BRL TRADING: E-COMMERCE MANAGEMENT SYSTEM

A Project Outline
Submitted to the Faculty of the
Cavite State University – Imus Campus
Imus, Cavite

In partial fulfillment
of the requirements for the degree of
Bachelor of Science in Information Technology

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INTRODUCTION

Electronic commerce, or e-commerce, involves purchasing and selling goods and services online. Many transactions can be conducted online, including retail stores, online auctions, digital downloads, and electronic payments. E-commerce has revolutionized how businesses operate, and consumers shop, offering many advantages over brick-and-mortar stores, including convenience, accessibility, and a wider choice of products. It has become a significant aspect of the global economy, enabling businesses of all sizes to reach customers worldwide and facilitating transactions without the need for physical presence or proximity.

The administrative side of e-commerce involves managing backend operations, which is crucial for online business success. This includes inventory management to track stock levels and prevent discrepancies, order processing from placement to delivery, and providing excellent customer service through various channels. It also encompasses website maintenance to ensure smooth operation and data analysis for informed decision-making. Compliance with legal regulations and implementing security measures to protect customer data are essential. Additionally, managing supplier relationships and maintaining

a steady product supply are key. Efficient administration ensures smooth operations, customer satisfaction, and business growth.

BRL Trading faces big problems in key areas like inventory management, customer service, and data analysis. The current systems do not provide real-time inventory updates, leading to inefficiencies and stock errors. The lack of prompt and responsive customer service has also resulted in lower customer satisfaction and loyalty. Furthermore, the absence of comprehensive data insights prevents the company from effectively making informed decisions and planning. Fixing these critical areas is essential for BRL Trading to improve operations, enhance customer experience, and use data insights for sustained growth.

Project Context

BRL Trading is a well-established distribution company in General Trias, Cavite, Philippines. The company was founded in 2015 to support Small and Medium Enterprises (SMEs) and other manufacturing companies by providing them with high-quality janitorial products at affordable prices. Regarding operations, BRL Trading has a wide distribution network allows it to deliver its products to various businesses and households efficiently. The company prides itself on its timely delivery and honest business practices. Despite its strong market presence, BRL Trading is currently facing significant challenges in three key areas: inventory management, customer service, and data analysis.

Initially, the current inventory management system does not provide real-time updates, leading to inefficiencies and frequent stock errors. This has resulted in either stockouts or overstocking, negatively impacting sales and customer satisfaction. The customer service department also struggles to respond promptly and effectively to customer inquiries and issues. This lack of responsiveness has led to decreased customer satisfaction and loyalty, which are critical for sustained business growth. Lastly, the absence of comprehensive data insights makes it hard for BRL Trading to make informed decisions

and plan strategically. Without accurate and timely data, the company cannot fully understand market trends, customer behavior, or operational performance, limiting its ability to adapt and thrive in a competitive market. Addressing these solvable problems is crucial for BRL Trading to improve its operations, enhance customer experience, and use data for better decision-making.

Objectives of the Study

The primary goal of this study is to create an E-Commerce Management System for BRL Trading that improves user experience and productivity. The system will consist of integrated modules to simplify daily operations, offer personalized assistance, and ensure enhanced security features for efficient management.

1. **To concept**. BRL Trading's challenges in inventory management, customer service, and data analysis will be analyzed. The scope and objectives will be defined to address these issues effectively, aiming to enhance operations and customer experience.
2. **To incept**. Detailed plans will be developed to implement solutions for inventory management, customer service enhancement, and data analysis. Key requirements will be identified, and a roadmap for implementation will be established.
3. **To develop.** Solutions such as a real-time inventory management system, customer service process improvements, and data analysis tools will be implemented. Detailed designs and architecture will be developed for each solution.
4. **To release.** Comprehensive testing will be conducted to ensure the reliability and effectiveness of implemented solutions. The systems will be released for use, including setting up the new inventory management system, customer service enhancements, and data analysis tools.

5. **To production and maintenance.** The systems will be monitored closely to ensure smooth operation. Ongoing support and maintenance will be provided to address any issues and optimize performance continually.
6. **To review.** Regular assessments will be conducted to evaluate system performance and relevance. Plans for upgrades or replacements will be made as necessary to keep up with evolving business needs. Proper retirement of outdated systems will be ensured while maintaining data integrity.

Purpose and Description

This project aims to create the BRL Trading E-commerce Management System, an e-commerce platform that would transform consumer purchasing and improve business processes for BRL Trading, a well-known supplier of cleaning supplies, hotel amenities, and cleaning equipment. The platform is expected to optimize corporate processes in the digital marketplace, improve customer interaction, and enable smooth online transactions.

Capabilities of BRL Trading E-commerce Management System primary features are:

1. To provide an extensive product showcase, the website will feature BRL Trading's comprehensive selection of cleaning supplies, hotel toiletries, and equipment, along with detailed specifications and photos to help customers make well-informed purchases.
2. To ensure effective order management, automated inventory control and order processing features will optimize processes, guaranteeing fast order fulfillment and reducing instances of stockouts or overstock.
3. To enhance customized customer experience, the platform will improve customer engagement and loyalty by offering specific suggestions and

promotions based on past purchases and preferences. This will help to build long-term connections with BRL Trading.

4. To process secure transactions, by putting strong security measures in place and using encrypted payment gateways, you can protect consumer information and financial transactions, boosting confidence in online shopping.
5. To ensure scalability and adaptability, the platform will be built to evolve with BRL Trading's business, with a flexible architecture and features to meet changing market demands and technology improvements.

This project aims to enable BRL Trading to become a major participant in the e-commerce industry, expand its market reach outside of physical boundaries, and thrive in the digital environment. By implementing the BRL Trading E-commerce Management System, BRL Trading hopes to attain operational excellence, encourage sustainable growth, and provide exceptional value to clients in the competitive e-commerce sector.

Once the BRL Trading E-commerce Management System is implemented, it will provide the following significance, particularly to the following:

1. **BRL Trading** - BRL Trading will see increased sales growth, expand market access, and improve operational efficiency due to the platform.
2. **Customers** - With a large selection of products, personalized recommendations, and safe transactions, customers will have a flawless shopping experience.
3. **Researchers** - Researchers can use their full knowledge and skills throughout the study. They engage in a trial-and-error process to refine the system before implementing it, gaining valuable experience for future projects.
4. **Future Researchers** - his study can be a valuable resource for future researchers developing their systems. It provides them with the knowledge needed to create effective company assistance systems.

