Walmart Stores Product Sales Analytics Report

Order of Analysis

1. **Requirements Gathering**:
    - Identify the impact of external factors (unemployment rate, CPI, fuel price, and temperature) on sales trends.
    - Provide insights into holiday sales performance and monthly trends to help Walmart optimize inventory management and promotions.
    - Highlight top-performing stores to assist in targeted business decisions.
2. **Dashboard Sketch and Visualizations**:
    - KPIs: Total sales, average unemployment rate, average CPI, average weekly sales, and average fuel price.
    - Time-series trends: Sales over time and monthly variations.
    - Bar chart: Top stores with the highest sales.
    - Comparative analysis: Holiday vs. non-holiday sales.
    - Line chart: Monthly temperature variations to correlate with sales.
3. **Data Collection**:
    - Data sourced from Walmart's historical sales and macroeconomic indicators.
    - External datasets included for the unemployment rate, CPI, fuel price, and temperature data.
4. **Data Exploration and Cleaning**:
    - Missing data and anomalies in sales, unemployment, and CPI were addressed.
    - Non-numeric columns were trimmed and converted for analysis.
5. **Testing, Visualization, and Analysis**:
    - Visualizations were built in Tableau.
    - Sales trends were validated against historical records.
6. **Justification and Recording of Findings**:
    - Visualizations provide actionable insights for decision-making in promotions, restocking, and sales strategies.

Major Dialysis of Analysis

1. Objectives:

- Analyze the relationship between sales and macroeconomic indicators.
- Identify sales trends and seasonal performance.
- Highlight high-performing stores for better resource allocation.

2. Challenges:

- Integrating and cleaning macroeconomic data for alignment with sales data.

- Capturing the impact of external factors (fuel prices and unemployment) on consumer behavior.

3. Solutions:

- Aggregated data by month for consistent analysis.
- Built correlations between macroeconomic variables and sales metrics to uncover trends.
- Visualized holiday and seasonal sales impact using comparative analysis.

User Requirements Document (URD)

1. Problem Identification:

Walmart needs actionable insights into how external economic factors and seasonal variations affect sales. This will guide resource allocation, inventory management, and promotional strategies. And given their historical data from Kaggle I managed to put together this analysis.

2. Target Audience:

- Walmart executives and regional managers.
- Inventory and marketing teams.

3. Trends and Insights from Dashboards:

- **Total Sales**: $6.74 billion, reflecting overall business performance.
- **Monthly Sales Trends**: Peaks observed during specific months, likely due to holiday seasons.
- **Top Stores by Sales**: Clear leaders among the stores, aiding in benchmarking and resource optimisation.
- **Holiday Sales Comparison**: Holiday periods show a significant increase in sales, validating the need for targeted promotions.
- **Macroeconomic Correlation**:
    - Unemployment rate and fuel prices may have a slight inverse correlation with sales.
    - Temperature variations show potential links to seasonal demand changes.

4. User Story:

A Walmart regional manager needs insights into how sales are influenced by external factors and seasonal trends so that he can optimize promotional campaigns and restock inventory efficiently.

5. Acceptance Criteria:

- The dashboard provides clear KPIs and trends for easy decision-making.
- Seasonal and holiday impacts on sales are visualized.

6. KPIs:

- Total Sales.
- Average Weekly Sales.
- Correlations with external factors: unemployment, fuel prices, and CPI.

7. Data Quality Checks:

- Data completeness for sales and external factors.
- Alignment of dates across datasets.

8. Investment Areas:

- Focus on high-performing stores.
- Seasonal promotions during peak months.
- Price adjustments in response to macroeconomic trends.

9. Additional Requirements:

- Expand analysis to include customer demographics for more tailored promotions.

Dashboard Insights

1. **Key Performance Indicators (KPIs)**:
    - Total Sales: $6.74B
    - Average Weekly Sales: 15.98K
    - Economic indicators provide context for consumer spending behaviour.
2. **Seasonal Trends**:
    - Peaks during holiday seasons (e.g., November and December).
    - Correlation between monthly temperature variations and sales.
3. **Store Performance**:
    - Top 10 stores account for a significant share of sales.
    - Opportunity to replicate strategies from high-performing stores.
4. **Holiday Sales Impact**:
    - A significant spike in holiday periods suggests the importance of holiday promotions.

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