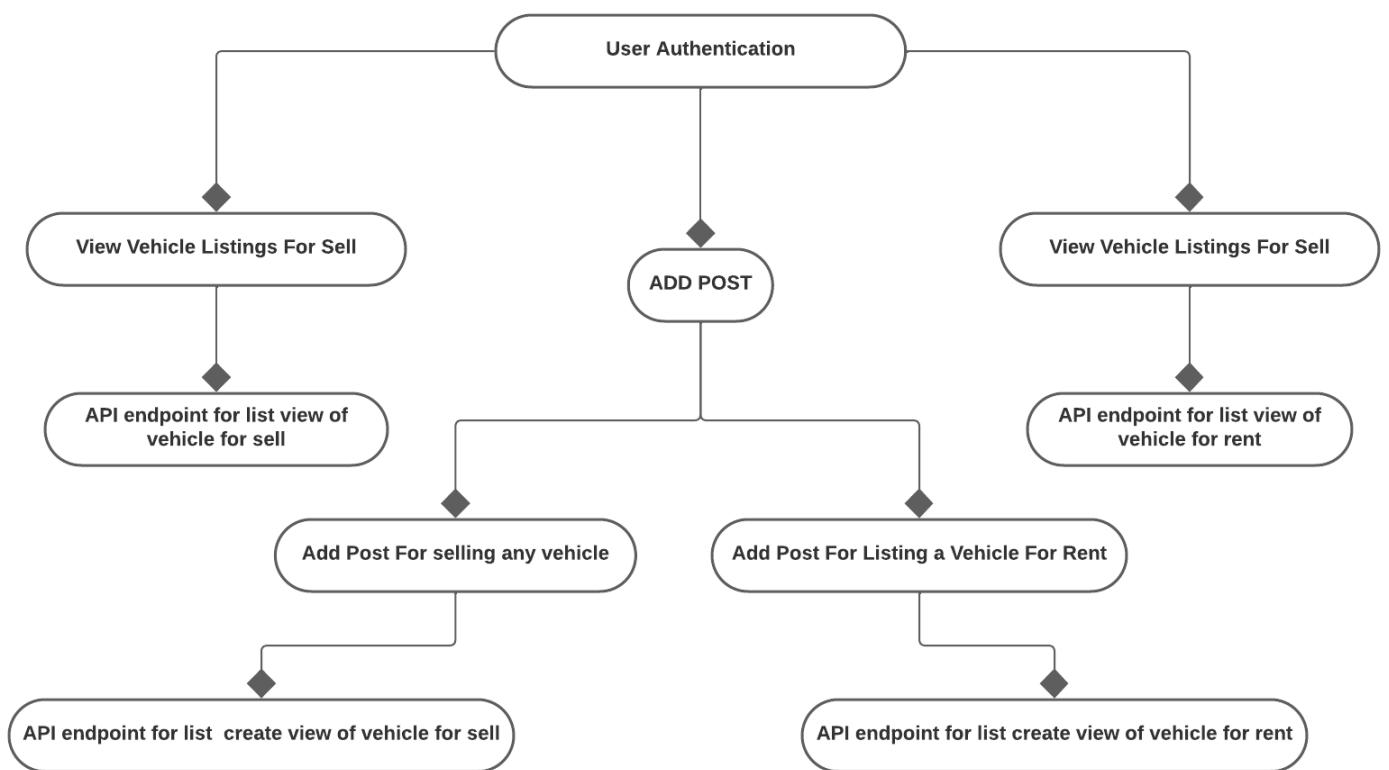


Figure: 3.2 Block Diagram

3.3 E-R Diagram

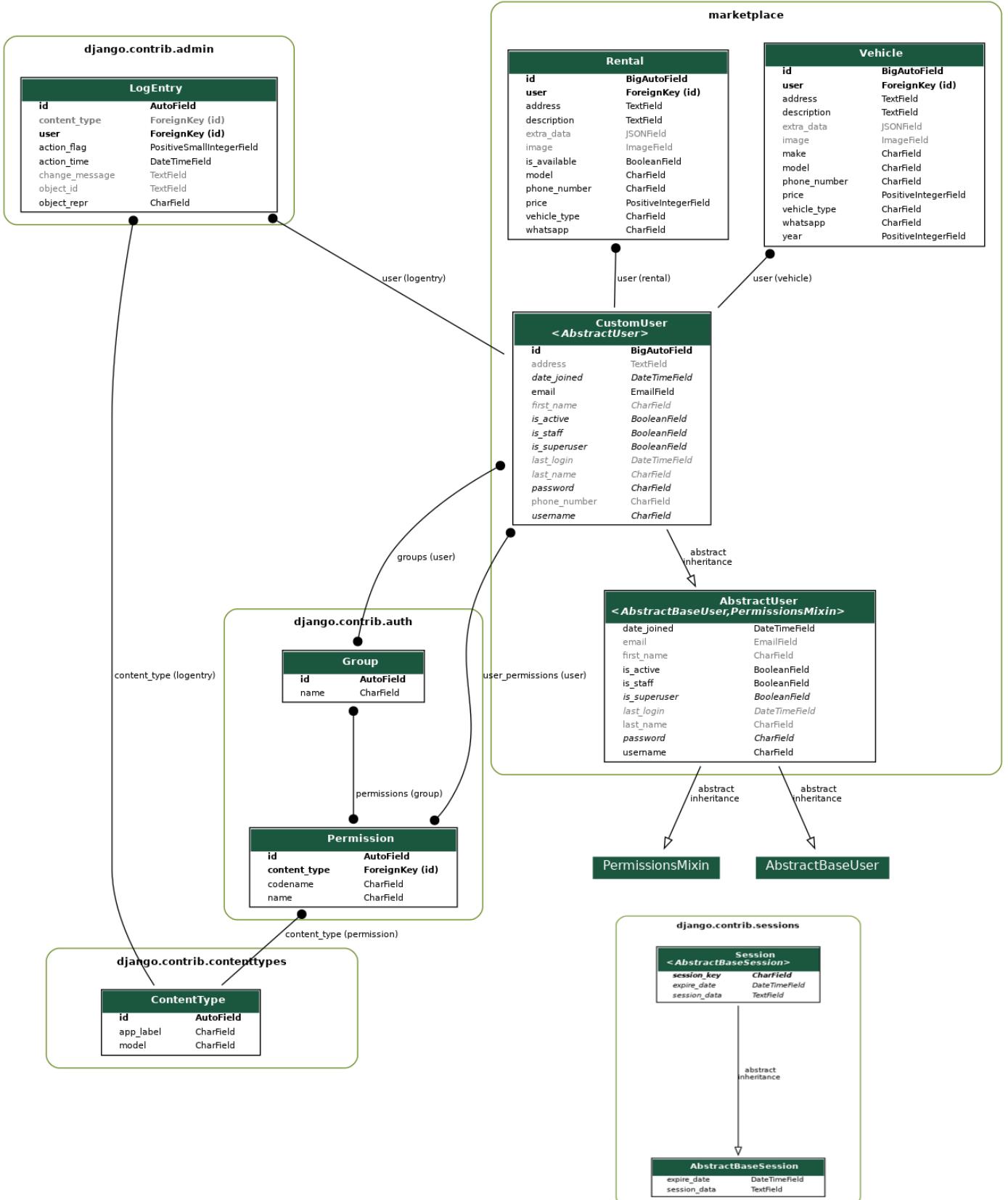


Figure: 3.3 E-R Diagram

3.4 Front-end

3.4.1 Admin Panel Log in Page

From this page super users or admin can log in using their valid credentials. Without valid authentication admin can't log in to this site. Also regular user can't log in in this admin interface as the regular user or customer don't have the permissions to do so. Only super user or Admin can log in from this page