Time And Place of The Study

The study was entitled BRL Trading E-Commerce Management System, which was started research study last March and approved on April 5, 2024, that will end on June 22, 2024, at Cavite State University Imus Campus located at Land Transportation Office (LTO) Compound at Emilio Aguinaldo Highway, Imus City, Cavite. The concept of the study was formulated through a series of brainstorming, and the proponents started to gather information about the client's problem.

Conceptual Framework

This is the conceptual framework for developing the BRL Trading E-commerce Management System. It comprises Input, Process, and Output components. Input includes required knowledge, software, and hardware, while Process outlines the concept, idea, development, release, production, and review stages. The Output is the finalized e-commerce management system to optimize operations and enhance customer experience. This framework ensures systematic development that is aligned with user needs and technological capabilities.

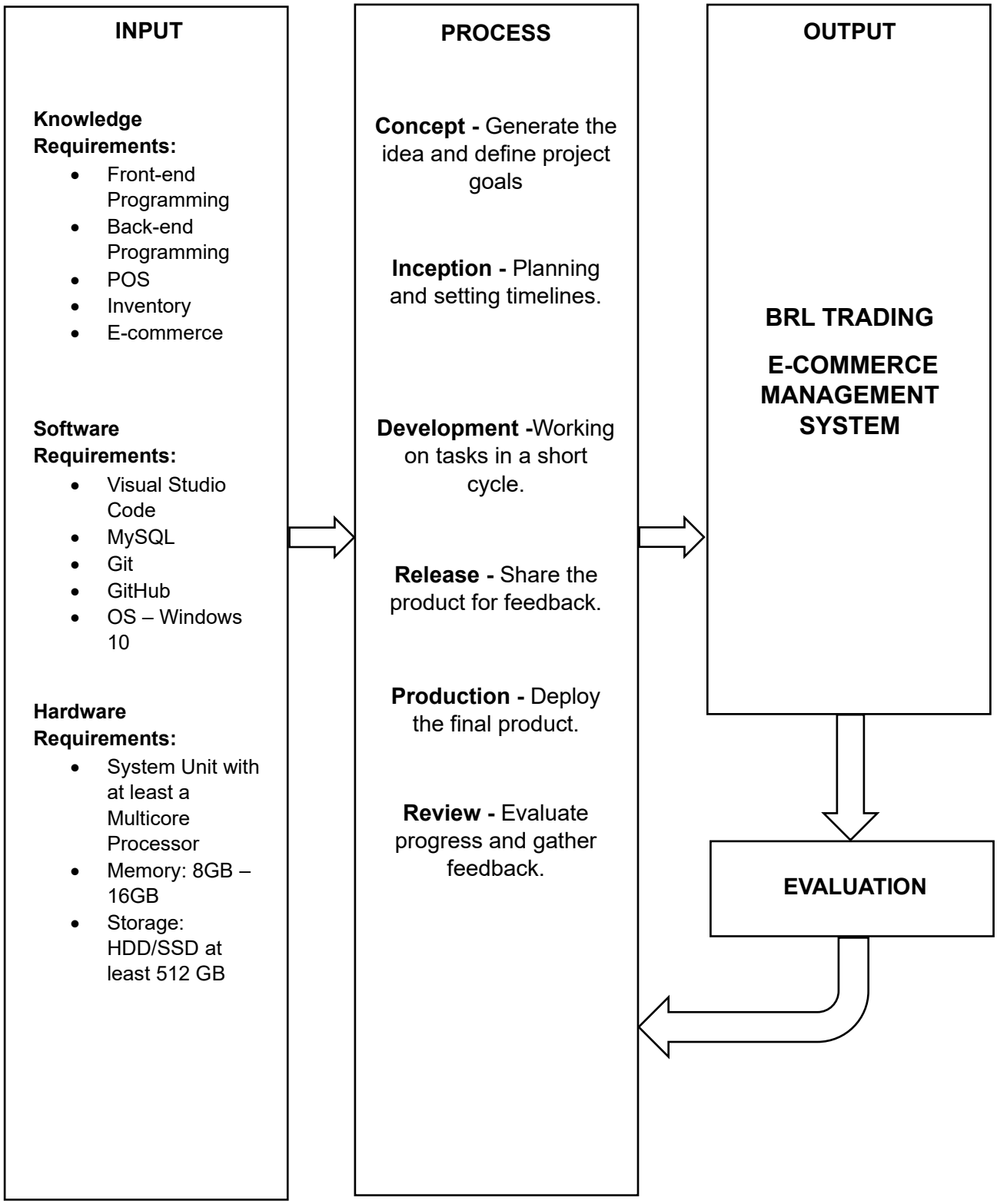

Figure 1: BRL Trading E-Commerce Management System

Conceptual Framework

Scope and Limitation of the Study

POS Module (Point of Sale). It is designed to make transactions smoother and record sales accurately. It provides a user-friendly interface for processing transactions efficiently. This module works well with inventory and financial systems, ensuring that stock levels and financial records are always current. Additionally, it supports multiple payment methods, allowing customers to choose their preferred payment option, whether cash, credit card, or mobile payment, offering flexibility and convenience.

Inventory Module. The Inventory Module is essential for monitoring product inventory levels effectively. It allows businesses to establish minimum stock limits and receive alerts when supplies run low, preventing stockouts. With this module, users can track the movement of products in real time and control additions and deletions from the inventory. It helps maintain optimal inventory levels, reduce carrying costs, and ensure products are always available to meet customer demand.

Product Catalog Management. This module is responsible for creating and maintaining a comprehensive catalogue of products. It enables users to manage product details such as names, descriptions, images, prices, and categories efficiently. This module ensures that product information is accurate and updated, providing customers with clear and detailed information about available products and enhancing their shopping experience.

Product Management. This module effectively enables businesses to manage product variations and attributes within a single product listing. It allows users to organize products into categories and subcategories for easy navigation. Additionally, this module manages product reviews and ratings, providing valuable customer feedback. Moreover, it generates recommendations based on customer behaviour and purchase history, helping to personalize the shopping experience and increase sales.

The study, which is limited only to BRL Trading’s admins and consumers, will focus exclusively on issues directly relevant to its objectives. However, it's important to note that neither the frequency of use of the software nor the level of engagement with the software can be controlled in the study. A significant challenge that has hindered the researchers' progress, particularly in system development, is the absence of laptops or PCs. Therefore, securing dependable computing resources is essential to overcome this challenge and facilitate smooth research advancement.

Definition of Terms

To understand the study, the below terms are operationally defined:

E-commerce (Electronic Commerce) - The buying and selling goods and services online. This can include retail stores, online auctions, digital downloads, and electronic payments.

