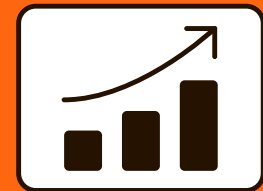


SQL-BASED SOLUTION

# Inventory Management System



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# Meeting Agenda

## Discussion topics

01

Project  
Overview

02

Database  
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03

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and  
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# Project Overview



## **Objective:**

- Build a relational database to manage inventory and analyze sales data by category and product.

## **Key Functions:**

- Track product categories and inventory levels
- Record and update sales transactions
- Generate insights on sales performance and inventory needs



# Database Structure



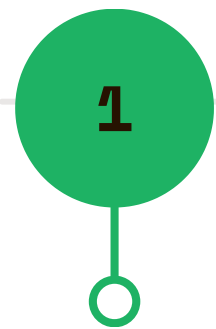
## Tables:

- Categories: Holds the various product categories (e.g., Electronics, Furniture)
- Product: Contains product details, prices, and stock levels
- Sales: Records transactions with product ID, quantity sold, and sale date.

## Relationships:

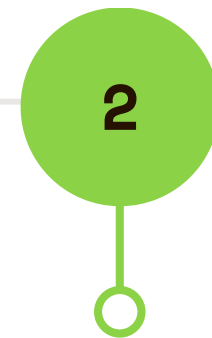
- Categories has a 1-to-Many relationship with Product (one category to multiple products)
- Product has a 1-to-Many relationship with Sales (one product to multiple sales records).

# Key Features



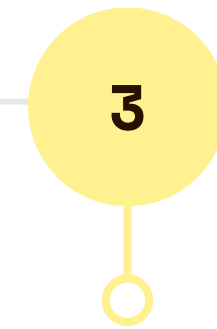
## **Automated Inventory Update**

- Decreases units in stock based on sales
- Tracks low-stock items for restocking



## **Sales Performance Analysis**

- Analyzes sales by product and category
- Provides total sales revenue and quantity sold by category



## **Dynamic Pricing & Stock Adjustments**

- Adjusts pricing and stock levels for promotions



# Data Integrity and Validation

## Constraints:

1. Foreign keys to link product categories and products
2. Ensures unit prices are positive and quantity sold is non-negative



## Data Integrity Benefits:

1. Maintains reliable data
2. Prevents inventory from going negative after sales updates

# Sample Reports

## Inventory Status:

### Current stock levels for each product

```
SELECT
    Product.Product_Name,
    Product.Units_instock AS Current_Inventory
FROM
    Product
ORDER BY
    Product.Units_instock DESC;
```

	Product_Name	Current_Inventory
▶	Notebook	500
	Wall Clock	500
	Gloves	500
	Cleaning Wipes	400
	Bandages	400
	Shampoo	399
	Umbrella	300
	Facial Cleanser	300
	Toothbrush Holder	300
	Curtains	300
	USB Flash Drive	300

## Sales by Category:

### Total quantity sold and revenue by category

```
SELECT
    Categories.CategoryName,
    SUM(Sales.QuantitySold) AS Total_Quantity_Sold,
    SUM(Sales.QuantitySold * Product.Unit_price) AS Total_Sales_Value
FROM
    Sales
JOIN
    Product ON Sales.Product_id = Product.Product_id
JOIN
    Categories ON Product.Category_id = Categories.Category_id
GROUP BY
    Categories.Category_id;
```

	CategoryName	Total_Quantity_Sold	Total_Sales_Value
	Personal Care	11	275.00
	Furniture	5	2000.00
	Outdoor Living	13	10400.00
	Accessories	9	900.00
	Computer Accessories	5	1000.00
	Mobile Accessories	16	640.00
	Dining & Serving	7	210.00
	Cleaning Supplies	9	180.00
	Gaming	8	3200.00
	Health & Fitness	9	630.00
	Personal Care & Beauty	6	48.00
	Travel Accessories	4	60.00

# Sample Reports

## Low Stock Report:

### Identifies products needing restock

```
SELECT
    Product.Product_Name,
    Product.Units_instock AS Current_Inventory
FROM
    Product
where Product.Units_instock < 30
ORDER BY
    Product.Units_instock ;
```

