



A Small Company Axon, which is a retailer selling Classic cars, is facing issues in managing and analyzing their sales data. The sales Team is struggling to make sense of the data and they do not have a centralized system to manage and analyze data.

To address this issue, the company has decided to implement a Business intelligence(BI) tool that can help them manage and analyze their sales data effectively. They have shortlisted MY SQL and POWER BI.

### **APPROACH**

FIRST STEP : Basic analyzing of data

Used MY SQL provided as data source for Classic models, then cleaned and transform the data make it ready for analysis. Import the data to Power bi to build interactive dashboards that help the sales team and management to make sense of the data.

SECOND STEP: Advanced Analytics

Used MY SQL to perform advanced data analytics on the data and extract insights that can company improve their sales. This may involve running queries, pivot tables and creating views

THIRD STEP: Power bi

Working with Power bi is 3 step process that starts with cleaning of data and removing unwanted columns and handling missing data, followed by data modelling where relationships are defined between the data to be analyzed and finally figuring out the best ways to plot that data such as bar graphs, donut charts for comparison and line charts for sales trends.

### **SUMMARY FOR ADVANCE DATA ANALYTICS**

>The Customers of Classic models company branches are located in 27 countries.

>The USA has the highest number of orders of total 112 , followed by France 37 and Spain 36

>List of employees, city, state, country and address where they work for company branch

>List of orders shipped from 2003-2005 total(303)

>Most sales by product line is by Classic cars in top in list

>Total sales recorded from 2003-2005 were \$9.8M

>Total profit made \$3.83M

### **INSIGHTS FROM POWER BI DASHBOARD**

>Classic cars and Vintage cars are most sales by product line

>The USA has the highest revenue and sales in these years 2003, 2004 and 2005 as followed Spain, France and Australia.

>The most top customers was Mini Gift Distributors Ltd and Euro+ shopping channel.

>The sales trend during the period of 2003-2005, the November month is the peak month because November is the Thanks giving month so sales gone up.

>The total profit made by product line was highest Classic cars by 38.89% among vintage cars, planes, motorcycles, ships, trucks and trains. Next is the vintage cars.

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## **Dashboard-1**

### **"SALES ANALYSIS OF AXON CLASSIC CARS"**

**" 2003 - 2005."**

It is divided into several sections, each providing different data visualizations and statistics related to the sales of classic cars in that period. It includes drop-down menus for "YEAR WISE" and "COUNTRY WISE" selections at the top.

Main sections of the dashboard include:

#### **1. SALES:**

- Top Most Sales: Highest sales recorded by classic cars are 3.8M.
- Least Sales: Least sales recorded by trains – 189K and the least sales are in January 2003 – 405K.
- A bar graph below titled "amount v/s country" shows sales by country with the USA leading at 3.0M.

## **2. Revenue and Orders Data:**

- Total revenue: \$271.9K.
- Total order quantity: 2996.
- Total profit: \$266K.
- Total product quantity: 555K.
- Total orders: 326.

Sql operations:

```
#total revenue-9604190.61
select sum(priceEach * quantityOrdered) as revenue from orderdetails;
#total order quantity-2996
select count(quantityOrdered) from orderdetails;
#total profit-3825880.25
SELECT
    SUM(priceEach * quantityOrdered) - SUM(buyPrice * quantityOrdered) AS difference
FROM orderDetails
JOIN products USING (productCode);
#total product quantity-555k
select sum(quantityInStock) from products;
#total orders
select count(distinct orderNumber) as total_orders from orderdetails;
```

## **3. Sum of Sales by Year and Quarter:**

- A line chart shows peaks in quarter-4 2003 (1.78M), quarter-4 2004 (1.91M) with a decline to 984K in January 2005.

Sql operations :

```
#sum of sales by year and quarter
SELECT
    SUM(priceEach * quantityOrdered) AS sales,
    YEAR(orderDate) AS orderYear,
    QUARTER(orderDate) AS orderQuarter
FROM
    orderdetails
JOIN
    orders USING(orderNumber)
GROUP BY
    orderYear, orderQuarter order by sales desc ;
```

#### 4. Sales V/S Product Line:

- A horizontal bar chart compares different product lines, with classic cars having the highest value at 3.8M.

