

E-commerce

Group 4 - GCS1003A

Thai Thi Yen Nhi - GCS200207

Le Ngoc Phuong Anh - GCS210149

Nguyen Hong Nhat - GCS210156

Huynh Tan An - GCS18069

Nhan Khanh Dinh - GCS220022



Alliance with FFPT Education

Table of content

A. Introduction

B. General about BI

C. Demonstration about BI

D. Research about driving business success and navigating legal challenges

E. Conclusion

F. References

A. Introduction

Business intelligence is a concept where data aggregation and analysis techniques are applied to assist business professionals in making informed decisions and strategies. It involves collecting, storing, analyzing and visualizing data from a variety of sources, providing decision makers with valuable insights that can help optimize efficiency, understand customers and market trends, and adjust financial analysis and methods accordingly. Based on that helps businesses make accurate and grounded decisions.

B.

General about Business Intelligence

I. Concepts Bussiness Intelligence

II. BI tool

III. BI techniques

IV. Tools/techniques used

[GO BACK TO AGENDA PAGE](#)

I. Concept of Business Intelligence

Business intelligence involves analyzing data to make informed business decisions. It helps optimize efficiency, understand customers and market trends, and adjust financial analysis. Automated processes provide accurate information for timely decision-making. Dashboards track performance and goals, enabling improvement and response to opportunities.

Features of BI

1. Decision support
2. Query and reporting
3. Online analytical processing (OLAP)
4. Statistical analysis
5. Forecasting
6. Data mining
7. Analysis real time
8. Survey analysis
9. Support mobile devices
10. Social media analytics
11. Data visualization feature
12. Support data analysis with Big Data

II. BI tool

Tableau

Tableau is a data visualization tool with a user-friendly interface, easy to use basic features. When designing the Dashboard, you need to create a worksheet just drag data and view , very easy to use, for non-programmers.

