Retail Sales Analysis — Power BI Case Study

Objective:

Analyze retail sales across multiple stores and departments to evaluate sales trends, discount effectiveness, and external factors (fuel, CPI, unemployment) impacting weekly performance.

Tools Used:

Power BI (Data Modeling, DAX, Visualization)

Process Overview:

1. Connected three key datasets — Sales, Stores, and Features — via a Date table.
2. Cleaned and transformed data using Power Query.
3. Created DAX measures (YoY Growth, Avg Weekly Sales, Sales per Store).
4. Built four interactive dashboards for deep-dive analysis:
    - Executive Overview
    - Store & Department Insights
    - Discount & External Features
    - Time / Seasonal Trends
5. Added an “Executive Summary & Insights” page for storytelling.

Key Findings:

- Total sales increased steadily YoY.
- Top 5 departments generated over 60% of total revenue.
- Markdown >20% reduces sales efficiency; 10–15% optimal range.
- Fuel price and unemployment negatively affect weekly sales.
- November–December consistently drives the year’s peak sales.

Recommendations:

1. Keep markdowns below 20%.
2. Strengthen inventory and staffing during Q4.
3. Use external economic indicators for predictive forecasting.
4. Expand successful department strategies to lower-performing stores.

Outcome:

Created an interactive Power BI dashboard system enabling data-driven decision-making for promotions, demand forecasting, and profitability optimization.