Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal

An Undergraduate Thesis
Submitted to the faculty of the
Department of Computer Studies
Cavite State University
Imus, Cavite

In partial fulfillment
Of the requirements for the degree
Bachelor of Science in Computer Science

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BIOGRAPHICAL DATA

Cleff Jeo Nueva Mabini, one of the researchers, was born on the 11th of July in Gandara, Samar. He is the firstborn among the three children of Joey P. Mabini and Genelyn D. Nueva.

He obtained his primary education at Gandara I Central Elementary School in 2012 and finished Junior High School at Ramon T. Diaz National High School in 2016. He completed his Senior High School education aligned in the Technical Vocational track, specializing in Information and Communication Technology also in Ramon T. Diaz National High School – Senior High School.

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ABSTRACT

DECOLONGON, FRANCES S., LEONAR, HOWEN D., and MABINI, CLEFF JEO N., Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal Undergraduate Thesis. Bachelor of Science in Computer Science, Cavite State University, Imus City, Cavite. July 2023. Adviser: Mildred T. Apostol, MBA.

The study entitled Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal from January 2023 to July 2023. The motorcycle-selling industry faces numerous challenges in managing operations and conducting effective decision-making. This study aims to develop the Motorstar App, a management support system combined with a Customer Mobile Portal to address these challenges. The research objectives are 1. to develop a system that will help the client in their managerial decision-making processes through a visual data representation of the employee and motorcycle unit sales, and customer credit score; 2. to establish a notification system that will automatically inform customers about their payment due date via email notification; 3. to integrate a capability that will improve the management and checking of older motorcycle models, and previous customer records in a unified system; 4. to easily identify the customers' credit score based on their payment punctuality, without the need for a manual listing process.

The research methodology involved in the study is Agile Methodology, while the research design is a mixed-method approach. Interviews were conducted mainly focusing on the admin, general client, and IT Professionals. Based on the data gathered, the Motorstar app was designed to address the problems in the inventory system, categorization of the customers, notification system, manual data entry errors, helping the client in the managerial decision-making processes, and providing valuable insights into their company.

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Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal

DECOLONGON, FRANCES S.
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An undergraduate thesis manuscript submitted to the faculty of the Department of Computer Studies, Cavite State University Imus, Cavite in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science with Contribution No._____. Prepared under the supervision of Ms. Mildred T. Apostol.

INTRODUCTION

Transportation is the intentional movement of humans, animals, and goods from one location to another. Transportation became an important part of people's lives even in ancient times and has now greatly improved, thanks to Man's insatiable desire to make lives comfortable and convenient. In the current times especially in Manila and areas near the National Capital Region, it is not new when someone complains about the heavy traffic the commuters face every day, that is why people choose to ride on a vehicle that is somehow insusceptible to traffic, for example, bicycles and motorcycles.

Business owners selling motorcycles are likely to face certain problems when it comes to transactions daily. Some owners would use traditional methods to log and write their records for a single transaction, while others use Microsoft Excel and other office tools on a computer. With all that said, they are still not free from the hindrances they would face using this software recently introduced. Their struggle starts with, the payment reminder being manually sent during due dates, especially if payments of the bought motorcycle by their customers are in installments and not in cash.

With the facts and situations stated by the client, the proponents would propose software to help them overcome these problems. The said software is targeted to create a system application that notifies the customer about payments, an Optical Character Recognizer used in transactions, and a graphical visual representation of the data for the employees, and customer behavior in payments. This will help them improve their service to their customers while making transactions comfortable and efficient.

Statement of the Problem

Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal is sought to answer the following problems:

- The client struggles to keep up with the statistical data of the customer payment timeliness, and sales agent performance, because of this, it greatly affects the client with their decision-making processes and hinders their productivity because they rely on Microsoft Excel to record their transactions and they do not have the specific tool to graph these data. *How to improve managerial decision-making processes with the help of statistical data from employee and unit sales, and customer payment promptness?*
- The Client manually sends chats and text messages to their customers to remind them of their incoming payment due date, according to the client this is one of the problems they want to solve since they do not have the software to use to automatically remind their customers of important dates. *How to automatically alert customers regarding their incoming payment due date through email?*

- Managing the inventory units are also a problem the client has stated according to the interview, they use two different systems when accessing data in the inventory, the older motorcycle models and transactions are in the previous system they use, which is prone to unorganized data, and inefficiency which leads to customer dissatisfaction. *How to improve access to previous transactions and older motorcycle models without the need for separate systems?*
- According to the interview, the client struggles to classify customers whether they are good payers or delinquents, since they are using Microsoft Excel, they manually input lists of customers in categories, and the customers are labeled depending on how they pay their remaining balance on their purchase. *How to efficiently identify the customers' credit scores based on their payment punctuality?*

Objectives of the Study

This study aims to:

1. to develop a system that will help the client in their managerial decision-making processes through a visual data representation of the employee and motorcycle unit sales, and customer credit score;
2. to establish a notification system that will automatically inform customers about their payment due date via email notification;
3. to integrate a capability that will improve the management and checking of older motorcycle models, and previous customer records in a unified system;
4. to easily identify the customers' credit score based on their payment punctuality, without the need for a manual listing process.

