NAME: FELIX ASIBOR

TECHNICAL REPORT FOR EVERYDAY SUPERMARKET

Introduction

Objective of the Project

The primary objective of this analysis is to assess the sales performance of top sales representatives, best-selling products, and key customers across various regions. By identifying trends and patterns, this study aims to provide actionable insights that can enhance pricing strategies, optimize product offerings, and strengthen customer engagement, ultimately driving revenue growth for the supermarket.

Problem Being Addressed

To maximize revenue and improve overall business performance, Everyday Supermarket needs a data-driven approach to identify key growth opportunities. This analysis focuses on pinpointing the highest-revenue-generating region, recognizing top-performing sales representatives, and determining the best-selling product categories that drive profitability. Additionally, it explores the impact of shipping costs on customer purchasing decisions and evaluates individual customer contributions to overall revenue.

Key Datasets and Methodologies

This analysis is based on a sales dataset containing customer information, including product categories, revenue generated, and shipping costs.

Microsoft Excel was utilized for data analysis, leveraging pivot tables and charts to summarize and visualize key trends. Pivot tables were used to categorize and filter data, allowing for in-depth performance analysis of sales representatives, product categories, and customer purchasing behavior.

Story of Data

Data Source

The dataset used for this analysis is sourced from Kaggle, a well-known platform for open-source datasets, providing structured sales data relevant to supermarket transactions.

Data Collection Process

The data was originally compiled from a supermarket's sales records and uploaded to Kaggle. It includes customer transactions, product details, revenue figures, and shipping costs, offering a comprehensive view of sales performance.

Data Structure

Each row in the dataset represents a single sales transaction, with columns detailing various aspects of the order:

- Order ID – A unique identifier for each transaction.
- Order Date – The date the order was placed.
- Customer ID & Name – Identifies the customer making the purchase.
- Address, City, State, ZIP/Postal Code, Country/Region – Provides the customer's location details.
- Salesperson – Indicates the staff member responsible for the sale.
- Region – Specifies the geographical area where the transaction occurred.
- Shipped Date – The date the order was dispatched.
- Shipper Name – The company responsible for delivery.
- Ship Name, Ship Address, Ship City, Ship State, Ship ZIP/Postal Code, Ship Country/Region – Details the shipping destination.
- Payment Type – Specifies the mode of payment (e.g., credit card, cash).
- Product Name & Category – Identifies the item purchased and its category.
- Unit Price & Quantity – Displays the price per unit and the number of units bought.

- Revenue – Represents the total sales value of the transaction.
- Shipping Fee – Indicates the cost of shipping for the order.

Important Features and Their Significance

1. **Category** – Identifying the best-performing product categories helps optimize inventory management, pricing, and marketing efforts. Understanding which categories drive the most revenue ensures that popular products are prioritized, improving overall sales performance.

2. **Salesperson** – Analyzing sales representatives' performance provides insights into their contribution to revenue generation. Recognizing top performers, identifying underperforming staff, and implementing training or incentive programs can enhance overall sales efficiency.

3. **Region** – Regional sales performance analysis allows the supermarket to tailor its strategies to different locations. Certain regions may have higher demand for specific products, enabling localized marketing campaigns, optimized stock distribution, and region-specific pricing strategies.

4. **Customer** – Evaluating customer purchasing behavior helps in identifying high-value customers, understanding shopping patterns, and personalizing promotions. This allows for targeted marketing strategies that improve customer retention and lifetime value.

5. **Revenue** – As the key financial metric, sales revenue analysis provides insights into overall business performance. Tracking trends in revenue supports strategic

decision-making, helping to refine pricing, product offerings, and sales strategies for increased profitability.

Data Limitations or Biases

While the dataset provides valuable insights into sales performance, it has certain limitations:

- **Single Supermarket Scope** – The analysis is limited to data from only one supermarket, which means findings may not be generalizable to other supermarkets or broader market trends.
- **One-Year Timeframe** – The dataset covers sales data for only one year, restricting the ability to observe long-term trends or seasonal variations beyond this period.

