RAPID SOLUTIONS

AUTO MANAGEMENT SYSTEM

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JACKY LI, HUDSON LEE, JEREMY DUONG, KIMBERLY JIN, LECHI IHEAGWARA, ERICA MILLER, SHIHAB HASAN

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Identifcation of Team Members

- Jacky Li – Project Manager
- Hudson Lee – Assistant Project Manager
- Jeremy Duong – Communications Manager
- Kimberly Jin – Product Tester
- Lechi Iheagwara – Systems Analyst
- Erica Miller – Graphic Designer
- Shihab Hasan – Database Manager

Team Name

RAPID SOLUTIONS

Team Logo

Team Communication Plan

Person	Role / Title	Communication Frequency	Internal Contact Method	External Contact Method (Professor)	Other Contact Method
Jacky Li	Project Manager	Daily, weekly	Discord	Microsoft Teams	GroupMe
Hudson Lee	Assistant Project Manager	Daily, weekly	Discord	Microsoft Teams	GroupMe
Jeremy Duong	Communication Manager	Daily, weekly	Discord	Microsoft Teams	GroupMe
Lechi Iheagwara	Systems Analyst	Daily, weekly	Discord	Microsoft Teams	GroupMe
Erica Miller	Graphics Designer	Daily, weekly	Discord	Microsoft Teams	GroupMe
Kimberly Jin	Product Tester	Daily, weekly	Discord	Microsoft Teams	GroupMe
Shihab Hasan	Database Manager	Daily, weekly	Discord	Microsoft Teams	GroupMe

Team Roles/Responsibilities Matrix

Team Member	**Project Manager** (Jacky Li)	**Assistant Project Manager** (Hudson Lee)	**Communications Manager** (Jeremy Duong)	**Product Tester** (Kimberly Jin)	**Graphics Designer** (Erica Miller)	**Database Manager** (Shihab Hasan)	**Systems Analyst** (Lechi Iheagwara)
Submission Files	X	X	X	X	X	X	X
Overall Doc. Format	X	X	X	X	X	X	X
ID of Team Members			X				
Team Name	X	X	X	X	X	X	X
Team Logo					X		
Team Comm Plan			X	X			
Team Roles/Resp Mat	X						
Case Study + Problem Statement	X		X				
Initial Proj WBS & GC	X	X	X	X		X	
PERT Diagram	X	X				X	
Complete Req List	X	X			X		X
Sys Data Flow Diagram	X	X	X	X	X	X	X

Project Statement

Case Study: Edmonton Auto Dealer's Dealer Management Application

Prompt: The client runs a car dealership and supplier operations that attract diverse service providers and customers in the market. The Edmonton Auto Dealer company had a not-so-great dealer management application. The client's dealers were dealing with performance issues in the current application. The client couldn't upgrade the management solution as it was completely outdated. The cost associated with the enhancement was exorbitant too. Poor usability added salt to the injury for dealers who were already fed up with the below-par performance of the application. The client was looking for a partner that can design and develop modern applications for their dealers that are easy to use, rich in UX, and easy to upgrade in the future.

Problem Statement: The Edmonton Auto Dealer company is facing several critical issues with its current dealer management application, which is outdated and has led to significant performance issues. The key problems identified are:

- **Outdated Technology**: The current dealer management application is built on outdated technology that cannot be easily upgraded. This has resulted in performance issues and limitations in functionality.

- **Poor Usability:** Dealers are experiencing difficulties in using the application due to its poor usability. This has led to frustration among dealers, impacting their efficiency and satisfaction.

- **High Cost of Enhancement:** The cost associated with enhancing the current application to address its shortcomings is exorbitant. The client is unable to justify the investment considering the outdated technology and poor usability.

