



Data-Powered Decisions

A COMPREHENSIVE EDA FOR BUSINESS OPTIMIZATION AT GLOBAL
ELECTRONICS

Agenda

- ▶ **Problem Statement**
 - ▶ About the company
 - ▶ Data Analysis – The Why?
- ▶ **Tools and Technologies**
 - ▶ Project Modules
 - ▶ Power BI –Dashboard
 - ▶ Analytical & Statistical Visualizations
- ▶ **Future Enhancement**
- ▶ **Conclusion**

About the company

- ▶ Global Electronics is a company **operating in the electronics industry**, involved in manufacturing, retailing, or distributing consumer electronics, components, or related products.



Problem Statement

- ▶ Global Electronics is looking forward to analyze the data effectively to infer the best, moderate and low sales of their company.
- ▶ Their objective is to develop their sales positively and render enhanced customer services across the globe.
- ▶ The project is developed to provide solution to the company producing a full fledged report which has all the **answers to where and how to excel their business globally.**

Data analysis on the data – The Why?

- ▶ Data analysis enables them to outperform competitors by being more agile, **understanding market needs** better, and offering superior products and services.
 - ▶ **Enhance Customer Satisfaction**
 - ▶ **Optimize Operations**
 - ▶ **Inventory management**
 - ▶ **Performance insights**
 - ▶ **Drive Business Growth**
 - ▶ **Decision-Making Support**
 - ▶ **Competitive Advantage**

Power Bi

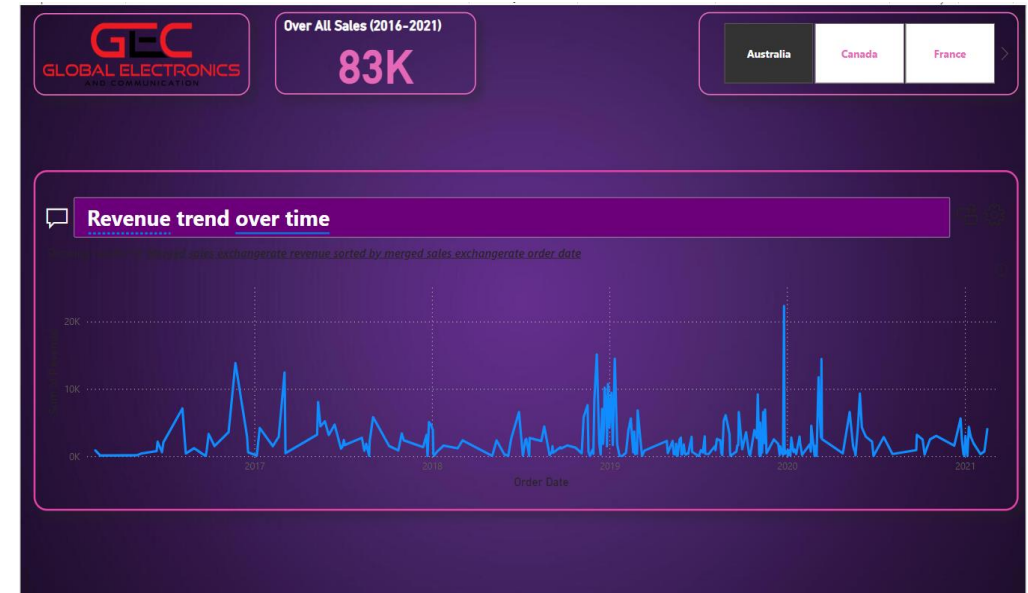
Ron George developed Power BI and Microsoft officially launched it in **2013**, and it is now a leading business intelligence tool worldwide.

Power BI is a data analytics and visualization tool. It helps users connect to various data sources, transform raw data, and create interactive dashboards and reports to support data-driven decisions.