Despite these limitations, the dataset is complete, with no missing values or inconsistencies, ensuring a reliable foundation for analysis.

Data Splitting and Preprocessing

Data Cleaning

The dataset required minimal cleaning since it was well-structured with no missing values, duplicates, or inconsistencies. The only modification made was formatting the column headings to ensure consistency and clarity for analysis.

Handling Missing Values

There were no missing values in the dataset, eliminating the need for any imputation or data correction.

Data Transformations

No data transformations were performed, as the dataset was already structured appropriately for analysis.

Data Splitting

The dataset was divided into independent and dependent variables to facilitate analysis:

Independent Variables: These factors influence sales performance but are not directly measured outcomes. They include:

- Customer Name, Salesperson, Address, City, State, Country
- Region, Shipper Name, Ship Name
- Category, Product Name, Payment Type

Dependent Variables: These represent measurable outcomes influenced by the independent variables:

- Revenue (main performance indicator)
- Shipping Fee (cost factor influencing purchases)
- Unit Price (pricing strategy)
- Quantity (sales volume)
- Zip Code (geographic segmentation)

Industry Context

This dataset belongs to the grocery retail industry, where revenue generation plays a crucial role in business sustainability. Understanding sales trends, customer preferences, and regional performance helps grocery stores optimize their offerings and maximize profitability.

Stakeholders

The primary stakeholders benefiting from this analysis are:

- Owners – To understand revenue-driving factors and make informed business decisions.
- Investors – To assess the supermarket's financial performance and growth potential.

Value to the Industry

This analysis provides actionable insights that can help grocery store businesses improve operations and maximize revenue. Key industry benefits include:

1. **Consistently Increasing Sales & Profitability** – By identifying top-selling products, high-performing sales representatives, and customer preferences, businesses can optimize pricing, promotions, and sales strategies.

2. **Expansion to New Locations** – Understanding regional sales performance helps in identifying high-demand areas for potential store expansion.

3. **Timely Restocking & Product Availability** – Analyzing sales trends ensures efficient inventory management, reducing stockouts and excess inventory.

4. **Competitive Advantage** – Leveraging data-driven insights helps stores differentiate themselves from competitors by offering better product selection, pricing, and customer experience.

Pre- Analysis

Identified Key Trends

1. **Regional Performance Variations** – Some regions outperform others in revenue generation, indicating potential for market expansion or targeted marketing efforts.
2. **Product Category Impact** – Certain product categories contribute significantly to overall sales, highlighting which items drive profitability.
3. **Sales Representative Influence** – Top-performing sales representatives generate a higher portion of revenue, emphasizing the importance of sales training and incentive programs.
4. **Shipping Cost & Customer Purchases** – High shipping fees may impact purchase decisions, affecting overall revenue and customer retention.

Potential Correlations

1. **Revenue vs. Shipping Fee** – Initial observations suggest that higher shipping costs may reduce customer purchases, making it a critical factor in pricing strategy.
2. **Region vs. Revenue** – Some regions consistently generate more sales, indicating a possible link between location-based consumer behavior and purchasing power.
3. **Product Category vs. Sales Performance** – Certain categories perform better than others, which can guide inventory and marketing strategies.

Initial Insights

1. **Optimizing Regional Performance** – Increase advertising budgets and invest in staff retraining in underperforming regions to boost sales and customer engagement.
2. **Enhancing Sales Team Motivation** – Reward top-performing sales representatives with incentives such as bonuses or leadership opportunities to drive performance and encourage team motivation.

3. **Inventory Optimization for High-Demand Products** – Ensure best-selling products are restocked quickly and in larger quantities to meet demand, while reducing or phasing out low-performing items to optimize inventory management.

4. **Shipping Cost Optimization** – High shipping fees may deter customers, so refining delivery logistics and exploring cost-effective shipping solutions can help maintain strong sales and customer satisfaction.

5. **Strengthening Customer Loyalty** – Offer top-performing customers exclusive incentives, such as discounts or personalized loyalty programs, to encourage repeat purchases and long-term customer retention.

