

# Development of Pangasinan E-Trade Souvenir Portal

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**Abstract** - The Pangasinan E-Trade Souvenir Portal was developed to help the people of Pangasinan buy various products in different towns in Pangasinan without leaving home by providing the following features: 1.) Provide knowledge, guidance, and accurate information on what there is to know about a particular product before purchasing; 2) Accessibility - The system will provide four levels of access as System Administrators, Couriers, Sellers, and Buyers. And also the system can provide cash on delivery and G-cash as a mode of payment. In addition, the system is unable to provide online transactions except G-cash but it is outside the system. 3) Advertisement - one of the functions of the system where the product came from and descriptions and only seller can reap its benefits. 4.) Information - Knowledge obtained from investigation, study, or instruction. The Pangasinan E-Trade Souvenir Portal keep the customers safe and do other things than going to market and have a contact with many people. Customers can access the system through home page wherein he can choose product and check out. It benefits the seller, courier and also the buyer and that is because of the process of the system. The process involved the Waterfall Methodology with its six phases: (1) Requirements Analysis, (2) System Design, (3) Implementation Design, (4) Testing, (5) Deployment and (6) Maintenance. This project aimed to design, develop and implement the system Pangasinan E-Trade Souvenir Portal. It sought to attain the following objectives; (1) To describe the existing process of buying and selling products; (2) To identify the features of the system; and to test the usability of the system. The features of the system were made and some interviews were conducted with some selected individuals which we successfully implemented.

**Keywords:** Mercantile, E-trade, Outlet System

## 1. INTRODUCTION

Companies that sell products have learned to use recent technologies like the thriving market in order to be able to reach the potential buyer since almost everyone uses technology and the internet these days. Over these past years, E-commerce has developed very fast because of many advantages related to buying on the internet because of easier

transactions and lower cost as compared to other types of shopping (Cuneyt Koyuncu; Gautam Bhattacharya, 2017). [1]

In the study conducted by Singh & Kashyap, (2007), online shopping is a form of electronic commerce that allows consumers to directly buy goods and services from a seller over the internet using web browsers or mobile applications. It is a new innovation for shopping that offers numerous business activities and a huge market. [6]

According to Republic Act (RA) 4109 section 3, The Bureau shall have charge of the establishment of standards for, and inspection of, all agricultural, forest, mineral, fish, industrial and all other products of the Philippines for which no standards have as yet been fixed by law, executive order, rules and regulations; and the inspection and certification of the quality of commodities imported into the Philippines, to determine the country of origin of the articles which are the growth, raw materials, manufacture, process, or produce, and to determine if they satisfy the buyer's or importer's requirements or specifications for domestic consumption; and to prohibit the discharge and/or release of any article which are the growth, raw materials, manufacture, process, or produce of countries without trade relations with the Philippine government.[7]

Also, Gnanadhas, (2014) stated that online buying and selling is a boon as it saves a lot of time. Online shopping is a process whereby consumers directly buy goods, services, etc. from a seller without an intermediary service over the internet. Shoppers can visit web stores from the comfort of their house and shop by sitting in front of the computer. Online stores are usually available 24 hours a day and many consumers have internet access both at work and at home. Therefore, it is convenient for them to buy or sell online. [2]

According to Executive Order (EO) 913, Executive Order No. 60 issued on February 26, 1993, creating the Presidential Inter-Agency Committee on Intellectual Property Rights. Several member-agencies of this Committee have created special task forces on IPR such as: the Department of Trade and Industry [DTI], Department of Justice [DOJ], National Bureau of Investigation [NBI], Bureau of Customs [BOC] and the Philippine National Police [PNP]. [8]

Based on the study of Fuscaldo, (2019) Selling online is setting up a website and uploading product images; it requires passion, expertise, and marketing chops to succeed. You can use a marketplace, an e-commerce platform,

or add a shopping cart to an existing website and for new sellers, marketplaces like Bon Bon Bon and Vivino Marketplace are easy, affordable options, and also E-commerce platforms make it easy to set up an online store quickly. It has built-in tools to help you accept payments and manage inventory. [3]

The study of Joe McFerrin (2019) states that Aldrich thought of the idea while on a walk with his wife, bemoaning the inconvenience of making regular trips to the market. Wouldn't it be so much easier if you could just order what you needed through the TV? Shortly, thereafter, he invented a system that advertised goods and services on television, giving viewers the ability to call into a processing center to place orders. Aldrich called his system "teleshopping." [10]

