VISVESVARAYA TECHNOLOGICAL UNIVERSITY
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FULL STACK DEVELOPMENT PROJECT REPORT
ON

"E COMMERCE WEBSITE FOR AUTOMOBILE SHOP"
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

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CERTIFICATE

This is to certify the Project Report entitled "**E Commerce website for automobile shop**", prepared by **Poojitha B A, Sai Niteesha M, Sushmitha T** bearing **USN 1CR21EC142, 1CR21EC181, 1CR21EC250**, bonafide students of **CMR Institute of Technology, Bengaluru** in partial fulfillment of the requirements for the award of **Bachelor of Engineering in Electronics and Communication Engineering** of the **Visvesvaraya Technological University, Belagavi-590018** during the academic year 2023-24.

This is certified that all the corrections and suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The Project has been approved as it satisfies the academic requirements prescribed for the said degree.

Signature of Guide

Signature of HOD

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ABSTRACT

The Automobile Shop E-commerce Platform is a comprehensive web-based application designed to streamline the buying and selling of vehicles online. Developed using modern web technologies, this platform caters to three primary user roles: customers, dealers, and administrators, each with functionalities tailored to their needs.

It consists of three main portals:

        customer
        dealer
        administrator

- The **customer portal** allows users to browse vehicle listings, perform detailed searches, schedule test drives, and complete purchases online.
- The **dealer portal** enables dealers to list vehicles, manage their inventory, respond to customer inquiries, and process sales.
- The **administrator portal** provides tools for overseeing site operations, managing user accounts, monitoring transactions, and generating reports.

The system aims to enhance efficiency, accessibility, and user satisfaction in the automotive retail process by integrating advanced features and ensuring secure transactions.
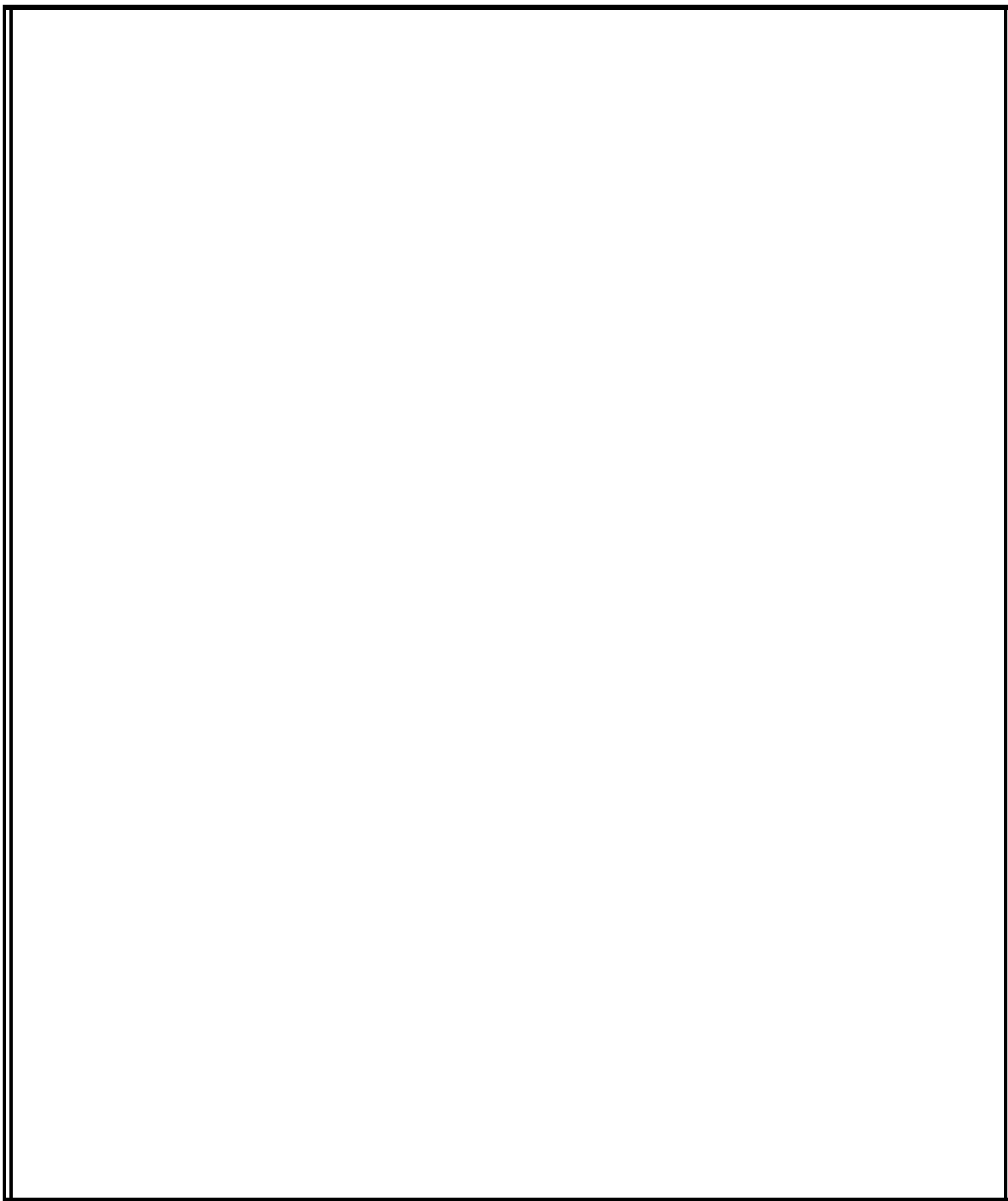
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CHAPTER 1

