

Title of the Project

Car Doctor Web System

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in
Computing and Information System



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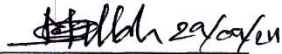
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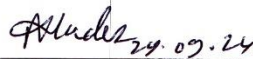
This Project titled “Car Doctor Web System”, Submitted by S.M. Salman ID No: 193-16-476 to the Department of Computing & Information System, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computing & Information System and approved as to its style and contents. The presentation has been held on 29-09-2024.

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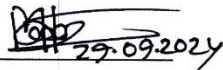
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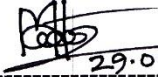
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Declaration

I hereby declare that; this project has been done by me under supervision of **Md. Mehedi Hassan, Lecturer**, department of Computing and Information System (CIS) of Daffodil International University. I am also declaring that this project or any part of there has never been submitted anywhere else for the award of any educational degree like, B.Sc., M.Sc., Diploma or other qualifications.

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Acknowledgement

Conducting study and successfully finishing the "Car Doctor" project was a satisfying experience. I am profoundly grateful to God for His grace during my scholastic path.

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Executive Summary

Car Doctor is a paid course service web application. This system facilitates purchasing vehicle courses, get driving license and product sales, bridging the gap between customers and automotive professionals. Car Doctor offers a user-friendly interface where users can purchase Courses such as Manual car driving, Auto Car Driving, Motorcycle riding etc. As well as browse and purchase new and used vehicle products. The platform includes detailed course information, an intuitive order system, and an admin dashboard for monitoring and management. Car doctor also provide Quick solution using AI.

Advanced features include a multi-shopping cart system for both new and used products, a product delivery system that integrates customer addresses and contact details, and a secure SSL merchant transaction system to ensure secure payments.

Using modern web technologies, Car Doctor ensures a seamless user experience with strong security measures to protect user data. By addressing the challenges vehicle owners face in accessing reliable courses and products, and by providing automotive businesses with efficient management tools, Car Doctor aims to increase convenience, trust and efficiency in the automotive service industry. The project showcases technical expertise in web development and underscores the transformative potential of digital platforms in the automotive sector, fostering improved customer service, streamlined operations and expanded business opportunities.

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Chapter 1 - Introduction

Car Doctor project offers a digital platform where users can easily access detailed Courses information, purchase various Car Course like Manual car driving, Auto Car Driving, Auto car + manual car driving, Motorcycle riding, Scooter riding etc. and also get Driving license, and also get quick solution by AI. User can buy both new and used vehicle products. By integrating a variety of features, including courses order management, a multi-cart shopping system, and secure SSL transaction processing, Car Doctor aims to simplify the vehicle maintenance process and improve customer satisfaction. The platform also includes an admin dashboard for efficient monitoring and management of paid courses and products. With a user-friendly interface, Car Doctor ensures that customers can effortlessly navigate to take vehicle courses, product details, and secure checkout procedures. The project leverages cutting-edge web technologies to provide a seamless, reliable, and engaging experience. Through Car Doctor, we aim to elevate the course service industry by offering a convenient, comprehensive, and technologically advanced solution for all vehicle maintenance and purchasing needs.

Chapter 2 - Initial Study

2.1 Project proposal:

1. Initial Conception

A. Brief description of the project

Car Doctor is an innovative web platform designed to purchase Car courses. Catering to both individual customers and businesses, Car Doctor integrates a comprehensive suite of courses. Key features encompass detailed all course information, an efficient course order system, an admin dashboard for monitoring, AI solution and management of both new and used vehicle products. The platform boasts a multi-shopping cart system, product delivery through customer address integration, and a secure SSL commerce transaction system. Additional functionalities include robust product details and information systems. This project aims to revolutionize the vehicle industry by providing a reliable and user- friendly solution for all vehicle-related needs.

B. Proof of concept:

i. Prototype:

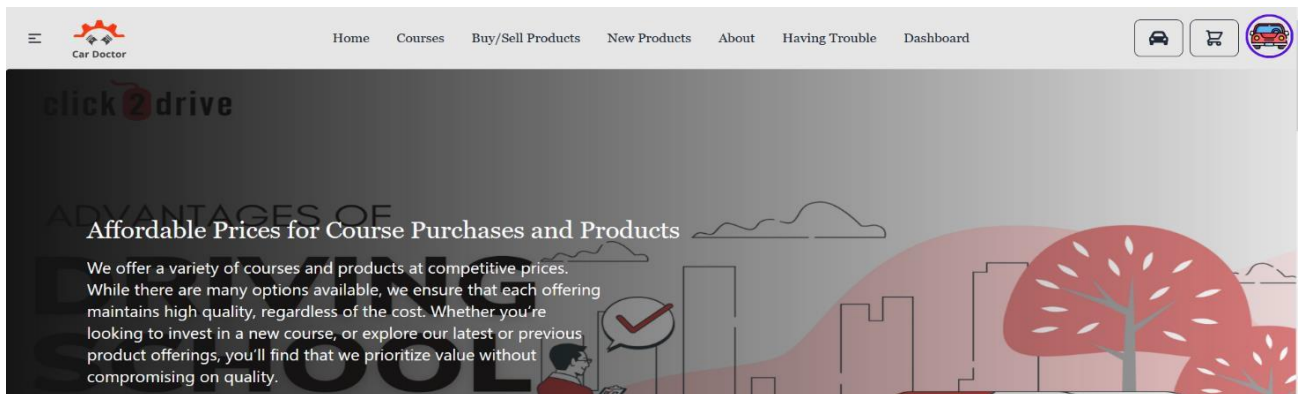


Fig 2.1: Concept of Car doctor web system.

ii. Initial research:

C. Market Viability:

The market viability of the Car Doctor web system is strong, given the consistent demand for Car courses and the growing trend of online ecommerce. The system can attract a broad audience by offering Car courses, Ai solution, alongside the sale of new and used vehicle. With the integration of online course booking, detailed Courses information, and secure payment options, quick AI solution Car Doctor can provide convenience and transparency to customers. The multi-shopping cart system and product delivery feature enhance user experience, catering to the modern consumer's preference for hassle-free, online transactions. The administrative dashboard allows for efficient course management, product oversight, and performance analytics, ensuring operational excellence. As the automotive industry continues to embrace digital solutions, Car Doctor stands poised to meet the evolving needs of vehicle owners, making it a viable and potentially profitable venture in the automotive market.[1]

2. Feasibility Study

A. Operational Feasibility:

The operational feasibility of the Car Doctor web system is apparent in its capacity to efficiently manage a wide range of vehicle courses and product offerings. The system's intuitive user interface ensures smooth navigation for purchasing Car courses, thereby enhancing overall operational efficiency. The integration of advanced features like a multi-shopping cart system and secure SSL transactions provides a seamless and secure shopping experience. Also using AI to give quick solution. The administrative dashboard empowers staff to monitor user, manage product inventories, and track orders effectively, ensuring streamlined operations. Additionally, the system supports various car courses and products, catering to a broad spectrum of customer needs. The use of secure data protocols ensures the confidentiality and integrity of customer information, further reinforcing the operational reliability of the Car Doctor system. This comprehensive approach guarantees a user-friendly, efficient, and secure platform for both customers and administrators.

B. Technical Feasibility:

Car Doctor ensures a streamlined workflow, with users purchasing Car courses via an intuitive web interface. Car course scheduling, product management, AI solution and transactions are efficiently handled through the platform. The system supports seamless coordination between customers and

course providers, ensuring timely updates and notifications. The admin dashboard allows for effective monitoring and management of operations. By integrating real-time data processing and secure transaction systems, Car Doctor fosters a cohesive, responsive environment that meets user needs promptly and efficiently.

- **Hardware:** Computer/Laptop Max 8 GB RAM 256 SSD net connection needed.

- **Software:**
 - ☐ VS Code.
 - ☐ Firebase.
 - ☐ Mongo DB.
 - ☐ Chrome Browser.
 - ☐ Mongoose.
 - ☐ Postman.
 - ☐ Node JS.
 - ☐ Vercel.
 - ☐ SQL Booster.

C. Economic feasibility:

The system aspires to function within an economically efficient framework by leveraging online platforms for design and development, thus mitigating costs associated with conventional car courses methodologies. The feasibility analysis entails a thorough assessment of budgets, equipment expenditures, server, and maintenance costs, ensuring the project's financial viability and justification. Below is the detailed cost report.[2]

Costs:

- Software cost.
- Hosting cost.
- Storage cost.

Table 2.1: Economic Feasibility

	Using Element	Amount
1	Software	13500/=
2	Hardware	47000/=
3	Hosting	7800/=
Total		68,300/=

Comparative analysis:

In the vehicle servicing industry, a notable void persists due to the prevalent dependence on manual procedures for purchasing car courses and product management. However, the Car Doctor system distinguishes itself by obviating the necessity for manual interventions. It presents a holistic remedy, empowering users to oversee coursed information, course orders, admin monitoring, and product management seamlessly via an intuitive interface. Operations are streamlined with unparalleled efficiency, all achievable with a single click, revolutionizing the conventional workflow. This system ensures secure transactions and efficient product delivery, significantly enhancing the user experience and operational productivity.

3. Foundation

Define Goal and Object of the Project:

Goal: At the depth of the Car Doctor system is the ambition to create a unified and user-friendly platform designed specifically for paid Car courses. This comprehensive system is intricately designed to enhance and simplify the entire car course journey, addressing the requirements of individual vehicle owners and course communities alike.

Objectives:

- **vehicle courses:** Take a various vehiclecourse so that customer get all they need.
- **Intuitive user interface:** Develop a user-friendly and intuitive interface that ensures seamless navigation and accessibility for all users, including customers and administrators.
- **Personalized service recommendations:** Implement personalized service recommendations using advanced algorithms, ensuring precise and tailored suggestions based on vehicle type and customer preferences.
- **Time and cost efficiency:** Enhance service efficiency by reducing turnaround times and costs associated with vehicle utilizing centralized resources and efficient scheduling.
- **Enhanced service visibility:** Increase visibility for vehicle servicing options, enabling customers to explore a wide range while showcasing the expertise of Car Doctor to a larger audience.
- **Improved customer satisfaction:** Utilize data-driven insights to enhance satisfaction

through accurate course recommendations and streamlined user experiences.

