DEALERSHIP MANAGEMENT SYSTEM

BY

MUSTAFIJUR RAHMAN

ID: 201-15-14296

AND

MD. SHERAJUL ISLAM

ID: 201-15-14338

FINAL YEAR DESIGN PROJECT REPORT

This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

Supervised By

Dr. Sheak Rashed Haider Noori
Professor & Head
Department of Computer Science and Engineering
Daffodil International University

Co-Supervised By

Ms. Fabliha Haque
Lecturer
Department of Computer Science and Engineering
Daffodil International University

DAFFODIL INTERNATIONAL UNIVERSITY

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APPROVAL

This Project titled "DEALERSHIP MANAGEMENT SYSTEM submitted by Mustafijur Rahman, ID: 201-15-14296 and MD.Sherajul Islam , ID:201-15-14338 to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 15-07-2024.

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Faculty of Science & Information Technology
Daffodil International University

Internal Examiner 2

15-07-24

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Assistant Professor
Department of Computer Science

External Examiner

DECLARATION

We hereby declare that this project has been done by us under the supervision of **Dr. Sheak Rashed Haider Noori, Professor & Head,** Department of CSE Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for the award of any degree or diploma

Supervised by:

Dr. Sheak Rashed Haider Noori
Professor & Head
Department of CSE
Daffodil International University

Co-Supervised by:

Fabliha Haque
Lecturer
Department of CSE
Daffodil International University

Submitted by:

Mustafijur Rahman
Mustafijur Rahman
ID:201-15-14296
Department of CSE
Daffodil International University

Sherajul
Md. Sherajul Islam
ID: 201-15-14338
Department of CSE
Daffodil International University

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ABSTRACT

The "Dealership Management System" will be designed as an Android application to revolutionize the management of automotive dealerships in Bangladesh. In a fastly evolving automotive market like Bangladesh, effective dealership management is crucial for sustained growth and success. This project aims to develop a comprehensive mobile application tailored specifically to the needs and challenges faced by automotive dealerships in Bangladesh. The application will feature robust inventory management, sales tracking, customer relationship management, and financial reporting capabilities, all accessible through an intuitive and user-friendly interface. By leveraging the power of mobile technology, this system will enable dealership managers to streamline their operations, make informed decisions, and optimize their business processes! Furthermore, the application will incorporate localization features to ensure compatibility with the linguistic and cultural preferences of users in Bangladesh. In this project, we seek to empower automotive dealership owners and managers with the tools and insights necessary to thrive in the dynamic automotive market of Bangladesh The Dealership Management System Bangladesh Perspective represents a significant step towards modernizing and enhancing the efficiency of dealership operations in the country.

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CHAPTER 1

INTRODUCTION

1.1 Overview

The Dealership Management System is an Android app designed to help automotive dealerships and businessmen in Bangladesh manage their operations effectively. This app aims to simplify tasks like inventory management, sales tracking, and customer relationship management. Also, it helps to sell and buy products. It is digitally controlled. Then easily see a product delivery process. It is making our work faster. Any time, access this app and also see a stock product. It is very helpful in the business industry. By providing a user-friendly interface and tailored functionalities, it aims to improve efficiency and customer service in the automotive industry of Bangladesh.

1.2 Background and Present State

You know, the way we learn has really changed a lot because of digital technology. Gone are the days when we all had to sit in a business with something new. Now, we've got online business platforms that are way more flexible and give us access to so many different resources. When COVID-19 hit, it really pushed this change even faster, showing us just how important good online business systems are for everyone, no matter where they are or what they need. But honestly, a lot of the online platforms out there just aren't doing the job well enough. They often feel pretty boring and don't offer much interaction. Plus, they don't always give you the support you need or manage content efficiently. Because of this, online business can sometimes feel like a drag. We really need platforms that don't just throw information at us but actually get us excited, let us interact in real time, and make business smooth and easy.

Right now, there are a bunch of online business platforms, and each one has its own special features. For example, Daraz is really handy for managing products and delivery because it's so straightforward. But it doesn't have those cool, interactive features that make it easier . Then you've got an online business, which offers a huge selection of online businesses. Online slip and also online history? It's not great for real-time interaction with business assistance. Amazon tries to mix online salary, but they often

have a tough time making it all work together smoothly. That's where our project, Dealership, comes in. We're creating an advanced online business platform that's designed to support audio call, interactive suggestion and real-time engagement with both the company and Dealer. We're using some of the latest tech, like Java, XML, PHP, Laravel and SQLite, to make sure it's robust and scalable. We've already made a lot of progress. We've got the basics covered, like user registration, add products, view product, and payment processing. But we still have some challenges ahead, especially when it comes to making sure content delivery is top-notch and integrating a really effective AI model for better interactivity. Looking ahead, we're going to focus on perfecting these features, tackling the challenges we've identified, and making sure our platform meets the needs of different company institutions and Dealers. This means we'll be constantly evaluating our progress, taking in user feedback, and using the best technology out there to provide an awesome online business experience.

1.3 Problem Statement

- A lot of online business platforms these days don't really get used to buying much in real-time. It's like missing out on those spontaneous product discussions and activities.
- It is difficult to deliver an organic product. For this reason, many people are not used to buying online products.
- When you're business online, it's important to feel like someone's got your back. But most platforms don't really offer that personal touch. It's hard to get the help you need when you're struggling.
- Ever tried navigating some of these platforms? They can be like a maze! All those buttons and menus can confuse both the company and the dealer, making business lit change.
- Making all the different parts of the platform work smoothly together like managing users, sharing all product materials updates, and handling paymentsseems to trip up a lot of platforms. It's like they're not talking to each other sometimes.
- Also need a new update. It's a lengthy process and this season a lot hampers general people. Then every person is not well educated .so ,it also creates another

big problem in the business sector.

The problem with the current traditional business system is that it is costly, time-consuming, and faces challenges. To get a better delivery environment system, many businesses have to leave their home or even their country. And as the traditional system is conducted onsite, it is a problem to maintain pace with the business. With online business, this system works properly to bring huge change in the business sector, which breaks down the geographical and temporal barriers.

1.4 Objectives

There are a lot of reasons behind building this app. But the main reason some face this problem is when they order products. They do not receive their product on time. We contract dealers, SR, and many businessmen. They share our many problems such as sales, customer relationships, service scheduling, and not showing product stockouts. By providing a user-friendly and comprehensive solution, we aim to empower dealership owners and managers to optimize their operations, improve customer service, and ultimately drive business growth. We will develop an Android-based application that addresses the specific needs and challenges faced by automotive dealerships and businesses in Bangladesh.

1.5 Scope and Limitations

Project Scope:

Properly, everyone uses this application. There's been a lot of evolution in the industrial sector. Any time, find out their needed data. It is also time-saving and works faster. The industry grows properly. It ensures that everyone is digitized. At this time, every person uses a mobile device. So, when they build a mobile application. They easily understand this application. Then selling and buying are increasing day by day. It’s very helpful to the company and dealer. And they are gaining proper knowledge in this sector. Project Limitation:

Here are the main limitations for the project:

- Limited budget and human resources may restrict the extent of feature development and depth of implementation achievable within the project timeline.
- Reliance on third-party technologies or APIs introduces dependencies that could impact project timelines and functionality if these dependencies face issues or changes.
- Comprehensive testing across diverse user scenarios and environments is crucial but challenging to execute fully, potentially affecting platform reliability and stability.
- Success depends on user acceptance and feedback, which can be unpredictable and require iterative adjustments to align with user expectations.
- Implementing robust security measures to protect user data and comply with privacy regulations is critical but complex and resource-intensive.
- Ensuring the platform scales effectively to support a growing user base and increasing data volume requires continuous optimization and infrastructure enhancements.

1.6 Report Organization

Every system has some odysseys. This application is not above mistakes. So, every time, maintain this application and also protect dishonest people. No unauthorized person accesses this system and only authorized persons access this application. Properly protect your private data and also have some restrictions. System all-time monitoring and finding out problems. Then quickly handle this problem and also provide proper guidelines. Then Some policies and statements ensure that. Finally, using this application ensures some benefits.