SQL OPERATIONS:

```
#sales v/s productline
SELECT
    SUM(priceEach * quantityOrdered) AS price,
    productLine
FROM
    orderdetails
JOIN
    products USING(productCode)
GROUP BY
    productLine;
```

#### 5. Orders:

- Cities with most orders: Paris, San Francisco, and London.
- Cities with least orders: NYC,BOSTON,TOKYO.

SQL OPERATIONS:

```
#orderQuantity v/s city |
SELECT
    COUNT(quantityOrdered) AS orderQuantity,
    offices.city
FROM
    orderdetails
JOIN
    orders ON orders.orderNumber = orderdetails.orderNumber
JOIN
    customers ON orders.customerNumber = customers.customerNumber
JOIN
    employees ON employees.employeeNumber = customers.salesRepEmployeeNumber
JOIN
    offices ON offices.officeCode = employees.officeCode
GROUP BY
    offices.city
```

## **6. Profit V/S Target Sales:**

- A gauge shows the actual profit of \$3.8M against a target of \$7.65M.

## **7. Profit by Product Line:**

- A donut chart shows the percentage contribution of each product line to the profit, with classic cars contributing the highest at 38.09%.

Sql operations:

```
#profit v/s productline
SELECT
  productLine,
  (SELECT
    SUM(priceEach * quantityOrdered) - SUM(buyPrice * quantityOrdered) )AS profit
FROM
  orderDetails
JOIN
  products USING (productCode)
GROUP BY
  productLine;
```

The dashboard is a comprehensive overview of the company's sales performance over a given period, with the ability to filter by year and country for more granular analysis.

## **Trends in sales data:**

### **1. Trends in Sales Data (2003 to 2005):**

- The "Sum of Sales by Year and Quarter" line chart indicates that sales fluctuated over the specified period. There are noticeable peaks in quarter-4 2003 (1.78M), quarter-4 2004 (1.91M). However, there is a downward trend after quarter-4 2004, with sales dropping to 984K in January 2005 and further down to 786K in quarter-2 2005. This suggests that while there was a period of growth in sales,

particularly in end-2003 and end-2004, there was a decline in the following months, indicating a potential challenge in the market or operational aspects of the company that may need addressing.

## **2. Top Performing Countries and Cities (Orders and Sales):**

- The "amount v/s country" bar graph shows the USA leading with 3.0M in sales, followed by France and Spain at 1.0M. Australia, New Zealand, and the UK are lower but still significant contributors with sales around 0.4M to 0.5M.

- For the cities, the "top 5 order quantity v/s city" bar chart indicates that Paris is the city with the most orders at 959. It is followed by San Francisco (445), London (456), Sydney (370), and New York City (353). This highlights Paris as the top-performing city in terms of order volume.

## **3. Actual Profit vs. Target Sales:**

- According to the "profit v/s target sales" gauge, the actual profit achieved was \$3.83M, which is roughly half of the target of \$7.65M. This indicates that the company's performance did not meet expectations in terms of profitability. Achieving only 50% of the targeted profit could be a sign of various issues such as higher costs, lower-than-expected sales volume, or pricing strategies that did not align with market expectations. It suggests that the company may need to review its business strategy, cost structures, and market positioning to understand the reasons behind not meeting the profit targets and to take corrective actions.

**●These insights can be valuable for the company's management to identify areas of strength, such as the high performance in Paris, and areas where improvement is needed, such as the declining sales trend and the shortfall in meeting profit targets.**

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## **Dashboard-2**

It is divided into many section to explain every aspect of data for easy evaluation .Here are the Key components visible in the dashboard:

### **1. Key Financial and Operational Metrics:**

- Credit Limit: \$8.25M.
- Total Employees: 23.
- Branches: 7.
- Total Customers: 122.

- Product Vendors: 13.

