# TOPIC PROPOSAL

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| **PROGRAM:** Bachelor of Science in Information Technology |
| **SECTION:** ITE-242 |
| **TOPIC PROPOSAL 1:** SalesTrack: A Java-Based Point-of-Sale and Sales Management System for FV Sayco Construction |

**Introduction**

Construction material suppliers play a vital role in the infrastructure industry. While operations remain functional, many of these businesses, including FV Sayco Construction, still rely on manual tools such as logbooks, calculators, and at times mobile phones to record sales. These manual systems are prone to error, data loss, and inefficiency.

This project proposes the development of SalesTrack, a Java-based desktop POS and sales tracking system designed specifically for FV Sayco Construction. The application will use a MySQL database to securely store records of transactions, products, and reports. Mr. Ferdinand V. Sayco, the owner and president of FV Sayco Construction, has extensive knowledge of the challenges faced by construction supply businesses.

# Background of the Study

To better understand the sales tracking and inventory practices at FV Sayco Construction, interviews were conducted with Mr. Ferdinand V. Sayco (President).

FV Sayco Construction's day-to-day sales processes are currently carried out manually:

1. Calculators are used for computing transaction totals.
2. Logbooks and notebooks are used for recording sales data.
3. Mobile phones are sometimes utilized to jot down quantities or perform quick calculations.
4. Sales reports are compiled by manually reviewing handwritten entries across various sources.

These manual methods present several recurring challenges:

1. Inconsistent or duplicated record entries
2. Delayed report generation and sales summaries
3. Absence of real-time inventory visibility
4. Difficulty retrieving previous data for auditing or decision-making

These limitations indicate a clear opportunity for a system that enhances current practices rather than replaces them. A Java-based desktop application, backed by a MySQL database, offers a practical, human-centered solution. It will complement the staff’s

workflow while significantly improving data accuracy, inventory tracking, and reporting efficiency.

# Current State of Technology at FV Sayco Construction

FV Sayco Construction currently relies on the following tools and methods for managing sales and inventory:

1. Manual Calculation: Staff uses calculators to compute transaction totals.
2. Manual Recording: Sales data is recorded in logbooks and notebooks.
3. Ad-hoc Notes: Mobile phones are sometimes used to jot down quantities or perform quick calculations.
4. Manual Reporting: Sales reports are compiled by manually reviewing handwritten entries from various sources.

# Why Java and MySQL?

Java remains a powerful and widely used language for building desktop systems, especially when paired with MySQL an open-source, reliable, and scalable database engine ideal for small to medium enterprises.

# Java Swing for GUI:

* 1. Allows responsive and user-friendly design with dropdowns, tables, buttons, and forms.
  2. Supports interactive components like live stock tables and real-time invoice display.

# MySQL as a Backend Database:

* 1. Provides structured tables for tracking products, stock, sales history, and customers.
  2. Ideal for generating accurate, filterable reports and monitoring trends.

# Java-MySQL via JDBC:

* 1. Enables real-time and bi-directional data transactions (read/write) from the UI to the database.
  2. Supports user-defined queries for retrieving sales performance, low stock, or filtered records.

# Offline System Design:

* 1. The application can run without an internet connection, suitable for businesses using local desktop setups.
  2. MySQL can run locally on the same machine or within a LAN, ensuring data availability at all times.

# Data Validation and Error Handling:

* 1. Java supports strong exception handling and validation routines to prevent incorrect entries (e.g., negative quantity, duplicate products, etc.)
  2. Prevents double logging, minimizes human error, and ensures consistent data formatting.

# Security & Access Control (Future Upgrade Ready):

* 1. MySQL supports user accounts and roles, making future upgrades like cashier vs. admin-level access possible.
  2. Database backups can be scheduled or exported regularly.

This technology stack offers both simplicity and expandability, making it ideal for FV Sayco Construction's transition from manual to semi-automated processes.

# General Objective

To develop a Java-based desktop POS system with MySQL integration that supports construction supply firms in managing sales, inventory, and reporting efficiently and accurately.

# Specific Objectives

1. To build a Java desktop application with a user-friendly interface.
2. To integrate MySQL for secure and structured sales and inventory data.
3. To develop modules for:
   1. Sales recording and invoice generation
   2. Inventory management
   3. Report generation
   4. Customer records (optional)
4. To support existing staff operations with digital tools, not replace them.
5. To minimize errors caused by manual tracking.
6. To provide system documentation and user training.
7. **Sales Module:**
   1. Add products, quantity, and pricing.
   2. Auto-compute total and change.
   3. Generate printable invoice per transaction.

# Inventory Module:

* 1. Manage product list with stock quantity.
  2. Auto-update stock after sales.
  3. Low-stock warning.

# Report Module:

* 1. Daily, weekly, and monthly sales reports.
  2. Inventory status reports.
  3. Export to PDF or CSV.

# Customer Record Module:

* 1. Store frequent customer info.
  2. View past purchase history.

# User Interface:

* 1. Responsive layout for fast data entry.
  2. Navigation-friendly, minimal training needed.

# Proposed Features

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