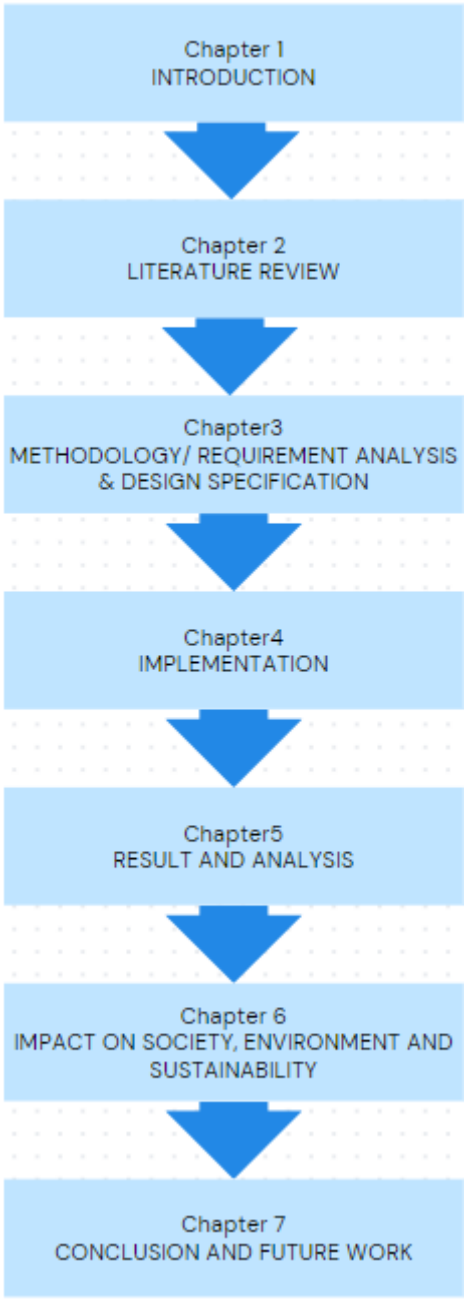

Figure 1.5.1: Report Layout of this Project.

1.7 Summary

This project proposes the development of a Dealership Management System app specifically designed for the Bangladeshi automotive industry. The app aims to address the inefficiencies faced by dealerships and businessmen due to manual processes and a lack of data management. By automating core functionalities, improving data management, and enhancing customer service, the app is expected to Improve operational effectiveness Enhance and profitability Empower dealers to flourish in a competitive market x This user-friendly Android app will focus on managing sales, inventory, service, and customer relationships, ultimately transforming the way dealerships operate in Bangladesh.

CHAPTER 2

LITERATURE REVIEW

2.1 Overview

The Dealership Management System is essential for automotive businesses in Bangladesh. This system acts as a central hub and simplifies tasks in the specific company. This management system emphasizes streamlining operations, integrating sales, and enhancing customer management.

2.2 Related Work

Alibaba.com(Alibaba.com -B2B marketplace)

One of the global B2B e-commerce sites is Alibaba.com. Product sourcing from international suppliers, trade assurance services, order and payment protection, product customization, and millions of ready-to-ship products per industry category are all provided by them. Manufacturer product demos and tours of manufacturing facilities are also offered, along with a wide range of popular items ranging from raw materials to trending consumer goods and production monitoring. This site offers discounted trade fair merchandise in addition to covering well-liked categories.

Dealer (Wholesale Online)

Chinese online wholesalers have established themselves as retail and wholesale online platforms in their country. It provides direct sourcing from China for whatever you need, and the sourcing agent helps you find good products and suppliers. However, its focus is on wholesale service.

B2B (B2B MP Solution)

B2B MP Solution is an Indian Online B2B marketplace for Distributors & brands, Retailers, Traders & Manufacturers.B2B MP Solution is a B2B platform & designed for small & medium businesses in India. B2B MP Solution provides a single platform to buy your Best goods and QC(Quality Control) all over India by manufacturers. Our orders are shipped right to our warehouse to your shop with QC.

2.3 Comparison between existing works

wholesale products. Dealer (wholesale online): While efficient in B2B and 1V1 online sourcing agent service only in China, also B2B MP Solution: While efficient in B2B service in India, these services are not working in other countries such as Bangladesh. Our platform will provide dealership management and B2B service in Bangladesh. This analysis highlights the opportunity for a comprehensive, user-friendly app to address the limitations of existing local solutions, catering specifically to the needs of xii Bangladeshi dealerships and businessmen. The app's focus on Android accessibility and local language support further strengthens its potential for market adoption.

2.4 Open Issues

While certain features of the current platforms are excellent, Only large companies use this process. But in our country, a lot of small businesses also exist. So, it is not a small deal at this time. Mainly this app builds up a connection between the company and dealer. By providing an intuitive user experience that integrates the advantages of current platforms with their shortcomings, our platform seeks to close this gap.

Table 2.4.1: Comparative analysis with previous work.

SL No	Mobile App	Services	Shortcomings
1.	Dealer (Wholesale Online)	Chinese B2B marketplace	Direct sourcing from China, sourcing agent help and services, Categories by products, price depends on the number of products, show order delivery process, following products, direct order process, advance payment system
2.	B2B (B2B MP Solution)	Indian B2B marketplace	Single platform to buy their goods and QC, Category & search products, buy products system requirement delivered though fast, advance payment system
3.	Alibaba.com - B2B marketplace	world-leading B2B marketplace	Purchase with confidence, Customizable products, easy sourcing, first shipping, factory tours, quality control, discounts and promotion, advance payment system, language, and currency support

2.5 Summary

The Dealership Management System is crucial for automotive businesses in Bangladesh, streamlining operations and improving customer management. Existing wholesale online platforms in China focus on B2B and dealer services while India focuses on B2B services, creating a gap for such services in Bangladesh. Smaller dealerships in the country face challenges in adopting management systems due to costs and limited awareness. The lack of mobile functionalities and underutilized data analytics further hinder their competitiveness in the market.

CHAPTER 3

METHODOLOGY/ REQUIREMENT ANALYSIS & DESIGN SPECIFICATION

3.1 Overview

This project methodology scrutinizes the intricacies of developing an Android-based Dealership Management System tailored to the specific needs and challenges faced by automotive dealerships in Bangladesh. Employing a comprehensive approach, the study delves into the technical architecture, functional requirements, and user experience design of the application. The investigation encompasses both quantitative and qualitative methods, utilizing surveys, stakeholder interviews, and comparative analysis with existing dealership management systems. The qualitative aspect involves in-depth discussions with dealership owners, managers, and staff to capture nuanced insights into their workflow and operational requirements. By unraveling the layers of dealership management in the Bangladesh context, this methodology aims to provide a thorough understanding of the system's strengths, limitations, and potential to enhance dealership operations.

3.2 Proposed Methodology/ System Design

Business Process Model

This will be a web-based learning management portal designed for every individual with internet access. The application will mainly have 2 roles (Admin & User).

