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Implementation Of SCM Information System At Street Coffee For Optimization Of Distribution Stock Control

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ABSTRACT

The development of information technology has significantly influenced business operations, particularly in supply chain management (SCM), which requires efficient, accurate, and integrated systems to support decision-making processes. However, many small and medium enterprises still rely on manual data processing, which can lead to inefficiencies and operational constraints. At Street Coffee, inventory management and raw material distribution are still handled manually, resulting in discrepancies between recorded and actual stock levels, delays in procurement processes, limited real-time monitoring, and difficulties in coordinating with suppliers. These issues negatively impact operational efficiency and service quality. This study aims to design and implement a web-based SCM information system to improve inventory control, enhance data accuracy, and optimize distribution processes. The research employs a qualitative approach, with data collection methods including observation, interviews, and documentation. System development is carried out using Unified Modeling Language (UML) for system design and database modeling to ensure structured data management. The results indicate that the implemented system successfully integrates inventory, supplier, and distribution data into a centralized platform. The system enables real-time stock monitoring, minimizes data entry errors, improves coordination between procurement and inventory processes, and supports faster and more accurate decision-making. Therefore, the implementation of the SCM system contributes significantly to improving operational efficiency, effectiveness, and overall business performance at Street Coffee.

INTRODUCTION

The development of information technology in today's digital age has had a significant impact on various aspects of life, particularly in the business and industrial sectors (Firmansyah & Zhang, 2025). Digital transformation is driving organizations to adopt technology-based systems in their operational activities to improve efficiency, effectiveness, and competitiveness (Adam et al., 2025). The use of web-based technology has become one of the most widely adopted solutions due to its ease of access, high scalability, and ability to integrate various business functions online (Nur Anisa et al., 2025). Through real-time connected information systems, decision-making processes can be carried out more quickly and accurately, thereby supporting business sustainability in an increasingly dynamic era of global competition (Danang Aryadutha & Budhisantosa, 2024).

One of the key applications of advancements in information technology is in the field of Supply Chain Management (SCM) (Jamal et al., 2024). SCM plays a role in managing the flow of raw materials, production processes, and product distribution to consumers in an integrated manner (Fuad Lubis et al., 2024). The implementation of an SCM information system enables the management of inventory, supplier, and distribution data to be carried out automatically, efficiently, and transparently (Yosua, 2024). In a business context such as Street Coffee, this system is highly relevant because it can help monitor the availability of raw materials such as coffee powder, milk, syrup, and others, optimize the distribution process, and minimize the risk of stock shortages or surpluses (Enggarwati & Muliani, 2024). Thus, the implementation of an SCM information system serves as a strategic solution to improve operational efficiency and service quality in consumer-product-based businesses such as Street Coffee (Wiarso & Anwar, 2024).

In Street Coffee's operations, there are still several issues related to suboptimal supply chain management. The process of controlling raw material inventory such as coffee powder, milk, syrup, and others is still done manually with simple record-keeping, leading to frequent discrepancies between actual stock levels and recorded data. This situation can lead to delays in raw material supply or excess inventory, resulting in cost wastage. Another issue is that the distribution system for materials from suppliers to Street Coffee is not well-integrated, making it difficult for Street Coffee to monitor shipment status and delivery times. Additionally, the lack of information integration between the purchasing and production departments slows down the decision-making process, particularly when determining the quantity of materials to order based on actual needs. These issues highlight the need for an information system capable

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of managing all supply chain activities centrally and efficiently (Ramadhan & Valentino, 2024).

Given these challenges, an information system is needed that can effectively and efficiently integrate all processes within the Street Coffee supply chain. The implementation of an SCM information system serves as a strategic solution to address challenges in inventory control, distribution management, and communication among operational departments (Prayoga et al., 2023). Through this system, data regarding raw material inventory, delivery schedules, and order status can be accessed in real-time by relevant parties, thereby facilitating coordination between the purchasing and production departments (Wisnu Aji Saputra & Udi Firmansyah, 2023). dditionally, the system allows data access from various locations without time or location constraints, which is highly relevant to the dynamic and growing nature of Street Coffee's business (Nur Sa'adah & Voutama, 2023). With this system in place, it is expected that operational efficiency will improve, the risk of recording errors will be minimized, and decision-making will become faster and based on accurate data (Nisa et al., 2023).

