**SALES DATA ANALYSIS ACROSS US AND EU.**

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**Data Visualization Project**

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# **Introduction:**

The retail sector, known for its dynamic and ever-changing landscape shaped by evolving consumer preferences, necessitates precise data-driven strategies to ensure sustained growth. This comprehensive report delves deep into the intricacies of two critical components: an in-depth analysis of Walmart sales in the United States and a detailed examination of sales trends across the European Union (EU). Given Walmart's status as a retail giant with a profound influence on the American market and the diverse nature of sales in the European landscape, this analysis aims to extract invaluable insights from these two pivotal areas. By focusing on these key aspects, the report provides a holistic understanding of the retail industry's dynamics, enabling stakeholders to make informed decisions and formulate strategies for long-term success.

**Research Questions:**

* **What are the key patterns and variations in Walmart's sales across different states in the United States?**
* **How do sales trends vary between distinct product categories in the European market?**

# **Methodology:**

**Data Sources:**

The analysis in this report is founded upon meticulously sourced data:

**1. Walmart Sales Analysis:**

* **Data Origin:** The data was directly obtained from <https://data.world/just4jcgeorge/walmart-sales-data>, ensuring authenticity and reliability.
* **Scope:** The dataset comprises detailed information, encompassing weekly sales, state-wise data, promotional costs, and product categories.
* **Assumptions:** It is assumed that the data provided by Walmart is accurate and comprehensive, reflecting real-time sales transactions and promotional expenses.

**2. EU Sales Trends:**

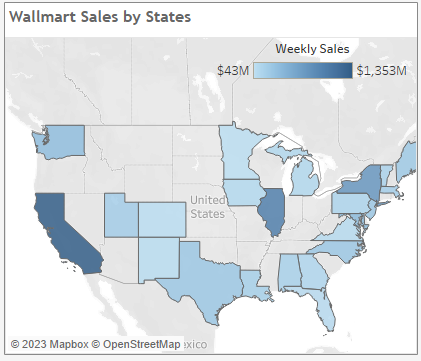
* **Data Origin:** Data from the European market was meticulously curated from <https://archive.ics.uci.edu/dataset/352/online+retail>, aggregating sales figures and product categories from diverse countries.
* **Scope:** The dataset covers extensive sales data from key European countries, allowing a nuanced analysis of regional sales trends.
* **Assumptions:** Assumptions were made concerning the consistency and reliability of the data collected from different European countries. Rigorous cross-referencing was conducted to ensure data accuracy.

# **Analysis:**

1. **Walmart Sales Analysis:**

**1: Walmart Sales by States - Heat Map**

The heatmap vividly illustrates Walmart sales across states in the US. Notably, California and New York emerged as high-revenue generators, directing attention to localized marketing strategies.



**1.0 Walmart Sales by States - Heat Map**

**2: Sales & Promotional Cost Trends - Line Chart**

The line chart portrays the correlation between promotional costs and furniture sales, pinpointing fluctuations and indicating potential areas for optimization.

A graph of sales and promotion

Description automatically generated

**2.0 Sales & Promotional Cost Trends**

**3: Sales by Top 10 Department - Tree Map**

The Tree map reveals specific departments dominating sales, facilitating strategic inventory management and targeted promotional efforts.

A screenshot of a computer screen

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**3.0 Sales by Top 10 Department**

**4: Sales by Category - Pie Chart**

The pie chart succinctly illustrates the revenue distribution across furniture, office supplies, and technology, offering a clear overview of product category performances.

A screenshot of a graph

Description automatically generated

**4.0 Sales by Category**

**5: Sales vs Promotional Cost - Scattered Plot**

The scattered plot analysis of promotional costs against weekly sales for various stores provides insights into the efficiency of promotional strategies, enabling data-driven decision-making.

A graph with blue dots and a line

Description automatically generated

**5.0 Sales vs Promotional Cost**

**6: Sales by Top 10 State - Drill Down to Counties**

By drilling down into states, California emerges as the leading revenue-generating state. Further county-level analysis could provide granular insights for hyper-localized marketing.

A graph of sales by top 10 state

Description automatically generated

**6.0 Sales by Top 10 State**

1. **EU Sales Trends:**

**1: Sales Map - Density Map Chart**

The density map visually encapsulates sales concentrations in European countries, with the UK standing out as a prominent market. This information is invaluable for market expansion strategies.

