DEPARTMENT OF DATA ANALYTICS

VEPHLA UNIVERSITY

LESSON DAY 16 TASK NUMBER 16B (I)

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VEPH/20B/DA097

TECHNICAL REPORT FOR ZEMACO GROUP OF COMPANIES PERFORMANCE ANALYSIS FOR THE YEAR 2019

OUTLINE

- ✓ **Introduction**
- ✓ **Story of Data**
- ✓ **Data Splitting and Preprocessing**
- ✓ **Pre-Analysis**
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- ✓ **Post-Analysis and Insights**
- ✓ **Data Visualizations & Charts**
- ✓ **Recommendations and Observations**
- ✓ **Conclusion**
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INTRODUCTION

Objective of the Project: This project is designed to analyze the general performance of the different category of goods sold by the firm located in different cities, the shipping cities used to ship the goods as well as the performance of different customers and sales Persons in different cities in order to identify key areas that needs improvements and subsequently make data driven decisions.

Problem Being Addressed: This project is trying to identify lapses in any of the following: product category, Salespersons, Shipping cities, and Customers which if addressed will lead to improvement in revenue generation.

This project is also trying to identify areas with exceptional performance and explore measures to sustain such performance in subsequent months/years.

Key Datasets and Methodologies: The dataset used is the order details. The methodology employed is the use of pivot tables, line charts, bar charts, column charts and pie charts to analyze the data to identify trends and hidden patterns.

STORY OF DATA

Data Source: The data is from the internal company database.

Data Collection Process: This data was generated through automated scripts.

Data Structure: The data contains 372 rows with each representing a distinct transaction. And 26 columns representing order ID, order date, customer ID, customer name, address, city, state, postal code Country/Region, Salesperson, ship date, shipper name, ship address, ship city, ship state, ship postal code, ship country, payment type, product name, category, unit price, quantity, revenue, and shipping fee.

Important Features and Their Significance:

- ✓ **Product category:** this variable will help us to identify and separate the different products based on their category and ultimately analyze how each category is performing.
- ✓ **Order date:** this variable will help us to identify and categorize a timeline in order to establish a trend.
- ✓ **Customer name, address, state, country and region:** these variables will collectively help us to identify and classify the customers into different locations.
- ✓ **Ship country, ship city, ship state, ship postal code :** these variables will collectively help us to identify and categorize the shipping details into distinct locations.
- ✓ **Product name:** this variable will help us to identify and categorize the different products.
- ✓ **Payment type: this variable will help us to separate the different payment channels.**
- ✓ **Revenue:** this variable will help us to perform all computations and analysis such as total revenue per salesperson, total revenue per region, total revenue per state, total revenue per city, total revenue per payment type, and other analysis requiring revenue.
- ✓ **Salesperson:** this variable will help us to identify and analyze all activities for each salesperson such as total revenue generated by the salesperson.

Data Limitations or Biases

There were some few blank cells within the data.

DATA SPLITTING AND PREPROCESSING

Data Cleaning: The data was cleaned by removing duplicates, identifying and removing blanks, and ensuring that no inconsistencies are observed.

To remove duplicate, simply copy the entire data (ctrl +shift + end) then navigate to the data tab and on the data tools ribbon to select "remove duplicates".

To identify and remove blanks, simply copy the entire data (ctrl +shift + end) on the home tab navigate to the editing ribbon and click "Find and select", then navigate to "Go to Special" and select "Blanks", finally click on OK.

Handling Missing Values: The missing values identified were just empty cells. These empty cells were ignored.

Data Transformations: No data transformations were performed.

Data Splitting: The data was splitted into dependent and independent variables. The dependent variables are Oder ID, Oder Date, Customer ID, Zip/ Postal Code, Shipping Date, Ship Zip/ Postal Code, Unit Price, Quantity, Revenue, and Shipping Fee.

While the independent variables are Customer Name, Address, City, State, Country/Region, Sales Person, Region, Shipper Name, Ship Name, Ship Country/ Region, Ship Address,Ship City,Ship Country/Region, Payment Type, Product Name ,and Category.

Industry Context: The data is from sales industry and it will help us understand the dynamics of analyzing sales which will help sharpen our prescriptive and predictive analytical skills.

Stakeholders: The chief executives.

Value to the Industry: This analysis will help to identify areas in the business that are lagging for the stakeholders to explore measures for improvements and increased revenue generation.

This analysis will also help to identify areas where the business is doing well for the stakeholders to explore measures to sustain such and maintain/ improve revenue.