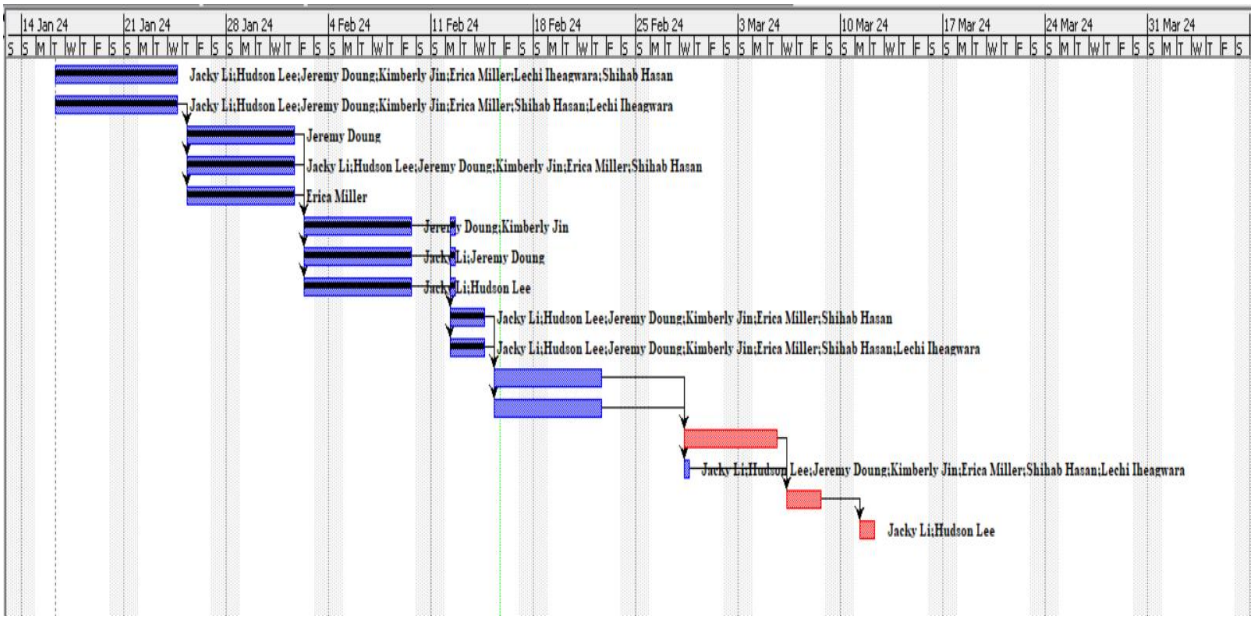
- **Negative Impact on Dealers:** The performance issues and poor usability of the application have negatively impacted the dealers' productivity and customer service. Dealers are struggling to meet customer demands and maintain a competitive edge in the market.

- **Objective:** The objective of this project is to design and develop modern applications for Edmonton Auto Dealer's dealers that are easy to use, rich in user experience (UX), and easy to upgrade in the future. The new application should address the current issues and provide a scalable solution that meets the evolving needs of the client and its dealers. Additionally, we will incorporate a customer data storage service to streamline the management of customer information, problems, suppliers' details, and appointments.

