Retail Analytics in the Electronics Industry
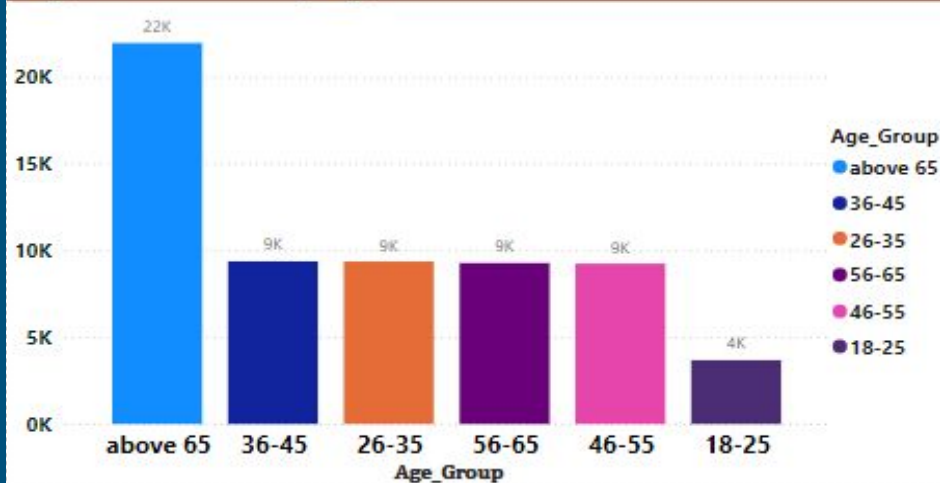
NITHYA SRI.N

Overview:

This project involves a comprehensive Exploratory Data Analysis (EDA) for Global Electronics, a leading retailer in the consumer electronics industry. The goal is to extract valuable insights to enhance customer satisfaction, optimize operations, and drive overall business growth.

➜ **Customer Insights:** Analyze demographics and purchase patterns to enhance marketing strategies.

➜ **Sales Optimization:** Improve inventory management and forecasting through sales data analysis.

➜ **Product Analysis:** Identify top-performing products and assess profitability.

➜ **Store Performance:** Evaluate and optimize store operations based on regional performance.

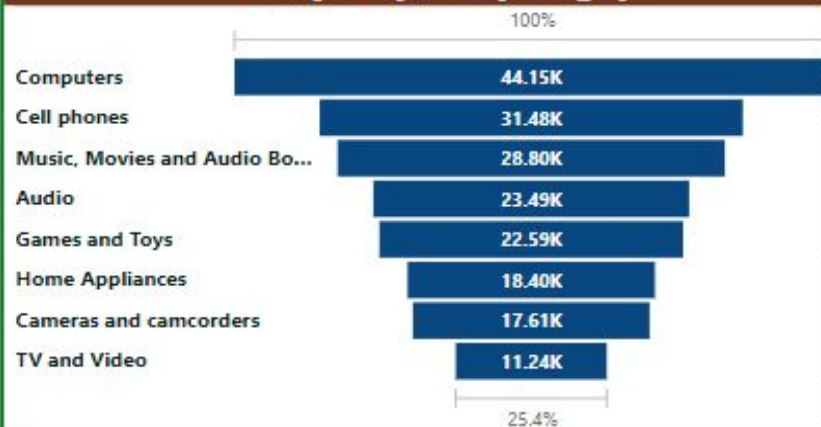➜ **Currency Impact:** Assess the effect of exchange rates on international sales.

Order Count by Year

Distinct Order Count ●498 ●2865 ●3280 ●4635 ●5965 ●9083

order count (y-axis): 10K, 5K, 0K
year (x-axis): 2016, 2017, 2018, 2019, 2020, 2021

Total customers

11.8K

Number of Orders by Customer Gender

31080.0 (49%) 31804.0 (51%)

Customer Gender
● Male
● Female

Highest Purchases by Age

Age_Group
● above 65
● 36-45
● 26-35
● 56-65
● 46-55
● 18-25

22K, 20K, 15K, 10K, 5K, 0K

above 65 — 22K
36-45 — 9K
26-35 — 9K
56-65 — 9K
46-55 — 9K
18-25 — 4K

Age_Group

Total_Quantity_Sold by Category

100%

Category	Value
Computers	44.15K
Cell phones	31.48K
Music, Movies and Audio Bo...	28.80K
Audio	23.49K
Games and Toys	22.59K
Home Appliances	18.40K
Cameras and camcorders	17.61K
TV and Video	11.24K

25.4%

Number of Orders by Customer Gender (Pie Chart):

- This pie chart shows the distribution of orders by customer gender.
- 51% of orders **(31,804)** are placed by females, while 49% of orders **(31,080)** are placed by males.

Order Count by Year (Bar Chart):

- This bar chart shows the distribution of order counts across different years from **2016 to 2021.**
- The order counts are depicted as bars with varying heights corresponding to each year.
- 2020 has the highest order count, followed by 2019, while 2016 and 2021 have the lowest.

