

SCM Warehouse Analytics Report

Database Schema Overview: SCM_Warehouse

The SCM_Warehouse database is designed to manage and analyze supply chain operations, including supplier relationships, product management, inventory tracking, order processing, shipment logistics, and sales monitoring.

Tables & Relationships

Table	Description	Key Columns	Relationships
Suppliers	Information about product suppliers.	SupplierID, SupplierName, Country	Referenced by PurchaseOrders
Products	Master list of all products.	ProductID, ProductName, Category	Referenced by Inventory, PurchaseOrders, Sales
Inventory	Tracks current stock of products.	InventoryID, ProductID, Quantity, InventoryDate	ProductID → Products
PurchaseOrders	Orders placed to suppliers for restocking.	POID, SupplierID, ProductID, Quantity, Status	SupplierID → Suppliers, ProductID → Products
Shipments	Details of goods received for purchase orders.	ShipmentID, POID, ReceivedDate, Quantity	POID → PurchaseOrders
Sales	Sales transactions of products.	SaleID, ProductID, SaleDate, Quantity	ProductID → Products

SQL Query Insights

The queries provided offer a comprehensive view of business operations. Key insights include:

- **Inventory & Stock**
 - **Total Inventory by Product:** Sum of stock quantities per product.
 - **Low Inventory Alerts:** Flags products with inventory < 1000 units.
 - **Daily Inventory Value:** Estimated by multiplying quantity with a unit cost (assumed to be 10).
- **Orders & Shipments**
 - **Pending Purchase Orders:** Lists open orders yet to be fulfilled.
 - **Orders Without Shipments:** Highlights missing or delayed deliveries.

- **Delivery Performance:** Tracks how many orders were delivered vs. cancelled per supplier.
- **Shipment Delays:** Analyzes time taken between order and receipt, both per order and product average.
- **Sales & Profitability**
 - **Item-wise Sales Summary:** Total units sold per product.
 - **Best Sellers:** Top 5 selling products by quantity.
 - **Stock Turnover Ratio:** Sales / Average Inventory – indicates how efficiently inventory is sold.
- **Time-Based Analysis**
 - **Monthly Sales Summary:** Aggregated unit sales by month.
 - **Inventory Trend:** Track how stock value changes over time.
- **Category & Supplier Views**
 - **Inventory by Category:** Breaks down inventory levels per product category.
 - **Orders Status by Supplier:** Pending or missing orders grouped by supplier.
 - **Product-specific Order Status:** Identifies which products are causing fulfillment delays.

Business Intelligence Potential

These queries support critical decision-making:

- **Procurement:** When and what to reorder, based on inventory and sales velocity.
- **Supplier Performance:** Choose reliable suppliers based on delivery stats.
- **Demand Forecasting:** Use sales trends to predict future needs.
- **Operational Efficiency:** Reduce delays and optimize stock turnover.