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LIMEN'S AUTOSHOP SALES AND INVENTORY MANAGEMENT SYSTEM

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Bachelor of Science in Information Technology

By:

Jeemel Gayoso

Kenneth Laudit

Tyrone Malocon

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APPROVAL SHEET

The Capstone Project entitled

"LIMEN'S AUTOSHOP SALES AND INVENTORY MANAGEMENT SYSTEM"

Prepared and submitted by **JEEMEL GAYOSO, KENNETH LAUDIT and TYRONE MALOCON** in partial fulfillment of the requirements for the degree of Bachelor of Science in Information Technology who are hereby recommended for final defense.

GERLE MAE C. ALABADO, MIT
Adviser

Approved and accepted by the Committee for Oral Examination with the rating of **PASSED** on February 8, 2022.

Engr. JOE MARIE D. DORMIDO, DIT
Chairman

LENUEL BETITA, MIT
External Panel

GRACEL GEROY, MIT
Member

ENGR. MARY ANN T. GOROY,PhD TM
Member

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

ROMEO P. TANATE JR., MIT
Capstone Project Instructor

Engr. JOE MARIE D. DORMIDO, DIT
Dean

DEDICATION

This study is wholeheartedly dedicated to our beloved parents who have been our source of inspiration and give us strength when we thought of giving up, who continually provide moral, spiritual, emotional, and financial support.

To our family, friends, teachers and classmates who shared these words of advice and encouragement to finish this study.

And lastly, we dedicated this book to Almighty God, thank you for the guidance, strength, power of mind, protection and skills and for giving us a healthy life. All of these, we offer to you.

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Finally, to God who guided us through this journey, you love to us will be cherished forever.

ABSTRACT

The current study devised a research that would computerized the transaction of Limen's Auto Shop and established a Limen's Auto Shop Sales and Inventory Management system. Limen's Auto Shop now uses a manual operation to deal with sales and inventory, which makes transactions slower and more time consuming. Limen's Auto Shop Sales and Inventory Management System were built and developed for easy, rapid, and accurate transactions in this research. This study aimed to automate the manual transactions of the Limen's Auto shop, generate report and provide accurate result for the inventory, provide safety and security of all the informations and reports of the Auto Shop every transactions, to evaluate the quality of the proposed system based on the McCall's by the expert, to evaluate the usability of the proposed system based on the PSSUQ parameters. The study will utilize the descriptive developmental method of research, and will used Purposive Sampling. The Software Development Phases for Rapid Application Development (RAD) includes Analysis and Quick Design, Prototype Cycles (Build, Demonstrate, Refine), Testing, Implementation. The results from the evaluation of the experts and the users are interpreted as Agree which means that the system is useful for the Autoshop.

Keywords: sales management, inventory management, point of sales

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CHAPTER I

INTRODUCTION

Background of the Study

In today's period, technological growth is unavoidable, which is why many corporations, institutions, and other organizations automate and computerize their transactions and procedures. Inventory management, which is a way of inspecting product storage, is one of the processes that has been automated. Most organizations rely on inventory management to run effectively and efficiently. Inventory management offers functions to prevent product overstocks and outages, lowering carrying costs. Inventory management has an impact on customer satisfaction when it comes to marketing. Inventory investment might be a company's biggest gain in finance. Businesses save time with computerized sales and inventory systems because they speed up transactions while increasing accuracy. This boosts employee trust in accounting and accountability since it's simple to verify how much money was exchanged and when it happened.

You can identify the benefits you and your business dealing may have by implementing this computerized sales and inventory system. The first benefit is time savings. The amount of time that a corporation may save by implementing a computerized inventory system is likely the most significant benefit. When a store keeps all of its data on paper, the manager must reconcile each sales receipt with each item of physical inventory. This can be a difficult and time-consuming operation, depending on the size of the facility and the number of different items supplied. However, if the same business employed a computerized point of sale system, the master inventory list would be updated electronically every

time a transaction was made. The only thing a manager would have to do each day is print out the report highlighting the inventory to be restocked. Second is accuracy. An additional benefit of using a computerized inventory system is the accuracy it ensures. When an inventory list is maintained by hand, the margin of error widens with each update. If one mathematical calculation is wrong or one typo is made, disaster may occur. And lastly is the consistency.

Limen's Auto Business is a tiny auto shop run by 2-3 people, including the cashiers and the office manager. The company sells a variety of commodities or products, such as auto parts and motorcycle components, and it counts its stock manually, just like any other auto shop. Limen's Auto Shop is technically employing a manual system, which may result in document duplication and job redundancy. The company is solely reliant on its human product listing and data inputs, which are prone to mistakes. The company is unable to access its correct sales or income information for a specific period of time during the year. It also lacks the necessary product listings. In certain cases, the owner just ignores the missing item. Today, Limen Auto Shop does not have any additional employees.

The proponents devised a research that would computerized the transaction of Limen's Auto Shop and establish a sales and inventory management system. Limen's Auto Shop now uses a manual operation to deal with sales and inventory, which makes transactions slower and more time consuming. This system will also offer product consumption data analytics.

Purpose and Description of the Study

The goal of this research is to automate the Limen's Auto Shop's sales and inventory transactions. The proponents did their best to meet the demands by developing a computerized sales and inventory system that will assist them in improving their commercial transactions. The goal of this research is to create a system that will aid both the cashier and the personnel at Limen's Auto Shop in their interactions.

Limen's Auto Shop's manual sales and inventory transactions will be replaced by the suggested system. This will facilitate quick transactions and precise sales accounting. It will also provide correct inventory results for items purchased by customers, and the admin/manager will have easy access to the inventory as well as the products that are in high demand by consumers. The suggested system would give statistical data on Limen's Auto Shop's in-demand goods, allowing the products to be ordered instantly from suppliers if they are currently out of stock.

They also make it possible to have consistent customer service experiences. People are aware that there is always a consistent transaction at the register, which includes making a payment, receiving a receipt, and transferring ownership of goods and services. Limen's Auto Shop automation is a technique for supporters to ensure that inventory control and sales processing in retail marketplaces are efficient and precise. This system will also include data analysis capabilities for product usage.

General Objectives of the Study

The main objectives of the study was to developed Limen's Auto Shop Sales and Inventory Management System for easy, rapid, and accurate transactions.

Specific Objectives

This study aimed to attain the following:

1. To developed an automated Limen's Auto Shop Sales and Inventory Management System with the following features:
    a. To automate the manual transactions of the Limen's Auto Shop to make transaction's more accurate.
    b. To generate report and provide accurate result for the inventory so that it will easily monitor daily sales.
    c. To provide safety and security of all the information's and reports of the Auto Shop every transaction to prevent that data from being misused by third party for fraud.
2. To evaluate the quality characteristics of the proposed system based on the McCall's by the expert.
3. To evaluate the usability of the proposed system based on the PSSUQ parameters:
    a.) System Usefulness
    b.) Information Quality
    c.) Interface Quality
    d.) Overall Quality

Scope and Limitations of the Study

In this study, the proponents propose to develop Sales and Inventory Management System limited to Limen's Auto shop specifically. It will cover all the sales transactions, cashier transactions and the inventory of products. The mode of payment will be through cash basis.

This will also aid the problems in their manual transactions and inventory of product, the unsafe data, time consuming process, and accuracy during inventory process. Throughout the process, the sales incurred by the said Autoshop will be accounted and automatically updated during transaction. The system provides fast adding, deleting and updating of product information as well as searching of products to respond to need of the customers; generate accurate reports on the inventory, sales transactions; it also provides security for the protection of the stored database especially business transactions, there always logged in by the user using the account so that it can be monitored by the owner and for the purpose of the security.

Significance of the Study

This study was significant and beneficial to the following:

Administration. The system will benefit to the Company Manager/Admin by reducing their works and improving their manual process into automation. The manual inventory records, sales and ordering will be automated.

Cashier. Cashier was reliable in processing the transaction of the customer, provides sales and inventory reports for future

purposes. The system will benefit to the cashier by the help of automation sales and inventory reports.

Customer. Customer was the one, who bought the product of the company; customer was also involved during the transaction of product and receive receipt from the cashier. This system will benefit them with fast and easy transactions.

Future Researchers. These are individuals who will participate in the study.

Definition of Terms

These terminologies were gathered by the researchers for better and clearer understanding of the study.

Computerized. To use a computer in order to provide paper works in an organized and accurate manner.

In this study computerized means upgrading the manual system of the Limen's Auto shop into automation to provide easy and accurate process for every transaction.

Inventory. The quantity of goods or materials on hand (merriam-webster, 2021).

In this study, it refers to the process of checking the status of the products/equipment's delivered by their suppliers.

Record. To deposit an authentic official copy of (merriam-webster, 2021).

In this study is refer us the products information, for transactions needed to process in order to provide the Limen's Auto Shop needs.

Reports. A usually detailed account or statement (merriam-webster, 2021)

In this study, it is a result about something that happened or gives information that will be used for some purpose and reports are important accounts of transactions that the Limen's Auto shop needed in order to provide a valid proof of their sales and inventory transactions.

Sales. The transfer of ownership of and title to property from one person to another for a price.(www.merriam-webster.com, 2021)

In this study, the sales refer to capabilities of a system buying products in the shop and pay the monetary amount of the said product

Services. A system supplying a public need such as transport, communication etc. In this person who are as the passionate and willing to serve their customers in Limen's Auto shop Sales and Inventory Management System.

System. Harmonious arrangement or pattern (merriam-webster, 2021)

Operationally, it is the systematic way for monitoring and cashiering of sales in Limen's auto shop.

CHAPTER II

REVIEW OF RELATED LITERATURE

This chapter presents and discusses the local and foreign literature relevant to this study.

Local Related Literature

Computerized Sales and Inventory System for Anthony's General Merchandise and Construction Supply

In today's world, many businesses use computers on a regular basis. Some people use it for commerce, while others use it for education and data storage. Though it may seem little, can you maintain a file for such a large corporation correctly in some cases? Organizing, locating a file, and so forth. Computers can help you ease the process of saving and organizing data for future use, as well as making discovering files easier than if you did it manually. Computerized Sales and Inventory System are product of human understanding combined with the use of technology, why not take use of it and benefit ourselves? This proposed system aims to simplify tasks and address issues involving precise and complex recording and calculations.

They have 1 cashier, 3 sales persons, 2 drivers, 4 delivery men, 1 staff that is in charge of the warehouse. The cashier is the person who keeps the money in their money box, the sales person is those who talks to the customers and responsible in providing the customers' needs. The driver and delivery men are those workers who are responsible for the delivery of the items to the customers (Kentwatak, Jan 2013)

Online Sales Monitoring and Inventory System

The difficulty of the performed research, according to Konek.com, is the company's sales tracking and inventory system. The company's present technique is to manually keep track of sales and stocks. The organization has had various issues with monitoring and stock checks as a result of the present inventory system. KONEK.COM management once said, "Manual method is very hassle and time consuming process of inventory, It has many drawbacks as will as mistakes.

After hearing this, the researchers devised a method to assist management in keeping track of inventories in a systematic manner and automatically producing reports on the inventory or stock currently available in their business. This will save you time and prevent you from making mistakes when recording big amounts of data. In addition, the management's workload and the time spent on inventory will be reduced.

KONEK.COM is a hardware shop in Molave, Zamboanga del Sur, situated at Mabini St. Mr. and Mrs. Roy Megapatan owned and operated it. They began by selling cell phone accessories on a very modest scale. However, as a result of the company's commitment to hard work and determination to succeed, the very small hardware store has become one of the most trusted sources of electronic devices in its community, including computers, computer accessories, cell phones, cell phone accessories, flash drives, and so on.

Foreign Related Literature

Sales & Inventory Monitoring Systems

Demand Media data collecting for decision-making, according to Audra Bianca. A corporation can use this sort of technology to make strategic business decisions about raw material procurement, manufacturing scheduling, pricing, logistics, and other supply chain considerations. The corporation may utilize sales and inventory data to raise or decrease output in the plant, ensuring that there aren't too many completed items in its warehouses. Data is collected by a sales and inventory tracking system to help in production scheduling. Some systems, for example, utilize current sales data to predict how many of a certain product will be required to fulfill customer demand in the near future. This involves keeping track of a product's levels in all of its locations. A worldwide firm with clients all over the world is a fantastic example. The customer may reside in Japan, yet the system must check to determine if a product is available for shipment to Japan from the Canadian warehouse. How Does It Work? The system analyzes a product's existing inventory levels and the number scheduled for production to the number required to decide if the production level needs to be adjusted. If production needs to be increased, the system sends a notification to the master production schedule. In addition, when a product's retail sales levels do not reach the sales projection and the corporation overproduces the product, the inventory monitoring system slows production.

By connecting multiple automated processes throughout the supply chain, automated sales and inventory monitoring provides a firm a competitive edge. Automating the client ordering process and production schedule, then changing manufacturing depending on current inventory levels, for example, makes a corporation more

flexible and capable of selecting how to best meet customer requests. A corporation may take advantage of these links when automated processes are linked, ensuring that information flows quickly from one section of the supply chain to another. Management has the ability to make quick choices to boost income, such as swiftly scaling up production in one place due to an unexpected boom in demand in another part of the world.

Monitoring Sales for Accountability

Measuring Sales Performance is an issue for most firms, according to Sales Creator, because each salesperson is different and works in various ways. Because a transaction involves customers, there are additional elements that influence sales. Customers and their requirements vary, as do business situations, particular client bases, and the product mix supplied to each customer. What are the most crucial factors to keep track of in order to assess sales success? There are both concrete and intangible aspects to consider. Consider tactics for targeting, frequency of contact, message and presentation, and communications when looking at the physical side of the sales ledger. The capacity of the salesman to create connections and "connect" with customers, as well as whether or not the call or encounter has a clear objective, are some intangible aspects that might be difficult to quantify. The motive for contact might be to assist the consumer, or it could be to help the salesperson meet his or her quota.

Effective outcomes from assessing each salesperson's performance should have a purpose: to assist them in becoming more lucrative to your firm. They have greater worth as a result of the higher compensation and incentives, and they feel valued, which is a positive feeling about accomplishing a good job. When an issue is detected, there are three processes to improving an employee's

performance: measuring, correcting via training, and preparing to make the change permanent.

Local Related System

Inventory Ordering System

According to Globe Business Philippines, Globe's Inventory Ordering System, allows you to keep track of your goods with only a few keystrokes. The cost-effective and cutting-edge inventory management system provide you real-time access to stock levels, allowing you to place orders quickly and wastelessly. Get reports in real time.

The inventory system allows you to order goods based on the most up-to-date information. This reduces overstocking while also freeing up resources for other pressing requirements. The Inventory Ordering System allows you to have more control over your supply chain by allowing you to make orders online or by SMS. Your workers will have less paperwork to submit and more time to focus on operations because the system creates inventory and sales reports automatically. This user-friendly inventory management system may be modified for any multi-site corporation, commissary, or warehouse backend ordering process, making it ideal for franchise operations.

Online Sales and Inventory System of ACME Tacloban Hardware

Online Sales and Inventory is an inventory control system meant to boost a company's material department's productivity. Tacloban ACME Hardware's Online Sales and Inventory System will assist them in reducing difficulties with sales, storage, and retrieval of inventory data for inventory status (Tacloban ACME Hardware, 2013)

LC Pc Net Sales and Inventory System

Technology has advanced dramatically in the twenty-first century, according to AMA Computer College, Lucena Campus(2010), with computer programs and electronics improving by the month and even by the day. Almost every area of a student's life has been touched and considerably simplified by technology nowadays. What technology has done to our society and how reliant we have gotten on it is incredible. Having computers in the workplace has allowed businesses to operate more effectively and has helped to overall better enterprises. Using computers reduces our work time since we no longer need to write everything down by hand or type on typewriters. This rise in computer usage demonstrates how computers have pervaded every part of our life and have become a necessity. Many developers have contributed to computer technology's progress and broad use.