Initial Project Work Breakdown Structure

		Name	Duration	Start	Finish	Complete	Predecessors	Resource Names
1	✔	Submission Files	7 days	1/16/24 8:00 AM	1/24/24 5:00 PM	☑		Jacky Li;Hudson Lee;Jeremy Doung;Kimberly Jin;Erica Miller;Lechi Iheagwara;Shihab Hasan
2	✔	Overall Document Format	7 days	1/16/24 8:00 AM	1/24/24 5:00 PM	☑		Jacky Li;Hudson Lee;Jeremy Doung;Kimberly Jin;Erica Miller;Shihab Hasan;Lechi Iheagwara
3	✔	Identification of Team Members	6 days	1/25/24 8:00 AM	2/1/24 5:00 PM	☑	2	Jeremy Doung
4	✔	Team Name	6 days	1/25/24 8:00 AM	2/1/24 5:00 PM	☑	2	Jacky Li;Hudson Lee;Jeremy Doung;Kimberly Jin;Erica Miller;Shihab Hasan
5	✔	Team Logo	6 days	1/25/24 8:00 AM	2/1/24 5:00 PM	☑	2	Erica Miller
6	✔	Team Communication Plan	7 days	2/2/24 8:00 AM	2/9/24 5:00 PM	☑	3;4;5	Jeremy Doung;Kimberly Jin
7	✔	Team Roles/Responsibilities	6 days	2/2/24 8:00 AM	2/9/24 5:00 PM	☑	3;4;5	Jacky Li
8	✔	Case Study + Problem Statement	7 days	2/2/24 8:00 AM	2/9/24 5:00 PM	☑	3;4;5	Jacky Li;Jeremy Doung
9	✔	Initial Project Work Breakdown Structure & Gantt Chart	6 days	2/12/24 8:00 AM	2/19/24 5:00 PM	☑	6;7;8	Jacky Li;Hudson Lee;Jeremy Doung;Kimberly Jin;Erica Miller;Shihab Hasan
10	✔	PERT Diagram	6 days	2/12/24 8:00 AM	2/19/24 5:00 PM	☑	6;7;8	Jacky Li;Hudson Lee;Shihab Hasan
11	✔	Complete Requirements List	9 days	2/15/24 8:00 AM	2/27/24 5:00 PM	☑	9;10	Jacky Li;Hudson Lee;Erica Miller;Lechi Iheagwara
12	✔	System DFD (Data Flow Diagram)	8 days	2/15/24 8:00 AM	2/26/24 5:00 PM	☑	9;10	Jacky Li;Hudson Lee;Jeremy Doung;Kimberly Jin;Erica Miller;Shihab Hasan;Lechi Iheagwara
13	✔	System Proposal	9 days	2/28/24 8:00 AM	3/11/24 5:00 PM	☑	11;12	Jacky Li;Hudson Lee;Jeremy Doung;Kimberly Jin;Erica Miller;Shihab Hasan;Lechi Iheagwara
14	✔	System Proposal Repsentation	9 days	2/28/24 8:00 AM	3/11/24 5:00 PM	☑	11;12	Jacky Li;Hudson Lee;Jeremy Doung;Kimberly Jin;Erica Miller;Shihab Hasan;Lechi Iheagwara
15	✔	Complete List of References	15.821 days	2/29/24 11:25 AM	3/22/24 10:00 AM	☑	13;14	Jacky Li;Jeremy Doung;Hudson Lee;Kimberly Jin
16	✔	Project Submission	32.821 days	3/1/24 9:25 AM	4/16/24 5:00 PM	☑	15	Jacky Li;Hudson Lee
						☐		

Gantt Chart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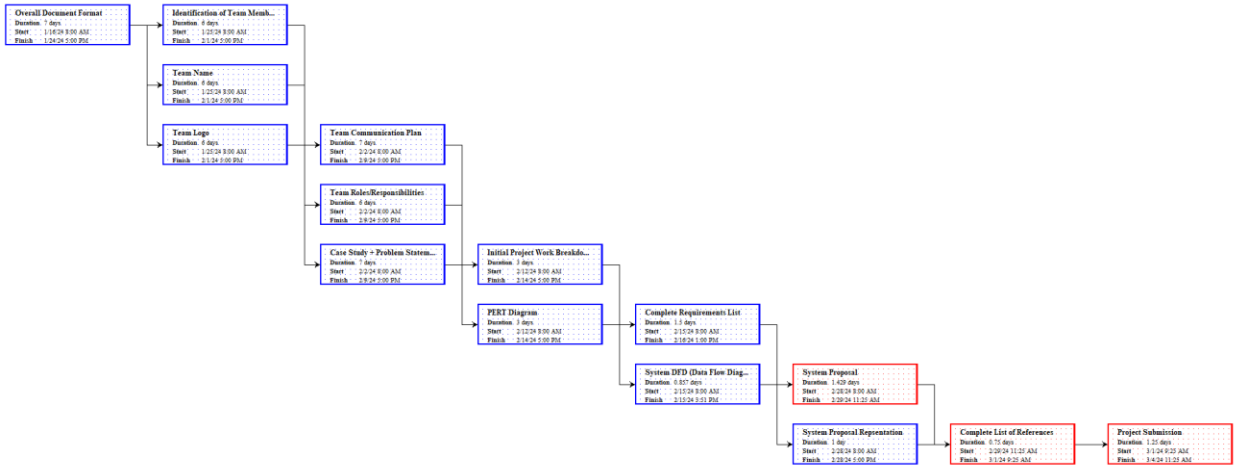
Jeremy Doung
Jacky Li;Hudson Lee;Jeremy Doung;Kimberly Jin;Erica Miller;Shihab Hasan
Erica Miller
Jeremy Doung;Kimberly Jin
Jacky Li;Jeremy Doung
Jacky Li;Hudson Lee
Jacky Li;Hudson Lee;Jeremy Doung;Kimberly Jin;Erica Miller;Shihab Hasan
Jacky Li;Hudson Lee;Jeremy Doung;Kimberly Jin;Erica Miller;Shihab Hasan;Lechi Iheagwara
Jacky Li;Hudson Lee;Jeremy Doung;Kimberly Jin;Erica Miller;Shihab Hasan;Lechi Iheagwara
Jacky Li;Hudson Lee