According to Series of 1983 and EO 133 Series of 1987. Section 2, The Department of Trade and Industry, hereinafter referred to as Department shall be the primary coordinative, promotive, facilitative and regulatory arm of government for the country's trade, industry and investment activities. It shall act as catalyst for intensified private sector activity in order to accelerate and sustain economic growth through: (a) a comprehensive industrial growth strategy, (b) a progressive and socially responsible liberalization and deregulation program, and (c) policies designed for the expansion and diversification of trade, both domestic and foreign.[11]

## **1.1 COMMON ONLINE SHOPPING PROBLEMS CAUSING REVENUE LOSS FOR YOUR BUSINESS**

### *1.1.1 Lack of Support and No Live Chat Opportunity*

If you don't provide support for your customers, you are not only depriving help from those who already purchased something from you, but you could also be alienating would-be customers. Would-be customers have a lot of questions, especially if your product descriptions and attributes are not properly provided. If they

receive poor customer service, they will just turn away and not make the purchase in the first place. It's also worth noting that "57% of customers would rather contact companies via digital media such as email or social media rather than use voice-based customer support", as per Ameyo's study, 2014. [4]

The solution: setting up a support email address and a live on-site/Messenger chat in your online store, which can be done in a few hours at most, will greatly enhance your user experience. [4]

#### *1.1.2 Having a Poor On-site Search Engine*

This is probably one of the most overlooked features in the ecommerce customer experience. This is why we should break it down a little.

The solution: Treat your site search solution as a great opportunity for engaging with users and offering them relevant products. [4]

#### *1.1.3. Bad User Experience*

The deterioration of user experience is usually related to elements that shouldn't be noticed by the user in the first place.

In design, this could mean that your site is not mobile-friendly and falls apart on a small screen. Normally, navigation, up-sells, relevant product offers, and such should be presented to the user in a natural way; not by interrupting their experience, but enhancing it. [4]

The solution: make sure that your hosting provider is up to the job and that you have the appropriate service for the number of visitors your site experiences at peak volume.

#### *1.1.4. The Lack of Personalization*

If you provide a personalized shopping experience, you have a much better chance of converting your visitors to customers, simply because you can show them products they are actually interested in instead of showcasing your entire product range. There are many ways to go about this. Most sites that use personalization use data from a user's previous behavior and offer

those products that are similar, or relevant, to the ones they previously viewed or bought. [4]

The solution: personalize as much as you can – even on search result pages.

#### *1.1.5. Missing or Unclear Product Information*

When you introduce a product to your would-be customers, you can break down the information into two basic categories: product features and product benefits.

We will deal with the benefits in the next point, so let's start by looking at product features. Product features include all the dry information about how the product works, looks, how big it is, how fast it is, warranties, and so on. [4]

The solution: make sure to include all available information on the product page, including frequently asked questions.

Materials and Method

The study used a descriptive-development research design with a modified waterfall development model as its development model.

The Pangasinan E-Trade Souvenir Portal was developed using the waterfall approach, which is documentation-driven since it is consistent and systematizes the procedures being contracted at each different step that resembled the needs of integrating the system's functionalities. This made it much clearer that testing is an integral part of every phase of the waterfall model. Furthermore, it is a disciplined technique that caters to the developer's need for a very little number of resources to implement this model.

The waterfall model represents the sequential and linear process of software development. It flows through the phases of Requirements, Analysis, Design, Implementation, Testing, Deployment, and Maintenance.

## 2. INSTRUMENTATION AND DATA COLLECTION

In gathering data and information the developer used different techniques to define needed requirements which are essential in the development of the study. Those information and data gathered is a big help for the development of the proposed system. The data collection tools that were used by the developer are interview, internet research and survey.

### 2.1 Interview

The developer have decided to use an interview guide for data gathering to get all needed information faster and more reliable in creating the system. Interviewing is a technique of gathering data from specific person by asking those questions and getting them react verbally.

### 2.2 Internet Research.

The developer made use of the internet to find articles, news, journals, and books in order to find related studies for reference and to find more information to be used in the literature of the study which supports the study.

### 2.3 Tools for Data Analysis

The following will be used in the data collection and interpretation which aid in the development of the system.