- **Effective management tools:** Provide comprehensive tools for administrators to efficiently manage course orders, inventory, and customer interactions, ensuring smooth operations.
- **Continuous enhancement:** Embrace an iterative development approach to continuously enhance the Car Doctor platform based on user feedback and technological advancements in course providing.
- **Revenue diversification:** Explore revenue opportunities through partnerships, premium course offerings, and targeted advertising, ensuring sustainable growth and economic viability.

Hight level features requirement to achieve goals objectives:

- Authentication system.
- Car course providing system.
- Admin monitoring.
- User account.
- Online transaction system.
- AI solution
- Multi shopping cart system.

4. Exploring and Engineering

A. Iterative development:

Iterative development is a process in which the evolving solution, or a portion of it, progresses from a high-level concept to a stage where it delivers recognized business value.

Time boxing for Car Doctor Web System:

Table 2.2: Time Boxing

Task Name	Start Time	Duration	End Time
1. Initial Study	5 October 2023	15 days	5 October 2023
1.1 Identify the Project requirement		3	8 October 2023
1.2 Project justification		4	12 October 2023
1.3 Find out the solution		6	18 October 2023
1.4 Aims and Objectives		2	20 October 2023
2. Requirement Gathering and Analysis	30 October 2023	10	30 October 2023
2.1 Feasibility Study		2	2 November 2023
2.2 Use Cases		2	4 November 2023
2.3 Functional Requirement		1	5 November 2023
2.4 Non Functional Requirement		1	6 November 2023
2.4 System Architecture		1	7 November 2023
2.5 ERD		1	8 November 2023
2.6 Initial Class Diagram		2	10 November 2023
3. Design	25 November 2023	15	25 November 2023
3.1 UI Design		5	30 November 2023
3.2 Database design		2	1 December 2023
3.3 Class Diagram		2	3 December 2023
3.4 Behavioral Model		2	5 December 2023
3.5 Collaboration Diagram		4	9 December 2023
4. Implementation	29 January 2024	20	29 January 2024
4.1 MERN programming		2	2 January 2024
4.2 Project Implementation		18	6 January 2024
5 Testing		6	20 January 2024
6 Documentation	5 April 2024	30	5 April 2024

B. Features wise development:

The deployment of the Car Doctor web system involves utilizing HTML, CSS, and Tailwind for the frontend structure and design. React.js will be employed for frontend development to create reusable components and manage application state efficiently. On the backend, Redux.js managing the state. The MongoDB database will store and manage data, ensuring flexibility and scalability for the system. JavaScript will be crucial in implementing validation logic and maintaining data integrity throughout the application. Integration of Ajax will enable seamless and responsive user interactions without the need for page reloads. Following the Agile development methodology, the process will be iterative and incremental, closely aligning with user requirements and feedback. For hosting Firebase will be used for the Car Doctor web system, with Vercel providing routing API and hosting for the backend services. This deployment strategy aims to deliver a user-friendly and efficient vehicle servicing platform that includes features such as vehicle courses, AI solution, admin monitoring, new and used vehicle product management, multi-shopping cart system, product delivery, secure transactions via SSL commerce, and detailed product information.

2.2 Background of the Project:

Car Doctor revolutionizes the vehicle industry with its comprehensive web system designed to meet every automotive need. From routine maintenance like Car courses, and, online purchasing, quick AI solution and administrative oversight via a centralized dashboard, Car Doctor ensures seamless operations for both customers and administrators alike. The platform boasts robust functionalities including the management of new and used vehicle products through an integrated multi-shopping cart system. Customers enjoy a streamlined shopping experience with secure transactions facilitated by SSL commerce, while product delivery is efficiently managed through accurate address and location details provided by the users. Car Doctor not only provide car courses and product management but also prioritizes security, reliability, and user- friendly interface, making it the go-to solution for automotive enthusiasts and service providers alike.

2.3 Problem areas:

- **Accessibility for Technological Novices:** Depending solely on transactional revenue (e.g., Purchase Car course, product sales) may not be sustainable in the long term.
- **Internet Reliability and Speed Variability:** In some regions, particularly rural areas, internet connectivity can be inconsistent or slow, impacting the usability of an online platform like Car Doctor.
- **Language and Localization Challenges:** Potential users may prefer to interact with the platform in their native language, which could vary across different regions or customer demographics.
- **Data Security and Privacy Concerns:** Handling sensitive information such as personal details, payment information, and course histories requires robust data security measures.
- **Customer Service and Support Accessibility:** Users may require assistance with purchase courses, product inquiries, or technical issues, especially outside regular business hours.
- **Sustainability of Revenue Streams:** Depending solely on transactional may not be sustainable in the long term.

2.4 Possible solution:

Car servicing web system designed to revolutionize automotive care. With a focus on reliability and convenience, Car Doctor offers comprehensive services including Car courses, AI solution. Our platform features intuitive service info and easy service ordering, ensuring seamless user experience. Admins can monitor operations via a centralized dashboard, optimizing efficiency. Beyond services, Car Doctor facilitates the sale and management of new and used vehicle products with a multi-shopping cart system. Customers benefit from a streamlined product delivery system, leveraging location and phone details for efficient service. Secured by SSL commerce, our transaction system guarantees safe payments. Detailed product information and specifications enhance transparency. Car Doctor is committed to enhancing vehicle care accessibility and user satisfaction, setting new standards in automotive service management. Join us in transforming how vehicle are maintained, ensuring reliability and peace of mind for every journey.

Chapter 3 - Literature Review

Literature review provides a comprehensive overview of existing sources, blending summary and synthesis to present organized insights into the topic.[3]

3.1 Discussion of problem and solution on domain based published articles:

- **Service Quality Assurance:** Ensuring consistent service quality across different types of car maintenance poses a challenge, especially when handling varying customer expectations and technical complexities.
- **Customer Communication and Satisfaction:** Effective communication with customers regarding service details, updates, and post-service feedback can be challenging, leading to misunderstandings and dissatisfaction.
- **Data Security and Privacy Compliance:** Handling sensitive customer information such as personal details and transaction data securely is crucial to comply with data protection regulations and build trust.
- **Operational Efficiency and Resource Allocation:** Optimizing resource allocation across service areas and product management to maximize efficiency and minimize operational costs.
- **Technological Integration and Scalability:** Integrating various technological components such as service booking systems, multi-cart functionalities, and product delivery logistics while ensuring scalability and seamless operation.
- **Customer Retention and Loyalty Programs:** Building long-term customer relationships and fostering loyalty amidst competition and price sensitivity in the automotive service industry.
- **Regulatory Compliance and Industry Standards:** Adhering to complex regulatory requirements and industry standards to avoid legal issues and maintain credibility.
- **Market Differentiation and Brand Positioning:** Standing out in a crowded market with competitors offering similar services and products, and effectively communicating unique value propositions to target audiences.

3.2 Recommended approach:

In the case of car doctor web systems, different approaches are used worldwide. The key lies in identifying the most appropriate method for a particular project. This discussion will explore the three methods, outlining their advantages and limitations, to facilitate informed decisions.

Waterfall Model:

A fundamental aspect of traditional software development processes is the waterfall model, known for its linear sequence through set phases. Often referred to as the "sequential" or "direct" life cycle model, it requires the completion of each phase before moving on to the next, without revisiting previous stages. Its structured approach provides a clear view of the software development path, making it easy to understand.[4]

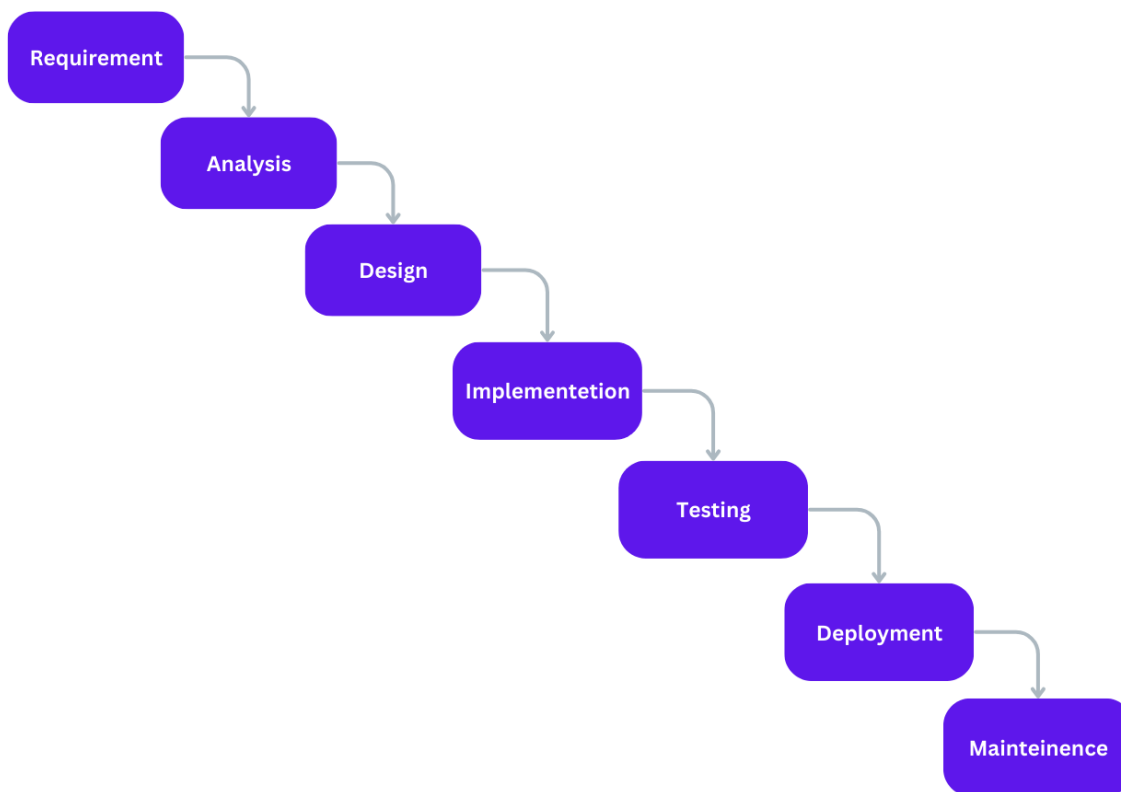


Fig 3.1: waterfall model development process

Advantages:

- The waterfall model is characterized by a straightforward and transparent conceptual framework.
- The progression follows a linear, sequential order, ensuring each phase is completed before the next begins.
- This methodology often leads to more efficient development times compared to alternative approaches.
- Testing and inspection processes are uncomplicated and readily implementable.
- The management of the waterfall model is relatively undemanding, and its inherent simplicity guarantees ease of comprehension and application.