PRE-ANALYSIS

Key trends: By merely glancing through the data, it appears as though Company D is bringing in more revenue. Secondly, credit card payments appears to be the preferred payment method.

Potential Correlations: there is a two day gap between the order date and the shipping date. Beverages appears to incur a higher shipping fee than other product category.

IN-ANALYSIS

Unconfirmed Insights:

1. Among the salesperson Jan performed least for the year while Nancy was the top performing salesperson for the year. Company D performed super well for the Year and the month with the highest sales is December while February had the lowest sales.
2. The Month with the highest sales is December with a revenue of $66,642.78 while the Month with the least sales is February with a revenue of $$19,955.50.
3. The best Region is the North with a total Revenue of $$141,660.34 while the least performing Region is the West with a total Revenue of $91,251.98.
4. The best product for the year is Beverages, grossing a revenue of $110,577.11
5. 7. New York Tops the Chart on Revenue generated on sales and for the Ship Cities.

6. Transactions between 0-1,000 accounts for the most preferred transactions with about 218 of such transactions while 7-8000 occurred just once.
7. The top ten customers collectively grossed revenue of $374,1544.16.with company D alone contributing $67,180.50 of the gross revenue.

Recommendations:

1. I recommend that Jan be retrenched or sent over for training on sales and customer retention while Nancy be rewarded for outstanding performance. I also recommend that all sales activities performed in December be implemented in February and other months with low sales.
2. I recommend that the activities and measures implemented in December be replicated for Months with low sales turn out.
3. I recommend that the sales persons resident in the Northern Region be transferred to the West and tasked with the responsibility of improving the Western Region.
4. I recommend that the stakeholders ensure that all inventory staff keep an eye on the beverages to ensure that it does not get depleted at any time
5. We can set up a Sub HQ at New York to ensure more customers gets interested in lower shipping fee, attracting more customers and improving revenue.
6. Customers should be encouraged to perform larger transactions as this will improve revenue generation.
7. Considering the total revenue of $435,036.16 of which $374,154.16 is coming from the top ten customers, I therefore recommend that more customers be introduced to help sustain the business on the long run while the current customers are retained. In addition company D as well as other top performing companies should be closely monitored to ensure consistent growth.

Analysis Techniques Used in Excel:

Pivot Tables were used to analyze the data in order to generate meaningful visual insights.

Other features used are

Grouping- this was used to group the dates from days to Months

Filtering- this was used to filter out the top 10 customers as well as the top 5 cities in order to narrow our scope.

Sorting- this was used to arrange data from the highest to the lowest or vice versa.
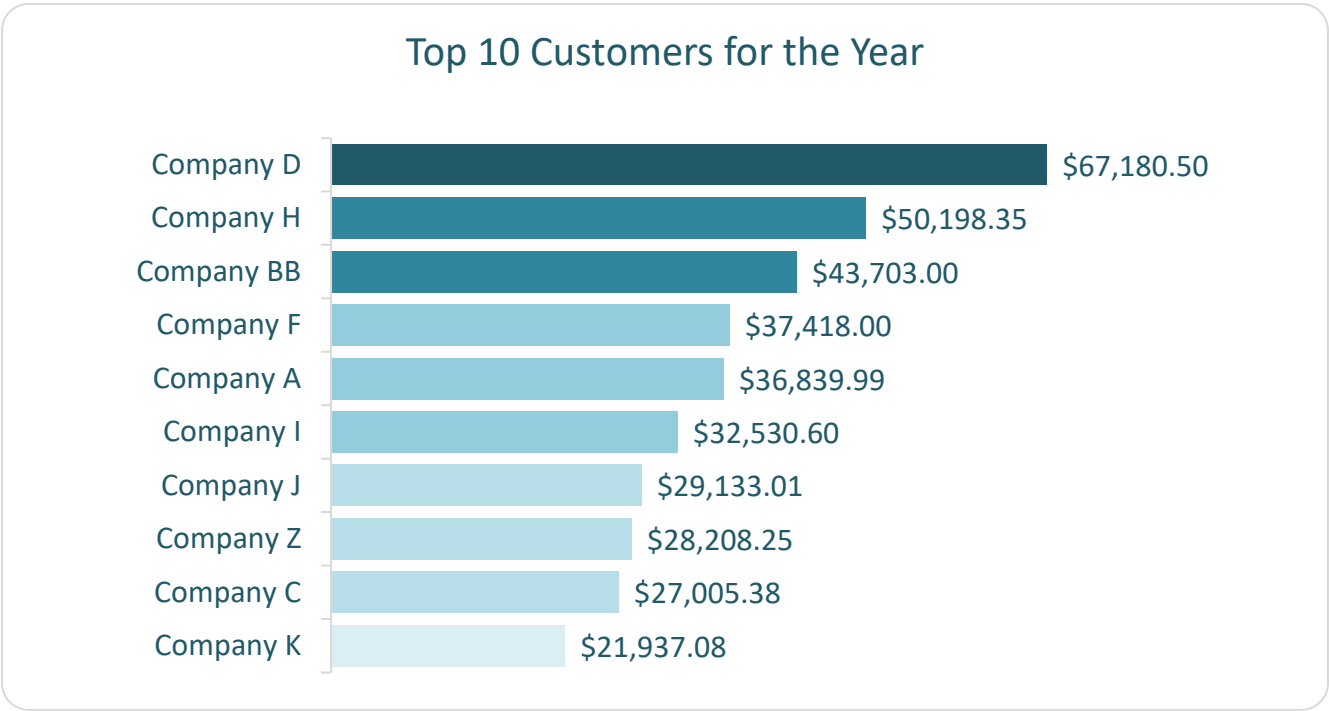
POST-ANALYSIS AND INSIGHTS

