

Adidas Sales Analysis: Retail Performance and Product Insights

Adidas Sales Analysis: Retail Performance and Product Insights

About the dataset

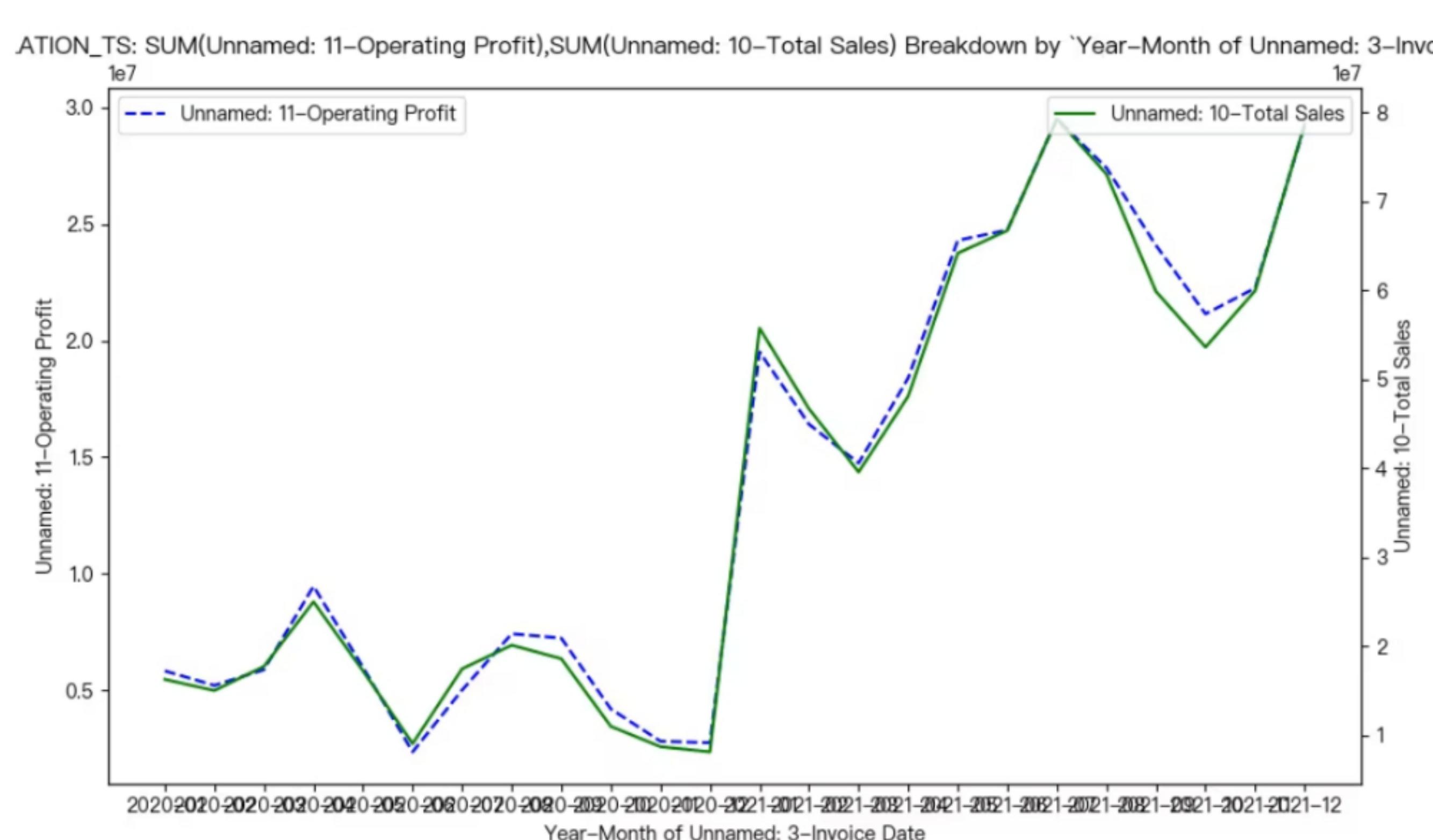
The Adidas Sales Analysis data provides a comprehensive overview of sales performance across various retailers and regions. The dataset comprises two main tables, each containing over 9,000 entries, with key columns including Retailer, Retailer ID, Invoice Date, Region, State, City, Product, Price per Unit, Units Sold, Total Sales, Operating Profit, Operating Margin, and Sales Method. The data captures sales transactions from retailers such as Amazon, Foot Locker, and West Gear, across regions like the Midwest, Northeast, and South.

From the sample data, we observe that West Gear in Texas, particularly in Houston, has significant sales in Men's and Women's Footwear, with a notable preference for Outlet sales methods. The average price per unit is around \$45, with a maximum of \$110, while the average total sales and operating profit are approximately \$93,273 and \$34,425, respectively. The operating margin averages at 0.42, indicating a healthy profit margin across transactions.

In contrast, Foot Locker in New York shows a strong in-store sales presence, with high sales volumes in Men's and Women's Footwear. The data highlights the importance of strategic product placement and sales methods in maximizing revenue and profit margins. Overall, the dataset provides valuable insights into the sales dynamics of Adidas products across different regions and retail environments, offering a foundation for strategic decision-making in retail operations and marketing strategies.