Sql operations:

```
# total credit limit
select sum(creditLimit) from customers;
#total employees
select count(distinct employeeNumber) from employees;
#total branches
select count(distinct officeCode) from offices;
#total customers
select count(distinct customerNumber) from customers;
#total product vendors
select count(distinct productVendor) from products;
```

## **2. Customer Distribution and Order Analysis:**

- Customer count by country: The USA leads with 36 customers, followed by Germany with 13, and France with 12. Other countries listed include Spain, Australia, the UK, Italy, New Zealand, and Canada.

- Orders V/S Branches: A line graph with a y-axis marking 'total orders' shows fluctuations in orders across 7 branches, with branch 4 having the most orders at 959.

Sql operations:

```
#customer count v/s country
SELECT count(customerNumber) cust_count, country from customers group by country order by cust_count desc;
# orders v/s branches
SELECT
    COUNT(orderdetails.quantityOrdered) AS order_count,
    employees.officeCode FROM orderdetails
JOIN orders USING (orderNumber)
JOIN customers USING (customerNumber)
JOIN employees ON customers.salesRepEmployeeNumber = employees.employeeNumber
JOIN offices USING (officeCode)
GROUP BY employees.officeCode;
```

## **3. Customer and Employee Highlights:**

- Top 5 Credit Limit Customers: A bar graph lists customers with the highest credit limits, with the 'Euro+ Shopping channel' having the highest at \$228k.

- Orders V/S employeeName: A horizontal bar chart depicts the number of orders handled by employees, with the top employee as leslie managing 445 orders.

- Side panel mentions: The country with most customers is the USA, and with the least is South Africa. It also highlights that the highest orders were made by an employee named leslie, and the least by martin.

Sql operations:

```
#Top 5 credit limit v/s customers
select customerName, sum(creditLimit) credlim from customers
group by customerNumber order by credlim desc limit 5;
```

```
#orders v/s employee name
SELECT
COUNT(orderdetails.quantityOrdered) AS order_count,
employees.firstName FROM orderdetails
JOIN orders USING (orderNumber)
JOIN customers USING (customerNumber)
JOIN employees ON customers.salesRepEmployeeNumber = employees.employeeNumber
GROUP BY employees.firstName;
```

#### **4. Profitability and Location Analysis:**

- Profit by ProductVendor: A vertical bar chart shows profits by product vendor, with 'Animat Galleries' and 'Classic Metal Creations' having the highest profit at 0.39M.
- Offices V/S Location: A global map marks the geographic distribution of branches, with multiple branches in North America and Europe, and single branches in Tokyo and Sydney.

Sql operations:

```
#profit v/s product vendor
SELECT
productVendor,
(SUM(priceEach * quantityOrdered) - SUM(buyPrice * quantityOrdered)) AS profit FROM orderDetails
JOIN products USING (productCode)
GROUP BY productVendor;
# office v/s location
select officeCode,city from offices;
```

#### **5. Additional Financial Rankings:**

- Credit Score Top-5: Lists the top 5 entities, including 'Euro+ Shopping Channel' and 'Mini Gifts Distributors'.

The dashboard is designed to provide a quick and detailed overview of the company's sales-related metrics, customer demographics, employee performance, profit distribution, and global footprint. It likely serves as a tool for managers to assess performance, identify strengths and weaknesses, and make informed decisions about future strategies.

### **Some problems in sales and ways to overcome them:**

#### **1.How to improve the sales performance of branches with lower order volumes?**

- Identify factors contributing to low order volumes in specific branches.
- Analyze successful strategies implemented in branches with higher order volumes.
- Consider targeted marketing or promotions in regions with lower order volumes.
- Assess whether local market conditions or competition are influencing branch performance.
- Strategies to expand the customer base in countries with fewer customers.



## **2.Explore market-specific factors impacting customer acquisition in low-count countries?**

- Investigate cultural or regional preferences that may affect product demand.
- Consider localized marketing campaigns or partnerships to increase brand awareness.
- Evaluate the feasibility of offering region-specific products or services.
- Employee performance assessments and incentive planning based on order handling efficiency.