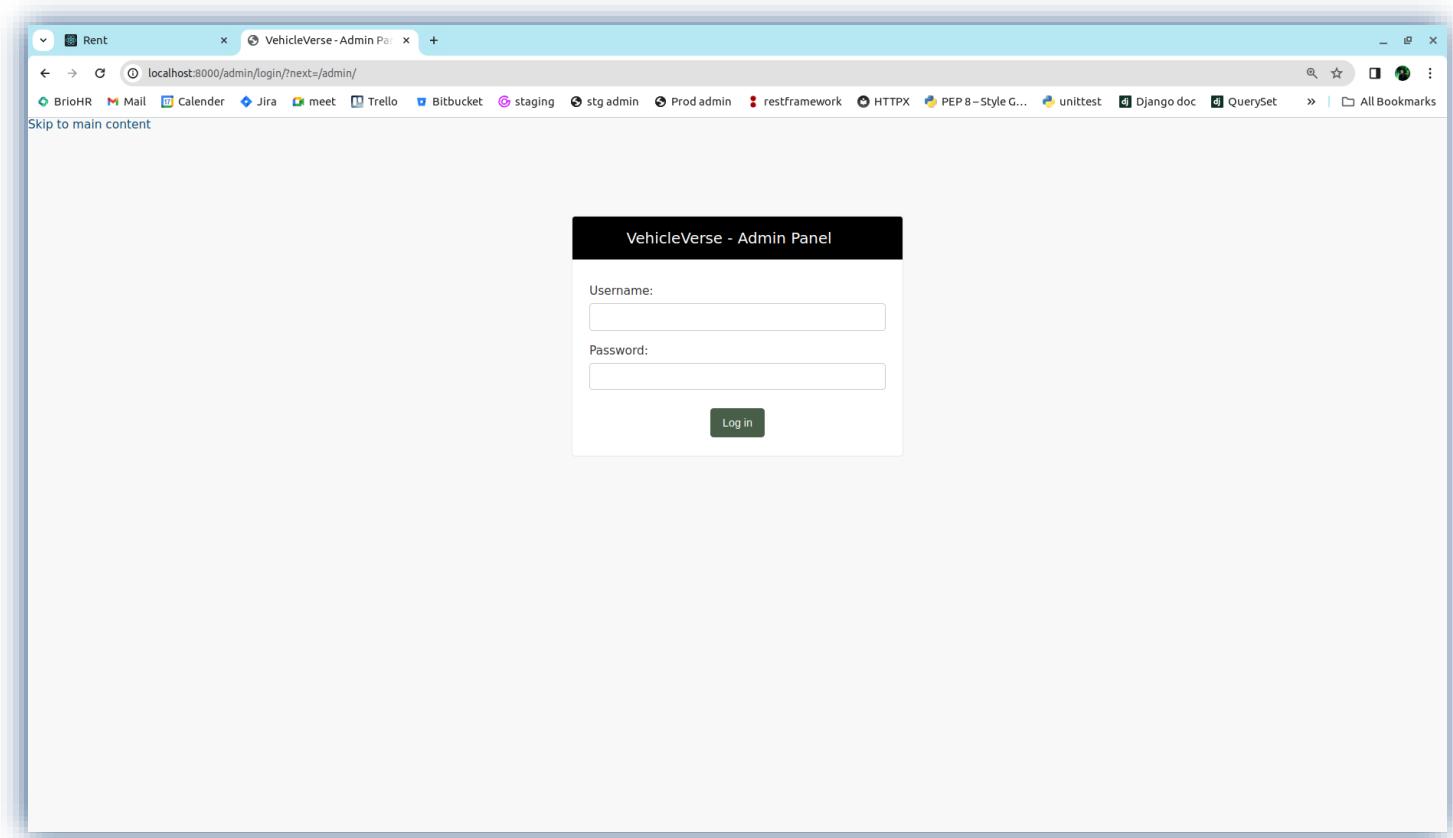


Figure: 3.4.1 Admin Panel Log in Page

3.4.2 Admin Interface After log in

After logged into Django admin panel, super user or admin will see this interface from they can add or remove any data according to their need.

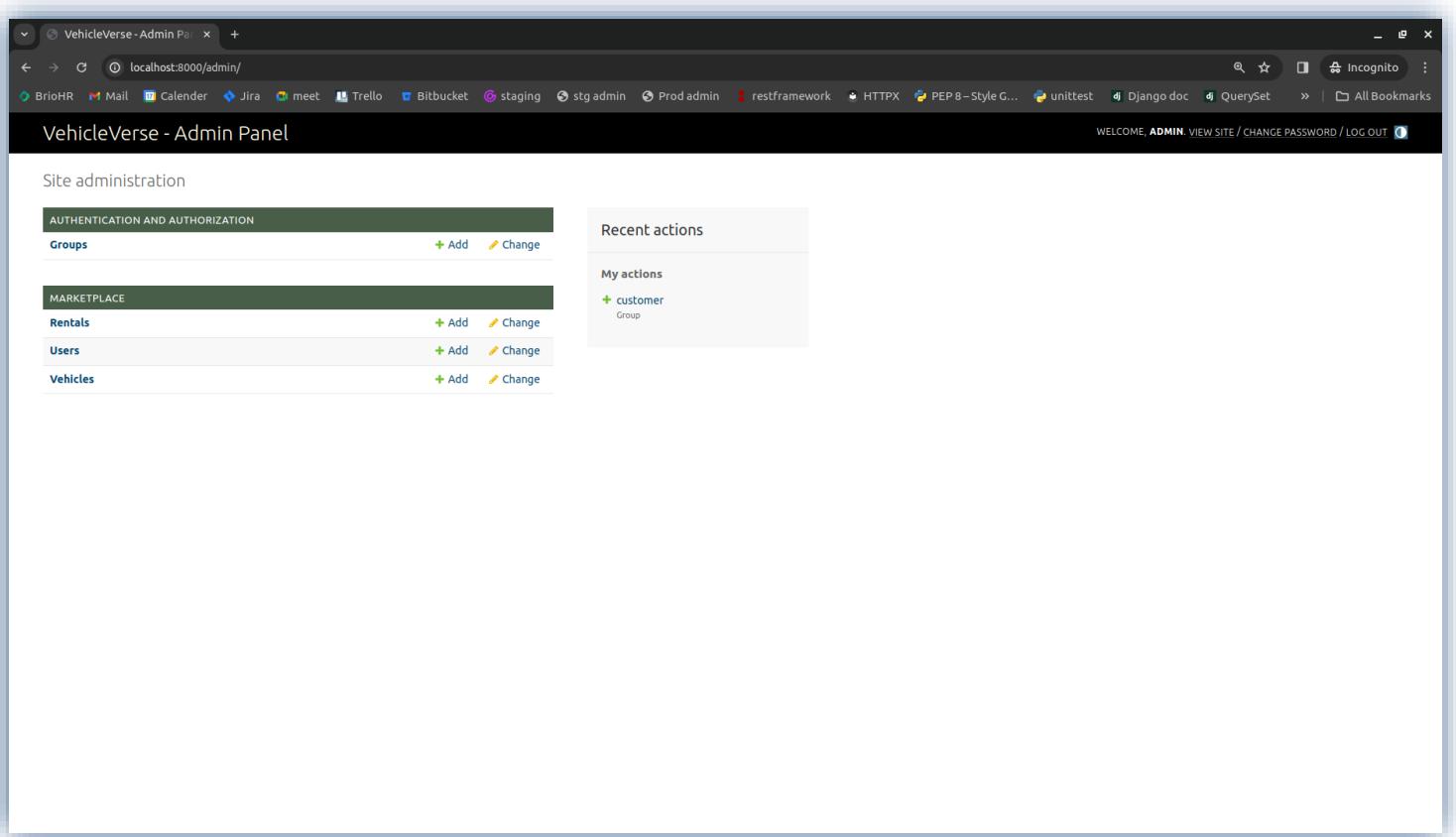


Figure: 3.4.2 Admin Interface After log in

3.4.3 Admin Group Model

From Django admin panel, there is payment model available for future integration of payment system. Admin can add, remove or update any data according to their need and there will be history available for this system to track unnecessary actions.

The screenshot shows the Django Admin Panel interface for managing groups. The URL is `localhost:8000/admin/auth/group/1/change/`. The left sidebar has sections for AUTHENTICATION AND AUTHORIZATION (Groups, + Add) and MARKETPLACE (Rentals, + Add; Users, + Add; Vehicles, + Add). The main content area is titled "Change group" for the "customer" group. It shows a "Name:" field with "customer". Under "Permissions:", there are two lists: "Available permissions" (containing items like "admin | log entry | Can add log entry", "admin | log entry | Can change log entry", etc.) and "Chosen permissions" (containing items like "marketplace | rental | Can add rental", "marketplace | rental | Can change rental", etc.). At the bottom, there are buttons for "SAVE", "Save and add another", "Save and continue editing", and "Delete".

Figure: 3.4.3 Admin Group Model

3.4.4 Admin Rental Model

From Django admin panel, there is rental model available for listing any vehicle for rent with driver or without driver. Each information is necessary to add any vehicle for rental post. Admin can add, remove or update any listings which will be tracked.

Action:	VEHICLE TYPE	PHONE NUMBER	MODEL	IS AVAILABLE
<input type="checkbox"/>	Car	01707587772	Nissan Patrol Chander Gari	✓
<input type="checkbox"/>	Bike	01707587772	TVS Redion 110	✓
<input type="checkbox"/>	Car	01707587772	Nissan Cefiro 2.0 G 2003	✗
<input type="checkbox"/>	Car	01705827772	Toyota Corolla X 2003	✓
<input type="checkbox"/>	Bike	01980257412	TVS Stryker 125cc	✓
<input type="checkbox"/>	Bike	01705827772	Discover 125 Disc	✓
<input type="checkbox"/>	Bike	01705827772	Suzuki Hayate 110cc	✗
<input type="checkbox"/>	Bike	01705827772	Bajaj Platina 110 H Gear	✓

Figure: 3.4.4 Admin Rental Model

3.4.5 Admin User Model

From Django admin panel, there is also user model available. User can be a regular user or a super user (admin). Admin can add, remove, ban or update any user with valid reason.

