AXON CAR SALES
# ANALYSIS

Presented by:-
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Business Problem:

          Axon, a small company that sells classic cars, is having trouble organizing and understanding their sales data. We want to help them by using tools like Microsoft PowerBI and SQL to manage and analyze their sales information. The dataset we have, called "Classicmodels," has 8 tables with details about customers, employees, products, and order information. Our goal is to use Business Intelligence tools to create reports that will help Axon make better decisions based on their sales data.

Proposal:

          Axon company shared data from the last three years, including details about orders, sales, customers, employees, and offices. To make sense of this data, we'll start by putting it into MySQL. After that, we can use some queries to get useful information. Next, we'll take this SQL file and bring it into PowerBI. In PowerBI, we'll clean up and transform the data. Then, we'll create interactive dashboards focused on sales. These dashboards will provide Axon with valuable insights and reports, helping them make better decisions.
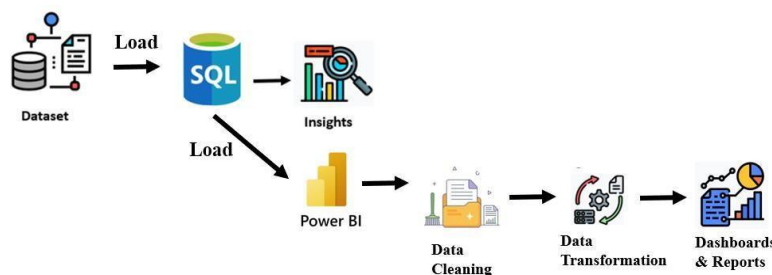

Approach:

Creating a new database in MySQL-

we want to make a database named "Classicmodels" in MySQL. Go to the link below, download the file, and then load it into MySQL. Once we have done that and we need to run the file, a new database called "Classicmodels" will be ready to use in MySQL.

https://drive.google.com/file/d/1OB_iGw6vVS5KS7QwiwVChbeTfR4WvUy3/view?usp=share_link

