Zepto Inventory Management: A Data Analysis Report

Project Overview

This project demonstrates the use of SQL to analyze an inventory and sales dataset. The goal is to provide key business insights by examining product stock levels, sales performance, and supplier contributions. The following report outlines the business questions, the SQL queries used to answer them, and the resulting business implications.

1. Stock Level Analysis

Business Question: Find the current stock level for each product and identify low-stock items.

SQL Query for Current Stock:

```
SELECT
    ProductName,
    StockQuantity
FROM
    Products;
```

Business Insight: This query provides a real-time snapshot of our inventory. By running this, we can see the exact quantity of each product we have on hand. This is crucial for day-to-day operations and helps in preventing stockouts.

SQL Query for Low-Stock Items:

```
SELECT
    ProductName,
    StockQuantity
FROM
    Products
WHERE
    StockQuantity < 20
ORDER BY
    StockQuantity ASC;
```

Business Insight: This query specifically flags products that are at risk of running out. By setting a low-stock threshold (e.g., < 20), we can proactively prioritize which items need to be restocked. For example, if "Onion" shows up on this list, it signals an immediate need to place a new order.

2. Fast-Moving Products Analysis

Business Question: Which are the top 10 fastest-moving products?

SQL Query:

```
WITH ProductSales AS (
```

```
    SELECT
        ProductID,
        SUM(Quantity) AS TotalQuantitySold
    FROM
        Transactions
    WHERE
        Type = 'Sale'
    GROUP BY
        ProductID
),
RankedSales AS (
    SELECT
        p.ProductName,
        ps.TotalQuantitySold,
        DENSE_RANK() OVER (ORDER BY ps.TotalQuantitySold DESC) AS SalesRank
    FROM
        ProductSales ps
    JOIN
        Products p ON ps.ProductID = p.ProductID
)
SELECT
    ProductName,
    TotalQuantitySold,
    SalesRank
FROM
    RankedSales
WHERE
    SalesRank <= 10;
```

Business Insight: The results of this query provide a ranked list of our best-selling products. This is a critical insight for inventory management and marketing. Products with a high SalesRank are in high demand, and we should ensure they are always well-stocked and potentially featured in promotions.

3. Supplier Performance

Business Question: Rank suppliers by the volume of products they have provided.

SQL Query:

```
WITH SupplierProductCount AS (
    SELECT
        SupplierID,
        COUNT(ProductID) AS ProductsProvided
    FROM
        Products
    GROUP BY
        SupplierID
)
SELECT
    s.SupplierName,
    spc.ProductsProvided,
    DENSE_RANK() OVER (ORDER BY spc.ProductsProvided DESC) AS SupplierRank
FROM
    SupplierProductCount spc
```

```
JOIN
    Suppliers s ON spc.SupplierID = s.SupplierID
ORDER BY
    SupplierRank;
```

Business Insight: This analysis helps us identify our key suppliers. Suppliers with a high SupplierRank are vital to our business, as they provide a large volume of our products. This information can be used for relationship management, negotiating better terms, or assessing supply chain risk.

4. Data-Driven Reporting

Business Question: Analyze monthly sales trends.

SQL Query:

```
SELECT
    strftime('%Y-%m', TransactionDate) AS SalesMonth,
    SUM(Quantity) AS TotalQuantitySold,
    SUM(Quantity * p.Price) AS TotalRevenue
FROM
    Transactions t
JOIN
    Products p ON t.ProductID = p.ProductID
WHERE
    t.Type = 'Sale'
GROUP BY
    SalesMonth
ORDER BY
    SalesMonth;
```

Business Insight: By grouping sales data by month, we can identify seasonal trends and patterns in our business. A steady increase in TotalRevenue would indicate healthy business growth, while a sudden drop might signal an issue that needs investigation.