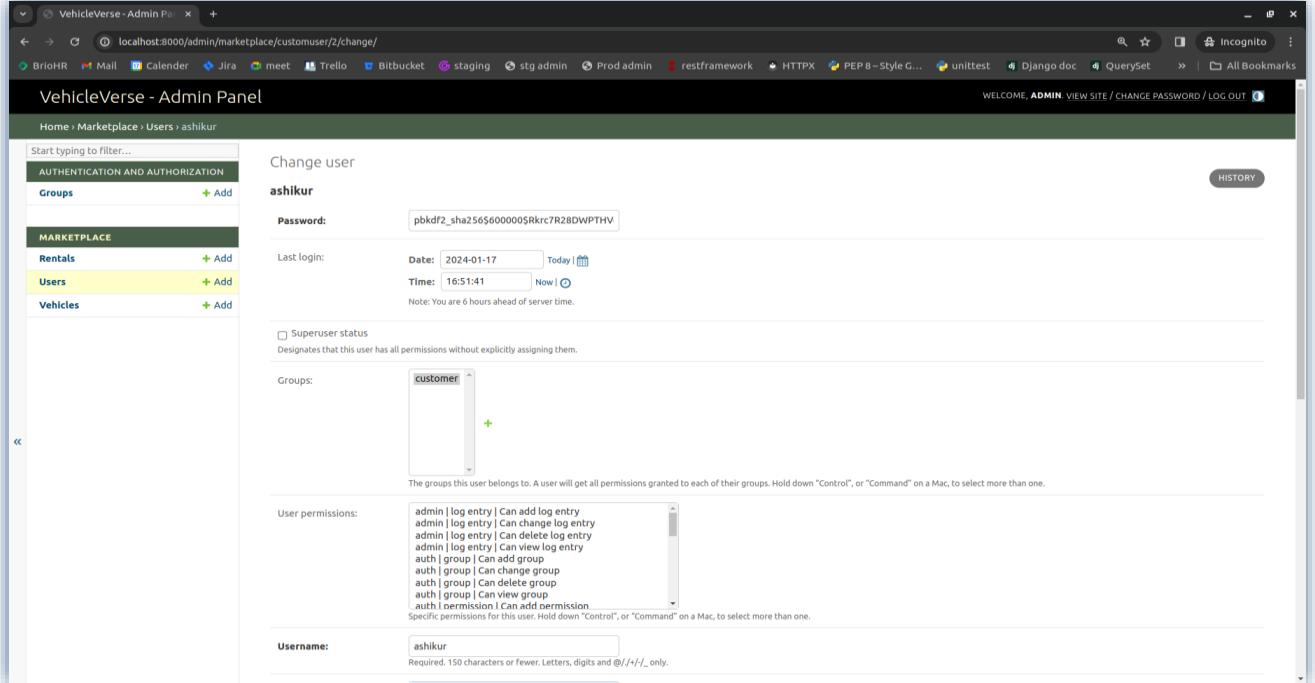


Figure: 3.4.5.1 Admin User Model-1

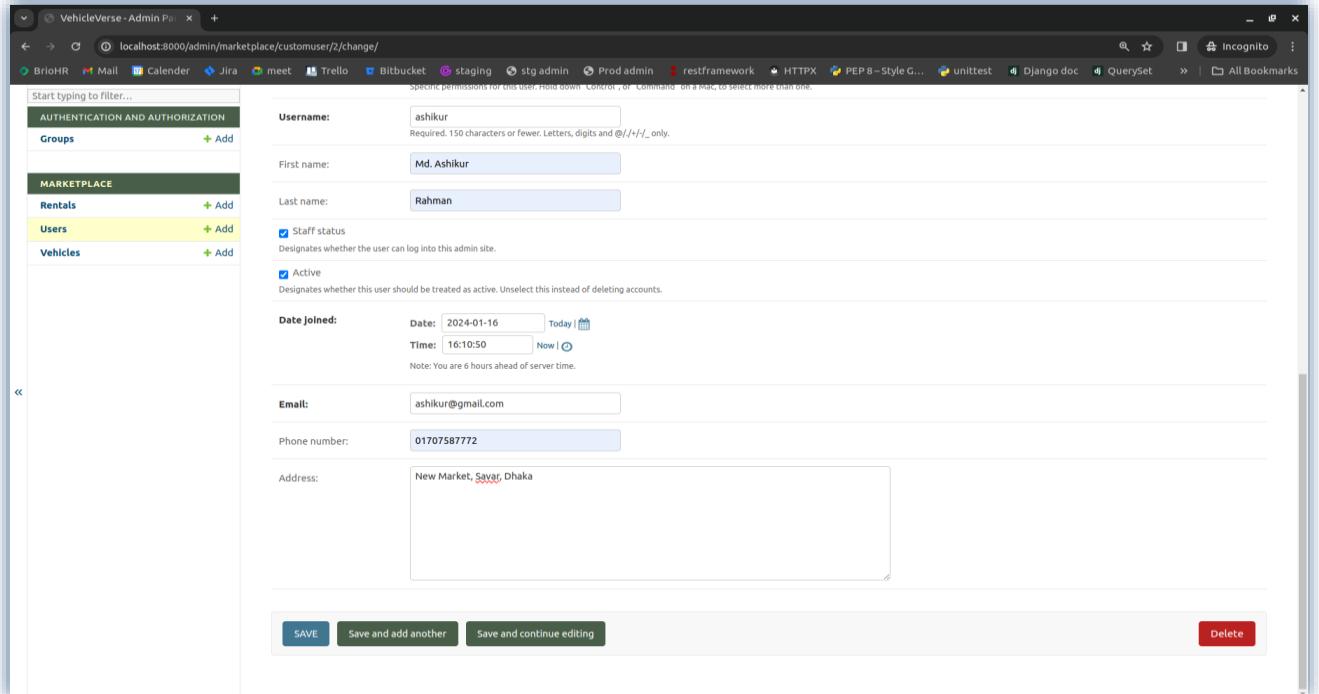


Figure: 3.4.5.2 Admin User Model-2

3.4.6 Admin Vehicle Model

From Django admin panel, there is vehicle model available for listing any vehicle for sell. Each information is necessary to add any vehicle for sell post. Admin can add, remove or update any listings which will be tracked.

The screenshot shows the Django Admin interface for the 'Vehicle' model. The top navigation bar includes links for BrioHR, Mail, Calendar, Jira, meet, Trello, Bitbucket, staging, stg admin, Prod admin, restframework, HTTPX, PEP 8 – Style Guide, unittest, Django doc, QuerySet, and All Bookmarks. The main title is 'VehicleVerse - Admin Panel'. The URL is 'localhost:8000/admin/marketplace/vehicle/'. The top right corner shows 'WELCOME, ADMIN. VIEW SITE / CHANGE PASSWORD / LOG OUT'.

The left sidebar has sections for AUTHENTICATION AND AUTHORIZATION (Groups, + Add), MARKETPLACE (Rentals, + Add, Users, + Add, Vehicles, + Add), and a search bar 'Start typing to filter...'. The Vehicles section is highlighted in yellow.

The main content area is titled 'Select vehicle to change' and contains a table of vehicle data. The table columns are VEHICLE TYPE, MAKE, MODEL, YEAR, PHONE NUMBER, and PRICE. There are 8 vehicles listed:

VEHICLE TYPE	MAKE	MODEL	YEAR	PHONE NUMBER	PRICE
Bike	Bajaj	Pulsar 150 Twin Disc ABS	2023	01980257412	195000
Car	Toyota	Axio 2010	2010	01707587772	850000
Car	Nissan	Bluebird Sylphy 2014	2014	01705827772	160000
Bike	Suzuki	GSX-R150	2023	01980257412	410000
Car	Honda	CR-V 2012 Black	2012	01705827772	2700000
Car	BMW	740Li V8	2005	01980257412	3300000
Bike	Bajaj	Discover 125 Disc	2014	01705827772	90000
Bike	Bajaj	Platina 110 H Gear	2022	01707587772	115000

Below the table, it says '8 vehicles'.

The right sidebar is titled 'FILTER' and includes dropdown menus for 'By vehicle type' (All, Car, Bike), 'By year' (All, 2005, 2010, 2012, 2014, 2022, 2023), and 'By price' (All, 90000, 115000, 160000, 195000, 410000, 850000, 2700000, 3300000).

Figure: 3.4.6 Admin Vehicle Model

3.4.7 Registration Page of VehicleVerse

User can only use our platform once they created an account with valid information from registration page. If they already have an account or after creating an account, they can go to log in page by clicking Login here link.