### 2.4 Average Weighted Mean.

The developer made use of an average weighted mean to allow the final average number of percentages in test and acceptability of the system that reflected the relative importance of each number that is being averaged to gather and represents the overall evaluation of the respondents for the developed system

Average Weighted Mean Formula:

$$\bar{x} = \frac{w_1x_1 + w_2x_2 + \dots + w_nx_n}{w_1 + w_2 + \dots + w_n}$$

Where:

x is the repeating value

w is the number of occurrences of x (weight)

$\bar{x}$  is the weighted mean

### 2.5 Database Schema.

The developer utilized this tool in order to set forth the database structure for the system to be developed (See Appendix G).

### 2.6 Entity Relationship Diagram.

The developer utilized this tool in order to present the entities and its attributes involved in the system developed.

### 2.7 Flowcharts.

The developer utilized this tool in order to identify the systematic flow of information of the system to be developed.

### 2.8 Likert Scale

The developer use these tools to know if the users agree or disagree with the implementation of the system. With the use of Likert scale we can get the users feedback by using ratings from 1 is strongly disagree to 5 to strongly agree.

### 2.9 Use Case Diagram

The developer used the use case diagram as an instruction to illustrate the peculiarities and functionalities will of the proposed development of the system. The use case diagram will be used to clarify on how the clients communicate with the system and its included procedures and operations which lots of the clients and the system.

## 3. RESULTS AND DISCUSSIONS

### 3.1 The Existing Process of current selling of Pangasinan products

The following discussions aimed to answer the process involved in the current process of selling, identify the problems encountered by the customer in the current manual, and specify the features of the proposed

system. After thorough analysis and with the use of interviews the researchers were able to find solutions to the problems.

The manual process of the current system they are using, consequently time consuming and less orderly. Thus it will take longer time for the seller in searching and buying a certain Pangasinan products and the process of buying. Additionally, the amount of work performed as well as the availability of other Pangasinan products should be highlighted for potential and current buyers. The tendency of having automated system in today's modern world can increase the productivity in the production of goods services and effort to become more competitive than others.

In Figure 3.1.1 shows the flowchart of the existing system in current process of selling, identify the problems encountered by the customer in the current manual, and specify the features of the proposed system.

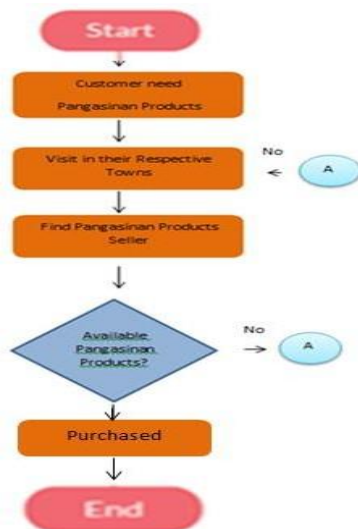


Figure 3.1.1 Flowchart showing the current selling Pangasinan products.

This is the flowchart that shows the buyer physically goes to the seller's place to inquire about the product. Customers have a hard time finding Pangasinan products to buy. They even go to other places to buy Pangasinan products and sometimes they don't have the

Pangasinan products they are looking for. These are the reasons why it's tough for customers to find Pangasinan products, because sellers frequently offer Pangasinan products since they are still doing it and also patronage their products too.

### 3.2 Features of the System

The system is being developed in HTML, CSS, JavaScript, PHP with Bootstrap and using MySQL as the database for the system. The system's features are implemented in order to monitor and manage the users. The overall system's features and functionalities are presented in the following pages. The developed system is composed of different pages including the following in the succeeding pages.

The Home Page is presented in Plate 3.2.1 shows the buyer can view the list of products available

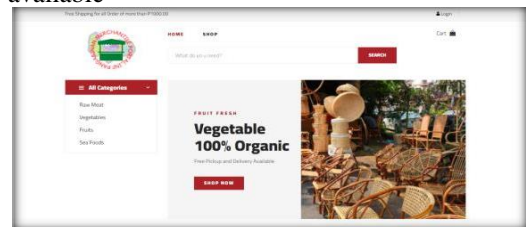


Plate 3.2.1 Home Page

This is the homepage of the system where the; on the upper right corner of the header, it shows the name of the customer and logout button of the customer. The main menu bar has the following buttons Home to go back to the front page, Shop to view all the items, my orders to view all the list of your pending and delivered items, Track Order is to check the status of the item whether it is For delivery of delivered, Login or Register is where the user input his credentials, Shopping Cart where you can see all your added to cart items, and Search buttons is when you are looking for some items you need to search for easiest way on finding it.

