Retail Profitability & Performance Analysis Dashboard

Dataset (Kaggle)

Dataset Name:
Walmart Store Sales Forecasting Dataset

Source:
Kaggle – Retail sales data containing weekly sales, store details, and economic factors.

https://www.kaggle.com/datasets/aslanahmedov/walmart-sales-forecast

Tables Used:

- **train** – weekly sales data
- **features** – economic & promotional factors
- **stores** – store metadata (type & size)
- **test** – not used (future prediction reference)

Time Period:
2010 – 2012 (weekly data)

Data Cleaning Steps (Power Query)

Performed using **Power Query Editor**:

Common Cleaning

- Corrected data types (Date, Decimal, Whole number)
- Removed errors & null values
- Trimmed and cleaned text columns

Features Table

- Replaced NULL values in MarkDown1–5 with **0**
- Converted IsHoliday to TRUE/FALSE
- Ensured numeric columns are Decimal

Data Modeling Decision

- **Merged features into train** using:
    - Store + Date
- Removed standalone features table after merge

✓ Prevented relationship ambiguity
✓ Improved performance and clarity

Data Model

Data Model Structure:

stores (Dimension)

|

| 1 → *

|

train (Fact table with merged features)

Relationships

- stores[Store] → train[Store] (One-to-Many)

Why this model?

- Stores table has unique keys
- Sales table contains transactional data
- Features share same granularity as sales

✓ Clean star schema
✓ Interview-ready model

Measures (DAX)

Total Sales

Total Sales = SUM(train[Weekly_Sales])

Total Cost ***(assumed cost % for analysis)***

Total Cost = [Total Sales] * 0.75

Profit

Profit = [Total Sales] - [Total Cost]

Profit Margin

Profit Margin = DIVIDE([Profit], [Total Sales])

Holiday Sales

```
Holiday Sales =CALCULATE(
    [Total Sales],
    train[IsHoliday] = TRUE()
)
```

Total Sales

Total Sales = SUM(train[Weekly_Sales])

Average Weekly Sales

Avg Weekly Sales = AVERAGE(train[Weekly_Sales])

Sales by Store

```
Sales by Store = CALCULATE(
    [Total Sales],
    ALLEXCEPT(train, train[Store])
)
```

Holiday Sales

```
Holiday Sales =CALCULATE(
    [Total Sales],
    features[IsHoliday] = TRUE()
)
```

Non-Holiday Sales

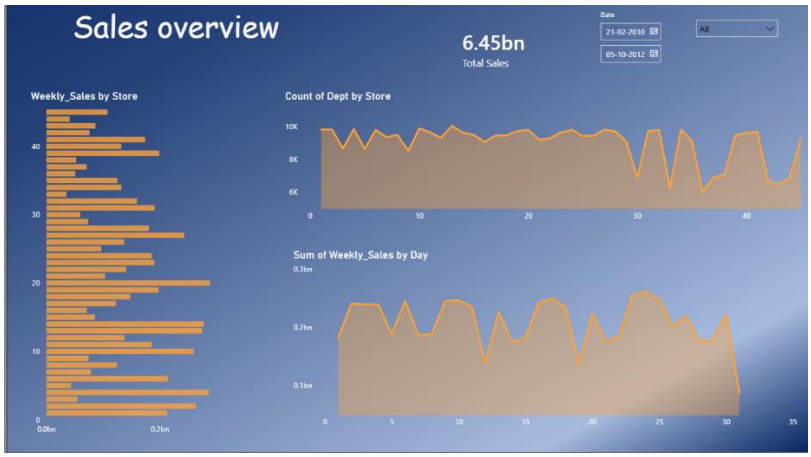
```
Non Holiday Sales =CALCULATE(
    [Total Sales], features[IsHoliday] = FALSE()  )
```