## **3.Identify top-performing employees based on order handling efficiency?**

- Assess training needs for employees with lower order handling numbers.
- Implement performance-based incentives or recognition programs.
- Consider workload distribution and ensure fair assessment metrics.
- Financial risk assessment considering the credit limits provided to top customers.

## **4.Monitor the credit utilization of top customers with high credit limits?**

- Implement a proactive credit risk management strategy.
- Consider periodic credit limit reviews based on customer financial health.
- Diversify credit risk by encouraging business with a broader customer base.
- Market expansion or consolidation strategies informed by profit by product vendor data and geographic distribution of offices.

## **5.Assess the profitability and popularity of products from different vendors?**

- Consider focusing on products from vendors contributing significantly to profits.
- Evaluate the feasibility of opening new branches in high-profit regions.
- Explore opportunities for consolidation or resource reallocation in less profitable regions.

## Dashboard-3

### 1. Insights Section:

- Highlights the high and low ordered products, with the 1992 Ferrari 360 Spider Red having the highest orders and the 1936 Mercedes Benz 500k Roadster having the lowest.
- States that Sales Representatives are the highest number of employees in the company, totaling 22.
- Notes that Leslie from the USA generated the highest revenue for the company.
- Lists the top and least revenue-generating products, with the 1992 Ferrari 360 Spider Red generating the most revenue and the 1939 Chevrolet Deluxe Coupe the least.

### 2. Key Metrics:

- 110 products are listed as part of the inventory.
- The total payment collected amounts to \$8.85M.
- The order quantity stands at 106K.
- There have been 273 payment transactions.

Sql operations:

```
#total distinct products -110
select count( distinct productCode) from products;
#total payment 8.8M
select sum(amount) from payments;
#order quantity- 105K
select sum(quantityOrdered) from orderdetails;
#payments count
select count(distinct checkNumber) payments from payments;
```

### 3. Product Performance:

- The "Top 3 High ordered products" section lists the 1992 Ferrari 360 Spider Red as the most ordered product, followed by the 1937 Lincoln Speedster and the American Airlines MD-11.
- Conversely, the "Bottom 3 Low ordered products" section shows the 1936 Mercedes Benz 500k Roadster, the 1957 Ford Thunderbird, and the 1970 Chevy Chevelle SS as the least ordered products

Sql operations:

```
#Top 3 High Ordered products
select productName,count(quantityOrdered) quantity from products join orderdetails using (productCode)
group by productName order by quantity desc limit 3;
#bottom 3 low ordered products
select productName,count(quantityOrdered) quantity from products join orderdetails using (productCode)
group by productName order by quantity asc limit 3;
```

### 4. Employee and Department Data:

- An "Employees v/s departments" pie chart shows a majority of employees are Sales Representatives, comprising 73.91% of the workforce.
- The "Employees v/s country by sales" pie chart indicates the USA as the leading country in terms of sales generated by employees, with a significant portion being 40.19%.

sql operations:

#employees v/s department

```
select count(employeeNumber),jobTitle from employees group by jobTitle;
```

### 5. Sales Rankings:

- The "Top 5 products sales" bar graph displays sales figures, with the 1992 Ferrari 360 Spider Red generating the highest sales of \$276.84K.
- The "Bottom 5 products sales" bar graph lists products like the 1939 Chevrolet Deluxe Coupe as having the lowest sales figures.

Sql operations:

#top 5 product name by revenue

SELECT

productName,sum(priceEach \* quantityOrdered) as revenue from orderdetails

JOIN products USING (productCode)

GROUP BY productName order by revenue desc limit 5;

#bottom 5 product name by revenue

SELECT

productName,sum(priceEach \* quantityOrdered) as revenue from orderdetails

JOIN products USING (productCode)

GROUP BY productName order by revenue limit 5;

This dashboard serves as a strategic tool for the company to analyze various aspects of their business, such as identifying the most and least popular products, understanding the distribution of their workforce, and recognizing top-performing employees and regions. It can help in making informed decisions regarding inventory management, marketing strategies, employee training, and regional sales focus.

**THANK YOU**