

## **Problem Statement: Retail Sales Analysis Using Power BI**

### **Context:**

In today's competitive retail environment, businesses need to closely monitor sales performance to understand product trends, customer behaviour, and revenue generation. Sales data is often collected from multiple sources, including online and in-store transactions, customer demographics, and product details. However, without proper analysis, this data can remain untapped, making it difficult for decision-makers to understand key sales drivers and to strategize effectively.

### **Business Challenge:**

The retail company is currently struggling to:

1. Track and monitor sales performance across various product categories and regions.
2. Identify top-performing products and understand customer purchasing patterns.
3. Analyse revenue and profit margins for both online and in-store sales channels.
4. Understand customer behaviour based on demographics and location.
5. Forecast future sales trends based on historical data.

The current reporting system relies on static reports, which are time-consuming to generate and lack interactivity. The business lacks a centralized, dynamic dashboard that can provide real-time insights into sales performance.

### **Key Questions:**

1. What are the **overall sales trends** over time, and how do sales vary by product category?
2. Which **products** and **categories** are contributing the most to revenue and profit?
3. What are the **profit margins** for various products, and how can they be improved?
4. How do customer demographics (age, gender, region) impact sales, and which customer segments drive the most value?
5. Can future sales trends be predicted based on historical data, and what actions can be taken to maximize future sales?

### **Project Scope:**

To address these challenges, the intern will develop a **Sales Analysis Dashboard** using Power BI that visualizes key sales metrics, customer insights, and product performance. This dashboard will allow stakeholders to:

- Monitor real-time sales performance.
- Identify top-performing products and categories.
- Improve decision-making through interactive reports.

### **Objectives:**

1. **Visualize total revenue, profit, and units sold** using key performance indicators (KPIs).
2. **Track sales trends over time** through line charts to identify seasonal spikes or dips in sales.
3. **Compare sales performance by product category** to highlight top-selling products.
4. **Use DAX calculations** to create custom metrics, such as profit margin, and to provide deeper insights into product profitability.
5. **Create interactive filters (slicers)** to allow users to dynamically explore sales data by product and date range.

### **Expected Outcomes:**

1. A fully interactive **Power BI dashboard** that displays key sales performance indicators such as total revenue, profit, units sold, and product performance.
2. Identification of **top-selling products** and high-revenue regions, helping the company prioritize inventory and marketing efforts.
3. Actionable insights based on **profit margins**, allowing the business to focus on high-margin products.
4. A comprehensive **report and presentation** that summarizes the findings and recommendations for future sales strategies.

### **Challenges to Overcome:**

1. **Data Cleaning and Preparation:** Ensuring that the sales, product data is clean, accurate, and well-structured for analysis.
2. **Dynamic Reporting:** Developing interactive and user-friendly visuals that provide real-time insights into sales performance.
3. **DAX Calculations:** Creating complex metrics such as profit margins and sales growth using DAX to provide detailed insights into product performance.
4. **Interactivity:** Ensuring that the dashboard is interactive and allows users to filter the data by key dimensions.
5. **Presentation of Findings:** Presenting the data in a clear and actionable way, ensuring that stakeholders can easily interpret the insights and use them to inform business decisions.

### **Project Benefits:**

1. **Real-time Insights:** The dashboard will provide real-time data on sales performance, allowing stakeholders to make timely decisions.
2. **Improved Product and Channel Strategy:** By understanding which products and channels perform best, the business can optimize inventory and marketing efforts.
3. **Targeted Marketing:** By analysing customer demographics, the business can create more targeted marketing campaigns, increasing conversion rates.

4. **Profitability Focus:** By identifying the most profitable products and regions, the business can focus on driving higher-margin sales and improving overall profitability.

#### **Summary:**

The intern's task is to transform raw sales, product, and customer data into an interactive **Sales Analysis Dashboard** using Power BI. The dashboard will provide stakeholders with a real-time view of key performance metrics, product analysis, and actionable recommendations for improving sales and profitability.

This project will equip the business with the tools to:

- Monitor sales performance in real-time.
- Focus on top-performing products and regions.
- Use interactive data visualizations to explore sales trends and analyse profit margins.
- Analyse customer demographics and purchasing behaviour to develop targeted marketing campaigns.

The insights gained from the dashboard will help the company optimize its product strategies, sales channels, and marketing efforts, leading to improved sales performance and profitability.