Relevant Inquiries

Q1.[INSIGHT] Sales and Operating Profit Correlation Analysis Over Time

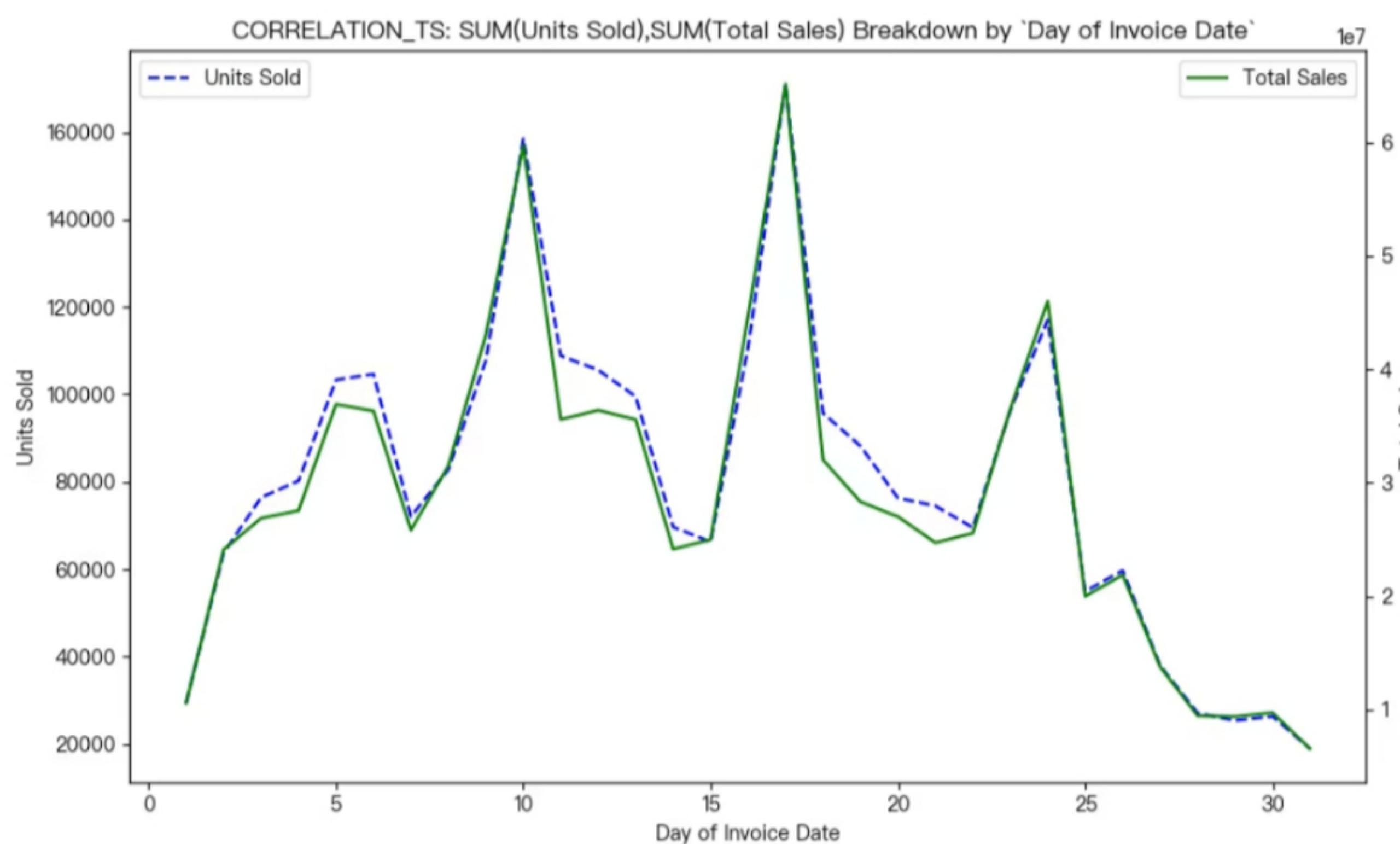


The analysis reveals a strong correlation between total sales and operating profit over the specified time period, as indicated by a Pearson correlation coefficient of approximately 0.998. This suggests that as total sales increase, operating profit tends to rise correspondingly, highlighting a robust relationship between these two financial metrics.

The visualization illustrates the trends in both total sales and operating profit from 2020 to 2021. Notably, both metrics exhibit similar patterns, with peaks and troughs occurring in tandem. This alignment reinforces the idea that fluctuations in sales directly impact profitability, making it crucial for businesses to monitor sales performance closely to optimize profit margins.

Overall, the data underscores the importance of sales growth as a key driver of operating profit, suggesting that strategies aimed at increasing sales could significantly enhance overall financial performance.

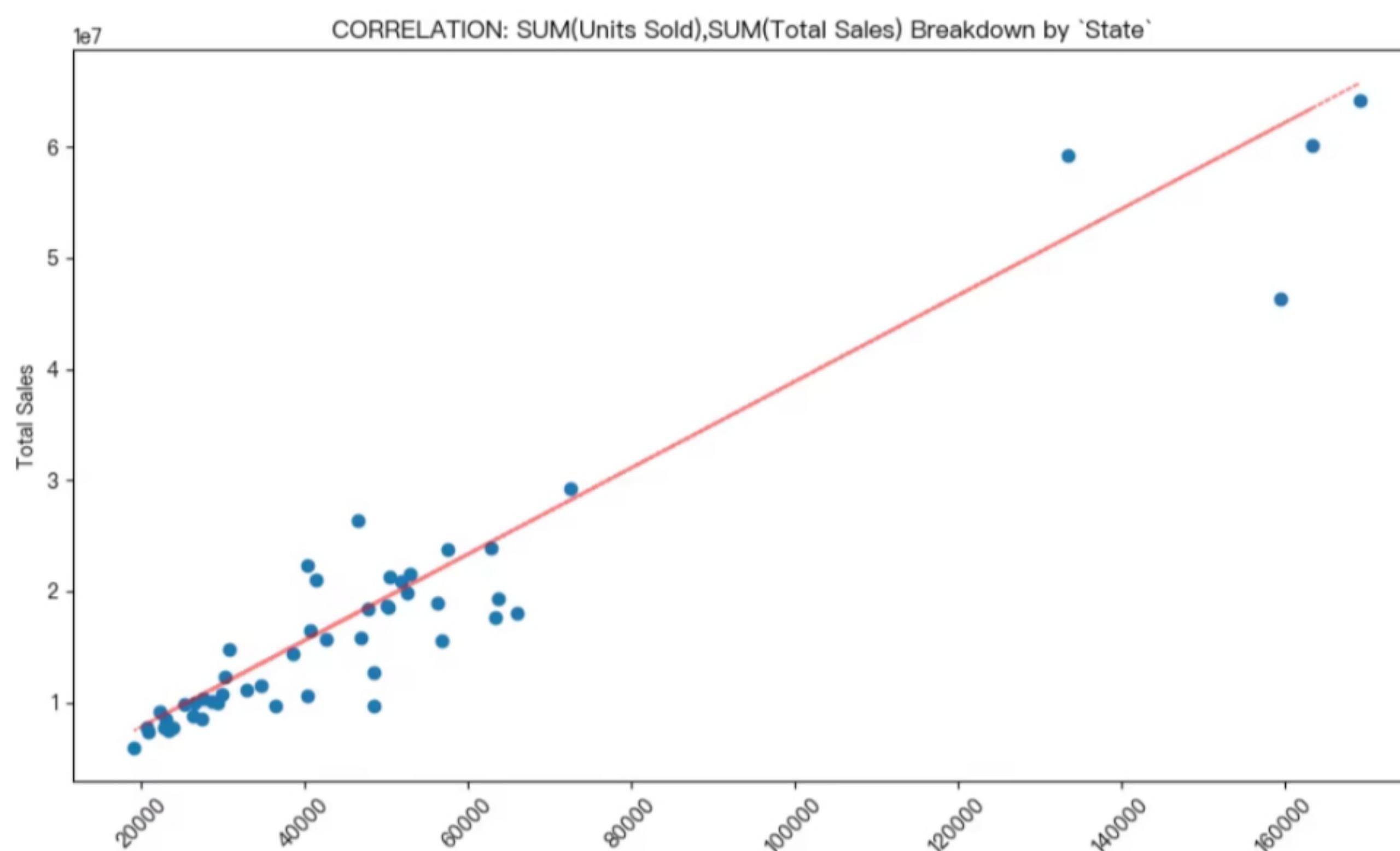
Q2.[INSIGHT] Sales and Units Sold Correlation Analysis by Invoice Date