Key Findings:

1. Nancy closed as the best salesperson for the year with a revenue of <u>$104,242.34 while Jan was the least performer for the year closing at $16,350.50.</u>
2. During the Year, the month with the highest sales is December at $ 66,642.78 while February had the lowest sales closing at $19,955.5.
3. The North closed as the best Region with a total Revenue of $$141,660.34 while the least performing Region is the West with a total Revenue of $91,251.98.
4. The best product for the year is Beverages, grossing a revenue of <u>$110,577.11</u>
5. New York Tops the Chart on Revenue generated on sales and for the Ship Cities.
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7. The top ten customers collectively grossed revenue of $374,1544.16.with company D alone contributing $67,180.50 of the gross revenue.

Comparison with Initial Findings:

<u>Nancys dominance at the end of the year was a bit suprising considering Andrew was the leading Salesperson in Jan, February and the first quarter with Nancy Trailing behing. The second half of the year appears to be the defining moment for Nancy.</u>
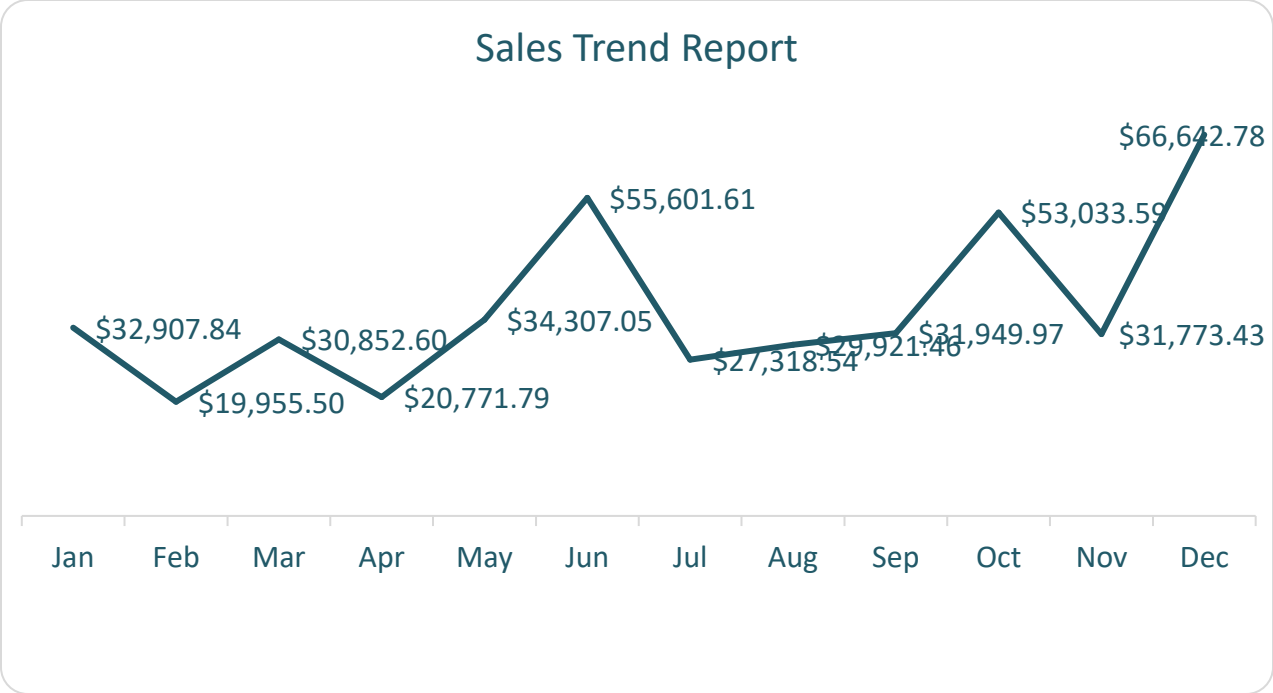
DATA VISUALIZATIONS & CHARTS