Although many organizations are employing technical systems to increase their service quality, certain companies, such as LC Pc Net Sales & Services, are still using manual computing for their product inventory.

Mr. Leo Boongaling owns LC Pc Net Sales & Services. It was founded in April of 2010. It is the first firm he founded in order

to put his previous schooling's knowledge and talents to use, with the help of his friends as employees.

Sales and Inventory System for BC Home Furnishing and Appliance Center

According to Flordayuha (2013), the sales and inventory system is critical in business transactions and for those entrepreneurs who do not want to go bankrupt or lose money. As a result, various studies have been undertaken in order to establish a more dependable system and to assist business people in making their business transactions and processes easier and faster, resulting in more convenience and happiness for the company. According to Balbiran, Geronimo, Porters, and Ruiz (2001), who developed an automated sales and inventory system for San Miguel Corporation Tubigon office, designing a system for involves careful planning and the system analyst must consider some factors in order to have an application program that is compact, efficient, and capable of handling day-to-day transactions. The warehouse, cashier, and sales zone sales supervisor were chosen as responders by the researchers. To acquire information and system needs, an interview with the owner and other employees was done, as well as an inspection of the current sales and inventory system's flow. Based on the information acquired, the researchers conclude that automating the sales and inventory systems at San Miguel Corporation's Tubigun Sales Office will help them. According to them, the solution allows them to reduce workloads in record retrieval and eliminates the need for a separate procedure. They came to the conclusion that employing the manual technique in sales and inventories created delays in report dissemination and errors in credit calculations.

Sumsylo, Dolotina, and Saligumba (2001) designed an automated sales and inventory system for manufacturing depot integration. According to them, the goal of the system design is to construct a new system that overcomes the shortcomings and limits of the present system. The research was carried out in the Rednavela Trading Factory Depot. Tagbilaran Branch is incorporated.

Foreign Related System

Automating the purchasing and inventory control functions.

The factors involved in computerizing hospital pharmacy' buying and inventory management tasks are discussed. A feasibility study should be undertaken before implementing an automated buying and inventory control system to identify the level of automation required to establish a cost-effective solution. The system's architecture will be determined by how closely the materials management department collaborates with other hospital departments. The benefits and drawbacks of decentralized vs. centralized systems are examined, as well as criteria for choosing hardware and software providers. To confirm the advantages or savings projected from deploying the new automated system, a return-on-investment study should be done. Consider factors to consider throughout the new system's deployment, as well as future changes influencing buying and inventory management systems, such as bar coding. The creation and deployment of automated buying and inventory management systems are crucial methods for institutions to undertake now, given the present worry about rapidly growing health-care costs and the need to increase productivity.

CISS (Computer Inventory System Specialists Ltd.)

The Purchasing System in Inventory Pro allows you to order, manage, and receive both inventory and assets. It also allows you to explore buy orders, see a list of those that are currently outstanding, and produce reports based on purchase orders. The Purchasing System, like the rest of Inventory Pro, may be customized with logos, messages, forms, and phrases to fit your company's needs. Purchase Assets or Inventory Items, Purchase Order Approvals, Delivery Schedule (Blanket PO's), Inbound Appointment Scheduling, Supplier's Catalog, Supplier History, Term Agreement (Supplier Contracts), Automatic Generation of Purchase Orders, Accounting Software Integration, Cost History of Purchased Items, Receiving (Partials and Complete Orders), Reporting are some of the features available.

Synthesis of the Reviewed Literature and Studies

With the help of this literature and studies, we gather information and knowledge about the system that we are going to develop and implement in this project. The following are the listed information and data adopted from the literature and studies:

This aids in the identification of the issue and the flow of the Sales Monitoring Inventory System. This also gives us a notion of the system's restrictions, features, and goals. The following also explains what reports should be created in this system, as well as what each report's function is. The obstacles and issues that we would face over the course of this project's development. This allows us to detect the system's missing functionality, which we may incorporate into our own.

Feature Comparison of Local and Foreign Related Literature

The table of comparison below shows the different local and foreign systems that were compared to the Limen's Auto Shop Sales and Inventory Management System. This table compares the related system and its features to the proponents proposed system.

Table 1. Features and Comparison of Foreign and Local Literature.

Related Systems	Features		
	Automate the manual transactions	Generate report and provide accurate inventory result	Security
Computerized Sales and Inventory System for Anthony's General Merchandise and Construction Supply	Yes	Yes	Yes
Online Sales Monitoring and Inventory System	Yes	Yes	No
Sales & Inventory Monitoring Systems	Yes	Yes	Yes
Monitoring Sales for Accountability	Yes	Yes	Yes
Online Sales and Inventory System of ACME Tacloban Hardware	Yes	Yes	Yes
LC Pc Net Sales and Inventory System	Yes	Yes	Yes
Sales and Inventory System for BC Home Furnishing and Appliance Center	Yes	Yes	Yes

Automating the purchasing and inventory control functions	Yes	Yes	No
CISS (Computer Inventory System Specialists Ltd.)	Yes	Yes	Yes

The table shows the comparison of the foreign and local system. The table includes the summary of the different features of the foreign and the local system as well as the features of Limen's Auto Shop Sales and Inventory Management System.

CHAPTER III

METHODOLOGY

In this chapter it discussed about the research methodology on how the system developed by gathering information to serve as the foundation of the system, the discussion about data analysis for the proposed system. The methodology was probably needed in any system as it served as a basis for the development of the project. It also worked as a guide in following the step-by-step method.

Research Design

The study will utilize the descriptive developmental method of research. It specifically intends to determine the effectiveness and efficiency of the proposed system by assessing its progressive changes through development and evaluation process. (Seels & Richey, 1994)

Furthermore, According Chowdhury et al, (2018) the Rapid Application Development (RAD) was used because it contains the characteristic of Iterative development and prototyping model and it tracts and reduces process development time with less people and upsurge the re-usability of prototype.

Summary of Respondents of the Study

Respondents of the Study

The respondents of the study are Shop Manager, staff and customers/end-user. The study will use a purposive sampling technique to get the sample size who evaluated the features of the proposed

application.

Table 2. Respondents of the study

Area	Number of Respondents(N)
Shop Manager/ Owner	1
Staff	2
End-user	15
IT Expert	3
Total	**21**

Sampling Technique

This study used Purposive Sampling. Using this purposive sampling in identifying the participants of the study. This sampling technique is based on the judgement of the researcher as to who will give better information in order to meet the objectives of this study (Etika/I, Bala K. 2017). The participants who will meet the criteria of the research to check the efficiency of the Limen's Auto shop Sales and Inventory Management System.

Research Instrument

A research instrument is a device used by the researcher for gathering of data. This instrument indicates the basic assessment of this study. To accomplish the objectives indicated in this study's observation and interview conducted by the researcher The researchers will utilize PSSUQ as research instrument for this study. PSSUQ is also known as the Post-Study System Usability Questionnaire which is a standardized questionnaire that consists of 16-item questions. PSSUQ is commonly used to measure users' perceived satisfaction of a website, software, system or product at the end of a study. It is originally from an internal IBM project called SUMS (System Usability Metrics) in 1988.

The PSSUQ follows a 7-point Likert Scale (+ NA option). The overall result is calculated by averaging the scores from the 7 points of the scale. PSSUQ has 3 sub-scales. These 3 sub-scales are system usefulness, information quality, and interface quality.

The Overall; the average scores of questions 1 to 16, the System Usefulness (SYSUSE) average scores of question 1 to 16, the Information Quality (INFOQUAL) average scores of questions 7 to 12, the Interface Quality (INTERQUAL) and the average scores of questions 13 to 15 are the sub-scales that provide a more detailed breakdown of different factors affecting the website, system or product.

The researchers make use of McCall's Software Evaluation Criteria to be evaluated by the experts. Many attributes, referred to as software factors, are incorporated into the McCall software quality model. The model recognizes two tiers of quality criteria, such as 1. Quality Factors are higher-level quality features that can be examined directly. These are exterior characteristics. Users and managers place greater emphasis on attributes at this

level. 2. Quality Criteria are lower or second-level quality attributes that can be evaluated subjectively or objectively. These are internal characteristics. Each quality component has a number of additional quality features or criteria. Operability, training, communicativeness, input/output volume, and input/output rate make up the usability quality element(geekforgeek.org, 2020).

Data-gathering Procedure

The researcher conducted a survey to the Limen's Auto shop then let the respondents answer the questionnaire that will test how frequent the respondents experienced the recurring problem without the proposed system. The researcher came up with the idea on how to design and develop the system.

The proponents will conduct a survey to determine the respondents' evaluation of Limen's Auto shop Sales and Inventory Management System. The proponents will give the survey questionnaire to the respondents and it is the PSSUQ (Post-Study System Usability Questionnaire). The proponents will instruct the respondents to rate the developed system based on the criteria that is defined on the survey form. The respondents will be given enough time to read, understand, and rate the developed system. The proponents will wait for the respondents to finish the survey. When the users are done answering the survey, the proponents will collect it for the computations of results.

Data Analysis

The objectives proposed in the research were tested in the following manner:

To determine the extent of implementation of the Limen's Auto shop Sales and Inventory Management System, the mean will be use. Similarly, the mean will be used to determine the effectiveness of the application of the system in terms of criteria-based assessment and efficiency measures.

A 7-point Likert scale comprising of 1 as Strongly Agree and 7 as Strongly Disagree was used in system. To statistically compute whether the proposed system passes the evaluation criteria, the Mean statistics will be apply. The Mean is computed as:

$$\bar{x} = \frac{\sum x}{n}$$

Where: $\bar{x}$ is the mean

$\sum x$ is the summation of individual raw scores

N is the weight of population

The obtained mean score was interpreted using the following verbal descriptions:

Table 3: Verbal Interpretation of Mean Score

Mean	Verbal Interpretation
1.00-2.19	Strongly Agree
2.20-3.39	Agree
3.40-4.59	Moderately Agree
4.60-5.79	Disagree
5.80-7.00	Strongly Disagree

System Design and Development

Software Life Cycle Model

A methodology (RAD) will be applied to respond to the needs to of the systems. The project scope was determined, its size and circumstances that surround. Thus, the diagram in Figure 2.0 depicts the dependency relationships between the stages in the RAD.

Software Development Phases

The Software Development Phases for Rapid Application Development (RAD) includes Analysis and Quick Design, Prototype Cycles (Build, Demonstrate, Refine), Testing, Implementation.

A. Analysis and Quick Design

The first phase is Analysis and Quick Design where the researcher gathers all the required and important requirements from the respondents or target user that includes the Shop Manager, Staff, and End-user. The interview has taken place and the distribution of questionnaires will use as inputs to the system.

Upon gathering all the requirements that will use in this study, Analysis and Quick Design for the system has been done in order to create a visualization of the interface design and the output of the entire application.

B. Prototype Cycles (Build, Demonstrate, Refine)

If the Quick Design has been accomplished and approved for the output, the researcher builds the application in accordance to the user needs. In constructing the system, the developer will undergo series of iteration from build, demonstrate the system to the user and refine the system if the user is not contented with the output of the system application. In line with this, the developer has the opportunity to finish and make sure that the system is 100% functional.

C. Testing Phase

Testing early in the system life cycle reduces risks such as schedule delays or cost overruns due to incomplete or unacceptable components. In this Phase it focused on an experimental examination in which the results described the quality of the system, that is, testing cannot confirm system functions properly under all conditions but can establish if it fails under specific conditions. In the Test Phase, testing of the system proved to meet all requirements, including those for usability, performance, and functionality. Lastly, the testing completes the developed system satisfied the end users who identified the system needs and the requirements.

D. Deployment Phase

The developed system became operational in its actual environment. At this time, the researcher prepared the data for the system and trained users for its numerous operations. The

proponent also provided provision to resolve any problems that may immediately come up after the application became operational.

After testing the system prototype and modification of it, the next activity is the Deployment Phase. The objectives of this phase were to install the end users; to maximize the effectiveness of the system and; to identify potential upcoming improvement.

Use Case Diagram

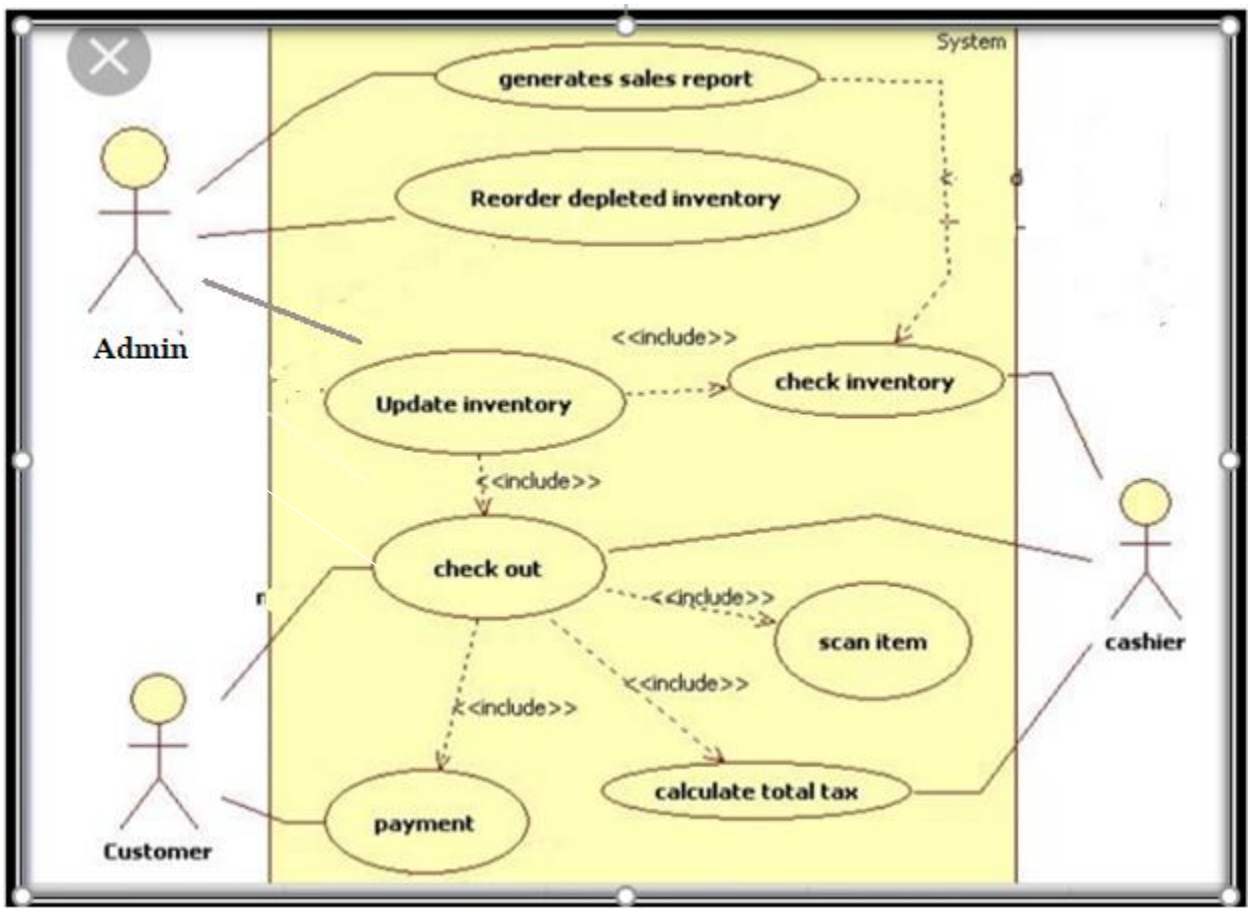


Figure 1: Limen Autoshop Sales and Inventory Management System.

