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José Rizal University

E-COMMERCE PLATFORM FOR KING DEO AND QUEEN GRACE PHONE, LAPTOP AND ACCESSORIES

A Project Study Submitted
to the Faculty of the College of Computer Studies and Engineering

In Partial Fulfillment of the Requirements
for the Degree of Bachelor of Science in Information Technology

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Chapter 1

INTRODUCTION

This chapter provided an overview of the E-commerce Platform for King Deo and Queen Grace phone, laptops, and accessories. This chapter addressed the specific problems and settings. It included the background of the study, the conceptual framework, the statement of the problem, the significance of the study, and the scope and limitations of the study.

Background of the Study

In today's digital age, the retail industry had undergone a significant transformation due to the growth of technology and e-commerce. As technology advanced, it became more crucial to understand how retailers dealt with technology and the potential these emerging trends offer. **(Pantano et al., 2019).** Online retailers offer customers the flexibility to compare prices, choose products, and make purchases from the comfort of their own homes at any time. **Malenkov et al. (2021)** studied the behavioral patterns of different customer generations during the pandemic. The increasing trend of online shopping necessitates retailers to contemplate strategies to cater to their customers. The article further states that the adoption of new consumer behaviors during and post the pandemic has led to an increased reliance on online shopping at home, as opposed to physically visiting stores. However, managing an online store can be challenging and requires modern technology and resources.

The main problem of King Deo and Queen Grace's businesses is the manual process of inventory and sales management. They are currently using Microsoft Excel to record their inventory levels and sales. Sales and inventory tools will provide real-time sales and inventory data to businesses of all sizes and industries as technology advances and data volumes increase **(Evangelista, 2020).** Additionally, the business relies on seller- customer communication through its Facebook page to conduct transactions. As the data must be manually entered and calculated, the process may be time-consuming and prone to error. With that, it will take longer than expected due to human error **(Chung, L., et al., 2020).** As a result, this will lead to unproductivity and an increased workload. This is why it is important to invest in a new communication channel, such as a website, as well as identify the type of system the business needs, such as the implementation of sales and inventory tools. This would help them increase productivity, manage operations, and optimize processes by automating repetitive tasks such as data entry and order processing.

According to a report published by Statista (2021), it was predicted that there would be 3.8 billion smartphone users in 2021 and a 4.3 billion increase in 2023. This demonstrates the significance of mobile devices in the lives of people worldwide. As the number of cell phones sold in the nation increased, so did the accessory business. The number of functions supplied by the smartphone allows us to have a supporting accessory for better performance. Moreover, it was projected that the worldwide laptop market would increase by 6.5% from 2021 to

2025, **Grand View Research (2021).** This highlighted the significance of implementing an effective management system for these devices.

The developers decided to develop an E-commerce platform for King Deo and Queen Grace Shops that offered various features to sell retail products and increase sales. Understanding the demographic characteristics of one's market is a crucial aspect of facilitating online product sales, as it necessitates the identification of the product and assessing its market demand. Therefore, it was imperative to conduct initial research **(Bonnie, 2021).** The proposed system should comprise a centralized web-based system that caters to all customers who will purchase products.

The developers intended to include a feature of monitoring sales for administrators of King Deo and Queen Grace shops for the sales information. It acquires and organizes information from different sources and stores sales data regarding customers and product sales. The advantages of using sales monitoring features are that they allow administrators to gain insight into their sales process. Sales are the business' soul, so it is important to understand the sales funnel and how much profit the business can expect from the existing possibilities **(Meenu J., 2023).** An additional proposed feature was the implementation of an inventory tool that would enable the administrators of King Deo and Queen Grace to track and manage their stock data. It analyzed and organized the details of all available retail products. It listed the current items and the availability of the current items in the

catalog module. This provided a system report that enables the administrator to examine the state of the various components and equipment. **(Matillano, 2020).**

Therefore, the primary goal of this study was to develop a web-based system that would automate the sales and inventory management of King Deo and Queen Grace's Phones, Laptops, and Accessories business. The proposed system was designed to handle orders and sales performance efficiently and provided easy access to inventory management and sales reports that saved time and energy.

Conceptual Framework

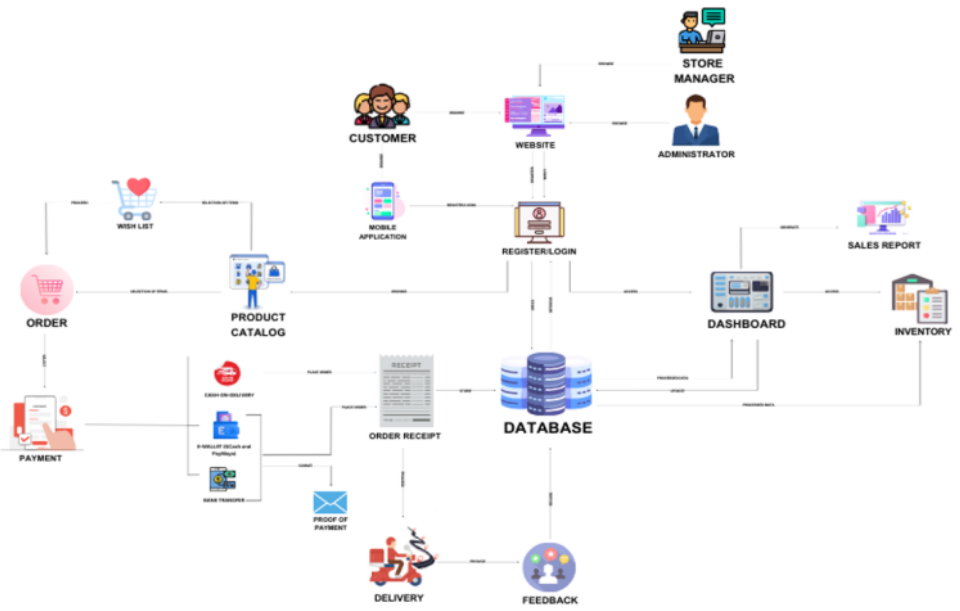

Figure 1.1 Conceptual Framework

Figure 1.1 illustrated the conceptual framework of an E-commerce platform for King Deo and Queen Grace. The customer can browse, register, log in, and log out of the website. If the user visits the website, they can view and browse the product catalog, as well as the about the company page and its services, and select items. Once they select the item, the system will prompt the user to login or register in order to add the item to their cart. Once they log in, the customers can perform multiple actions, including viewing their account profile details, browsing and searching for items, making a purchase, adding items to their cart, adding items to their wish list which they can purchase for future reference, and checking out. The customer can purchase their desired item by selecting it and adding it to

their cart. They can either choose between removing the item or proceeding; if the customer decides to remove the item, they can go back to the product catalog to browse new items. If the customer decides to proceed, they can now advance to the selection of the mode of payment. There are three options in the selection of the mode of payment: either cash on delivery (COD), e-wallet, or bank-to-bank transfer. If the customer selects cash on delivery as their payment method, they will need to provide a message for proof of transaction or receipt and their captured ID image to the system for the store manager to verify and prevent fraudulent activities. The store manager will notify the customer if the proof of receipt has been approved. After the payment transaction, they can proceed to checkout. Once the customer checks out their purchase, the system will generate an order receipt including the purchase information such as the name and amount of the item, the shipping option selected, the shipping fee, the estimated time and date that the parcel will be delivered, as well as information about the replacement and warranty. Once the item has been delivered, the customer can leave feedback on the website such as review, rating, or message regarding their satisfaction with the delivery and the item itself. Furthermore, the customer can view their account profile, which includes their personal details, such as their name, contact number, email address, and address. In their account profile, there is a button for their order history, where they can view their previous transactions. The customer can also view information about services that the business offers, such as warranties on the items and information about service centers or vendors available near their places of residence for easy access where they can bring their devices for diagnosis.

There is also a button there labeled about the company where the customer can contact the business with some inquiries and concerns about the website or the items, as well as external links for convenience. The customer can also be notified through push notifications for various events such as new product launches, order updates, delivery status, and so on, so that they can be kept updated regarding important updates related to their purchases. There will also be a FAQ interface and a chatbox so that the customer can communicate with the store manager regarding their inquiries and concerns about the business or products.

On the other hand, the admin can manage the website by logging in and accessing the dashboard. The dashboard feature will provide an overview of inventory levels and sales performance. The report section is accessible to the administrator for the purpose of generating and viewing detailed reports on sales and inventory for all branches. Moreover, the store managers can manage and generate the sales and inventory reports for their own branch. The inventory management feature will allow the admin to perform actions such as adding, updating, and deleting products, as well as manage the stock levels of each product item. and the admin will be notified once stock levels are low. Once the admin is notified, they can proceed to the management of products, which can add new products to the website. While the sales report feature will allow the admin to manage and monitor sales performance by generating and displaying reports from the dashboard.

3 Statement of Objectives

General Objective:

The main objective of this study was to design and develop an E-commerce platform that would help King Deo and Queen Grace's phone, laptop, and accessory shops. The system served as an e-commerce platform that customers can access through a website and mobile application that enabled the customer to browse the products available in the shop and place orders online. The system also provided an inventory management module, which allowed administrators to track their inventory levels in real-time. The sales management module provided detailed sales reports, which allowed the administrator to monitor sales trends, to identify popular products, and to plan for future sales.

Specific Objectives:

1. To develop a web-based system and mobile application that would allow the customers in terms of:
    - Browsing the store's catalog
    - Viewing and searching of the product descriptions, images, and prices
    - Ordering of products
    - Payment Transactions
    - Proof of payment
    - Order Receipt

- feedback (Review, Rating, Message)
- FAQs interface
- Chatbox
- Push Notifications

2. To create a web-based management system that will allow the administrator to access, track, and manage the store's inventory levels across all retail branches.
3. To develop an interface for the management of the web-based system, with features including a dashboard and notification:
    - Dashboard - Recent Generation of Sales Performance, Recent Stocks, and Displaying Product Ratings and Feedback Results.
    - Notification - To alert administrator for low stock levels.
4. To utilize the descriptive analytics for the customer feedback data as a tool for the benefit of both customers and the improvement of King Deo and Queen Grace's businesses' products that would be displayed in the dashboard for monitoring.
5. To develop an interface that would allow the administrator to see generated reports regarding past sales performance such as top items, highest sales of each brand per branch, and so on across all retail branches.

Significance of the Study

The study was conducted by the Developers to provide a management system that was designed to increase the efficiency and productivity of King Deo and Queen Grace's business. The following were the intended beneficiaries of the study's findings:

Admin - This could help the administrator to access the dashboard and be notified of critical information regarding inventory and sales management to take immediate action that may affect the business.

Business - This would help the business by improving their inventory and sales management processes. It would also benefit the business by providing a more secure and reliable communication channel for their transactions.

Customer - This could help the customer easily and effectively purchase their desired product.

The Developer - This study would help to improve the developers' technical skills and provide valuable experience for future data gathering and system development. It would also enhance their writing skills for future research projects.

Future Developers - This study aimed to ease the challenges that future developers may face so that they would be able to solve those problems by making use of the research results regarding inventory and sales management systems as well as e- commerce in an easier way. They could further explore additional features that could be incorporated into the management system proposed in this study.

Scope and Limitations

The scope of the study covered the following:

Registration

- The customer who purchased the product was required to register and to provide personal information.

Login

- Using the email address and password provided by the admin, the store manager can log into the web management system to see performance for their specific branch.
- The customer can log in to the website and mobile application after they register.

Website

- The website allowed the customer to browse, select and purchase items, and access other features of the system.

Web Management System

- The system allowed the admin and store manager to manage and monitor the customers' orders, inventory levels, and sales performance of the business.

Mobile Application

- The mobile application allowed the customer to browse, select, and purchase items, as well as access other features of the system, even if they were outside of their homes.

Mobile Web

- The mobile web allowed the customer to easily browse, select, and purchase items, as well as access other features of the system, even if they are outside of their homes.

Product Catalog

- Provided an interface where the customer can browse the catalog which displays the image of the product item and the description of the model, quantity, color, and price of each brand, specifically the phones, laptops, and accessories.
- The system allowed administrator to add and post their products, details about the item, and the price of the sale in this feature.

Order (Shopping Cart)

- Provided an interface where the customer can add the desired item to their cart that they would purchase.

Wish Lists

- Provided an interface that will allow the customers to add or save items they were interested in purchasing for later reference.
- A push notification would notify the customer once the saved items are available for ordering.

Shipping Option

- Provide an interface where the customer can select their preferred date of delivery along with shipping fee details.

Payment Transaction

- Provided an interface where the customer can select the payment method of their choice with the payment details.

Proof of Payment

- The system allowed the customer to upload proof of payment to the store manager for order payment confirmation to prevent unauthorized transactions when it comes to cash-on-delivery, where the customer will need to provide their ID picture and address for verification.

Receipt

- The system generated a receipt for payment, including the name of the customer, name and amount of the item, shipping fee, estimated time and date for delivery, information about replacements, and warranties that was issued once the payment was received.

Feedback

- The customers could send feedback in the form of review, rating, and messages regarding their experiences with the products and services on the website.
- Administrator can manage it by viewing the feedback data.
- The system utilized the feedback ratings of customers for visualization that improved the products and services of the business and customer satisfaction.

Push Notifications

- The system notified the customer when the administrator approved the proof of payment sent by the customer for an online transaction. It was the act of notifying the customers about their order update, delivery status, feedback, wishlist, announcements, and so on.
- The system notified the customers even if the application was closed.

Order History

- Provided an interface that will allow the customer to view their purchase history for the products that they can purchase again.

Replacement Policy

- Provided an interface that will allow the customer to view policies about the replacement of each product category, its guidelines and procedures, such as the terms and conditions, its process, and the areas of replacement.

Warranty Policy

- This interface provided information about the available authorized service centers for each brand.

News and Announcements

- Provided an interface that allowed the customers to view and be updated on product and branch launches, as well as if there are technical issues on websites or if there are physical store branches that will be closed at a certain time and day of the month.

FAQs

- Provide an interface that allowed customers to view the frequently asked questions so that they can easily find answers to common queries and concerns.

Chatbox

- Provided an interface that was the real-time communication channel between the customer and the store manager of the shop.
- The customer can send a message to the store manager, and if the store manager is inactive, there was a message bot that will reply in the meantime regarding the products and services offered by the shop.

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Account Management

- Provided an interface that allowed the administrator to create and update an account for the customer and administrators.

Product Management

- Provided an interface that allowed the administrator to create and update the product details and specifications.

Notification

- The system notified the administrator when there were low stock levels.

Dashboard

- Provide an interface that allowed administrator to view all recent sales performance, recent stocks, and display feedback results of the main branch and other branches. This interface allowed store managers to view their own sales performance and recent stocks in their own specific branches.

Inventory

- The inventory feature in the web management system allowed the administrator to track and manage stock levels of items in the main branch and specific branches.
- It also allowed the store managers to track and manage stock levels of items in their own specific branches.

Sales Report

- Provided an interface for the administrator to manage and monitor the sales performance of every branch, sales report of all branches which were consolidated for the admin user-level.
- It also allowed the store managers to manage and monitor the sales performance and generate and display the sales reports for their assigned branch.

The study is limited to:

- The mobile application will not cover IOS.
- The system does not support third-party delivery services.
- The system does not support online warranty services and will only provide the information of available service centers for each brand.
- The system does not support barcode scanning.
- The system does not support a refund policy and will only provide guidelines and procedures for the replacement of items by each brand.
- The descriptive analytics in customer feedback will only be applicable for ratings.

Definition of Terms

Administrator - The person in charge of managing and monitoring the website's performance.

Administrator Account - A user account in the web-based system that has access to the dashboard, including inventory and sales management of all branches.

Admin - Short term and word of administrator.

Customer - A person who will browse and purchase items from the website.

Customer Account - A user account in a web-based system that contains the customer's information and allows the customer to purchase from the website.

Dashboard - It is a module that contains features that only the administrator can access, including inventory and sales management as well as feedback.

Feedback - This is the form used to collect customer feedback regarding their experiences with the products and services.

Inventory Management - A feature in the web-based system that allows the administrator to track and manage stock levels of items.

Mobile Application - It is an application that customers can use to easily browse the products and purchase desired items.

Mobile Web - It is a browser that customers can use to easily browse products and purchase desired items.

Notification - It is the act of notifying the administrator of the lower stock levels of the products.

Product Catalog - This is the page where customers can browse and view the variety of available devices and accessories.

Sales Report - Allows the administrator and store manager to manage and monitor the sales performance as well as generate and display the sales reports for the retail store.

Store Manager - A person who is in charge of managing and monitoring the sales and inventory of their specific branch.

Upload Form - This is the form that customers can use to submit proof of payment if they select bank transfer or e-wallet as payment method to prevent fraudulent activities.

Website - It is a site that customers can use to easily browse the products and purchase desired items.

Web Management System - It is a system that manages and monitors the orders, inventory levels, and sales performance of the business.

Chapter 2

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter provided various relevant research, related literature and studies. The developers analyzed various references, including both foreign and local sources, to gain a better understanding of the topic. The following section delved into the key findings and conclusions of these studies and highlighted their significance and relevance to current research.

Review of Related Literature

This section provided a research study being conducted from relevant publications, journals, and studies that were related to the current study.

Local Literature

According to an article titled "Who are the Philippines Online Shoppers?" published in August 2021 by B. Katrina and L. Benedict, the e-commerce industry for consumer products is expected to reach $15 billion by 2025, leading to a rise in e-commerce across the country. The article mentions that Filipinos prefer to shop online because it is more convenient than going to physical stores, availability of exclusive deals at lower prices, and offers a wider selection of products. Additionally, e-commerce platforms can improve the customer experience by providing a more user-friendly interface, faster delivery, and better customer service. It can also operate continuously without restrictions, resulting in substantial sales and revenue growth for businesses. [1]

The article makes a significant contribution to the current study by demonstrating that e-commerce can operate continuously without restrictions, resulting in substantial sales and growth for businesses.