TOP TEN CUSTOMERS

Top 10 Customers for the Year

Company	Revenue
Company D	$67,180.50
Company H	$50,198.35
Company BB	$43,703.00
Company F	$37,418.00
Company A	$36,839.99
Company I	$32,530.60
Company J	$29,133.01
Company Z	$28,208.25
Company C	$27,005.38
Company K	$21,937.08

This chart highlights and ranks the top ten customers based on revenue generated for the year. With company D leading the pack at $67,180.50 closely followed by company H at $50,198.35 and lastly at the very bottom of the table is company K closing at $21,937.08 for the year.
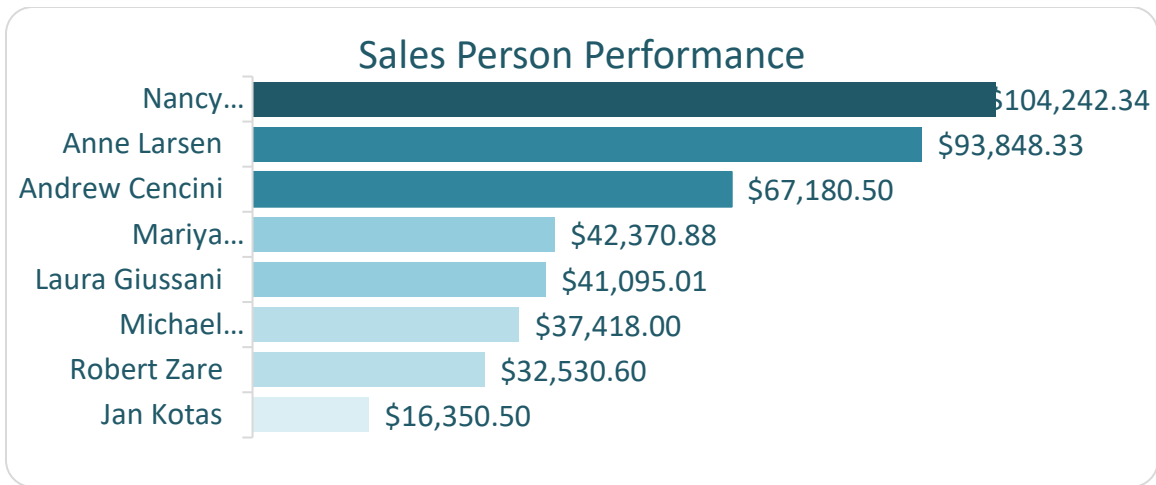
SALES TREND REPORT

Sales Trend Report

$32,907.84
$19,955.50
$30,852.60
$20,771.79
$34,307.05
$55,601.61
$27,318.54
$29,921.46
$31,949.97
$53,033.59
$31,773.43
$66,642.78