Disadvantages:

- The waterfall model is characterized by a straightforward and transparent conceptual framework.
- The waterfall model lacks retroactive compatibility once a phase is finalized.
- Upon the completion of a stage, rectifying issues from preceding stages becomes impracticable.
- There is an absence of flexibility to revert to prior phases post-completion.
- It is suboptimal for initiating projects.
- The extent of disparities can fluctuate considerably in specific contexts.
- Modifying or incorporating requirements during the project's progression is not feasible.

Agile Methodology:

The Agile methodology epitomizes a dynamic and proactive paradigm, particularly advantageous in the domain of software development. It prioritizes iterative delivery and cultivates collaborative engagement among cross functional teams and stakeholders. Originating as a counterpoint to conventional methodologies like the Waterfall model, Agile aligns with the principles delineated in the Agile Manifesto. In the rapidly evolving sphere of software development, continuous updates and enhancements are imperative. Engineers must incessantly refine components to maintain competitiveness, rendering the inflexible structure of the Waterfall model insufficient for the exigencies of this perpetually advancing industry.[5]



Fig 3.2: Agile Development Methodology

Advantages:

- The swift and thorough distribution of educational resources can be achieved through the agile methodology.
- Prioritizing individuals and their interactions over processes and tools is essential, fostering effective collaboration among customers, developers, and testers.
- Regular engagement between these stakeholders is ensured.
- Business software can be achieved through the agile methodology.
- Direct communication is encouraged to enhance interaction.
- Daily collaboration between entrepreneurs and developers is supported.
- The methodology advocates for sound design practices.

Disadvantages:

- Defining the scope of work can present significant challenges, particularly in large-scale software projects.
- There is a risk that project requirements and documentation may be incomplete.
- Project progress could be impeded if user representatives struggle to articulate desired outcomes clearly.
- Innovation might be hindered unless key decisions incorporate input from younger developers.

DSDM is influenced by the Pareto Principle, where project progression occurs in increments of 20% until full completion is achieved. This iterative development methodology adheres to 80% of core principles per cycle, fostering collaborative advancement. Following each cycle, a thorough review of multiple transactions is undertaken to identify and incorporate essential adjustments, thereby promoting ongoing enhancement and alignment with project objectives.[6]

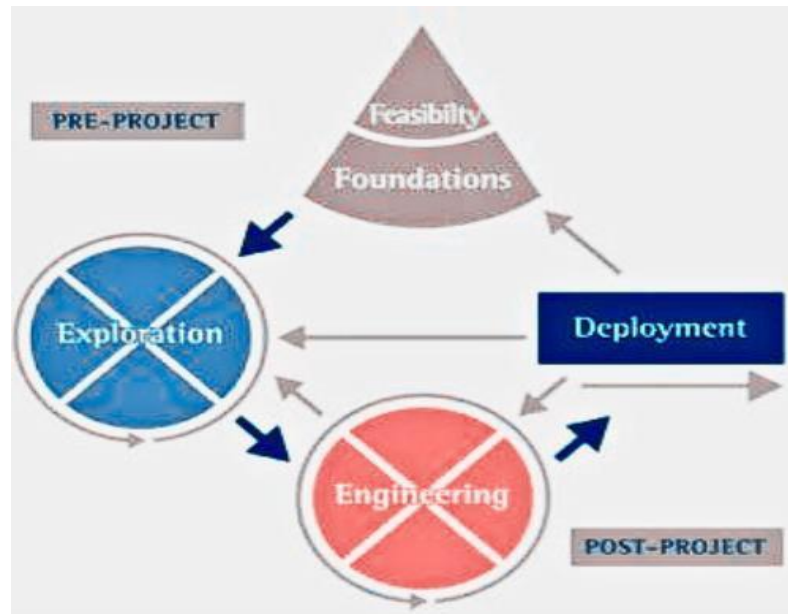


Fig 3.3: DSDM Methodology Process

Advantages:

- Highlighting timelines,
- The DSDM methodology is economically efficient.
- It provides flexibility.
- Users can actively participate throughout the development process.
- The methodology can result in substantial time savings.

Disadvantage:

- The methodology involves substantial implementation costs.
- Small enterprises may encounter difficulties in adopting this methodology.
- The DSDM methodology has not attained widespread acceptance.
- Comprehending it can pose challenges.

The Car Doctor project aims to develop a comprehensive web system focusing on car course, driving license ,AI solution and product purchase. It includes features like car course information, course orders management, admin monitoring via dashboard, selling new and used vehicle products, multi-shopping cart system, product delivery based on customer details, SSL commerce for secure transactions, and detailed product information management. The project emphasizes structured development with a dual-method approach, combining waterfall for requirements gathering and DSDM for agile development, ensuring flexibility and responsiveness. This methodology supports iterative enhancements and adjustments throughout the project lifecycle to meet evolving needs efficiently.

3.2 Why to Use:

The Car Doctor project encompasses a comprehensive web system tailored for car courses. It focuses on course areas such as Manual car driving, Auto Car Driving, Auto car + manual car driving, Motorcycle riding, Scooty riding, and electrical system maintenance. Key features include course information and order management, an admin dashboard for monitoring operations, and management of both new and used vehicle products. The system incorporates a multi-shopping cart system, enabling separate carts for new and used products. it includes a product delivery system using customer- provided address and phone number details. Transactions are securely managed through SSL commerce, ensuring customer data protection. Detailed product information and specifications are integral to the product details and info system.

3.4 Implementation Plan:

As the project transitions to operational readiness, any arising challenges may necessitate a return to the development phase. Once all issues are resolved, the system's configuration will be finalized to ensure seamless operation, preparing for its deployment in the post-project phase.

Chapter 4 - Planning

4.1 Project Plan:

The Car Doctor web system is designed to cater to various car courses, including Manual car driving, Auto Car Driving, Auto car + manual car driving, Motorcycle riding, Scooty riding and electrical system maintenance. It offers features such as course information, course ordering capabilities, and an administrative dashboard for monitoring operations. The platform facilitates the sale and management of both new and used vehicle products, with a multi-cart system allowing separate shopping carts for different product types. A product delivery system ensures efficient delivery by using customer address and phone details. Transactions are securely processed through SSL commerce, and comprehensive product details are readily accessible to users.

4.1.1 Work Backdown Structure (WBS):

The Car Doctor web system offers a comprehensive suite of provide Car courses like Manual car driving, Auto Car Driving, Auto car + manual car driving, Motorcycle riding, Scooty riding and electrical system maintenance. It features detailed course information, efficient course ordering capabilities, and an administrative dashboard for monitoring operations. The platform facilitates the sale and management of new and used vehicle products through a multi-shopping cart system. A robust product delivery system ensures timely shipment using customer-provided address and phone details. Secure transactions are processed via SSL commerce, and comprehensive product details and information are readily accessible to users.

4.1.2 Time Duration for project execution:

Time duration system is timely delivery of orders within specified time frames. Ensuring that projects stay on time schedule. It is important to select an appropriate time frame for project completion.

Below is the time duration schedule for the project:

Table 4.1: Time Duration for Car Doctor web system Execution

Task Name	Acting Role	Duration
Initial Study	Analyst	21
Feasibility Study	Analyst	7
Foundation	Developer	7
Literature Review	Analyst	9
Methodology	Developer	27
Planning	Analysis And Developer	28
Exploration	Analyst and Developer	19
Engineering	Developer	60
Testing	Tester	12
Development Phases	Developer	22
Implementation Phase	Developer	31
Lesson Learned	Developer	22
Critical Appraisal	Analyst	7
Conclusion	Developer	5

4.1.3 Gantt Chart:

Car Doctor web system offers a range of Car courses , quick AI solution, product purchase. It provides features such as course information and order management. An admin dashboard enables monitoring of operations, while facilitating the sale and management of both new and used vehicle products. A multi-cart system supports shopping for these products. Additionally, the system includes a product delivery feature using customer address and phone details. Transactions are secured via SSL commerce, and comprehensive product details and information are readily accessible:

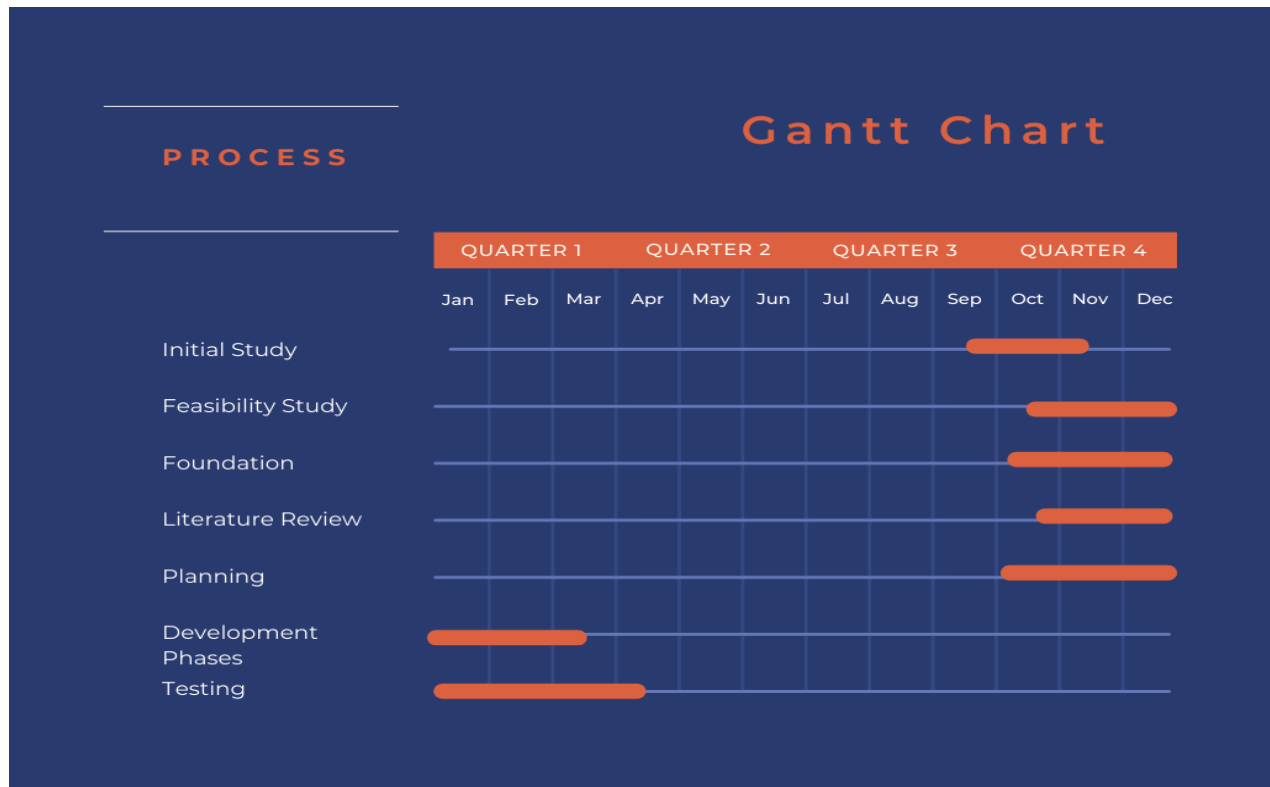


Fig 4.1: Gantt Chart of Car Doctor

4.2 Test plan:

Software testing is a serving as a fundamental process for identifying errors and inconsistencies. By conducting tests, we systematically evaluate and compare real-time results with expected results, ensuring that the system complies with established standards and implementation criteria.[7]