PERT Chart



Maximum Time: 37 Working Days

Critical Path: None, because ALL tasks are required to be completed.

Requirements

ID	Problem/Requirement Description	Key	Scope	Determined By	Solution
1	Modern Technology Stack	Mandatory	In Scope	Jacky	The new application must be built using a modern technology stack tailored to the needs of automotive dealerships and supplier operations. This includes leveraging technologies such as cloud computing, microservices architecture, and modern programming languages to ensure scalability, performance, and ease of maintenance.
2	Enhanced Usability	Mandatory	In Scope	Jacky	The new application must have a user-friendly interface that is intuitive and easy to navigate, improving overall usability for dealers.
3	Cost-Effective Enhancement	Mandatory	In Scope	Jacky	The new application should prioritize cost-effective enhancements that deliver tangible value to automotive dealerships and supplier operations. This includes evaluating the cost of enhancements against the expected benefits and ensuring that the enhancements provide a positive return on investment for the client.
4	Upgradeability	Mandatory	In Scope	Jacky	The new application should be designed with the specific needs of automotive dealerships and supplier operations in mind, ensuring compatibility with future upgrades and new technologies. This includes modular design principles that allow for easy integration of new features and technologies, ensuring that the application remains flexible and adaptable to the evolving needs of the industry.
5	Improved Performance	Mandatory	In Scope	Hudson	The new application must specifically target the performance issues experienced by automotive dealerships, such as slow response times and inefficiencies in inventory management and customer interactions. The focus should be on providing faster response times, streamlining workflows, and enhancing overall system efficiency to improve the user experience for dealers and customers.