According to Matillano (2020), RV Empire Incorporated was founded in 2013, and it has been utilizing a manual sales and inventory system. The current system has made it difficult to monitor the products that are acquired and sold, process transactions accurately, and maintain accurate records of reports, personal information, and transactions. Additionally, the company's incapable security measures make its data and records unprotected from unauthorized access and modification, which could further complicate business operations and potentially damage its reputation. With the implementation of the proposed system, the company will be able to reduce the risk of human error caused by miscalculations of the transactions, monitor the product stocks accurately, as well as secure their transactions. As a result, the system provides efficiency in tracking the products, calculates the products accurately, and protects the confidentiality of the company's personal records and transactions. [2]

According to Wong (2019), the TH Garments Center, located on Tayum Street in Kabankalan City, has been operating for nearly two decades. However, the business continues to rely on the manual inventory method to keep records of its sales and inventory. The business has been manually inputting the list of their product items as well as calculating the sales, which has been causing them problems with monitoring sales and managing inventory. The implementation of

the sales and inventory system will help to improve the operational efficacy of the company by reducing errors, saving time, and providing valuable insights into their sales trends and stock levels. These factors could potentially contribute to the profitability and expansion of the company in the long run. [3] This is related to King Deo and Queen Grace's Phones, Laptops, and Accessories shop, which does not have an online system or any web management system that can support them in managing and recording their products apart from Microsoft Excel. They also do not have an established dashboard or analytics. A dashboard allows us to assess the performance of the business. It is crucial for an administrator to get an overview and understand the reports. Many businesses and companies would require a dashboard; it is important because it will help them make decisions and easily monitor and manage their sales and inventory.

Foreign Literature

According to Pasaribu (2021), the CV.T. Kardin Pisau Indonesia was established in Bandung, Indonesia. The company manufactures knives in the city. However, the company manages the warehouse inventory manually, using paper media to record their stocks, which leads to inaccurate data results and, in the worst-case scenario, can result in a demand for the high stock even when the stock of goods is low or a demand for the low stock even when the stock of goods is high. The deployment of web-based software can improve the sales and inventory systems of the CV.T. Kardin Pisau company and increase its operational efficiency. The system that is accordingly created manages the data and reduces

the number of errors. Additionally, the system provides efficient and effective inventory management to make data processing easier. [4] Business owners have to utilize effective inventory management in order to improve effectiveness, provide better service to clients, and make more knowledgeable decisions.

Review of Related Studies

This section provided foreign and local studies that supported the information that was relevant and comparable to the proposed system.

Local Studies

R. Almondia and K. Rico (2018) emphasized the importance of incorporating e-commerce websites into businesses for improved online marketing and sales. In recent years, the growth of the internet and advancements in technology had resulted in the emergence of e-commerce, allowing businesses to reach a broader audience and offer products and services online. The study focused on designing a website that facilitated online transactions, such as selling and buying products. This website functioned as an online marketplace where consumers and vendors can interact and conduct business transactions, allowing customers to shop from the comfort of their own homes and eradicating the need to visit physical stores. It enabled consumers and sellers to purchase and sell products online. Moreover, it allowed businesses to extend their influence beyond their physical location and attract customers from different locations. [5]

The research above is further supported by the research study developed by R. Almondia and K. Rico (2018) entitled "Malita E-commerce". The system developed was an effective website for vendors and customers. It allowed the customer to browse particular products posted by the seller and make purchases online. It also allowed the seller to have the authority to manage their products, view their records, and manage their transactions. Additionally, the web-based system used various WordPress plugins to create the system and HTML-based languages for well-formatted web pages, such as PHP, CSS, and Javascript. Furthermore, the Malita E-Commerce Study focuses on developing a platform where multiple vendors can sell their products. The system also indicated that the payment method did not support bank-to-bank transactions, focusing only on PayPal and cash-on-delivery (COD) payments.

The developers' proposed study includes elements similar to the system outlined above. The developers' purpose was to develop web web management system system features. The developers used similar web-based programming languages, such as HTML, Javascript, and CSS, for the design and development of the front end of the system, while PHP was used for the back-end's development and MySQL for the system's database. Moreover, the current system was implemented in a specific business to address inventory management and streamline sales management for King Deo and Queen Grace Phones, Laptops, and Accessories shops. Furthermore, the current system supported cash on delivery (COD), e-wallet, and bank-to-bank transfers.

According to M.A. Canales et al. (2018) study entitled "MCM Merchandise Point of Sale (POS) & Inventory System", they discussed the disadvantages of a manual inventory system and the benefits of using a computerized system for monitoring inventory. One of the primary disadvantages of a manual inventory system is the increased probability of human error, which can lead to inaccurate inventory levels and other problems. The system proposed in the study utilizes tracking, calculations, and analysis to keep track of inventory levels on an item-by-item basis. This allows for more accurate and efficient inventory management, reducing the risk of errors and improving overall productivity. The system also includes a point-of-sale component, allowing for easy transaction processing and real-time inventory updates. [6]

The similarities between the previous study and the current study are that the administrator has the authority to create, read, update, and delete the product's items, as well as access all the functionalities. Furthermore, it requires users to log in and allows the administrator to manage the newly created accounts. In contrast, the proposed system does not incorporate a barcode scanner for product and point-of-sale components. Instead, the administrator is required to manually input the product item. This allows for more control over the system and ensures accurate data input. The proposed system also includes features for sales management and inventory management, which can help streamline operations and improve efficiency.

Foreign Studies

In a study by Bui (2021), it is stated that the users of the proposed mobile application consist of both individuals and businesses who are interested in participating in e-commerce activities. The mobile application serves as a platform for supporting e- commerce activities, which will allow the users to search for products, make online purchases, provide shipping and delivery information for the product, and view their order receipt for reference. And since several online purchasing websites have emerged, the increasing number of mobile users has prompted the need for mobile applications. In this regard, developing a mobile application would be a practical choice, given the convenience and portability of a smartphone compared to a laptop. Furthermore, a mobile application provides an opportunity for businesses to effectively interact with their customers. [7]

The similarities between the previous study and the current study were that the current system developed a mobile application that allows customers to make online purchases conveniently with other similar functionalities. Additionally, the current study focused on improving customer experience and satisfaction. However, the previous study benefited the current study by improving some aspects of the mobile application. Furthermore, since mobile devices had become an integral part of modern life, businesses were able to provide a convenient and user-friendly mobile shopping experience to customers.

O.A. Madamidola, et al. (2017), conducted a study about a Web-based Intelligent Inventory Management System that manages sales reports regarding

sales activities. The sales report feature allows the business to monitor its overall performance. Reports help the stakeholders of the business make more informed decisions and reduce inventory problems such as overstocking and understocking that can negatively impact the customer's experience. It is also mentioned in the study that there are various challenges that only traditional inventories encounter, especially maintaining an accurate record of stocks, which causes inconsistency and has prompted many businesses to adopt automated systems that make generating reports more convenient for stakeholders. [8]

The similarities between the previous study and the current study are that the system will also generate reports. Additionally, the developers will implement a sales report, which involves monitoring the overview performance of inventory levels and sales.

Berman R. and Israeli A. (2021) conducted a study entitled "The Value of Descriptive Analytics:Evidence from Online Retailers." The study aimed to investigate the benefits of using a marketing analytics dashboard for online retailers. They analyzed data from over 1,500 online retailers in different industries to see if there was a change in revenue and customer behavior after adopting the dashboard. The developers found that descriptive analytics can help retailers in adjusting their marketing strategies to reduce customer acquisition costs, improve website personalization, and assess the value of other operations. [9]

The similarities between the current study and the study above were the analytics and reports within the dashboard that were implemented in the system

and helped the administrator had a better marketing strategy. In contrast, the proposed system would only focus on one retail business shop, unlike the previous study, which focused on different retails in different industries.

Literature Matrix

Table 2.1 *Review of related literature matrix*

Title	Authors	Year	Platform	Available	Acceptability	Country	Main Featues and Findings
Computerized Sales and Inventory System	K. Wong	2019	Website	Free	Acceptable	Philippines	Automate Generation of monthly reports for sales and inventory and Monitoring of incoming and outgoing inventory
Development of a Web Based Inventory Information System	J.S. Pasaribu	2021	Website	Free	Acceptable	Indonesia	Management of Inventory Performance and Recording and Processing of incoming and outgoing goods transactions
Sales and Inventory System	K. Matillano	2019	Website	Free	Acceptable	Philippines	Problem of Computing, Monitoring and Securing the acquired products and Processing Transaction Records
Who are the Philippines Online Shoppers?	B. Katrina & L. Benedict	2021	Article	Free	Acceptable	Philippines	Discussed the importance of an e-commerce platform and its potential features.

Table 2.2 *Review of related studies matrix*

Title	Authors	Year	Platform	Available	Acceptability	Country	Main Featues
E-commerce Mobile Application	Bui, N. Q.	2021	Website	Free	Acceptable	Finland	A mobile application for purchasing, payment transaction, shipping, order confirmation, receipt and inventory management
Malita E-Commerce Website	R. Almondia and K. Rico	2018	Website	Free	Acceptable	Philippines	Portal for purchasing and ordering of products and Management of Shipping and Billing Addresses
MCM Merchandise POINT OF SALE (POS) & INVENTORY SYSTEM	M. A. Canales et al.	2018	Website	Free	Acceptable	Philippines	Monitoring of Stocks and Daily Transactions
The Value of Descriptive Analytics:Evidence from Online Retailers.	Berman R. and Israeli A.	2021	Website	Free	Acceptable	USA	Descriptive Analytics for Retailers using Dashboard for Marketing Strategies
WEB - BASED INTELLIGENT INVENTORY MANAGEMENT SYSTEM	O.A. Madamidola, O.A Daramola and K.G. Akintola	2017	Website	Free	Acceptable	Nigeria	Monitoring of Analytical Sales Reports Performance and Summary of Inventory Stocks and Orders

Table 2.3 *Literature Matrix of Proposed System and Existing System*

FEATURES OF THE SYSTEM	E-COMMERCE PLATFORM FOR KING DEO AND QUEEN GRACE	Computerized Sales and Inventory System	Development of a Web Based Inventory Information System	Malita E-Commerce Website	Web-based Online Inventory System	WEB - BASED INTELLIGENT INVENTORY MANAGEMENT SYSTEM	DESIGN AND IMPLEMENTATION OF ONLINE SHOPPING SYSTEM	Design and Implementation of Online Shopping System Based on B/S Model	Design and Implementation of Online Shopping Center	Design of E-commerce Information System on Web-based Online Shopping	E-commerce mobile application
Generate Sales and Report	✔	✔	✔		✔	✔		✔	✔	✔	
Inventory Management	✔	✔	✔		✔	✔		✔		✔	✔
Purchasing	✔		✔	✔			✔			✔	✔
Payment	✔			✔			✔		✔	✔	✔
Feedback (Reviews and Rating)	✔							✔			
Dashboard Analytics	✔					✔					
Notification	✔										
Proof Of Payment	✔									✔	
FAQ	✔						✔				
Chatbox	✔										
Order Receipt	✔						✔				✔
Account Management	✔							✔			
News and Announcements	✔								✔		

The system aimed to make the management and monitoring of the store's inventory levels and sales performance easier and more efficient for the administrators of King Deo and Queen Grace Phones, Laptops, and Accessories using the web management system, while also reducing human error and workloads. In a local study, it was stated that to improve online marketing and sales, it was important to incorporate an e-commerce website into a business to offer products and gain more customers, as it was more convenient for them to shop online than go to physical shops.

The statement of one of the studies indicated that the company's implementation of the system was efficient in tracking, and calculating the products accurately, and protected the confidentiality of the company’s records and transactions. This helped them to lessen the risk of human error by manually recording.

Many studies and systems were conducted by a large number of developers and developers that are related to the developer’s objective, which was to help resolve the problem of the shop. Systems were developed to have an easy way to help with purchasing products for customers and to conveniently help administrators access, monitor, and manage the store's inventory levels and sales performance.

Chapter 3

METHODOLOGY

This chapter discussed the methodology of research that was employed in the study, along with the design method and data-gathering processes. This chapter also presented each aspect of conducting the research, including the phases involved in establishing the research and interview questionnaires. It also discussed the Agile Scrum Development Process, Rapid Application Development and provided a comprehensive description of instruments for data collection and tools for data analysis.

Research Design

The developers will utilize constructive research in **"E-commerce Platform for King Deo and Queen Grace"** The objective is to create a novel solution to a potentially significant problem.

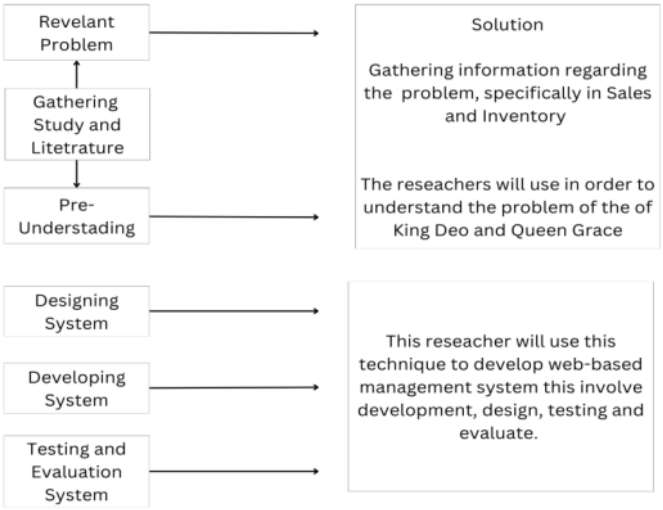


Figure 3.1 Constructive Research

Agile Scrum Development Process

The developers will use the Agile Scrum Development Process for the development of the project. The processes are Plan, Design, Develop, Test, Deploy, Review, and Launch Stages.

Figure 3.2 Agile Scrum Development Process

The Agile Scrum Development Process was an approach to software development that prioritized the continuous delivery of working software through iterative development phases. This approach allowed the development teams to be more responsive to changing requirements compared to relying on advanced planning. Thus, this methodology aimed to deliver quality software that met changing requirements.

According to Coursera (2023) agile development was a helpful method for constantly making things better because of its flexibility, adaptability, and emphasis on collaboration and continuous improvement. It also helped teams work

more efficiently by streamlining their processes. Additionally, it was stated that agile development emphasized collaboration and self-organization. Team members were empowered to make decisions and undertake responsibility for their work, which can result in faster and more efficient development cycles.

A. Sieminski & R. Christianson (2016) stated that Agile Scrum utilized the outcomes of planning more efficiently, expressed higher satisfaction with the planning phase, and delivered comparable or more comprehensive end products.

The first phase was the **Planning**. Following an interview with the co-owner of King Deo and Queen Grace Shop, the developers decided to develop a web management system that would monitor and manage the inventory and sales management, as well as the e-commerce platform. The team conducted research related to the systems and identified the key features to incorporate in the development process to ensure its feasibility. This research helped to determine the scope and limitations of the study and evaluate whether the proposed objectives were achievable. Overall, the team utilized the planning phase to gather information and create a clear plan for the development of the web-based system.

The second phase was the **Designing**. In this phase, the developers started to design the different forms needed for the system. This phase included the arrangement of the user interface, the selection of icons and the colors for the forms, and the evaluation of the user-friendliness of the system in order to ensure that users had a convenient experience using the system. The requirements should be considered in order to incorporate the necessary features. The

developers were using a wireframe for the initial drafting of the system design for easy modifications. Once the wireframe was decided to be final, only then would the developers implement the design using their preferred programming language.

The third phase was the **Developing**. In this phase, the developers made the system operational. The forms were programmed in this phase so that the system can retrieve and transmit data to other forms or the database.

The fourth phase was the **Testing**. In this phase, the developers attempted to test and identify to ensure that the program met the expected quality standards and address any problems that may develop. By testing the system, it can see the potential vulnerabilities or issues in the system.

The fifth phase was the **Deploying**. During this phase, the developers would resolve and ensure the system was error-free in order to avoid any problems, and the developers would ensure that the system would operate efficiently and meet the user requirements.

The sixth phase was the **Reviewing**. In this phase, the developers would review the functionality, performance, and security of the system in order to ensure its functionality.

The seventh phase is the **Launching**. This phase involved performing final tests and ensuring that supported and maintenance activities were carried out so that the project can be released.

Rapid Application Development

The developers used the Rapid Application Development (RAD) model for the development of the project. The processes were Requirements Planning, User Design, Construction, and Cutover.

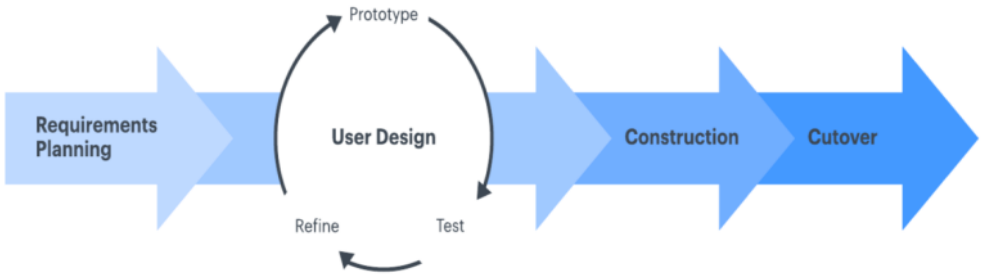


Figure 3.3 Rapid Application Development

The Rapid Application Development (RAD) model was a methodology for software development that was characterized by its efficiency and speed. The process involved both a methodology for software development and the utilization of software tools. The primary objective was to accelerate the process of system development. Both RAD and prototyping aimed to minimize the duration needed for conventional deployment. The RAD methodology was frequently regarded as an effective method for creating novel applications and web- based systems, particularly in situations where attaining market dominance was crucial.

Requirements Planning. This phase focused on identifying the necessary requirements for building a mobile application. During this phase, developers gathered information from relevant studies to determine the needs of the project, which was the Web- based Management System for King Deo and Queen Grace.

User Design. This phase was described as a collaborative workshop where developers refined the project design. They selected an appropriate theme and work on designing, coding, and system development. They identified the essential requirements, features, and processes that met the practical needs of the proposed project.

