

Business Intelligence Project

Title : Sales Performance & Forecasting BI Solution for a Retail Company

Industry & Organization Description

Industry: Retail / E-commerce

Organization (Realistic): A medium-sized retail company operating both online and offline, selling consumer products across multiple categories and regions.

The company records daily sales transactions including order details, products, customers, regions, sales amounts and dates. Although large volumes of data are available, they are not fully exploited for decision-making.

Management aims to better understand sales performance, customer behavior, and profitability, and to use historical data to support sales forecasting, inventory planning, and strategic decisions.

The dataset used for this project is the Sales Forecasting dataset from Kaggle, which contains more than 10,000 rows of historical sales data, making it suitable for a complete Business Intelligence solution.

business problem

Despite having a large amount of sales data, the company faces several challenges:

- Lack of a centralized and structured view of sales performance

- Difficulty identifying the top-performing products, customers, and regions

- Limited visibility into seasonal patterns and sales trends

- Weak data-driven support for sales forecasting and planning

- Understand customer segment behaviour

As a result, management struggles to make informed operational and strategic decisions. A Business Intelligence solution is required to transform raw sales data into meaningful insights through KPIs, dashboards, and analytical reports.

business objectives

The main objectives of the BI solution are:

- Monitor overall sales revenue performance

- Identify top-performing and underperforming products, categories, and regions by sales

- Analyze customer purchasing behavior by segment

- Track sales trends over time (monthly, quarterly, yearly)

- Support sales forecasting and planning activities

Analytical Questions

The BI solution should help answer the following analytical questions:

- 1.What is the total sales revenue over time?
 - 2.How does sales revenue evolve by month and year?
 - 3.Which product categories contribute the most to total sales?
 - 4.Which product generate the highest sales revenue?
 - 5.Which regions generate the highest sales?
 - 6.How does sales performance differ across customer segments?
 7. Who are the top customers by sales revenue?
 8. Are there seasonal patterns in sales performance?
 9. Which products or regions are underperforming?
- What is the average sales value per order

Key Performance Indicators (KPIs)

The following KPIs will be used to measure performance:

- Total Sales Revenue
- Number of Orders
- Average sales per order (AOV=total sales/nb of orders)
- Sales Growth Rate (%)
- Top 10 Products by Sales
- Sales by Region
- Sales by category
- Sales by customer segment

Data Model (Star Schema)

Fact Table :

Fact_Sales

Order ID

Order Date (FK to Dim-date)

Product ID (FK to Dim-product)

Customer ID (FK to Dim-customer)

Region ID (FK to Dim-Region)

Sales Amount

This fact table contains the transactional sales measure available in the dataset and foreign keys linking to the dimension tables.

Dimension Tables

Dim_Date :

Date ID

Date

Month

Quarter

Year

Dim_Product :

Product ID

Product Name

Category

Sub-category

Dim_Customer:

Customer ID

Customer Name

Segment

Dim_Region :

Region ID

Country

State

City

Expected BI Outputs

The expected outputs of the BI solution include:

Interactive dashboards displaying overall sales performance

KPI cards for quick monitoring of key metrics

Visual analysis by product, customer segment , category, and region

Time-based charts to analyse sales trends and seasonality

Tools

SQL / Python / Microsoft Power BI



Dataset Source

Kaggle – Sales Forecasting Dataset :

<https://www.kaggle.com/datasets/rohitsahoo/sales-forecasting>

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