

DEVELOPMENT OF POINTS-OF-SALE (POS) SYSTEM FOR  
TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES MANILA  
MULTI-PURPOSE COOPERATIVE (TUPMMPC)

A Thesis

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Computer Studies Department  
College of Science  
Technological University of the Philippines  
Ayala Boulevard, Ermita Manila

By:

SAMANTHA MAURICE A. BERIN  
LEYNALD KOBE S. FUNDARIO  
LORDIRENE LLYLE PRINCE S. SANCHEZ  
RHAYLI O. SILONGAN  
JHON PATRICK M. TORRES

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## INTRODUCTION

The study is focused on the creation and development of a Point-of-Sale (POS) system specifically tailored for the Technological University of the Philippines Manila Multi-Purpose Cooperative. The system will be responsible for managing transactions on TUPMMPC. The study will include conducting a thorough interview with one of the staff members of TU PMPC to gather insights on how the current POS system works. The absence of real-time data synchronization and analytics restricts the TUMPMPC's ability to gain actionable insights and optimize its operations effectively. The current POS system in place in TUPMMPC is outdated and no longer meets the cooperative's evolving needs and demands. A modern POS system tailored to the cooperative would address these challenges and unlock numerous benefits. Design a Web-based POS System for TU PMMPC with the following features/capabilities: Billing transaction where the system can record orders and purchases taken. Sales report where it shows details about what the product was sold in the store in the form of a table, list, or graphs.

## METHOD

The researcher developed the system using a Project Development flow as shown in Figure 9. Each sale has a unique identifier (Receipt No) and may have additional attributes such as the date and time of the transaction. The procedures used to test the POS system against each criterion are described below to ascertain compatibility with the requirements. The system's user interface enables the user to interact with it in a fulfilling way. The results of the evaluation determines if the system is functioning well and meets the said requirements. The Top-level 1 Data Flow (DFD) serves as a visual representation of the system's key functionalities and functionalities. The context diagram for this system includes two main entities: the Cashier and Customer. The ERD helps to visualize how these entities are connected and how they interact with each other within the system. The development of the Point-of-Sale (POS) system for the Technological University of the Philippines Manila Multi-Purpose Cooperative (TUPMMPC) begins with requirements gathering and analysis. The primary goal of using this design is to illustrate the development system after conducting and researching the existing system analysis. The study would be easy to access and user friendly View Sales Report, View Completed List, View Pending List, and Click Refund Items to see the list of items that have been refunded. The POS system ensures accuracy in pricing and stock levels, enhancing the efficiency of the checkout process. The "audit trail" entity represents the various records of the history of historical actions. The admin can manage all parts of the system, providing a detailed history of user actions. The evaluation procedure consisted of the following: Testing for compliance to verify that the system adheres to relevant safety standards and regulations. Vulnerability scanning testing to identify and fix any potential security weaknesses in the application. Testing to test the usability of the web application functioning. Testing for the safety of the system using the following procedures:. The evaluation procedure was carried out using the waterfall method. The results of the study will be published in a paper titled "TUPMMPC's Point-of-sale System: A Review?". The TUPMMPC POS System is a computerized Point of Sale (POS) system. It was designed to gather information about the present existing situation. The

researchers designed a user interface of the system, and it will be developed by a team of experts. The next step involves designing the system's user interface and the POS system's database. The system can be understood, easy to use, and easy to learn and use by the staffs of TUPMPPC. The research design used in this study was descriptive method, which involved acquiring information on the system Context Diagram of the Point-of-Sale System of TUPMMPC46. Use case diagram depicts the various actions that each actor can perform within the POS system. Authorization Testing to verify that users have access only to the paralleled functionalities and data they are permitted to use. The system offers features that make it easy to use and easy to manage. The assessment sheet must be applied to the assessment sheet: Functional Stability, Security, Interaction Capability, and Safety. Researchers aim to delve into the specific needs and pain points related to transaction management, inventory tracking, and sales reporting. The login process is secure, requiring unique credentials for each user to maintain system integrity. The platform's functionality Stability, Performance, Security, Interaction Capability, and Safety were evaluated by the respondents. Users can access sales data and search for specific transactions by date range. The system can be used from one viewpoints to another via the local network. Search Removed Stocks: Generate Sales Report: Generate Sales report: Search Stocks. Load testing: Process the web application to simulate loads to assess its performance under normal and peak usage conditions. System diagrams: Project design, system diagrams, data dictionaries, project development, operation, and testing procedures of the study. Chapter 3: System diagrams, project development and operation: Project development, Operation, and Testing procedures. Chapter 4: System diagram, system diagram, and test procedures: Project Design, Operation and Testing.

## RESULTS

The point-of-sale system for TUPMMPC's test evaluation yielded highly acceptable results overall. Accurate product management is essential for maintaining the integrity of the product catalog. In the event of an interruption or a failure, the system can re-establish the data directly. The system records and validates all the entities identification and changes that will be made within the system. It also shows here the completed items that have been refunded either for disposal or back to inventory. The TUPMMPC Point-of-Sale System was assessed for usability using the ISO 25010 standard, providing crucial details about its functionality. The system ensures that sensitive information is not exposed to unauthorized users. It typically includes to add, update, or delete supplier information. The study is limited to the creation and development of a system exclusively designed for the system exclusively for managing user accounts. It aimed to provide a comprehensive study of the system's performance and identify areas for improvement. The development of a Point-of-Sale (POS) System for the Technological University of the Philippines Manila Multi-Purpose Cooperative (TUPMMPC) aims to make the operation smooth and increase efficiency. The project description, project structure, project capabilities, and limitations, and project evaluation results are as follows:

Limitations of the study are as following:

Limitation of the system is essential for inventory management and streamlining the sales process. The system's capacity to efficiently carry out necessary tasks and satisfy user requirements in each environment is demonstrated. The system's usability is very good, with specific strengths in efficacy and efficiency, giving users a seamless and productive experience. The emphasis of these evaluations was on the system's dependability. The system's security satisfies strict requirements for safeguarding sensitive data and maintaining system integrity. It has features like recording sales, accepting different payment methods, managing stock, and generating sales reports. It integrates with a list of suppliers for easy access, enabling quick procurement of stock items when run low. The evaluation was undertaken to determine the software quality in terms of its functional, usability, security, and reliability. The system delivers features that meet user expectations and produce accurate results

with the necessary level of accuracy. It includes a warning message to confirm the deletion, ensuring that products are only removed when necessary. It also includes the audit trail feature, which logs all actions taken by the users. The evaluation was conducted by the Software Development Centre at the University of Manchester. The software was evaluated on the basis of its functional, usability,. security, reliability, and usability.

## **DISCUSSION**

The study focused on the development of Point-of-Sale system for TUPMMPC. The cashier handles the POS system and the supervisor and manager manage the different parts of the system. The system can have multiple cashiers, but it needs to be on a similar IP. The ordering module was automated to accelerate the flow of the transaction. The findings indicate that the TPUMMPC POS system is on track to accomplish its goals. However, there is room for improvement in the number of features available.