Construction. This phase addressed mobile application development and system testing. In this phase, the developer tested, solved problems, and implemented new ideas to construct the final workings of the project.

Cutover. This phase was the implementation, where developers utilized the design and requirements to implement the project using specific software specifications. This phase also marked the beginning of creating the system. As part of the implementation process, installation and necessary changes were made.

4 Sources of Data

Primary Source

The developers conducted an interview with the co-owner of the King Deo and Queen Grace Phones, Laptops, and Accessories. The co-owner was interviewed through online and physical interaction. The developers used Zoom for an online interview and went to the shop for a physical interview. Following the interview, the developers identified that the shop did not have any website platform for their shop and communication with customers. The orders were processed exclusively through their Facebook page or Messenger and customers were notified of their orders solely through their Facebook page or Messenger. Additionally, the shop was used a manual method of processing for inputting and storing its inventory and sales data.

Secondary Source

The developers gathered secondary sources of information through the internet, including articles, Google Scholar, Research gate, Google PDF and other available sources. As the developers looked for various related literature and studies, they included e- commerce, mobile e-commerce management system, store management system, inventory management systems, sales monitoring systems, challenges of e-commerce, manual inventory systems, sales report, and retail management systems in a list of keywords. The information gathered aids the research of developers' and allows for more creative freedom.

Instrumentation and Data Collection

Descriptive-Qualitative methodology

The developers used descriptive-qualitative research methodology to conduct the research, which will involve conducting interviews and evaluating the system. The study utilized several data collection methods and techniques, including interviews and surveys.

An **interview** was a formal method for conducting an oral discussion between the owner and developers. The purpose of this communication was to have a talk with the owner of the King Deo and Queen Grace Shop and ask relevant questions about the study with the intention of gaining an in-depth understanding of the monitoring and management process and to know their additional requirements and preferences that are necessary to the development of the system.

A **questionnaire** was a research method that the developers have created to gather data. The questionnaires created had helped us to gather information from the beneficiary that we can incorporate into the study that we are conducting.

Web research was a method for gathering more information about potential features that could help by developing and exploring new possibilities to improve the functionality of the system. The developers conducted similar studies on the Internet to gain a better understanding and apply it to how the system could be improved.

Tools for Data Analysis

Product Ratings Tool

The developers utilized SQL to retrieve and filtered the relevant data from customer feedback and survey databases. The developers utilized Javascript for displaying the visualization of product ratings, such as the bar chart, heat map, line chart, and so on. The product ratings covered the ratings of quality, durability, ease of use, features, value for money, and so on, which will be answered on a scale of 1–5, with 1 being poor and 5 being excellent for the product's improvement and effectiveness in terms of sales.

Inventory Management Tool

The developers utilized SQL to store the inventory data such as product name, brand, amount, and quantity. The developers utilized PHP, HTML, and CSS to create the application that interacted with the database and provides the user interface for the inventory management tool. The developers utilized the combination of PHP and SQL to set up a low stock alert for the system. This enabled the system to quickly alert the administrator when stock levels drop below a threshold that has been set.

Web Development Tools

Front-end Software

The developers utilized HTML as the organizer, CSS as the aesthetic, and JavaScript as the multitasking for the front-end. The front-end was where the users can input information and monitor their orders. These tools helped to the development of the interface for the proposed system.

Back-end Software

The developers utilized PHP to handle the processing of transactions on the server while MySQL serves as the database for storing data. The back-end was accessed only by the administrator and cannot be accessed by users because the data was stored here.

Mobile Development Tools

The developers utilized the Dart Programming Language, the Flutter Framework, and Firebase Services to develop the mobile application.

Analytical Tools

The developers utilized Microsoft Excel for efficient data collection from users, and MySQL for data retrieval from the database.

Evaluation Tools

ISO 25010 Software Characteristics

The developers utilized ISO 25010:2011 Characteristics which are Usability, Security, Portability, Reliability, Performance Efficiency, Functional Suitability, and Maintainability for the system testing.

Usability: The level at which a designated group of users can effectively utilize a given product or program to accomplish specific goals with optimal efficiency, effectiveness, and satisfaction while operating within a predetermined scope of implementation.

Security: The level at which software grants users accessed to the system and other content while protecting the privacy and integrity of the user's data, and the implementation of measures to verify the identity of the users and grant them appropriate access privileges, thus restricting unauthorized access to sensitive data or actions within the software.

Portability: The level at which a program can be smoothly transferred from one operating environment to another, considering various software and other relevant factors and evaluating the feasibility and effectiveness of transferring the program.

Reliability: The level at which a system performs the given functions over a set period of time within a specified context.

Performance Efficiency: The level at which it was important when it comes to evaluating the system's performance. It helped to determine how well the system performs in terms of responsiveness and utilization.

Functional Suitability: The level at which functions meet the needs and expectations of the users by providing the functions effectively and efficiently. It will ensure that a system is supposedly reliable and satisfactory.

Maintainability: The level at which it was important when it came to evaluating how to easily make improvements, fix errors, and adjust the system. It referred to how well designed and organized the underlying code.

Likert Scale

The instrument that the developers utilized in the ISO 25010:2011 assessment form is the Likert Scale as a means of evaluating how the users of the system experienced after using it.

Google Forms

The developers utilized Google Forms as a means of conducting surveys regarding the ISO 25010:2011 assessment. The distribution of the indicated surveys to the respondents will be conducted by the developers.

Strongly Disagree	Disagree	Agree	Strongly Agree
(1)	(2)	(3)	(4)

Table 2.4 *ISO 25010 evaluation form using a Likert Scale*

Table 2.4 showed the following Numerical Value Equivalent Rating of the evaluation: This includes the highest rating, which is 4 indicates Strongly Agree, 3 indicates Agree, 2 indicates Disagree and 1 indicates Strongly Disagree.

Rating	Scale	Verbal Interpretation
5	5	Excellent
4	4.0 - 4.9	Very Good
3	3.0 - 3.9	Satisfactory
2	2.0 - 2.9	Fair
1	1.0 - 1.9	Poor

Table 2.5 *Use of a Scale for Results*

Table 2.5 lists the following parameters of the evaluation: This included Rating, Scales, and Verbal Interpretation. The highest rating is 5.0 indicates Excellent, 4.0 - 4.9 indicates Very Good, 3.0 - 3.9 indicates Satisfactory, 2.0 - 2.9 indicates Fair and 1.0 - 1.9 indicates Poor.

Weighted Mean

The weighted mean was a statistical measure that calculates the average of a set of numbers by giving a weight factor to each data point's contribution to the mean. The allocation of weight to individual numbers within a dataset was indicative of their respective levels of importance or significance. The formula was used for weighted mean is:

$$X = \frac{\sum fx}{n}$$

Where:

x= weighted mean

f= frequency of each weight

fx= the sum of all products of f and x n total number of respondents

Design Tools

Entity Relationship Diagram

It was a graphical representation of the relationships among different entities within a database. It was a helpful tool for designing and planning databases in order to communicate complex data structures to others.

Data Flow Diagram

This demonstrated the project's data management structure. It included significant details on the project's flow of data and the alternatives that exist.

Chapter 4

DISCUSSION AND FINDINGS

This chapter provided an overview of the development, documentation, and testing of the system. The developers designed and developed the E-Commerce Platform for King Deo and Queen Grace Phone, Laptop, and Accessories, which aimed to respond to the outlined objectives of the project. A mobile app and web-based system focused on improving the manual inventory and sales management processes.

Statement of objective 1: Develop and Design a web-based system and mobile application that allowed the customers in terms of:

Figure 4.1 The figure below showed the store's catalog, where the customer can browse their desired product. The system also offered customers the option of choosing their preferred catalogs, such as phones, laptops, and accessories, as well as the brands Apple, RealMe, Mi, etc., as they browse the KDQGShop.

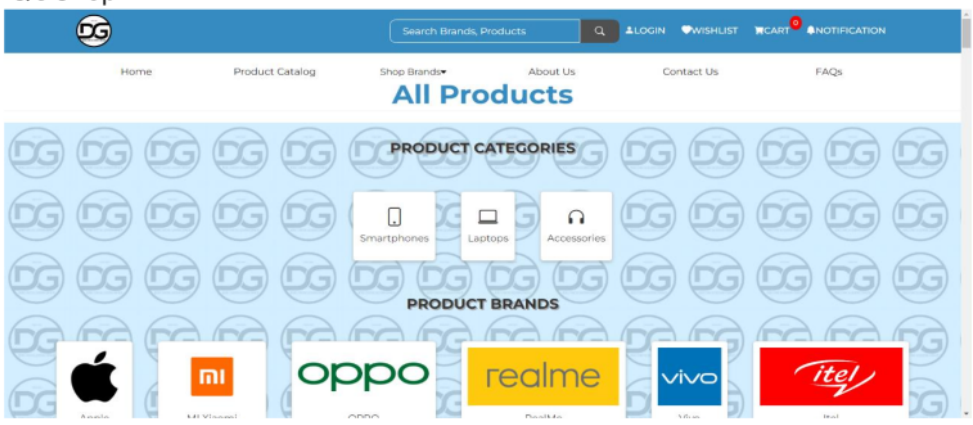
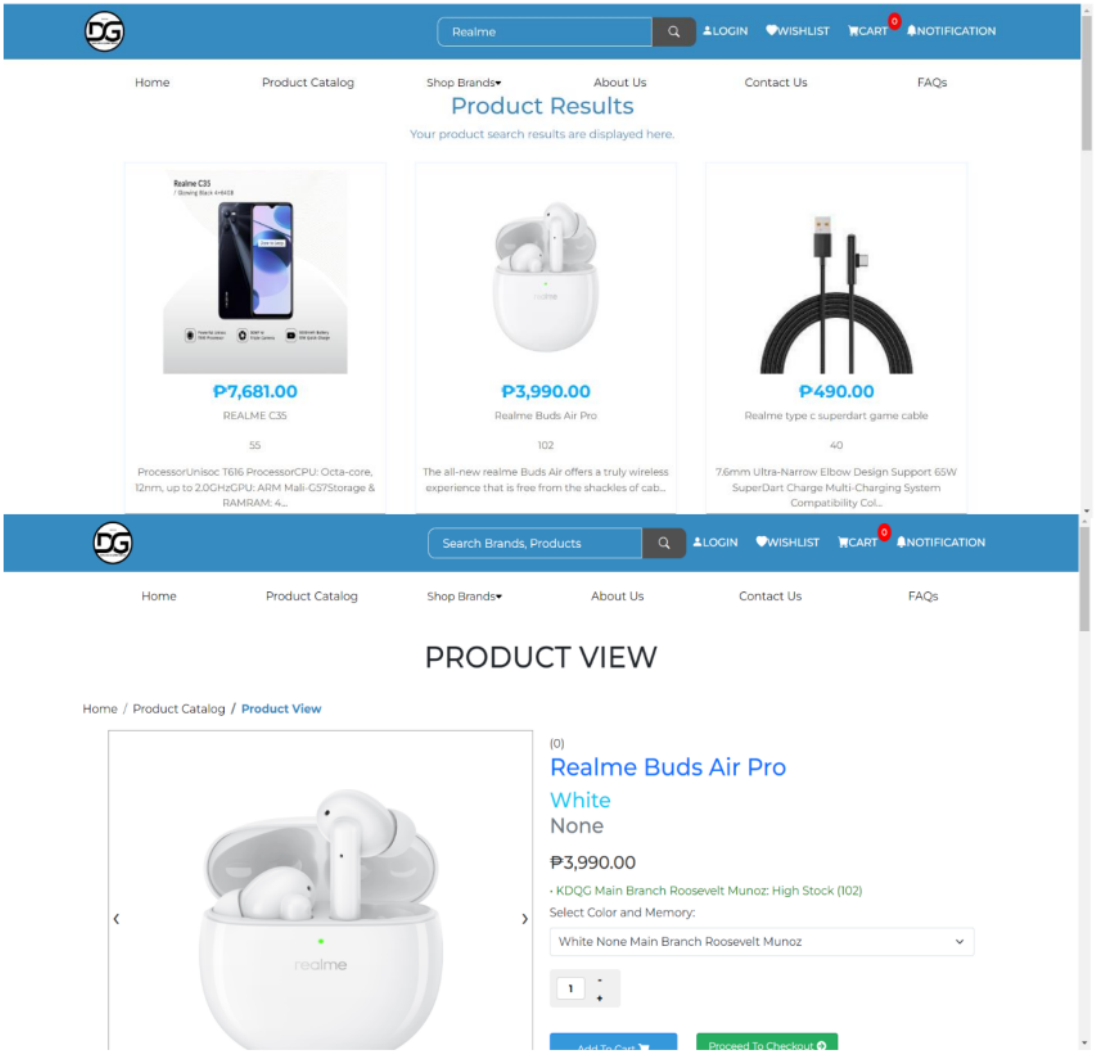
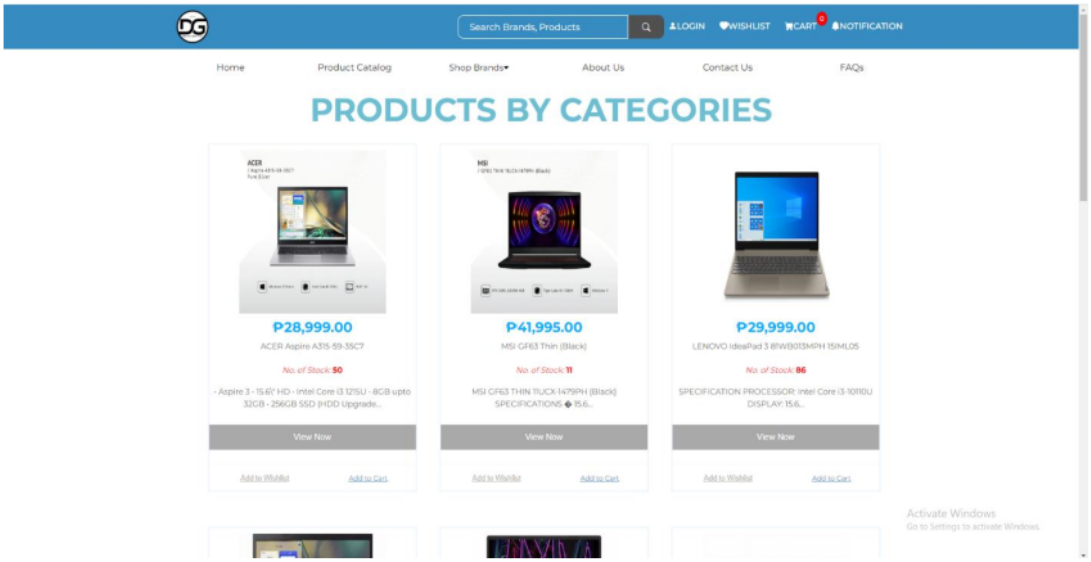


Figure 4.1 Browsing the store's catalog

Figure 4.2 These figures showed the view of the product by clicking the View Now button from the Home page and the Product Catalog page. This page was where a customer can view the descriptions, images, and prices of the products. Customers can also search for the product by simply typing in the search bar the model's name of the desired item.

Web-Based System





SPECIFICATIONS

Product Name	Realme Buds Air Pro
Product Color	White
Product Memory	None
Product Price	₱3,990.00
Product Brand	RealMe
Product Category	Accessories
Product Description	The all-new realme Buds Air offers a truly wireless experience that is free from the shackles of cables, giving you true music freedom. Elevating the true wireless experience to the next level is the custom R1 chip with Bluetooth 5.0 that enables an instant and stable connection between the earbuds and the phone, better battery performance, and accessible smart controls.

Mobile Application

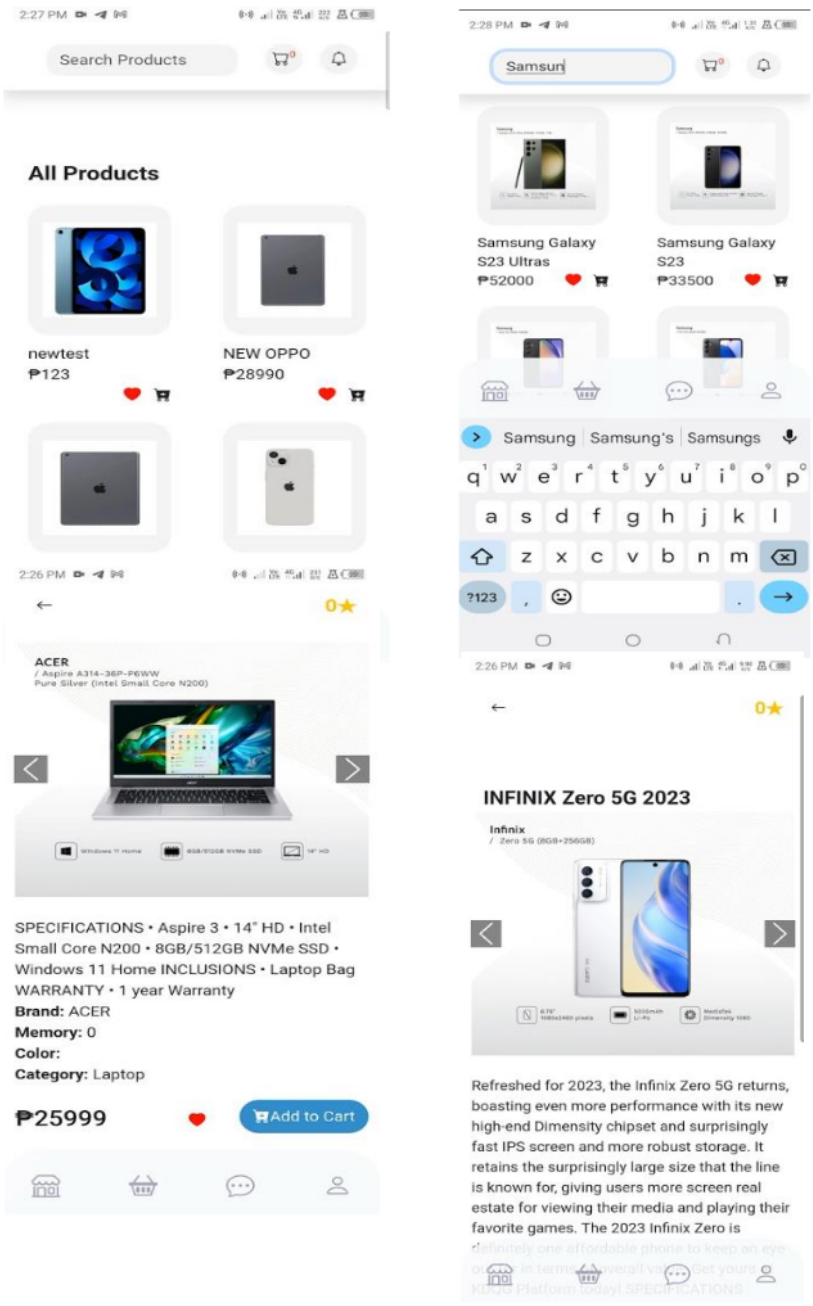


Figure 4.2 Viewing and searching of the product

Figure 4.3 The figure below showed the ordering page, where the customer simply places the desired ordered product in the shopping cart page, where the customer can collect their desired product by clicking the button Add to Cart to purchase the item. On this page, customers can increase and decrease the number of items or quantities they want to purchase, as well as the actions they can remove and add to their wish list for future purchases.