INTRODUCTION

The Automobile Shop E-commerce Platform represents a significant innovation in the automotive retail industry, aimed at revolutionizing the way vehicles are bought and sold. Developed using cutting-edge web technologies, this platform addresses the complexities faced by traditional automobile shops in managing inventory, reaching customers, and facilitating seamless transactions.

Automobile shops play a crucial role in the economy by providing consumers with a diverse range of vehicles, from new to pre-owned. However, the traditional car buying process can often be time-consuming and cumbersome, involving multiple visits to dealerships, extensive paperwork, and lengthy negotiations. The need for a robust, integrated system that automates and simplifies these processes is essential to enhance customer satisfaction and operational efficiency.

The Automobile Shop E-commerce Platform offers distinct portals for customers, dealers, and administrators, each tailored to their specific roles and responsibilities. Customers can effortlessly browse vehicle listings, perform detailed searches, schedule test drives, and complete purchases online through an intuitive interface. Dealers benefit from comprehensive tools to list vehicles, manage inventory, respond to customer inquiries, and process sales efficiently. Administrators gain powerful capabilities to oversee site operations, manage user accounts, monitor transactions, and generate insightful reports.

Built with modern web development technologies, the platform leverages a technology stack that includes HTML, CSS, JavaScript, and a robust back-end framework. This setup ensures a secure, scalable, and user-friendly platform, capable of handling the dynamic needs of the automotive retail market.

This report provides an in-depth overview of the platform's features, performance metrics, and future goals, offering valuable insights into its current functionality and potential for growth.

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CHAPTER 2

TOOLS USED

Development Platform : Visual Code Studio. Programming
languages : Python, HTML, CSS and Django.

Visual Studio Code is a lightweight but powerful source code editor that comes with built-in support for JavaScript, TypeScript and Node.js and has a rich ecosystem of extensions for other languages and runtimes (such as HTML,C++, C#, Java, Python, PHP, Go, .NET) making it a valuable tool for software development projects of all sizes.

Python is a high-level, interpreted programming language known for its simplicity and readability.

HTML stands for **HyperText Markup Language.** It is the standard language used to create and design web pages on the internet.

CSS stands for **Cascading Style Sheets**, is a style sheet language used for describing the presentation of a document written in a markup language like HTML. CSS is a fundamental technology for web development, enabling developers to create visually appealing, responsive, and user-friendly websites and web applications. Its flexibility, simplicity, and widespread adoption make it an essential skill for frontend developers.