The analysis reveals a strong correlation between total sales and units sold over the specified invoice dates, as indicated by a Pearson correlation coefficient of approximately 0.99. This suggests that as the number of units sold increases, total sales also tend to rise significantly, reflecting a consistent relationship between these two metrics.

The visualization illustrates distinct peaks and troughs in both total sales and units sold, indicating fluctuations in sales performance throughout the month. Notably, the trends closely follow each other, reinforcing the idea that higher sales volumes directly contribute to increased revenue. This insight can be crucial for inventory management and sales forecasting, as understanding these patterns allows for better strategic planning and resource allocation.

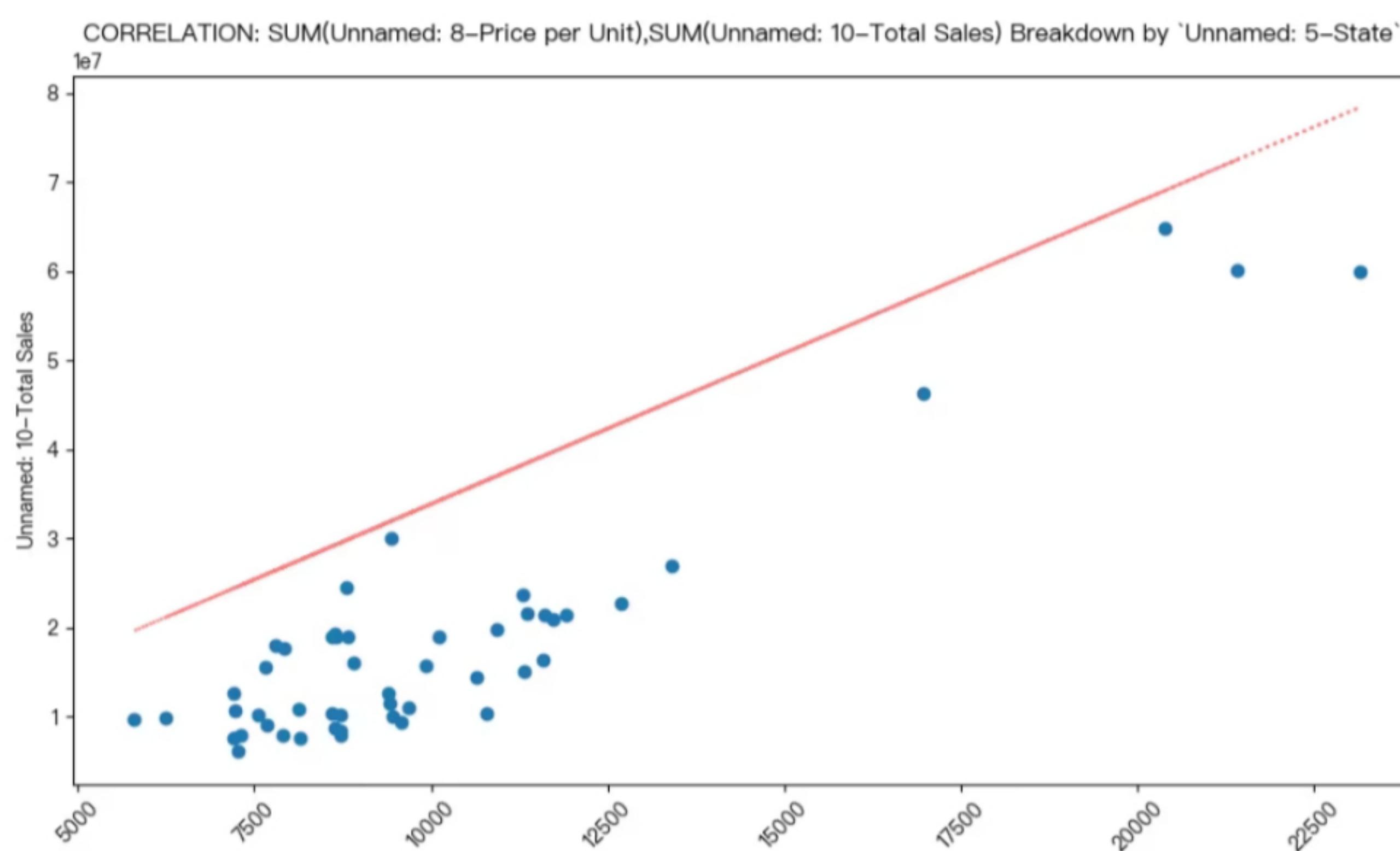
Q3.[INSIGHT] Sales and Units Sold Correlation by State



The analysis reveals a strong positive correlation between the total sales and the units sold across different states, as indicated by a Pearson correlation coefficient of approximately 0.96. This suggests that as the number of units sold increases, total sales also tend to rise significantly, highlighting a consistent relationship between these two metrics.

The scatter plot visualization further illustrates this correlation, with data points closely following the trend line. Most states exhibit a linear relationship, indicating that higher sales volumes are generally associated with higher unit sales. However, a few outliers exist, which may warrant further investigation to understand the factors contributing to their deviation from the overall trend. This insight can be crucial for strategic planning and resource allocation in sales operations.

