Retail Store Inventory Management System

Milestone: Project proposal

Group 7
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Retail Store Inventory Management System

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Problem Statement:

With the rapid growth of retail operations and the increasing need to manage stock efficiently, a well-structured Retail Store Inventory Management System has become essential. Retail stores must track inventory levels, orders, sales, and deliveries accurately, ensuring that the right products are available to meet customer demands. Poorly managed inventory systems can lead to overstocking, causing excess costs, or stockouts, resulting in lost sales opportunities and customer dissatisfaction. The aim of this system is to optimize inventory processes through automation, real-time data collection, and analytics. By analysing key factors such as purchase trends, sales velocity, and supply chain logistics, the system ensures a balanced stock flow and reduces human errors in tracking, ordering, and restocking inventory. The system must also enhance supply chain efficiency by automating the reordering process when stock reaches certain thresholds, ensuring that the retail store never runs out of essential products. Additionally, the system can provide real-time updates on stock movements, enabling store managers to make informed decisions based on accurate, up-to-date data. This avoids overstocking or stockouts, leading to increased customer satisfaction, smoother operations, and ultimately, higher profitability for the business.

Theory for Inventory management for a retail store:

A well-structured Retail Store Inventory Management System is critical to meeting the dynamic demands of modern retail environments. As retail operations expand and customer expectations increase, it becomes essential to accurately track inventory levels, orders, sales, and deliveries. This system must prevent inefficiencies such as overstocking, which leads to increased holding costs, or stockouts, which result in lost sales and reduced customer satisfaction. To optimize these processes, the inventory management system should employ automation, real-time data analytics, and predictive modelling. This ensures seamless synchronization between the store's inventory levels and consumer demand, allowing store managers to manage stock more effectively. By collecting and analysing data on factors such as purchase trends, sales velocity, and supply chain logistics, the system can provide insights into inventory needs, reducing human errors in ordering, restocking, and managing stock levels. The system should also automate key processes such as reordering products when stock reaches pre-set thresholds, ensuring that essential items are never out of stock. Real-time updates on stock movements enable store managers to make quick and informed decisions, while an integrated dashboard offers insights into supply chain operations, helping to improve performance and reduce operational costs.

Additional Information

- **Product & Category:** One category has many products, while each product belongs to one category.
- **Product & Supplier**: A product is supplied by one supplier, while a supplier can supply many products.
- **Product & Sales Transaction:** A product can appear in many sales transactions.
- **Customer & Order:** A customer can place many orders, but each order is linked to only one customer.
- **Order & Sales Transaction:** Each order can contain many transactions (line items).
- **Customer Feedback:** Customers can give feedback on multiple products.
- **Shipment:** Each shipment involves a specific product and is sent by a supplier.
- **Discount:** Discounts can apply to multiple products (many-to-many relationship).