In-Analysis

Sales Trend Report

Observation

In 2014, the grocery store's sales fluctuated significantly. January started modestly at $32,908, followed by a sharp drop to $19,956 in February. Sales rebounded from March to May, peaking at $55,602 in June. However, July saw a steep 50% decline before recovering from August to November. December closed the year with a record-breaking $66,643 in sales.

Recommendation

Sales patterns indicate seasonal demand fluctuations. The July dip could be attributed to reduced consumer spending, supply chain challenges, or external factors. To sustain consistent growth, the grocery store should:

- Enhance off-season marketing to mitigate slow months.
- Stock up in advance for peak sales periods to avoid supply shortages.
- Run promotions in July to drive mid-year sales momentum.

Performance Analysis of Salespersons

Observation

Nancy was the top-performing salesperson, generating $104,242 in revenue, while Jan had the lowest performance at $16,351.

Recommendation

- Jan should receive additional training in sales strategies and customer retention rather than immediate retrenchment. A performance improvement plan (PIP) should be implemented before making termination decisions.

- Nancy should be enrolled in leadership training to mentor new hires and help scale high-performance strategies.

Top 10 Customers

Observation

The top 10 customers contributed a total of $374,154 in revenue, with Company D leading at $67,181.

Recommendation

- Introduce loyalty discounts and referral incentives to encourage repeat purchases.
- Assign dedicated account managers to top customers to build stronger relationships and offer personalized support.

Sales By Region

Observation

The Northern region generated the highest revenue at $141,660, while the Western region performed the least with $91,252.

Recommendation

- Increase marketing and store expansion in high-performing regions to maximize growth.
- Analyze challenges in low-performing regions, such as ineffective sales tactics, training gaps, or market preferences.
- Deploy top-performing salespeople to struggling regions for mentorship and team strengthening.

Transaction By Amount

Observation

Most transactions (218) were from purchases between $0 and $1,000, indicating the popularity of lower-priced products. High-value transactions ($4,000+) were significantly fewer.

Recommendation

- Introduce installment payment plans for high-priced products to encourage affordability.
- Run targeted promotions highlighting premium product benefits to increase consumer confidence in high-value purchases.

Sales By Category

Observation

Beverages and sauces were the top-performing product categories, generating $110,577 and $69,000 in revenue, respectively.

Recommendation

- Ensure consistent stock availability for high-demand products to avoid missed sales opportunities.
- Invest in category-specific marketing campaigns to further boost sales and customer engagement.

Top Shipping Cities & Revenue Generators

Observation

New York was the top revenue-generating city, contributing $67,181 based on both shipping data and total sales.

Recommendation

- Establish a sub-headquarters in New York to streamline operations, reduce shipping costs, and attract more customers.
- Leverage the city's high demand by offering location-specific promotions and premium services.

Analysis Techniques Used in Excel

The analysis was conducted using Microsoft Excel, with Pivot Tables as the primary tool for data interpretation. Several key features within Pivot Tables were utilized:

- **Sorting (Highest to Lowest)** – Used to rank sales performance across regions, salespersons, and product categories, allowing for quick identification of top contributors.
- **Top 10 Feature** – Applied specifically to identify the top-performing customers and salespersons, helping to recognize high-value clients and employees driving the most revenue.
- **Grouping Feature** – Used to categorize different transaction amounts and analyze them against the number of transactions, offering insights into customer spending behavior and product pricing strategies.

Post-Analysis and Insights

Key Findings

1. **Sales Performance Varied Across Salespersons and Regions**
   - Nancy Freehafer led with $104,242 (24% of sales), while Jan Kotas was the lowest performer ($16,351).
   - The Northern region contributed 32.56% of total sales, while the Western region was the weakest at 21% ($91,252).

2. **Customer Sales Were Highly Concentrated**
   - The top 10 customers generated $374,154 (86% of total sales revenue), emphasizing the need for customer retention programs.

3. **New York Led in Revenue and Shipments**
   - New York alone generated $67,181 in revenue, and the top ship cities accounted for 66.6% of total sales ($289,740), suggesting an opportunity to establish a sub-HQ to reduce shipping costs and serve more customers.