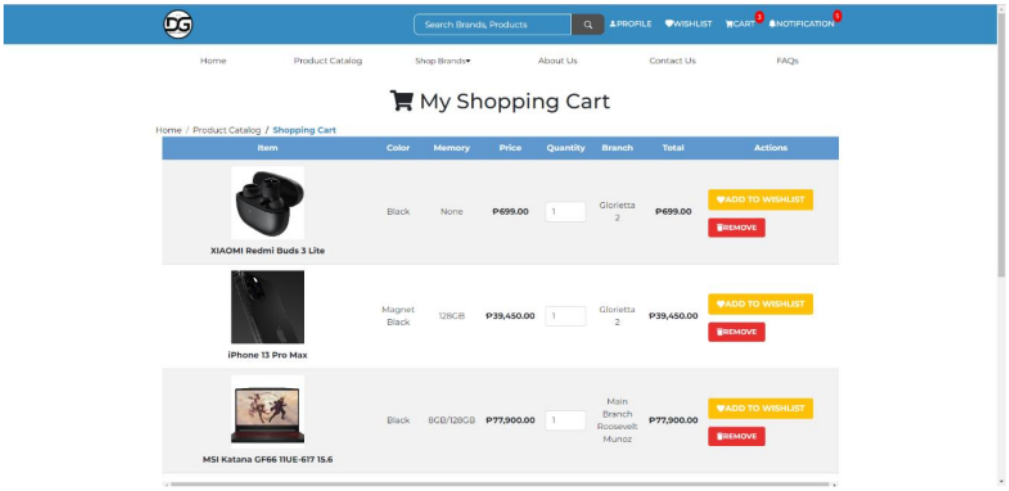


Figure 4.3 Ordering of products

Figure 4.4 These figures showed the payment transactions where the customer had their shipping details able to add and select their desire shipping address. Furthermore, on this page, the customers will view their order summary, which included important details such as the customer's details, order details, payment method details, and shipping method details. Customers can select the desired payment method, delivery method, and date for their orders.

Web Based System **Mobile Application**

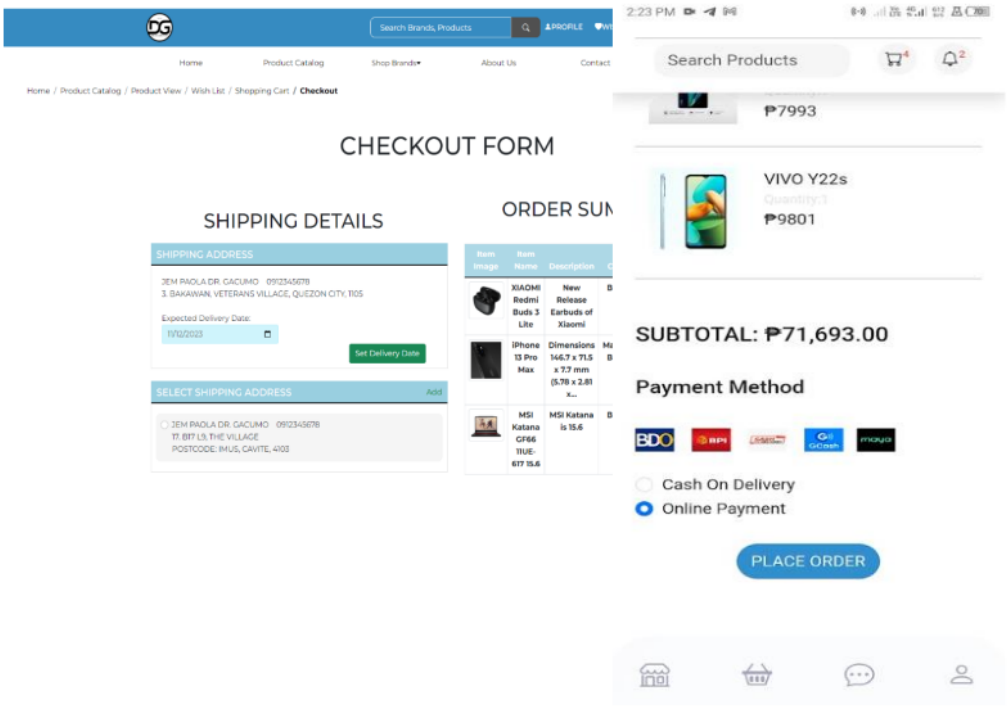


Figure 4.4 Payment Transactions

Figure 4.5 The figure below showed the chat box interface where customers can send proof of payment with regards to payment transactions, allowing them to provide evidence of completed transactions to prevent fraudulent activities.

Web Based System

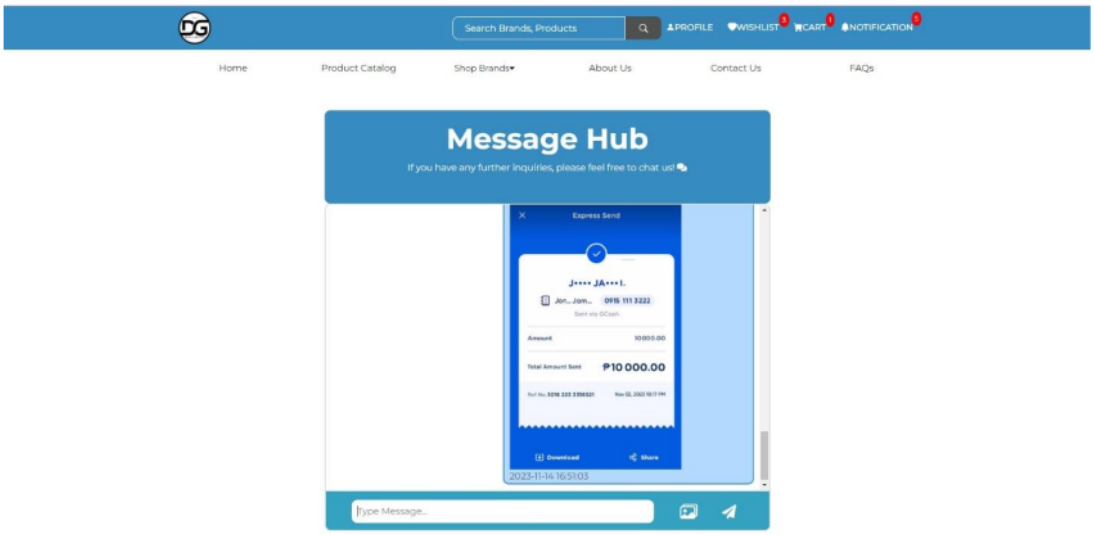
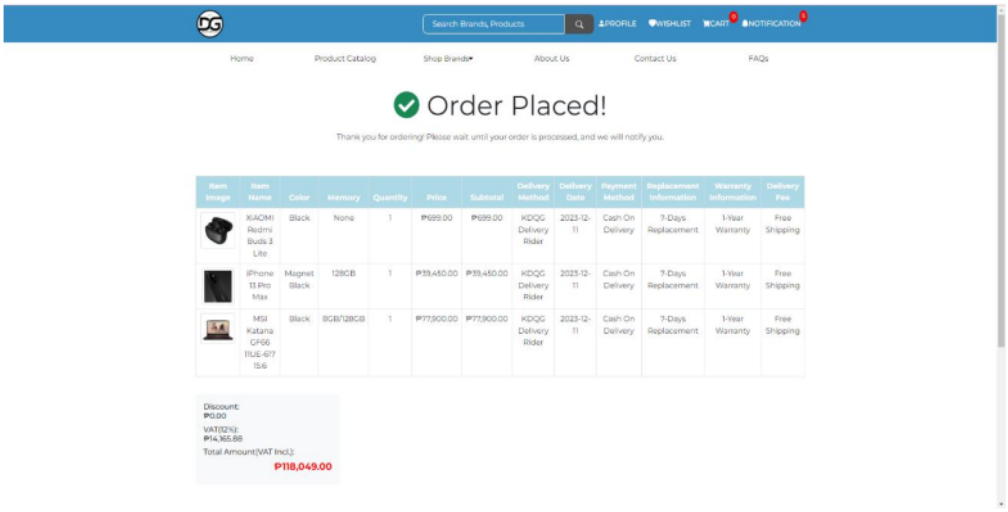


Figure 4.5 Proof of Payment

Figure 4.6 These figures below showed the order receipt, where the customer had a receipt for their orders. This includes the important details of the purchase product, such as price, subtotal of each item, date of delivery, information about replacement and warranty, discount, VAT (12%), and the total price in which the VAT was already included for the transparency of the transaction of the customers to the shop.

Web Based System



Mobile Application

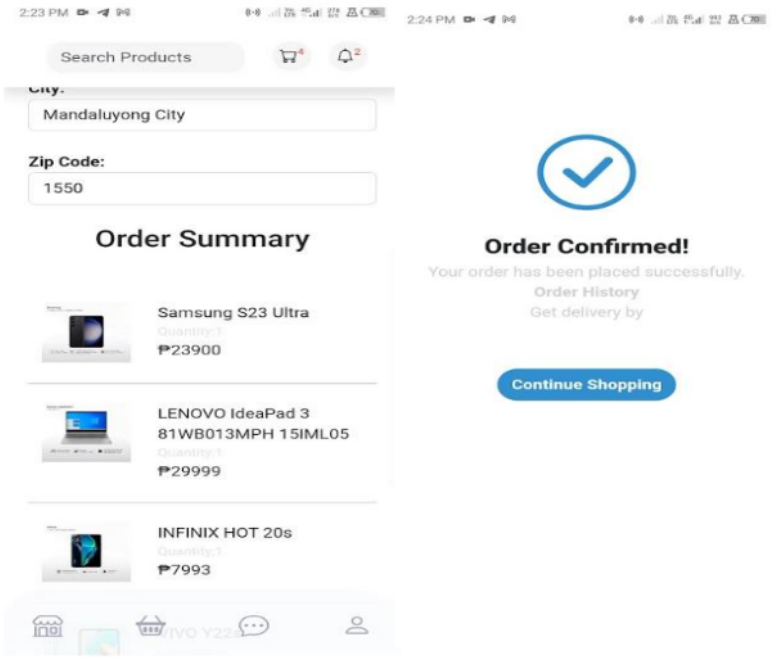


Figure 4.6 Order Receipt

Figure 4.7 This figure showed the feedback page where the customer can submit a review and rating, particularly the rating section where the customer can rate the quality of the products and services of the KDQGshop. Also, there was a message section where customers can leave a comment about their experience with the services and products.

Web Based System

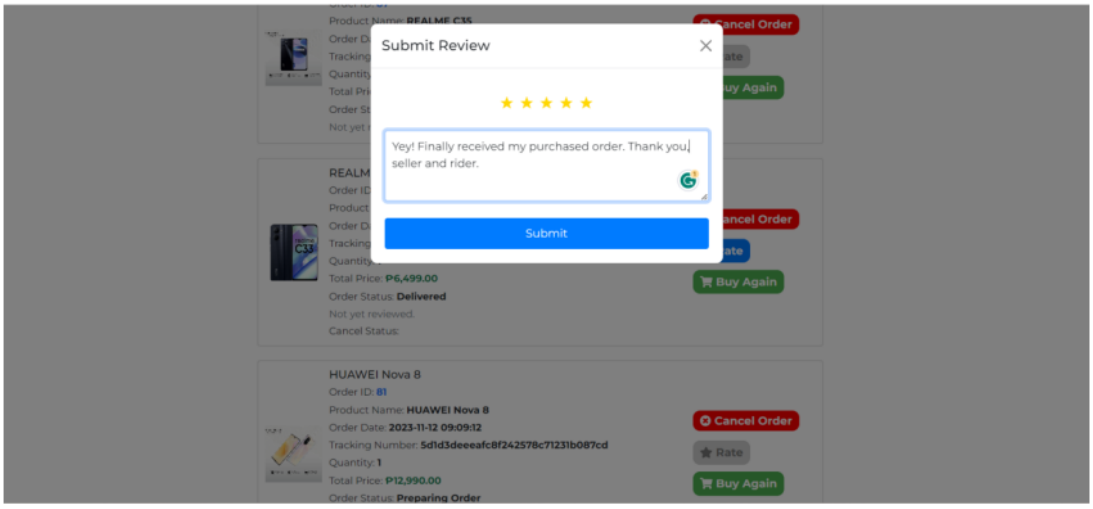


Figure 4.7 Feedback (Review, Rating, Message)

Figure 4.8 The figure below showed the Frequently Asked Questions (FAQs) page, where the customer will have guidelines for working with the website, such as detailed information for creating or registering an account, ordering, and the payment process. Moreover, the details of the assistance provided by the team are indicated on this section page.

Web Based System

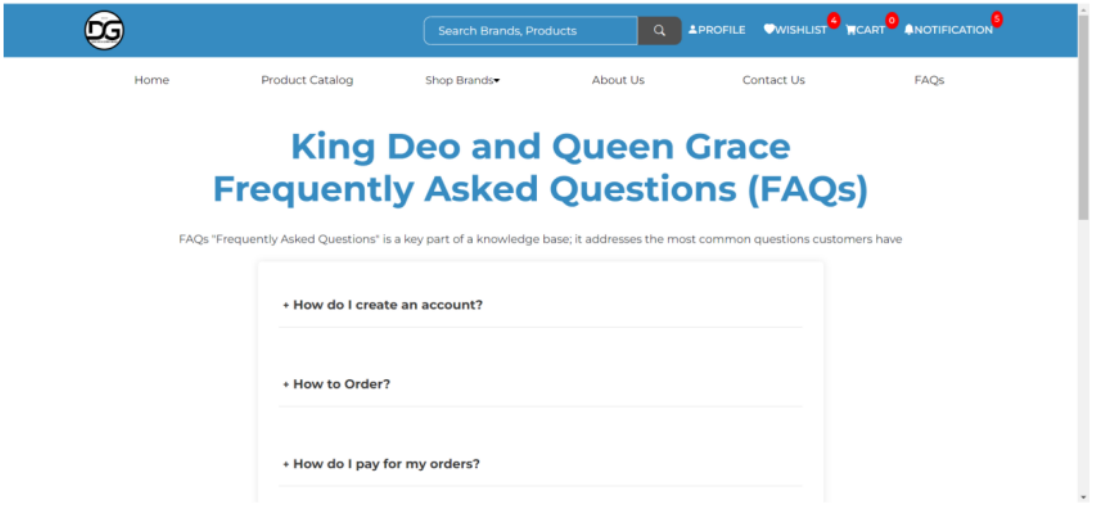


Figure 4.8 FAQs interface

Figure 4.9 These figures below showed the chat box interface, which the developers called "Message Hub" for communication purposes, where customers can ask and leave a message to the administrator for clarification and inquiries, as well as upload images.

Web Based System **Mobile Application**

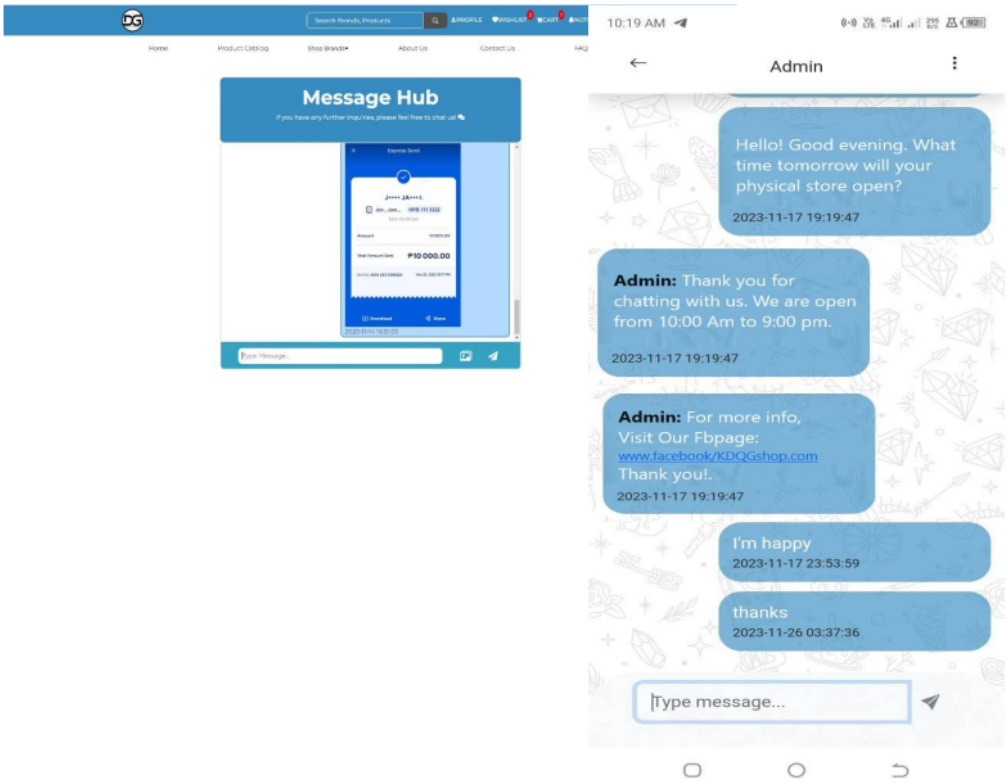


Figure 4.9 Chatbox

Figure 4.10 These figures below showed the notification for the customer. The customer was notified via push notification from the system. Regardless of the customer being in another tab at the time, the notification immediately appeared in the right corner below.