4.2.2 Required Test:

Ensuring the effectiveness of car doctor web systems and identifying areas for improvement are important steps in addressing challenges and understanding strengths and weaknesses. Below are the tests required to ensure system robustness:

Functional Testing:

- **Integration Testing:** This process involves the concurrent testing of multiple components of the web system to ensure they work together seamlessly. Verification processes are in place to ensure the smooth operation of all modules before proceeding to further testing stages.
- **Unit Testing:** This phase entails thorough testing of individual segments and elements of the web system to confirm their functionality and accuracy. These tests are crucial for maintaining quality and ensuring that each component operates as intended.
- **System Testing:** Following integration testing, this phase involves a comprehensive assessment of the system's capabilities, features, and requirements. It focuses on evaluating the overall performance and ensuring that all parts of the system work together efficiently.
- **Acceptance Testing:** As the final phase of testing, acceptance testing involves active user participation to assess customer satisfaction and ensure the system meets essential business requirements. This phase is critical for verifying that the web system is ready for deployment and operation.

Non-functional

- **Security Testing:** This section focuses on ensuring the robustness of the Car Doctor web system. It involves conducting assessments to identify vulnerabilities, such as SQL injection, to strengthen the system against potential security breaches. Comprehensive evaluations of external and internal security measures are conducted to mitigate risks and protect sensitive information.
- **Usability Testing:** This segment oversees usability assessments, ensuring the system's user-friendliness and intuitive navigation. Emphasizing user convenience and effectiveness, it aims to enhance the overall user experience within the Car Doctor web system.
- **Reliability Testing:** Users engage in testing activities focused on evaluating the system's durability, resilience to failure, and overall reliability in this section.

Chapter 5 - Feasibility

If the viability of the Car Doctor web system is confirmed as achievable, readily available, and in accordance with legal standards, it becomes a pivotal element of the feasibility evaluation. This aids in assessing the project's sustainability. This segment explores diverse approaches to conducting feasibility assessments, including specialized training programs, hands-on assessments, and comprehensive feasibility analyses.[8]

5.1 All Possible types of Feasibility:

- Hardware Expenditures.
- Hosting Expenses.
- Technical Viability.
- Operational Viability.

5.1.1 Economic Viability:

The Car Doctor web system installation costs dependent on specific needs. A months of free system maintenance is provided post-implementation, with service continuity subject to any changes or new requirements. To utilize the service acquiring a server and domain name is essential.

Table 5.1: Economic viability

No	Sect.	Cost
i	Cost of Software	60,725/=
ii	Cost of Hardware	40,722/=
iii	Cost of Hosting	9,227/=
iv	Other necessary things	7300/=
Total		117,974/=

Software cost:

Table 5.2: Software cost

No	Software	Price for 1 year
1	MS Word	30,400/=
2	OS	20,500/=
3	Database	10,50/=
4	React	10,60/=
5	Figma	10,50/=
6	Windows	10,50/=
Total		55,110/=

Hardware cost:

Table 5.3: Project Hardware Costing

No	Hardware	Price for 1 year
1	DCL	30,00/=
2	Router	12,00/=
Total		4,200/=

Hosting cost:

Table 5.4: Hosting Cost

No	Hostname	Price for 1 year
1	Domain	3,400/=
2	Business SH	20,300/=
Total		23,700/=

5.1.2 Technological Feasibility:

The Car Doctor web system includes functionalities such as Car courses like Manual car driving, Auto Car Driving, Auto car + manual car driving, Motorcycle riding, Scooty riding and electrical system maintenance, course information management, ordering, and an administrative monitoring dashboard. It supports the sale and management of both new and used vehicle products, featuring a multi-cart system for shopping. A product delivery system integrates with customer address and phone details, ensuring timely deliveries. Transactions are secured via SSL commerce, and detailed product information is readily available. The system is designed for operational efficiency, utilizing PHP and JavaScript to minimize data loss risks. Its user-friendly interface ensures accessibility and ease of use, meeting the diverse needs of customers effectively.

5.1.3 Operational Feasibility:

The Car Doctor web system includes functionalities such as Car courses like Manual car driving, Auto Car Driving, Auto car + manual car driving, Motorcycle riding, Scooty riding and electrical system maintenance, course information management, ordering, and an administrative monitoring dashboard. The platform supports the sale and management of new and used vehicle products, with a multi-shopping cart system for both types of products. A product delivery system uses customer address, location, and phone number for efficient deliveries. Secure transactions are facilitated through SSL commerce, and detailed product information and specifications are easily accessible.

5.2 Cost Benefit Analysis

This data underscores the inherent volatility in the current industrial environment. Currently, each online task requires a full day to complete. Adopting this system is set to provide significant benefits to the user.

Table 5.5: Cost Benefit Analysis of car doctor

N	Sect. Expense	One Year	Two Year	Three Year	Four Year	Total
1	Software	1500/=	1500/=	1500/=	-	4500 /=
2	Hardware	30000/=	30000/=	-	-	60,00 0/=
3	Hosting	6000/=	6000/=	6000/=	6000/=	24,00 0/=
4	Office	80000/=	-	-	-	80,00 0/=
5	Staff	7000/=	7000/=	7000/=	7000/=	2800 00/=
6	Development	8000/=	8000/=	8000/=	8000/=	3200 0/=
Total		132,500	52,500/=	22,500	21,000	228,5 00

Total revenue:

Table 5.6: Revenue Analysis of car doctor

N	Sect. Expense	One Year	Two Year	Three Year	Four Year	Total
	Total Earn	132,500	52,500/=	22,500	21,000	228,50 0
	Total Expens e	30,400/ =	30,400/ =	30,400/ =	30,400/ =	121,60 0
	Total Revenu	162,900	82,900	52900	51,400	350,10 0

After conducting a thorough cost analysis, the revenue will increase to 350,100 /=. As a result, I am convinced that this program demonstrates strong profitability.

Chapter 6 - Foundation

6.1 Over All Requirement List:

Software engineering involves two primary categories of requirements: functional requirements and non-functional requirements. Here are examples of each:

6.1.1 List of functional requirements:

- Car courses.
- Courses Information
- Courses Order Management.
- Admin Dashboard.
- AI solution
- Product Management.
- Multi Shopping Cart System.
- Product Delivery System.
- Transaction System.
- Product Details and Information System.

6.1.2 List of Not Functional Requirement:

- Verification.
- Security.
- Responsiveness.
- Reliability.
- Flexibility.

6.2 What Technology Implemented:

The Car Doctor web system provide Car courses like Manual car driving, Auto Car Driving, Auto car + manual car driving, Motorcycle riding, Scooty riding and electrical system maintenance, course information management, ordering, and an administrative monitoring dashboard. It supports the sale and management of both new and used vehicle products, with a multi-cart system for shopping. The product delivery system utilizes customers' addresses and phone numbers to ensure accurate and timely deliveries. Secure transactions are facilitated through SSL commerce. Additionally, the system provides detailed product information and specifications.

Client/Server Applications:

This system is designed to organize taken courses records systematically and facilitate seamless course orders. The integration of authentication systems ensures secure access for users, with distinct account types for buyers and sellers. An admin dashboard offers comprehensive management capabilities, overseeing user activities and transactions. The system includes a robust transaction and payment system secured via SSL commerce, providing users with online receipts or payment summaries. Profile update features allow users to manage their information effectively. The add-to-cart and wishlist functionalities enhance the user experience, making it easier to track and purchase desired items. The features and functionalities of the Car Doctor web system are elaborated upon below:

- Initially installed on the user's computer.
- At this stage, it cannot accommodate a large number of users.
- Capable of handling multiple types of users simultaneously.
- Resilient.

Web application:

The Car Doctor Web System is designed to enhance the car course and sales experience by incorporating advanced features such as detailed course info, purchase Car courses, efficient paid orders, and an intuitive admin dashboard. This platform supports both new and used vehicle product management, offering a seamless multi-cart system and secure transaction capabilities.

Key Features:

- Course Areas
- Car courses.
- Course Order
- Admin Dashboard
- New and Used vehicle Product Management
- Multi Shopping Cart System
- Product Delivery System
- Transaction System
- Product Details and Info System
- AI solution
- Authentication System
- Profile Update
- Online Receipt and Payment Summary

6.3 Recommendations and Justifications:

In the Car Doctor web system, we have thoroughly examined different applications and their corresponding functionalities to identify the most suitable solution for the proposed system. By opting for a web server, we ensure compatibility of the web application with our system. This enables accessibility from any location with an internet connection, offers cost-effectiveness, eliminates the requirement for installation on specific devices, facilitates rapid and seamless updates, among other advantages. Therefore, it's evident that a web server application is the optimal choice to align with our recommended system.