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |

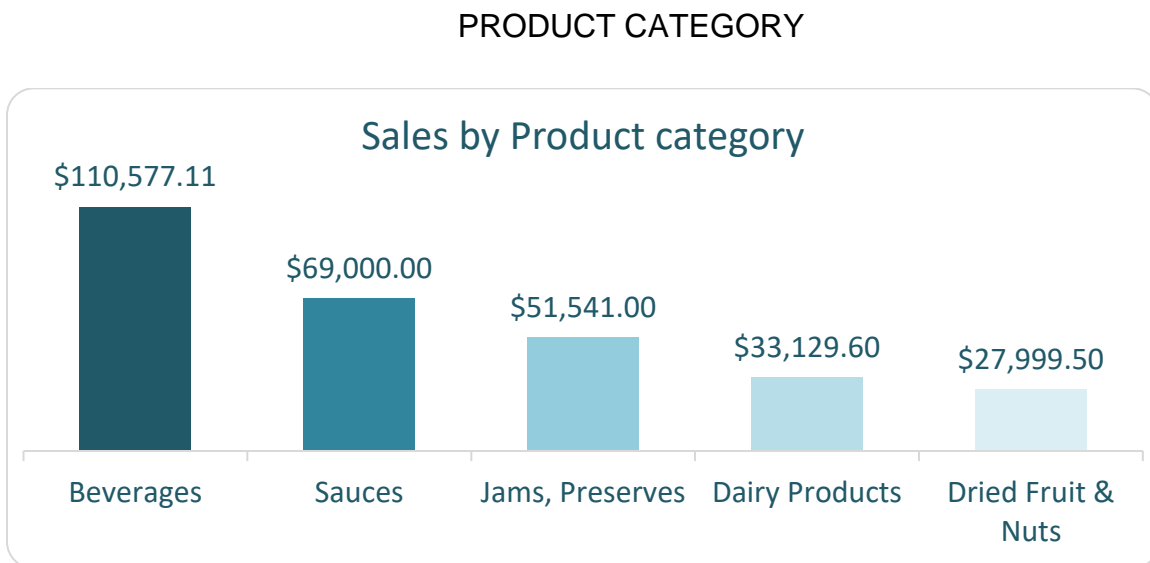Sales commenced in January at $32,907.84 dollars followed by a drop in February closing at $19,955.5. in March sales trended upwards to $30,853.6 followed by a dip in April at $20,771.79. June, October and December are the highest sales month in the year while February was the lowest month for the year.
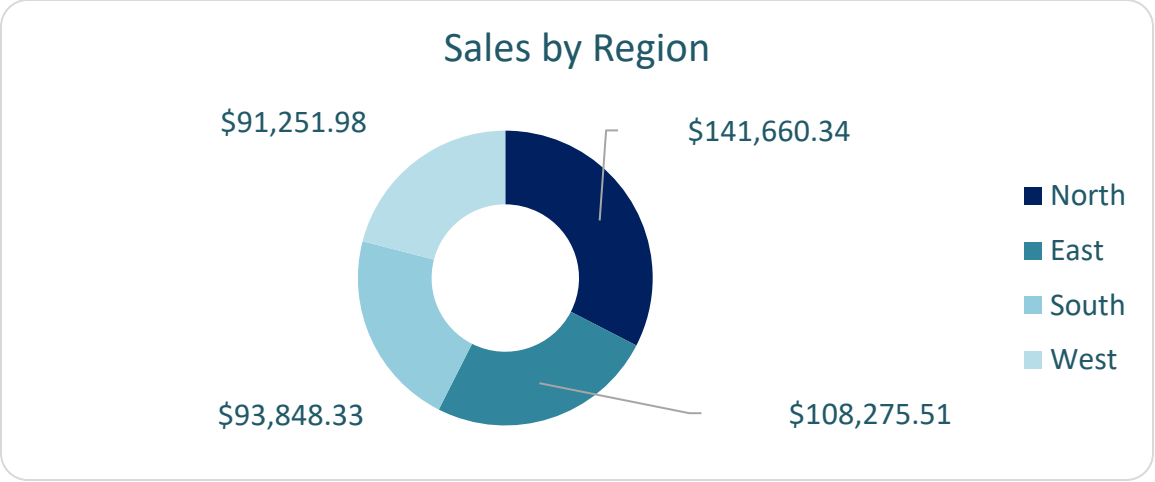
SALESPERSONS PERFORMANCE

Sales Person Performance

Salesperson	Revenue
Nancy...	$104,242.34
Anne Larsen	$93,848.33
Andrew Cencini	$67,180.50
Mariya...	$42,370.88
Laura Giussani	$41,095.01
Michael...	$37,418.00
Robert Zare	$32,530.60
Jan Kotas	$16,350.50

This chart highlights and ranks the individual performance of the salespersons as a measure of the total revenue generated for the year.