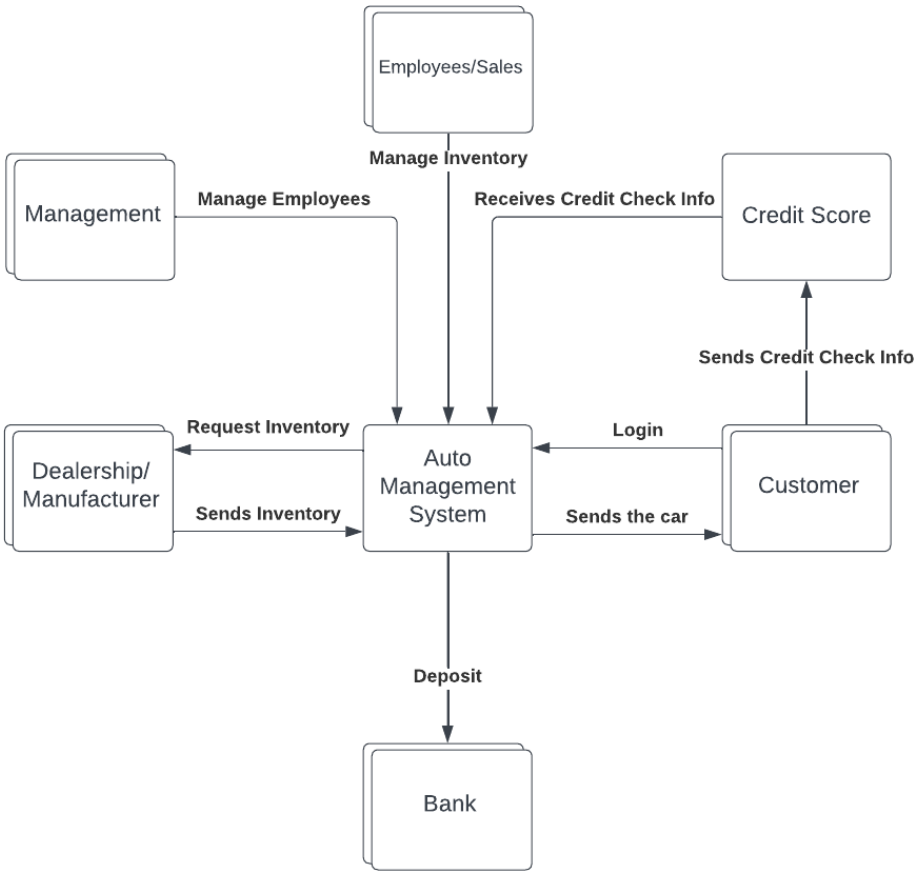
6	Enhanced Features	Key	In Scope	Hudson	The new application should include specific features tailored to the needs of automotive dealerships and supplier operations, such as advanced reporting capabilities for sales and inventory management, seamless integration with third-party services relevant to the automotive industry, and mobile compatibility for on-the-go access.
7	Customization Options	Key	In Scope	Hudson	Dealers should have the ability to customize the application to suit their specific needs and preferences.
8	Training and Support	Key	In Scope	Hudson	The client should provide adequate training and support for dealers to ensure smooth transition to the new application.
9	Required Performance	Desirable	Out of Scope	Jeremy	The new application's performance targets will be defined based on the specific needs of the automotive dealership and supplier operations industry, focusing on key metrics such as response times, transaction processing speed, and system reliability. The aim is to achieve significant improvements over the current application, ensuring a more efficient and reliable system for dealers and suppliers.
10	Data Security	Desirable	Out of Scope	Jeremy	The new application should prioritize data security measures specific to the automotive dealership and supplier operations industry, such as encryption, access control, and audit logging. This will ensure the protection of sensitive information, including customer data, inventory records, and financial transactions, from unauthorized access or breaches.
11	Scalability	Desirable	Out of Scope	Jeremy	The new application should be designed to scale seamlessly to accommodate the anticipated growth and expansion of the client's automotive dealership and supplier operations. This includes the ability to handle increased data volume, user traffic, and transactional demands without compromising performance or reliability. Scalability will ensure that the application remains efficient and effective as the client's business expands.

12	Legacy System Compatibility	Desirable	Out of Scope	Jeremy	Implement data transformation modules in the new application to bridge the gap between the legacy systems and the new application, allowing for seamless data exchange and integration
13	Integration with CRM Systems	Desirable	Out of Scope	Shihab	The new application should integrate seamlessly with existing CRM systems used by dealers.
14	Specific Hardware Requirements	Desirable	Out of Scope	Shihab	The new application will not be designed to run on specific hardware, ensuring flexibility and accessibility for dealers.
15	Data Flow Diagram (DFD)	Desirable	Out of Scope	Shihab	The new application's requirements will be cross-referenced with the Data Flow Diagram (DFD) to ensure that the data processing and flow within the application align with the specific processes and workflows of automotive dealership and supplier operations. This will ensure that the application accurately reflects the data needs and processing requirements of the industry, leading to a more efficient and effective system.
16	Entity-Relationship Diagram (ERD)	Desirable	Out of Scope	Shihab	The new application's data requirements will be cross-referenced with the Entity-Relationship Diagram (ERD) to ensure that the application's data model accurately represents the relationships between different entities specific to automotive dealership and supplier operations. This process will ensure that the application's database design aligns with the business logic and data flow requirements, enabling efficient data storage, retrieval, and manipulation. The ERD will serve as a blueprint for designing the database schema, ensuring that it meets the needs of the application and supports its functionality effectively.
17	Current Performance	Desirable	Out of Scope	Erica	Implement performance optimization strategies tailored to the automotive dealership environment, such as database indexing and code refactoring, to enhance system responsiveness and stability.