BRL Trading - A well-established distribution company in General Trias, Cavite, Philippines, specializing in janitorial and household products.

Small and Medium Enterprises (SMEs) - Businesses with a limited number of employees and a relatively small amount of capital.

POS Module (Point of Sale) - A software application used to process customer transactions at checkout.

Agile Methodology - An iterative approach to software development that emphasizes flexibility and continuous improvement.

E-commerce Management System - A digital platform that facilitates and optimizes e-commerce operations, including inventory management, order processing, customer service, and data analysis.

Inventory Management System - A software application that tracks inventory levels, orders, and stock movement. It helps businesses ensure they have the right amount of stock on hand to meet customer demand without overstocking.

Real-Time Inventory Updates - Updating inventory levels as soon as a product is sold or received, ensuring accuracy and preventing stockouts.

Customer Service Module - A software component within an e-commerce platform that helps manage customer interactions, including ticketing systems, chat functionalities, and knowledge bases.

Product Catalog Management - Managing the online listing of products, including descriptions, images, prices, categories, and specifications.

Product Management - Managing individual product listings within an e-commerce platform. This can involve managing variations, attributes, categorizations, reviews, and generating product recommendations.

Data Analysis Tool - A software program for collecting, organizing, and analyzing data. It can generate reports and dashboards that provide insights into business performance.

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter presents the review of related literature and studies underlying the framework of the study.

Technical Background

MySQL is a popular system for managing databases using SQL. It is reliable and easy to use, making it great for web development. PHP is a scripting language used on servers to create dynamic web pages and works well with MySQL for handling database tasks. JavaScript is a programming language that runs in web browsers, making websites interactive and responsive. Visual Studio Code (VS Code) is a code editor from Microsoft that supports many programming languages, including PHP and JavaScript. It has features like debugging, code suggestions, and version control, making it a powerful tool for developers. These technologies work together to create modern, interactive web applications.

Review of Related Literature

Foreign Literature

Research on E-Commerce Data Standard Systems in the Era of Digital Economy from the Perspective of Organizational Psychology

(Irene, 2018). Victor Meyer states that technological advancements have allowed people to acquire all of a study object's data and gain extensive knowledge of the subject. Examine every data set's many dimensions from an incomprehensible angle. E-commerce, a type of transaction that adjusts to market needs, has become an inevitable result of the rapid spread of electronic signal technology.

E-commerce Research Models: A Systematic Review and Identification of the Determinants of Success

(Statista, 2020). In 2019, e-commerce accounted for 14.1% of global retail sales, according to a Statista analysis. The same report predicted that by 2040, approximately 95% of all purchases would be conducted online. The substantial increase in the number of digital buyers is anticipated to be the main driver of this projected surge in sales. 2020 is predicted to see the global e-commerce business exceed the two trillion-dollar mark.

The Impact of Online Shopping Attributes on Customer Satisfaction and Loyalty: Moderating Effects of E-Commerce Experience

(Gupta et al., 2020). Customizing these goods to fit particular markets and customer segments lowers the expenses of providing customers with up-to-date information and boosts online retail sales volumes. This highlights the significant role that e-commerce plays in figuring out how successful online retailers can use modern technology to maximize customer satisfaction.

The Ever-Changing Business of E-Commerce-Net Benefits while Designing a New Platform for Small Companies

(Bertoa et al. 2019). Given the competitiveness of today's market, e-commerce adoption is inevitable for SMEs. These businesses must employ innovative and knowledgeable methods to remain unique, profitable, and successful in domestic and foreign markets.

Point of Sales System in In-Home Café Website using Agile Methodology

Technology's rapid development significantly impacts societal progress, benefiting consumers and business owners. With its various advantages, the POS system enhances service quality, stimulates market interest, and facilitates decision-making and control. Notably, it simplifies monitoring processes, providing quick access to reports for informed

decision-making (Mtsweni et al., 2020; Suwarno & Devalia, 2021; Marisa & Yuarita, 2017; Sani, Pradana, & Rusdianto, 2018).

Local Literature

Implementation of Inventory Control Management and Repeat Purchases in Right Goods Philippines Incorporated: Inputs to Policy Reformulation - Inventory Module

Verma (2018), inventory management is a component of supply chain management that plans, implements, and controls the efficient, effective, forward, and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption to meet the needs of customers. Inventory management is "the ongoing process of planning, organizing, and controlling inventory to minimize inventory investment while balancing supply and demand." The process entailed monitoring the supply, storage, and accessibility of items to ensure an adequate supply without excessive oversupply.

RMS: E-Commerce Platform for Marble Industry in Romblon

Bismo (2019). Online platforms are great for showcasing goods and services. According to Bismo, many people of the current age utilize the Internet for both work and pleasure. Product promotion and customer outreach became simple by employing technology. Technology is one of the most important instruments for making businesspeople more efficient and competitive in marketing.

The E-commerce Era: A Qualitative Study on the Growth Strategies of Online Business among Philippine School Doha Senior High School Students

(Ravichandran, 2018). Youth are becoming interested in online retailing as it expands and gains popularity. These young people grow up in a technologically advanced, social media-connected environment where they are dependent on mobile devices and services.

The Impact of E-Commerce on Sustainable Development: Case of Ukraine, Poland, And Austria

Ramos (2020) indicated that the Philippines is lagging in its labor productivity rate compared to other ASEAN countries. It is said that the government must intervene and administer policies that can motivate workers, such as incentives, the application of technology, etc., utilizing technology to show a positive change. According to (DTI,2020), E-Commerce is estimated to drive the GDP growth of the Philippines to 5.5% by the end of 2021. Utilizing e-commerce technology creates more job opportunities, leads to more accessible information, and may boost economic growth.

Inventory Information System: Optimizing Inventory Management for Company Business Sustainability - Inventory Module

A company's inventory is a collection of goods it stores to fulfill various tasks, such as producing or selling goods. In addition to raw materials and goods in process, these are finished goods used in company operations. Inventory is considered an unproductive source of funds because the funds related to it cannot be used for other purposes. However, inventory is very important for a company's smooth operation (Santoso et al., 2018).

Review of Related Studies

Foreign Studies

E-Commerce System for E-Commerce Business: A Case Study

Khan, S.N., Qadir, T.O., Taujuddin, N.S.A.M., & Mubashar, M. (2023). The method is to create a mathematical model of the web store. Using mathematical tools, the researchers determined the organizational strategy's effectiveness. An alternative method relies on the practical application of e-commerce platforms. The primary goal of this research is to identify critical design elements that significantly affect the performance of e-commerce applications. The present study examines the connections among distinct

design elements, real-world service, and the ultimate success of e-commerce systems. An empirical study was conducted to evaluate the theoretical paradigm.