The Registration Page is presented in Plate 3.2.2 A and B shows the user can create an account in the Registration Module. They are given access to the system after creating an account.



Plate 3.2.2.1 Seller Registration Page

The seller registration form that provides the information of the seller including name, address, contact number and other important details about him and his shop. The given information here must be accurate and true. It also includes his business permits and proof of his store as a legit seller. A registered seller will access the system to provide the needs and wants of the buyer.

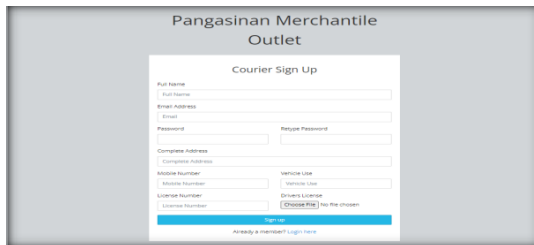


Plate 3.2.2.2 Courier Registration

The courier registration of the system is used as evaluation and interview to applicant. So, a freelance courier will create his account by filling up the registration form with his information's. His details must be accurate and complete including his Driver license ID. Only registered freelance courier will access the system and provide courier services for the buyers.

The Login Page is presented in Plate 3.2.3. The login page is used as a door to enter the system. The user will login his account to access the system. Users are verified and authenticated. Only registered an active accounts are allowed to access the system.



Plate 3.2.3 Courier and Seller Login

The seller and courier login page can sign-in their accounts using a password and email that they registered to the system. With these credentials they are able to manage their own dashboards.

The shop interface is presented in Plate 3.2.4. The shop interfaces are the interface where the buyer can see all posted products by the seller and the reviews of other customers. With this, the buyer can review other products by clicking the picture.

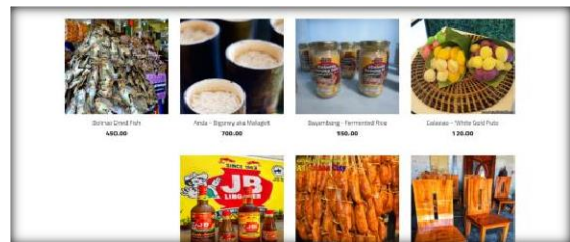
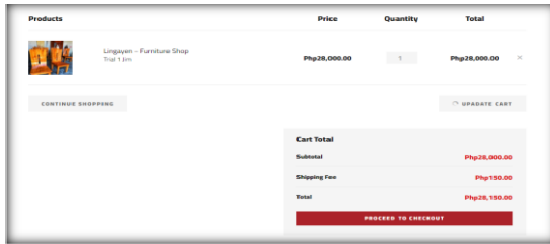


Plate 3.2.4 The User Interface Page

The shop interface is the display all of the items on the list, along with their names and prices. If you need more information, click the products and you will see the product details, and you'll be taken to the product's page, where you can read more about it.

The Checkout Module is presented to Plate 3.2.5. This shows the list of all ordered items, total prices and total quantity.

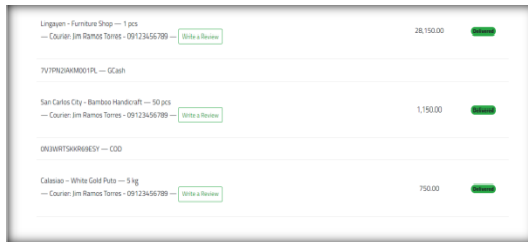




*Plate 3.2.5 the Checkout Module*

The check-out button will display the total amount of the products price and the shipping fee. Also the buyer can choose whether it is cash-on-delivery or G cash payment upon the discretion of the buyer and proceed to check out for ordering the item.

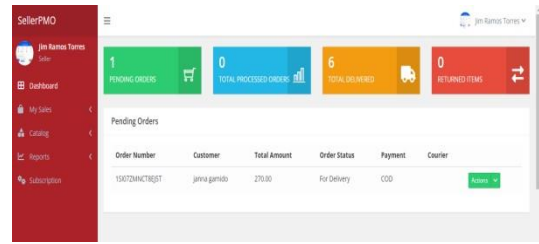
The Track order Module is presented in Plate 3.2.6. The check-out button will display the total amount of the products price and the shipping fee. Also the buyer can choose whether it is cash-on-delivery or G cash payment upon the discretion of the buyer.