Use Case Description

Table 4: ADMIN/Manager

Use Case Name	Manage Inventory
Actors	Admin/ Manager
Description	This use case describes how the admin/owner manage inventory
Pre-conditions	1. The Admin must be a registered user. 2. The Admin will log-in to the Sales and Inventory System.
Post-conditions	1. The Admin will successfully log in to the system.
Normal Flow	The Admin will monitor the Products in and out. The Admin will input data to the system. The Admin will Manage the whole products inventory. The Admin will manage Employees.
Alternative Flows	None
Business Rules	None

Table 5: Employee/Cashier

Use Case Name	Manage orders
Actors	Employee/Cashier
Description	This case describes how the cashier manage orders
Pre-conditions	1. The Cashier must be a registered user. 2. The Cashier will log-in to Sales and Inventory System.
Post-conditions	1. The Cashier will successfully log in to the system.

Normal Flow	The Cashier will Recieve orders notifications from customers The Cashier will manage payments and orders.
Alternative Flows	None
Business Rules	None

Table 6: Customer

Use Case Name	Select/Choose orders
Actors	Customer
Description	This use case describes how the customer select thier desire products.
Pre-conditions	1. The Customers will directly choose thiers oders.
Post-conditions	1. The Customers successfuly selected thier products.
Normal Flow	1. The Customer will select thier orders. 2. The Customer will select product Quantity
Alternative Flows	None
Business Rules	None

Activity Diagram

The activity diagram shows the interactive flow of activities done by the actor of the developed system.

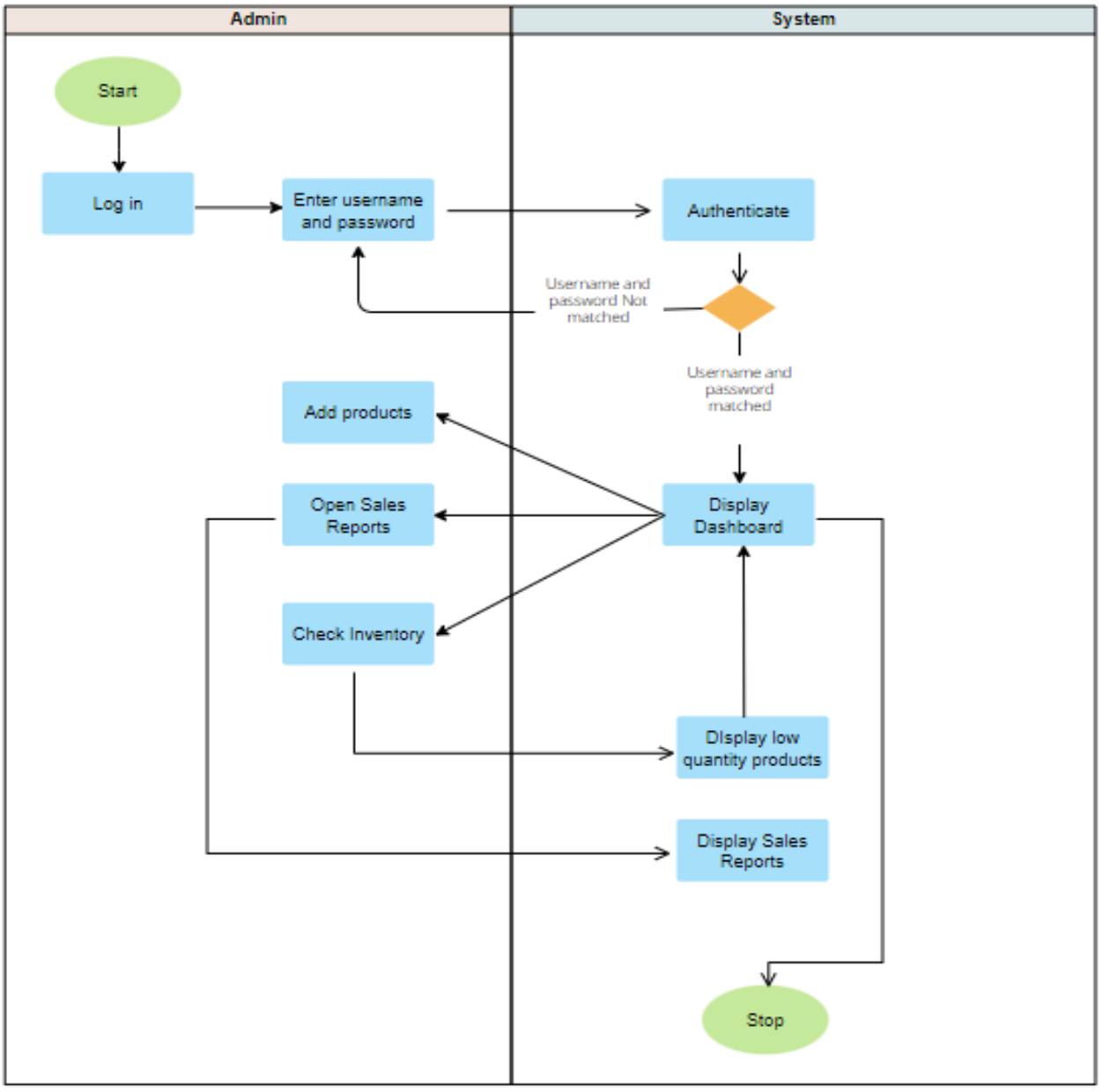


Figure 2: Admin Activity Diagram

Figure 2 Activity Diagram shows how admin uses this system to manage/check inventory and check daily sales report as well.

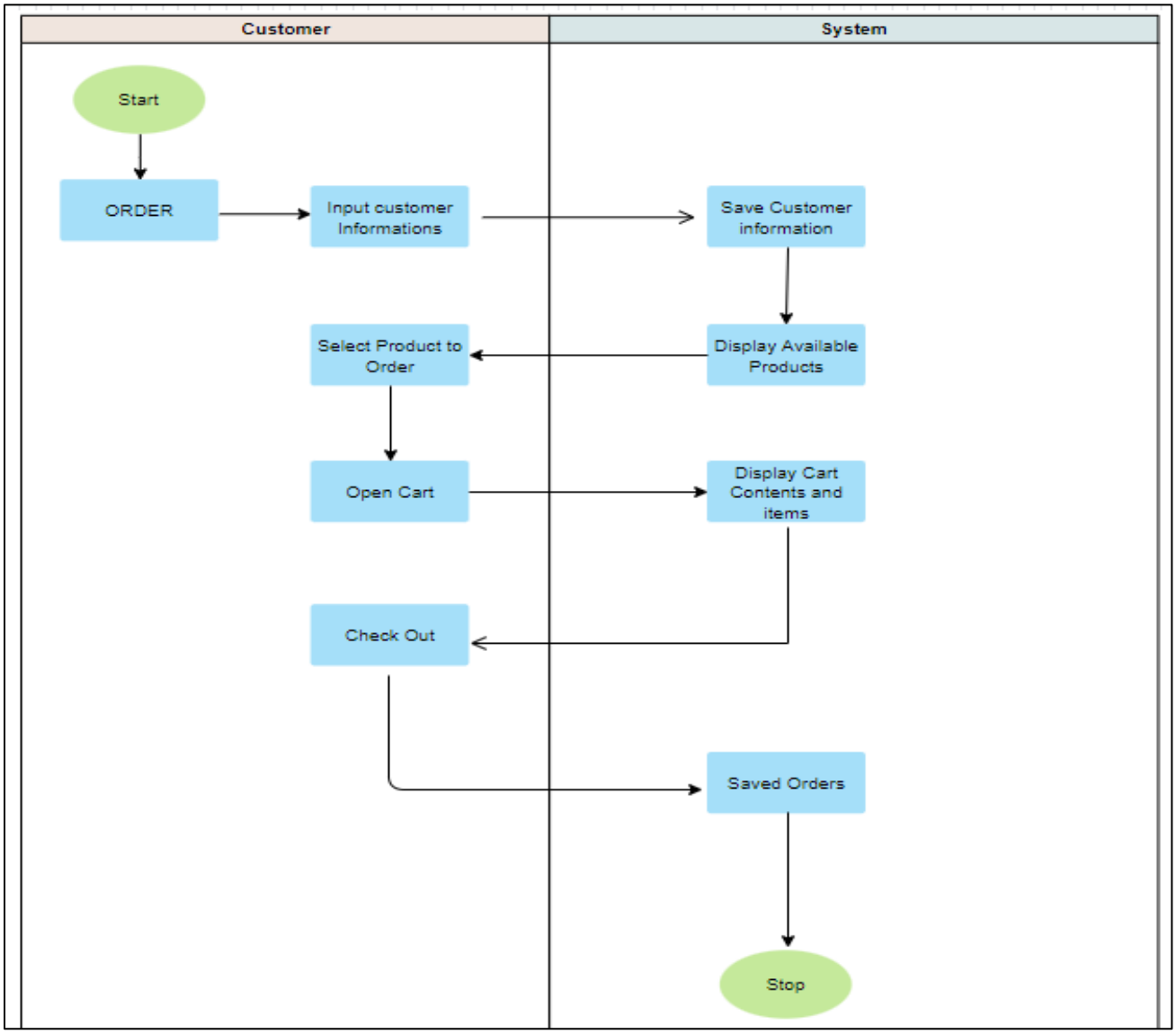


Figure 3: Customer Activity Diagram

Figure 3 shows and explains how customer select and process orders

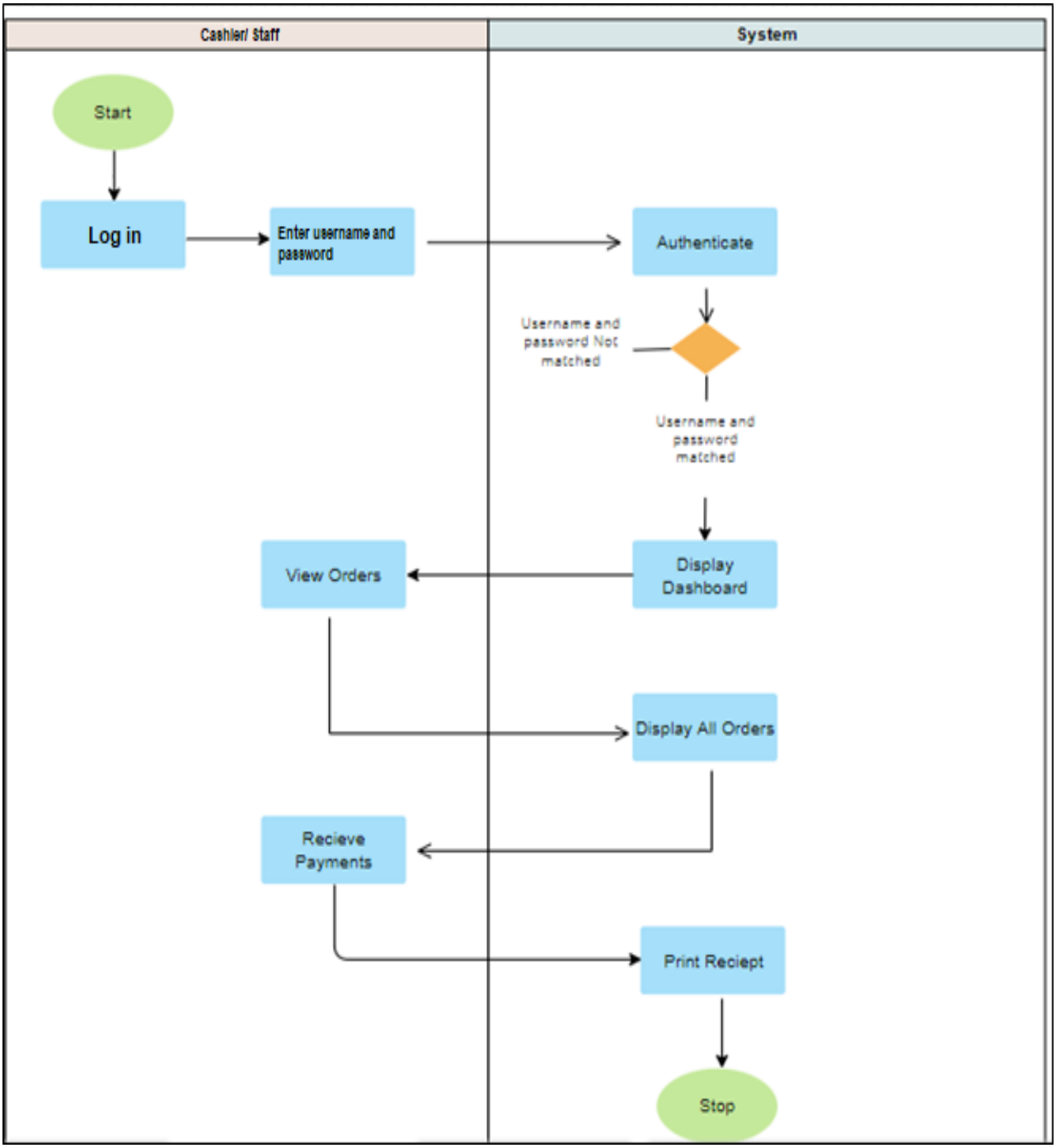


Figure 4: Cashier/Staff Activity Diagram

Figure 4 Activity Diagram shows how Cashier's work and activities using this system to manage the incoming orders easily.

Context Diagram (Level 0 of DFD)

The context diagram shows the general process of the developed system. It also demonstrates the input requirements needed to be filled – up by the admin and the expected process output from the system.

