

VASTU - VISUAL ANALYTICS AND SALES TRACKING UTILITY

SECTOR : RETAIL

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CONTEXT & PROBLEM STATEMENT



SECTOR CONTEXT

Retail organizations generate high volumes of transactional data across multiple stores and departments every week.

However, sales data is often stored in separate operational systems, making it difficult to extract unified and actionable insights



CORE PROBLEM

Retail managers lack **integrated visibility** into how :

- Store attributes (size, location, type)
- Department-level performance
- External economic factors (CPI, fuel price, holidays)

influence weekly sales performance



OBJECTIVE

To **integrate**, sample, and analyze large-scale retail datasets in order to:

- Identify key sales trends across stores and departments
- Measure the impact of external factors on weekly sales
- Enable data-driven strategic decision-making



DATA ENGINEERING (SOURCE TO SINK)

SOURCE :

- WALMART RETAIL DATASET
- THREE DATASETS: SALES, FEATURES, STORES
- TOTAL RECORDS: 421,000±
- TIMEPERIOD: 2010 – 2012

CLEANING :

- MISSINGFEATURE ALIGNMENTS
- INCONSISTENT DATE FORMATS
- DUPLICATE RECORDS

DICTIONARY :

STORE, DEPT, DATE, WEEKLY_SALES, TEMPERATURE, FUEL_PRICE,
CPI,UNEMPLOYMENT,STORE_TYPE,STORE_SIZE,ISHOLIDAY

KPI & METRICS FRAMEWORK

KPIS MEASURED

- TOTAL WEEKLY SALES
- DEPARTMENT-WISE SALES
- STORE-WISE PERFORMANCE
- HOLIDAY VS NON-HOLIDAY SALES
- SALES TREND BY YEAR

KPI RELEVANCE

- REVENUE PERFORMANCE
- SEASONAL DEMAND PATTERNS
- STORE-LEVEL EFFICIENCY
- IMPACT OF PROMOTIONS

KEY INSIGHTS (EDA)

- SALES IN 2010 WERE HIGH AND GOT A DIP IN 2011
- SALES PERFORMANCE DIFFERS ACROSS STORE TYPES
- SEASONAL DEMAND PATTERNS OBSERVED ACROSS YEARS
- DEPARTMENTAL CONTRIBUTION VARIES SIGNIFICANTLY
- ECONOMIC INDICATORS INFLUENCE SALES TRENDS

ADVANCED ANALYSIS

ROOT CAUSE ANALYSIS

SALES FLUCTUATIONS WERE ANALYZED WITH RESPECT TO:

- ECONOMIC INDICATORS
- PROMOTIONAL MARKDOWNS
- STORE SIZE AND TYPE

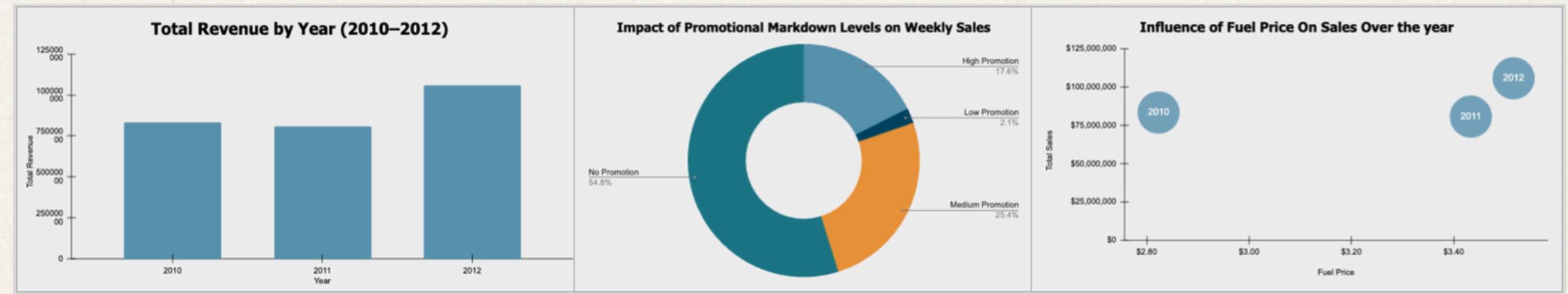
UNDERSTANDING

EXTERNAL ECONOMIC CONDITIONS AND STORE ATTRIBUTES SIGNIFICANTLY INFLUENCE WEEKLY RETAIL SALES PERFORMANCE.

DASHBOARD WALKTHROUGH

EXECUTIVE VIEW

- TOTAL WEEKLY SALES
- HOLIDAY SALES COMPARISON
- STORE TYPE PERFORMANCE



OPERATIONAL VIEW

- DEPARTMENT-WISE SALES
- YEARLY SALES TREND
- STORE SIZE ANALYSIS
- EXTERNAL FACTOR IMPACT



RECOMMENDATIONS



- Optimize promotional campaigns during high-demand holiday periods
- Prioritize investment in high-performing store types



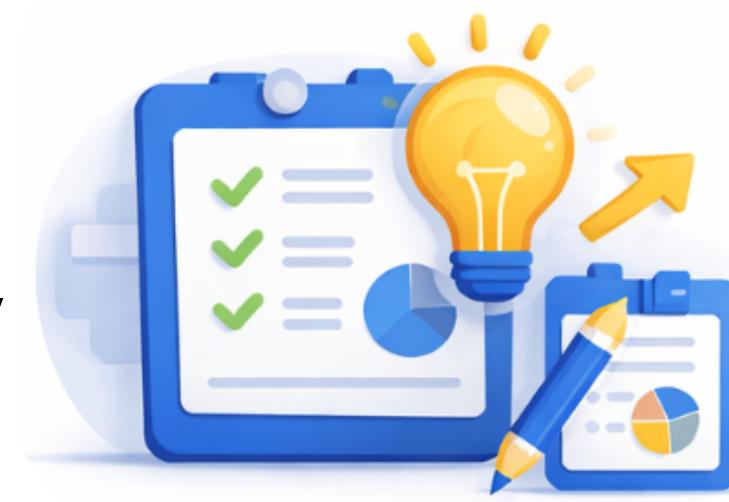
- Implement corrective strategies for underperforming departments



- Continuously monitor economic indicators for proactive planning
- Align inventory levels with seasonal demand patterns



A focused, data-driven strategy enables retailers to maximize revenue, improve operational efficiency, and respond proactively to market changes



IMPACT & VALUE



ESTIMATED IMPACT

- Key Outcomes

- ✓ Improved sales **forecasting accuracy**
- ✓ More efficient **inventory planning**
- ✓ Optimized promotional effectiveness
- ✓ Reduced stockouts and overstock situations
- ✓ Better allocation of store-level resources



STAKEHOLDER VALUE

- Strategic Benefits

- ✓ Sales optimization across departments
- ✓ Data-driven store management decisions
- ✓ Enhanced demand forecasting capability
- ✓ Improved profitability and margin control
- ✓ Stronger competitive positioning



Unified retail analytics transforms fragmented data into actionable insights driving smarter strategy and measurable operational improvement.

LIMITATIONS & NEXT STEPS

LIMITATIONS

Static Historical Dataset

Relies on past sales data only

Limited Customer-level Info

Relies on past sales data only
Limited demographic insights

No real time sales data

Delayed response to
market changes

NEXT STEPS

Static Historical Dataset

Live sales data collection

Advanced Predictive Analysis

ML and AI based forecasting
Demand sensing & trend detection

Department level forecasting

Optimised inventory and staffing

THANK YOU