

AXON



Axon Classic Cars

SQL Case Study

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Introduction

Axon Classic Cars is the haven for classic car enthusiasts. Specializing in the discovery, restoration, and sale of iconic vehicles from automotive history, They deliver top-notch quality, authenticity, and ensuring the utmost customer satisfaction. Axon has invited us to assist in analyzing their data to chart a path for future growth. Get ready to travel back in time with Axon Classic Cars.



Problem statement

- ❑ Axon Classic Cars, a small Retailer that focuses on classic cars, is having a hard time keeping track of and understanding their sales data.
- ❑ The sales team is hindered by the absence of a centralized system, making it difficult to understand the data effectively.
- ❑ Management faces difficulties in obtaining accurate, up-to-date sales reports, affecting decision-making
- ❑ To resolve these issues, Axon intends to implement a Business Intelligence(BI)solution, considering PowerBI and SQL, to enhance sales data management and analysis.

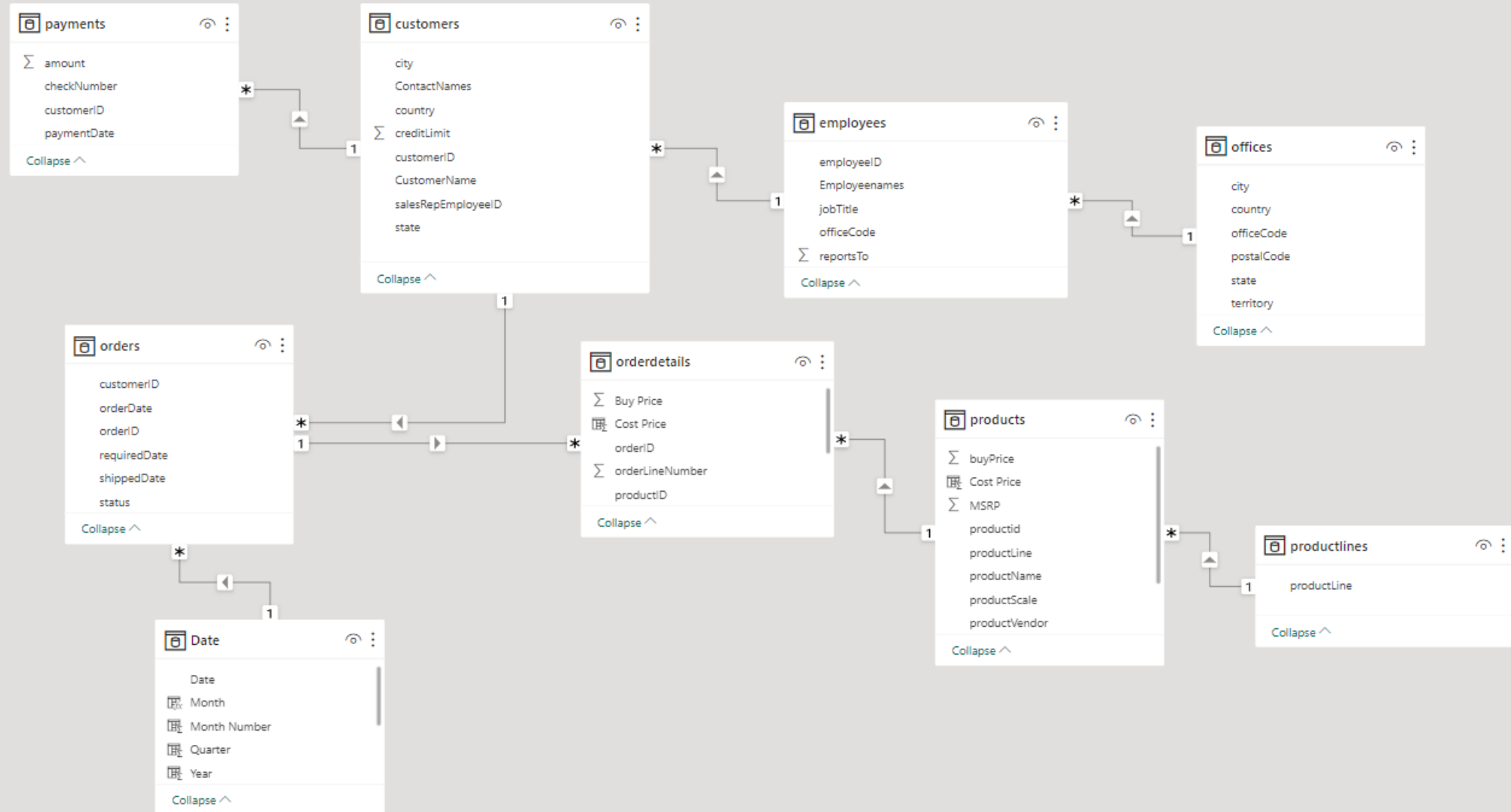


Dataset

The dataset for this project is provided through a MySQL database, which comprises several key tables