PRODUCT CATEGORY

Sales by Product category

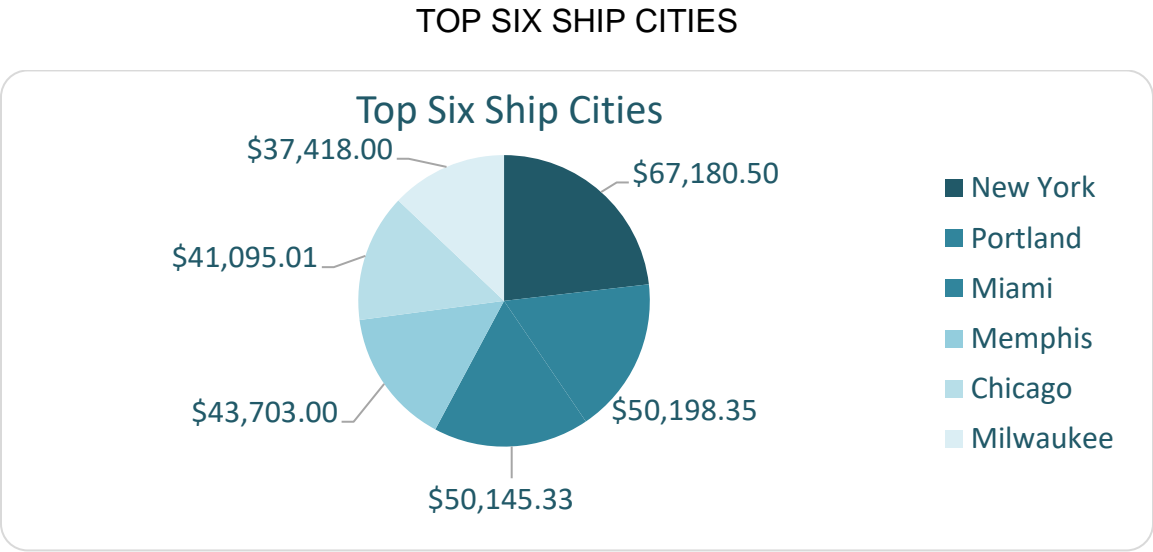| Category	Revenue
Beverages	$110,577.11
Sauces	$69,000.00
Jams, Preserves	$51,541.00
Dairy Products	$33,129.60
Dried Fruit & Nuts	$27,999.50

 This Chart displays the revenue contribution for each product category, with beverages occupying the top spot closing at $110,577.11 closely followed by sauces at $69,000.00 and least on the chart is Dried fruit and nuts with a revenue of $27,999.50.

SALES BY REGION

Sales by Region

$91,251.98 $141,660.34
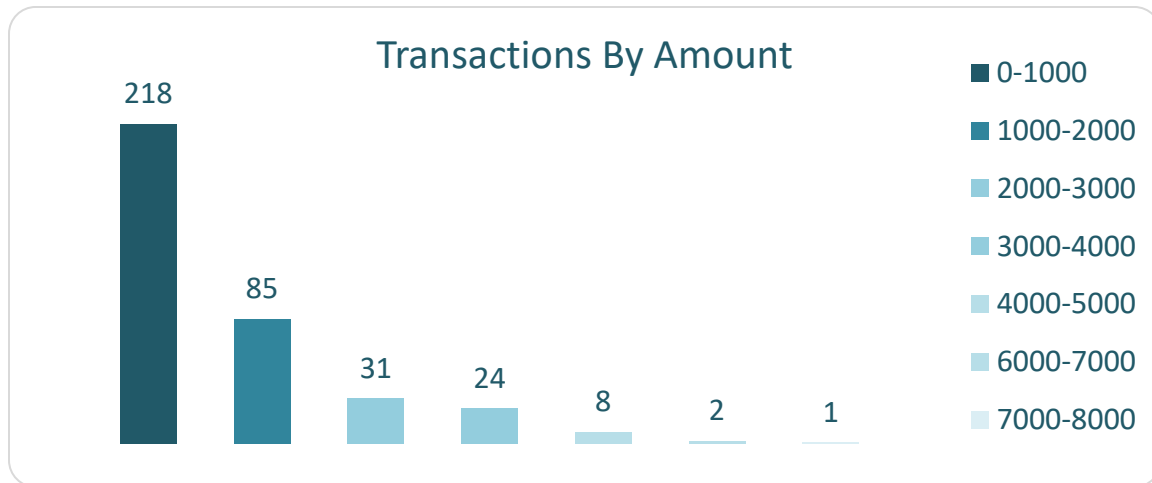
$93,848.33 $108,275.51

- North
- East
- South
- West

This pie chart highlights the regional revenue contribution. The north closed as the highest at $141,660.34 closely followed by the east at $108,275.51. the south and west appear to be lagging behind in revenue closing at $93,848.33 and $91,251.98 respectively.