Street Coffee collaborates with several suppliers to meet its needs for raw materials and operational supplies. Each supplier has different characteristics and delivery patterns, whether in terms of the types of materials supplied, order confirmation speed, or delivery timeliness. The entire ordering process is currently still handled manually via WhatsApp and phone, which can lead to delays in information and recording errors. Additionally, the absence of a centralized system to track delivery statuses from various suppliers makes it difficult for Street Coffee to conduct a comprehensive evaluation of supplier performance. Therefore, the implementation of an SCM information system is crucial so that all transaction data, delivery information, and supplier performance can be managed in an integrated, efficient manner and easily monitored by Street Coffee.

Based on the above, it is concluded that the implementation of an SCM system at Street Coffee is expected to improve efficiency and accuracy in supply chain management, as well as enable the centralized integration of raw material procurement, inventory control, and distribution processes (Mutiara, 2023).

LITERATURE REVIEW

Several previous studies have highlighted the importance of Supply Chain Management (SCM) in improving operational efficiency and inventory control in business processes. According to (Jamal et al., 2024), SCM plays a crucial role in managing the flow of goods, information, and financial resources from suppliers to end users in an integrated manner. Furthermore, (Fuad Lubis et al., 2024) explain that the implementation of SCM systems can optimize distribution processes and reduce delays in the supply of raw materials.

The use of web-based information systems in SCM has also been widely studied as an effective solution to overcome manual data management problems. Research by (Ramadhan & Valentino, 2024) shows that web-based inventory systems can improve data accuracy and provide real-time monitoring of stock levels. In addition, (Wisnu Aji Saputra & Udi Firmansyah, 2023) state that the integration of SCM systems with web technology enables better coordination between suppliers and business owners, thereby increasing operational transparency.

Other studies indicate that the absence of an integrated system often results in discrepancies between recorded data and actual conditions, leading to inefficiencies in inventory management (Enggarwati & Muliani, 2024). Moreover, (Nisa et al., 2023) emphasize that manual systems are prone to errors and delays in decision-making due to the lack of real-time information.

However, most previous studies focus on general SCM implementation and have not specifically addressed supply chain management in small-scale businesses such as coffee shops, which have dynamic demand and limited resources. Therefore, this study aims to develop a web-based SCM information system tailored to the operational needs of Street Coffee in order to improve efficiency, accuracy, and coordination in managing raw material inventory and distribution processes.

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METHOD

This research has the following stages:

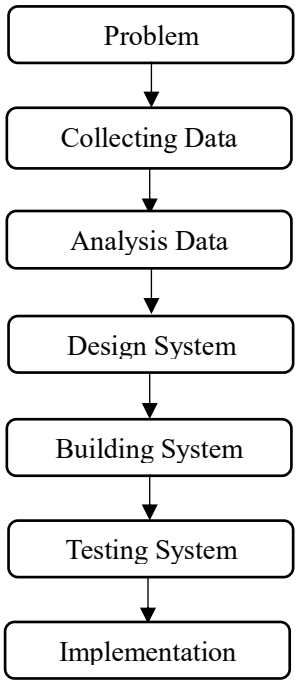

Figure 1. Research Stage

Problem Identification

At this stage, the researcher identified the main problem at Street Coffee, namely that raw material inventory management was still being conducted manually through simple record-keeping. This process leads to discrepancies between inventory data and actual conditions, delays in raw material supply, and a lack of coordination among operational departments. Observations revealed that the absence of an integrated information system is the primary cause of supply chain inefficiencies at Street Coffee.

Collecting Data

Data was collected through face-to-face interviews with the owner of Street Coffee and observations of the café's daily operations. The interviews were conducted to gather information on the procurement of raw materials, inventory tracking, and common challenges in inventory management and distribution.

Analysis Data

An analysis was conducted to understand the operational patterns of the supply chain at Street Coffee, including the procurement of ingredients, inventory management, and relationships with suppliers. Data from observations and interviews was analyzed to identify weaknesses in the existing manual system. This analysis served as the basis for determining system requirements both in terms of functionality and information flow ensuring that the developed solution aligns with the café's operational conditions..

Design System

This phase involves designing the system model using tools such as the Unified Modeling Language (UML) and Entity-Relationship Diagrams (ERDs). This design illustrates how the system will function, from the procurement of materials and inventory tracking to monitoring material availability. The objective of this phase is to ensure that all of Street Coffee's user requirements and workflows are reflected in a clear and structured system design.