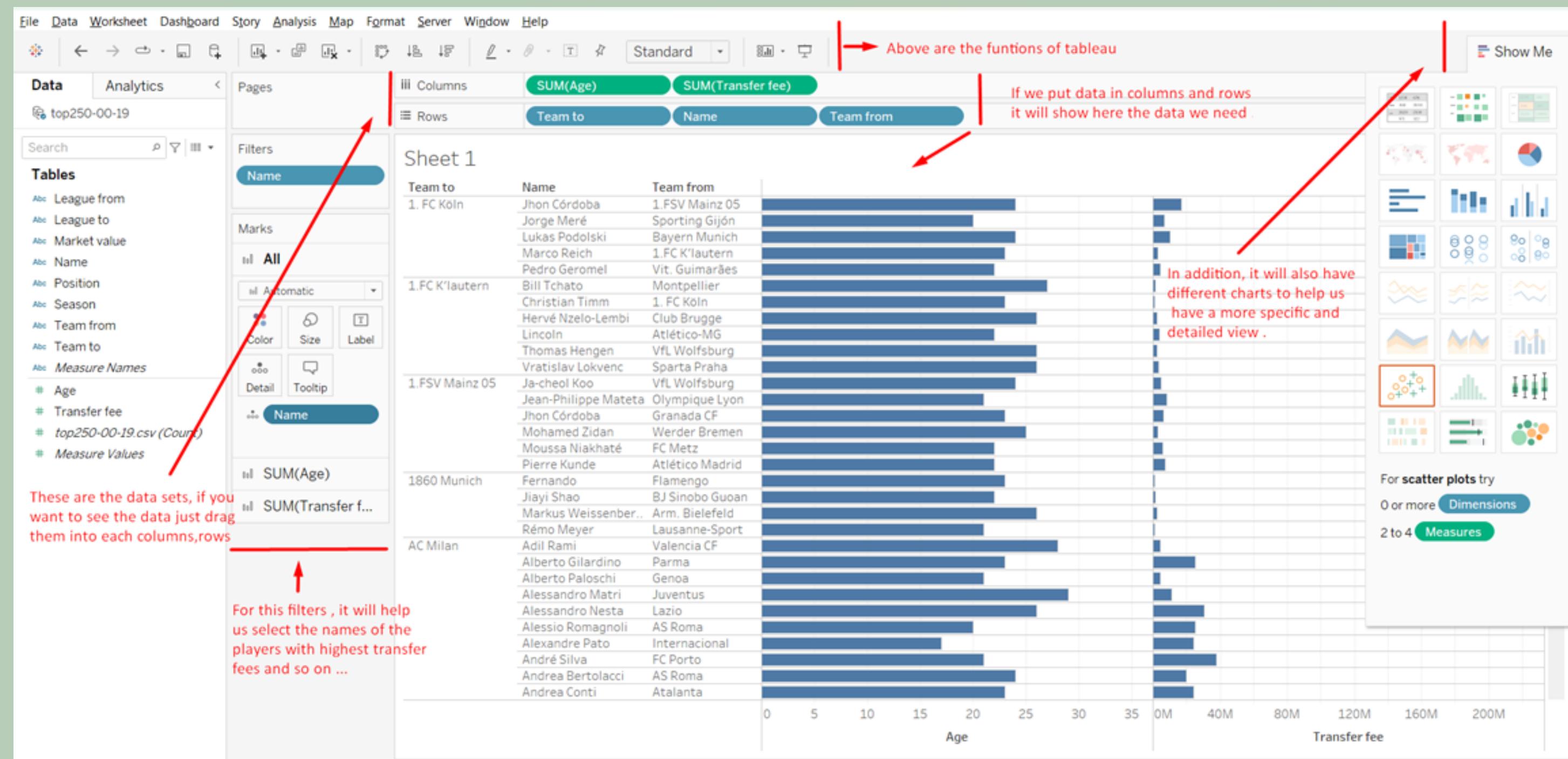


Figure 1 : Tableau display

Features of Tableau

Supports multiple data sources

Powerful data visualization capabilities

Can quickly analyze data by displaying analysis results in color, shape, and size

To make accurate decisions

III. BI techniques

Interactivity

Data Visualization

Database Connection

Predictive Analytics

Application Integration

1. Interactivity

Interactivity can help decision-making by provide constant and adequate communication between users and software, which can contribute in establishing decisions.



Figure 2 : Interactivity example

2. Data Visualization

A dashboard can help visualize data, which magnifies core stats that help for decision-making.