Time and Place of the Study

The Researchers started this study in January 2023 at Cavite State University – Imus Campus. The client's Business is located in Imus, Cavite, the researchers went to the actual business location to accumulate the necessary information needed for the study.

Scope and Limitation

User Management Module. The proposed system will have four different accounts, each user will have different levels of access according to their roles.

- **Administrator.** The administrator will be granted access to the whole features of the proposed system.
- **Cashier**. The cashier has limited access to the proposed application. The cashier can only access the Transaction section, Account List section, Unit section, Application Status section, and Item Rewards section.
- **Sales Agent.** The sales agent has also access to several modules to collect and view necessary customer details. This includes the Customer Management Section, Account List section, and Application Status section.
- **Customers.** The customers can access their accounts and will be given an account after the transaction of the first payment. Customers can view their remaining balance, total paid amount, and monthly payment in the mobile app, there is also a rewards section for the customers to save up points and redeem them into a collectible item.

Sales Report Module. This module represents the sales of motorcycle units displayed in the dashboard after logging in. It is visually represented through the use of a graph which covers the sales in several months and a year. The data presented in this module is derived from the Inventory Module.

Transaction Module. This module is responsible for the adding and viewing of transactions done by the customer through the cashier. This section is accessible to both the Admin and the Cashier.

- **Optical Character Recognition (OCR).** Uploads and scans the receipts of an e-wallet specifically GCASH then converts the necessary information into text to fill up the text fields and is editable for inaccuracy instances.

Inventory Module. This module holds the information on the models and units both brand new, repossession, and currently in-payment in the branch and the other information needed by the employee and customer about the model involved in a transaction.

Application Module. This module refers to the application form the cashier has to confirm before approving or declining a customer for a transaction. A specific Sales Agent will assist the customer to get their details and would be listed for a home visit, after that, the cashier will confirm the customer's application. The customer would be declined if they are shown to be unable to afford a motorcycle, while on the other hand, they would be approved of their purchase if they satisfied the needed qualifications, this includes their monthly salary and other sources of income, they also can apply for a lower cost unit which would be recommended by a sales agent.

Application Approval Module. This module covers all the pending Applications of the customers and will be evaluated by the cashier if the customer will later be approved or declined in response to their purchase. The process of evaluation is explained in the previous module.

Customer Dashboard Module. This module is present in the mobile app that displays the remaining balance, monthly payment, and the customer's total amount paid. Advance payers are given rebates, while delinquents are the most unlikely to receive this advantage. Advance payers can receive a reduction of ₱300 - ₱400 depending on where they paid. The rebates are higher if a customer pays on the actual branch.

Customer Rewards Module. This module refers to the rewards section in the mobile app, where the customer can save up points to redeem custom merchandise items. This section generates a coupon code to be presented in the branch for redeeming the product. Also, Advance and Current Payers are the only customers that can save points.

Limitations of the Study

This study had several limitations that should be considered when interpreting the findings. Firstly, the sample size was relatively small, which limits the generalizability of the results to a broader population. Additionally, due to time constraints, the data collection was conducted over a short period, potentially impacting the accuracy and representation of long-term trends. The study revolves around the chosen organization, Motorstar Imus Branch, its customers, and other related entities to study their business transactions and customer interactions. The system focuses on the Business Process of the client which includes, Transactions, Employee Management, Sales, Customer payment punctuality, and Inventory. Despite the mentioned limitations, the proponents would recommend several functionalities for future use and adaptability of the said project. Lastly, the findings of this paper provide valuable insights for every individual involved and offer a foundation for future research on the said topic.

Significance of the Study

The study entitled “Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal” will be beneficial for the following entities:

Client. This study is proposed with the intent of improving the client’s productivity. The Researchers firmly believe that the proposed system would help the client and improve their productivity by improving their tools for better service towards their client.

Customers. This study would be beneficial to the customers since it is designed to eliminate most paperwork, this app features several functionalities to help customers starting from their payment and other matters when purchasing motorcycles in the said branch.

Future Researchers. This study would serve as a reference for future researchers who would also like to further this related study.

Definition of Terms

The enumerated terms were defined based on how they were used in the study.

Business Analysis - refers to the process of examining a company or organization to understand its current situation and identify opportunities for improvement. It involves studying various aspects such as business processes, systems, data, and organizational structure to identify problems, inefficiencies, and potential areas of growth.