Building System

The system was developed using PHP as the programming language and MySQL as the primary database. The development process was carried out using XAMPP and Visual Studio Code as the testing and coding environments. At this stage, the database structure was created in accordance with the ERD design and integrated with the user interface to support inventory and supplier management.

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Testing System

Once the system was fully developed, a testing phase was conducted to ensure that all features functioned properly. The testing included verifying the accuracy of inventory data, reviewing the user interface, and assessing usability for Street Coffee's owners and employees. The testing also aimed to identify any bugs so they could be promptly fixed before the system was fully implemented.

Implementation

The final step is the implementation of the system in Street Coffee's daily operations. The system is designed to help the owner automatically manage raw material inventory, streamline the procurement process, and reduce the risk of supply delays. With the implementation of this Supply Chain Management system, we expect to see improved operational efficiency, fewer recording errors, and more effective coordination between departments.

RESULT

Data Analysis

The following is supplier data for Street Coffee, presented in Table 1.

Table 1. Data Supplier

No	Supplier Name	Types of Raw Materials
1	*Sunset Lotus Co.*	Coffe Powder
2	Cita Cita TBK	(Hot cup paper, krimer, syrup, drink powder (chocolate, taro, red velvet, matcha, lemon tea, green tea), sweetened, full cream milk.
3	UD Mandiri Prima Jaya Gayo *Coffe*	Coffee Powder
4	Sablon Cup Pribumi	Baverage Cups
5	*Galaxy Coffe*	Coffee Powder

System Design

A use case diagram illustrates how an actor uses or interacts with the developed system, where an actor is a person or user who interacts with the system. A use case diagram illustrates the processes performed by an actor on a system. The system processes designed using use cases can be seen in Figure 2.

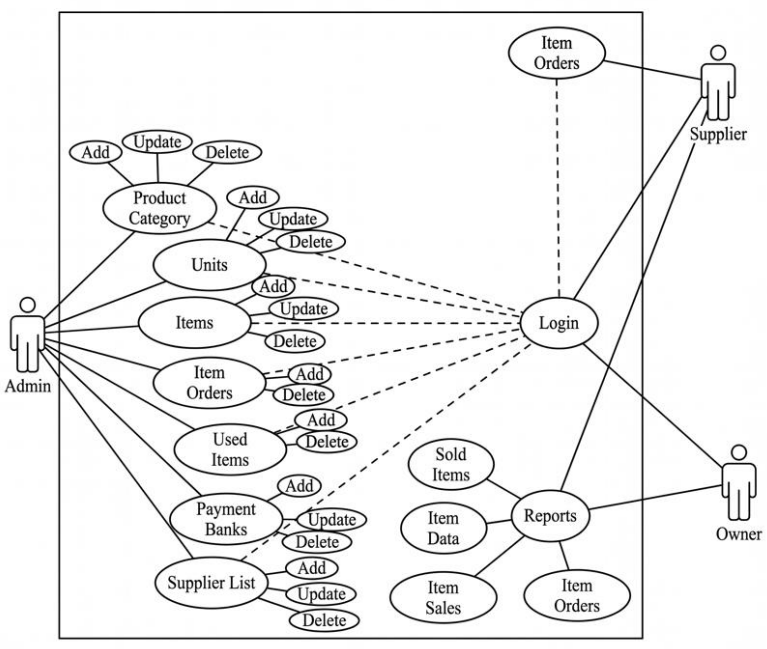

Figure 2. Use Case Diagram

Figure 2 illustrates the Use Case Diagram of the proposed Supply Chain Management (SCM) information system at Street Coffee. The diagram describes the interaction between the main actor, namely the admin, and the system. The admin is responsible for managing product data, supplier data, inventory records, and transaction processes related to raw material procurement and usage.

In addition, the system supports several key functions, including recording incoming and outgoing goods, monitoring stock availability, managing supplier information, and generating reports. Each use case represents a

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specific activity that enables the integration of supply chain processes into a centralized system.

The diagram also shows how the system facilitates real-time data processing and improves coordination between inventory management and procurement activities. Through this interaction, the system is designed to reduce manual errors, improve data accuracy, and enhance operational efficiency. Therefore, the Use Case Diagram serves as a representation of the functional requirements of the system and ensures that all operational needs at Street Coffee are properly accommodated.

Implementation

The implementation of the user interface that has been developed is as follows.