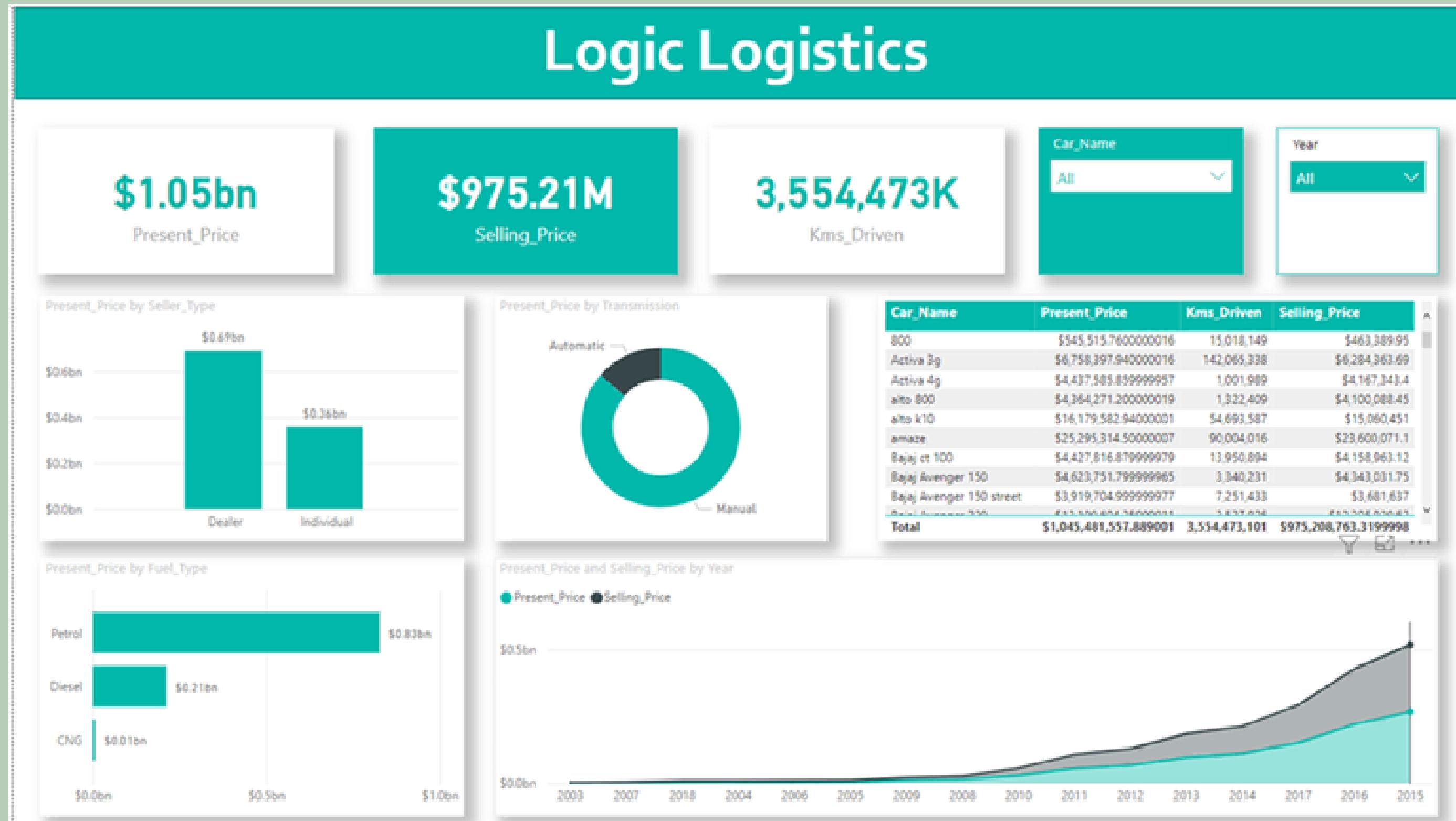


Figure 3 : Data Visualization example

3. Database collection

Database connection allows users to access banks of different data sources, which provide claims and proofs for decision-making

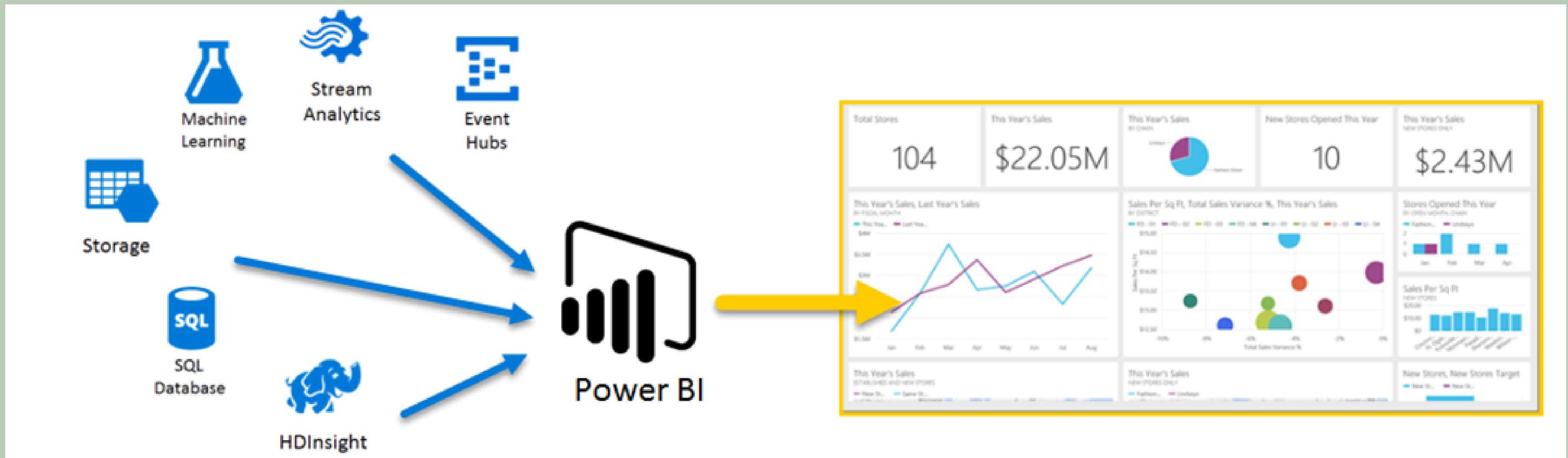


Figure 4 : Database collection

4. Predictive Analytics

Predictive analytics can help in decision-making by going through statistics and algorithms to predict future events, trends and/or market behaviors.