Highest Purchases by Age (Bar Chart):

- This bar chart breaks down the number of purchases by different age groups.
- The age group "Above 65" has the highest number of purchases (22K)**,** followed by the "36-45" group.
- Other age groups like "26-35," "56-65," "46-55," and "18-25" have lower purchase counts.

Total Quantity Sold by Category (Horizontal Bar Chart):

- "Computers" have the highest quantity sold (44.15K), followed by "Cell phones" (31.48K), and "Music, Movies, and Audio Books" (28.80K).
- Other categories such as "Audio," "Games and Toys," and "Home Appliances" have lower quantities sold.
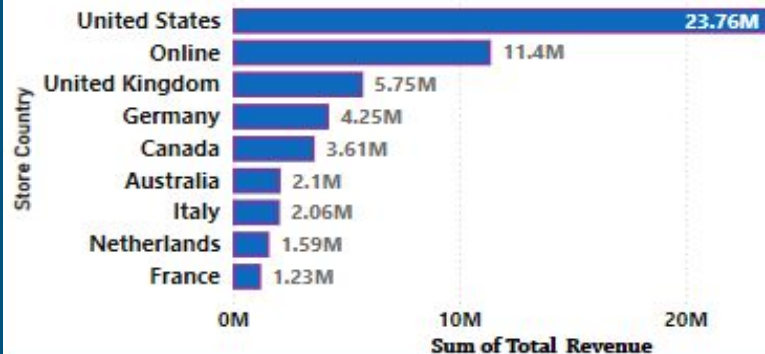
Total Product Category
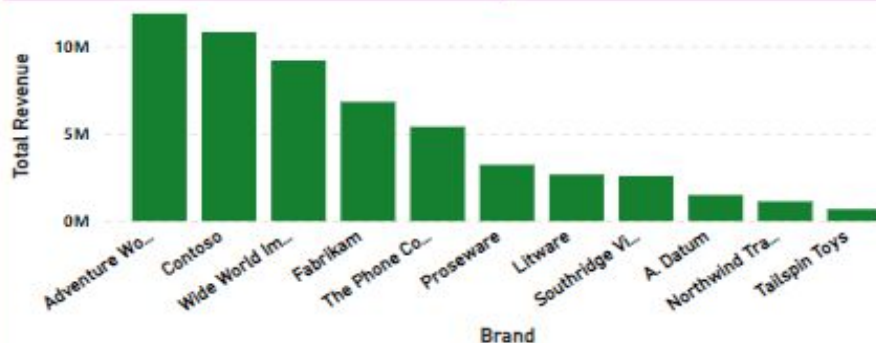## 8

Total Products
2,492

Total Subcategory
32

Total Brands
11

Total_Revenue by Store Country

Store Country	Sum of Total_Revenue
United States	23.76M
Online	11.4M
United Kingdom	5.75M
Germany	4.25M
Canada	3.61M
Australia	2.1M
Italy	2.06M
Netherlands	1.59M
France	1.23M

Total Revenue by Brand

Brands (left to right): Adventure Wo..., Contoso, Wide World Im..., Fabrikam, The Phone Co..., Proseware, Litware, Southridge Vi..., A. Datum, Northwind Tra..., Tailspin Toys

Total Revenue by Stores Square Meter

Number of Stores in Each Country

Store Country
- Australia
- Canada
- France
- Germany
- Italy
- Netherlands
- Online
- United Kingdom
- United States

Country	Value
Australia	2248
Germany	4662
Online	13165
United K...	6643
Canada	4206
Italy	2201
France	1387
Netherlands	1817
United States	26555

Total Revenue by Store Country (Horizontal Bar Chart):

- This chart shows the total revenue generated by stores in different countries.
- The United States leads with a revenue of 23.76M.
- "Online" category which generated 11.4M.
- Other countries listed include the United Kingdom, Germany, Canada, Australia, Italy, Netherlands, France.

Total Revenue by Brand (Vertical Bar Chart):

- This chart shows the revenue generated by different brands.
- The brand "Adventure Works" leads with the highest revenue.

Total Revenue by Stores Square Meter (Line Chart):

- This chart visualizes the total revenue relative to the square meter size of stores.
- It shows peaks around the 2,000 square meter mark.

Number of Stores in Each Country (Tree Map):

- A tree map displays the number of stores in various countries.
- The United States has the highest number of stores (26,555), followed by "Online" with 13,165.

Currency Code	Total_Orders	Total_Revenue	Total_Sales
USD	33767	1,74,90,924.04	2,98,71,631.13
EUR	12621	66,84,925.12	1,13,67,288.05
GBP	8140	41,33,800.81	70,84,088.11
CAD	5415	27,55,738.22	47,24,334.63
AUD	2941	15,97,300.18	27,08,137.61

Top 5 most sold products by quantity

Product Name	Total_Quantity_Sold
WWI Desktop PC2.33 X2330 Black	550.00
WWI Desktop PC1.80 E1800 White	538.00
Adventure Works Desktop PC1.60 ED160 Black	521.00
Adventure Works Desktop PC2.30 MD230 White	521.00
Adventure Works Desktop PC1.80 ED180 Black	520.00