Customer Mobile Portal - a digital platform or application that allows customers to interact, access services, and engage with a company or organization using their mobile devices, such as smartphones or tablets. It serves as a dedicated

channel for customers to conveniently and securely access various features, information, and self-service options provided by the company.

Management Support Systems - also known as Management Information Systems (MIS), refer to computer-based systems that assist in the decision-making and managerial processes within an organization. These systems provide managers with the necessary information and tools to support their planning, organizing, directing, and controlling functions.

Optical Character Recognition - a system that can "read" text from images or scanned documents. It allows computers to recognize and understand the text contained within these images, making it possible to search, edit, or manipulate the text as if it were typed directly into a computer.

Conceptual Framework of the Study

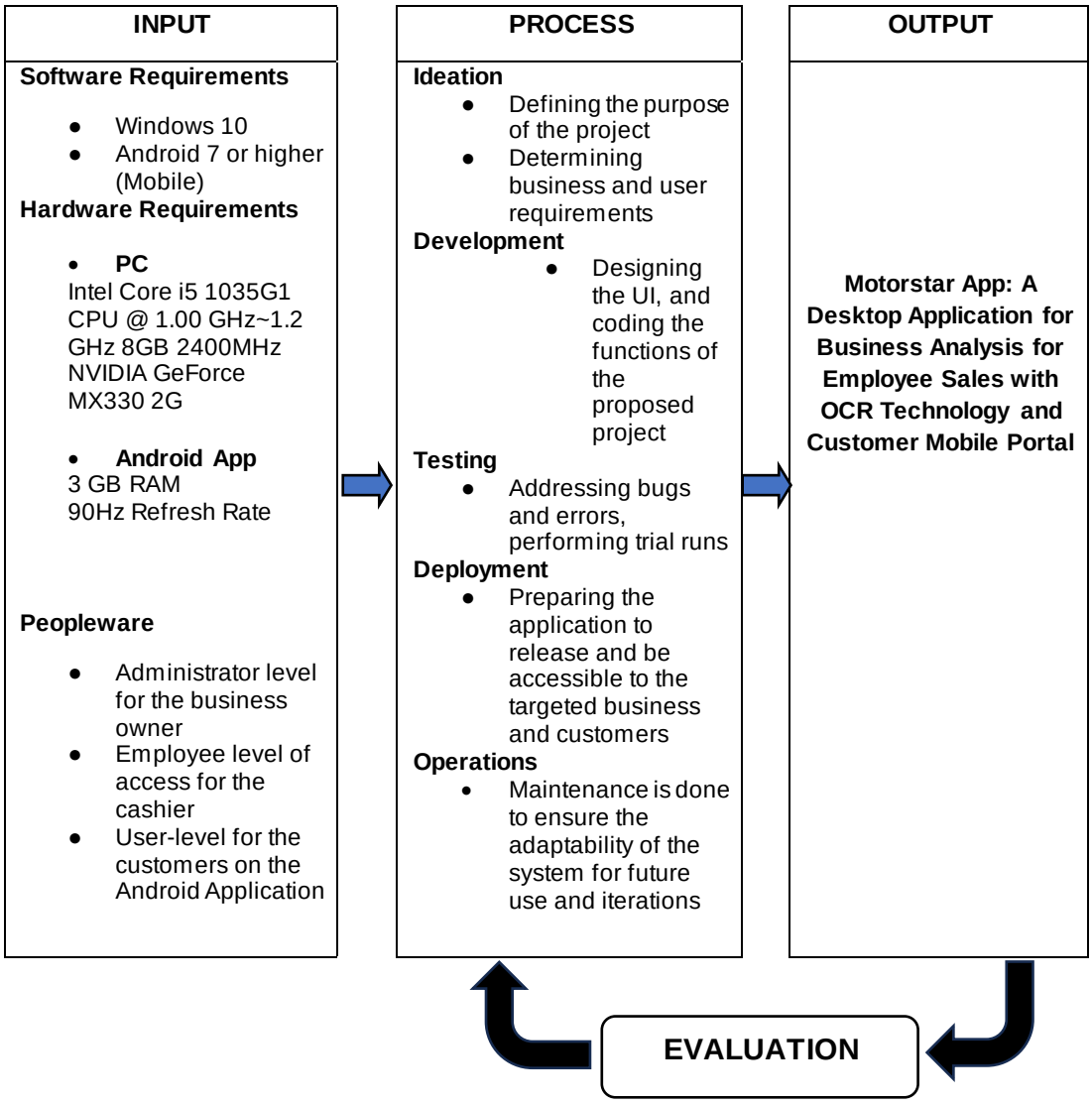

Figure 1. Conceptual Framework of the Study of Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal.