4. **Beverages Dominated Sales Categories**
   - Beverages accounted for 25% of total sales, followed by sauces and dairy products. Jams & Preserves performed well in the Eastern region, while baked goods & mixes had lower demand.

5. **Transaction Patterns Showed a Preference for Low-Value Purchases**
   - Most transactions were under $1,000, with only a few high-value purchases above $4,000.
   - Anne Larsen led in low-value sales (50 transactions), while Andrew Cencini secured seven large orders above $4,000.

6. **Sales Were Highly Seasonal**
   - December was the highest-performing month, while February, April, and July showed declines. June and October performed well, especially for top salespersons like Nancy and Anne.

Comparison with Initial Findings

1. **Nancy's Dominance Was Expected, but the Revenue Gap Between Salespersons Was Larger Than Anticipated**
   - Initial insights suggested some variation in salesperson performance, but the vast difference between top and bottom performers was striking.
   - Jan's struggles highlight an urgent need for sales training and customer retention skills.

2. **Customer Loyalty Program Is Even More Critical Than Initially Assumed**
   - The expectation was that top customers contributed significantly, but the fact that 86% of total sales came from just 10 customers underscores their importance. A tiered incentive program is essential.

3. **The Western Region's Struggles Align with Initial Assumptions**
   - The Western region's underperformance was anticipated, but the lack of high-value transactions suggests deeper challenges. Localized marketing and premium product upselling strategies should be prioritized.

4. **New York's Market Potential Is Stronger Than Expected**
   - While New York was expected to be a key market, its dominance (66.6% of total sales) makes a sub-HQ investment even more justifiable.

5. **Transaction Trends Reinforce the Need for High-Value Sales Strategies**

- Initial analysis suggested that low-value transactions dominated, but the small number of large purchases above $4,000 emphasizes the need for bulk order incentives and high-ticket item promotions.

6. **Seasonal Trends Were Expected, But the July Drop Was More Severe Than Projected**
   - The declines in February, April, and July align with assumptions, but July's sharp drop suggests potential external factors (customer spending habits, supply chain issues, or competition) that require further investigation.