Chapter 7 - Explorations

The exploration phase entails the utilization of crucial tools such as diagrams and application replicas. Among these, the Replica Application Structure plays a pivotal role in delineating the entire system structure, offering a comprehensive overview of website functionality and user interactions. Below, we present the use case diagram delineating essential system components and user actions for the Car Doctor web system:

7.1 Old System Use Cases:



Fig 7.1: Use Case Diagram for Car Doctor

7.2 System full activity diagram:

Activity diagrams serve as powerful tools for shaping system workflows, capturing performance dynamics, and illustrating the transition from one system to another. Their unique capability to portray system performance is unparalleled, setting them apart from other documentation methods. By providing a visual representation of complex processes, activity diagrams are an essential component of system design and analysis.

Admin activity diagram:

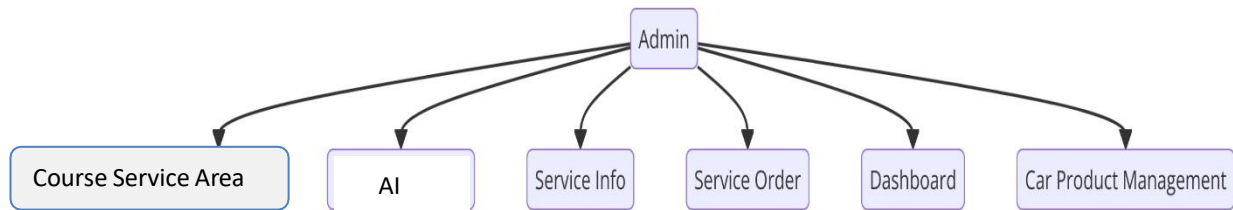


Fig 7.2: Activities diagrams

Employer activity diagram:

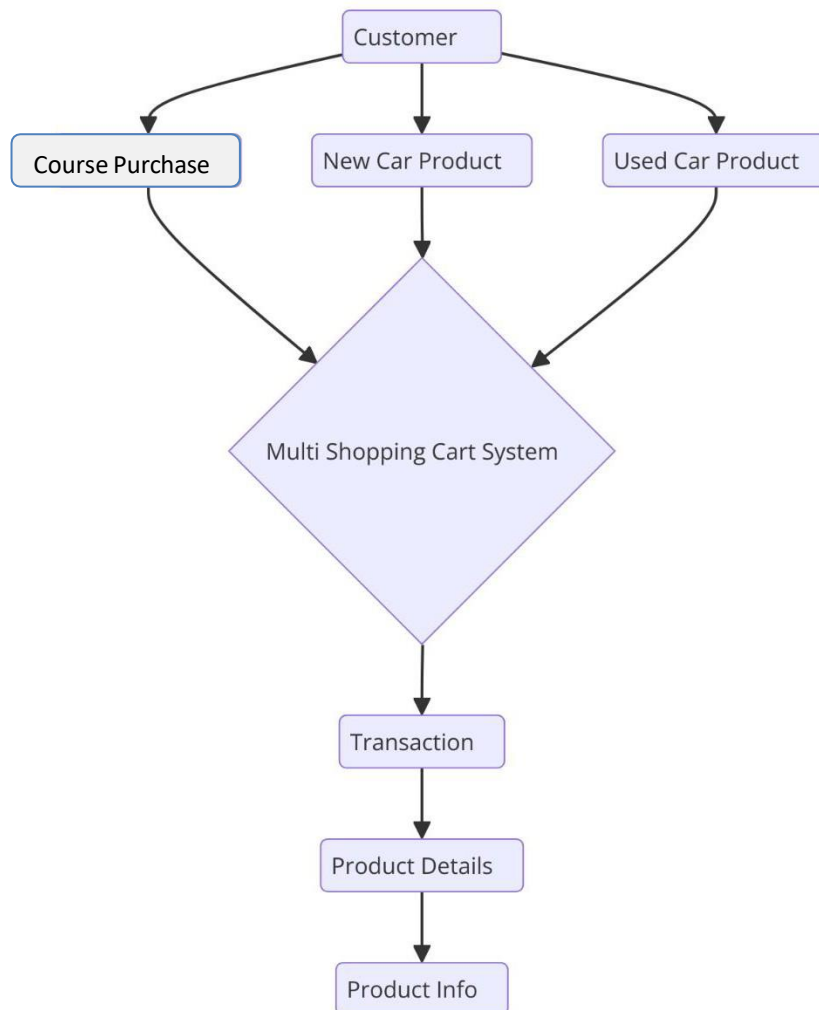


Fig 7.3: Employer Activity Diagram

7.3 Prioritization Requirement List (PRL):

Moscow Rule:

The Moscow technique is fundamental to the requirements list. This methodology assists in prioritizing functionalities and comprehending requirements efficiently. Moscow stands for Mandatory, Recommended, Optional, and Wished-for characteristics.[9]

Table 7.1: PR list

Requirement No	Requirement Name	Priority
01	Course Area Management Covers various vehicle related course and electrical system services.	Must Have
02	Course Information Provides detailed information on available courses.	Must Have
03	Order Management Allows users to purchase and manage courses.	Must Have
04	Admin Dashboard Enables administrators to monitor and manage courses, products, and user activities.	Must Have
05	Product Management Supports the sale and management of new and used vehicle products.	Must Have
06	Multi Shopping Cart System Allows customers to manage separate carts for new and used products simultaneously.	Must Have
07	Product Delivery System Facilitates delivery of products to customers using their address and phone number.	Must Have
08	Secure transaction system ensures all transactions are protected using SSL commerce.	Must Have
09	Product details and information system provides comprehensive details and information about each product.	Must Have

7.4 Prototype of the System:

A prototype serves as an advanced design model that precedes the final version of the design. Its role extends beyond merely displaying the visual appearance of the future website. It also defines the website's structure and integration within the broader framework. Prototyping is a strategic approach aimed at optimizing website development by emphasizing vital marketing elements. Below is the prototype for the new system:

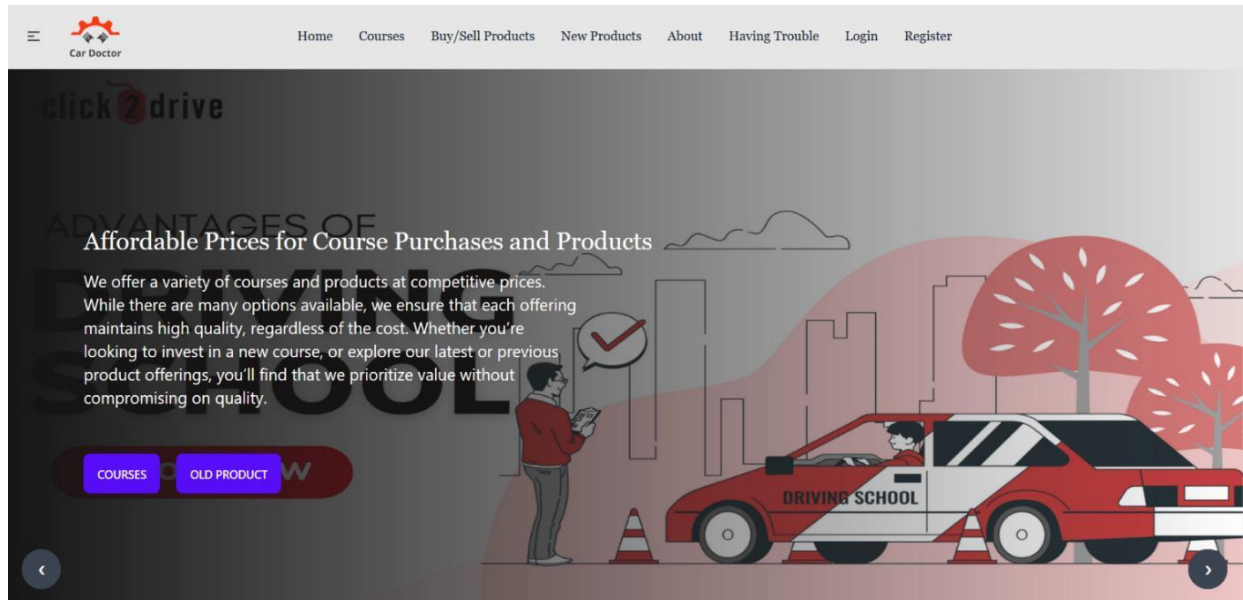
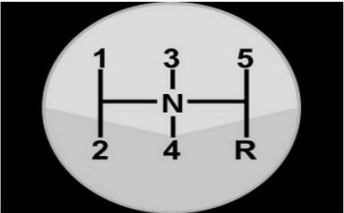


Fig 7.4: Car Doctor home page

Our Most Popular Courses



Manual car driving 4 weeks

Driving a manual car, also known as a stick shift, involves a unique blend of skill and coordination

Price : \$7000

[PURCHASE](#) [INFO](#)



Auto Car Driving 4 weeks

An automatic car is a vehicle that operates with an automatic transmission, meaning the car can chan

Price : \$6000

[PURCHASE](#) [INFO](#)



Auto car + manual car driving 4 weeks

An automatic car is a vehicle that operates with an automatic transmission, meaning the car can chan

Price : \$12000

[PURCHASE](#) [INFO](#)



Motorcycle riding 2 weeks

Motorcycle riding requires wearing protective gear, mastering controls, practicing safe riding techn

Price : \$5000

[PURCHASE](#) [INFO](#)



scooty riding 2 weeks

Motorcycle riding requires wearing protective gear, mastering controls, practicing safe riding techn

Price : \$5000

[PURCHASE](#) [INFO](#)

Fig 7.5: Car doctor product page

Driving License



Fig 7.6: Car doctor driving license

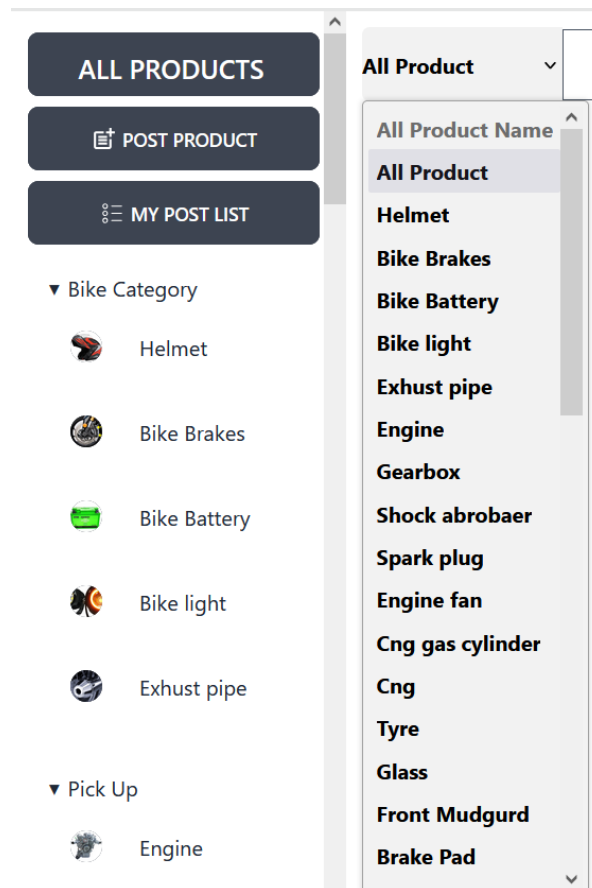


Fig 7.7: Car doctor navigation page

7.5 Ai Based Problem Solution Process:

The Car Doctor web system introduces an innovative feature called the AI Image-Based Solution, designed to revolutionize the customer experience in vehicle servicing. This advanced tool leverages artificial intelligence to analyze and interpret images of vehicles, making it easier for users to identify and diagnose potential issues. By simply uploading a picture of their vehicle or a specific part, customers can receive instant insights about problems related to wear, damage, or malfunction. The AI system is trained on vast datasets of vehicle images, allowing it to recognize patterns and symptoms with high accuracy, covering various aspects like engine components, tires, electrical systems, and more.