- **Login Page**

The login screen serves as the entry point for accessing the system, where users enter their username and password according to their respective access rights in order to log in to the system.

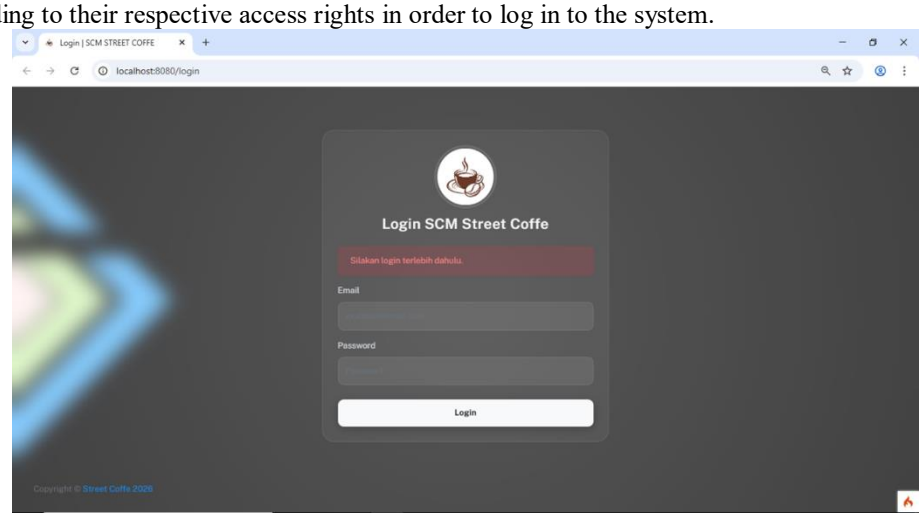

Figure 3. Login Page

- **Dashboard Page**

The dashboard displays a summary of key information, such as product data, suppliers, and orders, and serves as a central hub for managing the entire system.

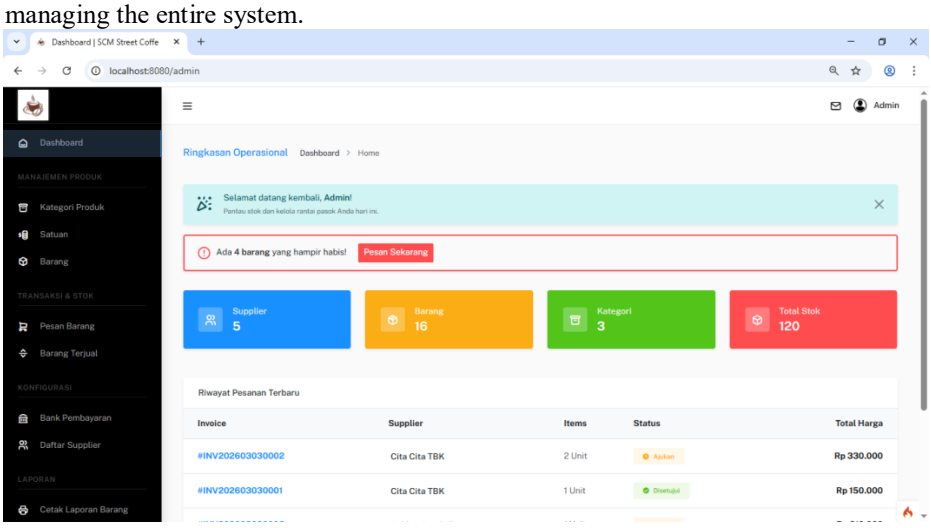

Figure 4. Dashboard Page

- **Product Data Page**

The product data view is used to manage product information, including product name, category, unit of measure, stock quantity, and price, as the basis for inventory control.