Context Flow Diagram

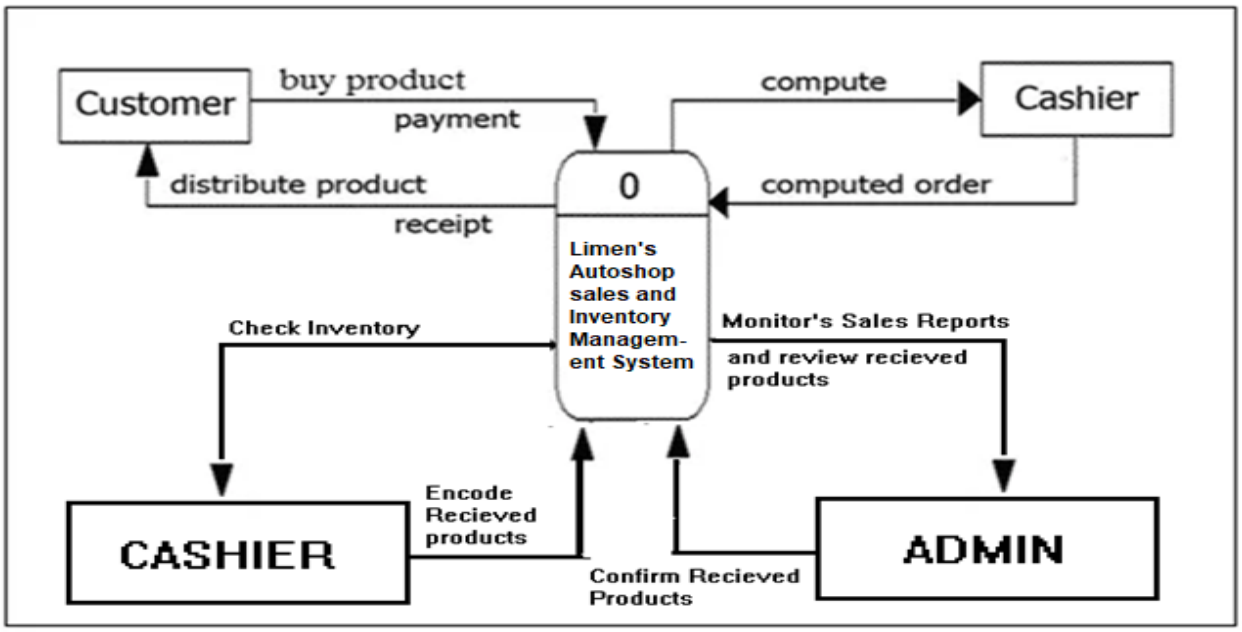


Figure 5: Context Flow Diagram

A context diagram is a data flow diagram that has 3 levels. At this 3 levels, there are visible process node that represents the functions of a complete system in regards to know how it interacts with external entities. The context flow diagram in this study identifies and explains the process of the Limen's Auto Shop Sales and Inventory Management System in order to fully understand the concept of the system application.

Data Flow Diagram

The data flow diagram is an illustration of the flow of information of a developed system. It shows the data inputs and outputs, storage points, and the routes between each destination.

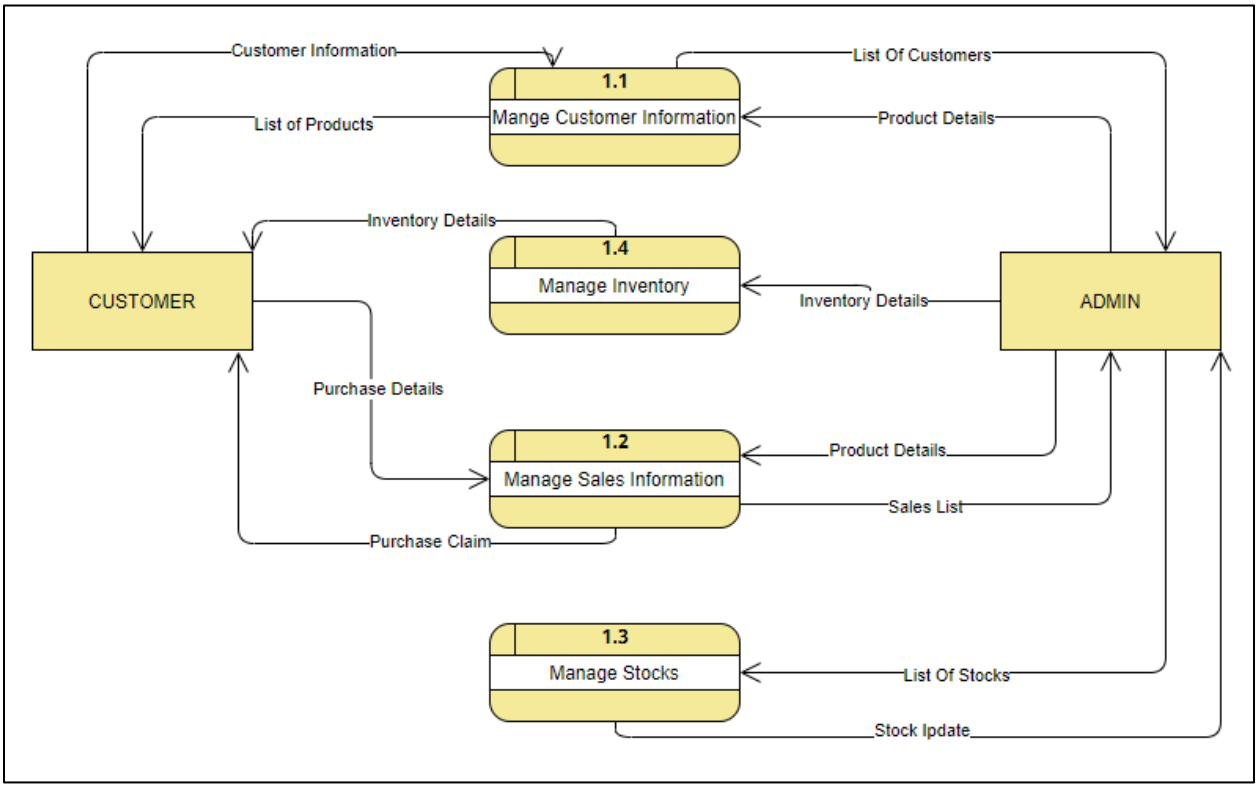


Figure 6: Data flow diagram of the system Level 1

Data Flow Diagram of the existing system shows that the customer will buy product. First the customer will choose for the product he or she wanted to buy from the cashier, The Cashier will give the item to the customer and that customer will give payment to the cashier.

The cashier can also check inventory and encode received products, the admin will check and review the received products that encoded by the cashier, after the review the admin will Confirm the received products.

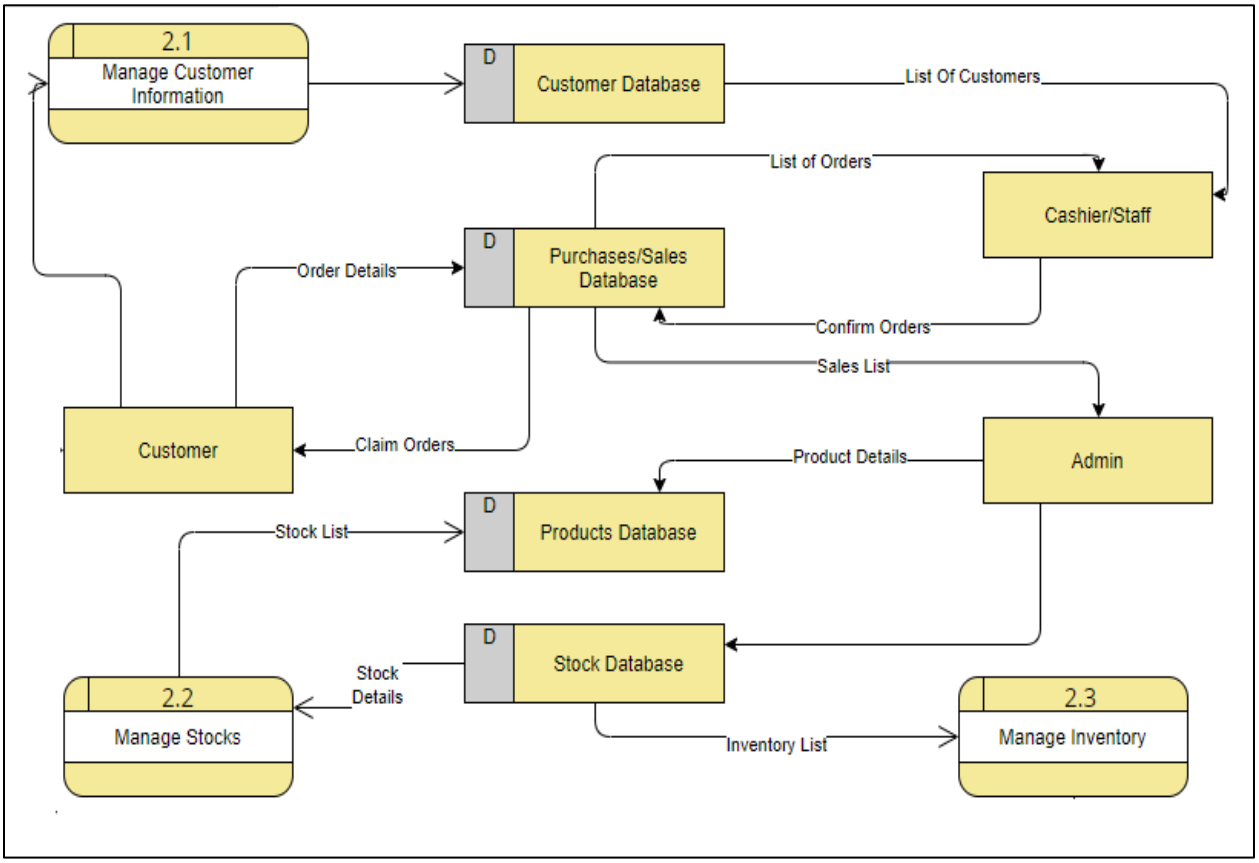


Figure 6: Data flow diagram of the system Level 2

The table shows the transactions of the customers to the cashier when ordering a products and the cashier/staff will confirm the order and process in the system. The Admin will manage the product details and also the inventory of the products.

Entity Relationship Diagram

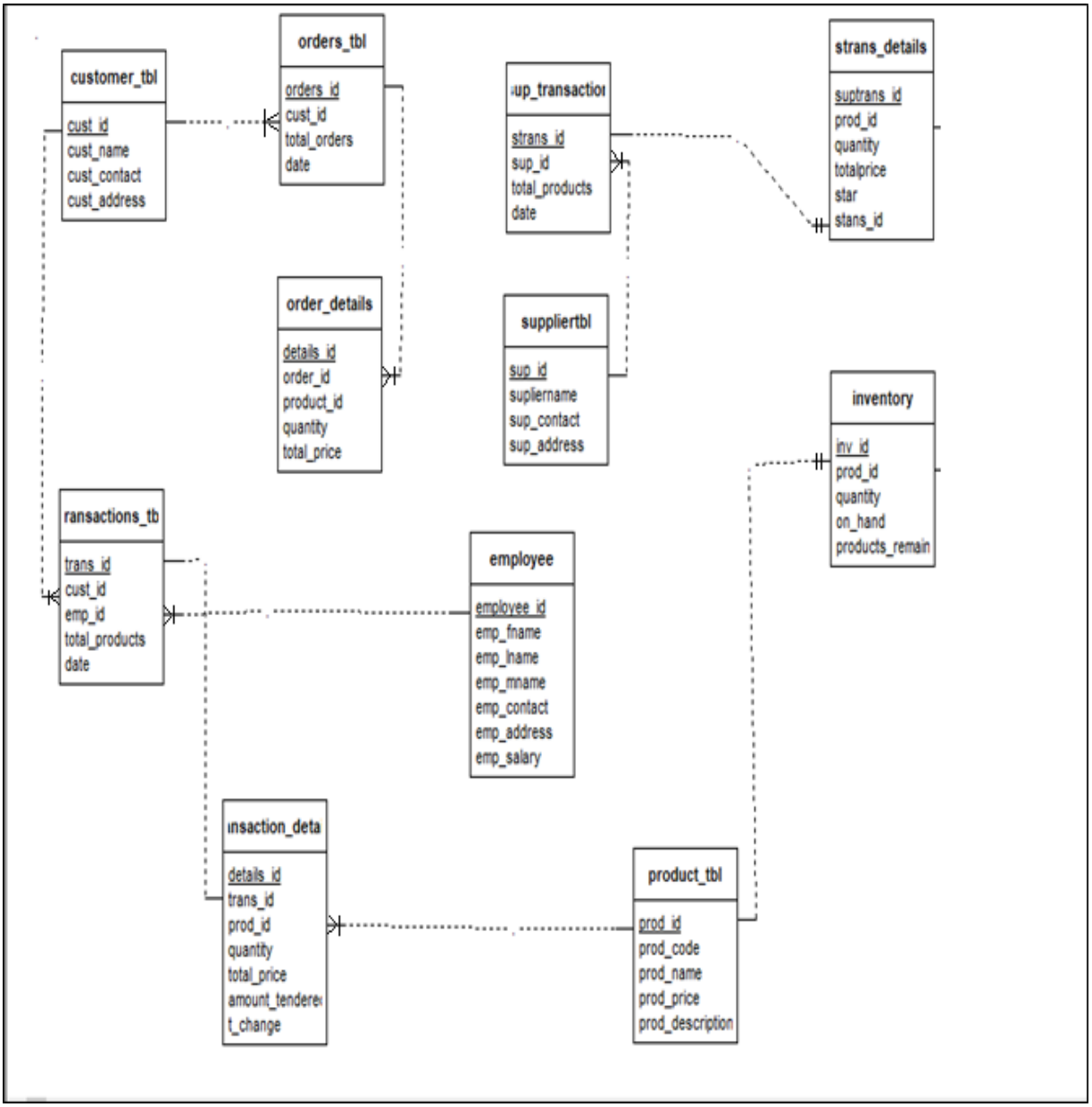


Figure 7: Entity Relationship Diagram

Figure 7 shows the entity relationship diagram of our database. It shows the table and attributes used in our proposed system.

Data Dictionary

The Data Dictionary provides lists of data used in developing the Limen's Auto Shop Sales and Inventory Management System. The tables below show the list of all tables and the data stored in the database. It provides the attribute, data types and also the description for each fieldname to recognize the data being in the database.

Users Table

Table 7: users_tbl

FIELD NAME	DESCRIPTION	TYPE	LENGTH
ID	User id number	INT	11
EMPLOYEE_ID	Employee id number	INT	11
USERNAME	User username	VARCHAR	50
PASSWORD	User password	VARCHAR	50
TYPE_ID	User type	INT	11

Users table shown in table __ includes the id, name, username, password and user type.

Product Table

Table 8: Product_tbl

FIELD NAME	DESCRIPTION	TYPE	LENGTH
PRODUCT_ID	Product number	INT	11
CATEGORY_ID	Category number	INT	11
PRODUCT_CODE	Product code	INT	11
NAME	Name of the product.	VARCHAR	50
DESCRIPTION	Product description	VARCHAR	250
QTY_STOCK	Product quantity	INT	50
ON_HAND	Product onhand	INT	250
PRICE	Product price	INT	50
SUPPLIER_ID	Supplier id number	INT	11
DATE_STOCK_IN	Date recieved the product	VARCHAR	50

Products table shown in table __ includes the Product_id, category_id, Product_code

Table 9: EMPLOYEE TABLE

FIELD NAME	DESCRIPTION	TYPE	LENGTH
EMPLOYEE_ID	Employee id number	INT	11
FIRST_NAME	Employee first name	VARCHAR	50
LAST_FIRST	Employee last name	VARCHAR	50
GENDER	Employee gender	VARCHAR	50
EMAIL	Employee email	VARCHAR	100
PHONE_NUMBER	Employee contact number	VARCHAR	11
JOB_ID	Employee job id	INT	11
HIRED_DATE	Employee hire date	VARCHAR	50
LOCATION_ID	Employee location number	INT	11

Table 10: CUSTOMER TABLE

FIELD NAME	DESCRIPTION	TYPE	LENGTH
CUST_ID	Customer id number	INT	11
FIRST_NAME	Customer first nme	VARCHAR	50
LAST_NAME	Cusyomer last name	VARCHAR	50
PHONE_NUMBER	Customer phone number	VARCHAR	11

Table 11: LOCATION TABLE

FIELD NAME	DESCRIPTION	TYPE	LENGTH
LOCATION_ID	Location id number	INT	11
PROVINCE	Province name	VARCHAR	100
CITY	Province city	VARCHAR	100

Table 12: SUPPLIER TABLE

FIELD NAME	DESCRIPTION	TYPE	LENGTH
SUPPLIER_ID	Supplier id number	INT	11
COMPANY_NAME	Company name	VARCHAR	50
LOCATION_ID	Location id number	INT	11
PHONE_NUMBER	Supplier contact number	VARCHAR	11

Table 13: TYPE TABLE

FIELD NAME	DESCRIPTION	TYPE	LENGTH
TYPE_ID	Type id number	INT	11
TYPE	type	VARCHAR	50

Table 14: JOB TABLE

FIELD NAME	DESCRIPTION	TYPE	LENGTH
JOB_ID	Job id number	INT	11
JOB_TITLE	Job title	VARCHAR	50

Table 15: CATEGORY TABLE

FIELD NAME	DESCRIPTION	TYPE	LENGTH
CATEGORY_ID	Category id number	INT	11
CNAME	Category name	VARCHAR	50
CCODE	Category code	VARCHAR	50

Table 16: ORDERS TABLE

FIELD NAME	DESCRIPTION	TYPE	LENGTH
Order_id	Order id number	INT	11
Customer_id	Customer id	INT	11
Total_orders	Total orders	INT	11
Date_ordered	Date ordered	DATE	

Table 17: ORDER DETAILS TABLE

FIELD NAME	DESCRIPTION	TYPE	LENGTH
Details_id	Details id number	INT	11
Order_id	Oder id number	INT	11
Product_id	Product id number	INT	11
Quantity	Product quantity	INT	11
Total price	Product total price	DOUBLE	20

Architectural Diagram Interface of Software and Hardware

The Architectural Diagram Interface shows the connection of the hardware and software that is needed to complete the system process including the database to save data.