This feature is particularly beneficial for users with limited technical knowledge, as it helps them understand issues without having to describe them in detail. Once the AI identifies the problem, it provides suggestions on the necessary services, such as repair, oil change, or electrical system maintenance, directly linking users to the appropriate service options within the Car Doctor platform. This seamless integration between AI diagnostics and service booking simplifies the process for customers, saving time and ensuring they get the right services without unnecessary steps.

Moreover, the AI Image-Based Solution can assist in the product purchasing process. If users are uncertain about specific parts or vehicle accessories they need, they can upload an image, and the AI system will analyze it to recommend suitable products, whether new or used. This feature enhances the shopping experience by eliminating guesswork, allowing customers to make informed decisions based on the AI's suggestions. This integration with the product details and shopping cart systems also ensures a smooth user experience, connecting diagnostics with product solutions in a few easy steps.

In addition to its utility for customers, this feature is a powerful tool for service providers. The AI's ability to quickly and accurately diagnose issues helps service professionals streamline their workflow by providing an initial assessment that can be verified or refined during physical inspections. This not only increases efficiency but also builds trust with customers, as they can see a clear, data-driven explanation of their vehicle's issues. By implementing the AI Image-Based Solution, Car Doctor sets a new standard for convenience, accuracy, and innovation in the vehicle servicing industry.

User Name

Salman

Email Address

salmansalman19347@gmail.com

Date & Time

Sun Sep 22 2024 17:19:27 GMT+0600 (Bangladesh Standard Time)

Having Trouble

Upload a plant image

Write a Text Message:

Write a Text Message:

Submit

Fig 7.8: AI Solution part one

User Name

Salman

Email Address

salmansalman19347@gmail.com

Date & Time

Sun Sep 22 2024 17:19:27 GMT+0600 (Bangladesh Standard Time)

Having Trouble

**Write a Text Message:**

Car lock problem solution

Submit

Fig 7.9: AI Solution part two

User Name

Salmar

Email

salmar

Date

Sun Se

Write

Car loc

Results

The message "Car lock problem solution" suggests a problem with the car's locking mechanism. The image shows a car door handle, which is a common point of failure for car locks.

Possible issues:

- Broken door handle:** The handle itself may be damaged, preventing it from engaging the locking mechanism.
- Stuck lock:** The lock mechanism inside the door may be jammed, preventing the door from locking or unlocking.
- Faulty actuator:** The actuator that moves the lock may be malfunctioning, causing the lock to not respond properly.
- Electrical problem:** A problem with the wiring or electrical components that control the lock can also cause issues.

Solutions:

- Check for simple issues:** Try lubricating the lock with WD-40 or graphite powder, then see if it works. This can resolve issues caused by dirt or debris.
- Inspect the door handle:** Examine the handle for any signs of damage. If broken, it will need to be replaced.
- Try using the key:** If the handle is stuck, try using the key to unlock the door. This may dislodge the lock mechanism.
- Check the fuse:** Check the fuse for the door lock mechanism. If the fuse is blown, it will need to be replaced.
- Consult a mechanic:** If none of the above solutions work, it's best to take the car to a mechanic for a professional diagnosis. It's important to note that the exact solution will depend on the specific problem with the lock. A mechanic can help determine the cause and offer a tailored solution.

Close

Submit

Fig 7.10: AI Solution part three

Chapter 8 - Engineering

8.1 New System Modules:

Car Doctor offers a comprehensive suite meticulously designed to address various car courses needs effectively. These modules cater to a wide range of requirements, ensuring versatility and flexibility in usage. Below, I outline the primary features and models of the Car Doctor web system, showcasing its standout capabilities. The Car Doctor web system provide Car courses like Manual car driving, Auto Car Driving, Auto car + manual car driving, Motorcycle riding, Scooty riding and electrical system maintenance, course information management, ordering, and an administrative monitoring dashboard. The platform supports the sale and management of both new and used vehicle products, featuring a multi-cart system for shopping. A product delivery system integrates with customer address and phone details, ensuring timely deliveries. Transactions are secured via SSL commerce, and detailed product information is readily available. In today's rapidly evolving technological landscape, users demand systems that are not only functional but also adaptable to changing needs. With this in mind, Car Doctor incorporates cutting-edge trends to stay ahead of the curve. From modular design principles to agile development methodologies, every aspect of the system is geared towards maximizing efficiency and user satisfaction.

Overall, Car Doctor represents a forward-thinking approach to meeting user requirements, offering a robust and flexible platform that can evolve alongside the ever-changing demands of the modern business landscape.