The Conceptual Framework includes the input, process, and output of the system. The Proponents used the IPO model to represent a simplified view of the system and its development. The Input refers to the information and resources that are necessary to create the proposed project. The Process represents the activities that take place within the system and its development, this may involve human actions,

decision-making, or a combination of the latter. Finally, the Output, which results in the development of the Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal.

REVIEW OF RELATED LITERATURE

The Review of Related Literature serves as a vital component of this study, providing a comprehensive examination of existing research and scholarly works relevant to the research topic. By exploring a range of peer-reviewed articles, research studies, and academic literature, this section aims to establish a solid foundation of knowledge and understanding surrounding the subject matter.

Management Support Systems

Bochkarev, Urasova, and Balandin (2021) stated that the actualization of the improvement of information support systems in the management system calls for the systematization and generalization of methodological foundations, scientific approaches, and the practice of their application. The Management Support Systems involve the collection, storage, and processing of data to support managerial decision-making, improve business processes, and enhance organizational effectiveness.

Fikri and Mustikasari (2022) conducted a study entitled Trend Analysis in Sales Forecasting and Decision Support Systems AHP Method on the Selection of Types of Motorcycles PT. AHM, the study was about forecasting the sales in the motorcycle company and their loss because of the pandemic. The study aimed to forecast sales with the help of a decision support system. In their abstract, they stated that they were able to point out the motorcycle unit the customers were interested in, and with the help of the decision support system, the company managed to take advantage of the trend.

A study conducted by Ebron, Elomina, and Miranda (2022) entitled "In-House Accounting System with Decision Support and Predictive Analytics for Sa Dulo Hotspring Resort" was made to give the owner of the resort the ability to manage their business from a distance, the said study was supported by a decision support system,

an easy-to-understand graph, and database. The study, with the help of the said functions, minimized the use of traditional logbooks which often causes data entry errors, the proposed system has made both the employees' and business owner's everyday tasks comfortable and efficient.

RESEARCH MANAGEMENT INFORMATION SYSTEM OF QUIRINO STATE UNIVERSITY was a study conducted by Hernandez (2021), The project aims to analyze the research data management practices of the Research and Development Office in a university and identify the problems they face. Based on interviews and observations, it was found that data and records are collected from research coordinators, faculty, and staff researchers. These records are sent to the Knowledge Management Officer via social media platforms, saved in flash drives and hard copies, and stored in computers and filing cabinets. The identified problems include scattered and unsecured records, cumbersome record-keeping, and difficulty in generating reports. The proposed solution is the implementation of the RMISQSU system, which acts as a database for research activities and endeavors. The system will facilitate the monitoring of research data and information, generate reports for partner agencies and the university, and aid in decision-making processes.

Health Information System Users in Public Health Facilities: A Descriptive Analytics is a study conducted by Cortez, Ishii, Ongkiko, Ortega, Malang, and Vigonte (2023) in which they studied the effectiveness of the implementation of a Health Information System (HIS) in the province of Bataan. The study is conducted to visualize the current situation of health information system users in public health facilities in the Province of Bataan. It endeavors to answer how the health facilities in the Province are described based on their report platform, the number of personnel, trained and untrained per facility, and the needs of the facilities when it comes to the training of the encoders. This study focused on the data gathered from the Health Information Systems Assessment Tool. The assessment was conducted with 24 different health facilities in the Province of Bataan. The study revealed that 14 out of 24 (58%) of the

Rural Health Units (RHUs) in the Province of Bataan used paper-based reporting while 10 out of 24 (42%) of the RHUs used a health information system. Twenty-one out of 48 encoders (44%) are untrained while 27 out of 48 (56%) are trained. Capability training in each health information system used is proposed. In conclusion, the Province of Bataan is supporting the implementation of the use of health information systems (HIS) by designating encoders for every public health facility.

Canlubo, Corpus, and Fajutrao (2022) conducted a study entitled Decision Support System with Project Scheduling Visualization for Department of Public Works and Highways Laguna 2nd District Engineering Office. The proposed project was supported by a Decision Support System (DSS) that helped their respective client to lessen the time spent in encoding and approval of the District Engineering Offices' Projects, However, the researchers also stated in their abstract that they are recommending features such as SMS Notifications and Android Application in the future to improve the systems' capabilities.

Business Analysis

In the last ten years, research related to business analytics (BA), from previous business intelligence (BI) to big data (BD), has increasingly attracted the attention of researchers. This phenomenon is inseparable from the unprecedented growth of data in volume, variety, and velocity and the effort to derive business value from these emerging opportunities according to Ridwan, Govindaraju, and Andriani (2021). Business analysis is a systematic approach that involves assessing and understanding an organization's structure, processes, and systems to identify opportunities for improvement, make informed decisions, and drive positive changes that align with strategic goals.