1. Customers: Contains customer data, which is crucial for understanding the client base and preferences.
2. Products: Lists scale model cars available for sale.
3. ProductLines: Categorizes products into various product line categories, aiding in sales analysis.
4. Orders: Records sales orders placed by customers, offering insights into purchase trends.
5. OrderDetails: Contains detailed information about sales order line items, which is essential for a granular analysis of sales data.
6. Payments: Stores payment data, enabling tracking of customer transactions.
7. Employees: Contains information about all employees and the organization's structure, including reporting relationships.
8. Offices: Provides data on sales office locations, which may impact sales performance.

Entity Relationship Diagram



Find the Country with the Highest number of customers

```
SELECT
    country,
    count(*) AS Customer_Count
FROM
    customers
GROUP BY Country
ORDER BY Customer_count DESC
LIMIT 6;
```

Suggestion -

Should Focus More on strengthening the market in the USA, consider expansion in Germany and France, and implement targeted marketing in smaller markets like Spain,UK and the Australia

Country	Customer_Count
USA	36
Germany	13
France	12
Spain	7
Australia	5
UK	5

Find the Top 5 Countries where the Sales are High

```
SELECT
    country,
    sum(quantityordered * priceeach) AS Total_sales
FROM
    orderdetails od
    JOIN orders o ON od.ordernumber=o.ordernumber
    JOIN customers c ON o.customernumber=c.customernumber
GROUP BY Country
ORDER BY Total_sales DESC
LIMIT 5;
```

Suggestion:

Focus more on making sales stronger in the USA, expanding sales in Spain and France, and doing specific marketing in smaller markets like New Zealand and Australia to increase sales there too.

Country	Total_Sales
USA	3273280.05
Spain	1099389.09
France	1007374.02
Australia	562582.59
New Zealand	476847.01

Find the Number of orders placed each year

```
SELECT
    YEAR(orderdate) Year,
    count(orderdate) as Total_Orders
FROM
    Orders
GROUP BY Year(orderdate)
```

Year	Total_Orders
2003	111
2004	151
2005	64

Suggestion:

Sustain success at Axon in 2005 by replicating 2004 strategies. Innovate offerings, invest in employee development, engage customers, explore market expansion, and integrate technology for continued growth

Find the Monthly sales for all three years

```
SELECT
    Monthname(orderdate) AS Month,
    sum(quantityordered * priceeach) AS Total_sales
FROM
    orders o
    JOIN orderdetails od on o.ordernumber=od.ordernumber

Group BY Monthname(orderdate)
```

Suggestion:

Since Sales peak in November due to Black Friday's significant discounts. Consider extending similar deals and offers throughout the year to elevate sales in other months.

Month	Total_sales
January	716815.00
February	735098.65
March	737920.36
April	718244.98
May	869235.79
June	493841.51
July	527503.85
August	597584.20
September	520497.65
October	1014570.07
November	1967317.13
December	705561.42

Find the Top Customers with the highest number of products ordered

```
SELECT
    customername,
    count(o.orderNumber) AS Total_Orders
FROM
    customers c
    JOIN orders o ON c.customernumber=o.customernumber
GROUP BY customername
ORDER BY Total_Orders DESC
LIMIT 5;
```

customername	Total_Orders
Euro+ Shopping Channel	26
Mini Gifts Distributors Ltd.	17
Danish Wholesale Imports	5
Australian Collectors, Co.	5
Dragon Souvenirs, Ltd.	5

Suggestion

Build stronger relationships with 'Euro+ Shopping Channel' and 'Mini Gifts Distributors Ltd.' for better sales and potential collaborations

What are the top 10 products with the Total quantity ordered

```
SELECT
  p.productName,
  sum(od.quantityordered) as TotalorderedQuantity
FROM
  orderdetails od
  JOIN products p on od.productcode=p.productcode

GROUP BY p.productname
ORDER BY Totalorderedquantity DESC
LIMIT 10;
```

Suggestion:
Maximize sales for in-demand models like the '1992 Ferrari 360 Spider red' and '1937 Lincoln Berline' by featuring them prominently in marketing, offering exclusive deals, focusing on digital promotion, showcasing customer testimonials, and exploring limited edition variants.