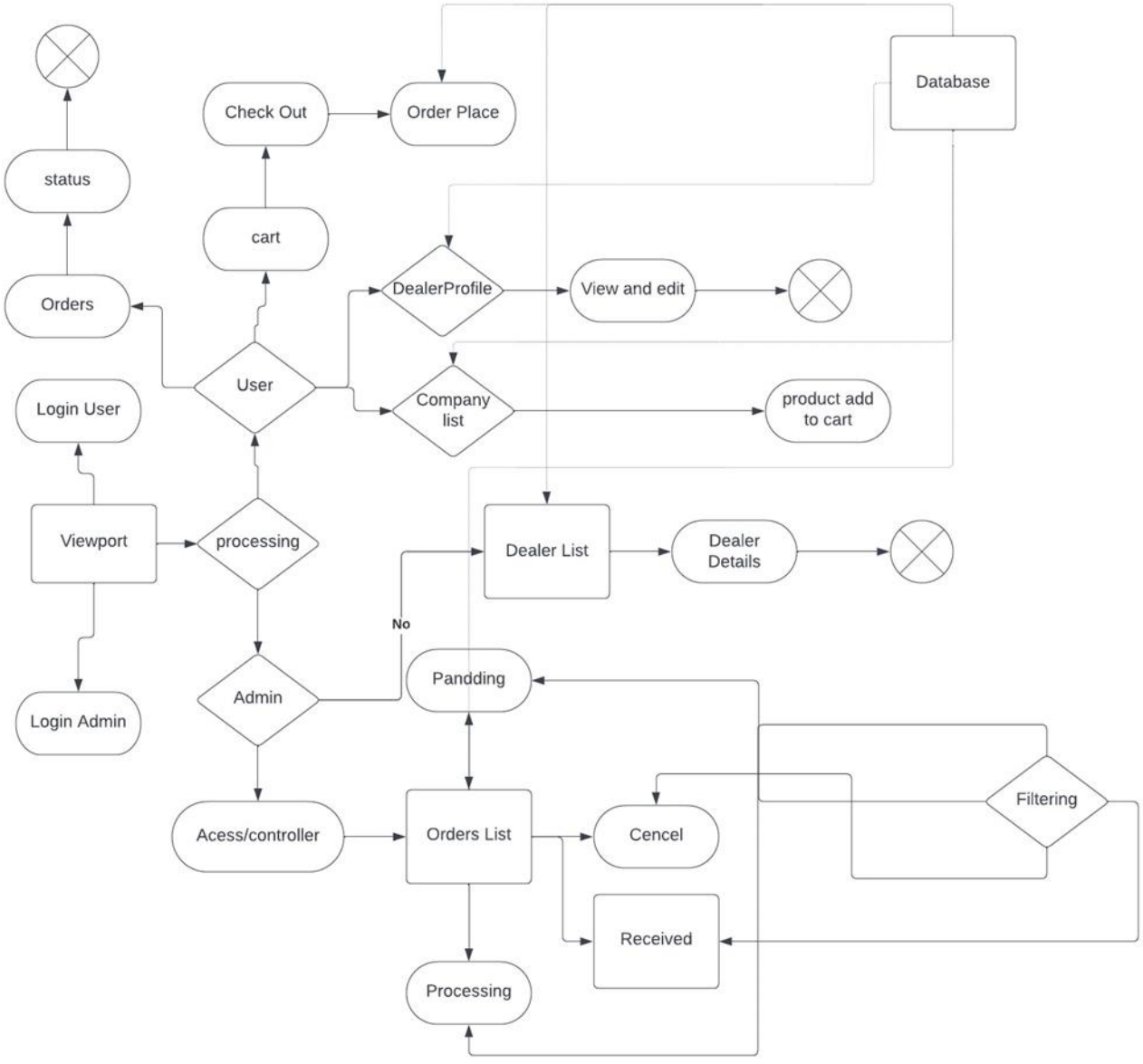

Figure 3.2.1 Business Model

Front-end technology:

Our proposed solution will have a separate front end. For that, we use the following technology,

- XML: XML (Extensible Markup Language) will be used for structuring and presenting data within the user interface of the Android application. XML provides a flexible and standardized format for defining user interface layouts and elements.
- Java: Java will be used as the primary programming language for developing the front end of the Android application. Java is well-suited for Android development and provides a robust framework for implementing user interface components and handling user interactions.

Back-end

PHP with Laravel Framework: Our project, the Dealership Management System, will use the Laravel framework to enhance backend operations. This approach aims to improve the automotive industry in Bangladesh. Laravel, a well-known PHP framework, is selected for its user-friendliness and ability to handle data efficiently while syncing information in real time. By integrating Laravel's features into a straightforward interface, the project is designed to boost both efficiency and customer satisfaction in automotive dealerships across Bangladesh. With Laravel, we plan to add advanced features that make managing data easier and transactions safer, ensuring that our system becomes a valuable tool for the automotive sector.

Design Architecture

The microservice design architecture is what we're utilizing. When building and maintaining a website, there are several advantages to using microservice design. One of the main benefits of microservices is their scalability; this allows different components to scale independently, resulting in improved performance and efficient use of resources. Additionally, by enabling teams to work independently on specific services, microservices speed up development cycles and promote agility in parallel development and deployment. Because the system as a whole need not be affected by a single microservice failure, this modular architecture improves fault isolation. This design approach promotes technical variety and boosts flexibility and creativity by

allowing teams to choose the tools and technologies that are most appropriate for each service. Additionally, microservices simplify maintenance and upgrades because changes to individual services have no effect on the program as a whole. Microservice design models are generally more scalable, robust, and adaptive than other web development models, which makes them a desirable choice for modern web development.

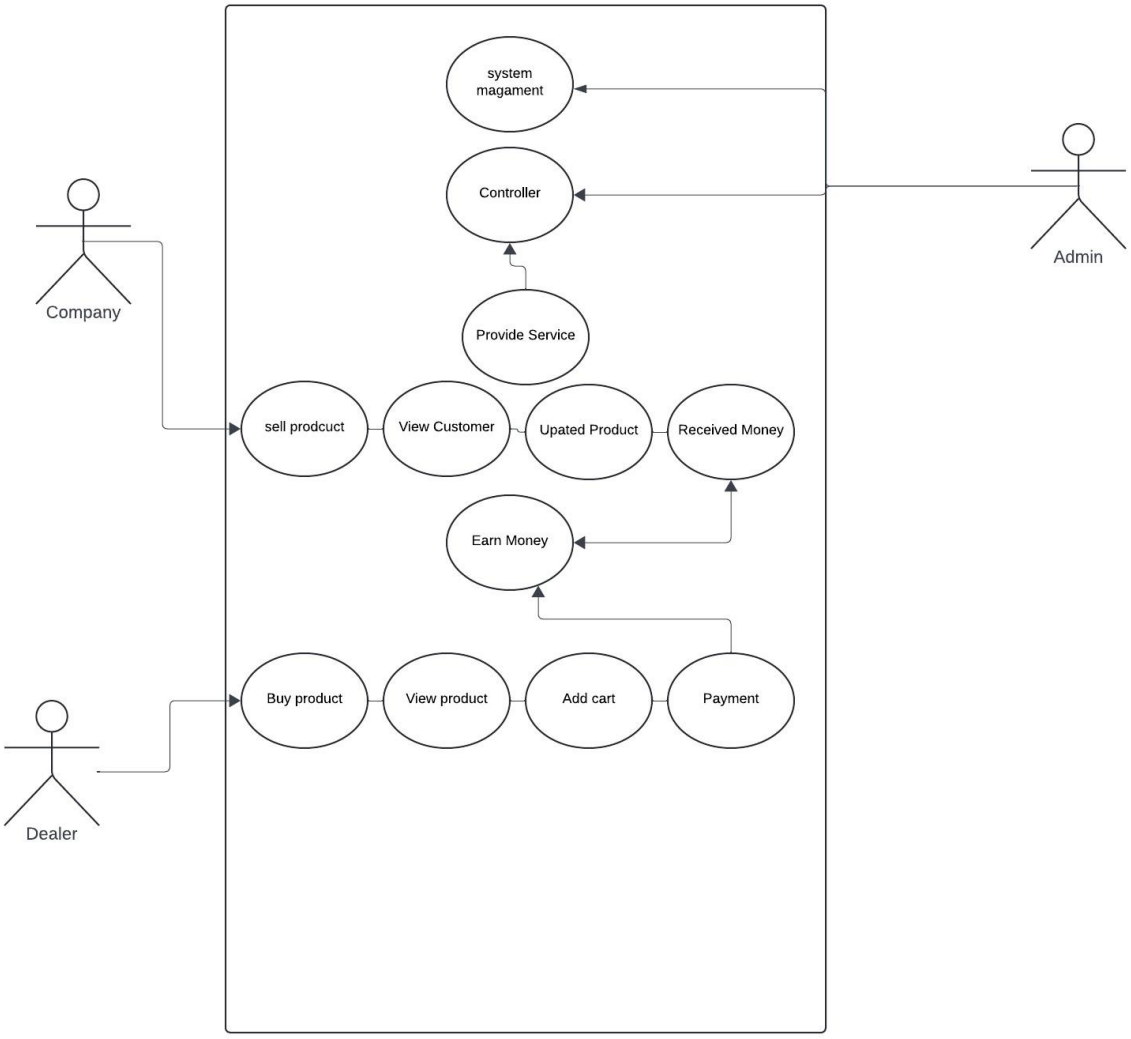

Figure 3.2 2 Design Model Diagram.

3.3 Hardware/ Software Requirement

We need to analyze the hardware and software requirements of our dealership management system. We have to ensure that our solution is suitable for the end user's device requirements. Below are the software and hardware requirements of our application.

- Any Android smartphone with a 1+GHz processor.

For the system development part, we need the below software and tools.

- JDK 11+
- Android Studio
- Visual Studio Code
- Browser

This will be an Android-based Business management portal designed for every individual with internet access. The application will mainly have Three roles (Admin, Company & Dealer). The roles will have the below functionality,

Admin role:

- Login to the system email and password.
- See Company & Dealers list.
- Subscription sales to the company.
- Do not see product list and product purchase history
- Only subscription people access company roles.
- security and every critical part maintain the admin panel.

Company role:

- Create an account.
- Login to the system with email and password
- Add a new dealer to the system.

- Add a new product to the system.
- Add, edit, and view Dealer information.
- Company and dealer see a product stock in and stock out.
- All history see.

Dealer role:

- Enter the company-provided password, email address, and application to login.
- Add, and edit personal profile information.
- Company and dealer see a product stock in and stock out.
- See all offers, flash sale, and others.
- List all the products with price and buy them.

3.4 Project Management and Financial Analysis

Launching Dealer Hub, a state-of-the-art online business platform with interactive company and dealer business approach to project management. The project is broken up into many stages, from platform development, product creation, and user interface optimization to system design and conception. Clearly stated goals and deadlines ensure efficient progress, as do regular evaluations to address any roadblocks and capitalize on emerging opportunities.