Web Based System **Mobile Application**

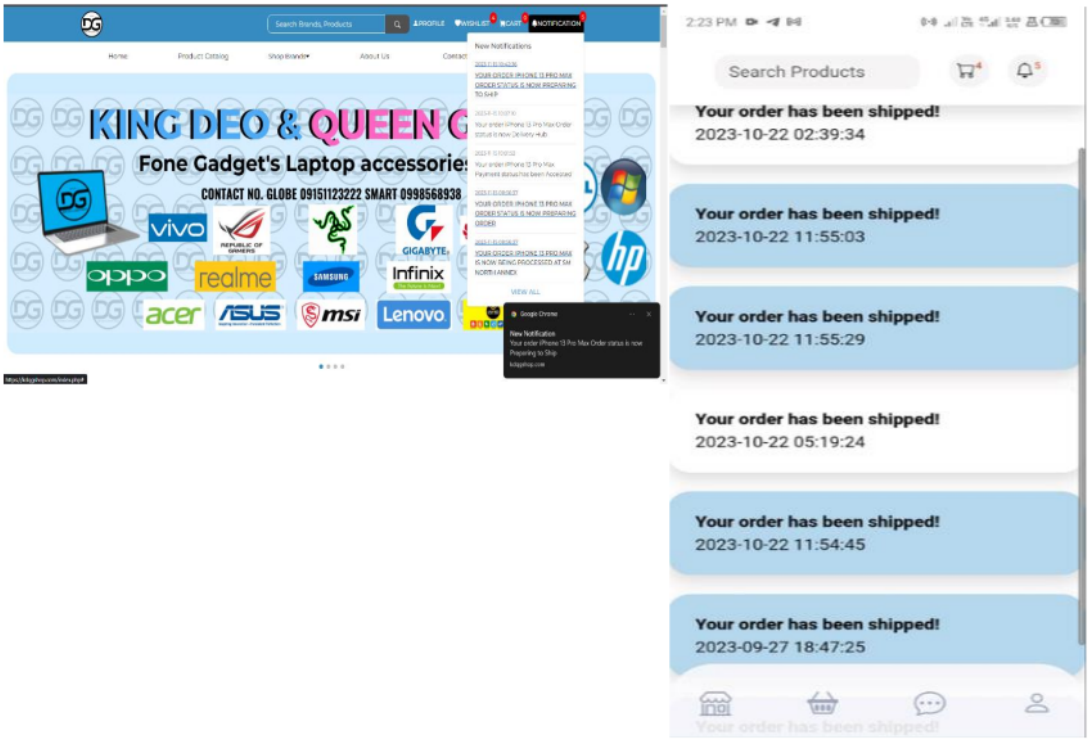
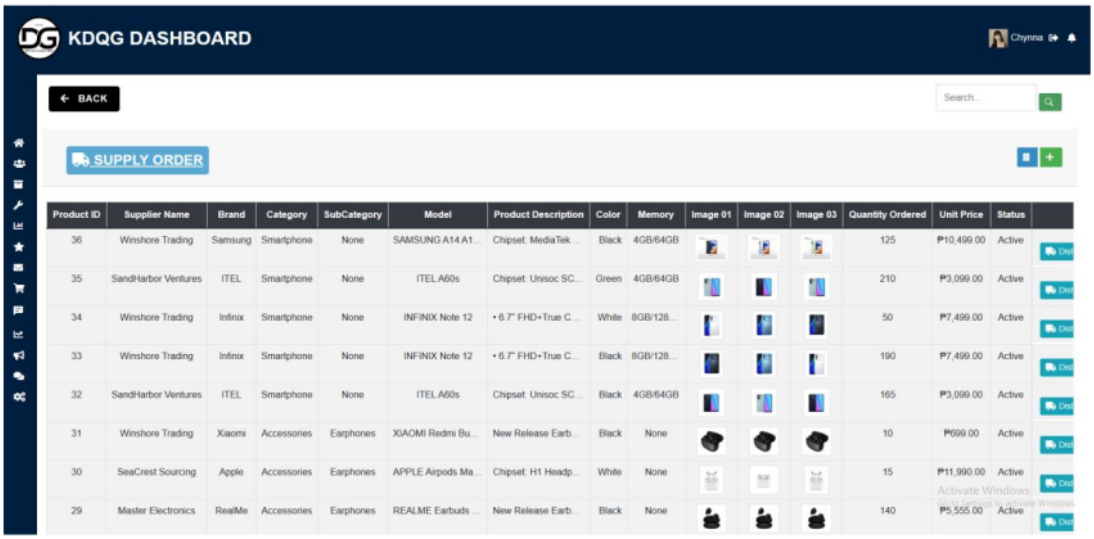


Figure 4.10 Push Notification

Statement of objective 2: Create a web-based management system that allowed the administrator to access, track, and manage the store's inventory levels across all retail branches.

Figure 4.11 These figures showed the management system that was accessible to the administrator. On this page, the administrator can easily track and manage the distribution and restocking of products across all branches. On the supply order page, the administrator can either distribute, restock, view, or update the stocks of different products for each branch. Additionally, on the shopping platform page, the stocks of the products were being fetched or displayed once the administrator distributes or restocks an item.



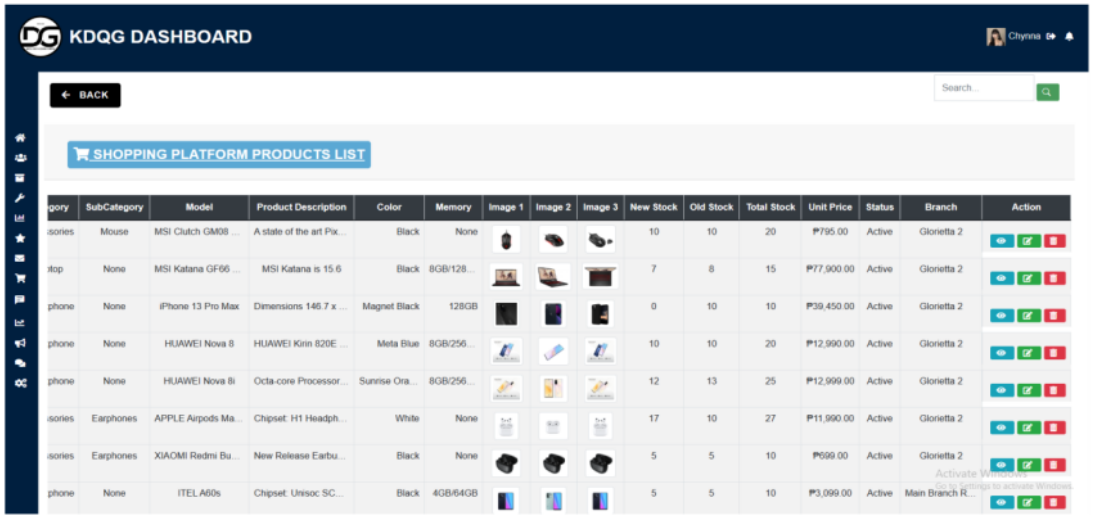


Figure 4.11 Management System

Statement of objective 3: Develop an interface for the management of the web-based system, with features including a dashboard and notifications:

Figure 4.12 These figures showed the dashboard page where the administrator can view an overview of the stocks of the products, the recent generation of sales performance, and product ratings and feedback results from different customers. The administrator was able to conveniently oversee the outcomes and discoveries pertaining to products, including the distribution of orders across all branches. The administrator can also monitor the total number of customers who have registered on the website, as well as the total number of user levels that are managing the website on different branches.

Figure 4.12 Dashboard

Figure 4:13 The figure below showed an alert notice for the administrator regarding the low stock levels. As can be seen from the figure above, the products that are being highlighted as red color are the products that are currently low stock, and these products are prioritized in order for the administrator to easily view. Moreover, on this page, this was where the products in the index and product catalog page are being displayed.

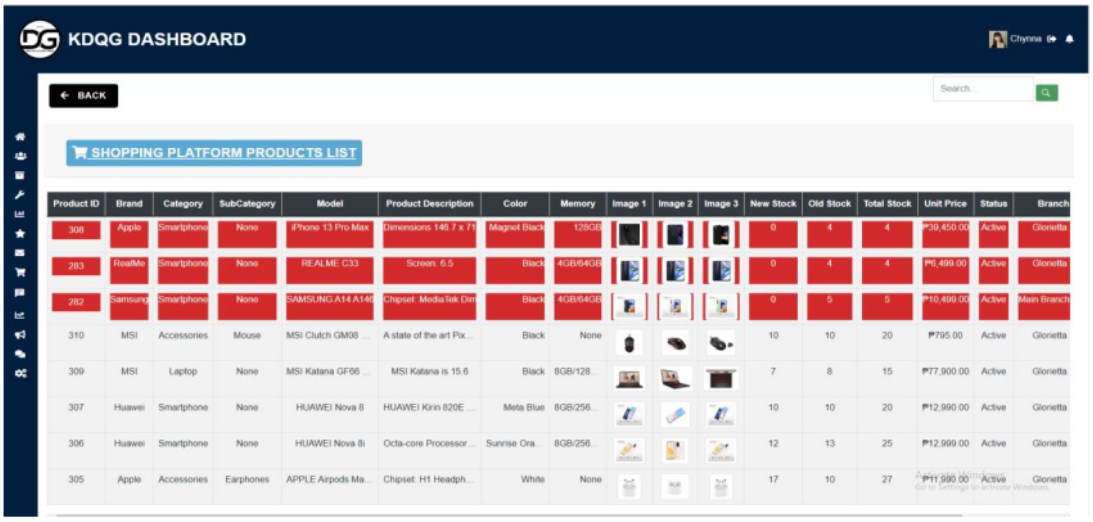


Figure 4.13 Notification

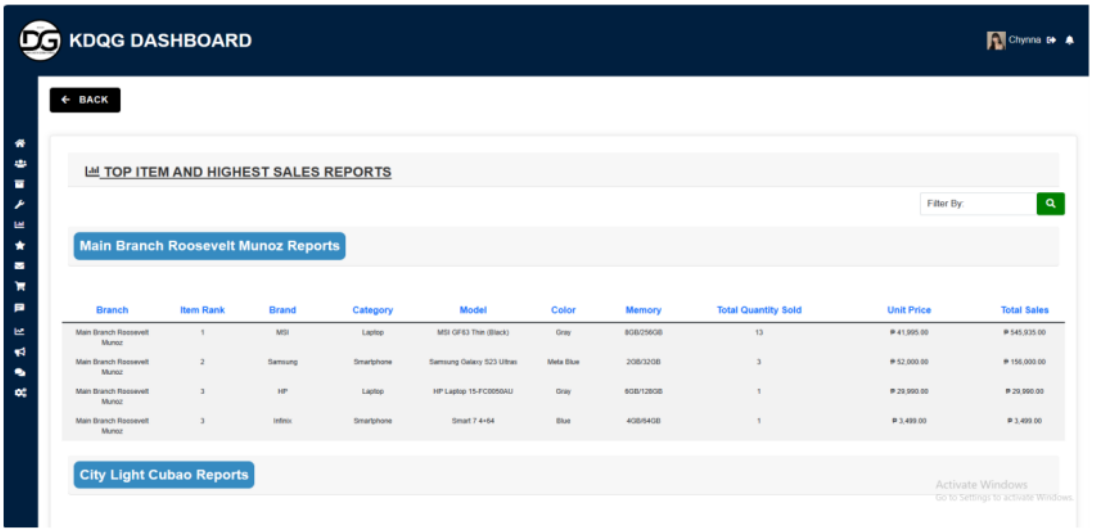
Statement of objective 4: Utilize the descriptive analytics for the customer feedback data as a tool for the benefit of both customers and the improvement of King Deo and Queen Grace's businesses' products, which will be displayed in the dashboard for monitoring.

Figure 4.14 This figure showed the customer feedback data. On this page, the administrator was able to view the graph of the top-rated and low-rated products that customers have rated after receiving the product they purchased. With these graphs, the administrator was able to improve the business product and service performance for the customer. This helped improve the performance of the business for future reference.

Figure 4.14 Customer Feedback Data

Statement of objective 5: Develop an interface that will allow the administrator to see generated reports regarding past sales performance such as top items, highest sales of each brand per branch, and so on across all retail branches.

Figure 4.14 These figures below showed the generated reports regarding past sales performance. On this page, the administrator can access the top items and highest sales of each item, by product, by brand, by category, and by branch, and so on across all retail branches, as well as the past sales performance in daily, weekly, monthly, and yearly sales.



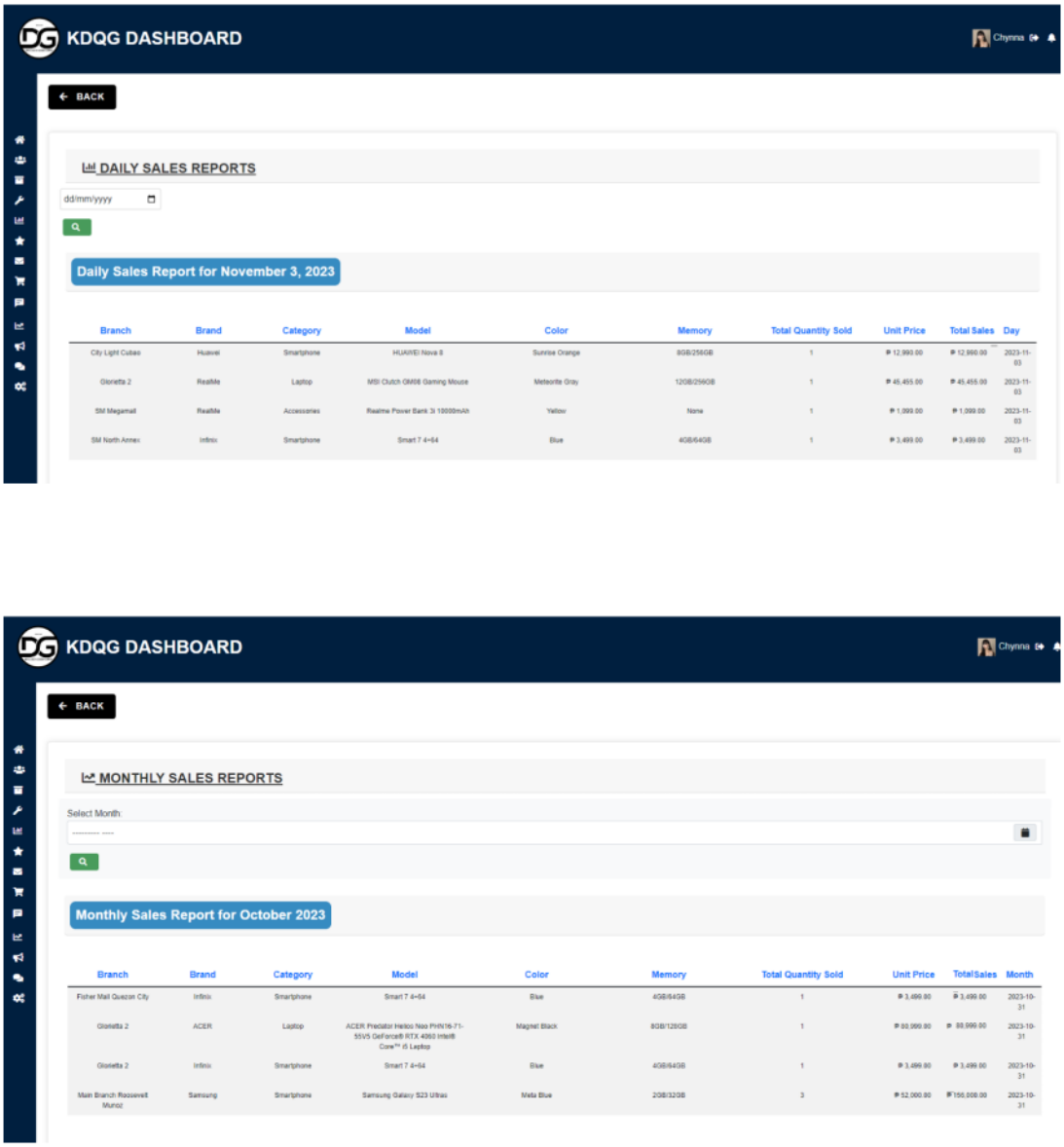


Figure 4.15 Generated Reports Regarding Past sales performance

Chapter 5

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter provided a summary of the study, the conclusions drawn from the findings, and recommendations for implementing a web-based and mobile application for King Deo and Queen Grace's Phones, Laptops, and Accessories.

Summary

The purpose of this study was to develop and design a mobile application and web-based platform for the King Deo and Queen Grace Shop. The system was designed with the purpose of helping an online retail shop and developing an online inventory management system. The main objective of the system was to allow for easy and fast transactions with customers, while simultaneously providing an efficient platform for inventory management. The system had a designated upload section to facilitate the process of verifying the user's identification prior to adding the desired product to the check-out form. The system was equipped with a chatbox page that helped customers in submitting proof of payment to the shop. Additionally, the system had a sales report page that displayed the highest-selling products within the shop.