Django is a high-level, open-source web framework written in Python that simplifies the development of robust and scalable web applications. It follows the "batteriesincluded" philosophy, offering a comprehensive suite of built-in tools and features, such as an ORM (Object-Relational Mapping) for database interactions, authentication and authorization systems, and an administrative interface for managing application data. Django emphasizes rapid development, security, and reusability, making it an ideal choice for building complex web applications efficiently.

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CHAPTER 3

METHODOLOGY

1. Planning and Requirement Gathering

Effective planning and thorough requirement gathering are critical stages in developing the e-commerce website for the automobile shop. This initial phase involves engaging stakeholders such as automobile shop owners, sales staff, and potential customers to understand their specific needs and expectations. Clear project goals are established, focusing on enhancing inventory management, customer engagement, and streamlining the vehicle buying and selling processes.

2. Technology Stack Selection

Based on the project requirements, the following technology stack was chosen:

- **Backend Framework:** Django
- **Frontend Technologies:** HTML, CSS, Python
- **Database:** SQLite (for development purposes in future)
- **Email Service:** Integrated email service

3.Design and Prototyping

A basic design for the user interface of the e-commerce website was created with a strong emphasis on simplicity and user-friendliness. Wireframes and prototypes were developed to visualize key components including the customer portal, dealer portal, and administrative dashboard. The design focused on features such as vehicle search and filter options, user registration and login, and secure payment processing.

4. Development

4.1 Backend Development

- **Django Models:** Defined models for vehicles, users, orders, and inventory.

- **Views and URLs:** Created views for handling user requests and corresponding URL patterns for routing.
- **Forms and Validation:** Implemented forms for user registration, login, and vehicle listings.

4.2 Frontend Development

- **Templates:** Designed HTML templates for each page, incorporating CSS for styling and python for interactivity.
- **Responsive Design:** Ensured the website is accessible and usable across various devices and screen sizes.

4.3 User Authentication

- **Registration and Login:** Created a secure system for user registration and login using Django's built-in authentication framework.
- **Session Management:** Managed user sessions to maintain the state of the shopping cart and other interactions.

5. Testing

- **Unit Testing:** Conducted unit tests to ensure individual components function correctly.
- **Integration Testing:** Tested the integration of different components to ensure they work together seamlessly.
- **User Testing:** Gathered feedback from users to identify any usability issues and made necessary adjustments.

6. Maintenance and Updates

- **Continuous Monitoring**: Implemented monitoring tools to track the website's performance and security.

- **Regular Updates:** Released regular updates to add new features, fix bugs, and improve existing functionalities based on user feedback.
- **Support**: Provided ongoing support to address user queries and issues.

This methodology ensures a structured and efficient approach to developing a robust and user-friendly e-commerce website for the automobile shop.

CHAPTER 4

OVERVIEW, FEATURES AND OUTPUTS

1. **Overview**

   The Automobile Shop E-commerce Platform is a web-based application developed using Django, designed to streamline and optimize the operations of automobile shops. It facilitates the management of vehicle listings, customer inquiries, sales transactions, inventory, and user accounts, ensuring efficient handling of automotive sales and enhancing accessibility for both dealers and customers. The platform provides a seamless and user-friendly experience, allowing customers to browse, search, and purchase vehicles online, while offering dealers powerful tools to manage their inventory and sales processes.

2. **Features and Functionalities**

   2.1 Administrator Features: 1. Dashboard Overview: ○ Display total number of vehicles listed for sale. ○ Show number of active dealers and customers. ○ View total number of completed sales transactions. ○ Display current inventory levels and low-stock alerts ○ Show summary of recent user activities and system notifications.

2. **Vehicle Management:**
   - ○ View, update, and delete vehicle listings.
   - ○ Manage donor registration and approval processes.
   - ○ Approve or reject new vehicle listings submitted by dealers.