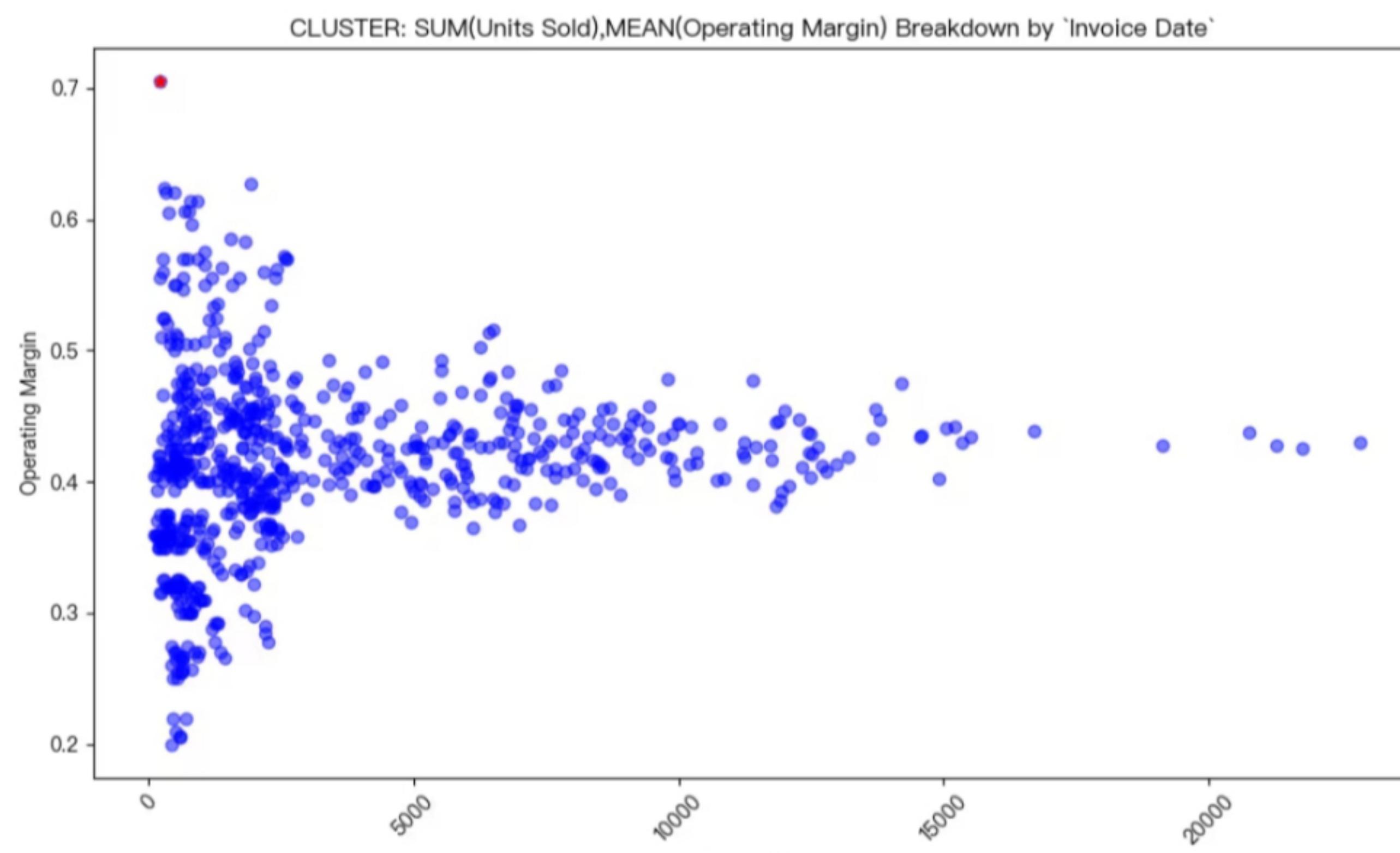
Q4.[INSIGHT] Sales and Pricing Correlation by State



The analysis reveals a strong positive correlation between the total sales and the price per unit across different states, as indicated by a Pearson correlation coefficient of approximately 0.91. This suggests that as the price per unit increases, total sales tend to increase as well, highlighting a significant relationship between these two variables.

The scatter plot visualization further illustrates this correlation, with data points generally clustering around a linear trend line. The upward slope of the line indicates that higher prices are associated with higher total sales, which could imply that consumers are willing to spend more in certain states, potentially due to factors such as demand, market conditions, or regional economic factors. This insight can be valuable for strategic pricing and sales forecasting in different states.