Figure 5 : Predictive Analytics example

5. Application Integration

Application integration can help decision-making by allowing different systems to collaborate together, which to optimize workflow and data leading to establishing decisions.



Figure 6 : Application Intergration example

IV. Tools/techniques used:

1. Some examples of big businesses using BI tools and techniques for decision-making are:

Amazon	Netflix	Starbuck
<ul style="list-style-type: none">• Optimize its operations, such as inventory management, pricing strategy, customer service, marketing campaigns, and product recommendations.• Analyze customer behavior and preferences to offer personalized experiences and suggestions	<ul style="list-style-type: none">• Improve its content delivery, quality, and selection• Understand customer preferences, viewing habits, ratings, feedback, and churn rates• Offer personalized recommendations, create original content, and optimize pricing plans	<ul style="list-style-type: none">• Enhance its customer loyalty program, product innovation, store location strategy, supply chain management, and social media engagement• Collect and analyze customer feedback, preferences, transactions, and behaviors to offer personalized offers and rewards

2. Case study - How did LOTTE apply BI techniques to their decision-making methods?

a) Initial information



Figure 7 : Lotte company

b) Application of Business Intelligence's contributing factors into their decision-making

	Definition	Example
Interactivity	Provide a better user experience for their online customers, as well as enable their internal teams to discover insights and patterns from their data	Use interactive dashboards to monitor and optimize their website performance, customer behavior, sales trends, marketing campaigns, etc
Data Visualization	Help LOTTE communicate complex data in a simple and intuitive way, as well as highlight key information and trends	Showcase their products, services, offers, reviews, etc. on their website, as well as to report and share their business results and goals with their stakeholders
Database Connection	Ensure that their data is consistent, reliable and up-to-date across their e-commerce website and other channels, as well as enable them to perform advanced analytics and queries on their data	Collect and store data from their website transactions, customer feedback, social media, web analytics, etc. and use it for further analysis and optimization
Predictive Analytics	Anticipate customer needs and preferences, as well as identify opportunities and risks for their e-commerce website	Use predictive analytics to recommend products or services to their customers based on their browsing history, purchase history, demographics, etc., as well as to forecast sales demand, inventory levels, revenue growth, etc
Application Integration	Streamline their business processes and workflows across their e-commerce website and other platforms, as well as enhance their customer service and satisfaction	Application integration to link their website with their CRM system, ERP system, payment gateway, delivery service provider, etc., as well as to provide chat-bots or live chat support for their customers

3. Ability to implement tools into our project:

Python	Tableau
Connecting to different data sources	Connecting to different data sources
Performing data manipulation operations	Creating different types of visualizations
Applying data cleaning techniques	Adding interactivity features
Performing data analysis functions	Combining multiple visualizations into a dashboard that tells a coherent and compelling data narrative
Applying data modeling methods	Formatting and styling the dashboard to enhance its appearance and readability
Generating data insights	Publishing and sharing the dashboard with other users or stakeholders

C. Demonstration about Business Intelligent

- I. Data pre-processing
- II. Design dashboards

1. Dataset problems:

In 2018, my e-commerce company collects data from customers in the US market. Furthermore, some features of specific items and stores were observed. Finally, there is a lot of missing and malformed data. Therefore, to prepare the data set for the machine learning model to use, data preprocessing and feature engineering will be conducted.

2. The goal of data pre-processing:

Display basic information about the dataset.

Display information about null values in the dataset before processing

Process the data and save the processed dataset

Display information about null values in the dataset after processing

Steps of Goal 1:

1. Import necessary libraries: matplotlib, pandas, numpy.
2. Set the figure size (resolution 100) and load data from the CSV file.
3. Create a function (dataset_info) to display basic dataset information: number of rows, columns, numerical columns, and categorical columns.
4. Define functions (print_dataset, print_dataset_details) to display the dataset and detailed column information (data type, number of non-null values).
5. Implement a function (print_all_column_values) to show values for numerical columns and values with null counts for categorical columns.