Project Objectives:

- Develop a business platform to facilitate the add product, view product, commission, and also see an offer.
- Offer a comprehensive solution for stock-in and stock-out problems. It's also how a product needs to be produced. It is very important for the business.
- It also helps monitor all product delivery in this current position. It is very helpful for every person.

Project Timeline:

- Phase 1: Research and Project Planning (2-4 weeks).
- Phase 2: (8–10 weeks) for design and prototyping.
- Phase 3: Development of the front end (8–12 weeks).
- Phase 4: Back-End Development (10-14 weeks)
- Phase 5: Testing (4-6 weeks) is Phase 5.
- Phase 6: Implementation (two to four weeks).
- Phase 7: Marketing and Post-Launch (Continuous).
- Resource Planning:

A. Equipment and Tools:

- servers for testing and development.
- High-end workstations for the development team.
- Design software (Figma).
- Collaboration tools (SQLite).
- A version control system (Git) will all be included.
- Testing Tools (automated testing, such as Selenium).

B. Software and Technologies:

- Front-End Technologies (XML, JAVA, Font Awesome)
- Back-End Technologies (JAVA, PHP, LARVEL)
- Database Management System (SQLite)

Internal Risk Management:

1. **Technical Challenges:**

Table 3.4.1: Risk Management.

S.No.	Issues and Challenges	Strategies or Plans
1	Data collection	I need the help of the company employee.
2	Build up a connection.	Using the chat option as the usual messenger.
3	Live time data update	Using the same framework. It's beneficial.

2. Resource Constraints:

- Risk: Insufficient resources impacting progress.
- Mitigation: Resource monitoring, contingency plans.

3. Scope Creep:

- Risk: Project scope expansion.
- Mitigation: Robust change control process, clear scope definition.

4. Data Security:

- Risk: Security breaches.
- Mitigation: Robust security measures, regular audits.

External Risk Management:

1. Market Competition:

- Risk: Intense competition.
- Mitigation: Regular competitive analysis, focus on unique selling propositions.

2. Technological Changes:

- Risk: Rapid tech changes.
- Mitigation: Stay updated, and maintain design flexibility.

3. Regulatory Compliance:

- Risk: Regulatory changes.
- Mitigation: Stay informed, legal consultation, compliance checks.

4. Vendor Dependencies:

- Risk: Reliance on vendors.
- Mitigation: Diversify vendors, contingency plans, and communication.

5. Economic Downturn:

- Risk: Economic instability.
- Mitigation: Diversify revenue, flexible pricing, economic monitoring.

Effective risk management involves ongoing monitoring, proactive risk identification, and the quick implementation of mitigation strategies. Regular reviews and plan updates are crucial for adapting to the evolving project landscape.

The objective of this communication plan is to guarantee open and efficient cooperation between stakeholders and team members during the various stages of the educational platform project. Communication and decision-making will be easier with regular progress reviews and meetings to adjust the scope.

Financial Analysis

A general table showing the approximate costs of the various web development project components is provided below. We have to choose based on our requirements.

Table 3.4.2. Financial Analysis.

SL No.	**Expense Description**	**Amount (BDT)**
01	Domain and Hosting	1500 -2000
02	Visiting Stakeholders	1000 -1500
03	Documentation and Report Writing	500-1000
04	Miscellaneous (e.g., licenses, tools)	3000-4000
05	Data Storage Server	5000 -8000
06	Contingency (10% of total)	1100-1650
	Total Estimated Cost	12,100-18,150

Financial analysis is a key component of Dealer Hub success. The first factors to consider when making an investment are the cost of producing films, the technical infrastructure, and the development of Business-driven features. Operational expenses, including hosting and maintenance, are carefully estimated. Possible cooperative partnerships, product sales, and subscription fees are a few examples of revenue streams. The most effective way to distribute resources and reduce risks is to do a thorough cost-benefit analysis.

3.5 Summary

This project methodology meticulously examines the components of an Android-based Dealership Management System tailored to the unique requirements of automotive dealerships in Bangladesh. The study employs a mixed-methods approach, blending qualitative insights from interviews with dealership owners and managers with quantitative data from surveys and comparative analyses with existing dealership management systems. By dissecting the technical architecture, functional requirements, and user experience design, this methodology aims to provide a comprehensive understanding of the system's capabilities and limitations. The study also explores the potential of integrating AI-driven features to enhance dealership operations and customer service. Through this holistic approach, the project endeavors to deliver a user-friendly, efficient, and culturally relevant Dealership Management System that can revolutionize dealership operations in Bangladesh.

CHAPTER 4
IMPLEMENTATION

4.1 Overview

The implementation phase of this project involves translating the designed specifications and requirements into a functional online business platform and a dealership management system. Using Java, PHP, larval& SQLite, also using some free libraries we aim to build robust systems for user management, interactive user friendly, and easily understand. This phase focuses on iterative development sprints, rigorous testing, and integration of essential features like user dashboards, product delivery services, and secure payment gateways. The goal is to deliver a scalable, secure, and user-friendly platform that meets business objectives and enhances our business experience for all users.

4.2 Prototype Design

For the prototype of our online learning platform, Dealer Hub we will focus on creating a dynamic front-end with essential functionalities accessible through APIs. The prototype will include features for both admin and user access, product upload and add cart product capabilities, and a payment system. Each module will be designed to interact seamlessly with backend services, ensuring functionality and usability.

Front-End Design:

The front end will be developed using JAVA, XML, PHP, AND LARVEL to create a responsive and interactive user interface. It will feature user authentication and authorization mechanisms to differentiate between admin and regular users. Admins will have access to additional management tools, while users will navigate through courses, assessments, and interactive design.

Functionality Highlights:

- Admin Dashboard: Allows administrators to manage users, subscriptions, and products. Includes functionalities for user management, product maintenance and security. And also analysis of which products have more and low compression between.
- User Dashboard: Provides users with access to subscription person, stock tacking, and interactive design. Company add product and dealer buy or add cart product.
- Product tracking: Enables users to product position and also identify product stock information.
- Payment System: Integrates a secure payment gateway (e.g., PayPal, Stripe) for product price. Users can make payments securely and receive confirmation upon successful transactions.
- Backend Services: Backend services will be implemented using Java with PHP, larval & SQLite. APIs will handle data management, user authentication, database, and payment processing. This architecture ensures scalability, security, and efficient data handling.

4.3 System Testing

The implementation requirements for the "Dealership Management System (DMS)" include the following operational, developmental, and technical elements:

- ❖ Front End Technologies
  - JAVA.
  - XML.
  - Lottie Library Android.

- ❖ Back End Technologies
  - PHP.
  - Laravel.
  - SQLite.
- ❖ Tools
  - Web browser.
  - Composer.
  - Visual Studio Code.

4.4 Summary

This application applies to business applications. It help to easily sell and buy products. This app is mainly a mobile application. Using some popular Technic this application and handle or control mainly admin. Those technic are JAVA, PHP, LARVEL and, SQLite .And also using some android library using this are more interactive our mobile application interface. Finlay say that this application mainly using in business sector. This application help to grow our business and also both side transaction are faster. Also reduce previous delay and implementation some new things.

CHAPTER 5

Implementation and Testing

5.1 **Database Deployment**

Need application store any data also need storage. This storage means that database. There are many types of databases mainly this application store data using SQLite. It also help to reduce loading delay time and more faster. Also need any data easily accessed and collected data from database.