Sales YTD

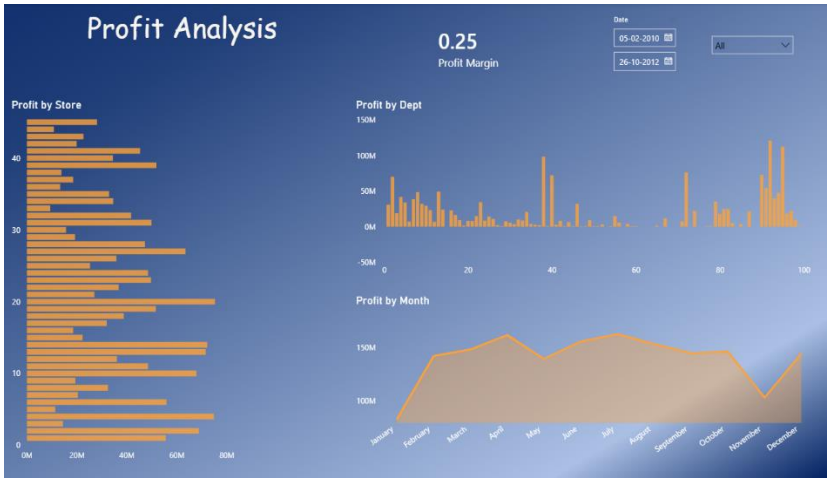
```
Sales YTD =TOTALYTD(
    [Total Sales],
    train[Date]
)
```

Dashboards

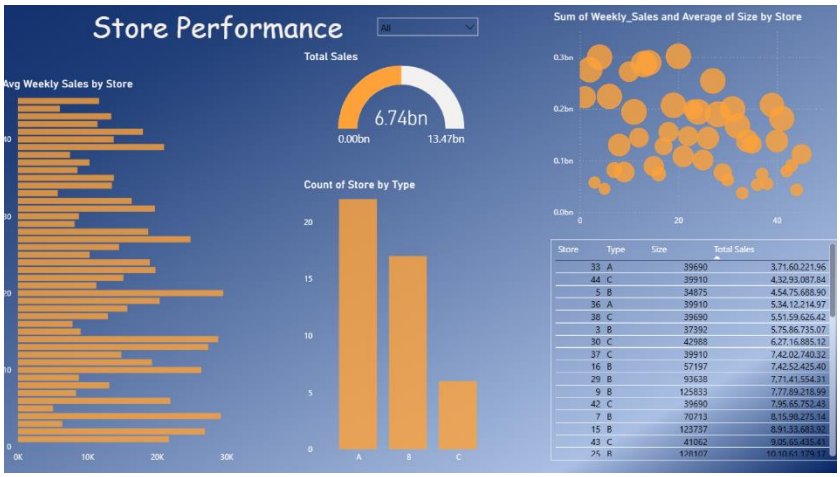
Sales Overview



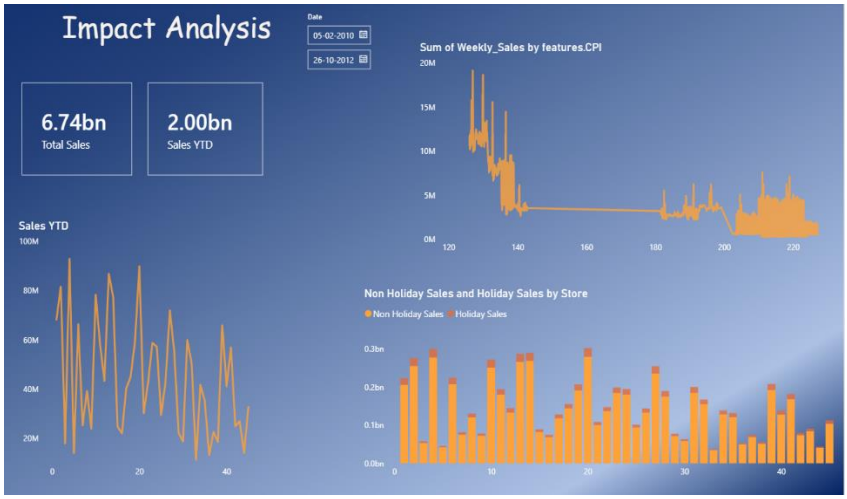
Profit Overview



Store Performance



Impact Analysis



Business Insights

Key Insights Identified:

- Store Type **A** generates highest revenue
- Promotional weeks significantly increase sales
- Holiday weeks outperform normal weeks
- Large store size correlates with higher profitability
- High fuel price periods slightly reduce sales

Business Recommendations:

- Increase promotions during non-holiday periods
- Focus inventory planning for high-performing store types
- Optimize operations in low-performing stores

Tools & Skills Demonstrated

✓ Power BI
✓ Power Query (ETL)
✓ Data Modeling
✓ DAX (Measures & Calculations)
✓ Business Analysis
✓ Data Visualization