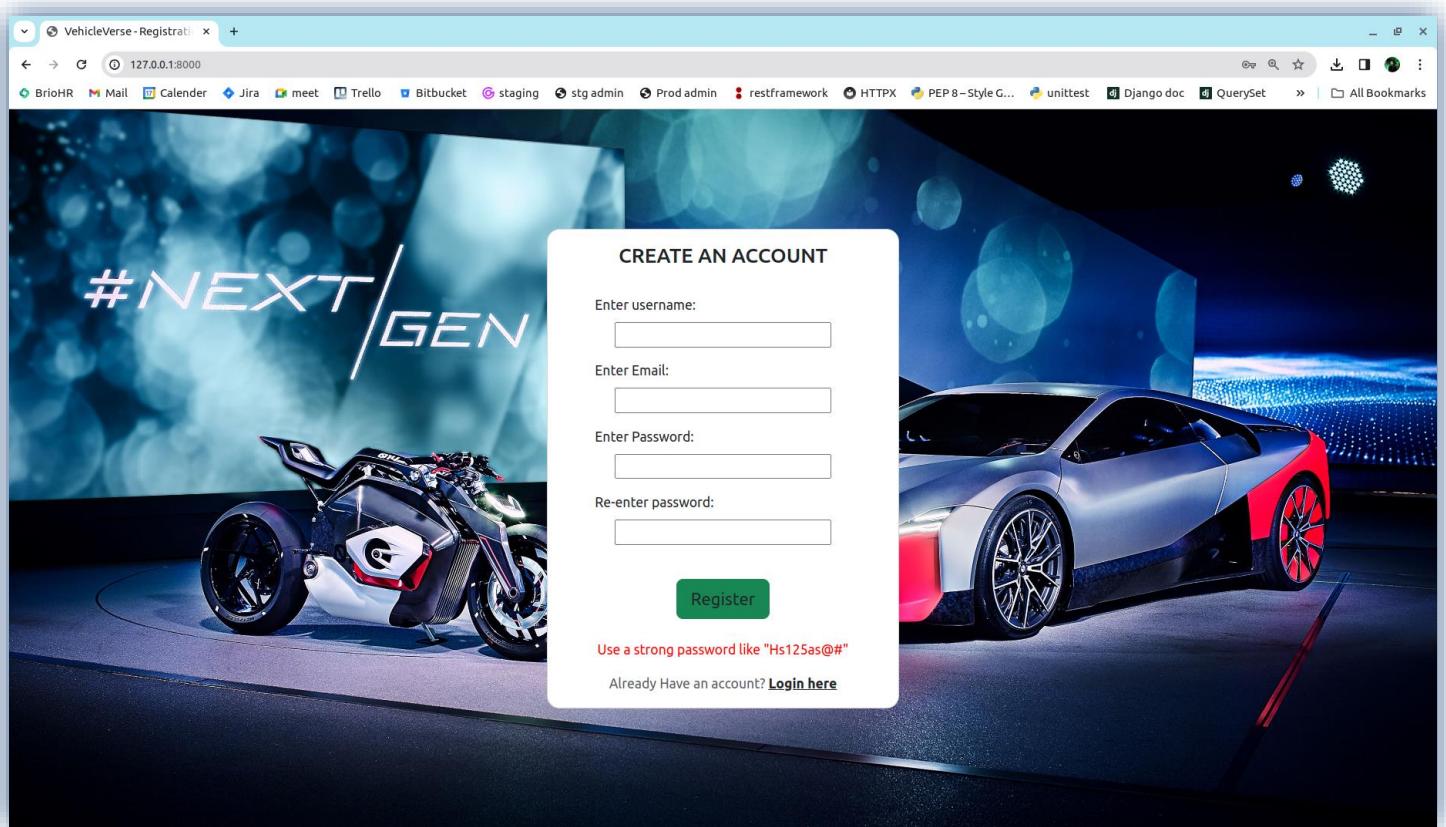


Figure: 3.4.7 Registration Page of VehicleVerse

3.4.8 Login Page of VehicleVerse

User can only log in to our platform using valid credentials if they already have an account. Otherwise they have to create an account first. If user don't have an account, then they can go to registration page by clicking Register here link from this page.

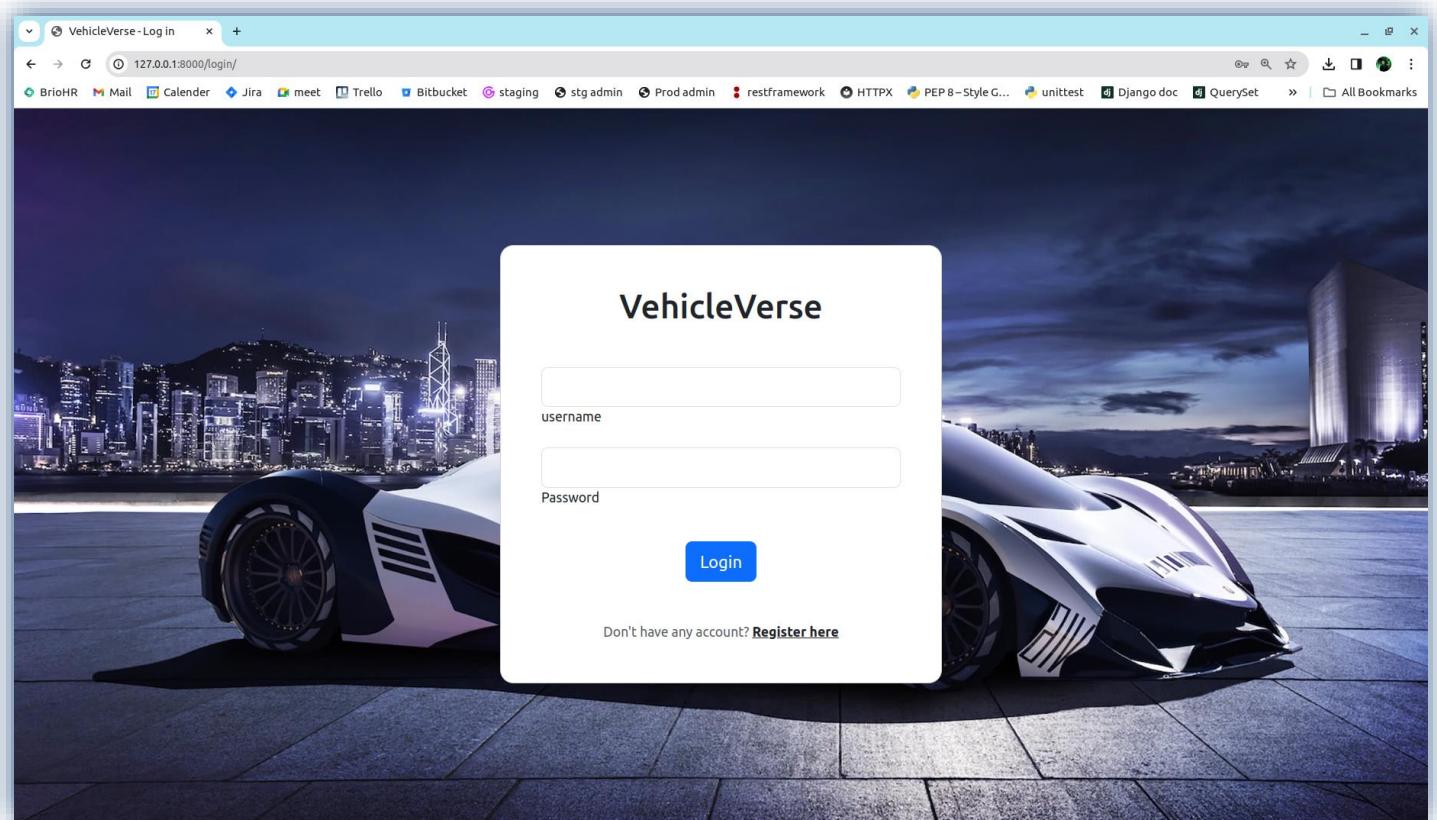


Figure: 3.4.8 Login Page of VehicleVerse

3.4.9 Home Page of VehicleVerse without login

From home page user can see the vehicle listing that are available for sell with vehicle picture and a few details of it. There also a navigation bar in the top that links every page to one another. User have to login first to see details of any vehicle or post for sell. There is also a “Log in now” button in the right corner. User can also filter the page according to vehicle types.