TOP SIX SHIP CITIES

Top Six Ship Cities

$37,418.00 $67,180.50

$41,095.01

$43,703.00 $50,198.35

$50,145.33

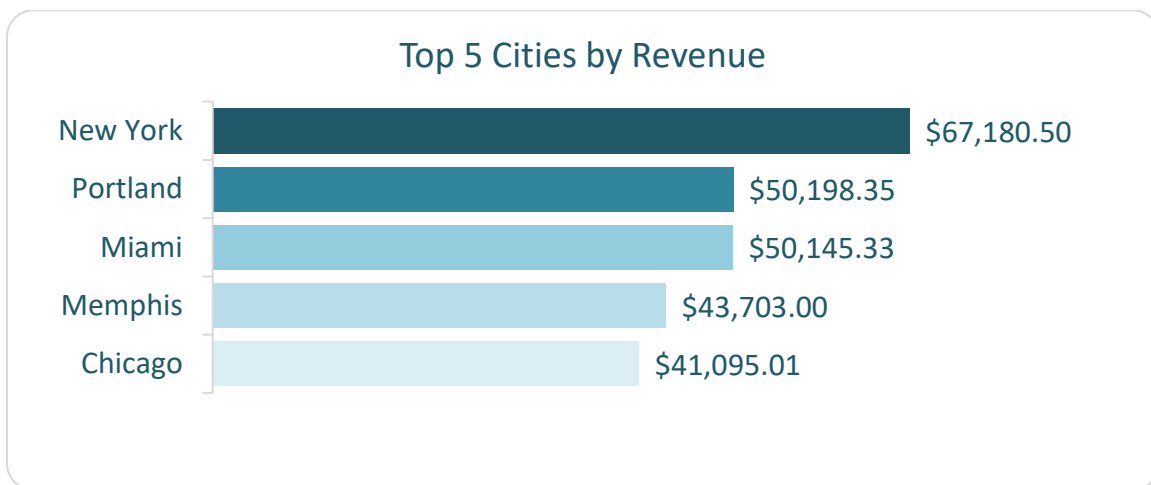- New York
- Portland
- Miami
- Memphis
- Chicago
- Milwaukee

This chart highlights the revenue generated from the top six ship cities. New York is leading the pack at $67,180.50 closely followed by Portland and Memphis closing at $ 50.198.35 and $50,145.33 respectively. The lowest revenue from the top six ship cities is from Milwaukee closing at $37,418.00.

Transactions By Amount

218

85

31

24

8

2

1

- 0-1000
- 1000-2000
- 2000-3000
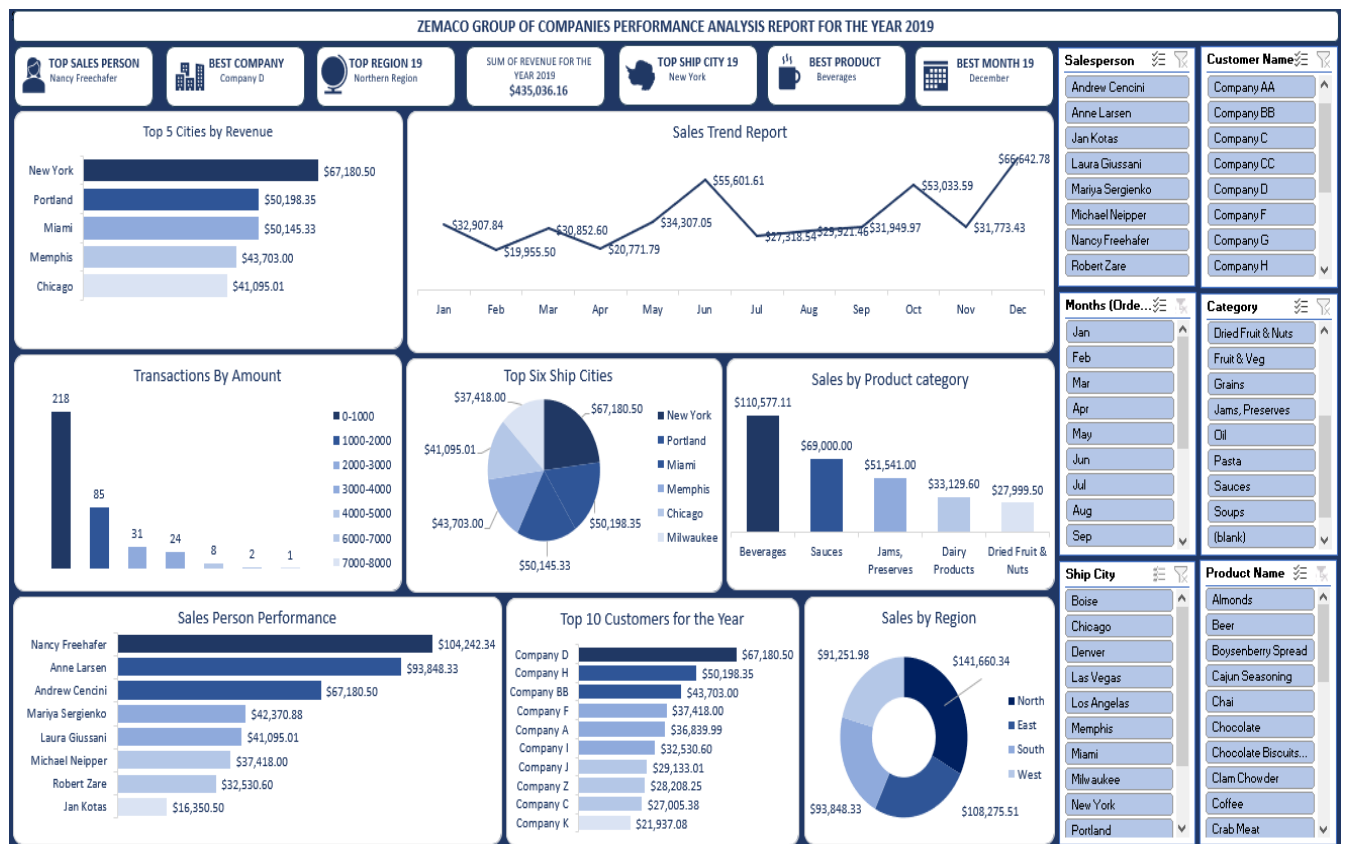- 3000-4000
- 4000-5000
- 6000-7000
- 7000-8000