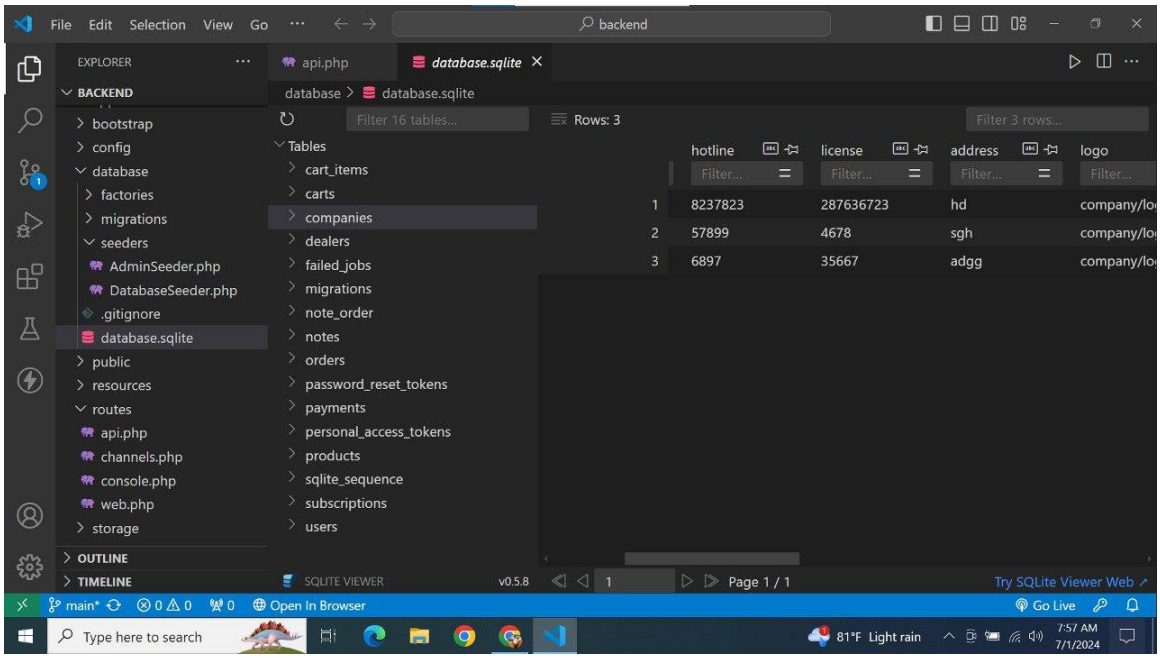

Figure 5.1.1:Structure of Database.

5.2 Implementation of Front-end Design

This is application of front-end design using JAVA , XML , and also using some android libraries. Using this application our app is more interactive and useful. Font-end is the Skeletor of app. Without this impossible build up app. This is the interface of application. Easily understand user using font-end design.

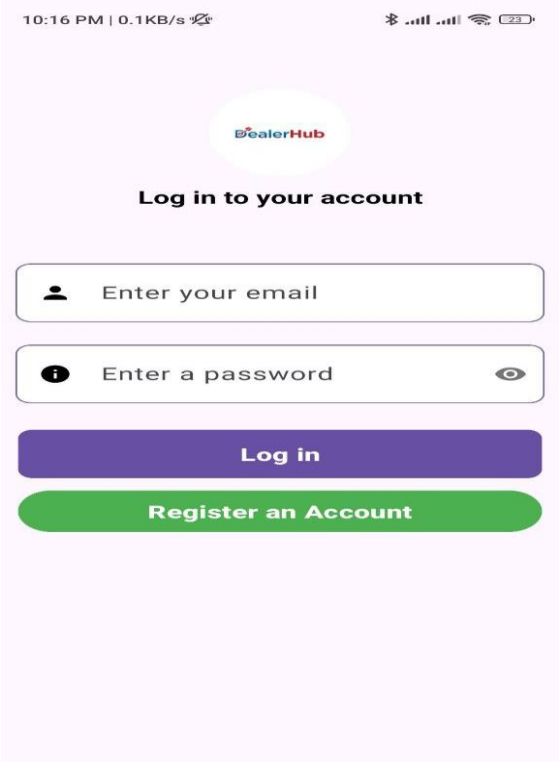

Figure 5.2.1: Login Page Design.

The Dealership Management System's homepage is this. These involve alternates such as registering an account and logging in. This is the application's homepage registration of any user. The user now correctly enters their password and email address. When the password and email match, the login is successful. If not, issue a warning about an incorrect password or email.

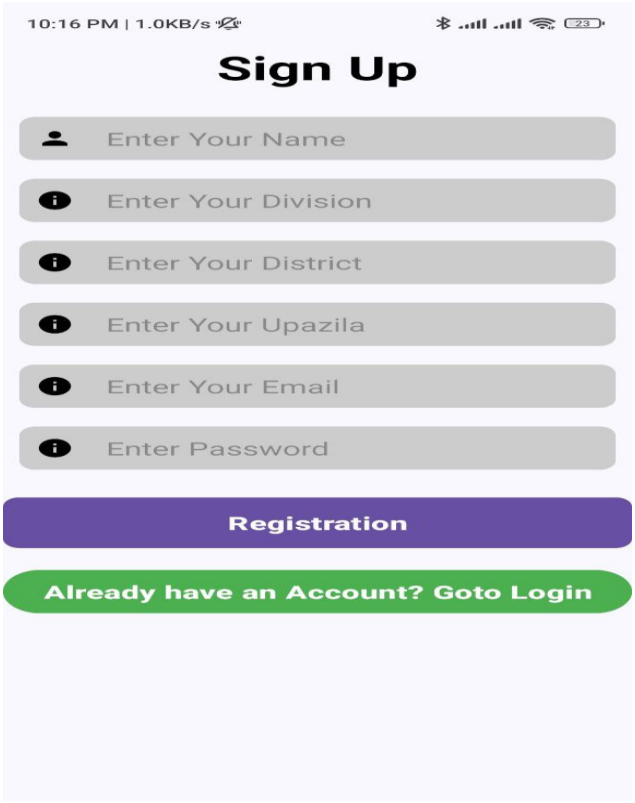

Figure 5.2.2: **Sign Up Design**

The Dealership Management System's admin dashboard is located on this page. This page provides a plethora of control over this website. Additionally, it displays earning options, commission, etc. This app has only been opened by you. An enrollment is required. You are unable to access this app otherwise. All fields are filled in with necessary and accurate information. After that, you press the button to register. A toast notice indicating a successful registration appears next.

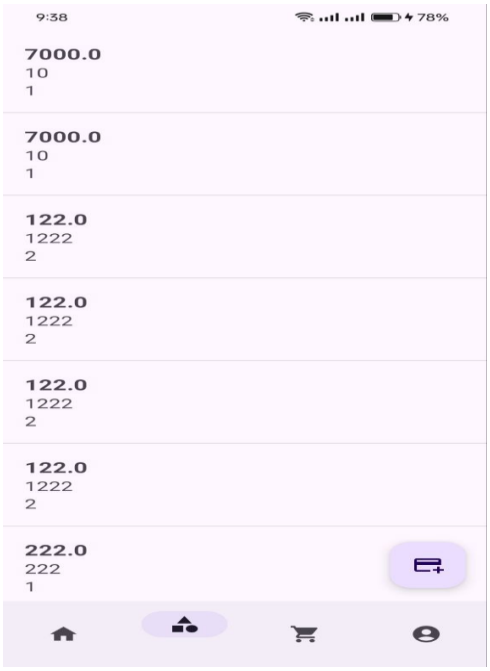

Figure 5.2.3: Company Subscription Page.

This is the Dealer Hub dashboard of the dealership management system (DSM). Another most famous feature is the subscription system to add the app. This is the main earning part. App admin maintains this for all subscription users. And also maintain app security.

Figure 5.2.4: Company Card.

This is the business card. This is only one of its many features. Order ID, status, total cost, and order time are the main information that the company sees. The company can benefit greatly from these advantages. It makes tasking our product and item lists easier. It's beneficial to manage all items with ease. Next, you select a certain product to view more information. Having information on the Pacific in one product is more beneficial.

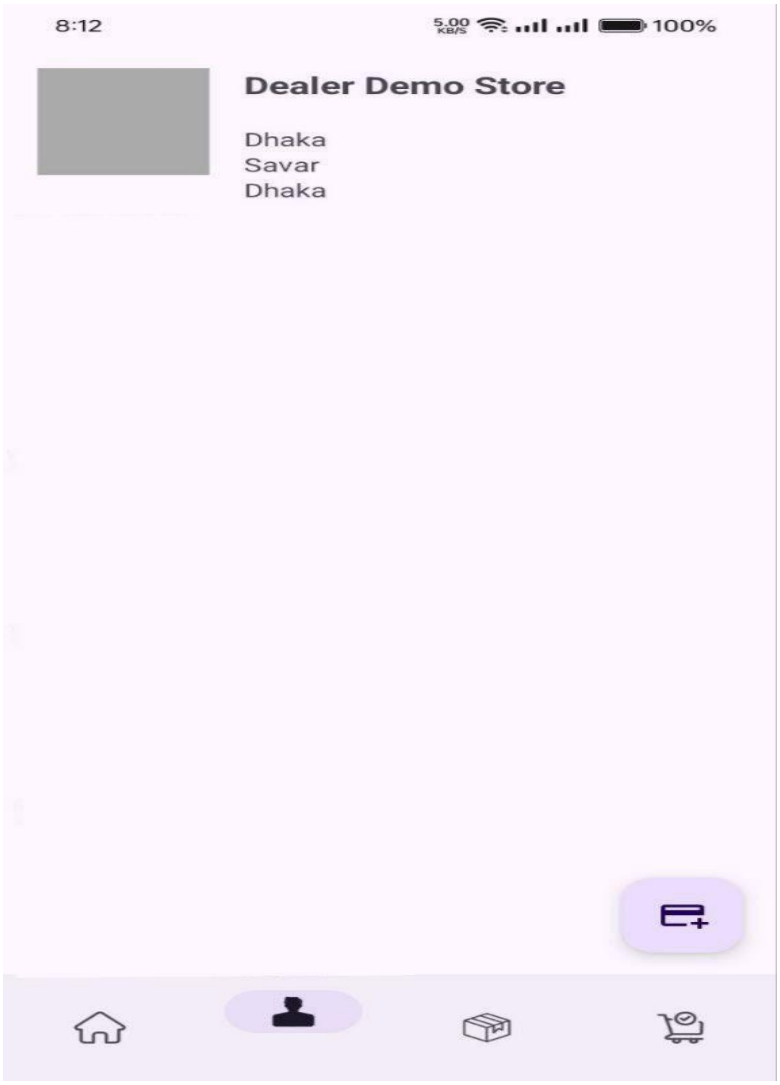

Figure 5.2.5: Dealer Card.