Optical Character Recognition

Optical character recognition (OCR) systems are used to convert scanned documents into text (Sobhi, Hifny. Elkaffas 2021). Optical character recognition (OCR) systems are invaluable tools in the digital age, enabling the conversion of scanned documents into editable text. OCR technology analyzes the visual patterns and shapes present in scanned images, recognizing individual characters and words. The utilization of OCR enhances general security and contributes to the establishment of touchless systems, thereby improving safety protocols (Sunjaya, Haryanto, Kristian, Suhartono 2021). During the pandemic, OCR plays a crucial role in minimizing direct human contact by automating tasks that traditionally require physical interaction, such as document handling, form processing, and data entry. By swiftly converting scanned documents or images into editable and searchable text, OCR helps streamline workflows, enhances efficiency, and promotes safety by reducing the need for the physical handling of documents.

Mobile Application Development

Mobile application development is a rapidly and continually evolving field. There have been dramatic changes, in some cases complete paradigm shifts, in the underlying technologies (Rogers, Gratch 2022). The landscape of mobile development has experienced dramatic changes as advancements in hardware, operating systems, programming languages, and frameworks have reshaped the way mobile applications are built and deployed. These advancements have driven innovation, allowing developers to create more sophisticated and feature-rich mobile apps that deliver enhanced user experiences and leverage the latest capabilities of mobile devices.

METHODOLOGY

This section explains how the research was conducted to answer the research questions and achieve the study's goals. It describes the overall plan, how data was collected, how the data was analyzed, and any tools or methods used during the research.

Research Approach and Design

Since the study proposed aims to develop a system and a mobile app for the client and its customers, A mixed method of Quantitative Research and Qualitative Research is the appropriate design to use. By using the Quantitative method, the proponents can gather information needed for the study and may use formulas and other mathematical representations to further convey the results of their data gathering. While Qualitative method is also vital for determining the problem with the help of the interview with the client. In the initial interview of the client, a descriptive survey was conducted to state the problems encountered in their workplace. This is to help the proponents to identify possible solutions that would help the client in the long run.

Business Process

To better understand how transactions are done, this section of this study was added, the business process provides a clear insight into how the business operates and interacts with its customers. Transactions are done as follows:

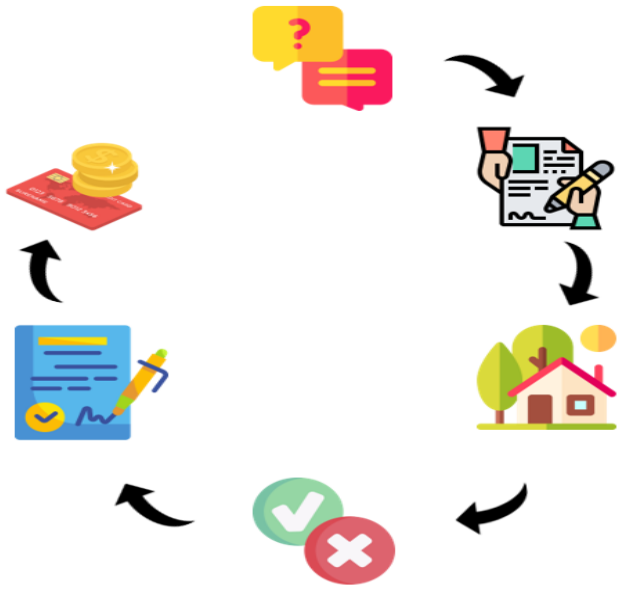

Figure 2. Business Process

1. A transaction starts with a customer having an inquiry about a unit, on this step, a sales agent may also offer consultation and product information to help the customer select the motorcycle depending on the customer's preference or needs.
2. The customer has to fill up a form asking for the required information about themselves. The form contains basic personal information, contact details, and other necessary facts about the customer and the motorcycle unit they want to purchase.
3. After filling up the Application form, the next step is the Civil Investigation, in which a sales agent is required to do a home visit to determine if the customer

has the capability of purchasing a motorcycle. This phase may not happen instantly, depending on the queue of the business.

4. The next phase is the confirmation of the customer's application, after the previous phases, the application of a customer is evaluated by the cashier, if the customer satisfied all the requirements, they will be considered eligible to purchase a unit. On the other hand, if a customer is considered not capable of purchasing a unit, for some reason, may it be financial or other matters, they will be declined for their application, both of which are notified by email, if they are approved or denied. Similar to the previous phase, this step may take several days, depending on the queue.
5. If a customer has been approved regarding their application, they can proceed to the contract signing and other agreements.
6. The last phase is the payment, The payment can be in the form of cash or installment depending on the customer, after that, they will be granted an account with the mobile app to monitor their remaining balance, due dates, and monthly payment if the customer's settlement is in installment.