Thia chart displays the amount of times a transaction for a particular value range was performed by the customers during the year. 218 transactions falls within 0-1000 whilw 85 transactions falls within 1000-2000, 31 transaactions fall within 2000-3000 while 24 transactions fall within 3000—4000 lastly, 8, 2 and 1 transaction falls within 4000-5000, 5000-6000 and 6000- 7000 respectively.

TOP CITIES BY REVENUE

Top 5 Cities by Revenue

City	Revenue
New York	$67,180.50
Portland	$50,198.35
Miami	$50,145.33
Memphis	$43,703.00
Chicago	$41,095.01

This chart displays the revenue generated from the top 5 cities with New York leading the park at $67,180.5 closely followed by Portland and Miami closing at $ 50.198.35 and $50,145.33 lastly Memphis and Chicago came close at $43,703.00 and $41,095.01 respectively.

FINAL DASHBOARD

The final dashboard highlights the combined correlations and relationship between the individual charts with the help of slicers.

RECOMMENDATIONS AND OBSERVATIONS

Actionable Insights

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Optimizations or Business Decisions:

More New customers should be introduced as thus will help generate more revenue in the coming year.

A sales tracking system should be introduced to help salespersons track and monitor their daily, weekly and monthly sales figures, this will help keep the salespersons more focused all year round.

Promotional activities should be conducted during periods with poor sales.

Beverages should be bonded with some other least selling products (e.g in order to buy beverages you must also buy pasta) to ensure these other products are sold.

Periodic trainings should be performed for the salespersons to ensure improvement.

Time delay between order processing and shipping should be minimized to help ensure swift supply.

Unexpected Outcomes:

None.

CONCLUSION

Key Learnings:

8. Nancy closed as the best salesperson for the year with a revenue of <u>$104,242.34 while Jan was the least performer for the year, closing at $16,350.50.</u>

9. During the Year, the month with the highest sales is December at $ 66,642.78 while February had the lowest sales closing at $19,955.5.

10. The North closed as the best Region with a total Revenue of $$141,660.34 while the least performing Region is the West with a total Revenue of $91,251.98.

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13. Transactions between 0-1,000 account for the most preferred transactions with about 218 of such transactions while 7-8000 occurred just once.

14. The top ten customers collectively grossed revenue of $374,1544.16.with company D alone contributing $67,180.50 of the gross revenue.

Limitations:

The data does not put into account external factors such as competitor activities, seasonal trends, and internal factors such as product availability, logistics delays, price increments and understaffing, etc. that may affect revenue during the year.

Future Research

Additional research can be conducted on the shipping cost for each product category in relation to the revenue generated from that product category. This will give an insight into product categorie(s) where the company is spending high on shipping compared to the revenue it is getting from that product category.