Data exploration using MySQL:
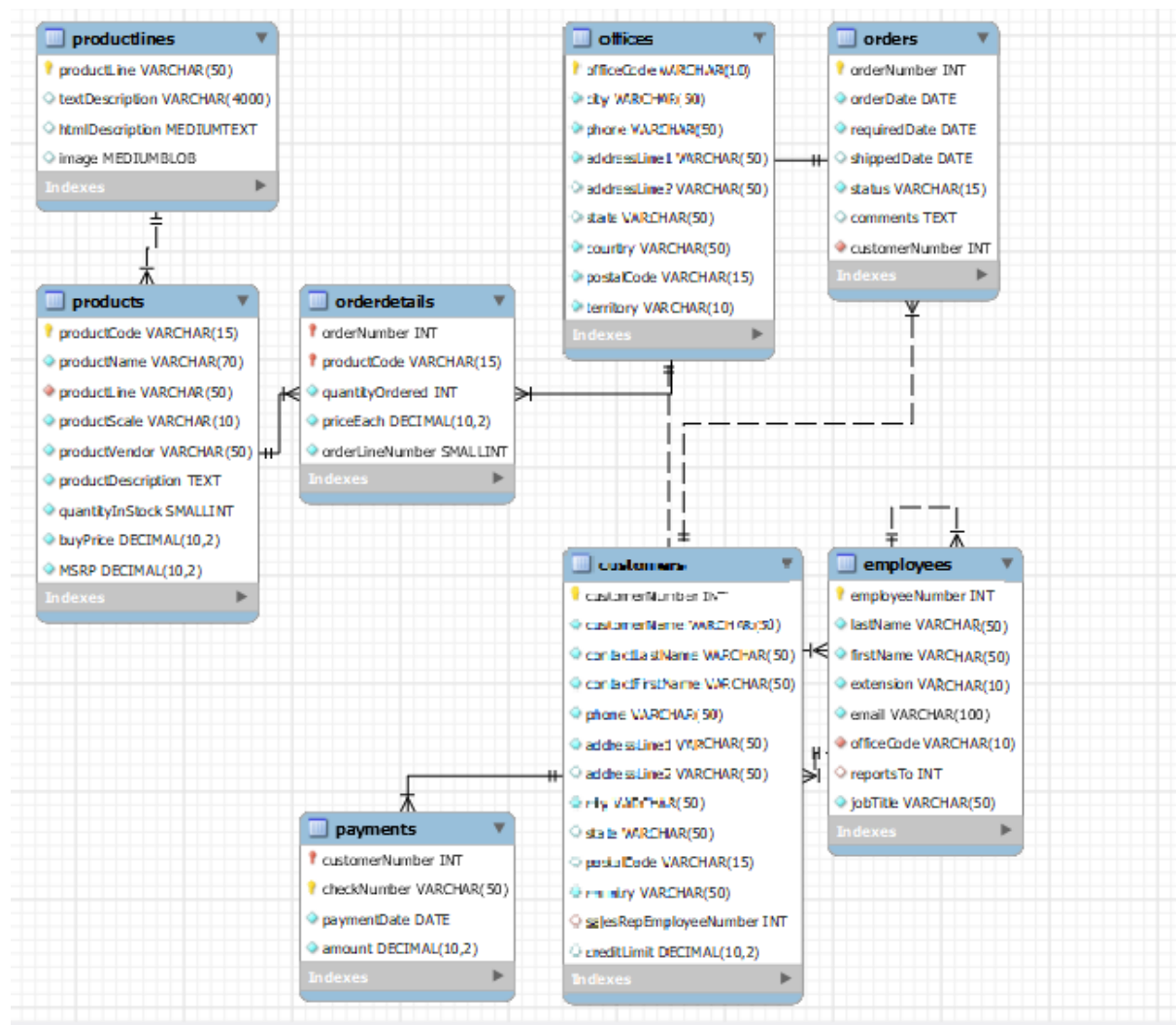
From this ERR(Entity Relationship Diagram) we can see what are tables we have and what are the different type of columns in the tables and and how the tables are connected to each other and their relationship between them.

Data Cleaning:
We use power query editor in powerBI for data cleaning.
(i) **Renaming columns**
(ii) **Removing columns:** removing the unnecessary columns from the database

Like(eg) - from productlines table we remove htmldescription and image columns

(iii) **Merging columns:** here we merge columns like

In customers table the contactfirstname column, contactlastname column were merged into contactfullname.

In employees table the firstname and lastname merged into empfullname

(iv)**Replacing null and wrong values:** in power query editor select the column and right click and replace the wrong values.

Like:-

1. In orders table:- comments column null values are replaced with N/A
2. In customers table :- phone number column the "(" is replaced with + and ")" is replaced with space and all "-" are replaces with empty "" space
3. Replacing the textual column null values with "N/A"
4. Replacing the numeric column null values with "0"

After cleaning the data we will close and apply (loading) in the the report view of the powerBI.

Data trasformation & creating Dashboard:

From customer View :

(i)creating measures :

1. Total customers :

```
1 Total_Customers = COUNTROWS(DISTINCT('classicmodels customers'))
```

2.total payment:

```
1 Total_Payment = SUM('classicmodels payments'[amount])
```

3.total orders :

```
1 Total_Orders = COUNTROWS('classicmodels orders')
```

4.average order:

```
1  Average Orders per Customer =
2  DIVIDE(
3      [Total_Orders],
4      [Total_Customers],
5      0
6  )
```

5.total sales:

```
1  Total_Sales = SUMX('classicmodels orderdetails', 'classicmodels orderdetails'[quantityOrdered] * 'classicmodels
   orderdetails'[unitprice])
```

6.average credit limit:

```
1  Avg_Credit_Limit = AVERAGE('classicmodels customers'[creditLimit])
```

7.average credit utilizaiton:

```
1  Average Credit Utilization =
2  DIVIDE(
3      [Total_Sales],
4      SUM('classicmodels customers'[creditLimit]),
5      0
6  )
7
```