8.2 New System Use Case:

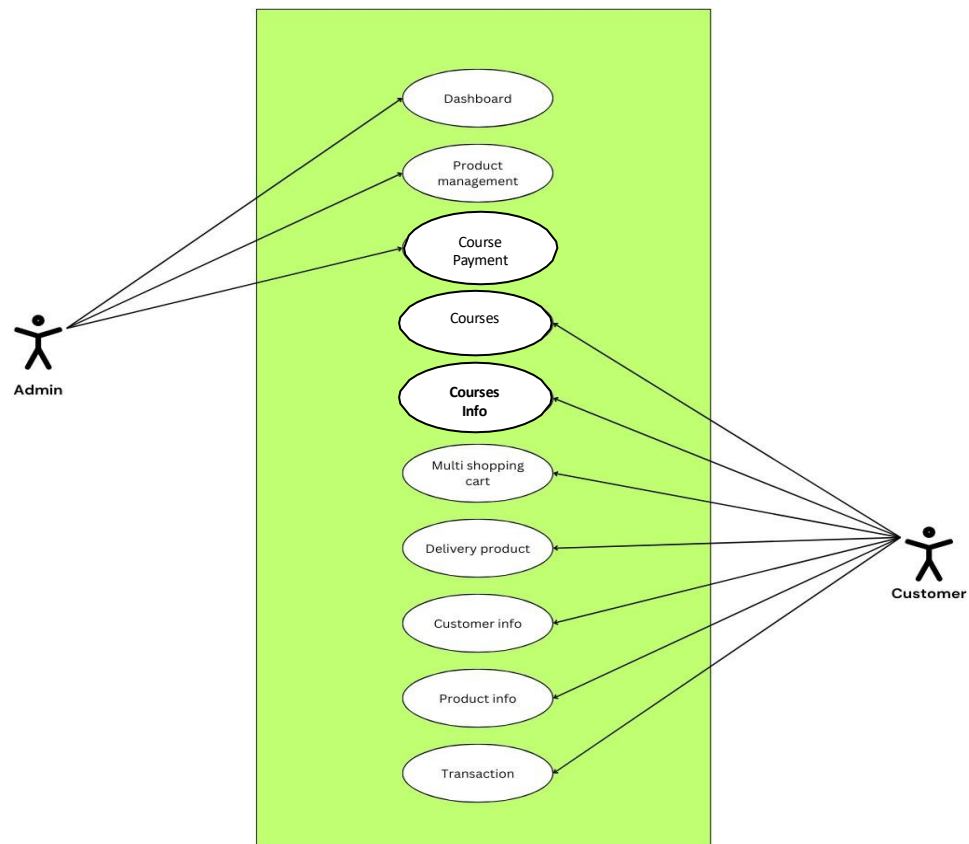


Fig 8.1: Car Doctor New System Use case

8.3 ERD Diagram:

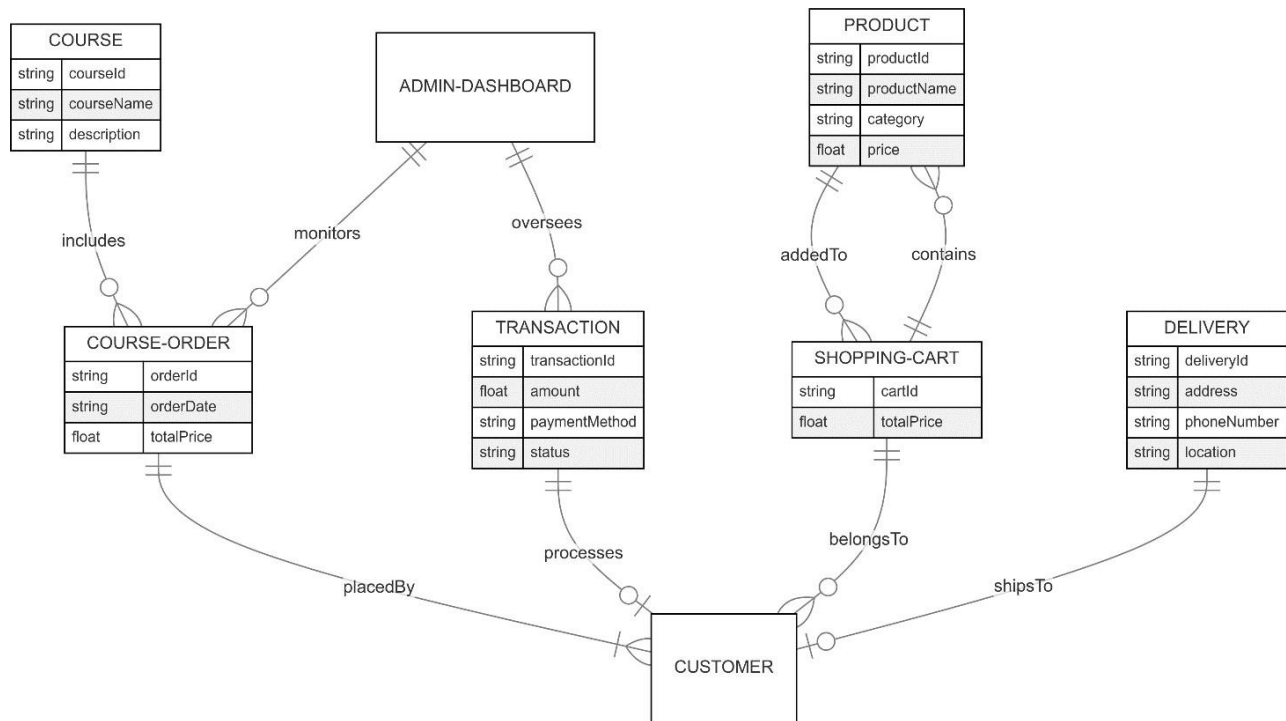


Fig 8.2: ERD Diagram of Car Doctor

8.4 System Interface Design/Prototype:

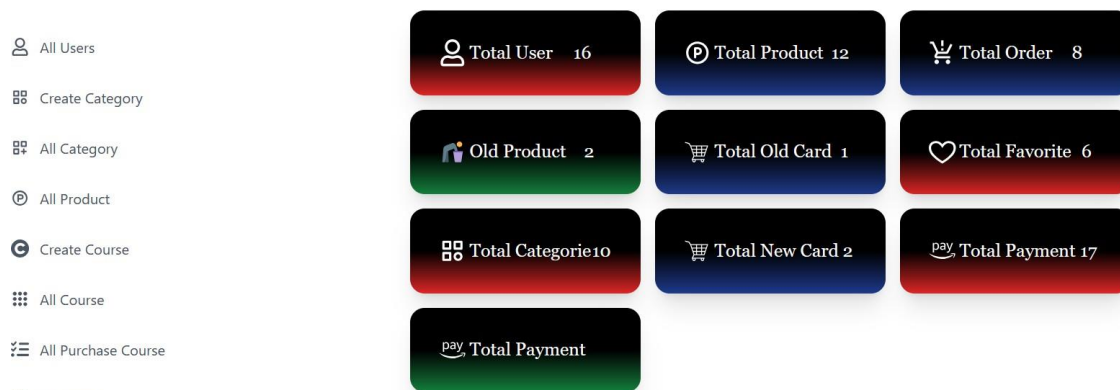


Fig 8.3: System Interface Dashboard.

Shopping Cart

	Product Name :Brake Shoe && Company Name :Volvo	- 1 +	1800 TK
♥ Add to Favorites ✗ Remove			
	Product Name :Brake Fluid && Company Name :Volvo	- 1 +	3000 TK
♥ Add to Favorites ✗ Remove			

Order Summary

Subtotal (No shipping charges)	4800.00 TK
Total Amount (Including VAT)	4800.00 TK

Order Date

Sun Jul 14 2024 22:10:01 GMT+0600 (I

District | Delivery Charges

Comilla | কুমিল্লা - Delivery: 180

Actual Address

XXXX XXXX XXXX

Currency

BDT

Contact Number

Contact Number 018/017/C

Check Out~

Fig 8.4: System Interface of Shopping cart.

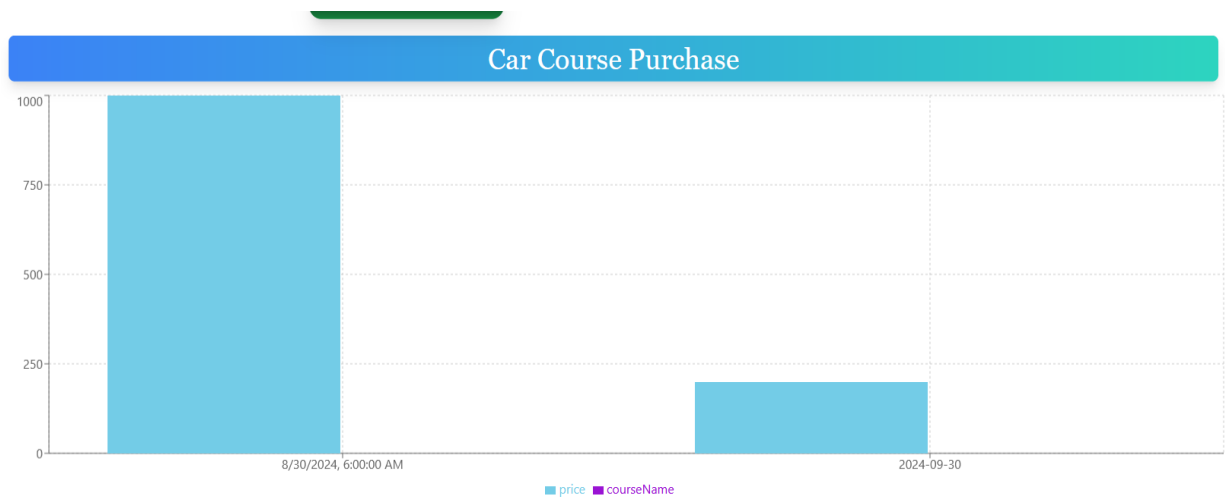


Fig 8.5: System Interface of Car course

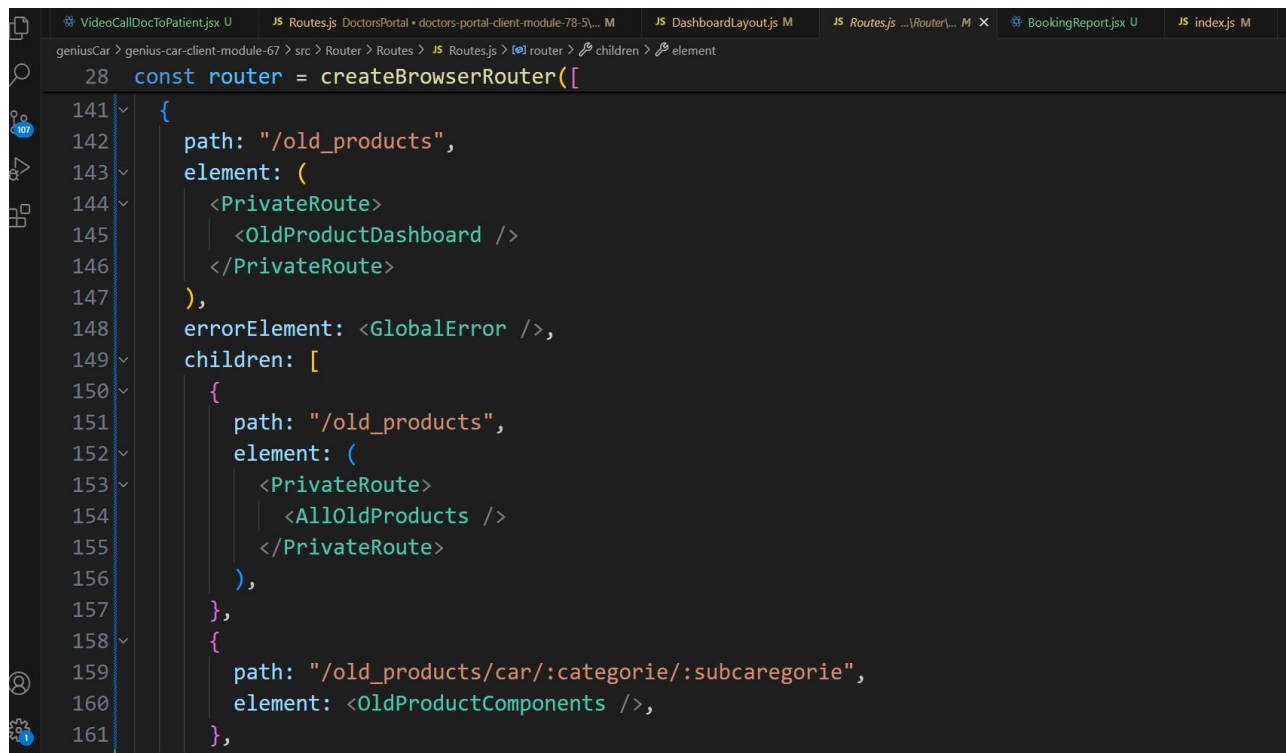
Chapter 9 - Development/Development

9.1 Core Modules Coding Samples:

Implementation and construction begin at this stage subsequent to the conclusion of all analyses. Breaking down tasks into small, distinct segments significantly streamlines the development process. To craft the recommended framework, various programming languages and tools are utilized, including Node.js, Express.js, Redux, React.js, Tailwind CSS, Daisy UI, MongoDB, and JavaScript.