18	Comprehensive Reporting	Desirable	Out of Scope	Erica	The new application must provide comprehensive reporting capabilities, allowing dealers to analyze sales, inventory, and other relevant data easily.
19	Integration with Supplier Operations	Desirable	Out of Scope	Erica	The new application should integrate with the supplier operations of automotive dealerships, focusing on streamlining procurement processes and optimizing inventory management. This integration should enable dealers to electronically place orders, track shipments, and manage inventory levels directly from the application. By facilitating seamless communication between dealers and suppliers, the application will improve efficiency, reduce manual errors, and ensure timely delivery of goods. This integration will be a key feature of the application, enhancing the overall effectiveness of supplier operations within the automotive dealership environment.
20	Customer Feedback System	Desirable	Out of Scope	Erica	A feedback system should be integrated into the application to gather input from customers, improving service and product offerings.
21	Language Options	Key	In Scope	Kimberly	The new application has options for different languages for customers whose main language or first language is not English, to help them understand the application.
22	Legacy System Integration	Desirable	Out of Scope	Kimberly	Integration with legacy systems used by the client's dealerships is not feasible due to compatibility issues and limitations of the legacy systems. As such, the project team will focus on developing standalone solutions that do not rely on integration with legacy systems. This decision has been made to ensure the new application's compatibility with modern technologies and to avoid potential complications and delays associated with legacy system integration.
23	Gamification	Desirable	Out of Scope	Kimberly	Gamification elements should be incorporated into the application to incentivize dealers and improve engagement.
24	Predictive Analytics	Desirable	Out of Scope	Kimberly	The application should incorporate predictive analytics to help dealers make informed decisions and anticipate market trends.
25	Mobile App	Desirable	In Scope	Lechi	In addition to the web-based application, a native mobile application should be developed for iOS and Android platforms specifically tailored to the needs of automotive dealers. The mobile app should provide key functionalities such as inventory management, sales tracking, and customer communication, optimized for use on mobile devices. By offering a mobile application, dealers can access critical information and perform tasks