The study was subject to certain limitations. Firstly, the system was unable to operate offline or without an internet connection. Additionally, it did not support third-party delivery services. This means that the developers did not integrate third-party delivery services into the system, but it did not mean that the customers

cannot have delivery services other than the courier or personal rider provided by the shop. Furthermore, it did not support online warranty services, refund policies, or replacement services and only provides information on available service centers for each brand. The objective of the King Deo Queen Grace Shop was to develop a system that helped administrators manage the stocks of each product and monitor the details of sales reports, which allowed them to have a view of the sales and identify low-quality products, which helped them in their business operations. Moreover, the system had the ability to effectively handle all transactions pertaining to customers.

The customer can easily search for their desired product from the system on the search bar; they can also view products in the randomized section of it on the home page, as well as in the product catalog, where all of the products are categorized and presentable. After searching and choosing the desired product, customers can proceed to the cart, where they will have a record of the product that they have chosen to buy from the shop. In this section, customers can view the product description, including the quantity and total of each item, actions where they can remove and add items to their wish list for future purchases, and subtotal payments. As they proceed to check out, customers will be directed to the check-out form, which will automatically fill out their billing details, which were fetched upon their registration from the account creation, as well as the order summary, which includes the important details and subtotal of all their desired products. Furthermore, after the customer selects their desired delivery date, payment method, and shipping method, it will proceed with the order receipt page, where

the customer will have a receipt of their orders for transparency that includes information about the purchase of the product as well as the total bill for the products in which the VAT is already included.

Furthermore, the administrator has access to the dashboard, where they can check the total number of registered customers, recent sales performance, stocks, and product ratings based on feedback from customers. Within this, the administrator can easily monitor the results and findings of products, even the order distribution in each branch.

Conclusions

The "King Deo and Queen Grace Shop" had successfully conducted a sufficient number of evaluations according to the aspects of quality, accuracy, and design. The project had successfully achieved all of its stated objectives and is in full compliance with all requirements set forth by the company. The generated data was utilized for the purpose of generating, querying, and retrieving information in response to significant inquiries.

The following were the benefits that customers can receive from utilizing the system: The system was user-friendly; it can easily access the website, and it can easily understand the flow of the website through the provision of a FAQ interface and a chat box for inquiries. The ordering page served as a platform for customers to conveniently place the desired ordered product on the shopping cart page. The feedback page serves as a platform for customers to provide or leave their evaluations regarding the quality of items and services offered by the KDQGshop. The payment transaction page provides customers with the option to select their preferred payment method, delivery method, and delivery date.

Furthermore, the system that had been developed also provided benefits to the King Deo and Queen Grace phones, laptops, and accessories. These benefits include a dashboard that offers an overview of the top product orders, order distribution per branch, the total number of registered customers, and the top-rated and low-rated products based on feedback received through the feedback form. In addition, the sales report and analytics provide reports and visualizations of the data on a daily, monthly, yearly, and all-time basis for all branches.

Recommendations

The developers of this study considered the following for future researchers:

1. Improve the user experience of the mobile application through the implementation of responsive design, streamlining of critical processes, and refining of navigation for different devices.

2. Implement a payment system that is both secure and easy to use integrating functionalities such as online wallets and efficient online banking transactions to improve the overall convenience experienced by customers throughout the checkout process.

3. Redesign the admin dashboard, store manager, and staff interfaces with a focus on making them easy to use. Ensure that the data is accurately collected and presented in a format that is easy to interpret.

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Appendix A. Consent Letter (April 1, 2023)

April 1, 2023

King Deo & Queen Grace phones, laptops, and accessories
327, B. Roosevelt Avenue,
Munoz, Quezon City

Dear **Mr. Jonel I. Lasaca:**

We, the group of **iTechnologie**s, 3rd Year BS Information Technology students at Jose Rizal University. We are conducting a capstone study entitled "**E-Commerce Platform for King Deo and Queen Grace Phone, Laptop, and Accessories**" as partial fulfillment to our current enrolled subject in subject **ITC C310 - IT Project I**.

In this regard, permission is sought from your office to enable her to conduct research, interview, and other forms of data gathering that are related to the study. Furthermore, we developers would like to request that we could be directed to the concerned office and/or person who could assist us.

Thank you for considering this opportunity to contribute to our study.

Sincerely,
iTechnologies
Delos Reyes, Jem Paola B.
Lodriga, Mark Joshua O.
Odango, Adrian Rey R.
Tamayo, Kyla Andrea A.

Approved by:

Virginia B. Loyola, MBA, MIT
Technical Adviser

Mr. Jonel I. Lasaca
Co-owner and Manager

Appendix B. Interview Transcript (April 9, 2023)

Interview transcript of Mr. Jonel I. Lasaca a co-owner and a manager of two branch of King Deo and Queen Grace Phones, Laptops and Accessories

Q: is the question

A: is the answer of the interviewee to the question. It is translated into English.

Q: Where did the KING DEO AND QUEEN GRACE shop start?

Follow-up question: when and what year?

A: "It started in 2018 before the pandemic, and we started with accessories only, we didn't have phones and laptops yet, mostly tempered glass and cases. At that time, it was located only in SM North, and we didn't have any other branches yet."

Q: Who is the founder of the KING DEO AND QUEEN GRACE shop?

Follow-up question: is the shop a family business or a partnership?

A: "The founder is my eldest brother. That is why it's named King Deo, because our eldest sibling's name is Deo Gracias, and Queen Grace because his wife's name is Grace."

Q: What was the origin or inspiration behind starting this particular type of business?

A: "I can say that one of the reasons why we started this business, aside from selling gadgets, is because my eldest brother and I have experience in marketing.

We have an idea and knowledge on how to start a business, so we chose to start this one which has a higher earning potential and is within our expertise because our background is in phone sales."

Q: What is your position in the business?

A: "Actually, on paper, I am the co-owner of the business based on legalities. However, the real owner is my eldest brother, and I am the facilitator who handles the other branches because we have already managed to branch out. I am in charge of two branches, one in SM Megamall and MOA."

Q: How many employees does the shop have?

A: "We currently have 21 employees. We will be hiring more because we are understaffed as we opened another branch. So I think the number of employees will increase."

Q: How many branches does the shop have?

A: "Total of 7 branches."

Q: Does the shop have a website? or a platform that is used for selling?

A: "Yes, we have a page called King Deo and Queen Grace, which is searchable, and the address, including our side street and office, can be seen there."

Follow-up question: what social media platform do you use?

A: We usually use Facebook more than other social media platforms such as Instagram.

Q: When it comes to selling online how do you transact or communicate with your customers regarding their orders and inquiries?

A: “First, we have a robot that gives a generated response to the customers, when they send a message. However, the admins in the office will still answer customers if available because not all customer inquiries can be answered by the system generated response. So it's probably better if there’s a system that will help customers and the admin.”

Q: What is the most stressful process you do?

A: “Of course, the most stressful part is when we transact with the customer then there is an instance where the customer does not reply after they have already started purchasing the order. Seems like some of them are making fun of us.”

Q: What is the process for your shop's payment transactions?

A: “We have multiple modes of payment. Customers can use cash on delivery (COD), cash, GCash, and online banking.”

Q: Do you manually record the sales?

Follow-up question: What application do you use?

A: “Before, when we were just starting, we didn't use Excel yet. But now, we use Excel.”

Q: Does the shop use any processing method for managing and monitoring inventory and sales?

A: “No, we only use Microsoft Excel.”

Q: Does the shop partner with third-party services?

Follow-up question: the shop has its own service?

A: “No. when it comes to our COD service, we have a personal rider.”

Q: Does the shop accept refunds from your customers?

Follow-up question: What is the process for this service?

A: “Actually, not a refund, but let's say the amount paid was 20k. If there's a problem with the phone, we can replace it with a more expensive unit. Let's say the phone originally bought was worth 20k and it had a problem. Since we don't offer refunds, what we do instead is provide a voucher. The customer can use the voucher to buy a more expensive phone. For example, if they choose a phone worth 20k to replace the defective one, they only need to add 3k more.”

Q: Does the shop offer product replacement?

Follow-up question: What is the process for this service?

A: “Yes, it's possible. In fact, the main advantage of having physical stores is the warranty, which includes a 7-day replacement and 1-year warranty. The 7-day replacement policy applies when there is a system defect, and the customer can

bring the device to the service center for diagnosis. If the service center cannot fix the issue and it falls within the 7-day replacement period, there's no problem with replacing the unit, as long as we have the technical report from the service center."

Q: Does the shop offer warranty services?

Follow-up question: What is the process for this service?

A: "Each brand still offers its own services; for example, Xiaomi has a designated service center. So, if there are any problems with a Xiaomi phone, there are nationwide service center partners that can help. On our end, it will be taken to the service center if there are any phone problems and if it's still within the 7-day replacement period. However, this is very rare. They will give us a technical report for the replacement of the unit, which the client will bring to our shop to replace it with a new one. This way, we won't incur any losses because we'll be at a disadvantage if we offer warranties and replacements, especially since these units are expensive. If we pay for that, we'll be at a loss."

Appendix C. Documentation Online and Physical Interaction (April 9, 2023)