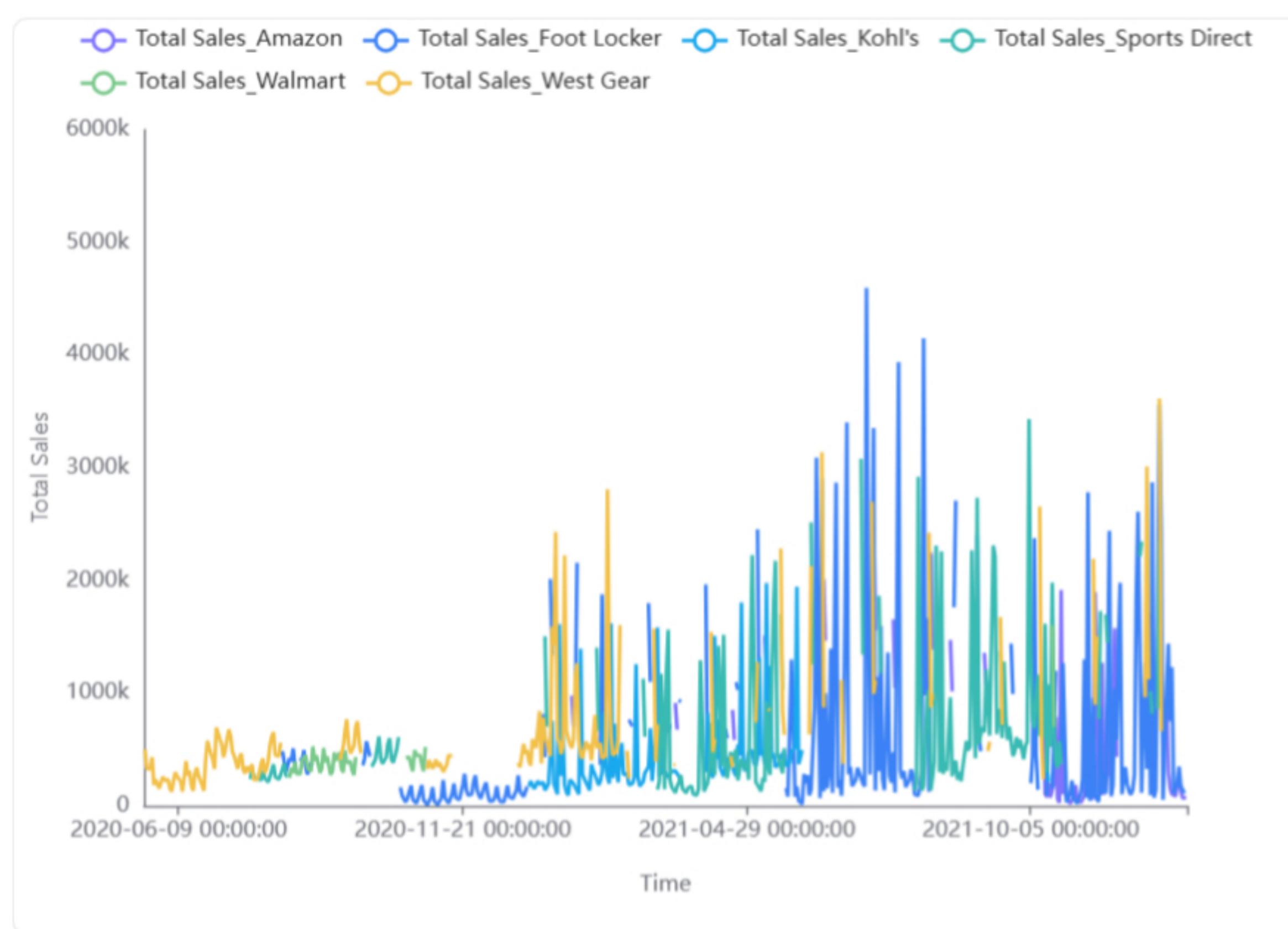
Q5.[INSIGHT] Analysis of Operating Margin and Units Sold by Invoice Date



The visualization presents a scatter plot illustrating the relationship between the mean operating margin and the total units sold, categorized by invoice date. The data points predominantly cluster around lower operating margins, with a notable outlier at the top left corner, indicating a significantly higher operating margin of approximately 0.7. This suggests that while most transactions yield moderate margins, there are exceptional cases that stand out, potentially indicating high-value sales or unique circumstances.

The clustering of data points reveals a trend where an increase in units sold does not correspond to a proportional increase in operating margin. This could imply that higher sales volumes may be associated with lower margins, possibly due to pricing strategies or cost structures. Understanding these dynamics is crucial for strategic decision-making, as it highlights the need to balance sales volume with profitability to optimize overall financial performance.

Q6.What are the trends in total sales over time across different retailers?



Aggregated Sales Data

- Retailers Analyzed:** The dataset includes sales data from retailers such as West Gear, Foot Locker, Sports Direct, Kohl's, Amazon, and Walmart.
- Sales Statistics:** The average total sales amount is approximately 658,304.41, with a standard deviation of 711,471.34. The sales range from a minimum of 8,974 to a maximum of 5,908,344.