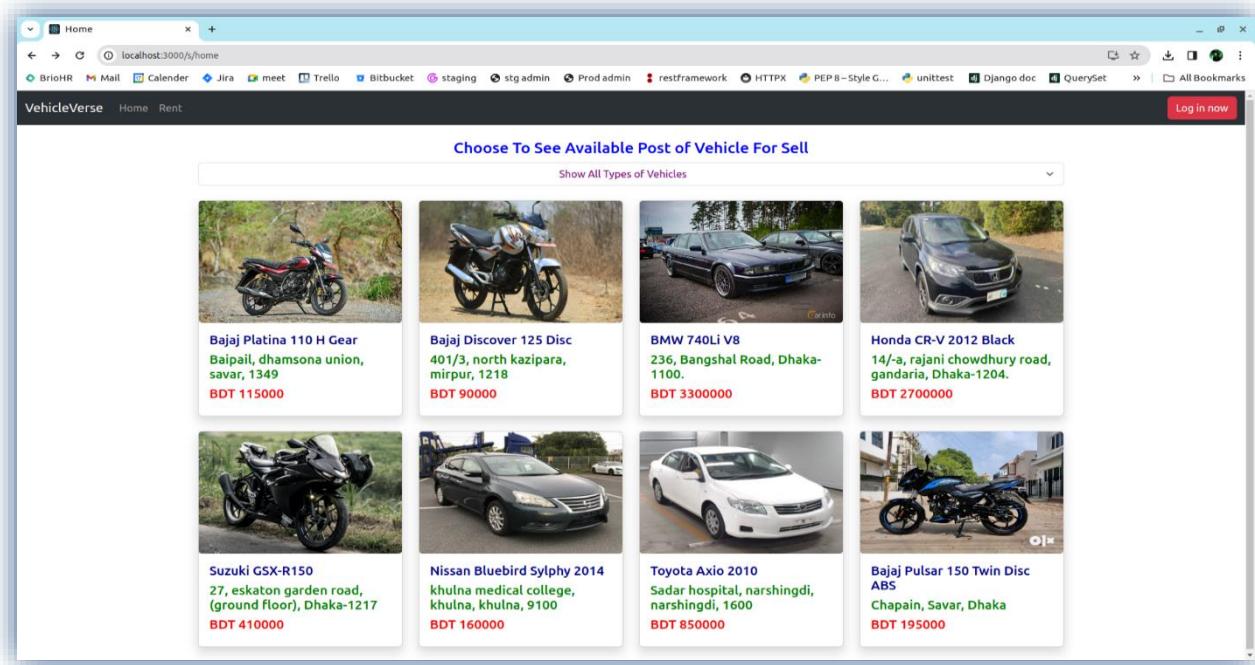


Figure: 3.4.9.1 Home Page without login

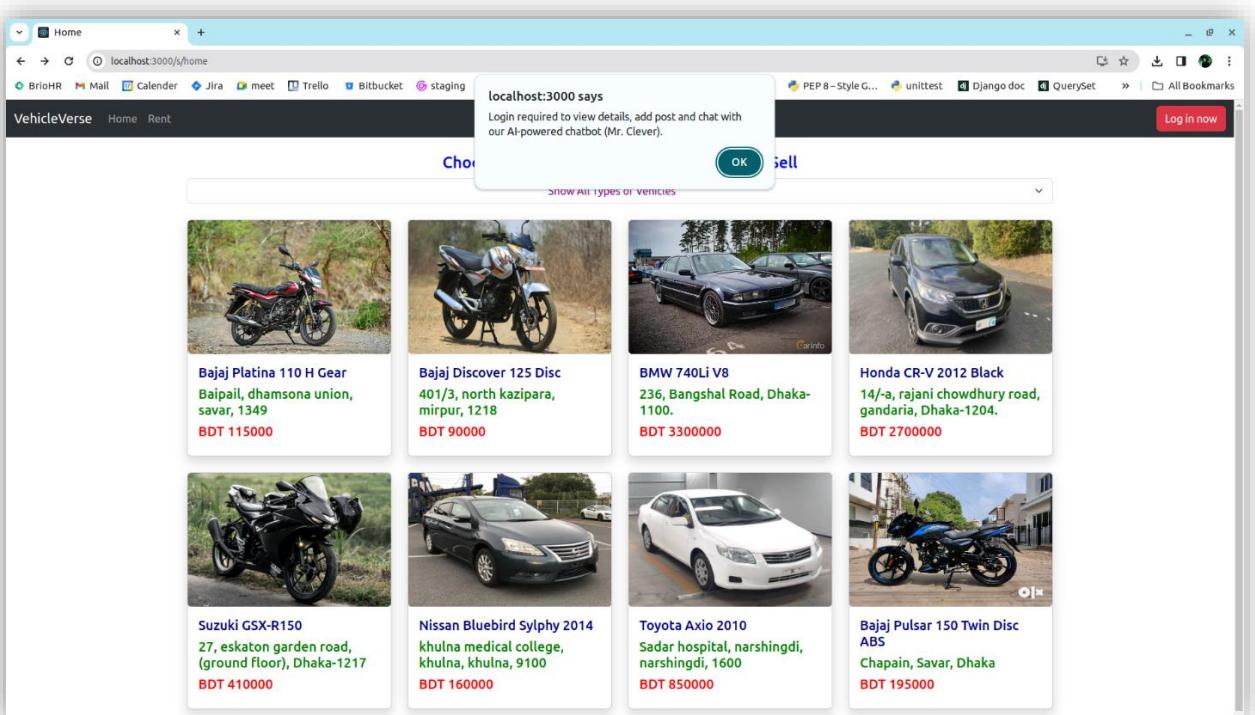


Figure: 3.4.9.2 Home Page alert message

3.4.10 Home Page of VehicleVerse after Login

From home page user can see the vehicle listing that are available for sell with vehicle picture and a few details of it. There also a navigation bar in the top that links every page to one another. User can see details of any vehicle by simply clicking of it. Also user can see the add post option after login. In this page user can also see a chat bot icon in the bottom right side, when a user clicks that icon user can communicate with our powerful AI based chat bot (Mr. Clever), which can share more accurate and latest up-to-date knowledge that chatgpt 3. User can ask anything to share or solution to any problem, our powerful bot can give them answer. Also user can filter the page based on vehicle types according to their interest. Some screenshots are given below from rent home page after login.

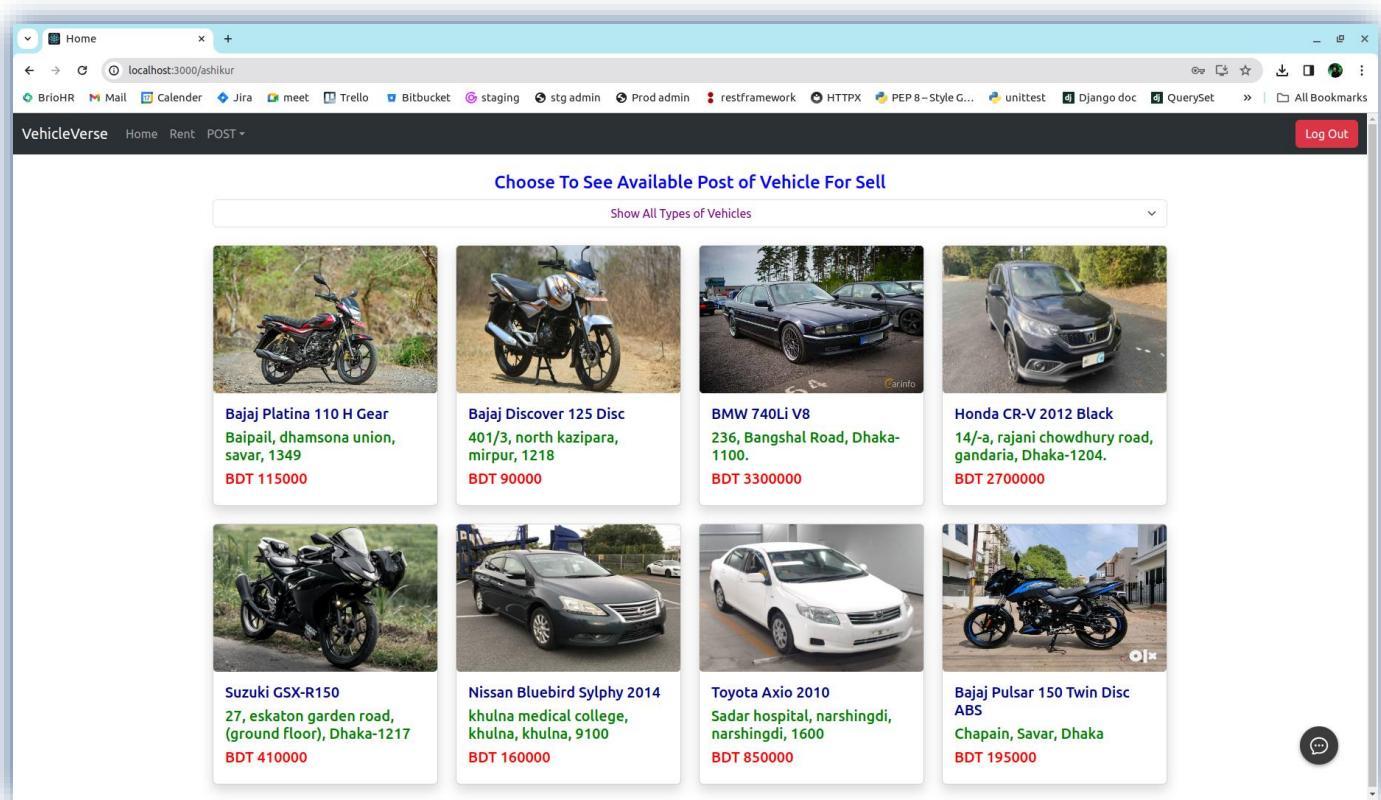


Figure: 3.4.10.1 Home Page after login-1

The screenshot shows the VehicleVerse home page. At the top, there's a search bar and a button labeled "Show All Types of Vehicles". Below this, a grid of eight vehicle posts is displayed:

- Bajaj Platina 110 H Gear**
Baipail, dhamsona union, savar, 1349
BDT 115000
- Bajaj Discover 125 Disc**
401/3, north kazipara, mirpur, 1218
BDT 90000
- BMW 740Li V8**
236, Bangshal Road, Dhaka-1100.
BDT 3300000
- Honda CR-V 2014**
14/-a, rajani chandgandaria, Dhaka-1205
BDT 2700000
- Suzuki GSX-R150**
27, eskaton garden road, (ground floor), Dhaka-1217
BDT 410000
- Nissan Bluebird Sylphy 2014**
khulna medical college, khulna, khulna, 9100
BDT 160000
- Toyota Axio 2010**
Sadar hospital, narshingdi, narshingdi, 1600
BDT 850000
- Bajaj Pulsar 150 ABS**
Chapain, Savar, BGD
BDT 195000

To the right of the grid, there's a sidebar with a chatbot named "Mr. Clever". It has a message history:

- User: can you suggest me a bike under 150k in bangladesh?
- Bot: Based on the available context, I found the following information that may help answer the question:
The Lifan KP150 and the Atlas Zongshen ZS 150-58 are bikes within the price range of Tk 150,000 in Bangladesh. These bikes offer good performance and features within the specified budget.
Please note that there may be other bikes available within this price range as well. It is recommended to visit authorized dealers or check reliable sources for the most up-to-date information on bike prices in Bangladesh.
Sources: BikeBD - Best 150cc Bikes In Bangladesh at a Glance Motorcycle Fair - Motorcycle Price from 15000 to 20000 in Bangladesh
- User: Hello! How can I help you?
- Bot: Jan 17, 10:22 PM
- User: what is the current price of pulsar double disk abs 150cc in bangladesh?
- Bot: Chat with Mr. Clever
- Bot: We're by Botpress

Figure: 3.4.10.2 Home Page chat bot

The screenshot shows the "Vehicle Details" page for a Bajaj Discover 125 Disc motorcycle. On the left is a large image of the motorcycle. To the right, its details are listed:

Seller: Ashikur
Model: Bajaj Discover 125 Disc
Year: 2014
Price: 90000 BDT
Call: 01705827772
Whatsapp: 01707574725
Address: 401/3, north kazipara, mirpur, 1218
Description: Bike run 100k km for almost 10 years. No work need in engine. Full fresh condition.

Below this, a section titled "Available Comments:" shows two comments:

- 1/17/2024, 10:19:08 PM, nazrul: I want to buy this but I can give you 70k for this.
- 1/17/2024, 10:20:38 PM, nazrul: If you are okay with the price and papers are all okay then I will come to see tomorrow.

At the bottom, there's a "Add Comment" button and a message icon.

Figure: 3.4.10.3 Vehicle Sell Post Details From Home

3.4.11 Rental Page of VehicleVerse without Login

From rent page user can see the vehicle listing that are available for rent with vehicle picture and a few details of it. There also a navigation bar in the top that links every page to one another. User have to login first to see details of any vehicle or post for rent. There is also a “Log in now” button in the right corner. User can also filter the page according to vehicle types. Some Screenshots are given below.