Data Visualizations & Charts

Sales Trend Report
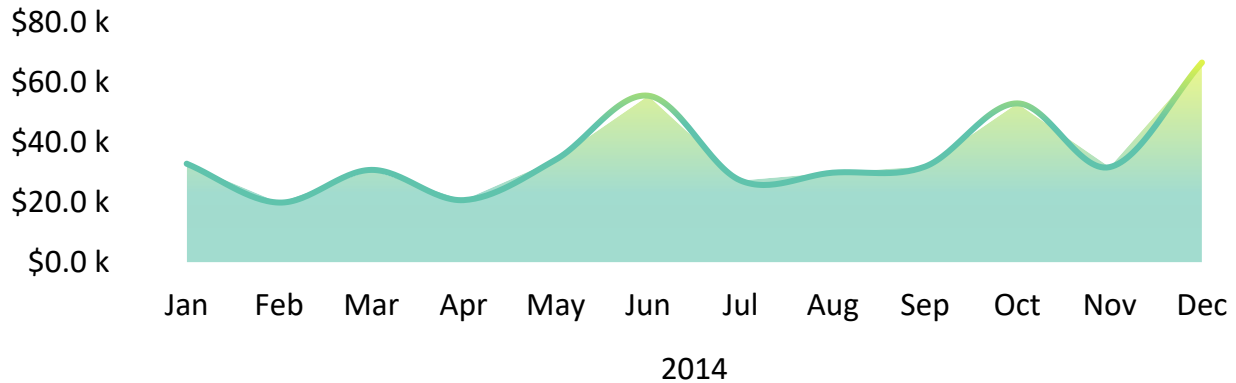
Explanation

In 2014, the grocery store's sales journey was a rollercoaster. January started modestly at $32,908, but February saw a sharp drop to $19,956. Momentum picked up from March to May, peaking at $55,602 in June. Then came July's steep 50% decline, but recovery followed from August to November. December closed the year with a record-breaking $66,643 in sales.
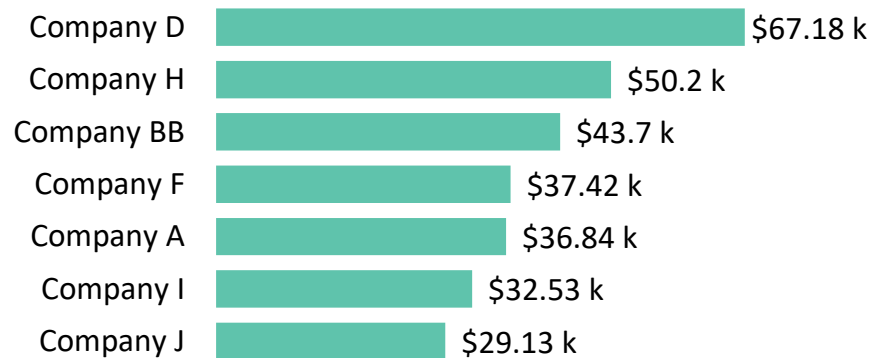
Performance Analysis of Salespersons
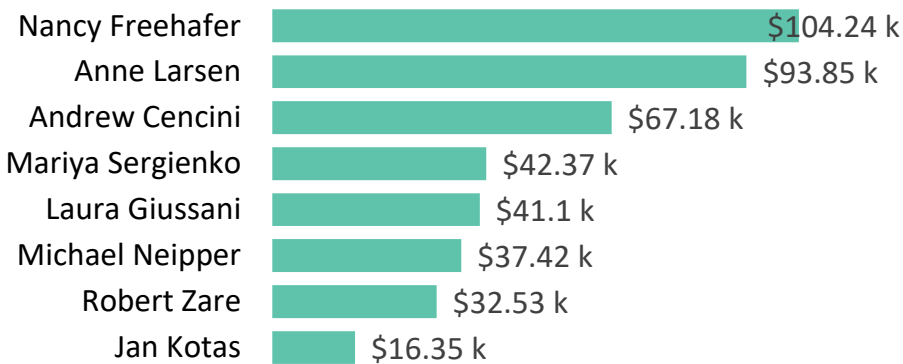
Explanation

Nancy performed best for the year with a grossing revenue of $104,242 and Jan performed least for the year with revenue of $16,351.
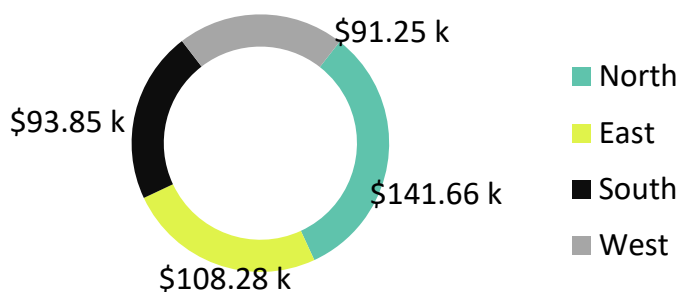
Top 7 Customers

Company	Revenue
Company D	$67.18 k
Company H	$50.2 k
Company BB	$43.7 k
Company F	$37.42 k
Company A	$36.84 k
Company I	$32.53 k
Company J	$29.13 k

Explanation

The top 10 customers brought a grand total revenue of $374,154 to the grocery store with company D generating about $67,181

Sales By Region
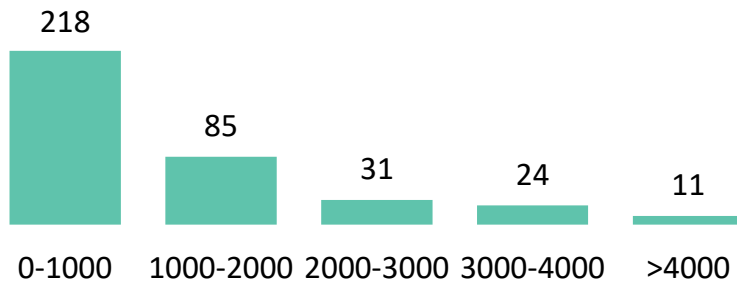
$91.25 k
$93.85 k
$141.66 k
$108.28 k