Participants of the Study

The study involved a group of participants who were selected based on specific criteria needed by the study. The participants consist of the business administrator, general clients, and IT Professionals.

Table 1. Breakdown of the Survey Participants

Type of Evaluator	**Number of Participants**	**Percentage**
Administrator	2	9.5%
IT Professional	4	19%
General Client	15	71.4%
Total	**21**	**100%**

Research Setting

The evaluation took place at the Motorstar Imus Branch in Imus, Cavite, Philippines. Motorstar Imus is a popular motorcycle dealership known for its wide range of motorcycles and services. To gather data, a method called stratified sampling was used. The participants were divided into three groups: administrators, IT professionals, and general clients. This allowed for diverse perspectives on the dealership's operations and services.

Stratified Sampling

Stratified sampling is a widely used sampling technique in research that aims to improve the representativeness and precision of sample data. It involves dividing the target population into distinct subgroups, known as strata, based on specific characteristics or attributes. By ensuring that each stratum is adequately represented in the sample, stratified sampling allows for more accurate estimations and inferences.

Cochran (1977) found that stratified random sampling provides a better estimate of the mean for a population with a trend.

Data Collection, Instrument, and Procedure

The proponents will create and send request letters and evaluation forms to the participants who will be involved in the system's development and the creation of the mobile app. The researchers will assess the information based on how well the system works, with its functionality, usability, reliability, efficiency, and consistency. The questionnaires will be written in English**.**

Table 2. Likert Scale

Numerical Rating	Scale Interval	Verbal Interpretation
5	4.50 – 5.00	Excellent
4	3.50 – 4.49	Very Good
3	2.50 – 3.49	Good
2	1.50 – 2.49	Fair
1	1.00 – 1.49	Poor

Statistical Treatment of Data

The data collected by proponents in this study were coded, tallied, and tabulated for better presentation and interpretation of the results. The proponents used statistical methods such as Percentage Method and Weighted Mean.

$$\text{Percentage} = (\text{value}/\text{total value}) * 100$$

$$\text{Weighted Mean} = \frac{(fd*1) + (fd*2) + (fd*3) + (fd*4) + (fd*5)}{\text{Total number of Population}}$$

Where: fd = frequency distribution

Data Analysis

After the collection of data, the researchers will perform checking by analyzing and organizing the data gathered from the participants. The researchers may also use the information gathered from the participants to further develop the system for future adaptability. The researcher's method will be further explained in this section. The researchers used the Agile method to solve the system's faults encountered during the development of the proposed system.

Agile methodology is an iterative and flexible approach to project management and software development. It emphasizes collaboration, adaptability, and customer satisfaction. Unlike traditional waterfall methods, which follow a sequential and rigid process, Agile focuses on delivering value incrementally and continuously throughout the project.

RESULTS AND DISCUSSION

This chapter presents and analyzes the data using figures, text, and tables, along with statistical analysis and interpretation.

Discussion of the Methodology Phases

The proponents used the Agile methodology. The methodology used in this study emphasizes the main ideas, methods, and advantages of Agile. Agile promotes teamwork, flexibility, and delivering value in small increments. The discussion also talks about any difficulties or changes faced during the implementation of Agile and evaluates how well it achieved the project goals.

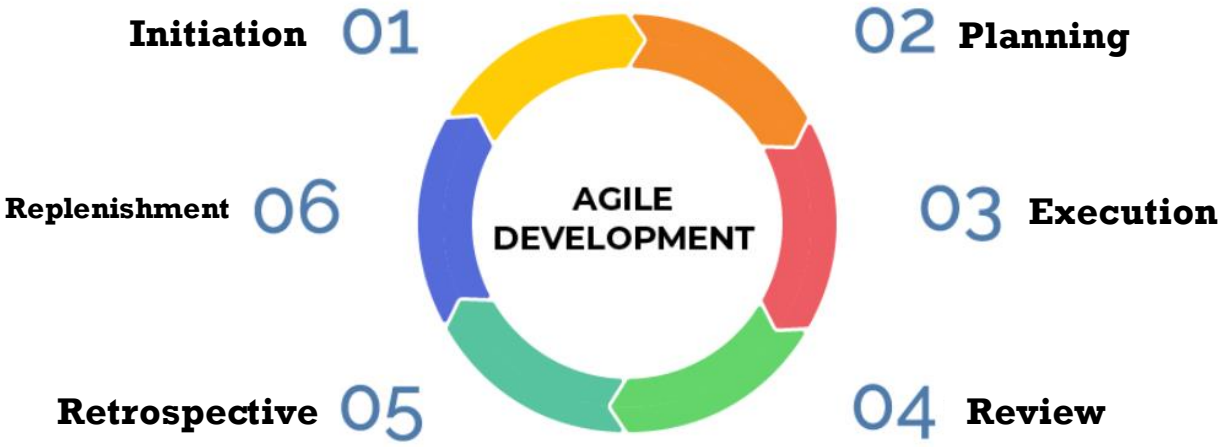

Figure 3. The Agile Methodology Model

Initiation

This phase involves identifying the project's goals, stakeholders, and requirements. The project vision and objectives are defined, and initial planning takes place. In this phase, the proponents visualize the outcome of the proposed project, its interaction with its users, and the objectives to be met.

