**Sales Dashboard and Forecasting Project**

**Introduction**

In today’s data-driven business environment, organizations need actionable insights to make informed decisions and remain competitive. Sales analysis plays a vital role in understanding customer behaviour, product performance, and market trends. This project focuses on developing a **Sales Dashboard** with integrated **time series forecasting** to provide meaningful insights, track business performance, and predict future sales.

The primary objective of this project was to contribute to business success by utilizing **data analysis, visualization, and forecasting techniques**. By leveraging **Power BI** and its advanced functionalities, the project delivers an interactive platform that enables stakeholders to monitor KPIs, identify trends, and forecast sales with accuracy.

**Dataset Description**

The dataset used for this project contained **5,910 records** with multiple attributes across orders, customers, products, and sales transactions. Key attributes included:

* **Order Details:** Row ID, Order ID, Order Date, Ship Date, Ship Mode
* **Customer Details:** Customer ID, Customer Name, Segment (Consumer, Home Office, Corporate), Country, City, Region
* **Product Details:** Product ID, Category, Sub-category, Product Name
* **Sales Data:** Sales, Quantity

This dataset provided a comprehensive view of business operations, customer profiles, and product distribution across regions, enabling multi-dimensional analysis.

**Data Cleaning and Preparation**

The raw dataset was cleaned and transformed using **Power Query** in Power BI.

* **Null values** were identified and removed to ensure data consistency.
* **Date columns** (Order Date and Ship Date) were converted to appropriate formats.
* A calculated column using **DAX** was created to measure the **difference between Order Date and Ship Date**, allowing for delivery performance analysis.
* Additional time-based attributes (Year, Month) were extracted from dates for trend analysis.

This preprocessing step ensured that the dataset was reliable and ready for accurate visualization and forecasting.

**Dashboard Development**

An **interactive Sales Dashboard** was designed in Power BI to provide users with a seamless data exploration experience. The dashboard included multiple components such as:

* **KPIs & Cards:** Total Sales, Total Quantity, Average Order Value
* **Slicers:** Filters for Year (2019, 2020), Segment, Region, and Category
* **Charts & Visuals:**
  + **Line Chart:** Monthly sales trend
  + **Bar Chart:** Category and Sub-category level performance
  + **Stacked Area Chart:** Comparison of sales contribution across years
  + **Map Chart:** Regional and city-wise sales distribution
  + **Cards:** Highlighting top-performing customers and products

This visual storytelling enabled decision-makers to drill down into specific segments and gain insights at multiple levels of granularity.

**Sales Forecasting**

To enhance the decision-making process, the **Forecast tool in Power BI** was utilized to project **sales for the next 15 days**. The forecasting model was applied on historical sales data to capture patterns, seasonality, and trends.

This provided stakeholders with a forward-looking perspective, helping businesses prepare for demand fluctuations and manage inventory more efficiently.

**Key Insights & Observations**

1. **Sales Trend Analysis:** Clear seasonality and growth patterns were observed between 2019 and 2020.
2. **Regional Insights:** Certain cities and regions consistently outperformed others, offering opportunities for regional strategy optimization.
3. **Customer Segmentation:** Consumer segment contributed the highest proportion of sales compared to Home Office and Corporate segments.
4. **Delivery Analysis:** The calculated delivery gap (Ship Date – Order Date) highlighted areas where shipping efficiency could be improved.
5. **Forecasting Outcome:** The 15-day sales forecast revealed upcoming demand patterns, which can aid in inventory and resource planning.

**Tools and Techniques Used**

* **Power BI** for interactive visualization and forecasting
* **Power Query** for data cleaning and transformation
* **DAX** for calculated measures (e.g., shipping time difference, KPIs)
* **Forecasting Tool in Power BI** for time series projections

**Conclusion**

This project successfully demonstrated how **data analysis and visualization techniques** can transform raw sales data into actionable business intelligence. By integrating **interactive dashboards** with **time series forecasting**, it empowers stakeholders to track performance, optimize operations, and make data-driven decisions.

The project reflects my keen interest in **Data Analytics and Business Intelligence**, showcasing my ability to work with real-world datasets, apply analytical techniques, and present insights in a way that supports strategic business goals.