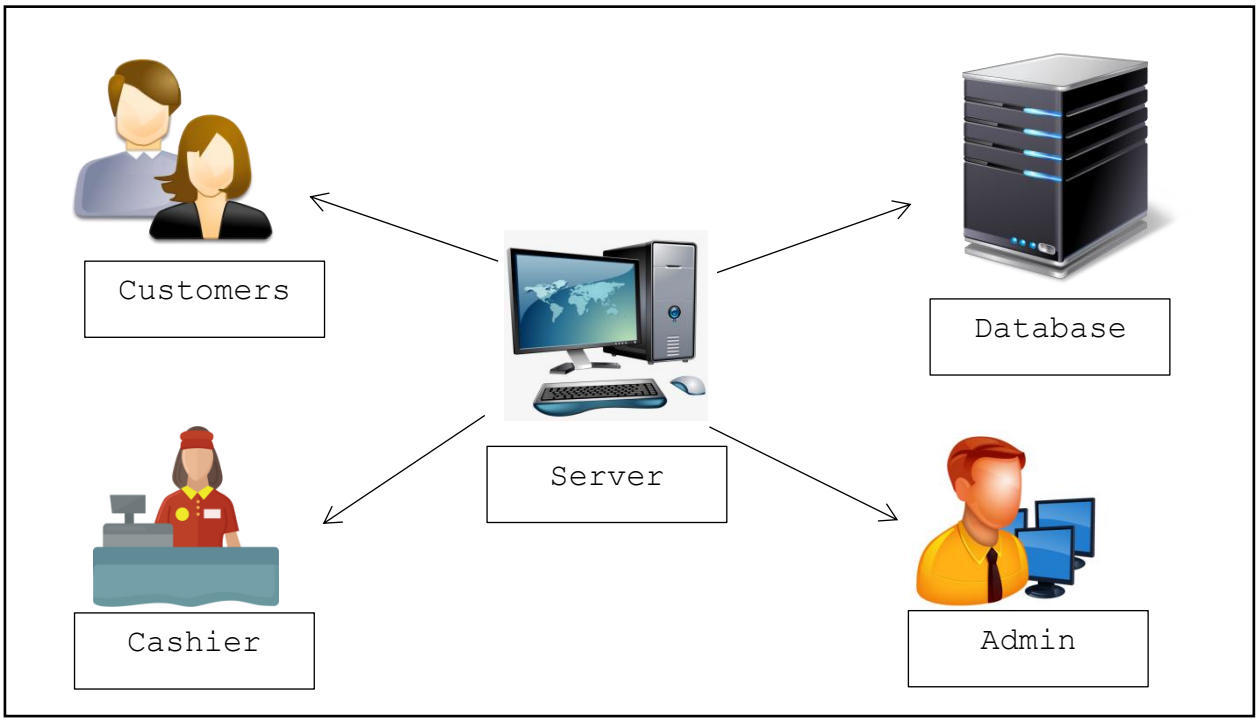
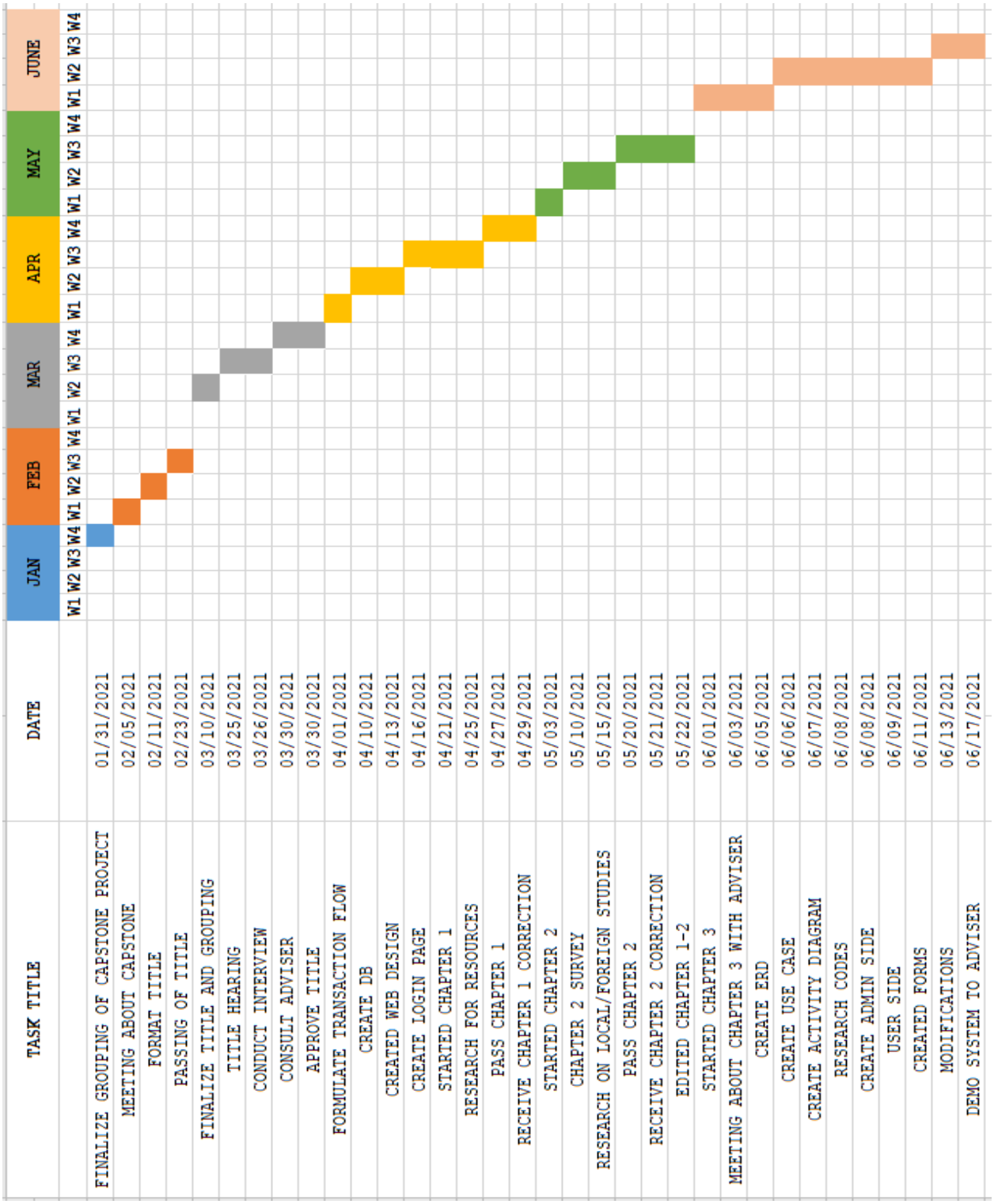


Figure 8: Architectural Diagram Interface

Figure 8 shows the Architectural Diagram Interface of the Limen Auto shop sales and inventory management system.

Gantt Chart



TASK TITLE	DATE
FINALIZE GROUPING OF CAPSTONE PROJECT	01/31/2021
MEETING ABOUT CAPSTONE	02/05/2021
FORMAT TITLE	02/11/2021
PASSING OF TITLE	02/23/2021
FINALIZE TITLE AND GROUPING	03/10/2021
TITLE HEARING	03/25/2021
CONDUCT INTERVIEW	03/26/2021
CONSULT ADVISER	03/30/2021
APPROVE TITLE	03/30/2021
FORMULATE TRANSACTION FLOW	04/01/2021
CREATE DB	04/10/2021
CREATED WEB DESIGN	04/13/2021
CREATE LOGIN PAGE	04/16/2021
STARTED CHAPTER 1	04/21/2021
RESEARCH FOR RESOURCES	04/25/2021
PASS CHAPTER 1	04/27/2021
RECEIVE CHAPTER 1 CORRECTION	04/29/2021
STARTED CHAPTER 2	05/03/2021
CHAPTER 2 SURVEY	05/10/2021
RESEARCH ON LOCAL/FOREIGN STUDIES	05/15/2021
PASS CHAPTER 2	05/20/2021
RECEIVE CHAPTER 2 CORRECTION	05/21/2021
EDITED CHAPTER 1-2	05/22/2021
STARTED CHAPTER 3	06/01/2021
MEETING ABOUT CHAPTER 3 WITH ADVISER	06/03/2021
CREATE ERD	06/05/2021
CREATE USE CASE	06/06/2021
CREATE ACTIVITY DIAGRAM	06/07/2021
RESEARCH CODES	06/08/2021
CREATE ADMIN SIDE	06/08/2021
USER SIDE	06/09/2021
CREATED FORMS	06/11/2021
MODIFICATIONS	06/13/2021
DEMO SYSTEM TO ADVISER	06/17/2021

Table 18. Time Table (Roles and Responsibilities)

Task	Date started	Date finish	Assigned member
FINALIZE GROUPING OF CAPSTONE PROJECT	01/31/21	01/31/21	ALL
MEETING ABOUT CAPSTONE	02/05/21	02/05/21	ALL
FORMAT TITLE	02/11/21	02/22/21	ALL
PASSING OF TITLE	02/23/21	02/23/21	ALL
FINALIZE TITLE AND GROUPING	03/10/21	03/24/21	ALL
TITLE HEARING	03/25/21	03/25/21	ALL
CONDUCT INTERVIEW	03/26/21	03/29/21	ALL
CONSULT ADVISER	03/30/21	03/30/21	ALL
APPROVE TITLE	03/30/21	03/30/21	ALL
FORMULATE TRANSACTION FLOW	04/01/21	04/09/21	ALL
CREATE DB	04/10/21	04/10/21	ALL
CREATED WEB DESIGN	04/13/21	04/15/21	ALL
CREATE LOGIN PAGE	04/16/21	04/20/21	ALL
STARTED CHAPTER 1	04/21/21	04/21/21	KENNETH, LAUDIT
RESEARCH FOR RESOURCES	04/25/21	04/26/21	ALL
PASS CHAPTER 1	04/27/21	04/27/21	KENNETH, LAUDIT
RECEIVE CHAPTER 1 CORRECTION	04/29/21	04/29/21	KENNETH, LAUDIT
STARTED CHAPTER 2	05/03/21	05/09/21	JEEMEL, GAYOSO
CHAPTER 2 SURVEY	05/10/21	05/14/21	JEEMEL, GAYOSO

RESEARCH ON LOCAL/FOREIGN STUDIES	05/15/21	05/17/21	JEEMEL, GAYOSO
PASS CHAPTER 2	05/20/21	05/20/21	JEEMEL, GAYOSO
RECEIVE CHAPTER 2 CORRECTION	05/21/21	05/21/21	ALL
EDITED CHAPTER 1-2	05/22/21	05/24/21	ALL
STARTED CHAPTER 3	06/01/21	06/17/21	TYRONE, MALOCON
MEETING ABOUT CHAPTER 3 WITH ADVISER	06/03/21	06/03/21	ALL
CREATE ERD	06/05/21	06/05/21	TYRONE, MALOCON
CREATE USE CASE	06/06/21	06/06/21	TYRONE, MALOCON
CREATE ACTIVITY DIAGRAM	06/07/21	06/07/21	ALL
RESEARCH CODES	06/08/21	06/10/21	ALL
CREATE ADMIN SIDE	06/08/21	06/10/21	TYRONE, MALOCON
USER SIDE	06/09/21	06/10/21	TYRONE, MALOCON
CREATED FORMS	06/11/21	06/15/21	ALL
MODIFICATIONS	06/13/21	06/15/21	ALL
DEMO SYSTEM TO ADVISER	06/17/21	06/17/21	ALL

CHAPTER IV

PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

This chapter presents the data gathered, the results of the statistical analysis done and interpretation of findings to determine the perceived usefulness and perceived ease of use of the developed "Limen's Autoshop Sales and Inventory Management System".

Expert Evaluation Result

We the proponents have conducted a survey to three experts at Carlos Hilado Memorial State College like the IT experts to evaluate the system using the McCall's criteria.

Table 19. Expert Evaluation Result

System Usefulness	Weighted Mean	Verbal Interpretation
1. Auditability The ease with which conformance to standards can be checked.	4.67	Very Good
2. Accuracy The precision of computations and control	4.33	Very Good
3. Completeness The degree to which full implementation of the required functions has been achieved.	5.00	Very Good
4. Communication Commonality The degree to which standards interfaces and protocols are understood.	5.00	Very Good
5. Conciseness The compactness of the program in terms of lines and code.	4.67	Very Good
6. Consistency	4.00	Good

The use of uniform design and documentation techniques throughout the software development project.		
7. Observability The process of streaming the software components can be easily identified and understand.	4.33	Very Good
8. Operability The ease of operation of the program.	4.67	Very Good
9.Security The availability of mechanisms that control or protect programs and data.	4.33	Very Good
10. Self-Documentation The degree to which the source code provides meaningful documentation.	3.67	Good
11. Simplicity The degree to which the program can be understood without difficulty.	5.00	Very Good
12. Software System Independence The degree to which the program is independent of non-standard programming language features, operating system characteristics, and other environmental constraints.	4.33	Very Good
13. Traceability The ability to trace a design representation or actual program component back to requirements.	5.00	Very Good
14. Training The degree to which the software assists in enabling new users to apply the system.	4.00	Good
15. Controllability	4.00	Good

The system can be easily controlled and manipulated in terms of execution, program structure, and design.		
16. Data Commonality The use of standard data structures and types throughout the program.	4.33	Very Good
17. Decomposability The software is built from series of modules, and can be tested independently.	4.67	Very Good
18. Error Tolerance	4.67	Very Good
19. Execution Efficiency The run-time performance of the program.	5.00	Very Good
20 Expandability The degree to which architectural, data, or procedural design can be extended.	5.00	Very Good
21. Generality The breadth of potential application of program components.	5.00	Very Good
22. Hardware Independence The degree to which the software is decoupled from the hardware on which it operates.	4.67	Very Good
23. Instrumentation The degree to which the program monitors its own operation and identifies errors that do occur.	5.00	Very Good
24. Modularity The functional independence of program components.	5.00	Very Good
TOTAL MEAN:	**4.59**	Very High

Table 19 shows the result of the evaluation from the respondents that is expert the company of Limen's Autoshop Sales and Inventory Management System. The over-all mean got the score of 4.59 which was interpreted as Very High thus, the experts were satisfied with the quality of the system.