*Plate 3.2.6 The Track Order Module*

This is the track order of the system wherein the buyer can see the status of his order. The buyer can also write a review about the product they ordered after they received it. The buyer also can see the details of his order. This module has the capacity to show how much is your total cost of your ordered product. You can also see the shipping fee and the overall total including shipping fee and product cost. When the buyer is satisfied of his order he can easily click proceed to check out to order his item.

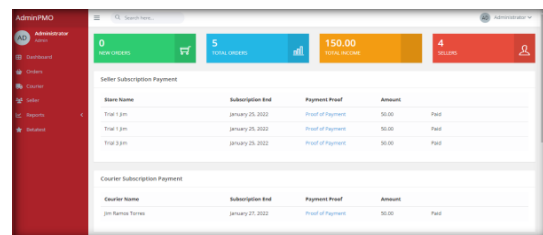
The Seller dashboard is presented to Plate 3.2.7. This shows the list of all ordered items, total prices and total quantity



*Plate 3.2.7 The Seller Dashboard*

The pending orders wherein all the incoming orders will place on the pending button, processed orders will be place also on the processed orders together with total orders are place on the dash board so that the seller will just click the button and easily identify the delivered items. Return items are also included so that the seller will determine how many return items are collected.

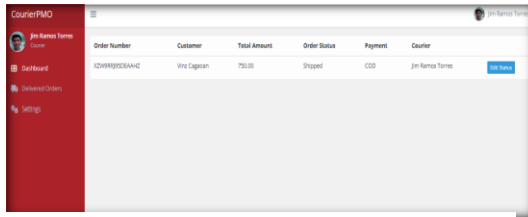
The Admin Dashboard is presented to Plate 3.2.8. The dashboard displays the entire seller's and the courier's summary information. The admin can view all transactions or ordersthat are currently active in the system from this module.



*Plate 3.2.8 the Admin Dashboard*

The dashboard of the system admin, where you can see the new orders, total orders, and summary of paid through subscription and total seller. Here they can view all transaction or order is happening in the system.

The Courier Dashboard is presented to Plate 3.2.9 the order number is a barcode of the products. The buyer's name is visible in and in the other column; you will see the total amount which is the amount of the product purchased by the buyer.



*Plate 3.2.9 the Courier Dashboard*

The order status is to find out if it's already shipped. The payment method he chose is Cash on Delivery where you can give your payment to the courier. The list of shipped orders by the customers which includes order number, customer name, total amount, order status, payment mode and courier.

### 3.3 Acceptability Test

In testing the acceptability of the developed system, a survey was done to assess the quality of the system. The developer conducted a survey to evaluate the acceptability of the developed system.

#### 3.3.1 Seller Acceptability Test

The developer used a questionnaire and surveys with the use of Likert scale to get the ratings of each assigned Evaluated Test such as, Usability, Design, Navigation, Information and User-Friendliness.

This shows the summary of Overall results for the Seller Acceptability Test. summary of evaluated test of the system according to usability, design, navigation, information, and user-friendliness is presented in Table 3.3.1

Table 3.3.1: *Summary of Overall Seller Acceptability Test.*

<b>Summary of Evaluated Test</b>	<b>AWM</b>	<b>OE</b>
Usability	4.10	SA
Design	4.85	SA
Navigation	4.77	SA
Information	4.86	SA
User-Friendliness	4.9	SA
<b>Average Weighted Mean</b>	<b>4.69</b>	<b>SA</b>

**Legend:** 1.00 – 1.79 for remark as Strongly Disagree; 1.80 – 2.58 for remark as Disagree; 2.60 – 3.39 for remark as Neutral; 3.40 – 4.19 for remark as Agree; 4.20 – 5.00 for remark as Strongly Agree

The study shows that the usability of the system was agreed with the rate of 4.10 In terms of the web design, the respondent rated with an average of 4.85. The respondent rated the navigation of the system to 4.77. The content information of the system rated with an average of 4.86. The user-friendliness of the system received with the rate of 4.9, through this acceptability test, developer find out that thesellers strongly agree that the developed system comply the requirements and that is presented bythe average weighted mean of 4.69.

#### 3.3.2 Customer Acceptability Test

The developer used a questionnaire and surveys with the use of Likert scale to get the ratings of each assigned Evaluated Test such as, Usability, Design, Navigation, Information and User-Friendliness

This shows the summary of Overall results for the Customer Acceptability Test. The system is design and considered to 5 criteria. The usability, design, navigation, information, and user-friendliness are considered by the developer and users in order to fulfill all the missing piece of the systems.