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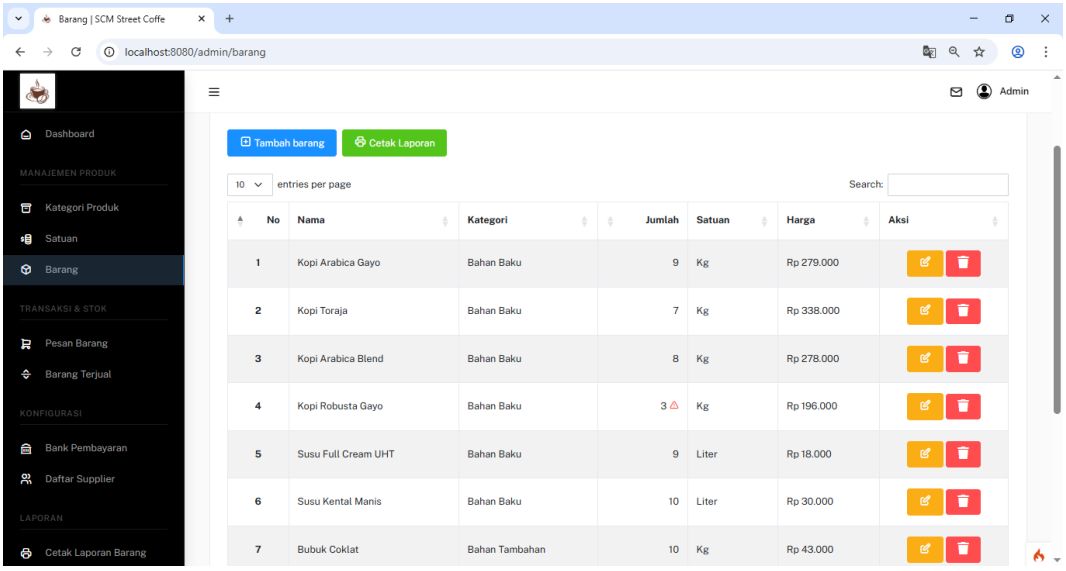

Figure 5. Product Data Page

- **Sold Item Page**

The "Sold Items" view is used to track items that have been used in operational processes so that inventory movements can be accurately monitored.

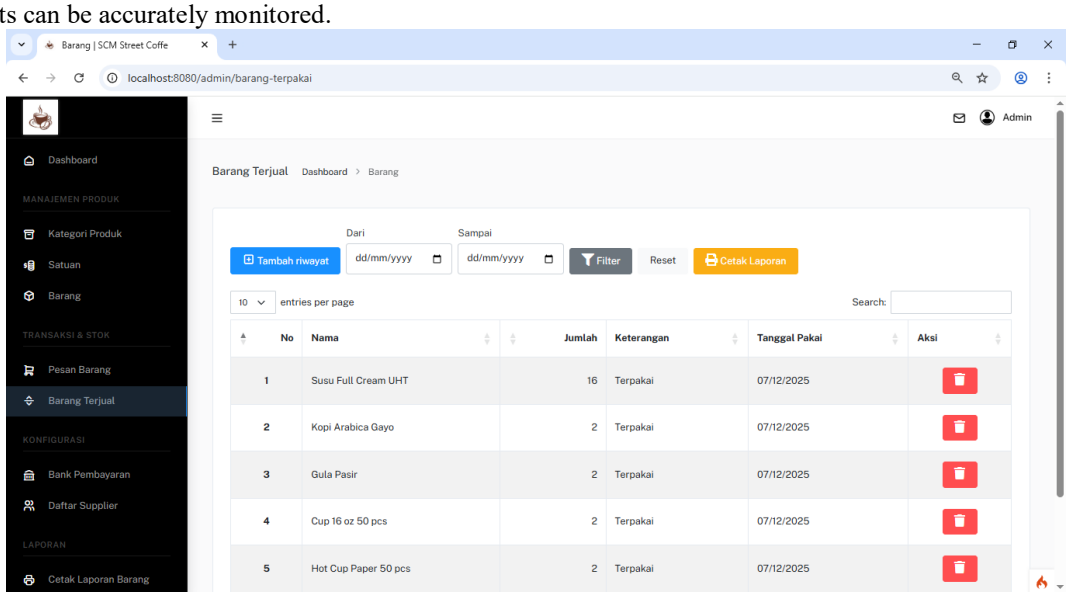

Figure 6. Sold Item Page

- **Item Report**

The Admin Reports view is used to display and print system data reports, such as reports on product data, orders, and inventory for specific periods, which serve as a basis for evaluation and operational decision-making.