Steps of Goal 2:

- 1.Count null values in each column and store them in the `null_values` variable.
- 2.Count non-null values in each column and store them in the `non_null_values` variable.
- 3.Create `columns_with_null_before` to store columns with null values before processing.
- 4.Iterate through each column, plot a bar chart for columns with null values, displaying occurrences and null counts.

Steps of Goal 3:

1. Process null values in the dataset: fill nulls in numerical columns with the mean, and in categorical columns with the previous value. Save processed columns in processed_columns list.
2. Save the processed dataset to a CSV file named E-commerce_Dataset_Processed.csv.

Steps of Goal 4:

- 1.Count the number of null values in each column of the processed dataset and store it in the `null_values` variable.
- 2.Count the number of non-null values in each column of the processed dataset and store it in the `non_null_values` variable.
- 3.Iterate through each processed column, plot a bar chart showing occurrences and null counts after processing.

3. Dataset description

Colum name	Data type	Description
Order_date	Date	Order date
Time	Time	Order time
Aging	Float	Waiting time
Customer_ID	Integer	Customer ID
Gender	String	Customer Gender
Device_type	String	Device type
Customer_Login_type	String	Customer login type
Product_Category	String	Product category
Product	String	Product name
Sales	Float	Sales
Quantity	Float	Quantity
Discount	Float	Discount
Profit	Float	Profit
Shipping_cost	Float	Shipping fee
Order_Priority	String	Order priority
Payment_method	String	Payment method

4. Reading dataset

Dataset:								
	Order_Date	Time	Aging	...	Shipping_Cost	Order_Priority	Payment_method	
0	1/2/2018	10:56:33	8.0	...	4.6	Medium	credit_card	
1	7/24/2018	20:41:37	2.0	...	11.2	Medium	credit_card	
2	11/8/2018	8:38:49	8.0	...	3.1	Critical	credit_card	
3	4/18/2018	19:28:06	7.0	...	2.6	High	credit_card	
4	8/13/2018	21:18:39	9.0	...	16.0	Critical	credit_card	
...
24380	5/22/2018	13:33:47	7.0	...	4.7	Medium	credit_card	
24381	7/23/2018	15:39:08	3.0	...	15.6	Medium	credit_card	
24382	7/13/2018	10:27:54	2.0	...	11.4	Low	money_order	
24383	9/12/2018	22:52:26	9.0	...	13.4	Low	credit_card	
24384	12/6/2018	21:50:21	10.0	...	2.7	Medium	credit_card	

Figure 8 : Reading dataset

5. Dataset info

```
C:\Users\ADMIN\anaconda3\envs\Assignment\python.exe C:\Assignment\DataProcessPythonCode.py
Dataset Info:
Number of rows: 24385
Number of columns: 16
Numerical columns: 5
Categorical columns: 11
```