The questionnaires were asked to know their opinion and improve the system as a whole. Through these surveys and questionnaires the system come up with the better self of the system so that it will gain users rather than losing them. In this phase, the summary of evaluated test of the system according to usability, design, navigation, information, and user-friendliness is presented in Table 3.3.2.



*Table 3.3.2: Summary of Customer Acceptability Test.*

<b>Summary of Evaluated Test</b>	<b>AWM</b>	<b>OE</b>
Usability	4.39	SA
Design	4.81	SA
Navigation	4.81	SA
Information	4.77	SA
User-Friendliness	4.85	SA
<b>Average Weighted Mean</b>	<b>4.72</b>	<b>SA</b>

**Legend:** 1.00 – 1.79 for remark as Strongly Disagree; 1.80 – 2.58 for remark as Disagree; 2.60 – 3.39 for remark as Neutral; 3.40 – 4.19 for remark as Agree; 4.20 – 5.00 for remark as Strongly Agree

The study shows that the usability of the system was agreed with the rate of 4.39. In terms of the web design, the respondent rated with an average of 4.81. The respondent rated the navigation of the system to 4.81. The content information of the system rated with an average of 4.77. The user-friendliness of the system received with the rate of 4.85. Through this acceptability test, developer find out that the customer strongly agree that the features of the system complies their requirements and that is presented by the average weighted mean of 4.72.

### 3.3.3 Courier Acceptability Test

The developer used a questionnaire and surveys with the use of Likert scale to get the ratings of each assigned Evaluated Test such as, Usability, Design, Navigation, Information and User-Friendliness

This shows the summary of Overall results for the Customer Acceptability Test. The summary of evaluated test of the system according to usability, design, navigation, information, and user-friendliness is presented in Table 2.2.1

*Table 2.2.1: Summary of Evaluated Test of the System*

<b>Summary of Evaluated Test</b>	<b>AWM</b>	<b>OE</b>
Usability	4.39	SA
Design	4.84	SA
Navigation	4.78	SA
Information	4.77	SA
User-Friendliness	4.73	SA
<b>Average Weighted Mean</b>	<b>4.72</b>	<b>SA</b>

**Legend:** 1.00 – 1.79 for remark as Strongly Disagree; 1.80 – 2.58 for remark as Disagree; 2.60 – 3.39 for remark as Neutral; 3.40 – 4.19 for remark as Agree; 4.20 – 5.00 for remark as Strongly Agree

The study shows that the usability of the system was agreed with the rate of 4.39. In terms of the web design, the respondent rated with an average of 4.84. The respondent rated the navigation of the system to 4.78. The content information of the system rated with an average of 4.77. The user-friendliness of the system received with the rate of 4.73. Through this acceptability test, developer find out that the courier strongly agree that the features of the system complies their requirements and that is presented by the average weighted mean of 4.72.

## 4. CONCLUSION AND RECOMMENDATIONS

### 4.1 Conclusion

The purpose of this study is to develop an Internet-Based Ordering System for Pangasinan product, that can provide an online platform for Pangasinan product sellers and buyers who had been struggling to sell and buy Pangasinan product. This will benefit the seller by potentially earning revenue using this system and buyer can easily find a Pangasinan product. This system will make it easier for sellers to sell Pangasinan product and for customers to buy them since it will cut down on the time and hassle of selling and buying.

Using the developed system in the functional requirements will help the customer to easily find a Pangasinan product, facilitate

buying show the products he will sell and also the courier can easily view the address or information.

The features in developed system will help the four users to organize their transactions and information they want to see using the system.

Through the features integrated into the system, the user's perception of the system's usability, design, and user satisfaction sum-up as good feedback that the system satisfies the user's needs.

#### 4.2 Recommendations

Based from the findings and conclusions made by the developer, the following recommendations are suggested to the developer who are in lined with this kind of topic:

The developer recommends the use of the hardware and software specifications to run the system smoothly. Annual maintenance of the system and database storage of the system should be implemented. As much as possible the user must have the back-up for the database in case the existing table is full or corrupted. The developer also recommends upgrading the software needed in order to have an efficient and to experience the essence of the system.

Lastly, the developer of the study recommend that the future developer may improve the system in terms of adding more features which the previous developer not included and improving the designs for much better user experience.

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