END-USER EVALUATION REPORT

The proponents conducted a survey to 18 random users for the system evaluation using the PSSUQ criteria.

Table 20. End-users result

	WEIGHTED MEAN	**VERBAL INTERPRETATION**
1. OVERALL, I AM SATISFIED WITH HOW EASY IT IS TO USE THIS SYSTEM	1.33	Strongly Agree
2. IT WAS SIMPLE TO USE THIS SYSTEM	1.13	Strongly Agree
3. I WAS ABLE TO COMPLETE THE TASK AND SCENARIOS QUICKLY USING THIS SYSTEM	1.33	Strongly Agree
4. I FELT COMFORTABLE USINGTHIS SYSTEM	1.20	Strongly Agree
5. IT WAS EASY TO LEARN TI USE THIS SYSTEM	1.07	Strongly Agree
6. I BEIEVE I COULD BECOME PRODUCTIVE QUICKLY USING THIS SYSTEM	1.27	Strongly Agree
SYSTEM USEFULNESS (SYSUSE)	1.22	Strongly Agree
7. THE SYSTEM GIVE ERROR MASSAGES THAT CLEAERLY TOLD ME TO HOW TO FIX THE PROBLEMS	1.27	Strongly Agree
8. WHENEVER I MADE A MISTAKE USING THE SYSTEM. I COULD RECOVER EASILY AND QUICKLY	1.40	Strongly Agree
9. THE INFORMATION (SUCH AS ONLINE HELP, ON-SCREEN MESSAGES, AND OTHER DOCUMENTATION) PROVIDED WITH THIS SYSTEM WAS CLEAR	1.13	Strongly Agree
10. IT WAS EASY TO FIND THE INFORMATION I NEEDED	1.27	Strongly Agree
11. THE INFORMATION WAS EFFECTIVE IN HELPING ME COMPLETE THE TASK AND SCENARIOS	1.13	Strongly Agree
12. THE ORGANIZATION OF INFORMATION ON THE SYSTEM SCREEENS WAS CLEAR	1.07	Strongly Agree
INFORMATION QUALITY (INFOQUAL)	1.21	Strongly Agree
13. THE INTERFACE OF THIS SYSTEM WAS PLEASANT	1.33	Strongly Agree

14. I LIKED USING INTERFACE OF THIS SYSTEM	1.33	Strongly Agree
15. THIS SYSTEM WAS ALL THE FUNCTION AND CAPABILITIES I EXPECT IT TO HAVE	1.13	Strongly Agree
INTERFACE QUALITY (INTERQUAL)	1.3	Strongly Agree
16. OVERALL, I AM SATISFIED WITH THIS SYSTEM	1.13	Strongly Agree
MEAN	1.22	Strongly Agree

Table 20 shows the results of evaluation from the respondents that end-user for the field of Limen's Autoshop Sales and Inventory Management System.

Table 21. End-Users' Overall Survey Results

Criteria for Evaluation	**Mean**	**Verbal Interpretation**
SYSTEM USEFULNESS	1.22	Strongly Agree
INFORMATION QUALITY	1.21	Strongly Agree
INTERFACE QUALITY	1.23	Strongly Agree
OVERALL	1.22	Strongly Agree

Table 21 shows the overall results of evaluation from end-user of Limen's Autoshop Sales and Inventory Management System.

Based on the survey conducted to the end-users evaluated the system usefulness of the system as Strongly Agree and they are very satisfied with the over-all characteristics of the system.

Chapter V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter the summary of findings will give a full view of the overall system process and will be followed up by conclusions and recommendations. The main objectives of the study were to developed Limen's Auto Shop Sales and Inventory Management System for easy, rapid, and accurate transactions in this research.

Summary of Findings

The proponents conducted a survey to measure the usefulness and acceptability of the Limen's Auto Shop Sales and Inventory Management System. Then the collected result of the survey will be evaluated through the data given by the respondents.

The statements below are the findings about the developed system.

1. The result from the Experts' evaluation to the Limen's Auto Shop Sales and Inventory Management System which was based on the criteria from the McCall's Software quality Model Questionnaire was rated as 4.5 and it was verbally interpreted that the Systems quality was very high.
2. The result from the End-users' evaluation to the Limen's Auto Shop Sales and Inventory Management System which was based on the criteria from the (PSSUQ) Post- Study System Usability Questionnaire was 1.22 and it was verbally interpreted that the Systems functionality was strongly agree.

Conclusions

The conclusions were taken from the result of the evaluation of the project in which the general objective was to developed the Limen's Auto Shop Sales and Inventory Management System which was achieved already and functioning. The specific objectives were met are as follows:

1. The manual transactions of the Limen’s Auto shop was converted to automated transactions.
2. It could generate reports and provided accurate result for the inventory and analytics.
3. It provided the safety and security of all the information’s and reports of the Auto Shop every transaction because of the password security of every accounts.
4. The result of the evaluation of the expert in the quality characteristics of the proposed system based on the McCall’s generated a grand mean of 4.5 which means that the Systems quality was very high and the experts conformed the quality of the system and met their expectations in terms of a better understanding of the system.
5. The usability of the proposed system was evaluated based on the PSSUQ parameters and generated a general mean of 1.22, which was interpreted as "Strongly agree," and the proponents summed up with the following criteria was met.

    a.) The Limen's Auto Shop Sales and Inventory Management System achieved the characteristic in terms of system usefulness.

    b. Limen's Auto Shop Sales and Inventory Management System achieved the characteristic in terms of Information Quality.

c. The Limen's Auto Shop Sales and Inventory Management System achieved the characteristic in terms of Interface Quality

d. The Limen's Auto Shop Sales and Inventory Management System achieved the characteristic in terms Overall Usability.

Recommendations

Upon careful considerations of the findings and conclusion of the study, the following recommendations were given:

1.) The developed system can be modified by the other researchers for further improvements and enhancements. The future researchers can add other information in which may help to make the most of its potential and by refining the system.

2.) The proponents recommend this system to the Limen’s Auto Shop to automate their transactions and improve their sales and inventory processes.

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APPENDICES

APPENDIX A

```
public class POS extends javax.swing.JFrame {
Swing swing = new Swing();
queries sql = new queries();
   int custid =0;
   int empid =0;
    public POS(int ide, int idc) {
        initComponents();
        swing.setImageIcon(this);
        custid = idc;
        empid = ide;
        showOrders();
        showName();
        reset();
        showEmp();
    }

    public void stopSession(){
        tim.stop();
    }

    String employee ="";

    public void showEmp(){
        employee = sql.getEmployeeName(empid);
    }
    public void showName(){
```

```
        cust_name = sql.custName(custid);
        custname.setText(cust_name);}
public void showOrders(){
        sql.showCustomerOrder(jTable1, custid,1);
        totalPayment();
    }
    public void totalPayment(){
        int col = jTable1.getRowCount()-1;
        float i = 0;
        for(int x=0; x<=col; x++){
            i = i + swing.tableGetFloat(jTable1, x, 5);
        }
        jLabel2.setText("TOTAL PAYMENTS: "+i);
    }
    public float totalPayments(){
        float f =0;
        int col = jTable1.getRowCount()-1;
        float i = 0;
        for(int x=0; x<=col; x++){
            i = i + swing.tableGetFloat(jTable1, x, 5);
        }
        f =i;
        return f;
    }
    public int totalProducts(){
        int x = jTable1.getRowCount();
        return x;
    }
```

```
    public int totalItems(){
        int f =0;

        int col = jTable1.getRowCount()-1;
        int i = 0;
        for(int x=0; x<=col; x++){
            i = i + swing.tableGetInteger(jTable1, x, 4);
        }
        f =i;
        return f;
    }
    int pid =0;
    int cit =0;
    String path = "";
    public void selectOnTable(){
        int row = jTable1.getSelectedRow();
        if(row==swing.noRowSelected){
            reset();
        }
        else{
            cit = swing.tableGetInteger(jTable1, row, 0);
            pid = swing.tableGetInteger(jTable1, row, 2);
            s4.setText(swing.tableGetString(jTable1, row,3));
            s5.setText(swing.tableGetString(jTable1, row,6));
            float tt = swing.tableGetFloat(jTable1, row, 7) +
swing.tableGetFloat(jTable1, row, 8);
            s1.setText(tt+"");
            s2.setText(swing.tableGetString(jTable1, row,4));
```

```
            s3.setText(swing.tableGetString(jTable1, row,5));
            path = swing.tableGetString(jTable1, row,9);
            swing.setIconFromPath(jLabel1,
swing.filePath()+path);    }  }
private void paybtnActionPerformed(java.awt.event.ActionEvent
evt) {
int rows = jTable1.getRowCount();
if(rows==0){
    swing.errorMessage(this, "Nothing to pay.");
}
else{
    PYtextarea.setText("\n CUSTOMER: \t"+cust_name);
    float totalprice =totalPayments();
    //totalsales.setText(totalprice+"");
    totalsales.setText(swing.formatDecimalTR(totalprice+""));
    PYtotal1.setText(totalprice+"");
    PYitems.setText(totalItems()+"");
    PYtotal.requestFocus();
    PYamount.setText("");
    PYchange1.setText("");
    PYchange2.setText("");
    btn.setEnabled(false);
    getTotalPrice();
    PYproducts.setText(totalProducts()+"");
    swing.popUpInCenter(this, payments);
    startThread();
}
    }
```

```
  private void
jButton7ActionPerformed(java.awt.event.ActionEvent evt) {

getChange();

    }

public void getChange(){

    rst();

        if(PYamount.equals("")){

}

else{

    float ttl = nowTotalTR;

    float am =
Float.parseFloat(swing.hideComma(PYamount.getText()));

    if(am<ttl){

        swing.errorMessage(payments, "Insufficient amount.");

        PYamount.setText("");

        PYamount.requestFocus();

    }

    else{

        new Sounds().playClipFromPath("cashreg.wav");

        float cng = am - ttl;

    PYchange1.setText(swing.formatDecimalTR(cng));

    PYchange2.setText(cng+"");

    //startNewThread();


    btn.setEnabled(true);

}

}

        PYchange1.requestFocus();

}
```

APPENDIX B

EXPERT'S EVALUATION McCall's Software Quality Model Characteristics Evaluation Instrument

LIMEN'S AUTOSHOP SALES AND INVENTORY MANAGEMENT SYSTEM

Part 1. EXPERT'S PERSONAL INFORMATION

Name:(Optional) _____

Part 2. QUESTIONNAIRE PROPER

Listed below are the criteria for the evaluation of experts of the developed **LIMEN'S AUTOSHOP SALES AND INVENTORY MANAGEMENT SYSTEM** on McCall's software characteristics. Please evaluate and rate carefully each item and mark check (√) on the box that corresponds to your response by using the following numerical equivalents.

Rating Scale: [5]Very Good [4]Good [3]Average [2]Fair [1]Poor

Direction: Listed below are the questions related to McCall's Software Quality Model use to test the developed Web App. How would you rate the developed Web App, in terms of the following criteria:

Criteria	1	2	3	4	5
Auditability The ease with which conformance to standards can be checked.					
Accuracy The precision of computations and control					
Completeness The degree to which full implementation of the required functions has been achieved.					
Communication Commonality The degree to which standards interfaces and protocols are understood.					
Conciseness The compactness of the program in terms of lines and code.					
Consistency The use of uniform design and documentation techniques throughout the software development project.					
Observability					

Criteria	1	2	3	4	5
The process of streaming the software components can be easily identified and understand.					
Operability The ease of operation of the program.					
Security The availability of mechanisms that control or protect programs and data.					
Self-Documentation The degree to which the source code provides meaningful documentation.					
Simplicity The degree to which the program can be understood without difficulty.					
Software System Independence The degree to which the program is independent of non-standard programming language features, operating system characteristics, and other environmental constraints.					
Traceability The ability to trace a design representation or actual program component back to requirements.					
Training The degree to which the software assists in enabling new users to apply the system.					
Controllability The system can be easily controlled and manipulated in terms of execution, program structure, and design.					
Data Commonality The use of standard data structures and types throughout the program.					
Decomposability The software is built from series of modules, and can be tested independently.					
Error Tolerance The damage that occurs when the program encounters an error.					
Execution Efficiency The run-time performance of the program.					
Expandability					

Criteria	1	2	3	4	5
The degree to which architectural, data, or procedural design can be extended.					
Generality The breadth of potential application of program components.					
Hardware Independence The degree to which the software is decoupled from the hardware on which it operates.					
Instrumentation The degree to which the program monitors its own operation and identifies errors that do occur.					
Modularity The functional independence of program components.					

Legend:

Score Range		
4.21 – 5.00	-	Very Good (5)
3.61 – 4.20	-	Good (4)
2.61 – 3.60	-	Average (3)
1.81 – 2.60	-	Fair (2)
1.00 – 1.80	-	Poor (1)

APPENDIX C

END-USER'S EVALUATION PSSUQ SYSTEM USABILITY Evaluation Instrument

LIMEN'S AUTOSHOP SALES AND INVENTORY MANAGEMENT SYSTEM

Part 1. RESPONDENT'S PERSONAL INFORMATION

Name:(Optional) _____

Part 2. QUESTIONNAIRE PROPER

Listed below are the criteria for the evaluation of End-user of the developed **LIMEN'S AUTOSHOP SALES AND INVENTORY MANAGEMENT SYSTEM** on PSSUQ **Evaluation Instrument**. Please evaluate and rate carefully each item and mark check (√) on the box that corresponds to your response by using the following numerical equivalents.

Scale: 1-7

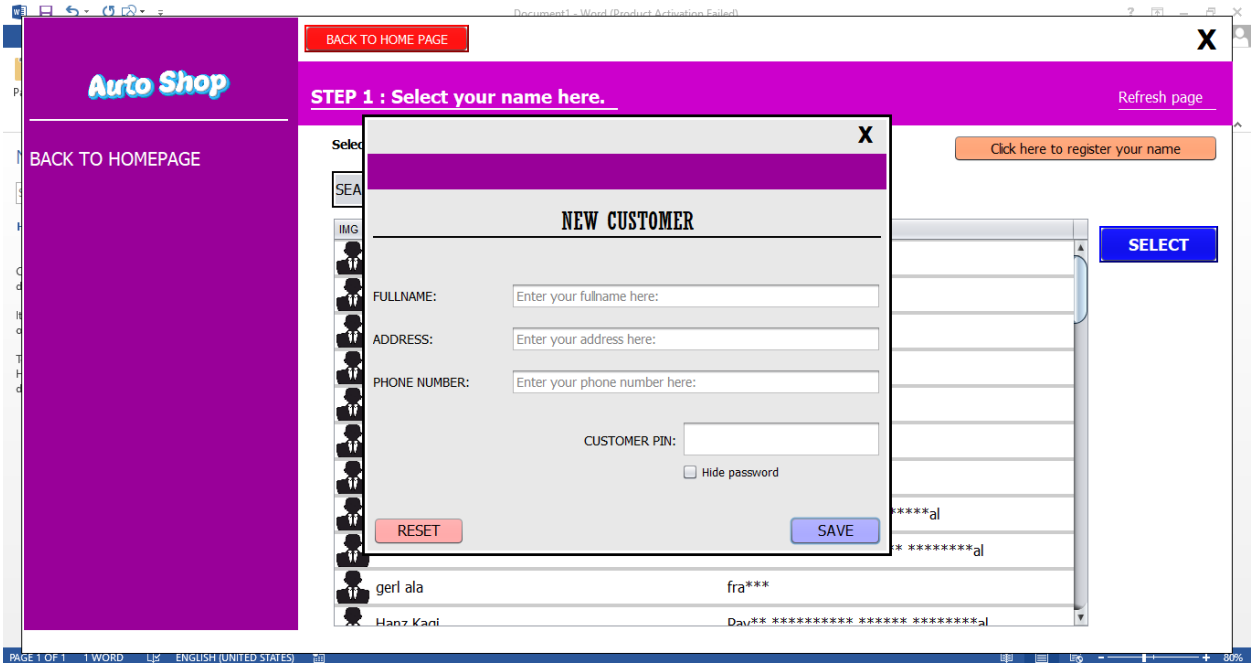
1.0 – 2.19 Strongly Agree
2.20 – 3.39 Agree
3.40 – 4.59 Moderately Agree
4.60 – 5.79 Disagree
5.80 – 7.00 Strongly Disagree

CRITERIA FOR EVALUATION	1	2	3	4	5	6	7
1. Overall, I am satisfied with how easy it is to use this system.							
2. It was simple to use this system.							
3. I was able to complete the tasks and scenarios quickly using this system.							
4. I felt comfortable using this system.							
5. It was easy to learn to use this system.							
6. I believe I could become productive quickly using this system.							