Appendix D. Entity Relationship Diagram

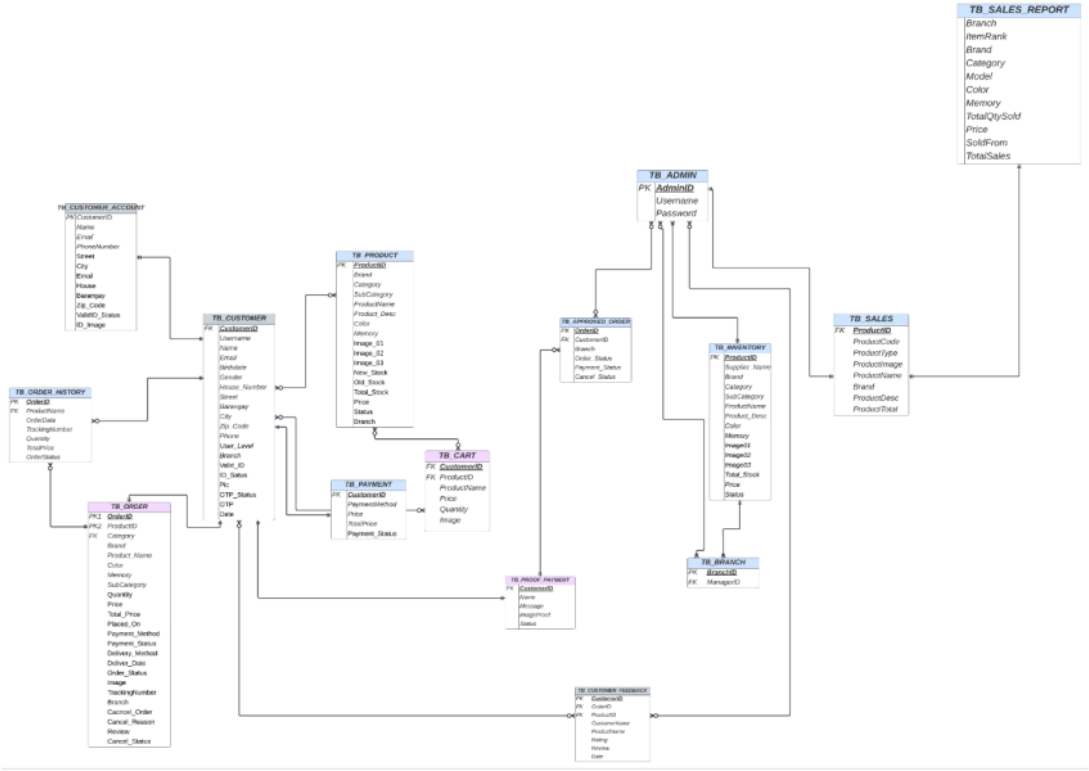


Figure 6.1 Entity Relationship Diagram

Appendix E. Context Level Diagram

Figure 7.1 Context Level Diagram

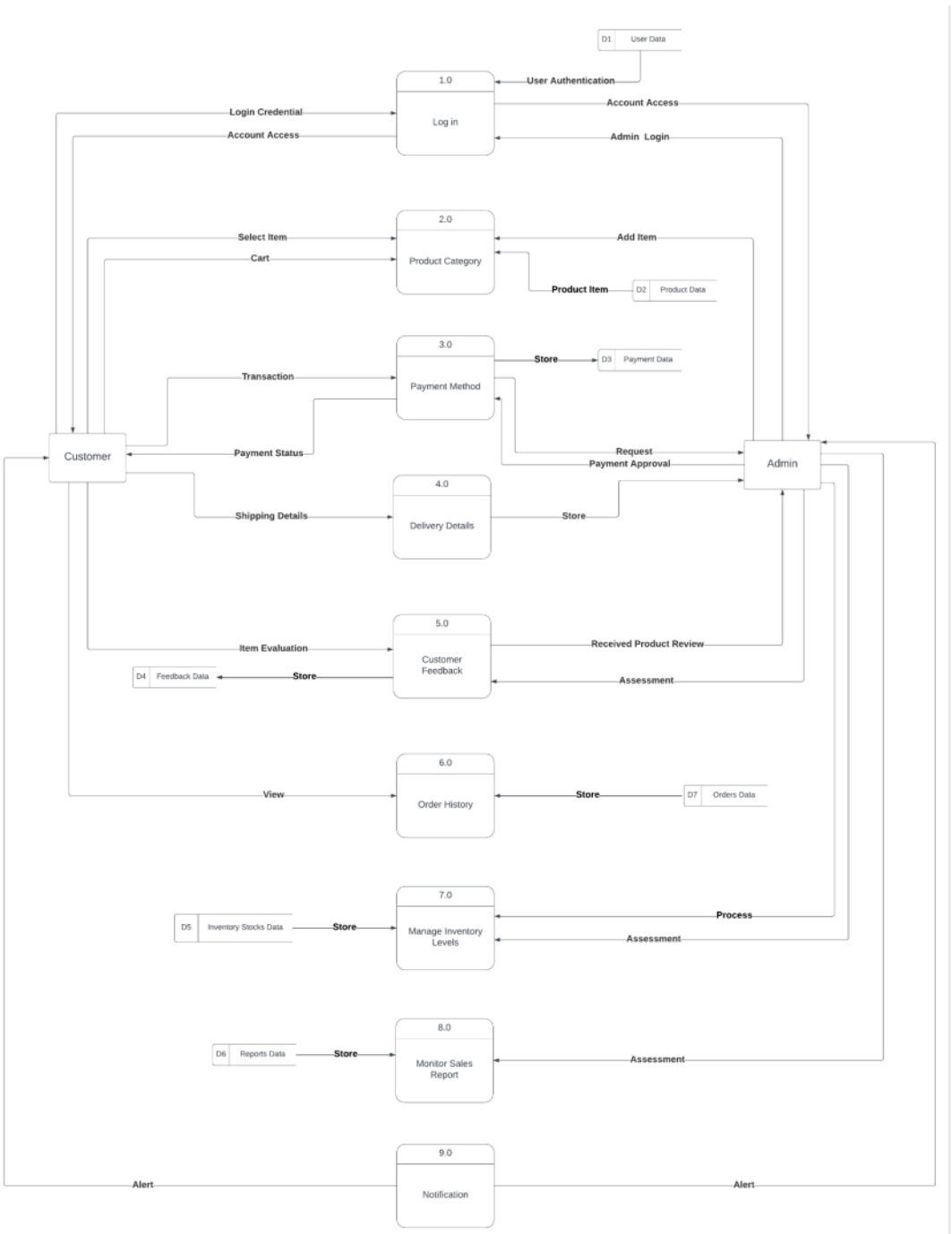


Figure 7.2 Top Level Diagram

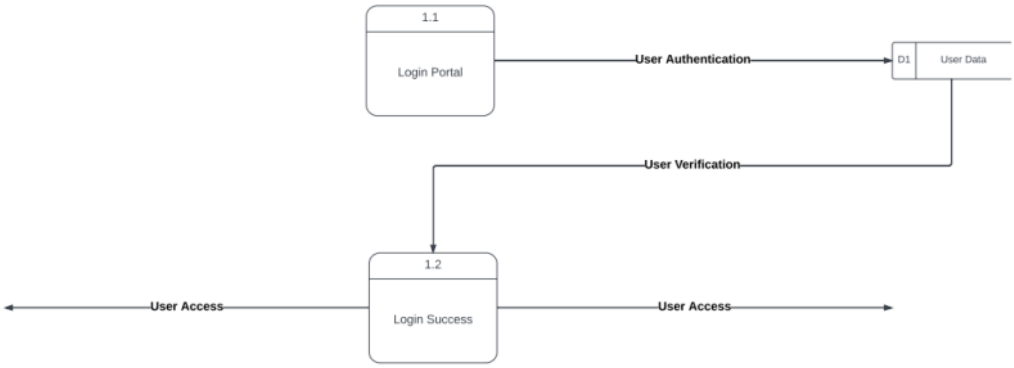


Figure 7.3 Child Level Diagram **(Login)**

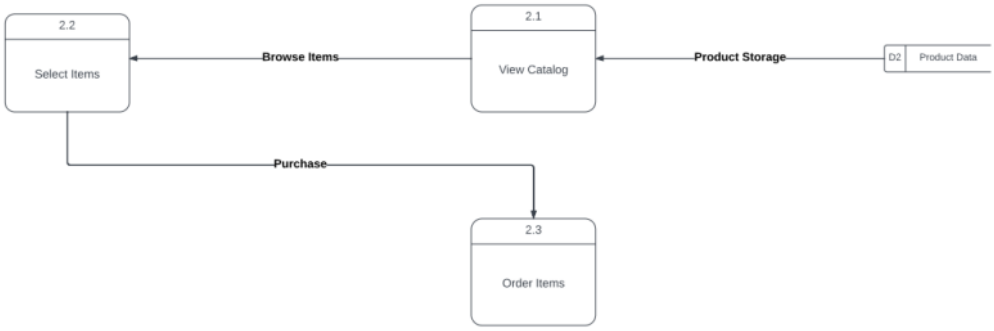


Figure 7.4 Child Level Diagram **(Product Catalog)**

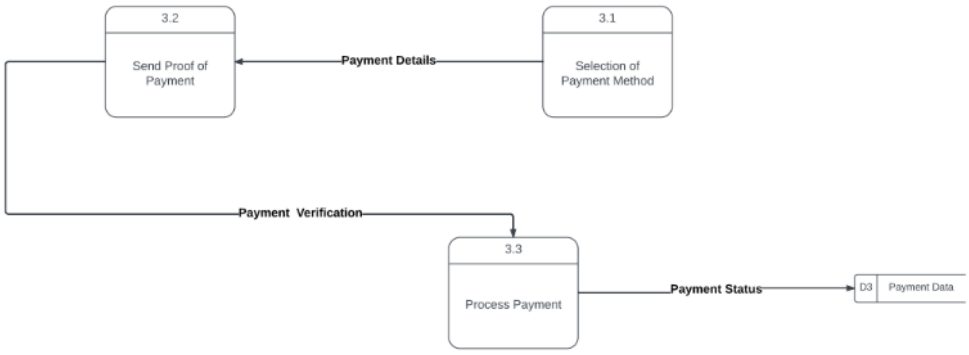


Figure 7.5 Child Level Diagram **(Payment Details)**

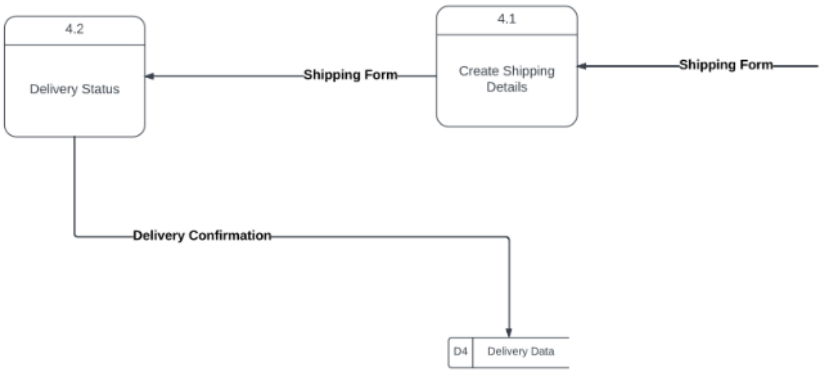


Figure 7.6 Child Level Diagram **(Shipping Details)**

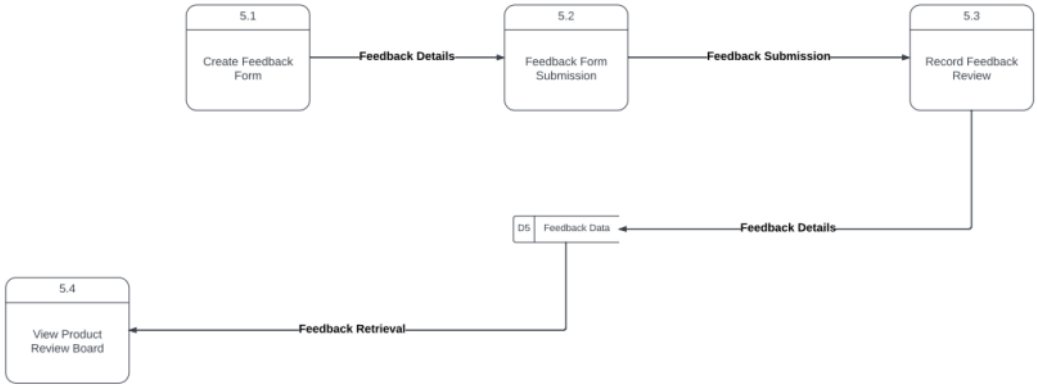


Figure 7.7 Child Level Diagram **(Feedback)**

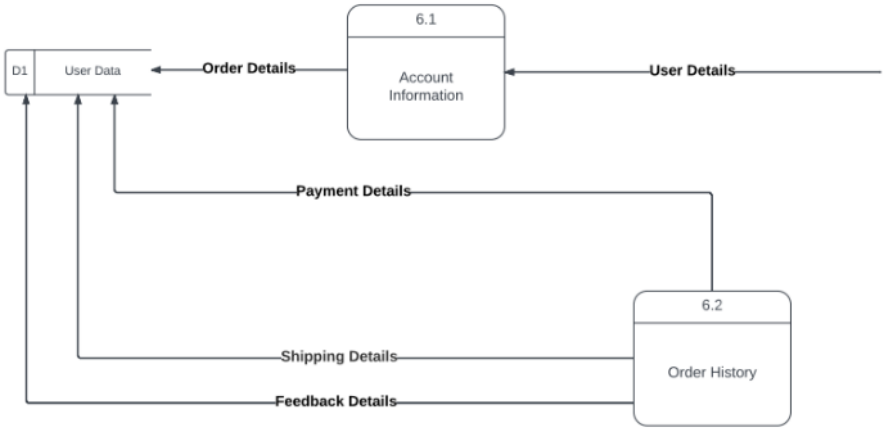


Figure 7.8 Child Level Diagram **(Account Profile)**

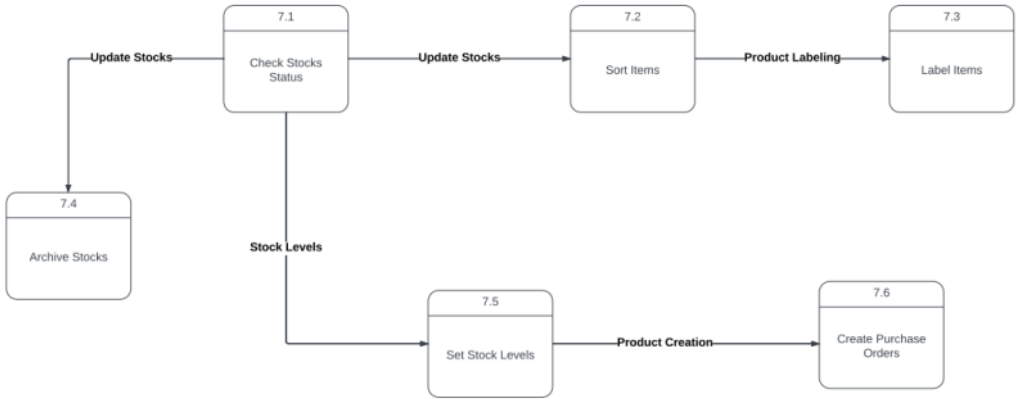


Figure 7.9 Child Level Diagram **(Inventory)**

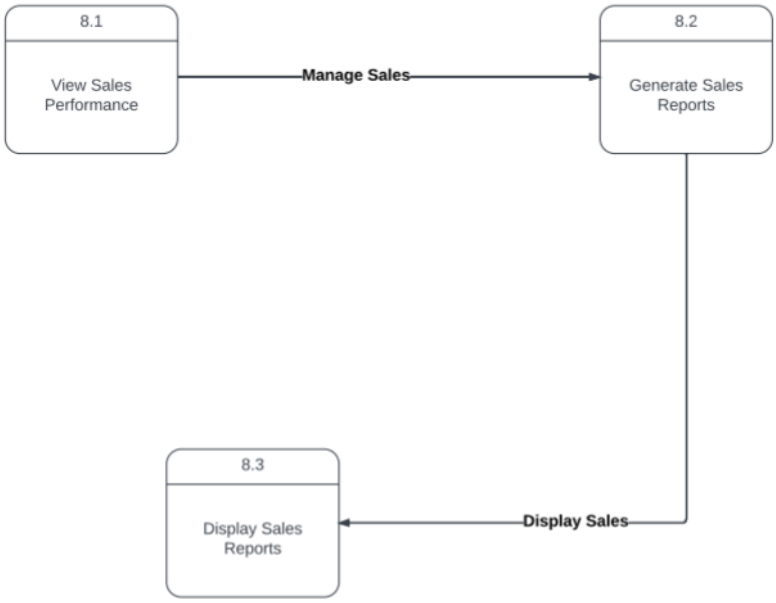


Figure 7.10 Child Level Diagram **(Sales Reports)**

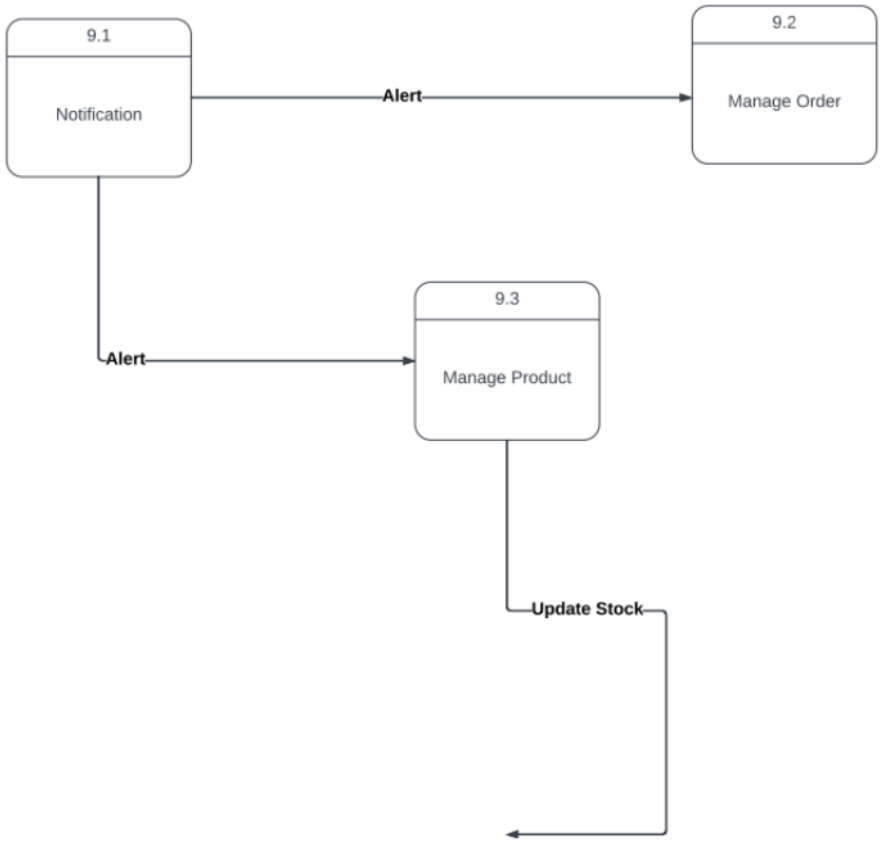


Figure 7.11 Child Level Diagram **(Notification)**

Appendix F. Questionnaire (ISO/IEC 25010, 2011)

Part 1: Message to Respondents and Personal Information

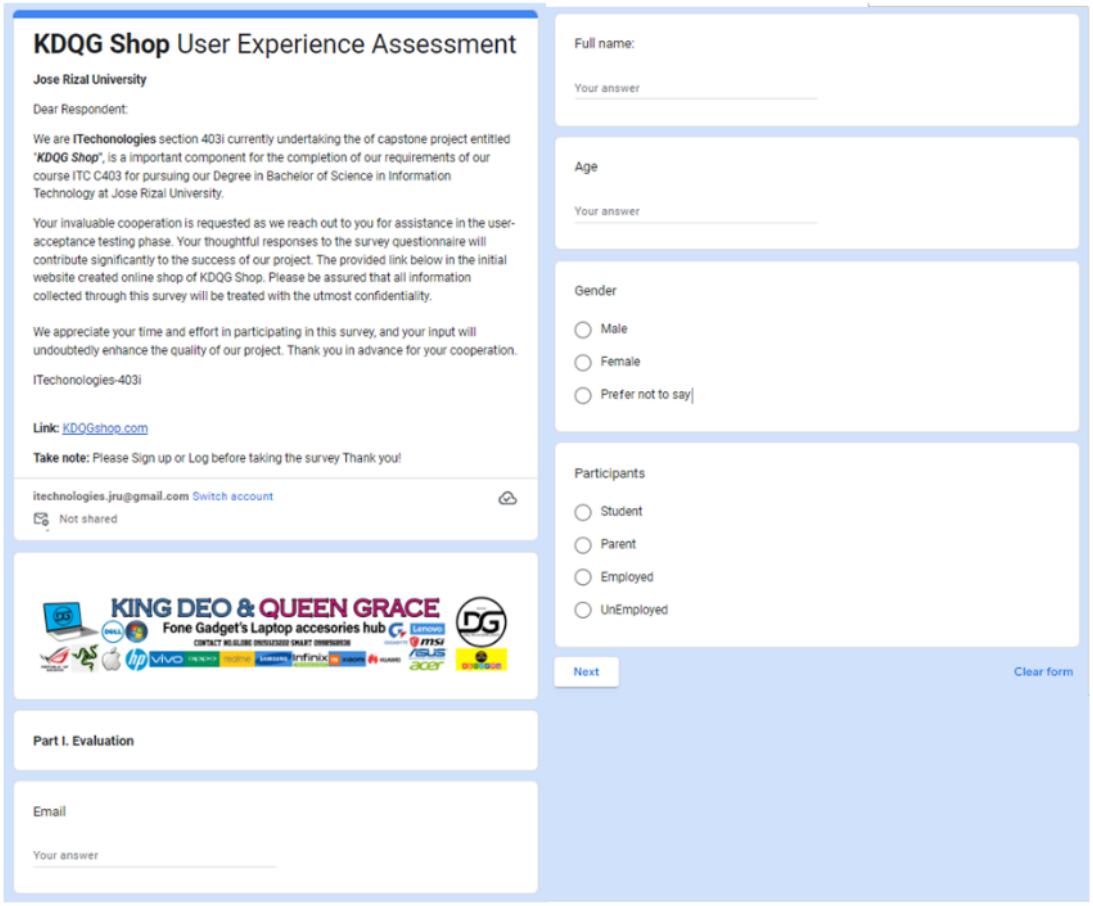
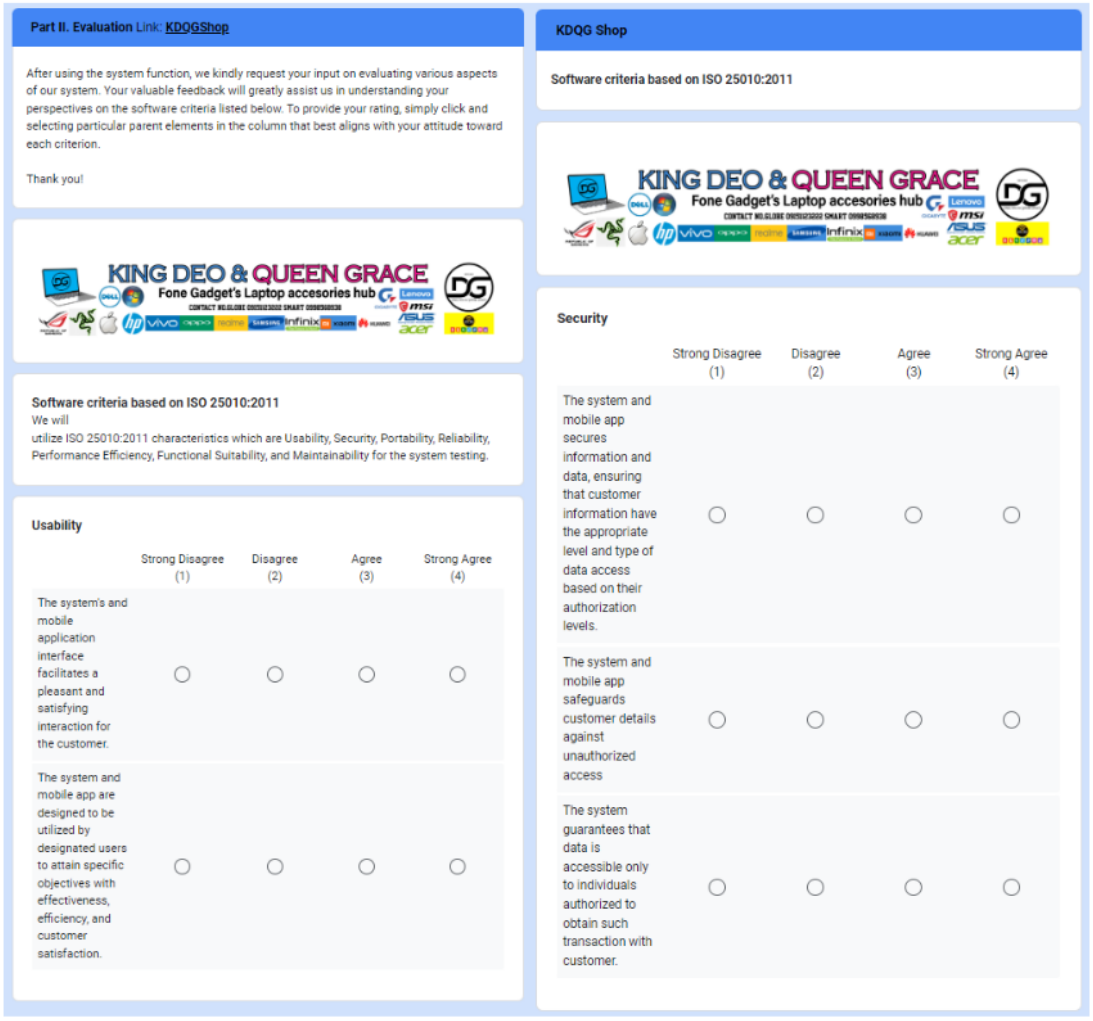


Figure 8.1 Part 1 of Questionnaire

Part 2: Evaluation Form



Part II. Evaluation Link: KDQGShop

After using the system function, we kindly request your input on evaluating various aspects of our system. Your valuable feedback will greatly assist us in understanding your perspectives on the software criteria listed below. To provide your rating, simply click and selecting particular parent elements in the column that best aligns with your attitude toward each criterion.

Thank you!

KING DEO & QUEEN GRACE
Fone Gadget's Laptop accesories hub

Software criteria based on ISO 25010:2011
We will
utilize ISO 25010:2011 characteristics which are Usability, Security, Portability, Reliability, Performance Efficiency, Functional Suitability, and Maintainability for the system testing.