8.total cost:

```
1  Total_Cost = SUMX(
2      'classicmodels orderdetails',
3      RELATED('classicmodels products'[costprice]) * 'classicmodels orderdetails'[quantityOrdered]
4  )
```

9.total_profit:

```
1  Profit = [Total_Sales]-[Total_Cost]
```

10.average order value:

```
1  Average_Order_Value = DIVIDE([Total_Sales], [Total_Orders], 0)
```

11.sales growth rate:

```
Sales_Growth_Percentage =
VAR CurrentPeriodSales = [Total_Sales]
VAR PreviousPeriodSales =
    CALCULATE(
        [Total_Sales],
        DATEADD('classicmodels orders'[orderDate], -1, MONTH)
    )
RETURN
    IF(
        ISBLANK(PreviousPeriodSales),
        BLANK(),
        (CurrentPeriodSales - PreviousPeriodSales) / PreviousPeriodSales * 100
    )
```

12.profit margin:

```
Profit Margin =
DIVIDE(
    SUMX(
        'classicmodels orderdetails',
        'classicmodels orderdetails'[quantityOrdered] * ('classicmodels orderdetails'[unitprice] - RELATED('classicmodels
        products'[costprice]))
    ),
    SUMX('classicmodels orderdetails', 'classicmodels orderdetails'[quantityOrdered] * 'classicmodels orderdetails'
    [unitprice]),
    0
)
```

