POWER BI PROJECT

PHARMACEUTICAL SALES INSIGHTS DASHBOARD

Project Title: **Pharmaceutical Sales and Customer Insights**

Background:

The pharmaceutical industry is vast and complex, requiring continuous monitoring of sales data, customer demographics, and production costs to optimize sales strategies, compliance, and resource allocation. This project aims to leverage Power BI to create an interactive Pharmaceutical Sales Insights Dashboard, which will provide valuable insights into sales performance, customer demographics, and production cost analysis. This will help stakeholders make data-driven decisions to improve sales performance, customer targeting, and operational efficiency.

Objective:

To design and implement a dashboard that consolidates and visualizes pharmaceutical sales data. The project will analyze sales performance, customer demographics, and production costs to support strategic decision-making and ensure regulatory compliance.

Problem Statement:

The Pharmaceutical Sales Insights Dashboard seeks to address the following key requirements:

1. **Sales Performance Analysis:**
    - Analyze sales data by tracking units sold, total revenue, and profitability (unit sales price vs. cost of production).
    - Identify top-selling drugs and low-performing drugs based on sales volume and revenue.
    - Evaluate sales trends over time to identify seasonal fluctuations, spikes, and downturns.
2. **Customer Demographics and Segmentation:**
    - Segment customers based on age, gender, and buyer type (individual, retailer, etc.) to understand purchasing behavior patterns.
    - Analyze the average spend per customer segment and identify high-value customers.
    - Evaluate the geographic distribution of customers to understand market penetration in various regions (based on country data).
3. **Regulatory Compliance and Drug Performance:**
    - Assess sales performance for each drug, taking into account regulatory compliance and drug performance over time.
    - Track the relationship between compliance and sales trends for specific drugs.
4. **Profitability and Cost Analysis:**
    - Analyze the cost of production for each drug and compare it with the unit sales price to calculate profitability.

    - Identify drugs with the highest profit margins and those that are underperforming based on production costs and sales prices.
5. **Trend Analysis by Date:**
    - Track sales data over different time periods to understand how sales are evolving.
    - Visualize trends in drug sales over specific months or years, and detect patterns that can inform inventory and pricing decisions.

Deliverables:
The deliverables for this project will include:

- An interactive Pharmaceutical Sales Insights Dashboard developed in Power BI.
- Visualizations such as bar and line charts, KPI indicators, and heatmaps for sales performance, demographics, and profitability.
- A detailed documentation of data sources, transformation logic, and dashboard functionality.
- A presentation of key insights, including actionable recommendations based on the dashboard analysis.

Success Criteria:
The success of the project will be evaluated based on:

- The ability of the dashboard to provide accurate, actionable insights into sales and customer data.
- The effectiveness of the dashboard in helping stakeholders make informed decisions to improve sales strategies and customer engagement.
- User satisfaction with the dashboard's usability, interactivity, and its effectiveness in simplifying complex data.

Star Schema Implementation:
To ensure efficient data management and querying, a star schema will be implemented:

- **Fact Table:** Sales transactions (e.g., units sold, revenue, cost of production, profit).
- **Dimension Tables:**
    - **Date Dimension:** Year, quarter, month, and day.
    - **Customer Dimension:** CustomerID, buyer type, age, gender, and country.
    - **Drug Dimension:** DrugID, drug name, regulatory compliance ID, unit sales price, and cost of production.

By addressing these key requirements, the Pharmaceutical Sales Insights Dashboard will empower stakeholders to better understand sales trends, customer behavior, and profitability, allowing for more informed decision-making and optimization of the pharmaceutical sales process.