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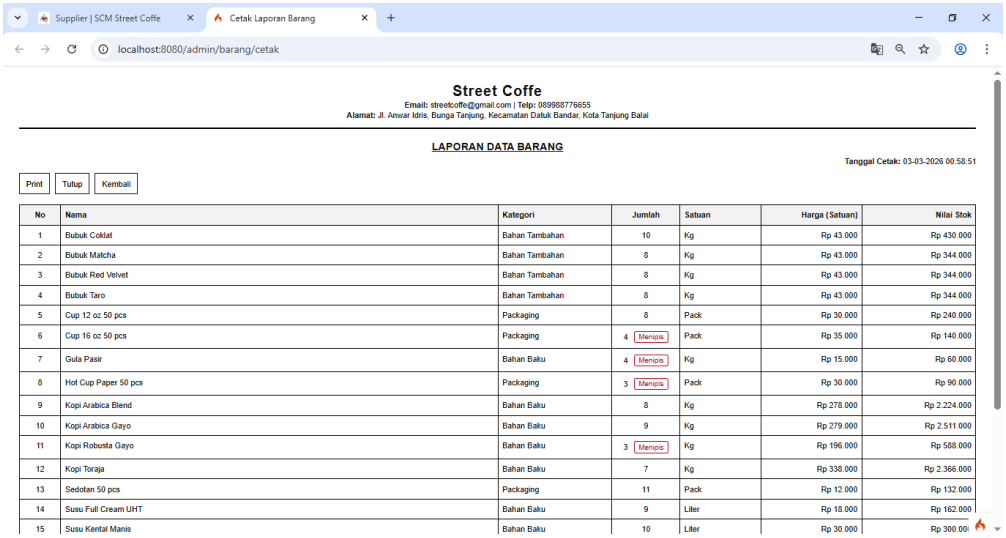


No	Nama	Kategori	Jumlah	Satuan	Harga (Satuan)	Nilai Stok
1	Bubuk Coklat	Bahan Tambahan	10	Kg	Rp 43.000	Rp 430.000
2	Bubuk Matcha	Bahan Tambahan	8	Kg	Rp 43.000	Rp 344.000
3	Bubuk Red Velvet	Bahan Tambahan	8	Kg	Rp 43.000	Rp 344.000
4	Bubuk Taro	Bahan Tambahan	8	Kg	Rp 43.000	Rp 344.000
5	Cup 12 oz 50 pcs	Packaging	8	Pack	Rp 30.000	Rp 240.000
6	Cup 16 oz 50 pcs	Packaging	4 Menipis	Pack	Rp 35.000	Rp 140.000
7	Gula Pasir	Bahan Baku	4 Menipis	Kg	Rp 15.000	Rp 60.000
8	Hot Cup Paper 50 pcs	Packaging	3 Menipis	Pack	Rp 30.000	Rp 90.000
9	Kopi Arabica Blend	Bahan Baku	8	Kg	Rp 278.000	Rp 2.224.000
10	Kopi Arabica Gayo	Bahan Baku	9	Kg	Rp 279.000	Rp 2.511.000
11	Kopi Robusta Gayo	Bahan Baku	3 Menipis	Kg	Rp 196.000	Rp 588.000
12	Kopi Toraja	Bahan Baku	7	Kg	Rp 338.000	Rp 2.366.000
13	Sedotan 50 pcs	Packaging	11	Pack	Rp 12.000	Rp 132.000
14	Susu Full Cream UHT	Bahan Baku	9	Liter	Rp 18.000	Rp 162.000
15	Susu Kental Manis	Bahan Baku	10	Liter	Rp 30.000	Rp 300.000

Figure 7. Item Report

- **Supplier Page**

The Supplier List view is used to manage supplier data, enabling systematic management of relationships and procurement processes with suppliers.