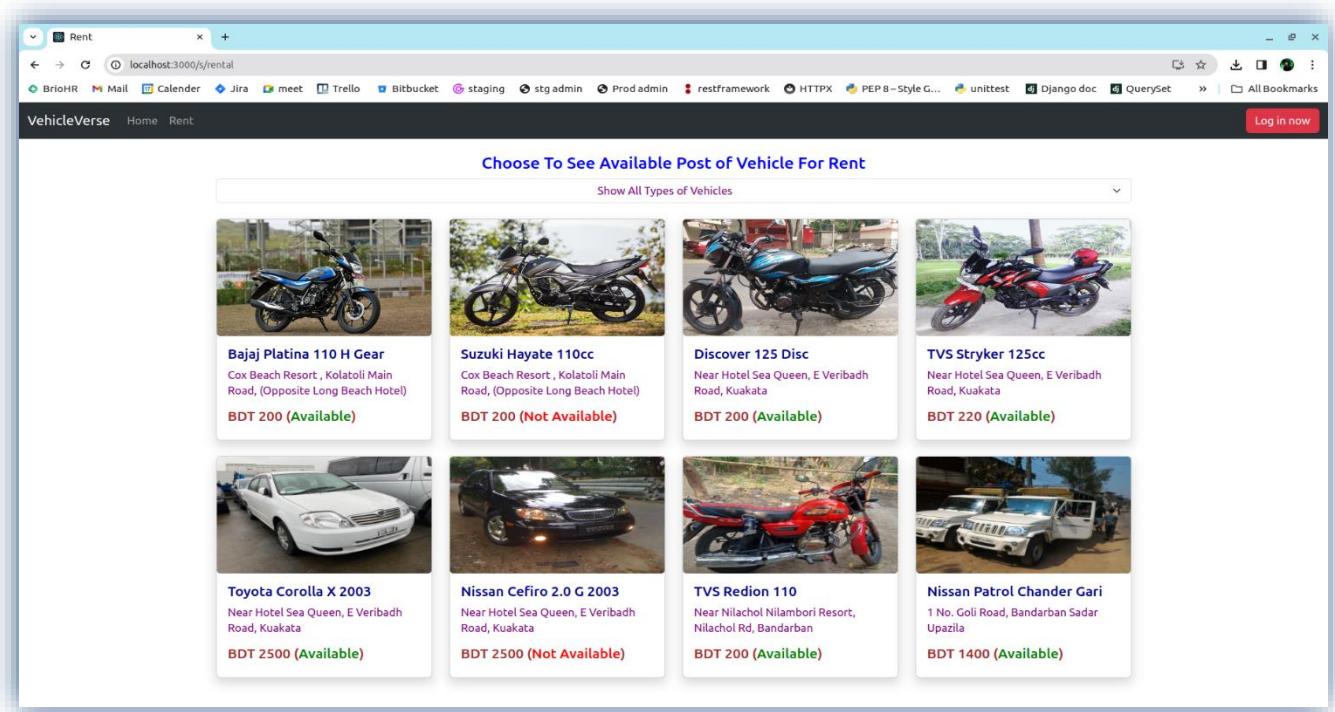


Figure: 3.4.11.1 Rental Page without login

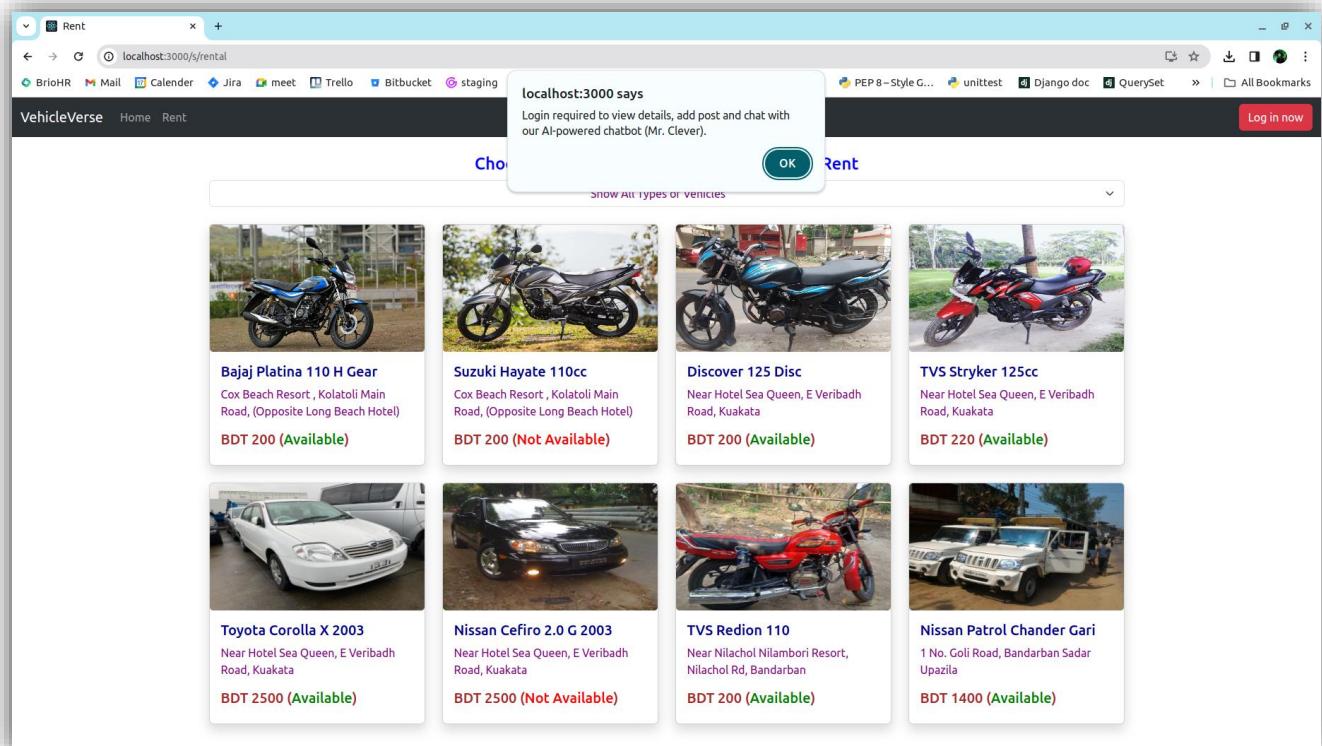


Figure: 3.4.11.2 Rental Page alert message

3.4.12 Rental Page of VehicleVerse after Login

From rent page user can see the vehicle listing that are available for rent with vehicle picture and a few details of it. There also a navigation bar in the top that links every page to one another. User can see details of any vehicle by simply clicking of it. Also user can see the add post option after login. Also user can filter the page based on vehicle types according to their interest. There are log out button in the right side of navigation bar. User can see from each card if the vehicle is currently available for rent or not. Some screenshots are given below from rent page after login.

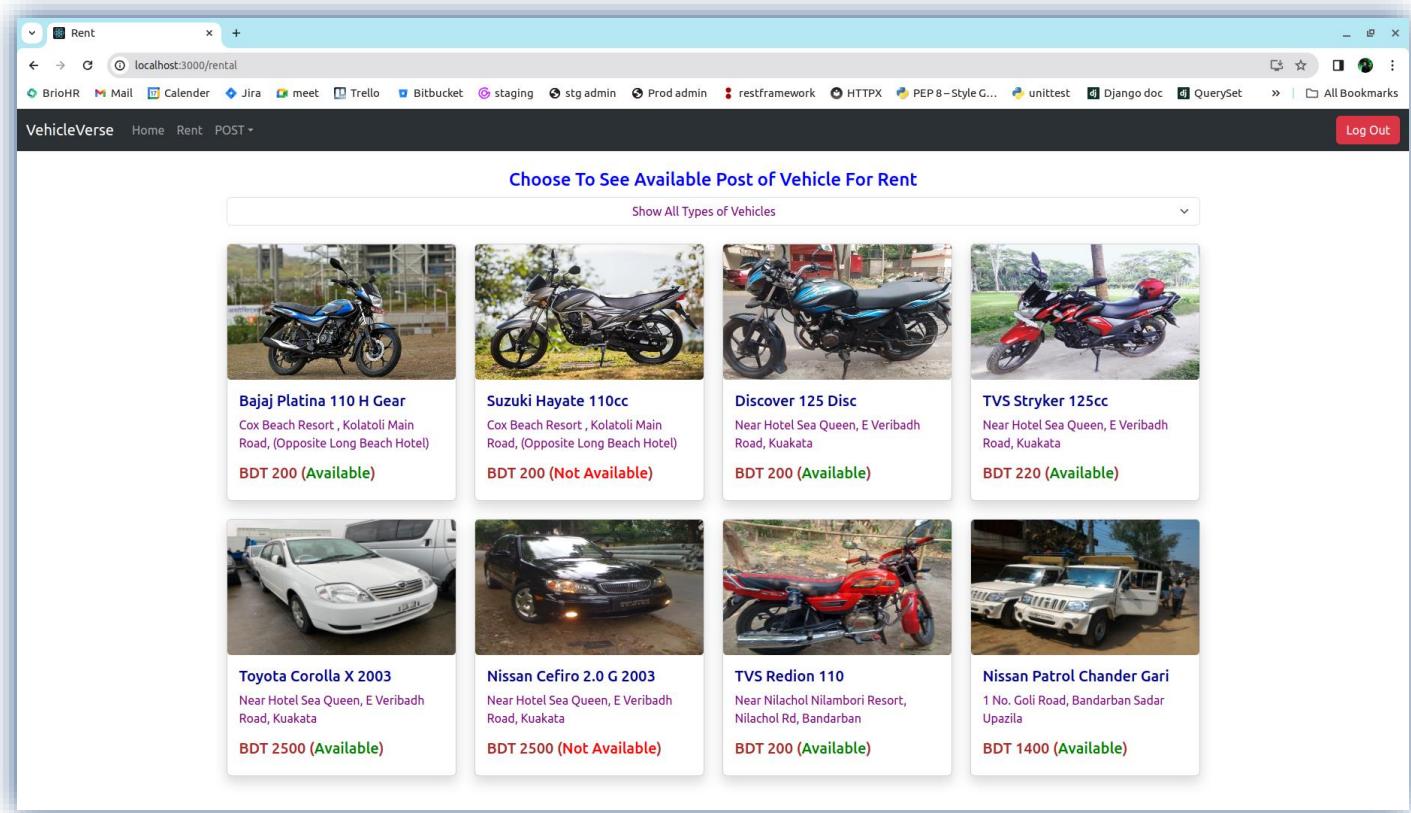


Figure: 3.4.12.1 Rental Page after login-1

The screenshot shows a web browser window with the URL localhost:3000/rental. The title bar says "Rent". The page header includes "VehicleRVerse", "Home", "Rent", "POST", and "Log Out". The main content area has a heading "Choose To See Available Post of Vehicle For Rent" and a dropdown menu set to "Show Only Bike". Below this are five cards, each featuring a motorcycle image and details:

- Bajaj Platina 110 H Gear**
Cox Beach Resort , Kolatoli Main Road, (Opposite Long Beach Hotel)
BDT 200 (Available)
- Suzuki Hayate 110cc**
Cox Beach Resort , Kolatoli Main Road, (Opposite Long Beach Hotel)
BDT 200 (Not Available)
- Discover 125 Disc**
Near Hotel Sea Queen, E Veribadh Road, Kuakata
BDT 200 (Available)
- TVS Stryker 125cc**
Near Hotel Sea Queen, E Veribadh Road, Kuakata
BDT 220 (Available)
- TVS Redion 110**
Near Nilachol Nilambori Resort, Nilachol Rd, Bandarban
BDT 200 (Available)

Figure: 3.4.12.2 Rental Page after login-2

The screenshot shows a web browser window with the URL localhost:3000/rental/. The title bar says "Rental Vehicle Details". The page header includes "VehicleRVerse", "Home", "Rent", "POST", and "Log Out". The main content area shows a large image of a blue and black Bajaj Platina 110 H Gear motorcycle. To the right are the following details:

Owner: Alif
Model: Bajaj Platina 110 H Gear
Call: 01705827772
Whatsapp: 01952386415
Price: 200 BDT
Address: Cox Beach Resort , Kolatoli Main Road, (Opposite Long Beach Hotel)
Description: It has a Normal Braking system with Tubeless tyres. Seat Height is 804mm, and Weight is 122 KG. Top Speed: we got 90 KMPH. Additional charges: 10Tk per km run. Need NID to rent without driver.
Availability: Available

Available Comments:
No comments available

[Add Comment](#)

Figure: 3.4.12.3 Rent Post Details From Rental Page

3.4.13 ADD For Sell Page of VehicleVerse

From navigation bar after clicking POST dropdown button there will be 2 options, after clicking the “**ADD For Sell**” button, user can add vehicle that the user willing to post for sell. User will be redirected to a admin page that is customized only for users for adding Any vehicle post for selling.

The screenshot shows the 'Add vehicle' form in the VehicleVerse Admin Panel. The sidebar on the left has a 'MARKETPLACE' section with 'Rentals' and 'Vehicles' tabs, where 'Vehicles' is highlighted. The main form area has fields for 'User', 'Vehicle type', 'Make', 'Model', 'Year', 'Phone number', 'Whatsapp', 'Price', 'Address', and 'Description'. The 'Address' and 'Description' fields both contain the placeholder 'No address provided' and 'No description available' respectively. At the bottom right of the form are three buttons: 'Save and add another', 'Save and continue editing', and a large blue 'SAVE' button.

Figure: 3.4.13.1 Add Post For Sell-1

This screenshot shows the same 'Add vehicle' form as Figure 1, but with more fields visible at the bottom. It includes 'Whatsapp', 'Price', 'Address', 'Description', 'Image' (with a 'Choose File' button and 'No file chosen' message), and 'Extra data' (with a large empty text area). The bottom right features the same three save buttons as Figure 1.

Figure: 3.4.13.2 Add Post For Sell-2

3.4.14 ADD For Rent Page of VehicleVerse

From navigation bar after clicking POST dropdown button there will be 2 options, after clicking the “**ADD For Rent**” button, user can add vehicle that the user willing to post for rent. User will be redirected to a admin page that is customized only for users for adding any rental post for vehicle rent.