Figure 9 : Dataset info

6. Dataset details

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 24385 entries, 0 to 24384
Data columns (total 16 columns):
 #   Column           Non-Null Count  Dtype  
--- 
 0   Order_Date       24385 non-null   object 
 1   Time             24385 non-null   object 
 2   Aging            24384 non-null   float64
 3   Customer_Id     24385 non-null   int64  
 4   Gender           24385 non-null   object 
 5   Device_Type      24385 non-null   object 
 6   Customer_Login_type 24385 non-null   object 
 7   Product_Category 24385 non-null   object 
 8   Product          24385 non-null   object 
 9   Sales             24384 non-null   float64
 10  Quantity         24383 non-null   float64
 11  Discount          24384 non-null   float64
 12  Profit            24385 non-null   float64
 13  Shipping_Cost    24384 non-null   float64
 14  Order_Priority   24383 non-null   object 
 15  Payment_method    24385 non-null   object 
dtypes: float64(6), int64(1), object(9)*****
```

Figure 10 : Dataset details

7. Columns have null value

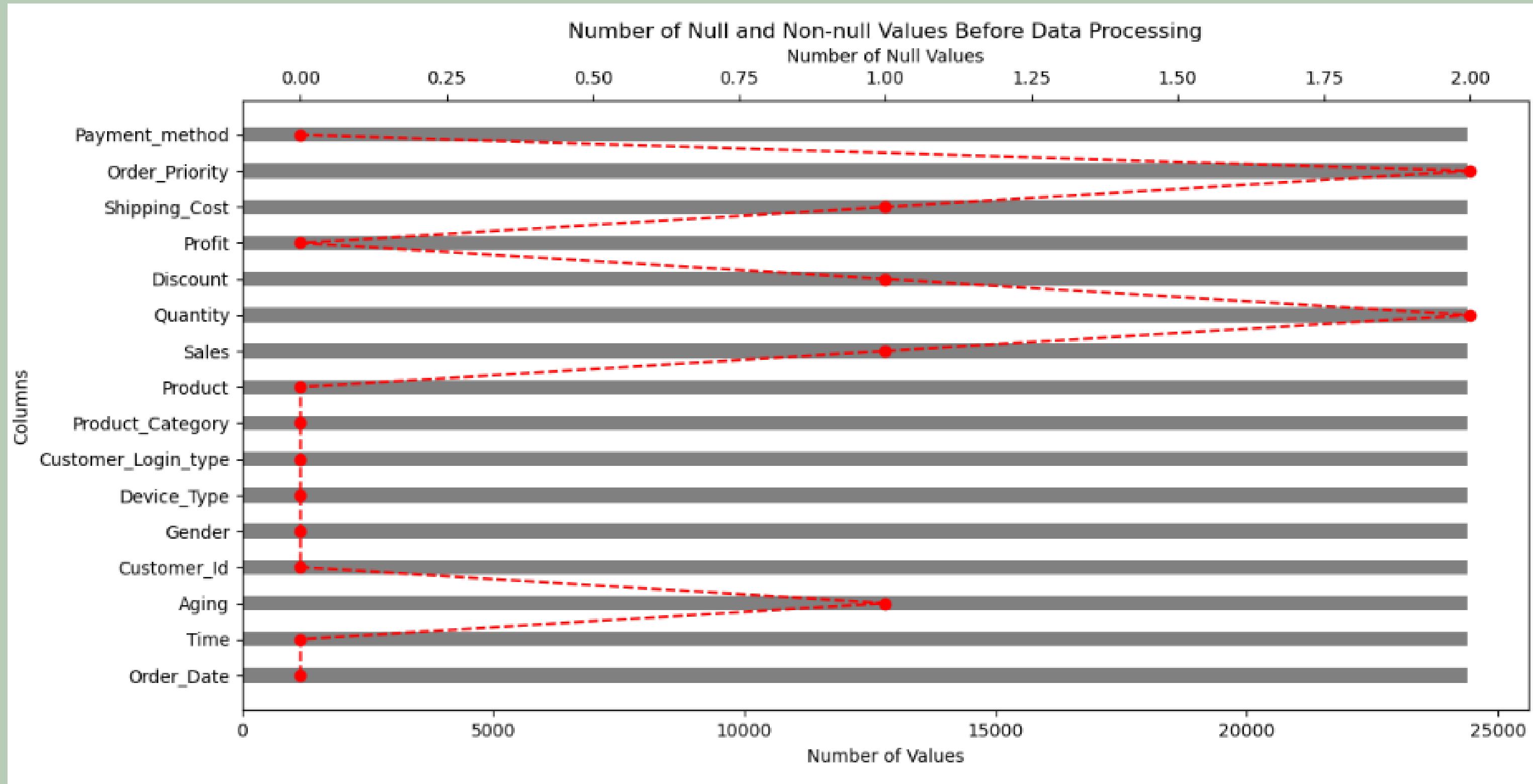


Figure 11 : Number of Null and Non-null Values Before Data Processing