Usability

	Strong Disagree (1)	Disagree (2)	Agree (3)	Strong Agree (4)
The system's and mobile application interface facilitates a pleasant and satisfying interaction for the customer.	○	○	○	○
The system and mobile app are designed to be utilized by designated users to attain specific objectives with effectiveness, efficiency, and customer satisfaction.	○	○	○	○

KDQG Shop

Software criteria based on ISO 25010:2011

KING DEO & QUEEN GRACE
Fone Gadget's Laptop accesories hub

Security

	Strong Disagree (1)	Disagree (2)	Agree (3)	Strong Agree (4)
The system and mobile app secures information and data, ensuring that customer information have the appropriate level and type of data access based on their authorization levels.	○	○	○	○
The system and mobile app safeguards customer details against unauthorized access	○	○	○	○
The system guarantees that data is accessible only to individuals authorized to obtain such transaction with customer.	○	○	○	○

Figure 8.2 Usability Questions and Security Questions

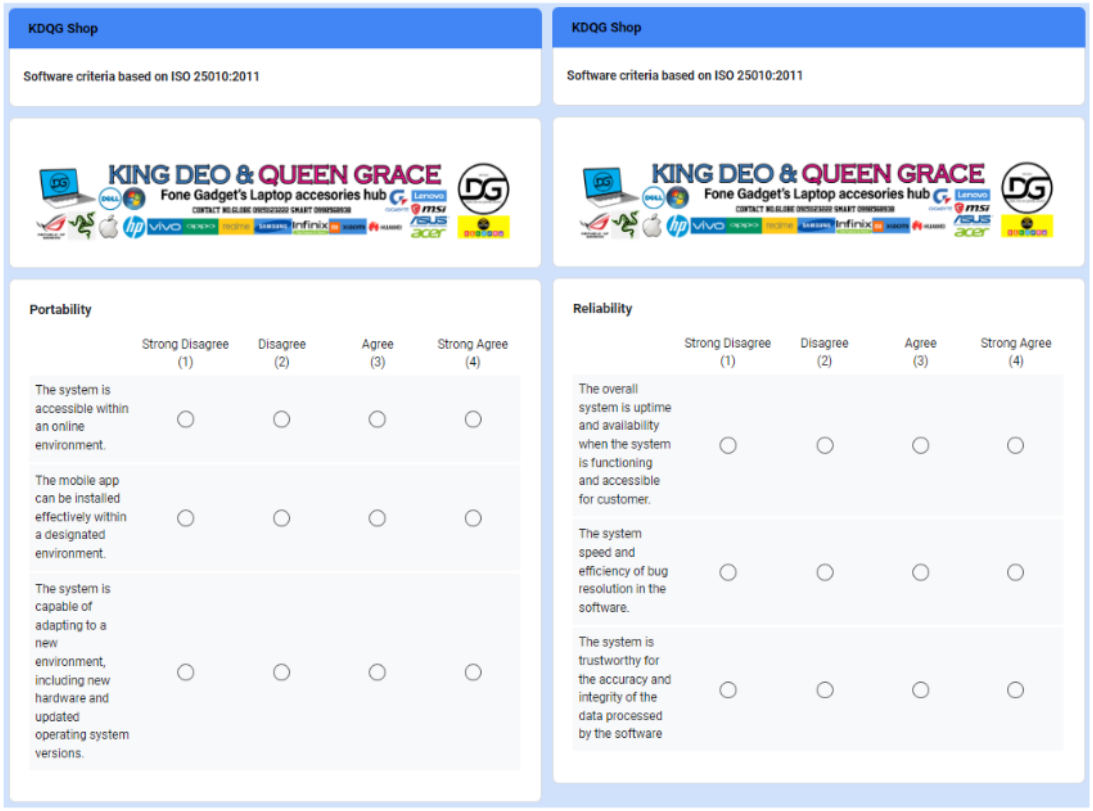


Figure 8.3 Probability Questions and Reliability Questions

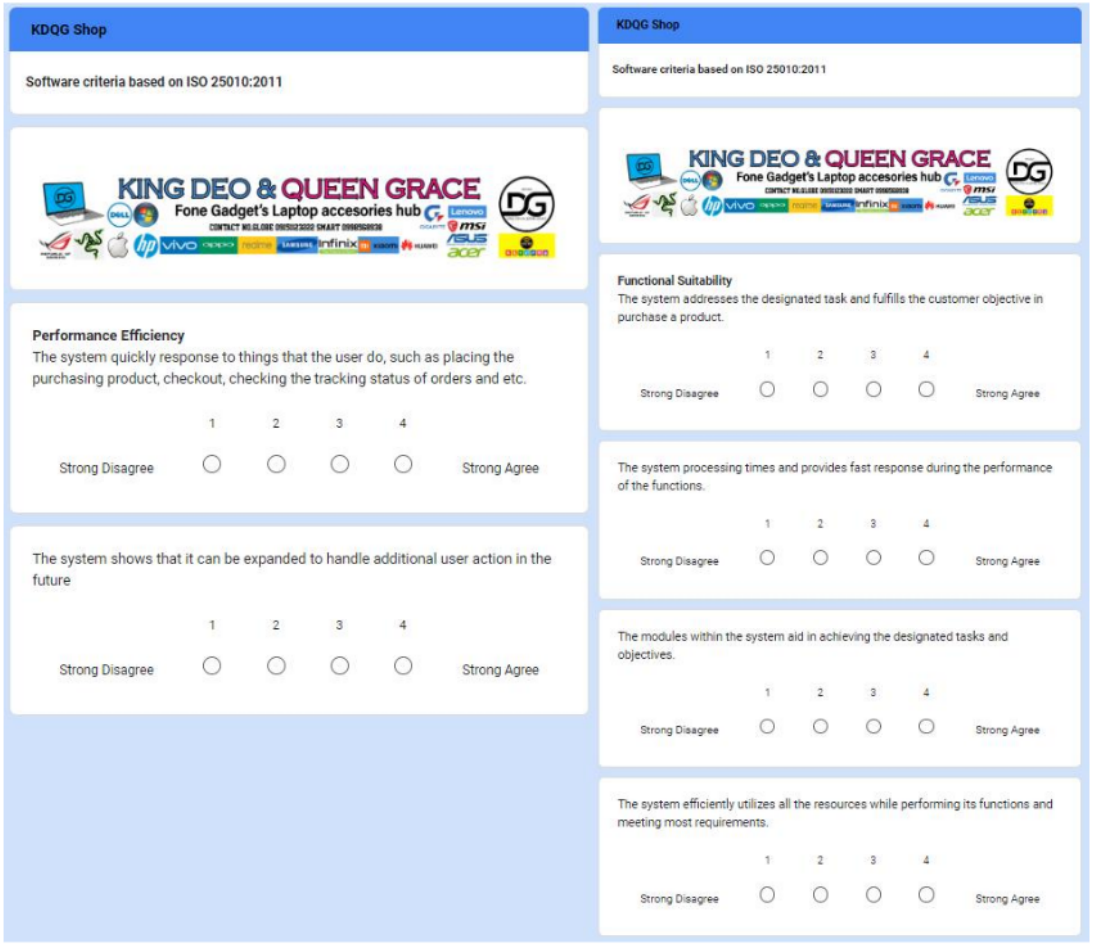


Figure 8.4 Performance Efficiency Questions and Functional Suitability Questions

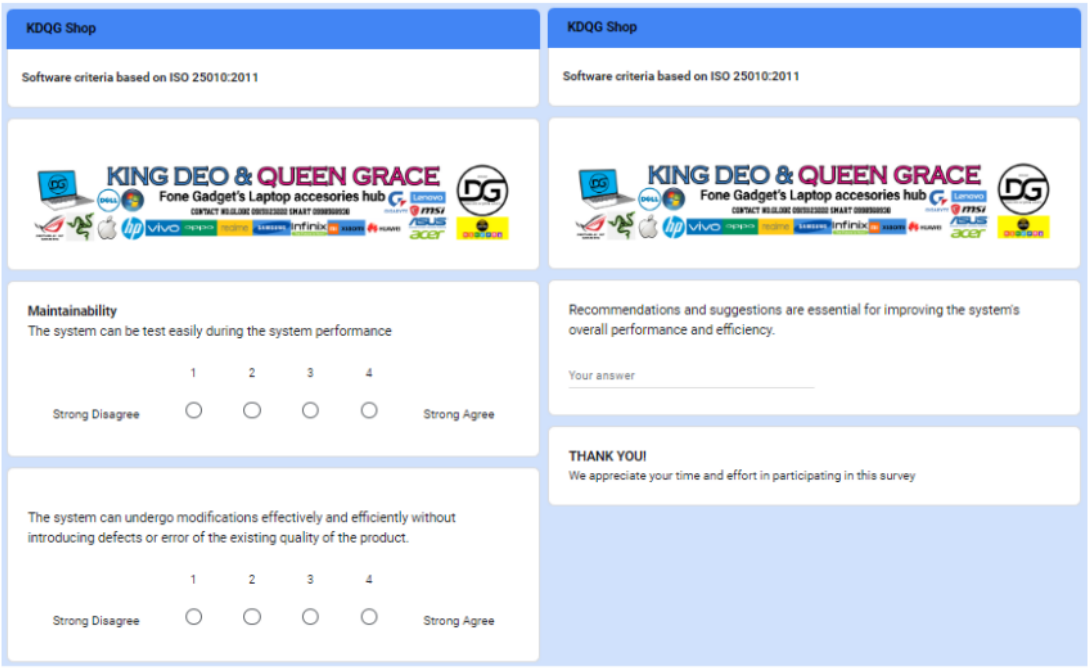


Figure 8.5 Maintainability Questions and Feedback of Questionnaire

Appendix G. Survey respondents

Alpha Testing Survey has total 12 respondents.

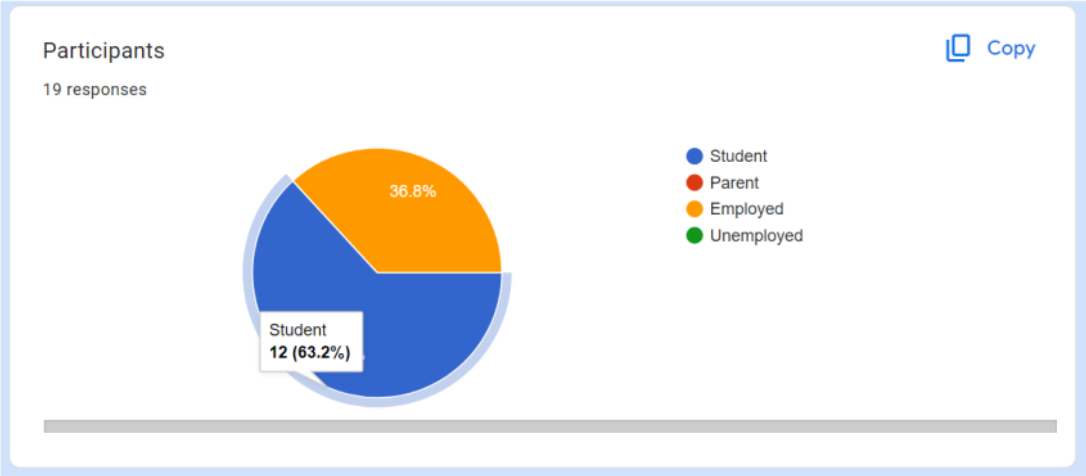


Figure 9.1 Number of respondents

Table 7.1 Survey Response

Numerical Value Equivalent Rating

4- Strongly Agree, 3- Agree, 2- Disagree, and 1- Strong Disagree

Question	Rating Scale				
Usability	**4**	**3**	**2**	**1**	**Weighted Mean**
The system and mobile application interface facilitate a pleasant and satisfying interaction for the customer.	9	3			**3.8**
The system and mobile app are designed to be utilized by designated users to achieve specific objectives with effectiveness, efficiency, and customer satisfaction.	10	2			**3.8**
Security					
Confidentiality. The system and mobile app secure information and data, ensuring that customer information has the appropriate level and type of data access based on their authorization levels.	7	5			**3.6**
Integrity. The system and mobile app safeguard customer details against unauthorized access.	9	3			**3.8**
Non-repudiation. The system ensures that data is accessible only to individuals authorized to engage in transactions with customers.	6	6			**3.5**

Portability					
The system is accessible within an online environment.	8	4			**3.7**
The mobile app can be effectively installed within a designated environment.	4	8			**3.3**
The system is capable of adapting to a new environment, including new hardware and updated operating system versions.	8	4			**3.7**
Reliability					
The overall system is uptime and availability when the system is functioning and accessible for customers.	6	6			**3.5**
The system speed and efficiency of bug resolution in the software.	5	7			**3.4**
The system is trustworthy for the accuracy and integrity of the data processed by the software.	9	3			**3.8**
Performance Efficiency					
The system quickly responds to actions that the user takes, such as placing a product in the cart, checking out, and tracking order statuses, among other things.	8	4			**3.7**
The system shows that it can be expanded to handle additional user actions in the future.	8	4			**3.7**
Functional Suitability					

The system addresses the designated task and fulfills the customer objective in purchasing a product.	6	6			**3.5**
The system processes processing times and provides fast response during the performance of the functions.	7	5			**3.6**
The modules within the system aid in achieving the designated tasks and objectives.	4	8			**3.3**
The system efficiently utilizes all the resources while performing its functions and meeting most requirements.	6	6			**3.5**
Maintainability					
The system can be test easily during the system performance.	9	3			**3.8**
The system can undergo modifications effectively and efficiently without introducing defects or errors of the existing quality of the product.	8	4			**3.7**

User Feedback (Suggestion and Recommendation):

-It's perfect, but (it) needs to develop some additional features like (a) price discount method.

Beta Testing Survey has total 7 respondents

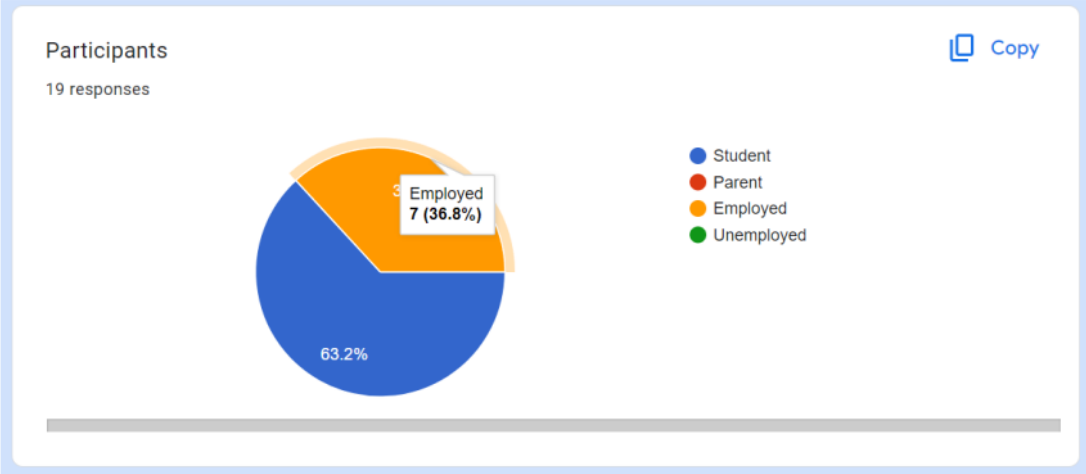


Figure 9.2 Number of respondents

Table 7.2 Survey Response

Numerical Value Equivalent Rating

4- Strongly Agree, 3- Agree, 2- Disagree, and 1- Strong Disagree

Question	Rating Scale				
Usability	**4**	**3**	**2**	**1**	**Weighted Mean**
The system and mobile application interface facilitate a pleasant and satisfying interaction for the customer.	3	3		1	**3.1**
The system and mobile app are designed to be utilized by designated users to achieve specific objectives with effectiveness, efficiency, and customer satisfaction.	4	2		1	**3.3**
Security					
Confidentiality. The system and mobile app secure information and data, ensuring that customer information has the appropriate level and type of data access based on their authorization levels.	4	3			**3.6**
Integrity. The system and mobile app safeguard customer details against unauthorized access.	3	3	1		**3.3**
Non-repudiation. The system ensures that data is accessible only to individuals authorized to engage in transactions with customers.	4	3			**3.6**

Portability					
The system is accessible within an online environment.	4	3			**3.6**
The mobile app can be effectively installed within a designated environment.	4	2	1		**3.3**
The system is capable of adapting to a new environment, including new hardware and updated operating system versions.	5	2			**3.7**
Reliability					
The overall system is uptime and availability when the system is functioning and accessible for customers.	5	2			**3.7**
The system speed and efficiency of bug resolution in the software.	5	1	1		**3.6**
The system is trustworthy for the accuracy and integrity of the data processed by the software.	7				**4**
Performance Efficiency					
The system quickly responds to actions that the user takes, such as placing a product in the cart, checking out, and tracking order statuses, among other things.	4	3			**3.6**
The system shows that it can be expanded to handle additional user actions in the future.	6	1			**3.9**
Functional Suitability					

The system addresses the designated task and fulfills the customer objective in purchasing a product.	5	1	1		**3.6**
The system processes processing times and provides fast response during the performance of the functions.	4	1	2		**3.3**
The modules within the system aid in achieving the designated tasks and objectives.	4	3			**3.6**
The system efficiently utilizes all the resources while performing its functions and meeting most requirements.	5		2		**3.4**
Maintainability					
The system can be test easily during the system performance	5	1	1		**3.6**
The system can undergo modifications effectively and efficiently without introducing defects or errors of the existing quality of the product.	5	1	1		**3.6**

User Feedback (Suggestion and Recommendation):

-Moving mobile brands' logos is not necessary on the website.

-It would be better if you can also put a shortcut when clicking the logo on the top left part; moreover, is more good looking if there less on the main page (instead of putting "About us" and the small frame for the contacts and branches listed, you could maximize the page by giving space for "best seller" slides or nicer animation.

-The system can develop further; if there is a recommendation where I can just put my requirements on a phone, it will give me the things I want.

-For a new system, overall, it is good. Just prioritize developing mobile to accommodate the growing numbers of smartphone users. Implement a smooth and secure one-click checkout process for an efficient user experience.

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