The dealer card portion is this. It is an additional feature of our program. This section mostly keeps our app's dealers up to date. Users of this application are numerous. when utilizing this program. This program requires numerous procedures to be handled. However, they are in charge of this application's name, image, main key (id), and dealer information. This is the information section where each dealer keeps track of user data. This is the application's most crucial feature.

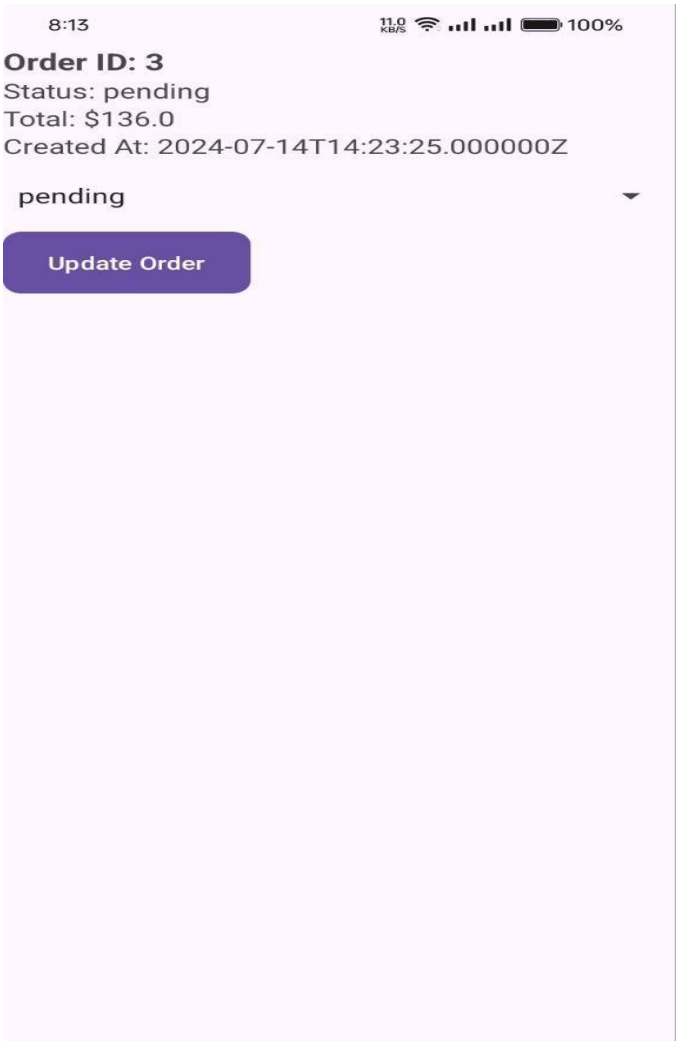

Figure 5.2.6: Update Product.

The most crucial section of our application is this. This section mostly modifies the product's cost. The maintenance order ID, status, product pricing, and product update are the primary contents of this section. This section aids in the addition of more affordable products. These days, this feature is added to every mobile application and e-commerce website. Add additional product because it would be impossible without it. Generally, the primary objective of any application is to make sales. Finally, state that this is a crucial component of the application.

5.3 Testing Implementation

The "Dealership management system (DMS)" testing implementation follows a methodical approach to ensure the functionality, security, usability, and effectiveness of the platform. The testing protocols are summarized as follows:

Testing Types:

- Unit testing: Verify that individual components, features, and modules function as planned.
- Integrity testing: Verify that functionality and integration work properly by looking at how various modules interact with one another.
- System Testing: Confirm that the system operates generally and behaves in accordance with the defined parameters.
- User Acceptance Testing (UAT): To ensure the platform satisfies user needs, Involve stakeholders in testing that is scenario-based and grounded in actual situations..
- Security testing: Conduct security evaluations to find weaknesses and guarantee a strong protection against intruders.
- Performance testing: Assess the reactivity and security of the system.
- Developing Test Cases: Write thorough test cases that address all features, edge cases, and user scenarios.
- Achievement and Documentation: Generate reports outlining passed/failed scenarios , record outcomes , and execute test cases in a methodical manner .
- Product Tracking: Assign priority , track resolutions, and log and monitor issues as they are found using product tracking tools.
- Regression Testing: To make sure that newly implemented features or bug fixes don’t damage already – existing functionalities, perform regression testing thereafter.
- User Feedback Incorporation: To improve usability and address user experience issues , include user feedback from UAT into testing cycles.

Testing Environments:

- Development Environment: In their own development environments, developers test particular parts and functionalities.
- Staging Environment: A replication of the product environment where system functionality and integration tests are conducted.
- User Testing Environment: Conduct user acceptance testing(UAT) in a supervised testing environment with real users or stakeholders.
- Automated Testing: To do repeated and regression tests , use automated testing frameworks (PHP Unit for PHP and Selenium for UI testing).
- (CI/CD): To facilitate automated testing into continuous integration / continuous deployment (CI/CD) pipelines for efficient testing.

"Dealer Hub" Every necessary product at your fingertips reduces risk and guarantees a first-rate user experience by following specific testing parameters and guidelines that guarantee functionality, security, dependability, and user satisfaction prior to implementation.

5.4 Test Results and Reports

The "Dealership management system (DSM)" test reports and results demonstrate that the system, integration, and unit testing were successfully finished. They demonstrate robust functionality, compliance with security guidelines, and positive user feedback, ensuring a solid and excellent platform. Test results and reports provide essential documentation of the testing process, encompassing the issues discovered, their impact on the software, and recommended improvements.

5.5 Summary

This section mainly decision testing, front end and back-end. Every part is important but testing and security are more important. Because this identifies what is legitimate in your application. This reason before publication mandatory this. Using this feature easily identification how many users use this application at time. Another part security part ensures that unauthorized not access your application and also ensures that including that authentication user access this application. Then admin maintain everything any problem create fixed this problem. Finally, say that without this part incomplete your application.

CHAPTER 6

Impact on Society, Environment, and Sustainability

6.1 Effects on the Community

"Dealer Hub-Android app-based dealership management system" has a great deal of potential to positively influence society in a number of ways.

- Improved Client Experience:
  - Streamline customer interactions with dealerships to make buying products easier and more pleasurable.
  - Give clients clear information about goods and services so they can decide what's best for them.
- Operational Efficiency:
  - Assist dealerships in optimizing their workflows to minimize waiting periods and paperwork.
  - Facilitate prompt resolution of customer queries and demands, augmenting the overall quality of service.
- Support for Local Economy:
  - Encourage more seamless interactions between dealerships and customers to help local companies grow.
  - Encourage the creation of jobs and economic expansion in the automobile sector and adjacent industries.
- Awareness of the Environment:
  - Promote the use of environmentally friendly car options by offering incentives and conducting educational initiatives.
  - aid in the shift to environmentally friendly transportation options while supporting initiatives to preserve the environment.
- Inclusivity and Accessibility:
  - Make that all users, including those with impairments or linguistic challenges, can access the system.
  - Encourage diversity by giving everyone in the automobile industry equal opportunities to participate and engage.

This Dealership Management System's potential benefits are outlined in this scope for impact on society, with particular attention paid to customer happiness, operational effectiveness, financial support, environmental stewardship, and social inclusion.