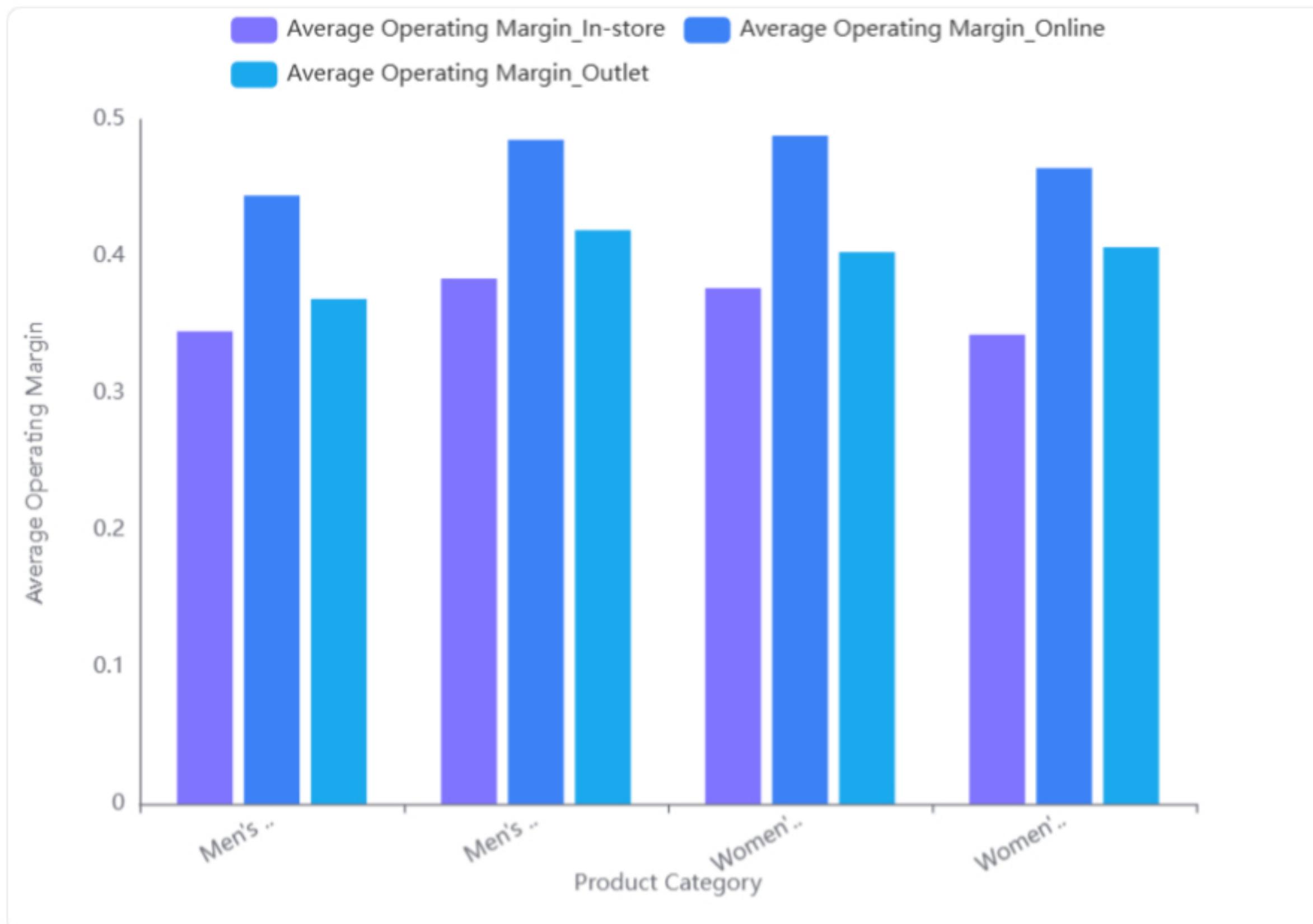
Sales Trends Visualization

- Overall Trend:** The line chart shows fluctuations in total sales over time for each retailer. There are noticeable peaks and troughs indicating varying sales performance.
- Retailer Performance:** Each retailer exhibits unique sales patterns, with some experiencing sharp spikes in sales at different times.

Conclusion and Insights

- Sales Variability:** There is significant variability in sales over time, with some retailers experiencing more pronounced fluctuations.
- Retailer-Specific Trends:** Each retailer has distinct sales trends, suggesting that external factors or retailer-specific strategies may influence sales performance.

Q7.How does the operating margin vary by product category and sales method?



Analysis of Operating Margin

- Men's Apparel:** The average operating margin varies across sales methods, with online sales having the highest margin (0.45) and in-store sales the lowest (0.36).
- Men's Athletic Footwear:** Online sales also lead in operating margin (0.44), while in-store sales have the lowest (0.34).
- Men's Street Footwear:** Online sales again show the highest margin (0.48), with in-store sales at 0.38.
- Women's Apparel:** Online sales have the highest margin (0.49), while in-store sales are lower (0.38).
- Women's Athletic Footwear:** Online sales lead with a margin of 0.46, and in-store sales are at 0.34.
- Women's Street Footwear:** Online sales have a margin of 0.45, with in-store sales at 0.33.

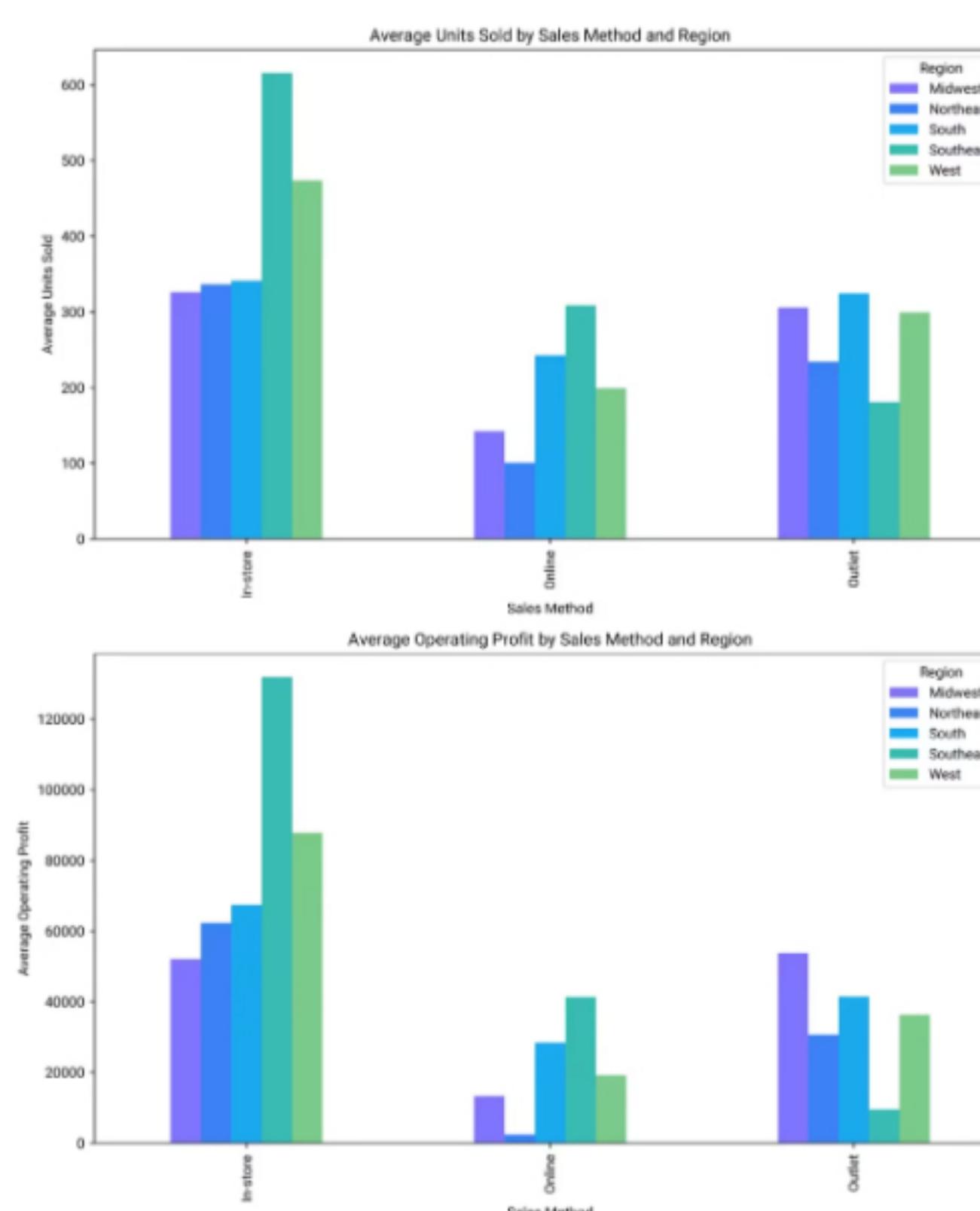
Visualization Insights

- Overall Trend:** Online sales consistently show the highest operating margins across all product categories.
- Comparison:** In-store sales generally have the lowest operating margins, with outlet sales falling in between.