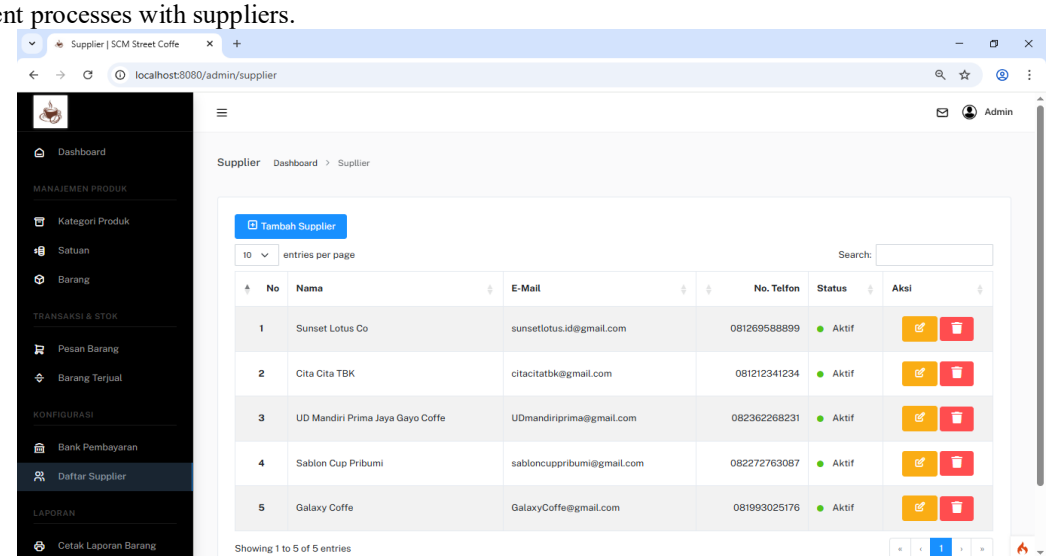
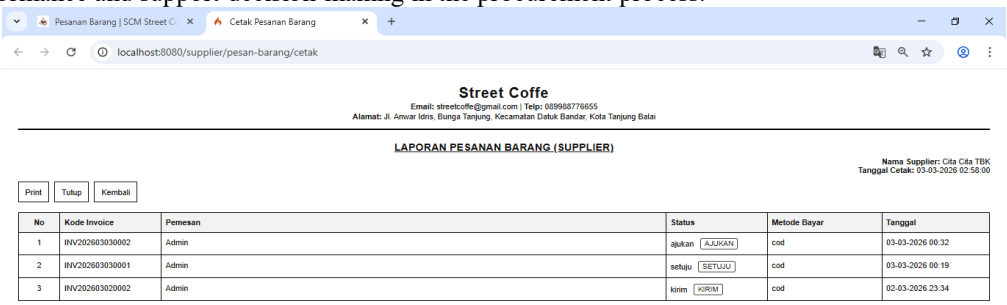


Figure 8. Supplier Page

- **Item Supplier Report**

The Supplier Report provides information regarding supplier data and order history, which is used to evaluate supplier performance and support decision-making in the procurement process.



No	Kode Invoice	Pemesan	Status	Metode Bayar	Tanggal
1	INV202603030002	Admin	ajukan AJUKAN	cod	03-03-2026 00:32
2	INV202603030001	Admin	setuju SETUJU	cod	03-03-2026 00:19
3	INV202603020002	Admin	kirim KIRIM	cod	02-03-2026 23:34

Figure 9. Item Supplier Report

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DISCUSSION

The implementation of the Supply Chain Management (SCM) information system at Street Coffee shows significant improvements compared to the previous manual system. Before the implementation, inventory management and raw material procurement were carried out using simple manual recording, which often resulted in discrepancies between recorded data and actual stock conditions. This situation led to delays in raw material availability, overstock issues, and inefficiencies in coordinating with suppliers. In addition, the absence of an integrated system made it difficult for the business to monitor supplier performance and track delivery status in real time.

After the implementation of the SCM system, all supply chain processes, including inventory management, procurement, and supplier coordination, are integrated into a centralized system. The system enables real-time monitoring of stock levels, automatic recording of transactions, and better tracking of supplier deliveries. As a result, data accuracy improves significantly, the risk of stock discrepancies is reduced, and decision-making becomes faster and more precise.

Furthermore, the system enhances coordination between operational activities by providing structured and accessible information. This improvement supports more efficient inventory control and ensures the availability of raw materials according to operational needs. Therefore, it can be concluded that the implementation of the SCM system successfully addresses the problems identified in the previous manual system and contributes to improving overall operational efficiency at Street Coffee.

CONCLUSION

Based on the results of the needs analysis, design process, implementation, and system testing conducted in this study, several conclusions can be drawn: the inventory management information system that was designed and developed has successfully replaced the manual Excel-based recording process with an integrated system. All inventory, ordering, and usage data can be managed centrally, making it more organized, systematic, and easily accessible. The implementation of this information system improves the accuracy of inventory data because every transaction is automatically recorded in the database. Additionally, the system accelerates the procurement process through its ordering features and enables real-time stock monitoring, thereby supporting improved operational efficiency. The developed system also contributes to supplier relationship management by providing supplier data, order history, and supplier reports. This information can be used to evaluate supplier performance and support data-driven communication to foster more effective and sustainable long-term collaboration..

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