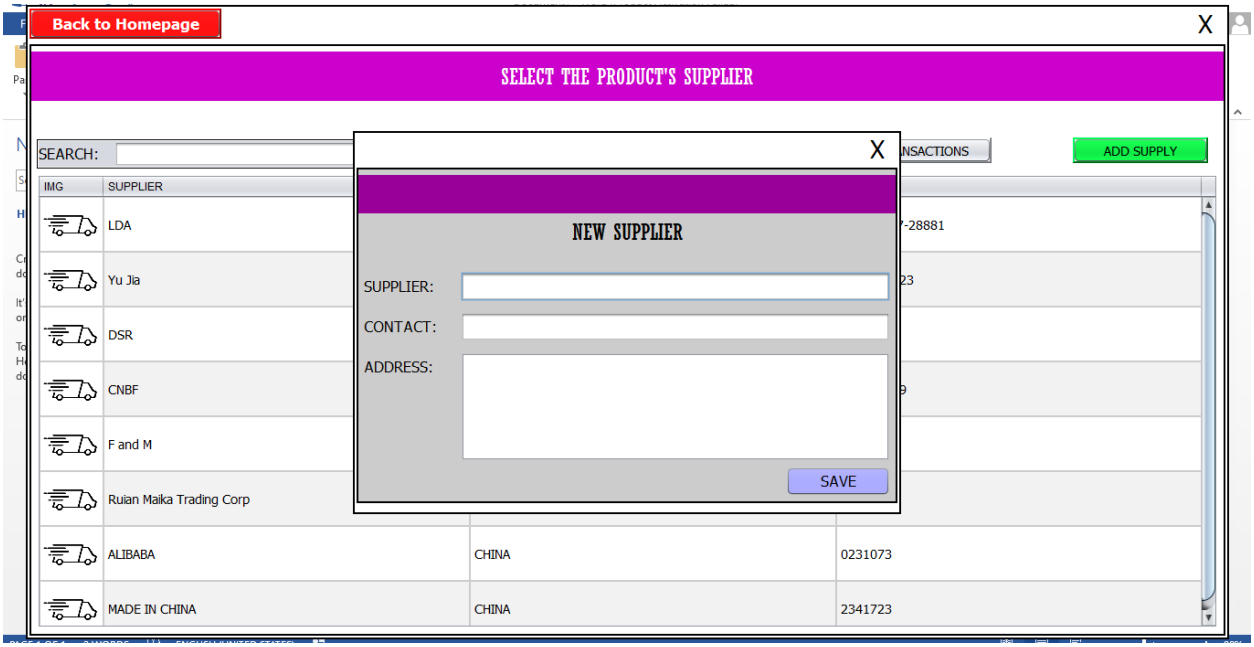
7. The system gave error messages that clearly told me how to fix problems.							
8. Whenever I made a mistake using the system, I could recover easily and quickly.							
9. The information (such as online help, on-screen messages, and other documentation) provided with this system was clear.							
10. It was easy to find the information I needed.							
11. The information was effective in helping me complete the tasks and scenarios.							
12. The organization of information on the system screens was clear.							
13. The interface of this system was pleasant.							
14. I liked using the interface of this system.							
15. This system has all the functions and capabilities I expect it to have.							
16. Overall, I am satisfied with this system.							

