**Client**- Axon

Industry- Automobile Industry

The Background- We're assisting an Automobile company in developing a sales and inventory strategy by leveraging Power BI and SQL on their existing data. Our goal is to provide actionable insights that empower the sales and management teams to optimize both sales performance and inventory management effectively.

## **Goals**

* Boosting revenue through the identification of profitable areas and operational enhancements.
* Designing customized BI parameters and Trend Analysis Reports, using New-Age technology to facilitate data-driven decision-making.
* Building meaningful visualization that help sales and management teams to take decision and improve profitability and performance.
* To grasp areas of profitability and pinpoint areas that require focus.

# Actions Approach-

For effective analysis, we received customer data that was initially disorganized and unstructured. Our initial focus was on organizing and refining the data to derive meaningful insights. This involved data transformation, setting parameters, and eliminating anomalies. Once this step was completed, we were able to proceed with creating various visualizations and extracting valuable insights."

We extracted and optimized customer data, transforming it to discern trends and anticipate future outcomes.

# First Step to get the clean and optimized data—

Our objective was to refine and present this data in a coherent manner, revealing crucial patterns that could illuminate insights for cost reduction or revenue enhancement.

To achieve this, we crafted data transformation scripts, converting raw data into a format conducive to both independent analysis and seamless integration with leading data visualization technologies.

This step allowed us to assist our client in extracting and refining their transactional data from databases, turning it into actionable insights. By providing dynamic visualization options, we helped the client with swift access to the data and reports necessary for agile, effective decision-making. This empowerment laid the foundation for a more responsive and profitable operation in the competitive automotive industry.

# Finding Right Technology to explore the data—

In our search for the essential technology to facilitate comprehensive data exploration and meaningful visualization, we meticulously evaluated various criteria within scope:

• Versatility in supporting multiple visualization types

• Robust support for drill-down techniques on data

• Striking the right balance between cost-effectiveness and performance

• Seamless integration capabilities with systems like MySQL and JSON

• Intuitive handling and transformation of data

• Effortless data reporting and sharing functionalities for user convenience when necessary.

# Power BI: The Hub for Data Transformation and Enhancement—

With Power Bi we got all the things we needed as swift in data transformation and processing, also it is very capable in working with different sources of data such as MySQL and Json files which we used in our case, also it provides just drag and drop facility for easy reporting and analysis in visualization and easy to handle the mid-size as well as large community data.

We used Power BI Desktop for Loading, Cleaning, Preparing, Visualizing Data and Designing Reports, and it can be further used with Power Bi server to share report and insight among clint and users.

1. **Data cleaning and processing**- In this we can directly import the data from multiple source that too with filter and later with the help of Power query transformation and different profiling techniques its very easy to check and find anomalies in data and fix it. Furthermore, its very easy to generate relation within the data and check depended on it with the help of Data modeling. \
2. **Data Modeling**- We have used the data modeling inside the Power Bi used Desktop to generate relations among different data table and instances.
3. **Insights-** Different dashboards were crafted with drill down capabilities which helped to visually represent below information-

**3.**1- Category wise Sales- Shows which category got highest sales with drill down to product

**3.**2- Country Wise Sales- Shows the country specific sales in different product category

**3.**3- Category distribution by Sales- Provide info about the shares of different product category in overall revenue

**3.**4- Sales over Time-Period – Shows the sales in every year with drill down for month also

**3.**5- Vendor Wise Sales – It represent which seller has highest selling and in different category distribution

**3.**6- Customer wise Sales- Shows which customer showed most interest in different product in different category distribution.

**3.**7- Time Series Analysis—It represents the sales over month with filter for years

# Some Visual analysis and presentation of data--A screenshot of a computer screen Description automatically generated

Data Visualization: Context, Appropriateness, and Visual Impact"-

In the Process for visualization, we have tried multiple graphs which can closely describe the data and give the solid insights about it, tested multiple graphs over multiple iterations to reach to significantly current visualizations which can help us and clint to effectively take decisions and plan for future growth.

A pie chart with colorful circles

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**Some Advance Analysis with MySQL –**

* **Top 5 selling product--**

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* **Top 5 customer by the payment and their location-**

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* **Total sales by product line(category) of product-A screenshot of a computer

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* **Which 5 product has the highest profit margin-A screenshot of a computer

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* **Sales by Employee**-A screenshot of a computer

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Desired Result and Summery-

Visualization helps a lot when comes to extracting meaningful insights from data in a faster manner which helps business to plan their strategy and management based on their customer engagement and behavior how they are interacting with certain area and products what their needs are and where to focus more on.

In our analysis we saw that customers are more likely to take interest in classic cars and have highest sales and we had a huge popularity in San Rafael and NYC country area, followed by motorcycles also we have seen that we have huge demand in the month October and November.

These findings underscore the invaluable role of visualizations and business intelligence tools in deciphering market trends and consumer preferences. By leveraging these insights, businesses can strategically allocate resources and focus on high-performing market segments, optimizing their overall performance and profitability.