13.average order processing :

```
Average Order Processing Time =
AVERAGEX(
    FILTER('classicmodels orders', 'classicmodels orders'[shippedDate] <> BLANK()),
    'classicmodels orders'[shippedDate] - 'classicmodels orders'[orderDate]
)
```
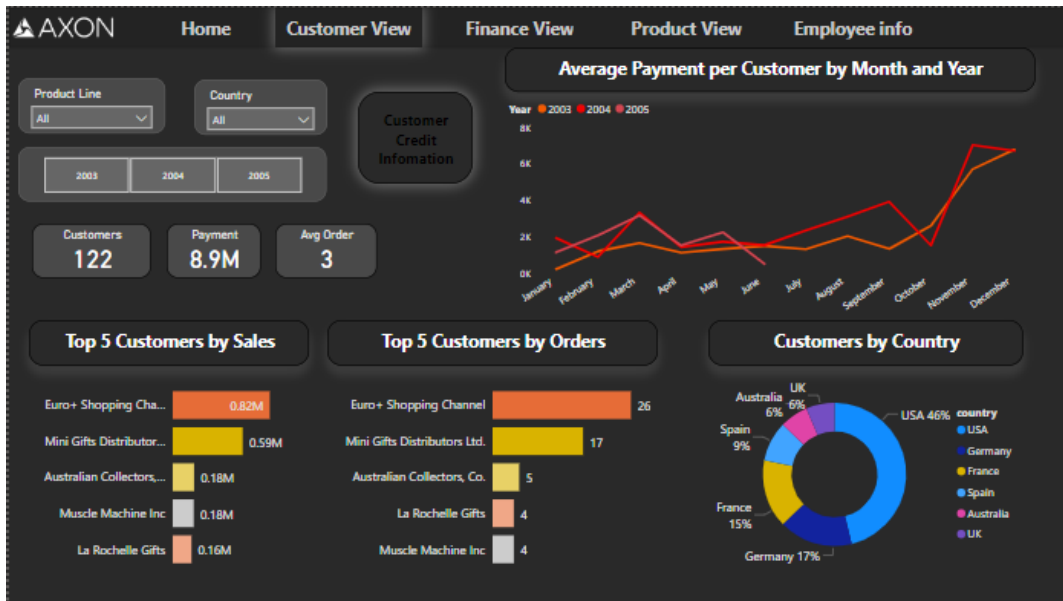
14.order fullfillment time:

```
Order Fulfillment Time =
SUMX('classicmodels orders', DATEDIFF('classicmodels orders'[orderDate], 'classicmodels orders'[shippedDate], DAY))
```
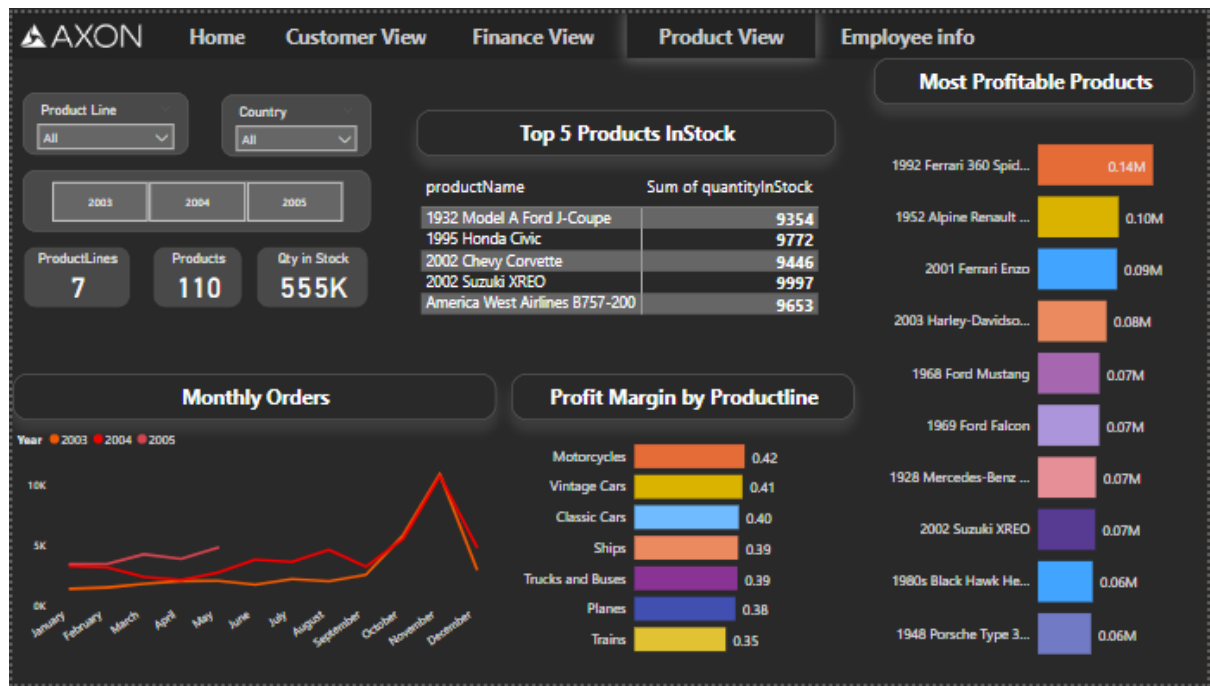
From finance View :

From product view :

From employee info:

Insights from the dashboard:

- **FROM CUSTOMER VIEW :**
  - **Usa** has the highest number of customers
  - **Euro+ Shopping** has highest no. of Orders and Sales
  - The average payment per customer is increased in teh month of october to november and there after we can see a dip in the payments .
  - Average order per customer are around 3.

- **FROM FINANCE VIEW:**
  - Classic cars are the most profitable in the product line
  - Trains are the least profitable productline
  - The total orders have been decreased in 2005 when compared to the total orders of 2003
  - Usa has the max revenue.
  - Sales and profits have been decreased in the months or november and december.

- **FROM PRODUCT VIEW:**
  - '1992 Ferrari 360 Spider Red' is the most Profitable product.
  - Profit margin of the motorcycles are comparatively higher than the classic cars.

- **FROM EMPLOYEE:**
  - The average order processing time is around 4 days .
  - Paris has the high number of sales .
  - San Francisco city has highest no. of Employees

Suggesions for sales improvement :

- Cost cutting can be done in advertising area in the north america region as the orders are pretty high from that area.
- To improve the performance of the employees we can train and reward them for their hardwork.