6.2 Impact on the Environment

"Dealer Hub-Android app-based dealership management system" has a number of environmentally friendly advantages:

- Encouragement of Eco-Friendly Automobiles:
  - Encourage car dealerships to sell and advertise carbon-emission-reducing electric and hybrid vehicles.
  - Give consumers incentives and information to encourage them to select eco-friendly modes of transportation.
- Cut Down on Paper Use:
  - Digitize your documentation to reduce the amount of paper used in dealership operations.
  - Cut down on the waste and environmental damage caused by printing and keeping paper documents.
- Enhanced Logistics for Transportation:
  - Improve vehicle inventory control to cut down on needless mileage and fuel use.
  - To reduce carbon emissions during the distribution and delivery of vehicles, optimize your logistics strategy.
- Awareness of Energy Efficiency:
  - Encourage dealerships to use energy-saving appliances and LED lighting, among other energy-efficient practices.
  - Inform employees and clients on the advantages of sustainability and energy.
- Support for Green Initiatives:
  - To encourage eco-friendly practices in the automotive industry, collaborate with environmental organizations or initiatives.
  - Engage in local initiatives promoting sustainability and support prudent resource management.

The potential benefits of our Dealership Management System project are highlighted in this scope for impact on the environment. These benefits include promoting eco-friendly vehicles, cutting down on paper use, streamlining transportation logistics, increasing public awareness of energy efficiency, and supporting green initiatives in the automotive industry.

6.3 Sustainability Plan

Creating a sustainability plan for a "dealership management system (DMS)" means putting strategies into place that ensure sustainability over the long run, reduce environmental impact, and promote ethical and responsible behavior. Here is a summary of it:

- Time Sustainability:
  - Product sell: Mainly this app helps to company sell enhancement. And also it's to any new product add or create a new product easily update.
  - First order: This feature helps before production. So, guess how many product need my company. It is an optimal solution.
  - Carbon Offset Programs: Provide options during the reservation process for customers to participate in carbon offset programs or make donations to environmental charity.
  - Conscientious Data Management:
    - Privacy Compliance: Ensure that privacy guidelines are updated on a regular basis to preserve compliance with global data protection regulations and safeguard user privacy.
    - Data Encryption and Security Measures: Continuously enhance data encryption and security procedures to guard against breaches.
    - Data Minimalism: Adhere to the recommendations for data minimization, collecting and storing as little user data as is necessary to guarantee platform functionality.
- Ethical Responsibilities:
    - Boost accessibility: Make sure the platform's features that assist those with

disabilities are always being assessed and improved.

- Community Engagement: Support charitable causes, promote intercultural exchanges, and increase local tourism as ways to help the communities in your neighborhood.

❖ Constant Enhancement:

- Incorporating User Feedback: Gather feedback from users on a regular basis to ensure features are meeting their needs and preferences.
- Innovation and Adaptation: To enhance user interfaces and overall productivity, stay abreast of technological advancements and integrate new features.

❖ Prudent Business Conduct:

- Transparent Practices: To foster customer loyalty and trust, maintain transparency regarding product prices, delivery times, and business activities.
- Fair Partnerships: Maintain moral and just relationships with suppliers and other stakeholders in order to uphold ethical corporate standards. It strengthens the bond between the dealer and the business.

❖ Workplace Morale:

- Education and Awareness: Encourage a culture of accountability by providing staff members with instruction on moral conduct and environmentally friendly methods.
- Product commission and offer: This app provides.

Summary: This sustainability plan's goal is to direct "Dealer Hub" toward upholding moral principles, environmental consciousness, and continuous improvement while arranging the platform's growth in a responsible and sustainable manner.

CHAPTER 7
Conclusion and Future Scope

7.1 Discussions and Conclusions

The Dealership Management System (DMS) is a noteworthy development in the retail automobile industry that aims to improve dealership efficiency and streamline operations. DMS enables more efficient workflows and better customer service by combining many functionalities including customer interactions, and payment processing into a single platform. The user experience is given top priority in the system's design, making it simple for administrators and dealers to explore and make use of its capabilities. DMS had difficulties during development that are common to complicated software projects, such as usability problems and integration problems. Nevertheless, these difficulties were overcome by continual improvement and iterative testing, which produced a more efficient and sophisticated system. DMS is flexible and well-positioned to accommodate changing dealership requirements since it welcomes input from stakeholders and pays attention to market developments.

To sum up, the Dealership Management System not only resolves current inefficiencies in the retail automotive business but also establishes a standard for upcoming advances in the sector. Its all-inclusive method of running dealership operations boosts customer happiness and sustainable growth in addition to increasing productivity. Going forward, DMS's relevance and competitiveness in the fast-paced automotive business will be largely dependent on continuous improvement and a dedication to excellence. DMS is prepared to equip dealerships with the resources they need to prosper in a business environment that is changing quickly as technology advances.

7.2 Scope for Further Developments

The "Dealer Hub-Android app-based dealership management system" offers various opportunities for further advancement and enhancement:

- Improved User Interface (UI) Features:
  - Make the app's appearance and feel better to facilitate user business.
  - To make it more appealing and user-friendly, including more colors and visual components.

- ➢ Make sure that every button and option is simple to operate, especially for inexperienced users.

❖ Including Extra Features:

- ➢ Add new features, such as sophisticated analytics for sales performance.
- ➢ Incorporate a method for collecting customer product feedback to get ideas and raise customer happiness.
- ➢ Include a notification system to inform users of tasks or updates that are critical.

❖ Extension to Multiple Platforms:

- ➢ Create versions of the application for various platforms, such as desktop PCs and tablets.
- ➢ Make sure it works with several operating systems, including Android.
- ➢ Enhance the application's functionality across a range of screen sizes and resolutions.

❖ Improvements in Security:

- ➢ Use more robust data encryption techniques to safeguard private data.
- ➢ Include features for user authentication such as phone code.
- ➢ Also analysis of sold products and remaining products. It helps to future make any decision.

❖ Scalability and Performance Optimization:

- ➢ Build the app's infrastructure to support more users and data exchanges.
- ➢ To speed up response times, optimize server-side procedures and database queries.
- ➢ Make sure the system can accommodate rising data volumes and user interactions as you prepare for future expansion.

7.3 Future Work Plan :

In the upcoming phases, my focus will be on expanding the capabilities and scope of my current projects while exploring new research avenues. The primary goals include:

❖ Update : Try to regular new features including in this application. User friendly design and also need feedback.

❖ Feedback : Feedback is a another most important features in any application . It’s help to need any improvement in application. It’s help to a user . Then ensure that better experience .

❖ Data security : Data security is the most important part in this time. Every data is important . So, ensure that your data is secure and day by day improvement.

Summary:

Day by day, increase app and user usage. So, it has great potential at this time. But we also need a good idea and a better developer. Continue this process and maintain it. It is a lengthy process and needs regular updates. Then maintain this application and create any problems as soon as possible. At this time, it is a blessing for your generation.

Reference

[1]. N. El Yamani, T. F. Gharib, and M. Naseeruddin, “Agile software development in educational settings: A systematic literature review,” *Int. J. Softw. Eng. Knowl. Eng.*, vol. 28, no. 04, pp. 545-581, 2018.

[2].“Dealer: Wholesale Online,” Google Play Store. [Online]. Available: https://play.google.com/store/apps/details?id=com.dealar.andriod.

[3]. “B2B Wholesale Market,” Google Play Store. [Online]. Available: https://play.google.com/store/apps/details?id=com.nueva.nueva_app.

[4]. E. W. Larson and C. F. Gray, *Project Management: The Managerial Process*, 7th ed. McGraw-Hill Education, 2018.

[5]. K. Schwaber and J. Sutherland, *The Scrum Guide*. [Online]. Available: https://www.scrumguides.org/. Accessed: June 30, 2024.

[6]. R. C. Martin, *Agile Software Development: Principles, Patterns, and Practices*. Prentice Hall, 2003.

[7]. J. Phillips, *PMP Project Management Professional Study Guide*, 5th ed. Sybex, 2019.

[8]. Agile Alliance, *Agile Manifesto*. [Online]. Available: http://agilemanifesto.org/. Accessed: June 30, 2024.

[9]. H. Kerzner, *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*, 12th ed. Wiley, 2017.

[10]. J. Smith and K. Brown, “Automated Class Scheduling System for Universities,” *J. Educ. Technol.*, vol. 12, no. 3, pp. 45-62, 2019.

[11]. Standish Group, *CHAOS Report 2020: Beyond the CHAOS*. [Online]. Available: https://www.standishgroup.com/. Accessed: June 30, 2024.

[12]. H. Li and Q. Wang, “Adaptive Learning Management System for Personalized Education,” *Educ. Technol. Res. Dev.*, vol. 65, no. 4, pp. 789-802, 2017.

[13]. R. Gupta and P. Sharma, “Mobile Application for Student Timetables,” in *Proc. Int. Conf. Inf. Syst.*, 2018, pp. 124-137.

[14]. N. El Yamani, T. F. Gharib, and M. Naseeruddin, “Agile software development in educational settings: A systematic literature review,” *Int. J. Softw. Eng. Knowl. Eng.*, vol. 28, no. 04, pp. 545-581, 2018.