Brand	Color	Total_Quantity_Sold
Northwind Traders	Black	1,565.00
Fabrikam	Black	2,205.00
Proseware	Black	3,388.00
The Phone Company	Black	5,604.00
Adventure Works	Black	5,828.00
Southridge Video	Black	7,570.00
Wide World Importers	Black	7,688.00
Contoso	Black	13,601.00
Tailspin Toys	Blue	3,890.00
A. Datum	Grey	803.00
Litware	Silver	952.00

Avg_Sales_Per_ Store State
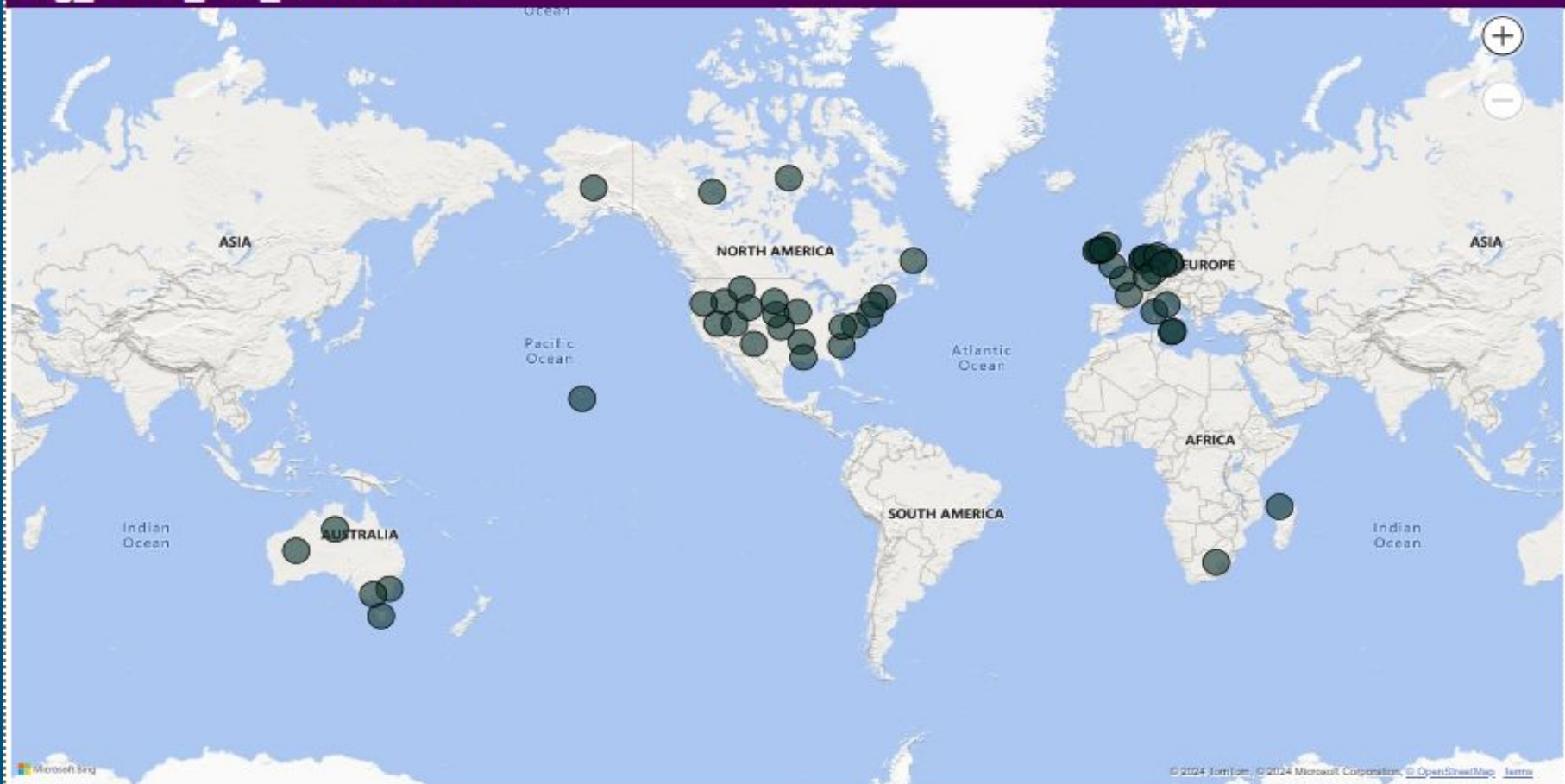
Conclusions and recommendations for business improvement:

Invest in High-Revenue Areas:

The U.S. and online sales are top revenue generators. Focus more resources here to boost sales even further.

Improve Underperforming Markets:

Countries like France and Italy have lower sales. Investigate why and adjust strategies to increase their performance.

Optimize Brand Performance:

Some brands are doing better than others. Study what makes the top brands successful and apply those strategies to improve weaker brands.

Right-Size Stores:

Stores around 2,000 square meters are most efficient. Consider resizing or optimizing stores to match this performance.

Expand Product and Brand Offerings:

Explore new product categories and consider adding more brands to increase market share and meet customer demand.

Grow in Potential Markets:

Countries like Australia and Canada have growth potential. Expand store presence in these regions to capture more customers.