The screenshot shows the 'Add rental' form in the VehicleVerse Admin Panel. The left sidebar has a 'MARKETPLACE' section with 'Rentals' and 'Vehicles' options. The main form fields are:

- User:** A dropdown menu.
- Vehicle type:** A dropdown menu.
- Phone number:** An input field.
- Whatsapp:** An input field.
- Model:** An input field.
- Price:** An input field with value '0'.
- Address:** A text area with placeholder 'No address provided'.
- Description:** A text area with placeholder 'No description available'.

Figure: 3.4.14.1 Add Post For Rent-1

This screenshot shows the 'Add rental' form with more detailed fields:

- Price:** An input field with value '0'.
- Address:** A text area with placeholder 'No address provided'.
- Description:** A text area with placeholder 'No description available'.
- Is available:** A checked checkbox.
- Image:** A file input field with placeholder 'Choose File No file chosen'.
- Extra data:** A text area with placeholder '{}'.

At the bottom right, there are three buttons: 'Save and add another', 'Save and continue editing', and a larger 'SAVE' button.

Figure: 3.4.14.2 Add Post For Rent-2

CHAPTER 4

IMPLEMENTATION AND TESTING

4.1 Implementation Requirements

Requirement analysis is the very early phase of developing a website. project. Requirements analysis is helpful in determining the needs or conditions that must be met as a new or altered product. Therefore, a requirements analyst takes account of the possible conflict. requirements of the various stakeholders and documents.

4.1.1 Requirement Collection and Analysis

Requirement analysis is critical to the success or failure of a systems or software project. The requirements should be documented, actionable, measurable, testable, traceable, related to identified business needs or opportunities, and defined to a level of detail sufficient for system design. We analyzed the requirements of these activities with the help of our honorable project supervisor.

Here are the main activities involved in requirement analysis:

- Admin and User log into the system.
- Admin manages the system.
- User-leading marketplace in Bangladesh.
- Admin manages the system.
- Log out.

4.1.2 Design Requirements

The website design and development procedure for our project has been shown using a use case diagram, use case description, E-R diagram, and system flowchart. The whole design is user-friendly and any non-technical person will understand about the design procedure easily just by viewing the described diagram and flowchart. In the future, any kind of edit is allowed as time permits. The website working procedure is given below –

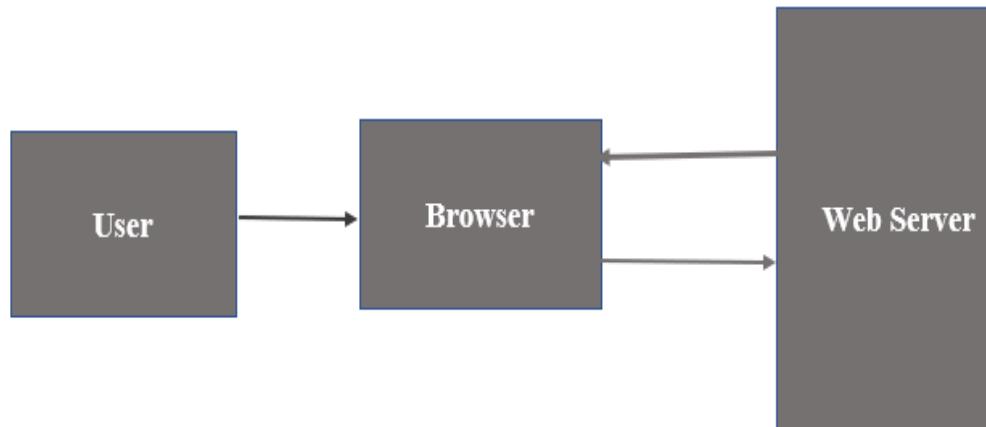


Fig 4.1.2 Website Working Procedure

4.1.3 Completion

This project is all about managing an online marketplace and rental property. This website is easy to use. We have more features and updates in our minds. In the future, we will try to add those features.

4.1.4 Project Deliverables

Deliverable is a term used in project management to describe a tangible or intangible object produced as a result of the project that is intended to be delivered to a customer. A deliverable could be a report, a document, a server upgrade, or any other building block of an overall project.

A deliverable may be composed of multiple smaller deliverables. It may be either an outcome to be achieved or an output to be provided. A deliverable differs from a project milestone in that a milestone is a measurement of progress toward an output whereas the deliverable is the result of the process. For a typical project, a milestone might be the completion of a product design while the deliverable might be the technical diagram of the product. A deliverable also differs from a project document in that a project document is typically part of a project deliverable, or a project deliverable may contain a number of documents and physical things.

In technical projects, deliverables can be further classified as hardware, software, or design documents. In contracted efforts, the deliverable may refer to an item specifically required by contract documents, such as an item on a Contract Data Requirements List or mentioned in the statement of work.

4.1.5 Resource Allocation

Resource allocation is the process of assigning and managing assets in a manner that supports an organization's goals. We gathered all our resources from various places. Then we made a plan for how to utilize all our resources for finishing the project. But our most precious resource is our unity, punctuality, and trust in each other.

4.2 Pass/Fail Criteria

Generally, test engineers set the pass or fail criteria. They prepare the pass/fail criteria according to which input data worked and which did not work. Pass criteria are the worked data and the rest of the input data are considered as fail criteria.

For this system pass/fail criteria are given below:

- One criterion should always be passing accurately to be considered as pass criteria.
- System crush will be considered as a fail criterion.
- Not showing expected results will be considered as fail criteria.

Test Phase	Time
Testing plan creation	1-week
Test specification	1-week
Unit Testing	During development time
Validating use case	2-weeks
User Interface Test	1-week
Load Test	1-week
Release to production	1-week

Table 4.2.1 Testing Schedule

4.3 Testing Environment

Test engineers need to prepare an environment with hardware and software to execute test cases as required, this is called a testing environment. Sometimes network configuration is needed to execute a test plan.

Some key environment areas for testing are given below.

- Test data
- Operating system.
- Browser.
- Database server.
- Network.
- Website documentation.
- Hardware with server operating system.

4.4 Testing Implementation

Testing is a major part of embedded system implementation. Otherwise, there can be errors when the real user uses the system. There can be some unexpected thing happens and the system can be crashed. That's why we need to test our system. In our system, authentication is required to get all access to our system. We have checked different inputs for login credentials. We got the expected result and after successful login, we entered the main screen of our software. From the main screen, there are three different screens for navigation. And we can navigate successfully without any error.

On the Homepage, we can chat with our AI-powered chat bot and for other things we can do the task as desired. Also, we can successfully able to update and add a new vehicle for sell or rent from customized admin panel linked with navigation bar to the database also can change or delete any added post and can view our post in that customized admin panel without any issues.

CHAPTER 5

CONCLUSION AND FUTURE WORKS

5.1 Conclusion

We are developing this website by using a prototyping model. After developing the prototype version, we will get some errors and we will face some problems, and the user also will give the feedback. Then we will fix the errors if found any. We look forward to our next version.

5.2 Social Impact

Accessibility and Mobility: If your platform facilitates easier access to buying, selling, or renting used vehicles, it can enhance mobility for individuals who may not have easy access to traditional means of transportation.

Economic Opportunities: The platform may create economic opportunities for individuals looking to sell their vehicles or start a rental business.

Safety: If the platform incorporates safety features or encourages sellers to provide detailed information about the condition of the vehicles, it can contribute to overall road safety.

Community Interaction: The Chabot feature could enhance user experience and engagement, providing a more personalized and user-friendly interface.

5.3 Ethical Issues

Privacy: Ensure that user data, especially personal and financial information, is handled securely and ethically. Respect user privacy and adhere to data protection laws and regulations.

Transparency: Be transparent about how your AI Chabot functions, and make it clear to users that they are interacting with a machine rather than a human.

Fair Trade Practices: Ensure fair and transparent trade practices to avoid exploitation and promote trust among users.

5.4 Environmental Impact

Vehicle Emissions: The buying, selling, and renting of used vehicles can contribute to the overall environmental impact of transportation. Encourage the use of fuel-efficient or electric vehicles.

Encourage Sustainable Practices: Promote and incentivize the use of environmentally friendly vehicles, and consider incorporating features that highlight the environmental impact of different vehicle choices.

Logistics and Transportation: Consider the environmental impact of vehicle transportation for sales or rentals. Encourage local transactions to minimize carbon footprint.

5.5 Future Integration

- Add payment and payout integration into frontend.
- Add user wallet.
- Add gamification for better user engagement.
- Add further required integration after receiving feedback from user.

References:

- <https://botpress.com/docs/cloud/channels/webchat/adding-to-your-website/webflow/>
- <https://docs.djangoproject.com/en/5.0/>
- <https://www.w3schools.com/js/default.asp>
- <https://stackoverflow.com/>
- <https://react.dev/learn>
- <https://plato.stanford.edu/entries/ethics-ai/>