- North
- East
- South
- West

Explanation

The northern region performed best by generating $141,660, while the western region performed the least, by generating $91,252.
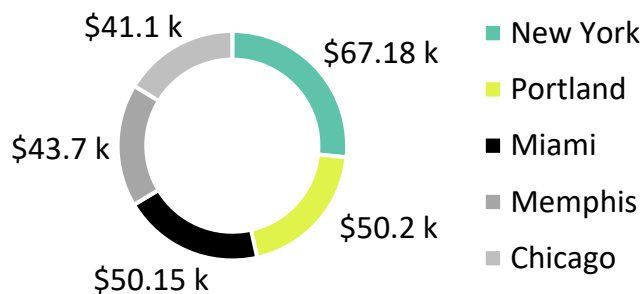
Transaction By Amount

Explanation

Most transactions (218) came from purchases between $0 and $1,000, showing that lower-priced items were the most popular. In contrast, sales above $4,000 had the fewest transactions, suggesting that higher-priced products were bought less frequently.
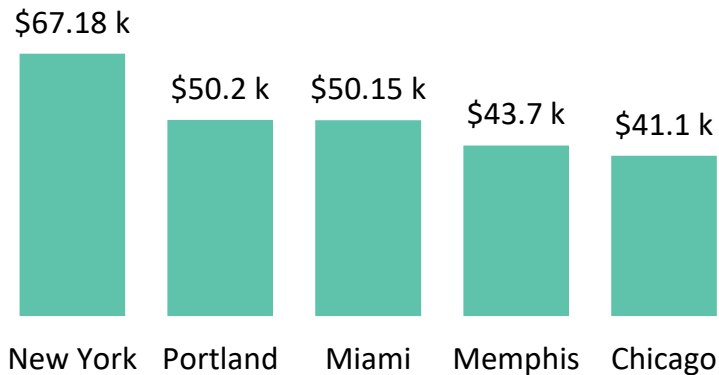
Top Six Ship Cities

- New York
- Portland
- Miami
- Memphis
- Chicago

Explanation

New York tops the list for cities that generated much revenue with $67,181 based on ship city.

Top Five Cities by Revenue

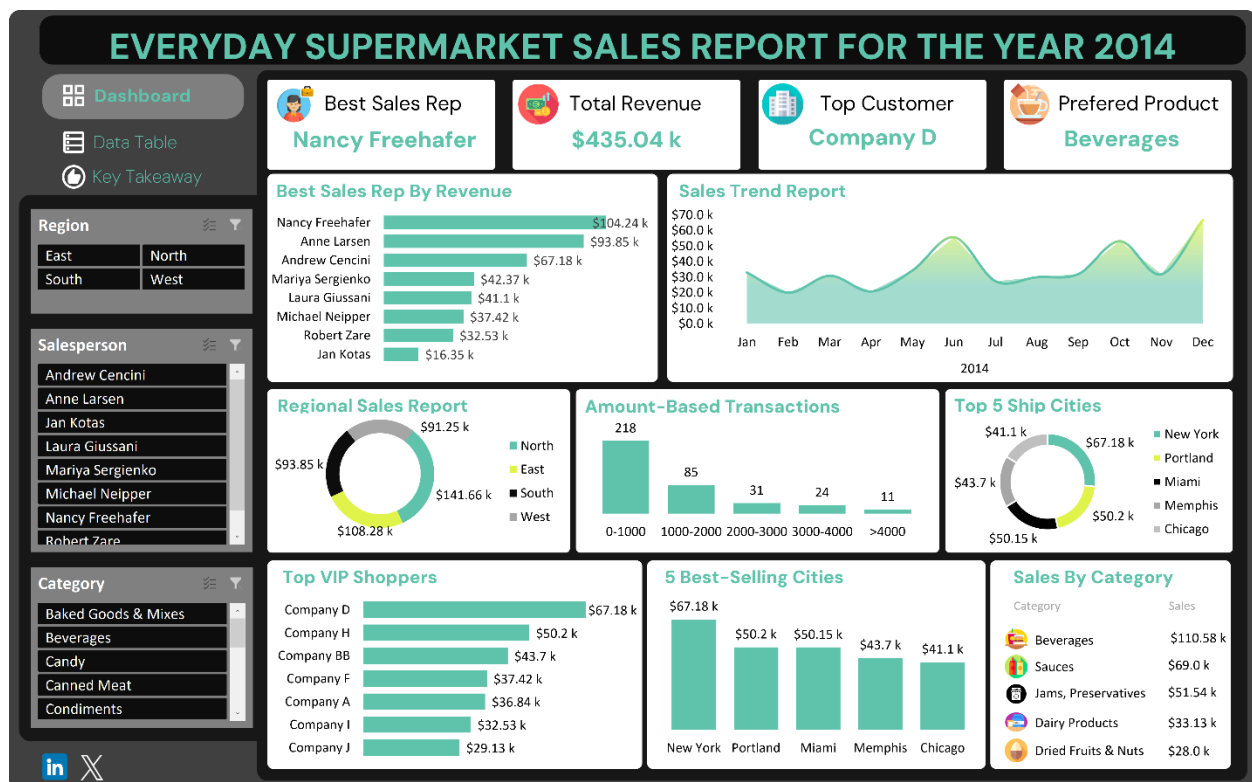|				
$67.18 k	$50.2 k	$50.15 k	$43.7 k	$41.1 k
New York	Portland	Miami	Memphis	Chicago