DPD of Global Electronics - Dashboard



Visualization using various DAX

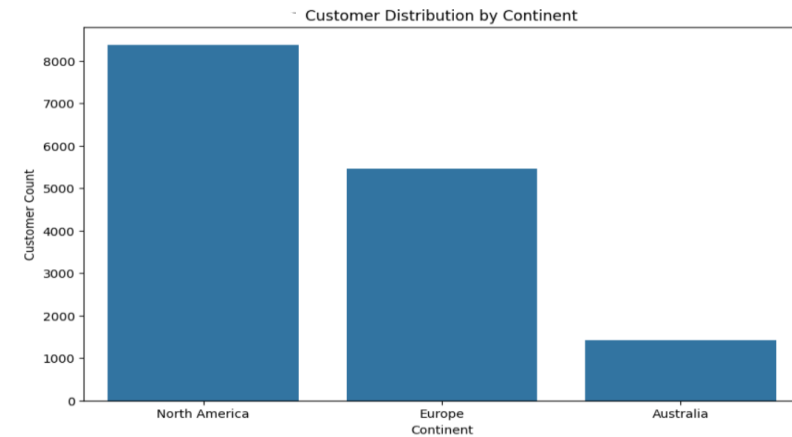
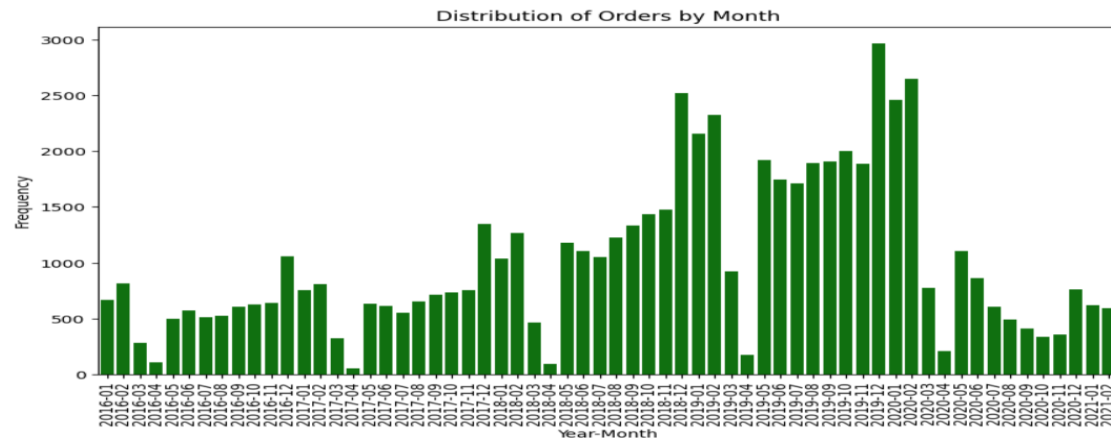
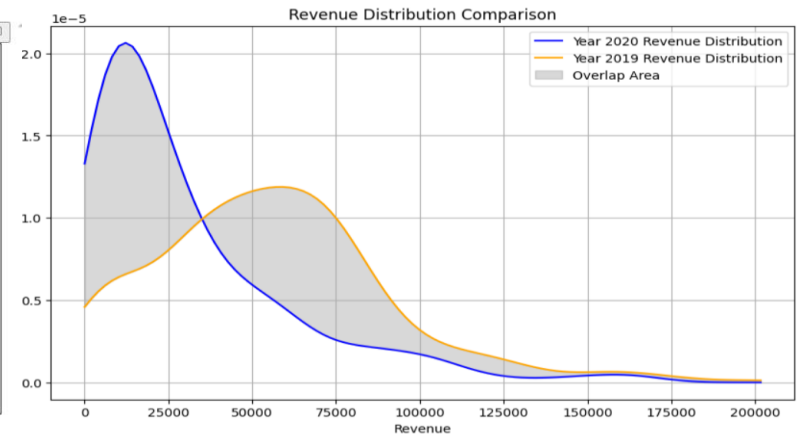
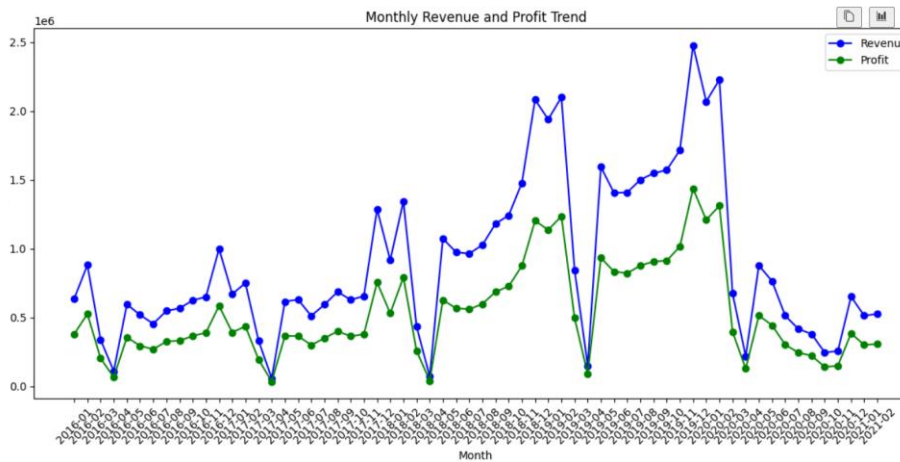
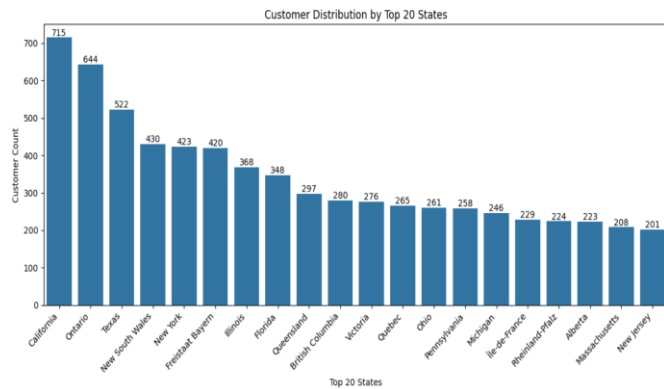