Planning

In this phase, the researchers collaborate to create a detailed plan, and a list of features is established, this will help the researchers identify the main functions of their proposed system. Motorstar App requires several functionalities such as a system that focuses on the sales and other needed information to assist the client in decision-making, a customer mobile portal, an OCR feature in the scanning of receipts, and an inventory management system.

Execution

This is where the development work begins. The researchers start working on the highest priority items from the list of features and deliver a working product increment at the end of each iteration/sprint. Each execution of the said project aims to deliver a working functionality that is a part of the product backlog, the main functions of the system are listed individually and undergo iteration to ensure the effectiveness of the feature.

Review

At the end of every sprint, a meeting is held to demonstrate the completed function. This allows the researchers to inspect the system’s capabilities and limitations within the recently completed function. In this phase, for example, if a graph feature is completed, the proponents will test its capability and where its’ limits are, this will

ensure that the said functionality is working properly before proceeding to another feature.

Retrospective

This phase involves reflecting on the previous sprint, to identify what went well, what went wrong, what could be improved, and what actions should be taken in the next iteration to increase efficiency and quality. This phase of reflection helps the proponents avoid mistakes to efficiently proceed with the phases without hindrances of repeated failures.

Replenishment

This phase involves continuously improving the project's list of features and requirements. It includes adding, removing, or changing the priority of items in response to feedback, evolving requirements, and the goals of the business. The list of features, known as the product backlog, is regularly reviewed and adjusted to ensure it aligns with the overall objectives of the project. The system is discarded once a new proposed system takes over with better functionalities or the project is no longer needed by the client.

Participation in the Study

The targeted participants for this study are the involved entities in the Motorcycle selling industry which include, Business administrators, IT Professionals, and general clients (Individuals who are planning to buy a motorcycle and any person who owns a motorcycle). Participation in the study would involve several steps. The researcher would seek the voluntary participation of the targeted participants and then the interested participant would provide their informed consent, they would complete a series of evaluations and would constitute their participation in the study. The system was evaluated through the use of Google Forms.

System Software Evaluation Results

Table 3. General rating of Participants in Functionality of Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal.

FUNCTIONALITY	MEAN SCORE	INTERPRETATION
Easy to operate	4.38	Very Good
Provision for comfort and convenience	4.19	Very Good
User-friendly interface.	4.42	Very Good
WEIGHTED MEAN	**4.33**	**Very Good**

Table 3 shows the interpretation of the data gathered from the participants' evaluation in terms of the system's functionality. The system gathers a weighted mean of 4.33 which is Very Good in verbal interpretation. The third sub-characteristic has the highest weighted mean value of 4.42, which indicates that the system has a user-friendly interface, while the second sub-characteristic has the lowest-scoring category which is the Provision for comfort and convenience, with a mean score of 4.19. The researchers can theoretically conclude that the Functionality of the proposed system is Very Good.

Table 4. General rating of Participants in Usability of Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal.

USABILITY	MEAN SCORE	INTERPRETATION
Immediate access to the user.	4.28	Very Good
Provides help to the users.	4.38	Very Good
Easy to navigate by the user.	4.19	Very Good
WEIGHTED MEAN	**4.28**	**Very Good**

Table 4 shows the interpretation of the data gathered from the participants' evaluation in terms of the system's usability. The system gathers a weighted mean of 4.28 which is Very Good in verbal interpretation. The second sub-characteristic has the highest weighted mean value of 4.38, which indicates that the system provides help to the users, while the third sub-characteristic has the lowest-scoring category which is the Easy to navigate by the user, with a mean score of 4.19. The researchers can theoretically conclude that the Usability of the proposed system is Very Good.

Table 5. General rating of Participants in Reliability of Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal.

RELIABILITY	MEAN SCORE	INTERPRETATION
Accuracy of the system	4.19	Very Good
Absence of Failures	4.04	Very Good
Easy to update	4.09	Very Good
Align with expected results	4.14	Very Good
WEIGHTED MEAN	**4.11**	**Very Good**

Table 5 shows the interpretation of the data gathered from the participants' evaluation in terms of the system's reliability. The system gathers a weighted mean of 4.11 which is Very Good in verbal interpretation. The first sub-characteristic has the highest weighted mean value of 4.19, which indicates that the system has a decent accuracy, while the second sub-characteristic has the lowest-scoring category which is the Absence of Failures category, with a mean score of 4.04. The researchers can theoretically conclude that the Reliability of the proposed system is Very Good.