Conclusion and Insights

- Online Sales Advantage:** Online sales methods consistently yield higher operating margins across all product categories, indicating a more profitable channel.
- Strategic Focus:** Businesses may benefit from focusing on enhancing their online sales strategies to maximize operating margins.

Q8. Analyze the relationship between the sales method (In-store, Online, Outlet) and the average units sold across different regions. How does the sales method impact the operating profit in these regions?



Average Units Sold by Sales Method and Region

- In-store Sales:** The Southeast region shows the highest average units sold (615.77), indicating strong performance in this region. Other regions like the South and West also perform well with averages above 300.
- Online Sales:** The Midwest and Southeast regions have higher averages compared to other regions, but overall, online sales have lower averages than in-store and outlet sales.
- Outlet Sales:** The Midwest and South regions show relatively high averages, with the Midwest leading at 305.88.

Impact of Sales Method on Operating Profit

- In-store Sales:** The Southeast region again leads with the highest average operating profit (131,868.88), suggesting a strong correlation between high units sold and profit.
- Online Sales:** Operating profits are significantly lower across all regions, with the Northeast having the lowest average (2,400.46).
- Outlet Sales:** The Midwest region shows the highest average operating profit (53,821.23), indicating a better performance compared to other regions.

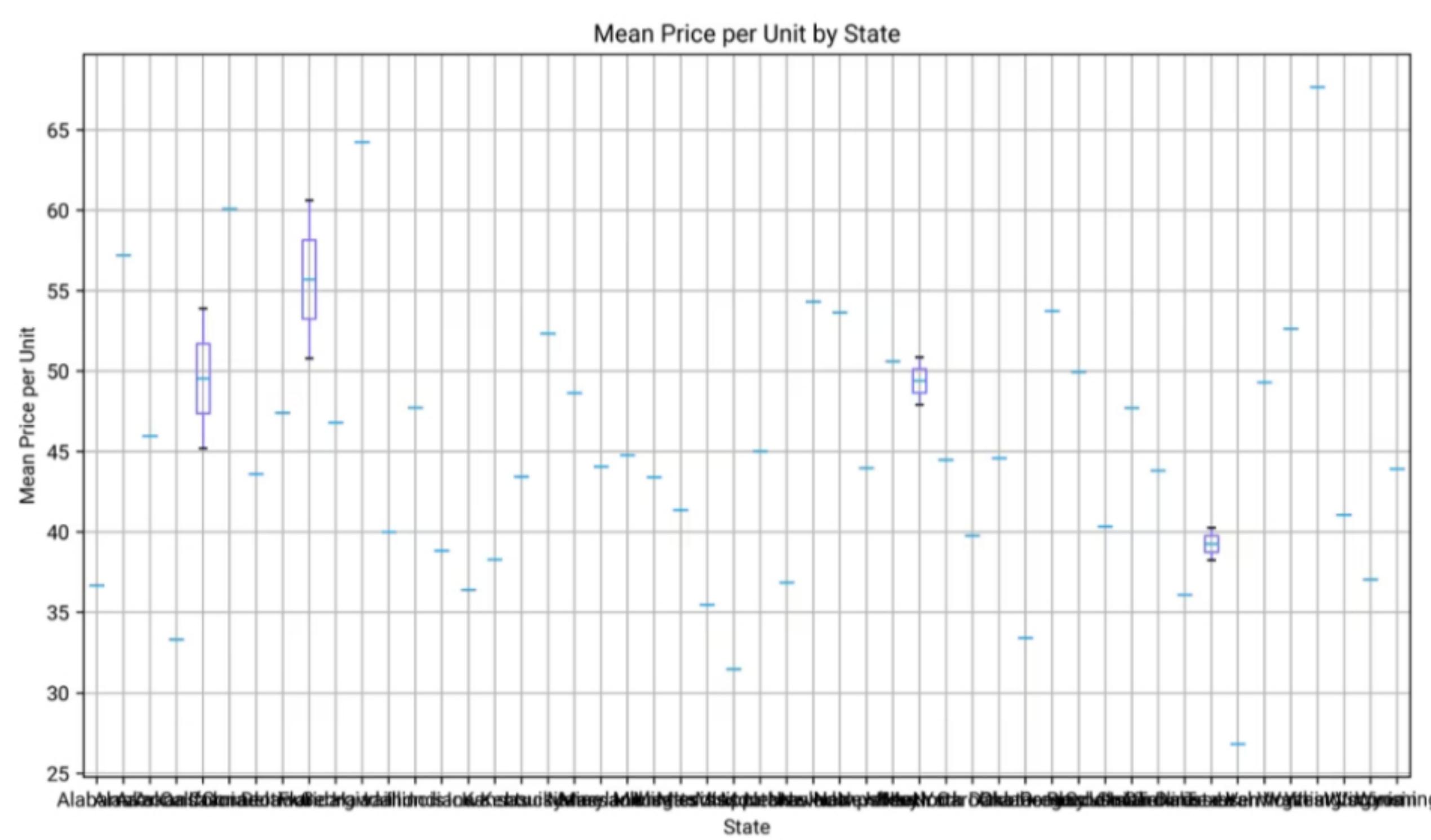
Visual Insights

- Bar Chart Observations:** The visualizations confirm that in-store sales consistently outperform online and outlet sales in terms of both units sold and operating profit, particularly in the Southeast region.

Conclusion and Insights

- Sales Method Effectiveness:** In-store sales are the most effective method in terms of both units sold and operating profit, especially in the Southeast region.
- Online Sales Challenges:** Online sales show lower performance in both metrics, suggesting potential areas for improvement or strategic changes.
- Regional Variations:** The Southeast region stands out for in-store sales, while the Midwest shows strong performance for outlet sales, indicating regional preferences and opportunities.

Q9. Are there any noticeable patterns in the price per unit across different states and cities?



Statistical Overview

- Mean Price per Unit:** The average price per unit across states and cities is approximately 45.30, with a standard deviation of 8.25. Prices range from 26.83 to 67.65.
- Median Price per Unit:** The median price is slightly lower at 44.78, with a standard deviation of 8.72, indicating some variability in pricing.
- Standard Deviation:** The average standard deviation is 11.75, suggesting moderate variability in prices within cities.