Design and Implementation of a Web-Based Electronic-Commerce System

Islam, M. R., Rahman, M. A., and Khan, M. A. 2022). To handle online shopping more effectively, the system that is being provided today concentrates on the business-to-customer e-commerce system. Students at universities may now easily purchase and sell essential goods.

Amazon E-Commerce Website

Saurabh, S. (2022). Electronic commerce is the practice of conducting business online. A user sitting in front of a computer in his home can access any website to purchase or sell goods. Compared to traditional trade, which involves tasks like moving things, etc., e-commerce allows customers to avoid these tasks and save valuable time.

Study & Development of E-Commerce Website

Sharma, S., Aalam, A., Mishra, S., and Gupta, R. (2020).). E-commerce refers to the purchasing and selling of goods and services as well as the sending of money or data over a network, most commonly the Internet. E-commerce has the potential to change marketing and consumer behavior norms. Instead, e-commerce is merely a unique way to add flavor to the standard company procedures. It is causing the conventional method of conducting business to change completely.

Enhancement of E-Commerce Websites with Semantic Web Technologies

Necula, S.-C., Strîmbei, C., Dospinescu, O., and Păvăloaia, V.-D. (2018). This article examines how semantic web technologies can improve e-commerce websites from the perspective of consumers' perceived pleasure with information. Using semantic annotations, our study aims to determine how customers' satisfaction perceptions are

affected when product text descriptions are improved. The primary finding indicates that a better user experience associated with particular Semantic web technologies affects how satisfied online shoppers view their experience.

Local Studies

Design and Interface Development of Business to Consumer (B2C) E-Commerce Websites in the Philippines

Borres, R.D., Panganiban, E.I.M., Mendoza, M.C.O., and Samaniego, S.M.A. (2020). The research aims to ascertain how web design and interface impact customers' purchasing decisions when they visit websites for group purchases. With the e-commerce sector expanding, companies believe having a website is essential to their success when there are more visitors and sales.

Market-e: An E-Commerce Platform for Local Markets

Samonte, D.C., Gayeta, J.A., Palomo, A., Cabamongan, E., Villaluz, A.C., & Samonte, M.J. 2022). This study resulted in the creation of an online store that addresses urban consumers' need to save money by buying directly from local producers. The purpose of this study is to determine which established system characteristics qualify as factors that make the system usable. Usability, in this sense, is described as an instrument used to assess how simple or efficient an activity is to complete.

Inventory Management System with POS

This study, which is led by Oliver M. Junio, Patrick Vincent T. Gaerlan, Tovvy B. Dumaplin, and Gabriel Miguel T. Dela Cruz (2019), explores the effective development of an inventory management system with point of sale (POS). The development of the system went smoothly, completing all of the tasks listed and having strong designs. It replaced the client's antiquated manual data collection and reporting processes with precisely executed

user actions and precise report outputs. Data filtering for quick and precise processing is one of the system's additional features. However, things could still be improved, such as improving the user interface, adding monthly income data for more sophisticated reporting, and optimizing for better results. This related study sheds light on the triumphant development of an inventory management system with POS, showcasing its capabilities while proposing avenues for refinement and progress.

Leyte Normal University: Supply Inventory Management System

Leyte Normal University: Supply Inventory Management System (2023). The focus of this study is the development of a supply inventory management system in 2023. The primary goal is to create a system that generates purchase order forms and streamlines document processes by incorporating various reports. The study further aims to assess the performance of the newly developed system, specifically focusing on enhancing transaction correctness and speed. To establish a causal relationship and measure the impact of technological intervention on key performance metrics, the methodology adopts an experimental design to evaluate the supply inventory management system. Through this research, Leyte Normal University anticipates achieving an efficient and optimized approach to managing its supply inventory, leading to improved operational processes.

An Agile-Driven Design and Implementation of Sales, Inventory, and Logistics System

Cruz, R. I. A., Rosario, M. T., Gomez, G. F., & Ng, G. C. (2018). The researchers want to improve the GMI Company's operations by proposing and implementing a comprehensive system that improves the current sales and inventory system. This system seeks to streamline operations, minimize human labor, and increase overall productivity by adding automation to the logistics workflow. Greater collaboration and efficiency will result from the automation of the logistics process.

LOCAL STUDIES TITLE	DIDBCECWP	AADDISILS	MAECPLM	IMSWPOS	LNUSIMS	PROPOSED SYSTEM
YEAR	2023	2021	2019	2021	2019	2024
METHODOLOGY	Descriptive	Agile	Descriptive	Agile	Experimental	Agile
FEATURES:						
POS Module	✓	✓	**x**	**x**	✓	✓
Inventory Module	✓	✓	✓	✓	✓	✓
Product Catalog Management	✓	**x**	**x**	**x**	✓	✓
Product Management	**x**	**x**	**x**	✓	**x**	✓

Table 1. Table of Comparison in Local Studies

Legend:

DIDBCECWP - Design and Interface Development of Business to Consumer (B2C) E-Commerce Websites in the Philippines

MAECPLM - Market-e: An E-Commerce Platform for Local Markets

IMSWPOS - Inventory Management System with POS

LNUSIMS - Leyte Normal University: Supply Inventory Management System

AADDISILS - An Agile-Driven Design and Implementation of Sales, Inventory, and Logistics System

BRLTECMS - BRL Trading E-Commerce Management System

Synthesis

This literature supplemented the researchers' knowledge of developing an application for employees, administrators, and consumers of BRL Trading. As a guide to the researchers, the following literature was used to develop a title for the E-Commerce Management System. By researching topics relevant to the study, the researchers found features that were a significant factor in creating the web-based E-commerce Management System application. To learn Digital Management Systems technology-based, the research process encompassed data analysis to optimize operations like data gathering, sales reporting, payment processing, inventory management, and customer service to facilitate efficient buying and selling of goods and services over the Internet. This ensured adopting an efficient and technology-centric approach to managing e-commerce activities.

METHODOLOGY

This chapter thoroughly overviews the research approach, methodology, requirements analysis, system requirements, software design, and development methods in creating the system. It explores in detail the strategies employed throughout the development and implementation process, discussing the research methods used and outlining systematic processes to ensure the effectiveness and relevance of the proposed solution. It also extensively examines functional and non-functional requirements, establishing a structured foundation for the subsequent system development. By elucidating the research approach and methodology, this chapter serves as a guide to understanding the precise procedures involved in creating and deploying the proposed system.