Explanation

Based on revenue generated by city, New York tops the list with $67,181 total revenue

Dashboard

Recommendations and Observations

Actionable Insights

1. **Strengthen High-Value Sales Strategies**

   - Introduce bulk purchase incentives and loyalty programs for customers who place orders above $4,000 to encourage larger transactions.
   - Provide sales training for underperforming reps on upselling techniques and premium product positioning.

2. **Boost Sales in the Western Region**

   - Launch targeted marketing campaigns focusing on local consumer preferences.
   - Offer exclusive promotions and bulk discounts to attract high-value transactions.

3. **Enhance Customer Retention with Incentives**

   - Implement a tiered loyalty program, rewarding top customers with discounts, exclusive deals, and early access to new products.
   - Introduce a customer referral program to encourage existing clients to bring in new business.

4. **Capitalize on Seasonal Trends**

   - Increase advertising spend and stock levels ahead of December, the highest-performing month.
   - Introduce seasonal promotions (Black Friday, Easter Sales, etc.) to boost revenue in low-sales months (February, April, July).

5. **Expand Market Presence in High-Revenue Cities**

   - Establish a sub-HQ in New York to reduce shipping costs and improve customer service in the most profitable region.

- Consider expanding operations into other top-performing cities to replicate the success seen in New York.

6. **Diversify Product Offerings to Drive Growth**

- Maintain high inventory for Beverages (25% of sales) while expanding Sauces and Jams & Preserves to new markets.
- Introduce a "Taste & Trial" campaign for lower-selling categories like Baked Goods & Mixes to increase customer interest.

Optimizations For Business Decisions

1. **Allocate More Resources to Sales Training & Development**

- Provide specialized coaching for low-performing salespersons (Jan Kotas, Robert Zare, and Michael Neipper) to improve their conversion rates and customer engagement.

2. **Reallocate Marketing Budget Based on Regional Performance**

- Reduce spending in the Western region while focusing more on the Northern and Eastern regions where sales growth is stronger.

3. **Optimize Inventory & Supply Chain for Seasonal Demands**

- Stock up on best-selling products before December and adjust supply chain logistics to prevent shortages during peak periods.

4. **Develop High-Value Customer Engagement Strategies**

- Assign dedicated account managers for top customers to strengthen relationships and increase repeat business.

Unexpected Outcomes & Explanations

1. **The Extent of Regional Disparities Was More Pronounced Than Expected**

- While the Western region was expected to underperform, the fact that it contributed only 21% of sales indicates deeper market challenges.
- Potential reasons: Weaker brand presence, lower customer spending capacity, or ineffective sales strategies in the region.