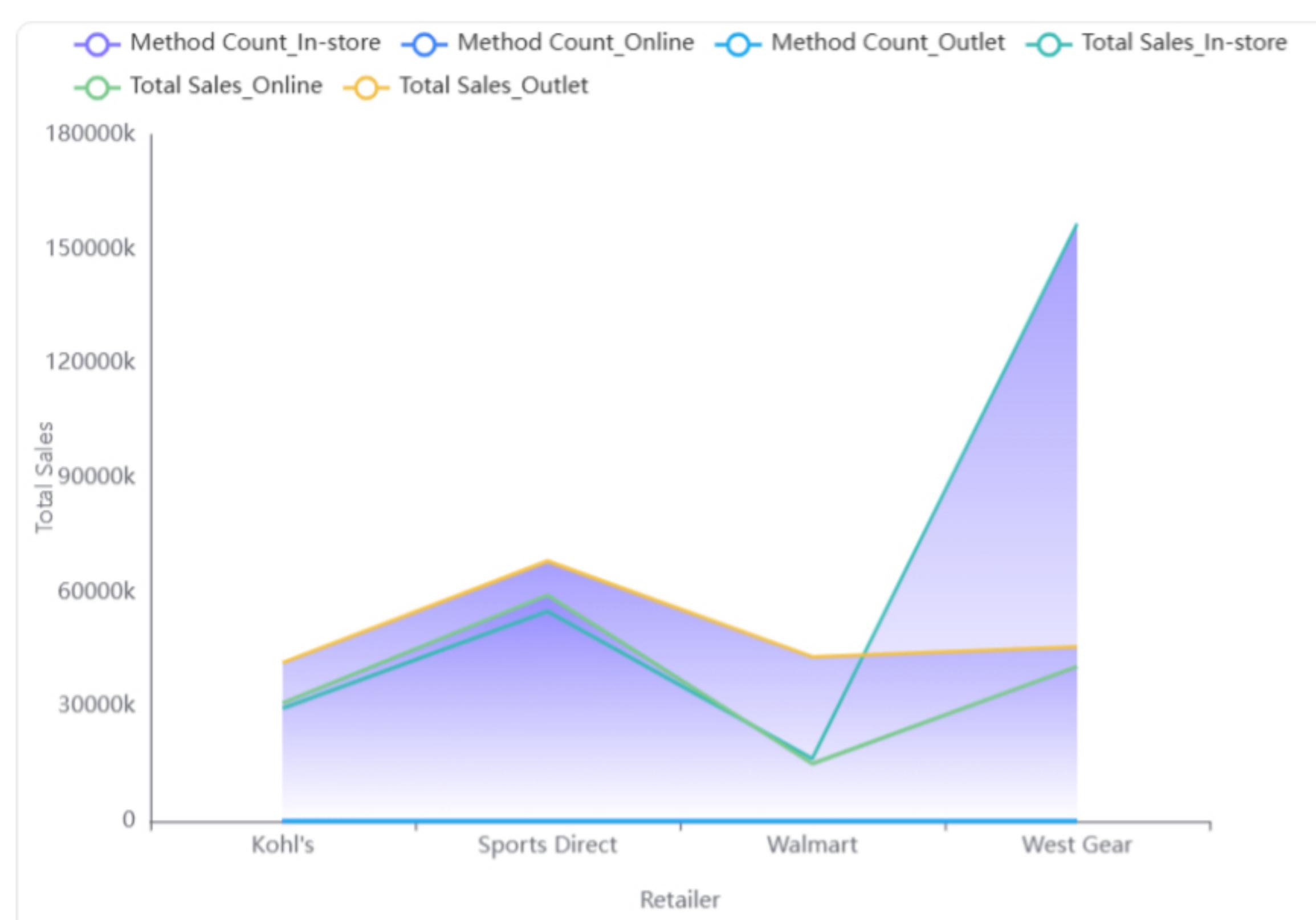
Visual Patterns

- State Variability:** The box plot shows noticeable differences in mean prices across states. Some states, like Alaska and Arkansas, have higher variability, while others show more consistent pricing.
- Price Range:** States like Alaska and Arkansas have higher mean prices, while states like Alabama and Arkansas show lower mean prices.

Conclusion and Insights

- State Influence:** There is a clear pattern where certain states have consistently higher or lower prices per unit, indicating regional pricing strategies or cost differences.
- City-Level Variability:** Within states, cities also show variability, suggesting local market conditions or demand differences impact pricing.

Q10. What is the distribution of sales methods used by each retailer, and how does it impact total sales?



Distribution of Sales Methods by Retailer

- **Amazon:** Utilizes all three sales methods with a higher count in the online method (540), followed by outlet (291) and in-store (118).
- **Foot Locker:** Primarily uses the online method (1395), with significant use of outlet (793) and in-store (449).
- **Kohl's:** Shows a preference for the online method (576), followed by outlet (310) and in-store (144).
- **Sports Direct:** Predominantly uses the online method (995), with outlet (744) and in-store (293) also utilized.
- **Walmart:** Has a balanced distribution among outlet (301), online (288), and in-store (37).
- **West Gear:** Primarily uses the online method (1095), followed by in-store (699) and outlet (580).

Impact on Total Sales

- **Amazon:** Total sales are highest for the online method (\$28,909,731), followed by outlet (\$26,422,931) and in-store (\$22,366,250).
- **Foot Locker:** In-store sales lead with \$76,525,000, followed by online (\$72,943,290) and outlet (\$70,626,430).
- **Kohl's:** Outlet sales are highest (\$41,556,274), followed by online (\$30,992,229) and in-store (\$29,566,250).
- **Sports Direct:** Outlet sales dominate (\$68,196,500), followed by online (\$59,225,997) and in-store (\$55,048,500).
- **Walmart:** Outlet sales are highest (\$43,077,666), followed by online (\$15,069,494) and in-store (\$16,411,250).
- **West Gear:** In-store sales are significantly higher (\$156,726,500), followed by outlet (\$45,705,692) and online (\$40,532,141).

Visualization Insights

- **Visual Trends:** The chart shows that online methods generally have a higher method count across retailers, but total sales vary significantly, with some retailers like West Gear achieving higher sales through in-store methods.

Conclusion and Insights

- **Sales Method Preference:** Online sales methods are the most frequently used across retailers, but the impact on total sales varies.
- **Sales Impact:** Retailers like Foot Locker and West Gear achieve higher total sales through in-store methods, indicating a potential preference or effectiveness of this method for certain products or customer bases.