Design of Software, Systems, Product, and/or Processes

Following the identification of user needs and data collection through observation, interviews, and user feedback, the developers formulated a system design for the E-Commerce Management System. All gathered data were utilized to create the BRL Trading E-Commerce Management System. The system is intended for administrators and BRL-Trading consumers to use. The design and features were customized to fulfill the requirements of the target users, offering a swift and efficient e-commerce management system with dependable reporting capabilities. Included below are the context diagram, use case diagram, entity relationship diagram, and flowchart illustrating the developed system.

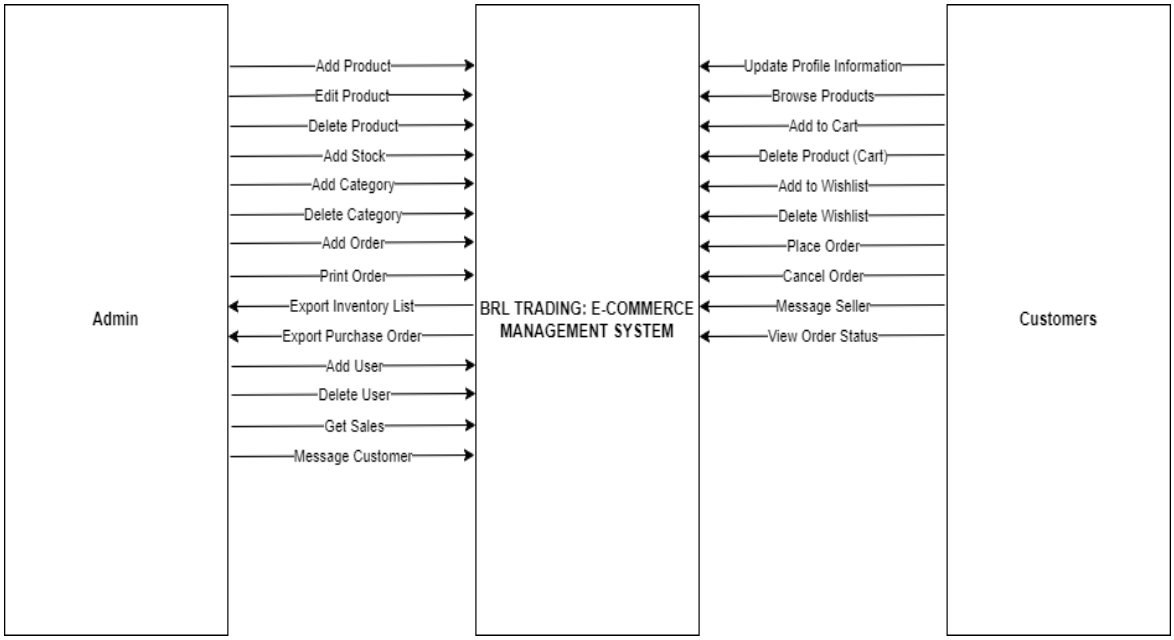

Figure 2. Context Diagram

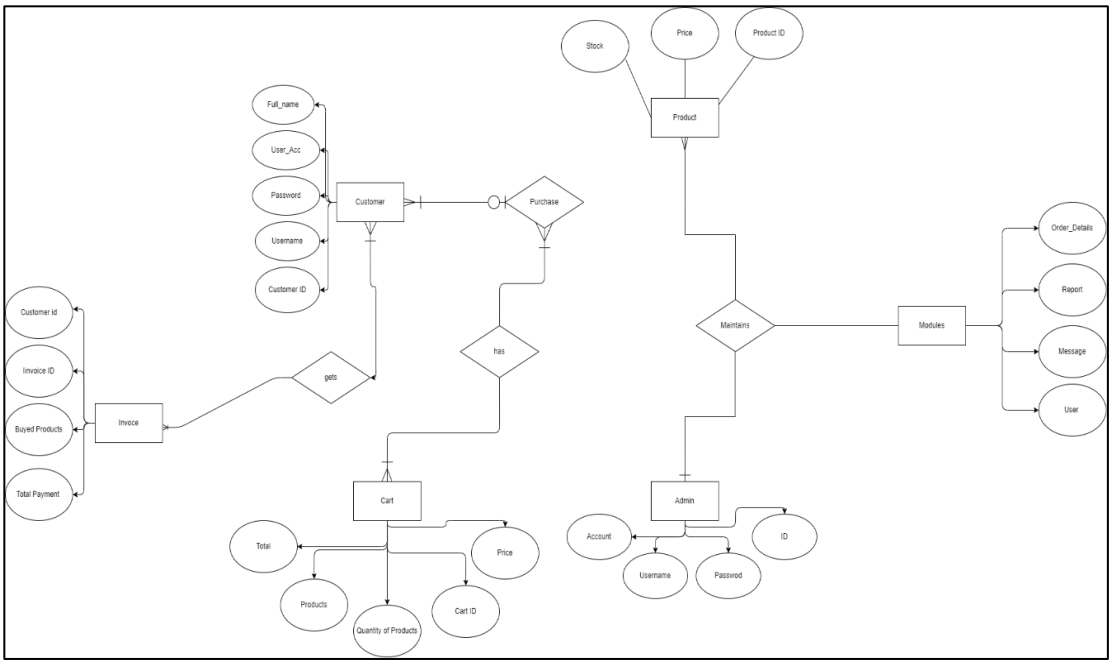

Figure 3. Entity Relationship Diagram

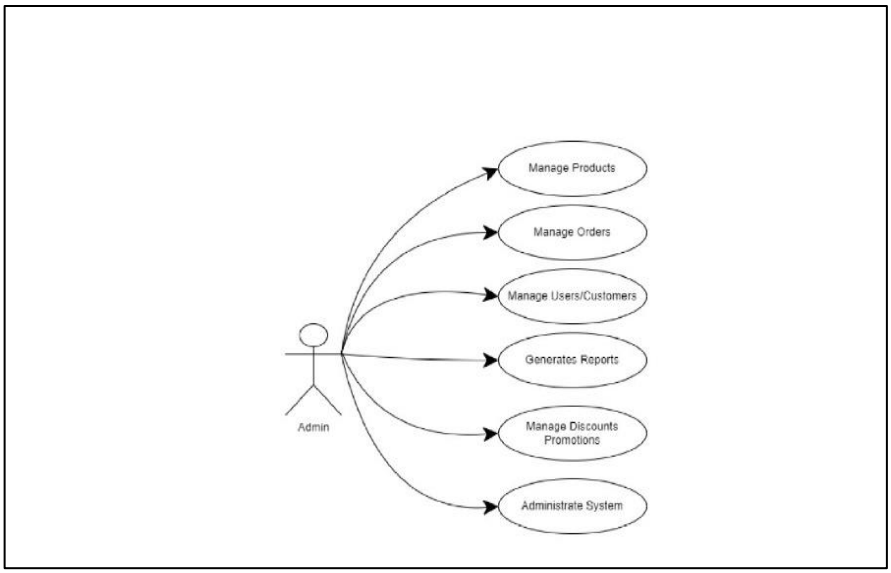

Figure 4. Use Case Diagram for Admin

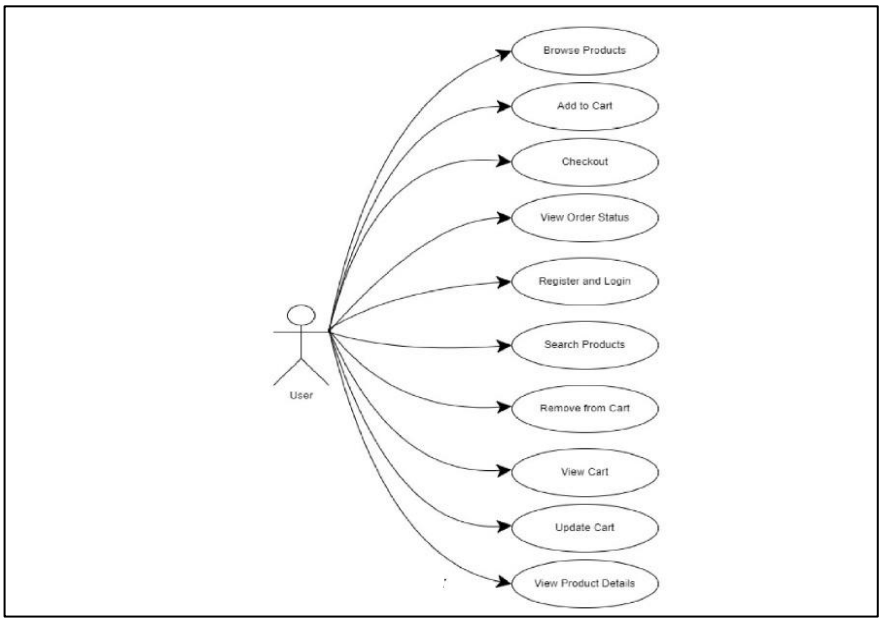

Figure 4.1 Use Case Diagram for User

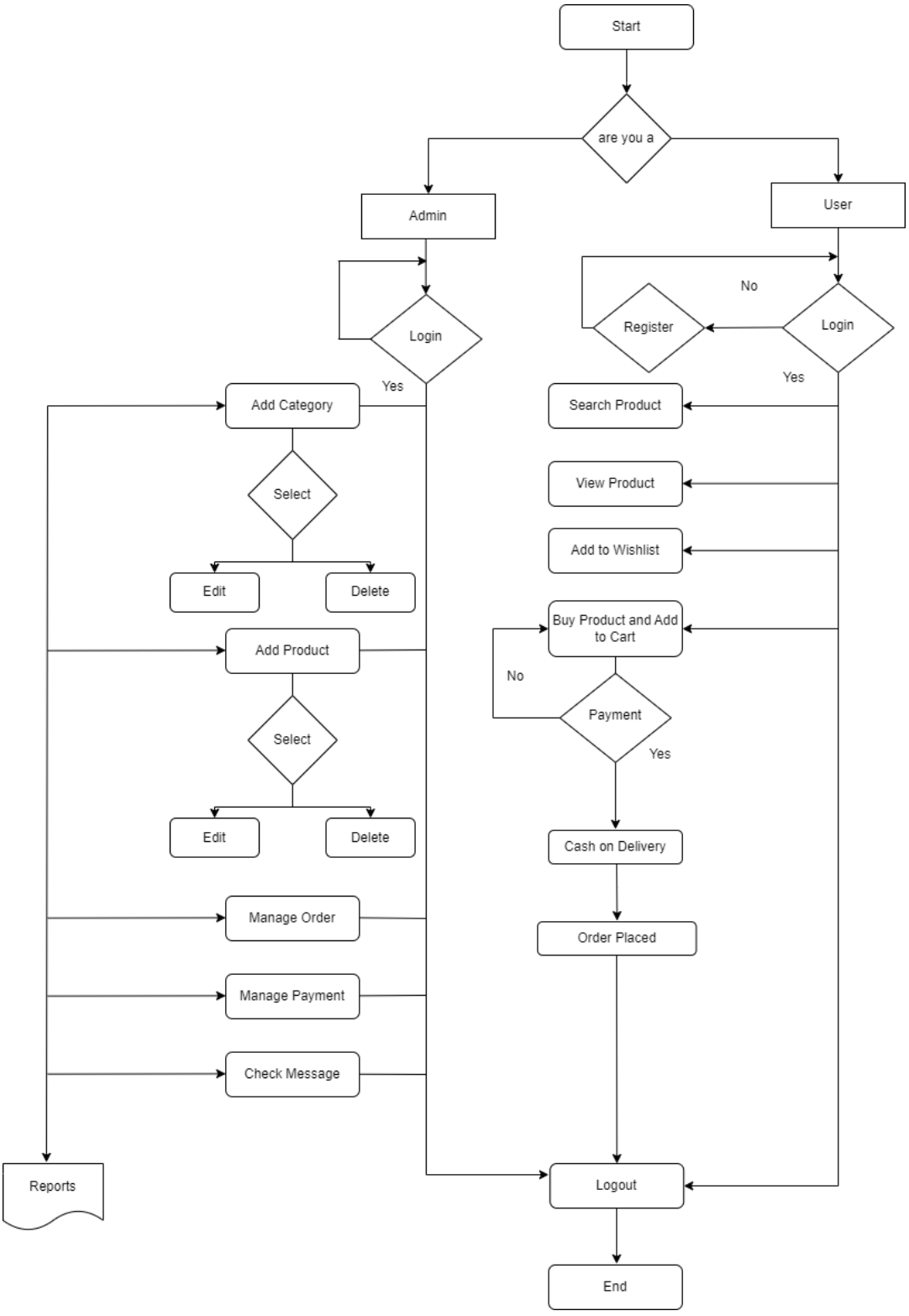

Figure 5. System Flowchart

Requirement Analysis

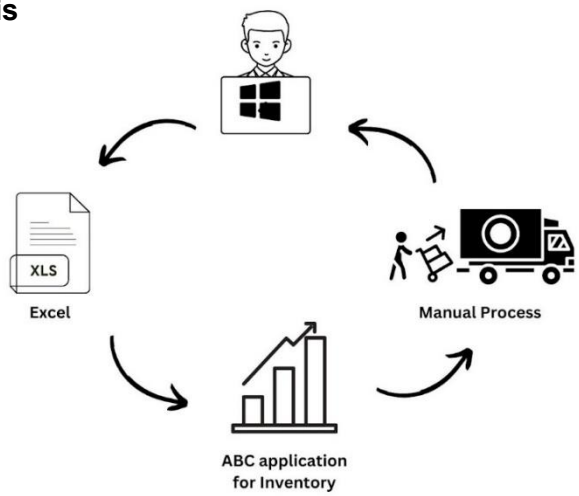

Figure 6. Current Technical Situation