Below are examples of some of the code snippets:

Some of Car doctor system code:



```
28 const router = createBrowserRouter([
141 {
142   path: "/old_products",
143   element: (
144     <PrivateRoute>
145       <OldProductDashboard />
146     </PrivateRoute>
147   ),
148   errorElement: <GlobalError />,
149   children: [
150     {
151       path: "/old_products",
152       element: (
153         <PrivateRoute>
154           <AllOldProducts />
155         </PrivateRoute>
156       ),
157     },
158     {
159       path: "/old_products/car/:categorie/:subcaregorie",
160       element: <OldProductComponents />,
161     },
162   ],
163 },
164 ],
165 );
```

Fig 9.1: Code Old Product

```

28 const router = createBrowserRouter([
122 {
123   path: "/new_products",
124   element: (
125     <PrivateRoute>
126       <NewProductDashboard />
127     </PrivateRoute>
128   ),
129   errorElement: <GlobalError />,
130   children: [
131     {
132       path: "/new_products",
133       element: <ProductHomePage />,
134     },
135     {
136       path: "/new_products/car/:categorie/:subcategorie",
137       element: <ProductComponent />,
138     },
139   ],
140 },

```

Fig 9.2: Code New Product

```

import PrivateRoute from "../PrivateRoute/PrivateRoute";

const { createBrowserRouter } = require("react-router-dom");

const router = createBrowserRouter([
  {
    path: "/",
    element: <Main></Main>,
    errorElement: <GlobalError />,
    children: [
      {
        path: "/",
        element: <Home></Home>,
      },
      {
        path: "/login",
        element: <Login></Login>,
      },
      {
        path: "/signup",
        element: <SignUp></SignUp>,
      },
    ],
  },

```

Fig 9.3: Code SignUp

```

app.post("/orders", async (req, res) => {
  // business logic
  const order = req.body;
  order.serviceId = new ObjectId(order.serviceId);
  const todayUTC = new Date();
  const timezoneOffset = 6; // UTC+6 for Bangladesh
  const todayBST = new Date(
    todayUTC.getTime() + timezoneOffset * 60 * 60 * 1000
  );
  const startOfDayBST = new Date(todayBST);
  startOfDayBST.setUTCHours(0, 0, 0, 0);
  const endOfDayBST = new Date(todayBST);
  endOfDayBST.setUTCHours(23, 59, 59, 999);

  // business logic
  const isBooking = await orderCollection.findOne({
    email: order.email, // Filter by email
    serviceId: new ObjectId(order.serviceId), // Filter by serviceId
    date: { $gte: startOfDayBST, $lte: endOfDayBST }, // Match documents where date falls within the range
    registerNumber: order?.registerNumber,
  });
});

```

Fig 9.4: Code Service Order

```

function verifyJWT(req, res, next) {
  const authHeader = req.headers.authorization;

  if (!authHeader) {
    return res.status(401).send("unauthorized access");
  }

  const token = authHeader.split(" ")[1];

  jwt.verify(token, process.env.ACCESS_TOKEN, function (err, decoded) {
    if (err) {
      return res.status(403).send({ message: "forbidden access" });
    }
    req.decoded = decoded;
    next();
  });
}

async function run() {
  try {
    const serviceCollection = client.db("geniusCar").collection("services");
    const orderCollection = client.db("geniusCar").collection("orders");
    const usersCollection = client.db("geniusCar").collection("user");
  }
}

```

Fig 9.5: Code Authentication

9.2 Possible problem:

The Car Doctor web system, with its extensive features, may face several potential challenges. These could include technical issues with integrating the purchased system Car Courses, ensuring seamless transactions via SSL commerce, and managing real-time updates for service orders and product deliveries. There might be difficulties in synchronizing the product delivery system with customers' address and phone details, leading to potential delays or errors. The admin dashboard could face performance bottlenecks when monitoring multiple services and managing a vast product inventory. Additionally, ensuring the security and accuracy of service info, product details, and user data will be critical to maintaining user trust and system integrity.

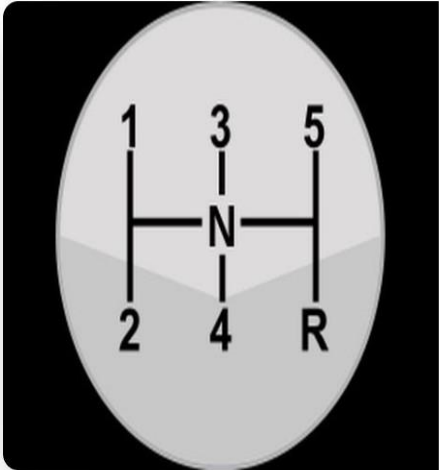
Chapter 10 – Testing

10.1 Test Case:

It involves checking and verifying that a software application is error free technical requirements. Its design and development, and meets requirements efficiently and effectively.[10]

10.2 Unit Testing:

The unit testing process of the Car Doctor project is crucial. Individual assessments verify that the project code operates correctly in every aspect.[11] The initiative involves reviewing and restructuring the code to enhance its quality and reliability:



Manual car driving

Driving a manual car, also known as a stick shift, involves a unique blend of skill and coordination. Unlike automatic vehicles, a manual transmission requires the driver to engage the clutch pedal and manually shift gears using the gear stick.

Price: \$7000

Starting from: 2023-12-12

Duration: 4 weeks

Practical Class: 20	Automobile Class: 10	Theory Class: 8
Total Classes: 38		

[PURCHASE](#)

Fig 10.1: Car purchasing

Manual car driving Course

First Name

SM

Last Name

Salman

Email

salmansalman19347@gmail.com

Blood Group

A+ ▾

NID / Birth Certificate

0121646464+4

Districts

Dhaka Sadar Dhaka ▾

Phone Number

01554876633

Price

\$ 7000

Address

Dhaka,Bangladesh

Insert Image

Browse...

No file selected.

PURCHASE

Fig 10.2: Car purchasing form

10.3 Module testing:

Module testing involves evaluating protocols, standards, classes, or software components to examine systems and programs.[12] It's recommended to concentrate on testing the internal components of system on a smaller scale rather than testing all applications at once.

The image displays a mobile application interface for a checkout process. On the left, a product card for 'Brake Shoe & Company Name :Volvo' is shown with a price of 1800 TK. On the right, an 'Order Summary' panel contains the following information:

- Subtotal (No shipping charges): 1800.00 TK
- Total Amount (Including VAT): 1800.00 TK
- Order Date: Sun Sep 22 2024 18:27:29 GMT+0600
- District | Delivery Charges: Comilla | ডাকাইন - Delivery: 180
- Actual Address: xxxx xxxx xxxx
- Currency: BDT
- Contact Number: 018/017/1000

A green 'Check Out' button is located at the bottom of the order summary panel, and a 'Continue Shopping' button is at the very bottom.

Fig 10.3: Check Out

Order Summary

Subtotal (No shipping charges)	1800.00 TK
Total Amount (Including VAT)	1800.00 TK

Order Date

Sun Sep 22 2024 18:27:29 GMT+0600

District | Delivery Charges

Comilla | কমিলা - Delivery: 180

Actual Address

xxxx xxxx xxxx

Please fill out this field.

800

Contact Number

Contact Number018/017/

Check Out~

Continue Shopping

Fig 10.4: Checkout Box

10.4 Integration Testing

Integrated testing verifies the functionality of individual program units. Aimed at uncovering design related issues, the archive integration test plays a crucial role.[13]

✓ Successfully login

Login

Email

Password

[Forgot password?](#)

LOGIN

 SING IN WITH GOOGLE

[New to Genius Car](#) **Sign Up**

[Generate New Password](#) **Forgot Password**

ACCOUNT CREDENTIALS

Fig 10.5: Login success

Chapter 11 - Implementation

11.1 Training:

To ensure users are familiar with the system and its functionalities, comprehensive training is essential. System users must be trained to facilitate smooth implementation. After receiving proper training, customers will be able to navigate and understand the system with ease.[14]

Table 11.1: Training for Car Doctor System

NO	User	Training Sector	Duration
1	Admin	Dashboard Monitoring.	1 hours
2		Checking user activity.	1 hours
3		Access users' information.	20 min
5		Tracking all user's activity.	20 min
6		Control all data.	40 min
7	User	User can purchase vehicle courses.	1 hours
8		User can sell and buy old and new product.	30 min
9		User can edit or update their profile.	30 min

11.2 Big bang:

Specifically, it functions to launch a new system and phase out the old one. The primary step involves proceeding with the installation of the new system upon the completion of testing. Transitioning data from the old system to the new platform may experience delays. There is a risk of data loss or corruption during the migration process, particularly concerning page management.[15]

11.3 Recommendation problem initiation process:

Since the system is being deployed in several organizational departments as part of a pilot project, I believe it is feasible to proceed with this approach. Ultimately, the system will become fully operational once all functions are confirmed to be working as intended.

Chapter 12 - Critical Appraisal and Evaluation

This article discusses failed ventures and the unmet criteria of certain sections. Further project development and potential guidance are required to fulfill these criteria.[16]

12.1 Objective Cloud be Met:

- Enhanced User Experience
- Customer Engagement and Retention
- Operational Efficiency
- Marketing and Promotion
- Comprehensive Reporting and Analytics
- Security and Compliance
- Integration with Third-Party Services
- Customer Support.

12.1.2 How much better could have been done:

To enhance the system further, several improvements could be considered:

- Comprehensive course Management
- Optimized shopping cart and checkout process.
- Improved Delivery System.
- Enhanced Admin Dashboard.
- Customer Support and Feedback.

12.1.3 Which Features Could Not be Touch

- Course Areas:
 - Manual car driving
 - Auto Car Driving
 - Auto car + manual car driving
 - Motorcycle riding
 - Scooty riding
- Course Information.
- Course Order Management.
- Admin Dashboard.

- Product Management:
 - New Car Product Management.
 - Used Car Product Management.
- Multi Shopping Cart System.
- Product Delivery System.
- AI solution
- Transaction System.
- Vehicle Course Details and Information System.

Chapter 13 – Conclusion

13.1 Projects Summery:

Car Doctor web system provide Car courses like Manual car driving, Auto Car Driving, Auto car + manual car driving, Motorcycle riding, Scooty riding and provide driving license, course information management, ordering, and an administrative monitoring dashboard. Also have AI Support. Additionally, it supports the sale and management of both new and used vehicle products, facilitated by a multi-shopping cart system for seamless transactions. The product delivery system is integrated with customer address and phone details to ensure efficient deliveries. Secure transactions are enabled through SSL commerce, and the system provides extensive product details and information, enhancing the overall user experience.

13.2 Projects Goal:

Car Doctor web system provide Car courses like Manual car driving, Auto Car Driving, Auto car + manual car driving, Motorcycle riding, Scooty riding and provide driving license, course information management, ordering, and an administrative monitoring dashboard, and the capability to sell and manage new and used vehicle products. The system supports a multi-cart shopping experience for both new and used products, integrates a product delivery system using customer addresses and phone numbers, ensures secure transactions through SSL commerce,[18] and provides detailed product information and descriptions.

13.3 My experience:

Completing the Car Doctor project has been wonderful journey. Throughout the process, I learned the importance of gathering information, solving problems, and overcoming obstacles. Although the initial tasks were challenging. My teachers provided a valuable opportunity to develop my skills. Effective time and cost management allows me to complete the assignment successfully. I am sure that the knowledge and experience gained from this project will benefit my future. I am thankful for the strength and knowledge given by the Almighty and I thank the helpers who played a vital role in the success of the project.

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