3. **User Management:**
   o View, update, and delete user profiles (customers and dealers) o Approve or reject pending orders based on availability and payment status.

4. **Order Management:**
   o View and manage customer orders and transaction details.

5. **Inventory Management:**
   o Update and manage inventory levels for different vehicles o Set alerts for low inventory and track inventory turnover rates. o Generate reports on inventory status and sales trends.

6. **Report Generation:**
   o Generate and view reports on sales performance, user activities, and inventory status.
   o Export reports to various formats for analysis and record keeping.

2.2 Customer Features: 1. Registration

and Profile Management:

   o Create account by providing basic details.
   o View, update, and delete their own profile information.

2. **Vehicle Browsing and Search:**
   o Browse through vehicle listings with options to filter by make, model, year, price range, and location. o View detailed information for each vehicle including photos, specifications, and price.

3. **Purchase Actions:**
   o Schedule test drives for selected vehicles. o View purchase history and track order status.

4. **Dashboard Overview:**
   o See number of vehicles viewed, test drives scheduled, and purchases made.

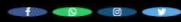## 2.3 Dealer Features: 1. Registration and

Profile Management:

o Create account (no approval required).

o View, update, and delete their own profile information.

2. **Vehicle Listing Actions:**

o Add new vehicles to the inventory. o Edit or delete existing vehicle listings.

3. **Dashboard Overview:**

o See number of vehicles listed, sold, and pending sale.

Outputs:

Automotive ecommerce

Search for Products, Brands and more

🔍   🛒 Cart 0
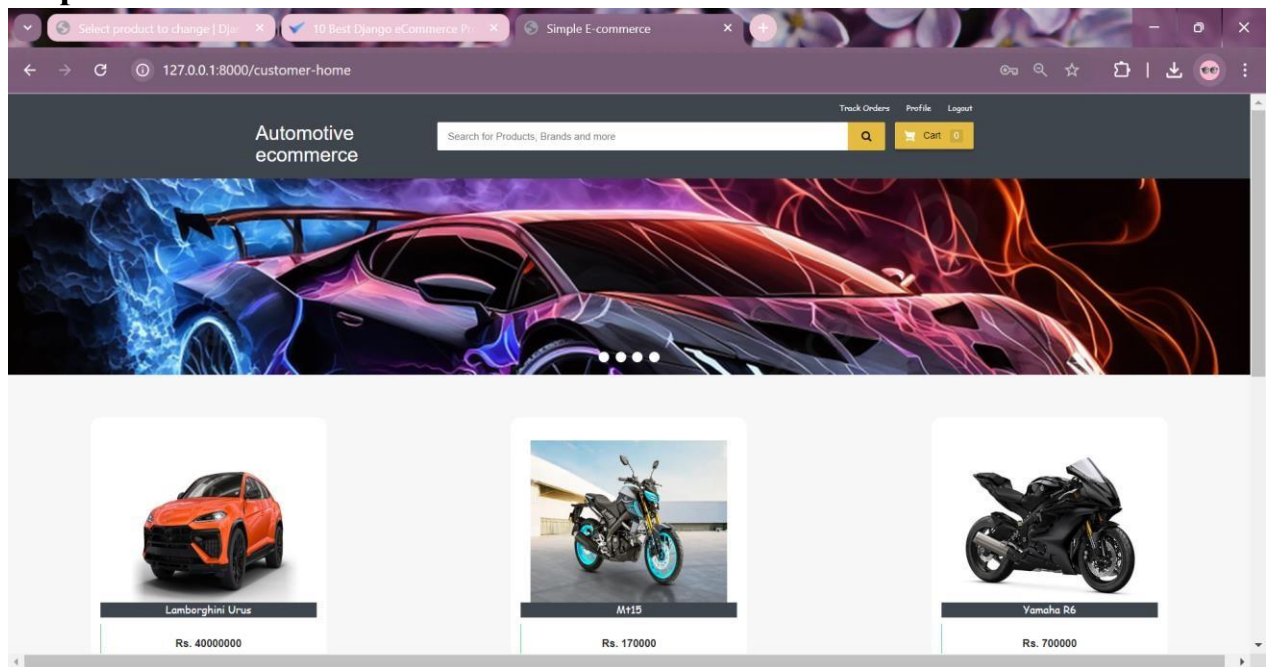
My Cart

Name	Image	Price	Description	Action

Total $0   Purchase

Ⓕ Ⓦ Ⓘ Ⓣ

Automotive ecommerce

Search for Products, Brands and more

🔍   🛒 Cart

Username: Mrao123

— Address: CMRIT 📍

📱Contact: 09113560974

Edit Profile

Ⓕ Ⓦ Ⓘ Ⓣ

Ecommerce Site in Python using Django Framework

Automotive ecommerce

Search for Products, Brands and more

🔍   🛒 Cart

"Rev up your ride with our premium automotive parts and accessories. Discover unbeatable quality and performance, all in one place."

Ⓕ Ⓦ Ⓘ Ⓣ

FUTURE SCOPE

- **Integration with IoT and Real-time Tracking**: Implement IoT devices to monitor vehicle conditions such as location, mileage, and maintenance needs. Integrate real-time tracking to enhance inventory management, ensure vehicle status updates, and provide customers with accurate delivery tracking.

- **Predictive Analytics**: Utilize data analytics to forecast vehicle demand based on historical sales data, market trends, and demographic factors. Implement predictive models to optimize inventory levels, pricing strategies, and promotional campaigns.

- **Mobile Application:** Develop a mobile app companion for customers and dealers to facilitate easier access to vehicle browsing, purchase processes, and real-time updates on order status and promotions. Include features for push notifications and personalized recommendations.

- **Enhanced Reporting and Insights**: Expand reporting capabilities to include comprehensive analytics on sales performance, customer behaviour, and inventory turnover. Provide actionable insights for strategic decision-making, marketing efforts, and inventory management.

- **Vehicle Trade-In Management**: Integrate features for managing vehicle trade-ins, including appraisal tools, trade-in value calculations, and seamless integration with the purchase process. Enable dealers to offer competitive trade-in options to customers.

- **API Integration:** Provide APIs for seamless integration with third-party services such as payment gateways, CRM systems, and inventory management solutions. Enable automated updates and data synchronization across platforms.

- **Enhanced Security and Compliance**: Implement advanced security measures to protect sensitive customer and dealer information. Ensure compliance with data protection regulations such as GDPR and PCI-DSS for secure payment processing and personal data handling.

- **Virtual Showroom Integration:** Collaborate with virtual reality (VR) platforms to enable customers to explore vehicle interiors and exteriors in a virtual showroom. Enhance the online shopping experience with immersive technology.

- **Expanded Customer Engagement:** Implement features for customer rewards, loyalty programs, and social sharing to encourage repeat purchases and enhance brand loyalty. Offer personalized incentives and promotions based on customer activity and preferences.

- **Global Scaling and Localization**: Plan for scalability to expand the ecommerce platform globally, considering regional variations in automotive regulations, market practices, and language preferences. Adapt the platform to meet local requirements and enhance user experience across different regions.

CONCLUSION

The e-commerce website for the automobile shop, developed using Django, represents a significant advancement in the automotive retail industry. By integrating comprehensive features such as vehicle management, customer interactions, and real-time inventory tracking, the platform enhances operational efficiency and customer satisfaction. This web-based application streamlines the vehicle buying and selling processes, offering a seamless and user-friendly experience for both dealers and customers.

Looking ahead, the platform has the potential to further transform the automotive retail landscape through future enhancements such as IoT integration for real-time vehicle tracking and predictive analytics for sales forecasting. These advancements will continue to enhance the system's capability to adapt to market trends, optimize inventory management, and provide personalized experiences. As a result, the platform will not only improve the efficiency of automotive transactions but also strengthen its role in supporting the growth and innovation of the automotive industry.

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