ProductName	Totalorderedquantity
1992 Ferrari 360 Spider red	1808
1937 Lincoln Berline	1111
American Airlines: MD-11S	1085
1941 Chevrolet Special Deluxe Cabriolet	1076
1930 Buick Marquette Phaeton	1074
1940s Ford truck	1061
1969 Harley Davidson Ultimate Chopper	1057
1957 Chevy Pickup	1056
1964 Mercedes Tour Bus	1053
1956 Porsche 356A Coupe	1052

Find the product which is not ordered by any customer

```
SELECT
    ProductName
FROM
    Products
Where
    productcode NOT IN (select productcode from orderdetails);
```

ProductName
1985 Toyota Supra

Suggestion:

Considering the average Manufacturer's Suggested Retail Price is \$100.43, contemplate reducing the MSRP or providing a special deal for the '1985 Toyota Supra,' currently priced at \$107.57.

Find the Top 10 Selling products

```
SELECT
    p.productname,
    sum(quantityordered * priceeach) AS Total_sales
FROM
    orderdetails o
JOIN products p on o.productcode=p.productcode
GROUP BY p.productname
ORDER BY Total_sales DESC
LIMIT 10;
```

Suggestion:

Promote and sell a lot of popular cars we have plenty of, like the '1992 Ferrari 360 Spider Red,' '2001 Ferrari Enzo,' and '1992 Alpine Renault 1300.' For cars that aren't selling as much, try special ads, exclusive deals, or package offers to sell more of them.

productname	Total_sales
1992 Ferrari 360 Spider red	276839.98
2001 Ferrari Enzo	190755.86
1952 Alpine Renault 1300	190017.96
2003 Harley-Davidson Eagle Drag Bike	170686.00
1968 Ford Mustang	161531.48
1969 Ford Falcon	152543.02
1980s Black Hawk Helicopter	144959.91
1998 Chrysler Plymouth Prowler	142530.63
1917 Grand Touring Sedan	140535.60
2002 Suzuki XREO	135767.03

Find the Number of customers for each Sales Representative

```
SELECT
    employeeNumber,
    concat(firstname," ",lastname) AS EmployeeName,
    count(*) AS Total_customers
FROM
    customers c
    JOIN employees e ON c.salesRepEmployeeNumber=e.employeeNumber
WHERE salesrepemployeeNumber IS NOT NULL
Group by employeeNumber
ORDER BY Total_customers DESC
```

EmployeeNumber	EmployeeName	Total_customer
1401	Pamela Castillo	10
1504	Barry Jones	9
1323	George Vanauf	8
1501	Larry Bott	8
1286	Foon Yue Tseng	7
1370	Gerard Hernandez	7
1165	Leslie Jennings	6
1166	Leslie Thompson	6
1188	Julie Firrelli	6
1216	Steve Patterson	6
1337	Loui Bondur	6
1702	Martin Gerard	6
1611	Andy Fixter	5
1612	Peter Marsh	5
1621	Mami Nishi	5

Suggestion:

Recognize and appreciate top-performing team members such as Pamela Castillo and Barry Jones for their significant customer base. Motivate other employees to elevate their customer engagement efforts

Find the Top performing employees in terms of Sales

```
WITH CTE AS (  
    SELECT  
        concat(firstname," ",lastname) as EmployeeNames,  
        sum(quantityOrdered *priceeach) as sales  
    FROM  
        orderdetails od  
        JOIN orders o on od.ordernumber=o.ordernumber  
        JOIN customers c on o.customernumber=c.customernumber  
        JOIN employees e on c.salesRepEmployeeNumber=e.employeenumber  
    GROUP BY employeenames  
    ORDER BY sales DESC  
    LIMIT 10  
)  
  
select Employeenames,sales from cte
```

Suggestion:

Encourage and reward top-performing sales employees. Foster a collaborative environment for knowledge-sharing, and implement continuous training to enhance skills