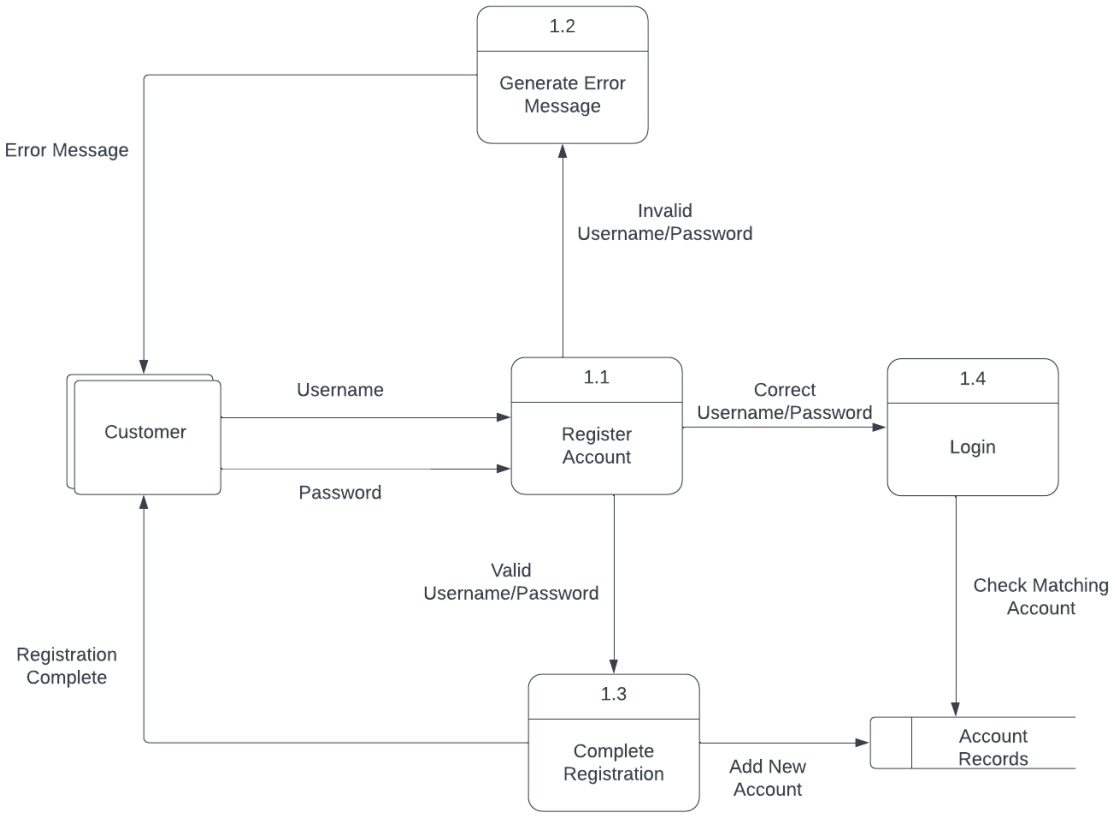
					on-the-go, improving flexibility and convenience in managing their operations. The mobile app should also seamlessly integrate with the web-based application, ensuring consistent data synchronization and a cohesive user experience across devices.
26	Data Backup and Recovery	Mandatory	In Scope	Lechi	The new application should implement automated and secure data backup mechanisms tailored to the automotive dealership and supplier operations industry. This includes regular backups of critical data such as inventory records, customer information, and transaction history. In the event of data loss or system failure, the application should provide efficient recovery processes to minimize downtime and ensure continuity of operations. Implementing industry-specific backup and recovery solutions will enhance data security and reliability, providing dealers and suppliers with peace of mind and confidence in the system's integrity.
27	UI & UX	Desirable	Out of Scope	Lechi	The new application should focus on improving the layout, design elements, and navigation specific to the automotive dealership and supplier operations industry. This includes designing intuitive workflows for managing inventory, sales, and customer interactions, as well as incorporating industry-specific design elements and terminology. By tailoring the UI and UX to the needs of automotive dealers and suppliers, the application will enhance usability and overall user satisfaction, leading to increased efficiency and effectiveness in daily operations.
28	Integration with Accounting Systems	Desirable	Out of Scope	Lechi	The new application should integrate with accounting systems to streamline financial processes and reporting for dealers.

Context Data Flow Diagram



Level 0 Data Flow Diagram

Level 1 Data Flow Diagram



Rapid Solutions Systems Proposal for Auto Management System

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Executive Summary

Overview

Rapid Solutions provides management solutions that allow clients such as car dealerships and supplier operations to attract diverse service providers and customers in the market.

Problem Summary

- Outdated Application: The current dealer management application suffers from performance issues and poor usability, hampering dealer efficiency and customer satisfaction.

- Costly Upgrade: Upgrading the existing system is unfeasible due to its outdated nature and the exorbitant costs involved, exacerbating the challenges faced by the client.

- Usability Concerns: Dealers are frustrated by the subpar usability of the current application, further impacting their productivity, and aggravating their dissatisfaction.

Solution Summary

- Custom Application Development: Develop a bespoke dealer management application tailored to the client's specific needs, prioritizing performance optimization and modern features.

- Cloud-Based Architecture: Implement a cloud-based solution to improve scalability, accessibility, and ease of future upgrades, while also enhancing performance and reliability.

