# BUILDING A POWER BI DASHBOARD TO TRACK REGIONAL SALES PERFORMANCE FOR A US RETAIL CHAIN

## 1. Project Background and Objective

A mid-sized US-based retail chain operating across 7 states sought to replace their fragmented Excel-based sales reports with a **centralized, interactive dashboard in Power BI**. The primary goal was to give regional sales managers and senior executives a **real-time view** of revenue, target achievement, and profitability segmented by **store, product category, and time period**.

**Core Business Objective:** Enable strategic and operational sales decision-making through a single, dynamic Power BI dashboard accessible to all relevant stakeholders.

## 2. Data Sources and Preparation

- **Sales Transactions:** 500,000+ records from their SQL Server database (monthly updates)
- **Product Master:** Excel file containing category mappings and unit economics
- **Store Metadata:** CSV with region, state, and store manager assignments
- **Target Sheet:** Excel upload of monthly revenue targets by region and product category

**Power Query (M Language):**

- Cleaned inconsistent category naming
- Merged datasets using Region, Store_ID, and Product_SKU
- Created calculated columns for:
    - Gross Margin
    - Sales Target Variance
    - YoY Change in Sales

## 3. Dashboard Features and Layout in Power BI

**Page 1: Executive Sales Overview**

- KPI Cards:
    - Total Revenue

    - Target Achievement %
    - Gross Margin %
    - YoY Revenue Change
- Line Chart: Monthly revenue trend with slicers for Region and Product Category
- Matrix: Sales and margin by region → conditional formatting for quick insights

**Page 2: Regional Drill-Down**

- Map Visualization: Sales by state and store-level tooltips
- Bar Chart: Top 10 stores by revenue
- Scatter Plot: Revenue vs. Gross Margin by product within each region
- Drill-through: From region to store-level performance view

**Page 3: Category-Level Insights**

- Treemap: Revenue share by product category
- Clustered bar chart: Category-wise target vs. actuals
- Line + bar combo: Monthly revenue vs. profitability trend by category

**Interactivity Used:**

- **Slicers:** Date, Region, Product Category, Sales Manager
- **Bookmarks:** Toggle between margin-focused and revenue-focused views
- **Drill-through pages:** From summary to product/store-specific views
- **Tooltip pages:** Custom pop-ups with key store metrics

# 4. Metrics and DAX Measures Implemented

| KPI | DAX Measure Logic |
|---|---|
| Total Revenue | SUM(Sales[Revenue]) |
| Target Achievement % | DIVIDE([Revenue], [Target], 0) |
| Gross Margin % | DIVIDE([Revenue] - [COGS], [Revenue], 0) |
| YoY Change | ([Revenue] - [Revenue LY]) / [Revenue LY] |
| Sales Variance (Target) | [Revenue] - [Target] |

## 5. Final Deliverables

- Power BI Desktop file (.pbix)
- Deployed dashboard on Power BI Service with row-level security (RLS) by regional manager
- Training session (recorded) for store-level users on how to interact with the dashboard
- Executive briefing pack (PDF + Slides) with annotated screenshots and insights
- Scheduled monthly refresh with Power BI Gateway from on-prem SQL Server

## 6. Insights Delivered

- Identified 3 underperforming regions with margin erosion despite revenue growth
- Product category analysis revealed seasonal slumps masked in aggregate figures
- Empowered regional managers to adjust store-level pricing and promotions using margin data
- Replaced 12 Excel reports with 1 interactive Power BI report, saving ~10 hours per week in reporting effort

## 7. Business and Academic Relevance

- **Corporate Use Case:** Useful for sales directors, regional managers, and data teams in retail, e-commerce, and consumer goods sectors.
- **Academic Use Case:** Can be used as a live case study in business analytics or marketing analytics courses, focusing on KPI design, data modeling, and dashboard usability.