Figure 6 shows BRL's current technical setup, which is configured around the Microsoft Windows platform. Data management is done through programs like Microsoft Excel spreadsheets, which can store information about customers, sales, finances, and other relevant business aspects. Inventory tracking is handled by a separate application called ABC, which offers dedicated features for stock control. Deliveries and stock disposal currently depend on manual methods.

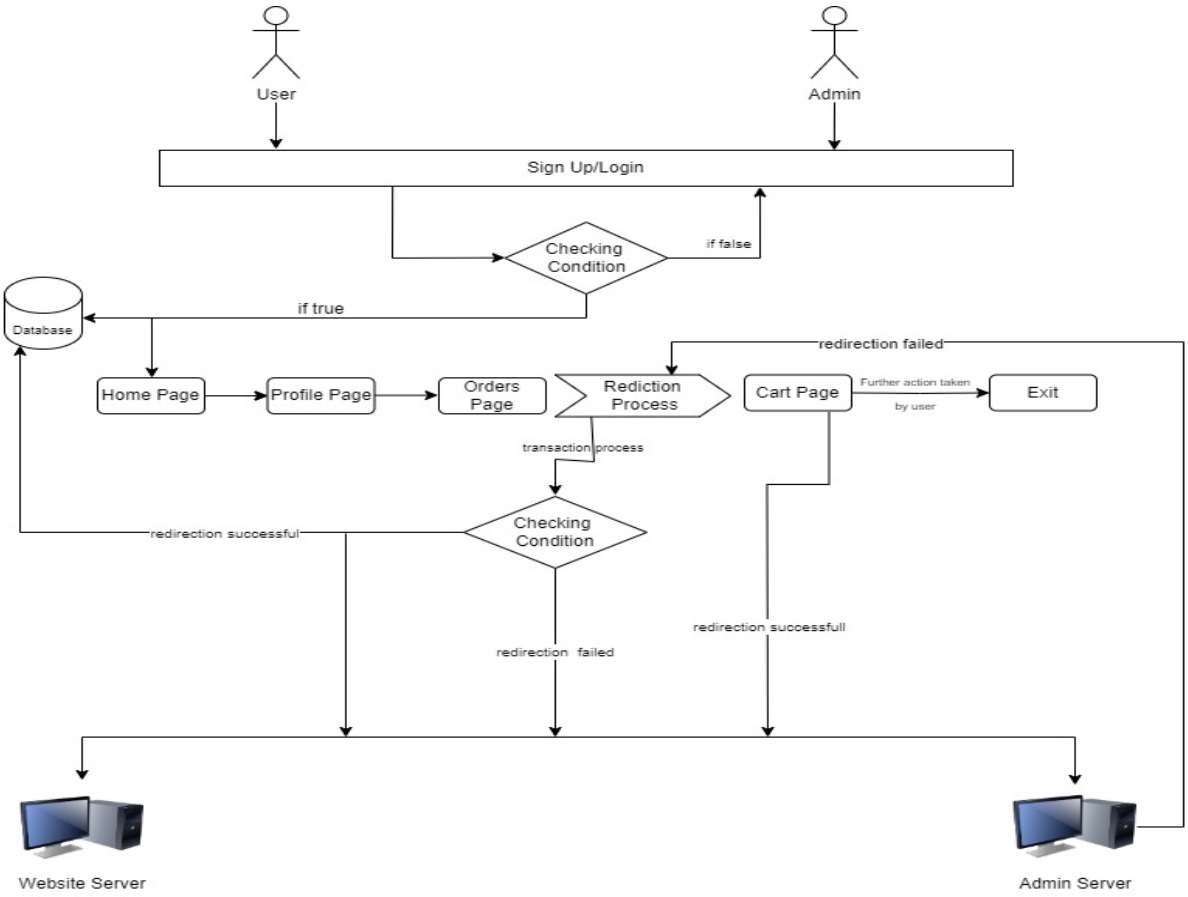

Figure 7. Conceptual Diagram of the Proposed System

Figure 7 illustrates that the process begins when a user interacts with the website. New users sign up by entering basic details like username, email, and password. Returning users log in using their existing credentials. At the same time, an admin oversees system tasks such as managing user accounts and validating data. The admin verifies user information, controls access permissions, and ensures smooth operations.

The system consists of a database, website server, and admin server. The database stores user data, product details, and transactions. The website server serves web pages, processes forms, and manages user sessions. Users access profile pages, home pages, and shopping cart pages. Redirection logic directs users based on their actions: successful redirection leads to intended pages, while failed redirection prompts corrective steps. The system validates inputs and guides users through confirmation pages or payment gateways during transactions, like placing orders. Remember, this overview simplifies the process, and real-world applications involve additional layers and error management.

Requirement Documentation

Based on the interview conducted with the client, the following features have been agreed:

MAIN FEATURES	DETAILED FEATURES
Admin Dashboard	1. Provides an overview of sales, orders, and inventory. 2. Allows quick access to product, stock, category, purchase order, sales, report, user, and message management.
Product Management	1. Add, edit, and remove products with detailed information. 2. Organize products into categories for user navigation.

Stock Management	1. Monitor and control inventory levels in real time. 2. Receive alerts for low stock and manage stock quantities.
Category Management	1. Create, edit, and delete product categories.
Purchase Order Management	1. View, process, and track purchase orders
Sales Management	1. Manage sales records, orders, and invoices
Reports	1. Generate customizable reports on sales, inventory, and revenue.
User Management	1. Manage user accounts, profiles, and permissions
Messages	1. Communicate through a messaging system
User Page	1. Search, add to cart, and like/favorite products. 2. View customer profiles, messages, and product categories.