EmployeeNames	Total_sales
Gerard Hernandez	1258577.81
Leslie Jennings	1081530.54
Pamela Castillo	868220.55
Larry Bott	732096.79
Barry Jones	704853.91
George Vanauf	669377.05
Peter Marsh	584593.76
Loui Bondur	569485.75
Andy Fixter	562582.59
Steve Patterson	505875.42

Find the Sales and profit margin for each productline

```
WITH CTE AS (  
    SELECT  
        pl.productline,  
        sum(quantityordered * priceeach) as sales,  
        sum(quantityordered * buyprice) as costprice,  
        sum((quantityordered * priceeach)-(quantityordered * buyprice)) Profit  
  
    FROM  
        orderdetails od  
        JOIN products p on od.productcode=p.productcode  
        JOIN productlines pl on p.productline=pl.productline  
    GROUP BY pl.productline  
)  
  
SELECT productline, sales, Profit,  
concat(round((Profit / sales * 100),2),"%") AS profit_Margin FROM CTE  
GROUP BY productline, sales, Profit  
ORDER BY Profit_Margin desc;
```

Suggestion

Concentrate on selling more 'Motorcycles' and 'Vintage Cars' as they have high profits and plenty in stock. Work on boosting 'Trains' sales by increasing profits and stock.

productline	Sales	Profit	Profit_Margin
Motorcycles	1121426.12	469255.30	41.84%
Vintage Cars	1797559.63	737268.33	41.01%
Classic Cars	3853922.49	1526212.20	39.60%
Ships	663998.34	261289.47	39.35%
Trucks and Buses	1024113.57	400553.22	39.11%
Planes	954637.54	365960.71	38.34%
Trains	188532.92	65341.02	34.66%

Find the Number of products Ordered by Each vendor

```
SELECT
  p.productvendor,
  COUNT(o.ordernumber) AS Total_Orders
FROM
  products p
JOIN
  orderdetails o ON p.productcode = o.productcode
GROUP BY
  p.productvendor
ORDER BY
  Total_Orders DESC;
```

Suggestion:

Work closely with successful suppliers like 'Classic Metal Creations,' 'Motor City Art Classics,' and 'Carousel DieCast Legends' to increase sales.

Productvendor	Total_orders
Classic Metal Creations	270
Motor City Art Classics	249
Carousel DieCast Legends	246
Unimax Art Galleries	244
Gearbox Collectibles	242
Exoto Designs	240
Highway 66 Mini Classics	222
Autoart Studio Design	221
Min Lin Diecast	220
Second Gear Diecast	220
Studio M Art Models	217
Welly Diecast Productions	216
Red Start Diecast	189

Find the percentage of orders categorized by the delivery status

```
SELECT
    status,
    CONCAT( ROUND( (COUNT(DISTINCT ordernumber) * 100.0) / (SELECT
COUNT(DISTINCT ordernumber) FROM orders),
        2 ),
        '%' ) AS percentage
FROM
    Orders
GROUP BY status
ORDER BY percentage DESC;
```

Status	Percentage
Shipped	92.94%
Cancelled	1.84%
In Process	1.84%
On Hold	1.23%
Resolved	1.23%
Disputed	0.92%