A map of europe with blue dots

Description automatically generated

**7.0 Sales Map**

**2: Sales Trend - Dual Axis Chart**

Monthly sales trends exhibit fluctuations, indicating varying consumer behaviours. November and December mark significant spikes, potentially attributed to the holiday seasons.

**A graph with a line going up

Description automatically generated**

**8.0 Sales Trend**

**3: Sales by Category**

Categorization analysis highlights technology as the primary revenue generator, emphasizing the need for tailored inventory management strategies.

A graph with blue lines

Description automatically generated with medium confidence

**9.0 Sales by Category**

**4: Top 10 Locations by Sales**

The analysis of top-performing countries like the UK, Germany, and France provides essential insights for market prioritization and strategic planning.

A screenshot of a computer

Description automatically generated

10. **Top 10 Locations by Sales**

# **Key Findings:**

1. **Walmart Sales Analysis:**

* **State-wise Disparities**: The analysis illuminated significant disparities in Walmart sales across states. California and New York stand out as high-revenue states, suggesting the need for targeted marketing campaigns in these regions.
* **Promotional Optimization:** The correlation between promotional costs and furniture sales highlights potential areas for optimization. Identifying the most effective promotional strategies could maximize sales while minimizing costs.
* **Category Dominance:** Certain departments, especially in technology and furniture, dominate sales. Understanding these trends can guide inventory management, ensuring stores stock products aligned with customer preferences.

1. **EU Sales Trends:**

* **Market Concentration:** The UK emerges as a dominant market in Europe, indicating lucrative opportunities. Businesses should focus on tailored marketing strategies to capitalize on this market.
* **Seasonal Spikes:** Sales trends exhibit notable spikes in November and December, indicating heightened consumer activity during the holiday season. Targeted promotions and product launches during these periods can yield substantial revenue.
* **Product Category Dynamics:** Technology emerges as a significant revenue generator. Businesses should explore expanding product lines or intensifying marketing efforts in this category.

# **Recommendations:**

1. **Walmart Sales Analysis:**
2. **Localized Marketing Strategies:** Develop region-specific marketing campaigns tailored to the unique characteristics of high-revenue states like California and New York. Understanding local consumer preferences and cultural nuances is crucial.
3. **Promotional Strategy Refinement:** Conduct A/B testing for different promotional strategies in select stores to identify the most effective approaches. Allocate promotional budgets based on the performance of these tests to optimize costs.
4. **Inventory Management:** Given the dominance of specific product categories, refine inventory management. Ensure stores stock popular products, avoiding overstocking less favored items.
5. **EU Sales Trends:**
6. **UK Market Expansion:** Given the concentration of sales in the UK, consider expanding market presence. Establish partnerships with local distributors or retailers to enhance brand visibility.
7. **Seasonal Campaigns:** Capitalize on holiday season spikes by launching targeted marketing campaigns and exclusive product offerings. Create a sense of urgency and excitement to drive sales during these periods.
8. **Diversification in Technology:** Since technology products dominate sales, explore diversification within this category. Introduce new and innovative tech products to capture a broader market segment.

# **Additional Research Questions:**

* **Consumer Behavior Analysis:** Investigate deeper into the cultural and sociodemographic factors influencing consumer behaviour. Understand how cultural nuances impact purchasing decisions, guiding marketing approaches.
* **Economic Impact Studies:** Conduct studies on the impact of economic fluctuations, inflation, and recession on consumer spending. Develop contingency plans to adapt marketing and inventory strategies based on economic conditions.

# **Conclusion:**

In this rapidly evolving retail landscape, understanding localized trends and consumer behaviour is pivotal. By implementing the recommended strategies and addressing the additional research questions, businesses can not only capitalize on existing opportunities but also anticipate and adapt to future market shifts. Continuous analysis, strategic adaptation, and a customer-centric approach will be key to sustainable growth and market leadership.

**References:**

1. **Wallmart Sales Data:**  
   <https://data.world/just4jcgeorge/walmart-sales-data>
2. **Online Retail Data:**  
   <https://archive.ics.uci.edu/dataset/352/online+retail>