Table 2. Features of the Proposed System

The following table, however, presents the non-functional requirements of the proposed system:

QUALITY ATTRIBUTES	DESCRIPTION

Reliability	The system must be reliable, ensuring minimal downtime and consistent performance.
Scalability	The system should be scalable to accommodate increasing user traffic and growing business needs.
Security	The system must adhere to stringent security measures to protect sensitive data and ensure secure transactions.
Usability	The system should be user-friendly, with intuitive interfaces and easy navigation for both administrators and end-users.
Performance	The system must deliver optimal performance, with fast response times and efficient resource utilization.
Accessibility	The system should be accessible from various devices and browsers, ensuring a seamless user experience across different platforms.

Table 3. Non-Functional Requirements of The System

System Development

The proponents utilize the Agile Methodology to develop the BRL-Trading E-Commerce Management System. This approach was selected for its iterative nature, which allows for the breakdown of stages and facilitates continuous improvement throughout the development process. Agile's flexibility is key, enabling one to revisit and refine previous stages based on feedback and evolving requirements. The methodology encompasses six essential stages that guide the entire system development, ensuring a structured yet adaptable framework. This iterative process helps address any issues

promptly and make necessary adjustments, leading to a more secure and user-focused final product.

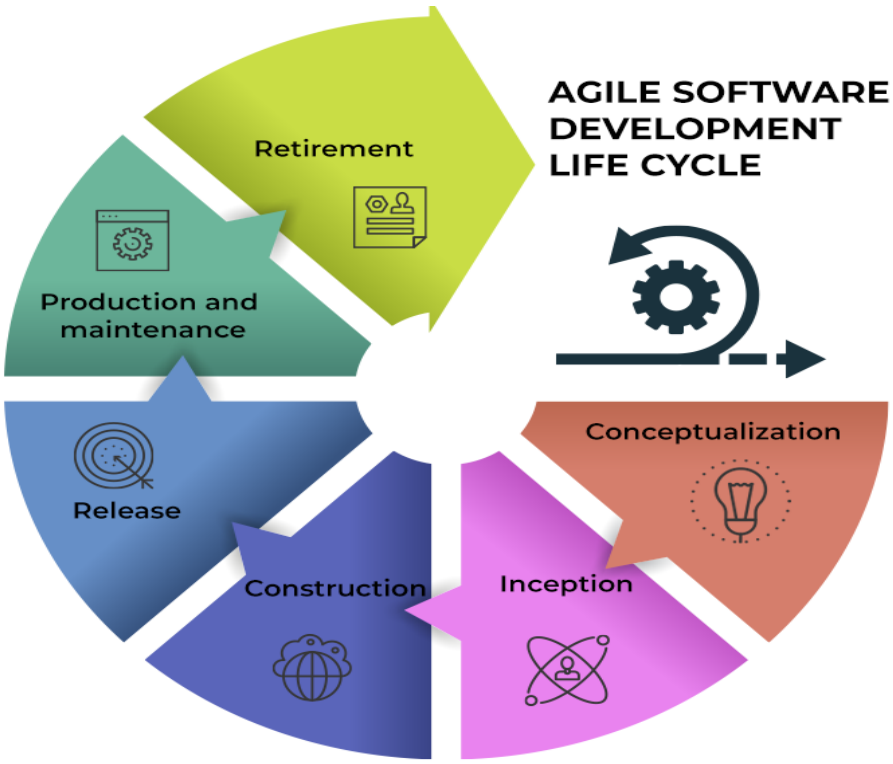

Figure 8. Agile Methodology

The Agile methodology is a versatile and iterative strategy designed to deliver top-notch software solutions effectively. In the context of a BRL trading e-commerce management system, Agile guarantees the system's adaptability to shifting market trends and the progression of customer requirements. The system is implemented in the following phases:

Concept Phase. The concept phase initiates the project by exploring ideas and identifying potential opportunities in the BRL trading market. Discussions revolve around identifying target audiences, desired features, and the overall design aesthetic. This phase

encourages creativity and innovation, allowing researchers to explore various concepts before settling on a clear vision for the website.

Inception Phase. During the inception phase, researchers refine the initial concept into a comprehensive project plan. They establish project roles and responsibilities, create a backlog of user stories, and prioritize features based on importance and feasibility. Consultation with owners helps solidify project scope and set realistic timelines for development.

Development Phase. The development phase forms the heart of agile development, where the researchers work in short, focused cycles to deliver incremental improvements to the website. Each iteration, typically lasting one to two weeks, results in tangible progress, such as adding new pages, implementing functionality, or refining design elements. Regular feedback sessions with peers and mentors guide iteration planning and ensure alignment with project goals.

Release Phase. The release phase marks the deployment of a stable version of the website for user testing and feedback. The researchers bundle completed features into release packages and conduct thorough testing to identify and address any issues. The release strategy emphasizes delivering value early and often, allowing users to interact with the website and provide valuable insights for further refinement.

Production Phase. In the production phase, the website transitions into a live environment, serving its intended audience. Researchers/developers monitor website performance, address any technical issues or user concerns, and make necessary updates to improve usability and functionality. Continuous monitoring and user engagement ensure the website remains relevant and responsive to evolving needs.

Review Phase. The review phase concludes each iteration and release with a retrospective analysis of progress and outcomes. The researchers reflect on what worked

well, what could be improved, and what lessons they have learned throughout the development process. Insights gathered from reviews inform future iterations, continuous improvement, and innovation.

BRL TRADING: E-COMMERCE MANAGEMENT SYSTEM

Name:

Instruction: Check the appropriate column that aligns with your level of agreement with the statements provided below.

Legends: 5 – Excellent 4 – Good 3 – Average 2 – Poor 1 - Fair

QUESTIONS	5	4	3	2	1
A. Performance					
1. The POS Module ensures smooth transactions and accurate sales recording.					
2. The Inventory Module efficiently monitors and manages product inventory levels in real-time.					
B. Accessibility					
1. The Product Catalog Management Module ensures accessibility for all users.					
2. The Product Management Module provides accessible features for managing product data.					
C. Usability					
1. The POS Module offers a user-friendly interface for efficient transaction processing.					
2. The Inventory Module's interface allows easy tracking of product movements and stock levels.					
3. The Product Management Module simplifies the organization of products into categories and subcategories.					
D. Reliability					
1. The system records are updated in real-time.					
2. The system provides precise status updates for orders.					
3. The system ensures data integrity and consistency.					
E. Maintainability					
1. The system provides clear error messages for troubleshooting.					
2. The system remains operational during updates and maintenance.					
3. The system is easy for the administrator to manage and update.					

Recommendation/Suggestions:

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