	Product_Name	Current_Inventory
▶	Patio Furniture Set	14
	Bed	20
	Treadmill	20
	PC	25
	Sofa	25
	Projector	25



# Challenges & Solutions

01



**Challenge:** Avoiding negative inventory after sales updates

**Solution:** Validation checks to prevent updates if stock is insufficient

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02



**Challenge:** Efficient data retrieval for reports

**Solution:** Indexed key columns and optimized JOIN queries

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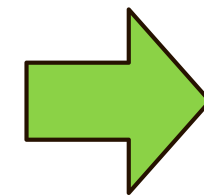
# Next Steps



**Add a Supplier Table:** Track inventory sources.



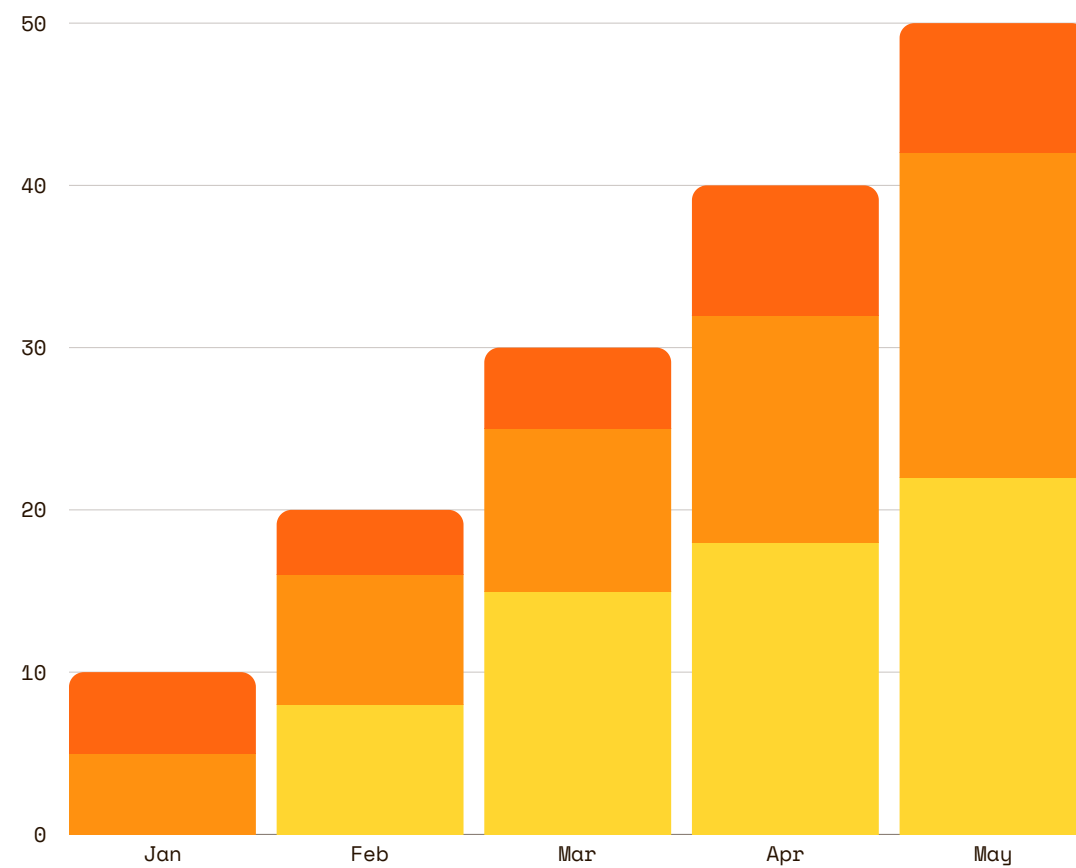
**Implement Triggers:** Automate stock updates after each sale.



**Integrate with BI Tools:** Real-time visualization and dashboards for performance monitoring.



# Summary



- The "**Inventory Management Database**" effectively manages inventory, tracks sales, and provides actionable insights to support business decision-making.

# Thank you for your time!



Email or message for any  
questions or clarifications

MD SHABAB