Table 6. General rating of Participants in Efficiency of Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal.

EFFICIENCY	MEAN SCORE	INTERPRETATION
The menu and features are easy to understand	4.28	Very Good
Presence of security requirements	4.04	Very Good
Completeness of the system	4.04	Very Good
WEIGHTED MEAN	**4.12**	**Very Good**

Table 6 shows the interpretation of the data gathered from the participants' evaluation in terms of the system's efficiency. The system gathers a weighted mean of 4.12 which is Very Good in verbal interpretation. The first sub-characteristic has the highest weighted mean value of 4.28, which indicates that the system's menu and features are easy to understand for the users, while both the second and third sub-characteristic has the lowest-scoring category which is the Presence of security requirements and Completeness of the system, with a mean score of 4.04. The researchers can theoretically conclude that the Efficiency of the proposed system is Very Good.

Table 7. General rating of Participants in Consistency of Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal.

CONSISTENCY	MEAN SCORE	INTERPRETATION
Its module conforms to its functions	4.28	Very Good
The integrity of the data is maintained throughout its operations	4.23	Very Good
WEIGHTED MEAN	**4.25**	**Very Good**

Table 7 shows the interpretation of the data gathered from the participants' evaluation in terms of the system's consistency. The system gathers a weighted mean of 4.25 which is Very Good in verbal interpretation. The first sub-characteristic has the highest weighted mean value of 4.28, which indicates that the system's modules conform to its functions, while the second sub-characteristic has the lowest-scoring category which is about the integrity of the data maintained throughout its operations, with a mean score of 4.23. The researchers can theoretically conclude that the Consistency of the proposed system is Very Good.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

In this chapter, a summary of the findings, conclusions, and recommendations is provided based on the results of the testing and evaluation conducted.

Summary

Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal was proposed and developed to solve Motorstar Imus Branch's business decision-making and transaction-related problems. The proposed system can provide insights and the current state of the business to aid the admin with their decision-making process and acts as a Management Support System (MSS), the proposed system also has adapted the OCR Technology to reduce manual data entry errors in transactions involving receipts and payment of the customers. The system also features an Inventory function to eradicate unorganized data in their previous inventory system which can cause setbacks in performing the role of being an employee and also a hassle for the customer.

The researchers used software applications such as Microsoft Visual Studio and XAMMP MySQL Server for the database. The software was evaluated by 21 respondents and the targeted participants were mostly involved in the motorcycle business industry such as the admin or the client, IT professionals, and general clients. The participants evaluated the system through Google Forms to verify the system's capabilities based on these criteria: Functionality, Usability, Reliability, Efficiency, and Consistency.

Conclusion

In consideration of the objectives of the study, the results, and the evaluation, the following conclusions were derived:

1. Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal was effectively designed and developed such that:
    a. The system assists the business in its decision-making through the help of the capabilities of the proposed project, the system offers graphs showing details that are vital for identifying possible areas of improvement and informed decision-making.
    b. The system has integrated a functional Optical Character Recognizer to read receipts in which the cashier may choose not to manually enter data through typing, the text fields are also editable, so whenever the feature may show inaccuracy, the user may change the texts that suit their preferred outcome.
    c. The system can add, update, and deletion of entities across different aspects, including employees, customers, and motorcycle units in the inventory. The proposed project also has a drop-down and a search button in several functions so the user will not manually find data.
    d. The system also offers a mobile application which offers displays the remaining balance of the customer, their payment due, and the status of their payment. The app also has a rewards section offered to the customer, it offers collectibles and several merchandise from the shop.
2. The software was developed using C# language for the desktop app and used XAMPP MySQL Server for the database. The customer mobile portal was created using HTML, PHP, and CSS. The portal uses

the same database as the desktop app which is XAMPP MySQL Server.

3. The software was proven beneficial to the company based on the evaluation results. It offers improvements compared to the process the company previously adapts, the system has improved their process ranging from employee, and customer management to inventory processes.

Recommendations

Motorstar App: A Desktop Application for Business Analysis for Employee Sales with OCR Technology and Customer Mobile Portal for the Motorstar Imus Branch, the Admin, Employees, and its Customers. Therefore, the proponents recommend the following features for future researchers who are willing to further improve this study:

1. Incorporate a payment system and price catalog for the customer mobile portal.
2. Integrate a feature that does not allow customers with bad conduct from other motorcycle-selling industries to initiate a purchase in the client's business.
3. Incorporation of customer relationship management (CRM) software: Suggest the implementation of CRM software to effectively manage customer interactions.
4. Expand the notification system to include SMS to accommodate customers who do not read emails.

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