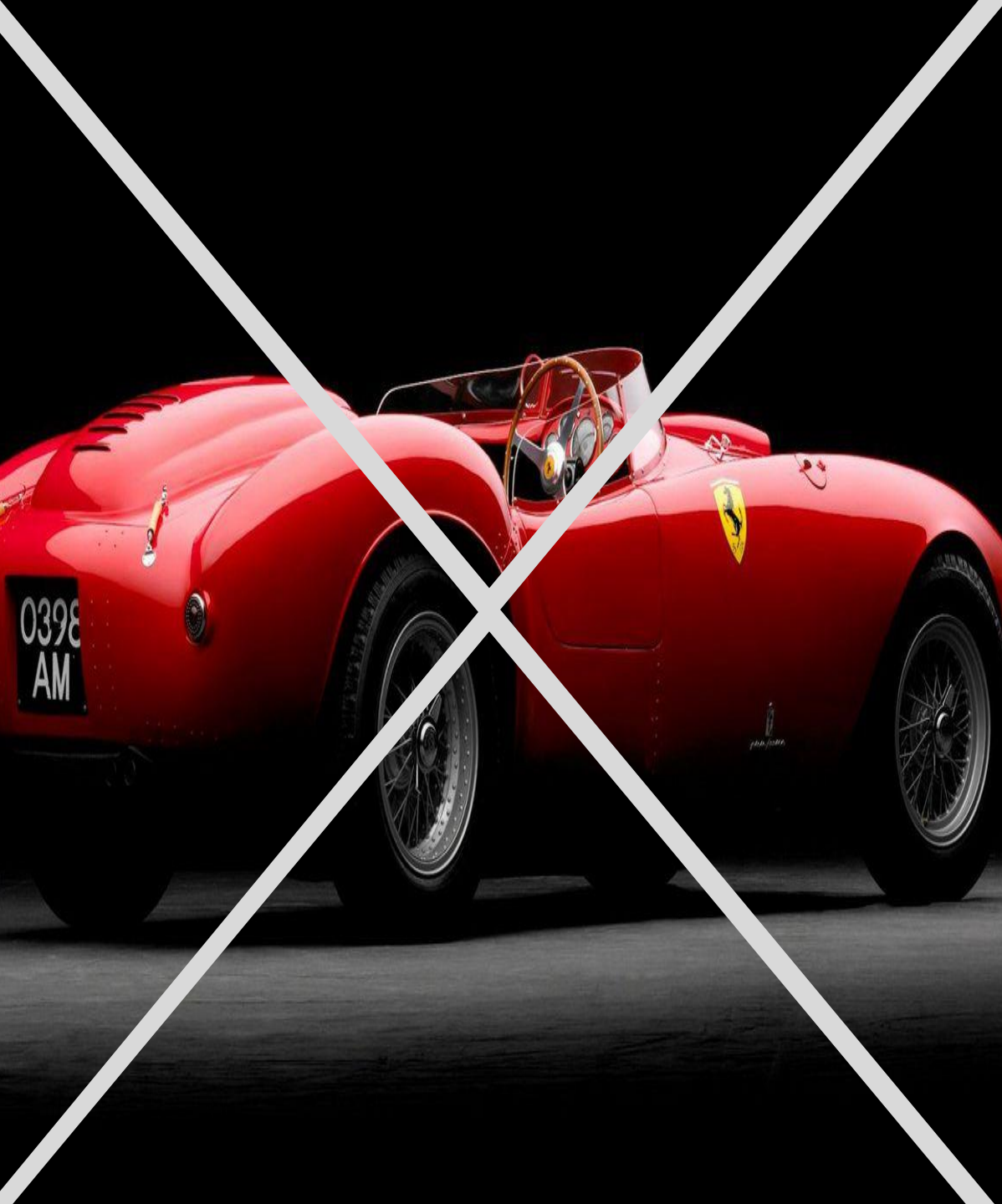
Suggestion :

Maintain efficient shipping and address issues with cancelled and pending orders to enhance customer satisfaction



•Key Insights

- Customer Base:** The majority of our customers reside in the USA, closely followed by Germany.
- Popular Products:** Our "Classic Cars" and "Vintage Cars" product lines consistently attract the most orders.
- Best-Selling Item:** The "1992 Ferrari 360 Spider Red" leads in customer preferences, with the "1937 Lincoln Berline" following closely.
- Total Revenue:** The company has achieved an impressive total sales figure of \$8.85 million.
- Paris Office Success:** The Paris office excels in both workforce and sales, outshining other locations.
- Star Employee:** Gerard Hernandez from our Paris office stands out as the top-performing employee, consistently generating the highest number of orders.



Recommendation

- Market Growth Strategy:** While the USA remains a crucial market, leverage the success in Germany to extend into other European markets. Invest in tailored marketing and customer engagement strategies for European audiences to unlock further growth opportunities.
- Diversify Product Lines:** Exploit the popularity of "Classic Cars" and "Vintage Cars" by broadening these product lines. Introduce new models, variations, or complementary accessories to meet existing customer preferences and attract a broader audience with similar interests.
- Promote Best-selling Products:** Direct marketing efforts towards promoting top-selling products, such as the "1992 Ferrari 360 Spider Red" and the "1937 Lincoln Berline," to maximize sales and enhance customer engagement.
- Expand in the USA:** Prioritize and expand initiatives in the USA market, which currently contributes 34.38% of total sales. Aim to sustain and potentially increase this market share over time.
- Employee Recognition and Development:** Establish an employee recognition program to celebrate exceptional performance, fostering morale and inspiring all employees to excel. Provide career development opportunities within the organization to retain top talent and facilitate their professional growth.