[15]. “Aarong,” Aarong.com. [Online]. Available: https://www.aarong.com/. Accessed: June 30, 2024.

[16]. “Home,” Pranfoods.net. [Online]. Available: https://www.pranfoods.net/. Accessed: June 30, 2024.

[17]. N. A. Rahman, “Getting started with Lottie animations in an android app,” *LottieFiles*, May 15, 2020. [Online]. Available: https://www.lottiefiles.com/blog/. Accessed: June 30, 2024.

[18]. “Android basics with compose course,” Android Developers. [Online]. Available: https://developer.android.com/courses/android-basics-compose/course. Accessed: June 30, 2024.

Appendix A

Course Outcomes, Complex Engineering Problems (EP) and Complex Engineering Activities (EA) Addressing

Title: DEALERSHIP MANAGEMENT SYSTEM (DMS)

Student ID:201-15-14338 & 201-15-14296

CO Description for FYDP

CO	CO Descriptions	PO
Phase -I		
CO1	Integrate recently gained and previously acquired knowledge to identify a **app base dealership management system** problem for the Final Year Design Project (FYDP)	**PO1**
CO2	Analyze different aspects of the goals in designing a solution for this FYDP	**PO2**
CO3	Explore diverse problem domains through a literature review, delineate the issues, and establish this goal for the FYDP	**PO4**
CO4	Perform economic evaluation and cost estimation and employ suitable project management procedures throughout the development life cycle of the FYDP	**PO11**
Phase -II		
CO5	Design and develop technical solutions and system components or processes that meet specified requirements, ensuring compliance with public health and safety standards, as well as considering cultural, socioeconomic, and environmental factors in this FYDP	**PO3**
CO6	Choose and apply appropriate methodologies, resources, and contemporary engineering and IT technologies to address complex engineering processes, encompassing prediction and modeling, while adhering to relevant constraints in this FYDP	**PO5**
CO7	Analyze societal, health, safety, legal, and cultural considerations, along with associated responsibilities, in the context of professional engineering practice and the resolution of this problem, employing logical reasoning guided by contextual understanding.	**PO6**
CO8	Comprehend and evaluate the enduring sustainability and impact of professional engineering endeavors in addressing intricate engineering challenges within social and environmental frameworks.	**PO7**
CO9	Implement ethical principles and adhere to professional standards and norms in this FYDP	**PO8**

CO10	Capable of operating proficiently both individually and as a team member or leader across diverse teams and interdisciplinary settings in this FYDP.	**PO9**
CO11	Proficiently communicate with the engineering community and broader society regarding complex engineering endeavors, including the ability to comprehend and generate comprehensive reports and design documentation, as well as provide and receive clear instructions throughout this FYDP.	**PO10**
CO12	Acknowledge the importance of self-directed and life-long learning within the evolving landscape of technology, and possess the readiness and capability to engage in lifelong learning endeavors.	**PO12**

Addressing CO (1 to 8), Knowledge Profile (K), Attainment of Complex Engineering Problems (EP), and Attainment of Complex Engineering Activities (EA)

Addressing CO (1 to 8), Knowledge Profile (K), Attainment of Complex Engineering Problems (EP):

SN	EP Definition	Attainment	CO	Justification (with Knowledge Profile)	References
1.	EP1: Depth of Knowledge required	Yes	CO1, CO2, CO3, CO5, CO6, CO7 and CO8	The project covers Engineering Fundamentals (K3) through process modeling, data design, and front-end development, showcasing strong engineering principles application. The project tackles Specialist Knowledge (K4) by user experience(UX),interface design , and front-end and back -end designs, utilizing JAVA, XML for the front end, and PHP frameworks like Laravel for the back end, demonstrating expertise in Dealer Hub management system development.	Page no: [13-16], Section: [3.2,3.3] Page no: [24-25], Section: [4.2]
				The project applies engineering practice & design (K5) by integrating design requirements like user interface, security, scalability, customization, compatibility, accessibility, and reliability, ensuring a robust and user-centric dealership management system aligned with design principles. The project addresses engineering practice & technology (K6) by employing Java, PHP, Laravel, and SQLite emphasizing safe, scalable development with Laravel's MVC framework and Composer.	Page no: [12-13,15,18], Section: [3.2,3.4] Page no: [24-26], Section: [4.2]

				The project covers research literature K8 by reviewing analogous platforms, UI/UX studies, security protocols, personalization algorithms, and industry trends, enabling informed decision-making for integrating innovative features into this system.	Page no: [15-16], Section: [3.3]
2.	EP2: Range of Conflicting Requirements	Yes	CO2, and CO7	The project confronts EP-2 by addressing challenges like integrating diverse features while maintaining user experience, balancing security with functionality, scalability, real-time data synchronization, evolving industry standards, privacy regulations compliance, and implementing effective recommendation systems through careful planning, flexible development, and continuous adaptation.	Page no: [12-16] Section: [3.2]
3.	EP3: Depth of analysis required	Yes	CO2, and CO6	The project tackles EP-3 by prioritizing solutions like contemporary front-end design for enhanced user experience and selecting Laravel for streamlined back-end development, addressing challenges such as user interaction optimization, platform accessibility, and scalability to provide a superior dealership management system.	Page no: [26] Section: [4.3] Page no: [30,31] Section: [5.3]

4.	EP4: Familiarity of Issues	Yes	CO8	The project fulfills EP-4 by integrating insights from dealership management into development, optimizing processes, enhancing user experience, ensuring data security, and contributing to industry efficiency and effectiveness, bridging Computer Science and Engineering with the business domain for impact beyond CSE boundaries.	Page no: [18-19], Section: [3.4] Page no: [24-26 Section: [4.2,4.3] Page no: [27-29], Section: [5.2]
5.	EP5: Extends of application codes	No	CO5	N/A	N/A

6.	EP6: Extends of stakeholders involved and conflicting requirements	No	CO8	N/A	N/A
7.	EP7: Interdependence	Yes	CO5	The project meets CEP, EP-7 by addressing high-level problems across stages, ensuring data integrity, security, and performance in database implementation, optimizing user experience through intuitive front-end design, and conducting comprehensive testing.	Page no: [2-4], Section: [1.5, 1.5]

Addressing CO11 with Complex Engineering Activities (EA) [Some or all of the following]:

SN	EA Definition	Attainment	CO	Justification	References
1.	**EA1: Range of resources**	Yes	CO11	This system's development makes use of a multidisciplinary team, careful budgetary allocation for development, marketing, and infrastructure, as well as tools like Visual Studio Code, and a variety of databases, frameworks, and programming languages for efficient implementation.	**Page no:** [17,18], **Section:** [3.4] **Page no:** [26] **Section:** [4.3]
2.	**EA2: Level of interaction**	No		N/A	N/A
3.	**EA3: Innovation**	No		N/A	N/A

4.	**EA4: Consequences for society and the environment**	Yes		This project values social impact and environmental sustainability while also fostering societal well-being and environmental stewardship. It does this by improving business efficiency, encouraging sustainable business practices, and guaranteeing ethical considerations like strong safety, privacy, and transparent business practices.	**Page no:** [32-36], **Section:** [6.1, 6.2, 6.3]
5.	**EA-5: Familiarity**	Yes		The Comparative Analysis for "Dealer Hub DSM" evaluates market competitors like Expedia and Booking.com to highlight Dealer unique features, security, personalization, and customer engagement, enriching market understanding and informing strategic decisions for enhanced competitiveness and value proposition.	**Page no:** [7-9], **Section:** [2.1, 2.3,2.4]

Addressing CO (4, 9, 10, and 12):

SN	COs	Attainment	Justification	References
1	CO4	Yes	The project incorporates financial management techniques, including resource allocation, budgeting, cost control, and risk reduction, in order to capture CO4. This guarantees efficient allocation of funds, monitors expenses, and identifies opportunities for optimization without sacrificing quality.	**Page no:** [22-23], **Section:** [3.4]
2	CO9	Yes	By putting user privacy first, keeping data usage transparent, making reasonable recommendations, taking cultural sensitivities into consideration, advancing accessibility, and encouraging trust, transparency, and integrity among stakeholders, the project promotes ethical norms.	**Page no:** [27-30], **Section:** [5.1,5.2]
3	CO10	No	N/A	N/A
4	CO12	Yes	The project's deployment phase focuses on lifetime learning through various testing procedures, automatic applications, and Continuous Integration/Continuous cables, assuring continuous development and adaptability to evolving technology patterns, With outcomes analyses enhancing the platforms for improved performance.	**Page no:** [13], **Section:** [3.1] **Page no:** [24-26] **Section:** [4.2,4.3]

Dealership Management System

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