2. **July's Sharp Drop in Sales Was More Severe Than Anticipated**

This suggests potential external factors such as:

- Seasonal spending habits (post-summer slowdown)
- Inventory shortages or operational issues
- Increased competition during that period

Solution: Further analysis needed to pinpoint the cause and implement countermeasures.

3. **Over-Reliance on a Few Key Customers Poses a Risk**

- With 86% of sales coming from just 10 customers, any loss in one of these accounts could significantly impact revenue.
   Solution: Expand the customer base through new outreach initiatives and marketing campaigns to diversify revenue sources.

Conclusion

Key Learnings

1. **Sales Performance Varies Significantly Across Regions & Salespersons**

- The Northern region led in total sales (32.56%), while the Western region underperformed (21%), indicating opportunities for regional sales strategy improvements.

- Top performers like Nancy Freehafer and Anne Larsen contributed significantly, whereas low performers like Jan Kotas and Robert Zare struggled, emphasizing the need for sales training and incentives.

2. **Customer Concentration Presents a Business Risk**

- 86% of total revenue comes from just 10 customers, making the business highly dependent on a few key clients.

- Diversifying the customer base and expanding outreach efforts are crucial to mitigate potential revenue risks.

3. **Seasonal Trends Significantly Impact Sales**

- December consistently showed the highest sales, while February, April, and July had sharp declines, highlighting the need for seasonal marketing adjustments.

- Promotions and advertising in low-sales months could help stabilize revenue fluctuations.

4. **High-Value Sales Are Less Common, Limiting Growth**

- Most transactions were under $1,000, with only a few sales exceeding $4,000.

- Introducing bulk order incentives, premium product bundles, and targeted upselling could encourage higher-value purchases.

5. Product Performance Highlights Opportunities for Expansion

- Beverages accounted for 25% of total sales, making it a key revenue driver.

- Other categories like Jams & Preserves, Sauces, and Dairy performed well in specific regions, suggesting potential for targeted expansion and diversification.

Limitations

1. Limited Data on External Factors

- The analysis did not account for external market conditions, such as economic trends, competitor strategies, or seasonal demand drivers.

- Future analysis could integrate market data, competitor pricing, and consumer behavior trends for a more comprehensive view.

2. Lack of Customer Segmentation Data

- While key customers were identified, there was no segmentation based on demographics, purchase patterns, or industry type.

- A deeper customer segmentation analysis could help tailor marketing efforts and product recommendations more effectively.

3. Sales Rep Productivity Metrics Not Considered

- The analysis focused on total sales volume but did not evaluate efficiency metrics like the number of deals closed per salesperson, conversion rates, or time spent per sale.

- Future analysis could explore sales efficiency improvements by comparing workload and deal closure rates.

4. Geographic Insights Are Limited to Sales Figures

- While regional sales trends were observed, customer density, population data, and regional economic factors were not considered.

- Incorporating geographic insights (e.g., population growth, economic conditions, and competition) could improve regional sales strategies.

Future Research

1. **Customer Retention & Churn Analysis**
- How many customers are repeat buyers?
- What factors influence long-term customer loyalty?
- Are there specific behaviors that indicate a customer may stop purchasing?

2. **Sales Forecasting Model**
- Develop a predictive model to forecast future sales based on historical trends, seasonal patterns, and external factors.
- This could help with inventory planning, budgeting, and setting sales targets.

3. **Impact of Discounts & Promotions**
- Analyze how previous discounts, promotions, and marketing campaigns influenced sales.
- Determine which promotions yield the highest ROI and how they can be optimized for future campaigns.

4. **Sales Rep Performance Optimization**
- Identify best practices from top-performing salespeople and use them to train underperforming reps.
- Introduce KPIs beyond revenue, such as deal closure rates, lead conversion efficiency, and customer satisfaction scores.

5. **Expansion Strategy for Underperforming Regions**

- Conduct a detailed market analysis to understand why the Western region is underperforming.

- Assess whether new marketing campaigns, sales hires, or pricing strategies could improve regional performance.

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