APPENDIX D

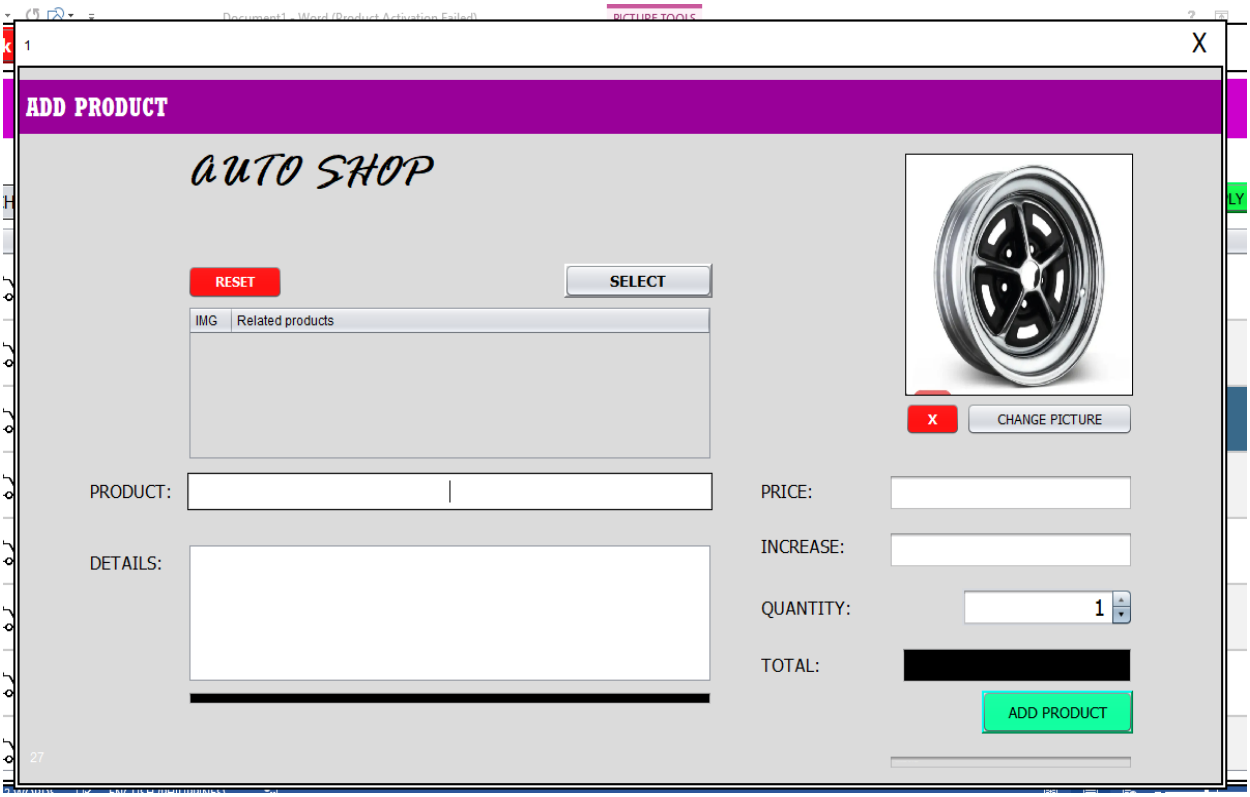
INPUT AND OUTPUT INFORMATION/ REPORTS

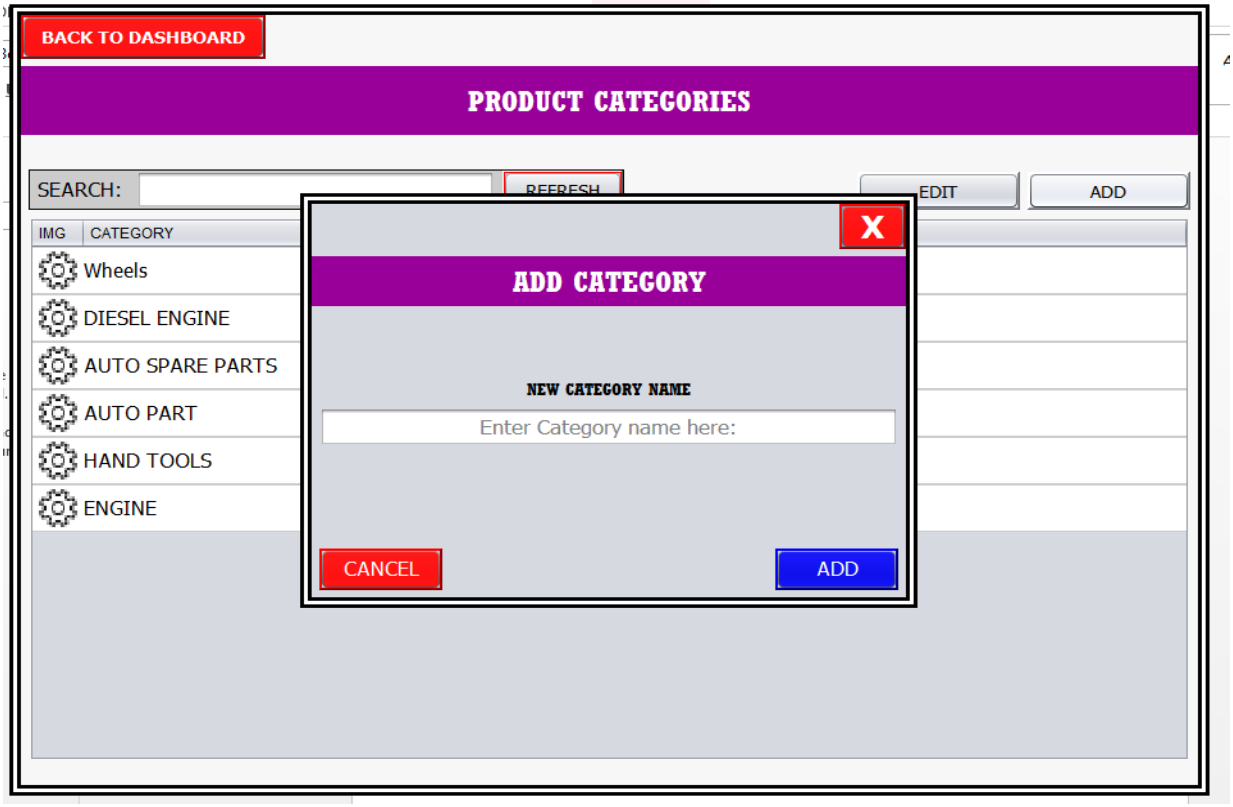


Input new customer information

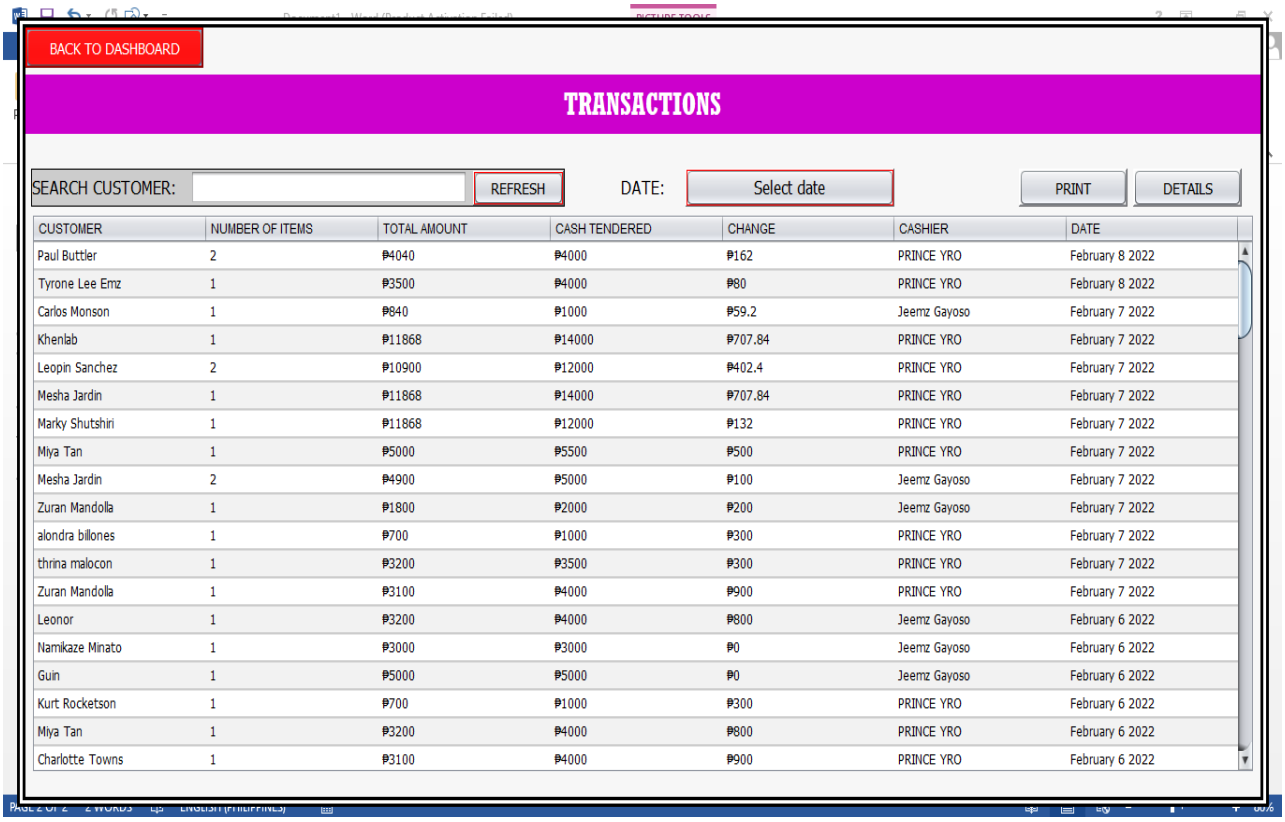


Input new supplier information





Input new category Data

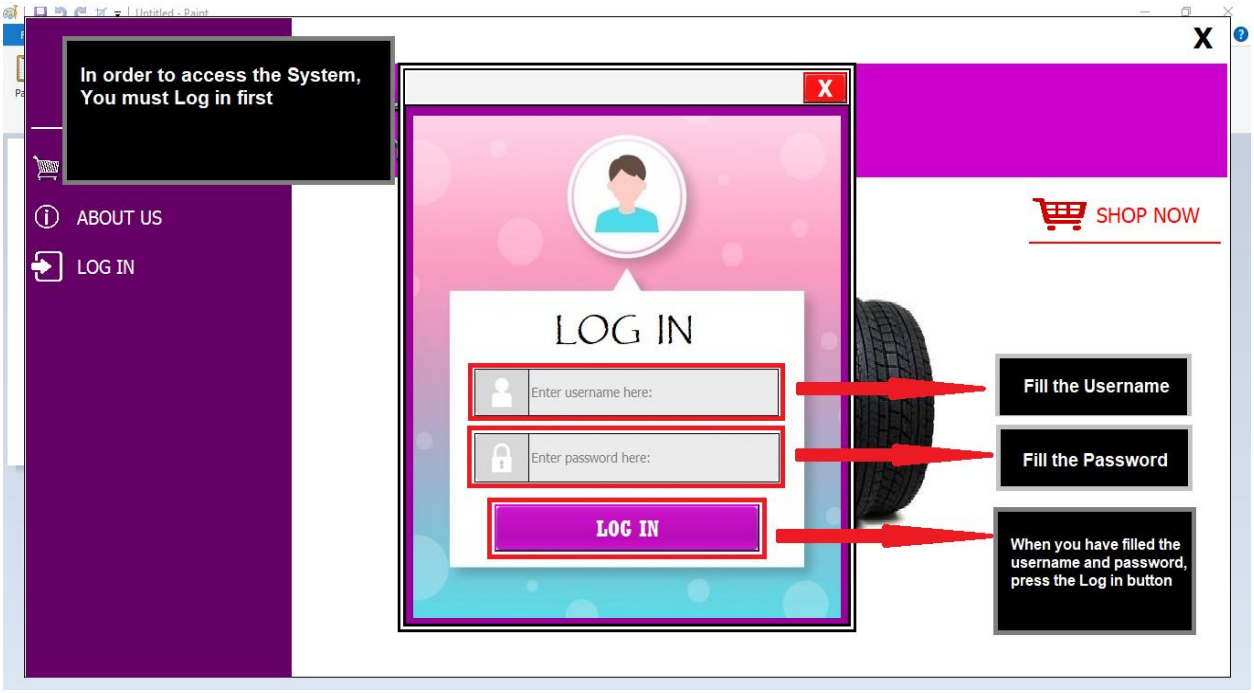


CUSTOMER	NUMBER OF ITEMS	TOTAL AMOUNT	CASH TENDERED	CHANGE	CASHIER	DATE
Paul Buttler	2	₱4040	₱4000	₱162	PRINCE YRO	February 8 2022
Tyrone Lee Emz	1	₱3500	₱4000	₱80	PRINCE YRO	February 8 2022
Carlos Monson	1	₱840	₱1000	₱59.2	Jeemz Gayoso	February 7 2022
Khenlab	1	₱11868	₱14000	₱707.84	PRINCE YRO	February 7 2022
Leopin Sanchez	2	₱10900	₱12000	₱402.4	PRINCE YRO	February 7 2022
Mesha Jardin	1	₱11868	₱14000	₱707.84	PRINCE YRO	February 7 2022
Marky Shutshiri	1	₱11868	₱12000	₱132	PRINCE YRO	February 7 2022
Miya Tan	1	₱5000	₱5500	₱500	PRINCE YRO	February 7 2022
Mesha Jardin	2	₱4900	₱5000	₱100	Jeemz Gayoso	February 7 2022
Zuran Mandolla	1	₱1800	₱2000	₱200	Jeemz Gayoso	February 7 2022
alondra billones	1	₱700	₱1000	₱300	PRINCE YRO	February 7 2022
thrina malocon	1	₱3200	₱3500	₱300	PRINCE YRO	February 7 2022
Zuran Mandolla	1	₱3100	₱4000	₱900	PRINCE YRO	February 7 2022
Leonor	1	₱3200	₱4000	₱800	Jeemz Gayoso	February 6 2022
Namikaze Minato	1	₱3000	₱3000	₱0	Jeemz Gayoso	February 6 2022
Guin	1	₱5000	₱5000	₱0	Jeemz Gayoso	February 6 2022
Kurt Rocketson	1	₱700	₱1000	₱300	PRINCE YRO	February 6 2022
Miya Tan	1	₱3200	₱4000	₱800	PRINCE YRO	February 6 2022
Charlotte Towns	1	₱3100	₱4000	₱900	PRINCE YRO	February 6 2022

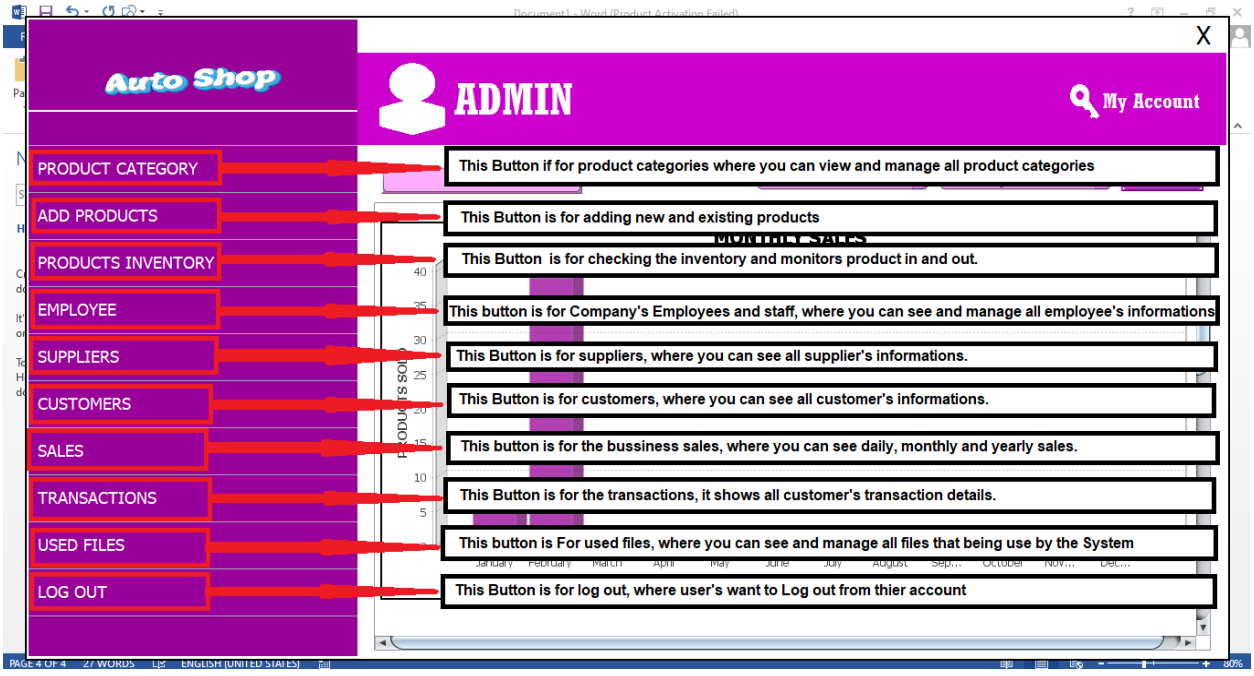
Print list of transaction/record

APPENDIX E

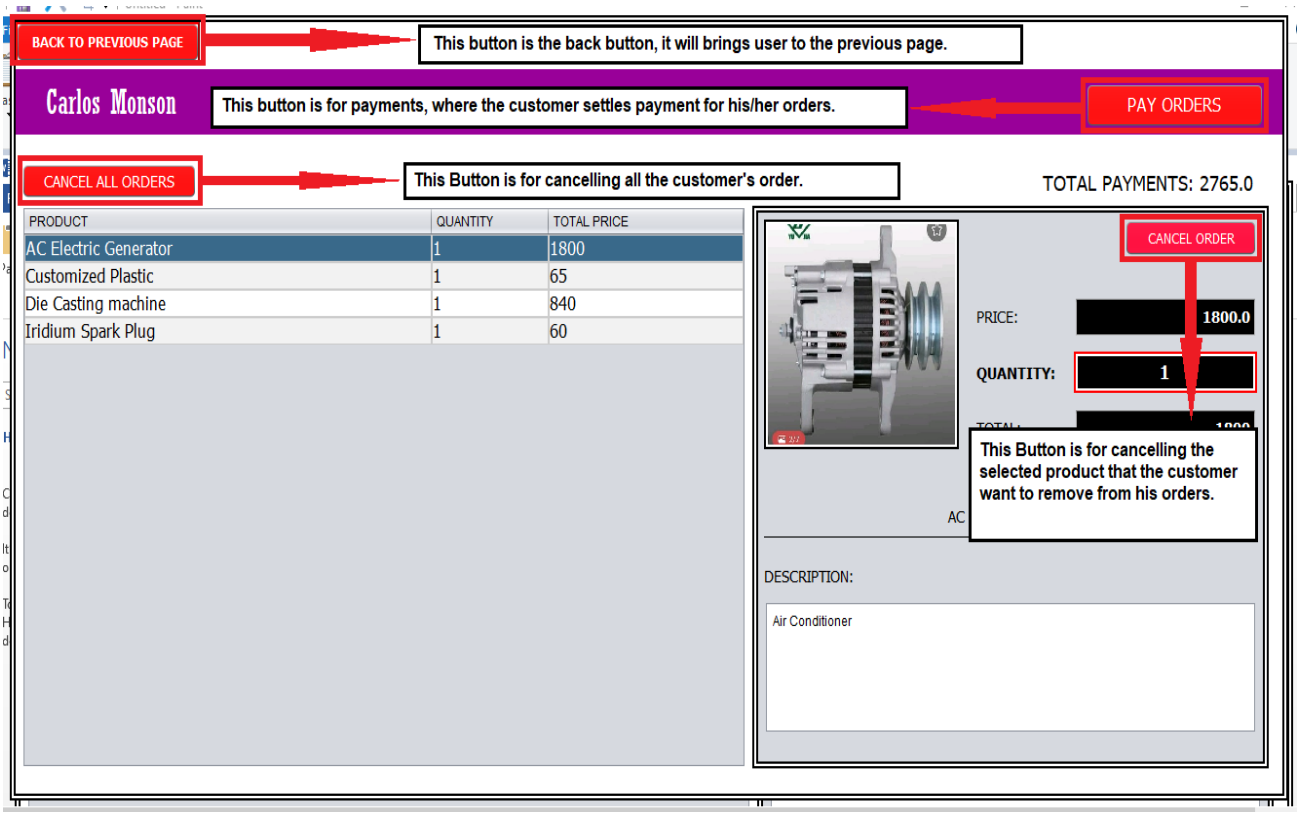
USER'S GUIDE



User's Guide from Login Page



User's guide for inputs and outputs.



User's guide for order list.

APPENDIX F

CURRICULUM VITAE

Tyrone L. Malocon

Contact Number: 09104254959

Email Address: tyronemalocon@gmail.com

Address: Libacao Himamaylan City Negros Occidental

CAREER OBJECTIVE

Pursuing opportunity which will allow me to grow professionally, while effectively utilizing my versatile skill set to help promote your corporate mission and exceed teem goals.

SKILLS AND QUALIFICATIONS

- Excellent in Programming (Java, PHP, Phyton, C++, Visual Basic, C language)
- Excellent in Microsoft Office (Word, PowerPoint, Excel)
- Excellent in Networking troubleshooting
- Excellent written and verbal communication skills
- Highly organized and efficient
- Ability to work independently or as a part of a team
- Proven leadership skills and ability to motivate

PERSONAL INFORMATION

Date of Birth: October 5 1998

Age: 23

Gender: Male

Civil Status: Single

Religion: Baptist

Nationality: Filipino

Height: 5’5

Weight: 52 kg

Dialects: Hiligaynon, Tagalog, English

EDUCATIONAL ATTAINMENT

Primary:	Don R.M Limsiaco Elementary School Libacao Himamaylan City Negros Occidental 20010-2011
Secondary:	San Blas Academy Payao Binalbagan Negros Occidental. 2014-2015
Tertiary:	Carlos Hilado Memorial State College Brgy, Enclaro Binalbagan Negros Occidental Bachelor of Science in Information Technology 2021-2022

CHARACTER REFERENCES:

Jennifer Juaneza, PhD. TM

IT Chairperson

Carlos Hilado Memorial State College

Brgy, Enclaro Binalbagan Negros Occidental

Gerle Mae Alabado, MIT

IT Faculty

Carlos Hilado Memorial State College

Brgy, Enclaro Binalbagan Negros Occidental

Jeemel R. Gayoso

Contact Number: 09708225986

Email Address: gayosojeemel@gmail.com

Address: Saraet Himamaylan City Negros Occidental

CAREER OBJECTIVE

Pursuing opportunity which will allow me to grow professionally, while effectively utilizing my versatile skill set to help promote your corporate mission and exceed teem goals.

SKILLS AND QUALIFICATIONS

- Good in Programming (Java, PHP, Visual Basic,)
- Good in Microsoft Office (Word, PowerPoint, Excel)
- Ability to work independently or as a part of a team
- Proven leadership skills and ability to motivate
- Computer Literate

PERSONAL INFORMATION

Date of Birth: October 31 1998

Age: 23

Gender: Male

Civil Status: Single

Religion: Roman Catholic

Nationality: Filipino

Height: 5’2

Weight: 45 kg

Dialects: Hiligaynon, Tagalog, English

EDUCATIONAL ATTAINMENT

Primary:	Saraet Elementary School Brgy. Saraet Himamaylan City Negros Occidental 20011-2012
Secondary:	Aguisan National High School Brgy. Aguisan Himamaylan Negros Occidental. 2015-2016
Tertiary:	Carlos Hilado Memorial State College Brgy, Enclaro Binalbagan Negros Occidental Bachelor of Science in Information Technology 2021-2022

CHARACTER REFERENCES:

Jennifer Juaneza, PhD. TM

IT Chairperson

Carlos Hilado Memorial State College

Brgy, Enclaro Binalbagan Negros Occidental

Gerle Mae Alabado, MIT

IT Faculty

Carlos Hilado Memorial State College

Brgy. Enclaro Binalbagan Negros Occidental

Kenneth A. Laudit

Contact Number: 09669827321

Email Address:khennamante@gmail.com

Address: Tilangcoy Brgy. Payao binalbagan Negros Occidental

CAREER OBJECTIVE

Pursuing opportunity which will allow me to grow professionally, while effectively utilizing my versatile skill set to help promote your corporate mission and exceed teem goals.

SKILLS AND QUALIFICATIONS

- Good in Microsoft Office (Word, PowerPoint, Excel)
- Good in Programming (Java, PHP,Visual Basic,)
- Good in Networking troubleshooting
- Ability to work independently or as a part of a team
- Computer Literate

PERSONAL INFORMATION

Date of Birth: April 12 2000

Age: 21

Gender: Male

Civil Status: Single

Religion: Roman Catholic

Nationality: Filipino

Height: 5’5

Weight: 51 kg

Dialects: Hiligaynon, Tagalog, English

EDUCATIONAL ATTAINMENT

Primary:	Payao Elementary School Payao Binalbagan City Negros Occidental 20011-2012
Secondary:	San Blas Academy INC. Bgry. Payao Binalbagan Negros Occidental. 2015-2016
Tertiary:	Carlos Hilado Memorial State College Brgy, Enclaro Binalbagan Negros Occidental Bachelor of Science in Information Technology 2021-2022

CHARACTER REFERENCES:

Jennifer Juaneza, PhD. TM
IT Chairperson
Carlos Hilado Memorial State College
Brgy, Enclaro Binalbagan Negros Occidental

Gerle Mae Alabado, MIT
IT Faculty
Carlos Hilado Memorial State College
Brgy, Enclaro Binalbagan Negros Occidental