- User-Centric Design: Focus on intuitive UX design to ensure the new application is user-friendly and easy to navigate, addressing usability concerns raised by dealers.

Conclusion

- By partnering with a team focused on custom development, cloud solutions, user-centric design, scalability, and support, the Edmonton Auto Dealer Company can address its challenges and achieve its goal of a modern, efficient, and user-friendly dealer management application.

System Alternatives w/ Feasibility Report of Each Option

Option 1 - Custom Application Development

Economic: Our proposed solution integrates custom application development, cloud-based architecture, and user-centric design principles to deliver long-term cost savings. By addressing specific needs and usability concerns, it mitigates ongoing maintenance costs and eliminates expensive hardware upgrades.

Operational: This solution streamlines operations by offering scalability, reduced maintenance, and enhanced user satisfaction. While requiring significant setup and development time initially, it ensures a tailored application that meets the client's needs efficiently.

Schedule: Development time may vary but is optimized to balance customization requirements with timely implementation. The integration of cloud-based solutions facilitates quicker deployment compared to traditional on-premises upgrades.

Technical: Our approach ensures the resulting application is fully optimized to address performance issues, accessibility, and user satisfaction. Leveraging cloud-based solutions enhances performance, reliability, and scalability, while user-centric design principles prioritize usability and engagement.

Option 2 – Off the Shelf

Economic: The off-the-shelf solution offers a cost-effective alternative to custom application development, as it eliminates the need for extensive development and setup costs. The upfront cost of purchasing the software is typically lower than the cost of developing a custom solution. Additionally, this often comes with bundled services and support, reducing ongoing maintenance costs.

Operational: This solution is designed to streamline operations by providing a ready-made solution that meets common industry needs. While it may not offer the same level of customization as a custom-developed application, it can still provide significant improvements in efficiency and productivity. The software is designed to be user-friendly and easy to implement, reducing the need for extensive training and support.

Schedule: Off-the-shelf software can be implemented relatively quickly compared to custom development, as the software is already developed and tested. This can lead to faster deployment and quicker realization of benefits for the client. Additionally, off-the-shelf software often comes with pre-built integrations for common systems but will potentially lack certain features which can lead to more time until deploying.

Technical: This software is designed to be technically feasible for a wide range of users, with minimal technical expertise required for implementation and use. The software is typically developed using industry-standard technologies and is designed to be compatible with common hardware and software configurations. This ensures that the software is reliable, scalable, and easy to maintain.

Systems Analyst Recommendations

Based on our analysis, custom application development is the most suitable option for addressing the client's unique needs and requirements. A custom solution will provide the flexibility to tailor the application to the client's specific workflows and business processes, ensuring a seamless fit with their operations. This approach also allows for scalability, enabling the application to grow and evolve with the client's business. Additionally, custom development offers the opportunity to integrate with existing systems and technologies, maximizing efficiency and data management capabilities. Overall, custom application development presents the most effective and sustainable solution for meeting the client's unique needs and challenges of the client's dealership.

Summary

Our proposal offers a holistic solution to modernize infrastructure, enhance performance, and reduce operational costs for dealership operations. By integrating custom application development, cloud-based architecture, and user-centric design principles, we ensure a tailored, scalable, and user-friendly solution that optimizes efficiency and maximizes satisfaction.

The digital binder for the custom application development project for the Edmonton Auto Dealer company, led by Rapid Solutions, encompasses a comprehensive approach to addressing the client's needs. The team's roles and responsibilities matrix ensure efficient coordination, with Jacky Li as Project Manager, and other team members handling key functions such as communication, testing, design, database management, and systems analysis. Deliverables are structured to include effective and clear project documentation, team identification, a communication plan, and a detailed requirements and problems list. The proposed custom application development solution offers a cost-effective, scalable, and user-centric solution tailored to the client's needs. Off-the-shelf solutions were considered but deemed less suitable due to their limitations in customization and scalability. The recommendation for custom development aligns with the client's specific needs, ensuring a flexible and integrated solution that enhances operational efficiency and user satisfaction.

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