Dynamic Generation using NLP

EDA – Matplotlib & Scipy

- ▶ **Pandas**, data were read and written from and into csv files
- ▶ **Scipy**, the statistical nature of the data distributions was studied and handled. Sales over month using skewness, correlation etc., were found.
- ▶ **Matplotlib**, plot, histogram, bar, count plot, heatmap, etc., were performed for various insights.

Statistical Data Visualizations



Project Modules

- ▶ Module 1: **Exploratory Data Analysis & Statistical Visualizations**
 - ▶ Data preprocessing/cleaning/handling
 - ▶ Visualization using matplotlib
 - ▶ Distribution Analysis
- ▶ Module 2 : **Data Schema Creation**
 - ▶ MySQL Database and tables with relationship established.
- ▶ Module 3 : **Power BI for Dashboard**
 - ▶ Preparing Data, establishing relationship and Query Selection using DAX.
 - ▶ Dashboard using visualization tools and **Natural Language Processing** for Q&A.

Inferences/ Insights of DPD

- ▶ **Best performing** Products, brands, category and sub category were found
- ▶ Sales from **2016 to 2021** were seen in different granularities and filters
- ▶ Customers orders, sales, revenue and profit on **geographical sectors** were portrayed
- ▶ Best performing **stores and brand** in particular countries were captured
- ▶ o dynamically calculate all the above metrics based on **Country** in Power BI were performed using, **DAX query and slicers**
- ▶ Highest and lowest performing products based on **time intervals** were hierarchically diagnosed.
- ▶ NLP based **Q&A**.

Future of DPD

- ▶ Incorporating **Azure Synapse Analytics** for scalable data storage, **Azure Machine Learning** for predictive sales insights, **Azure Stream Analytics** for real-time monitoring, **Microsoft Dynamics 365** for unified CRM/ERP integration, and **Power Automate** for workflow automation. As a future enhancement, build a **recommendation system** using AI to suggest products or promotions based on customer purchasing patterns.

Conclusion

Data Powered Decision(DPD) project successfully integrated and analyzed sales, revenue, and profit data across multiple regions and currencies, providing valuable insights through interactive Power BI dashboards and **Visualization and Scientific Libraries** encompassing Matplotlib and SciPy.