```
Number of null values in each column:  
Order_Date          0  
Time               0  
Aging              1  
Customer_Id        0  
Gender             0  
Device_Type        0  
Customer_Login_type 0  
Product_Category    0  
Product            0  
Sales              1  
Quantity           2  
Discount           1  
Profit             0  
Shipping_Cost      1  
Order_Priority     2  
Payment_method     0  
dtype: int64
```

Figure 13: Count null value in each column

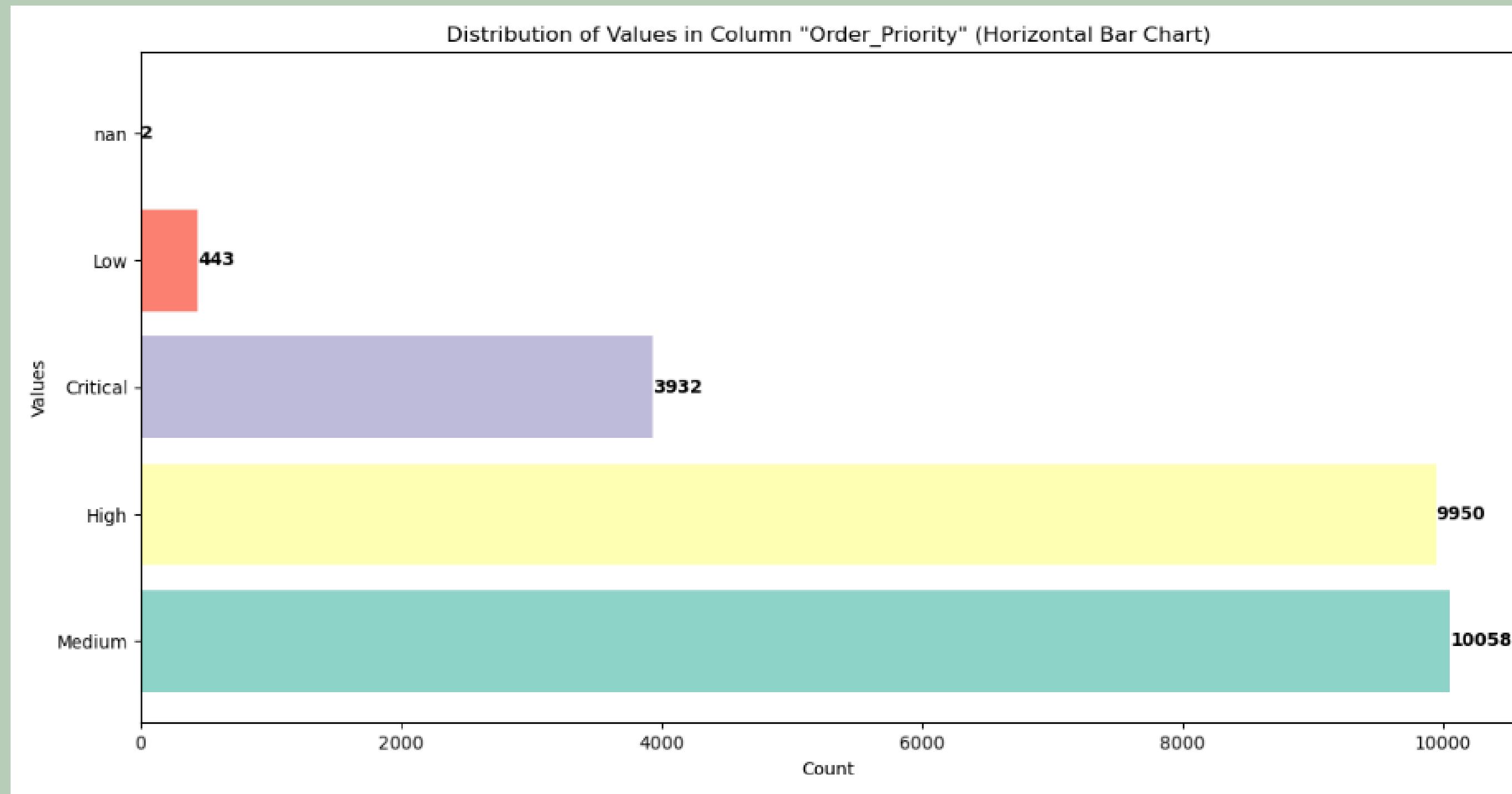


Figure 12 : Distribution of Values in Column "Order_Priority"

..: Order_Priority Values :.

Categorical:

Medium 10058

High 9950

Critical 3932

Low 443

NaN 2

Name: Order_Priority, dtype: int64

Null Values:

2

Figure 14: Count the Order_Priority column before processing the data

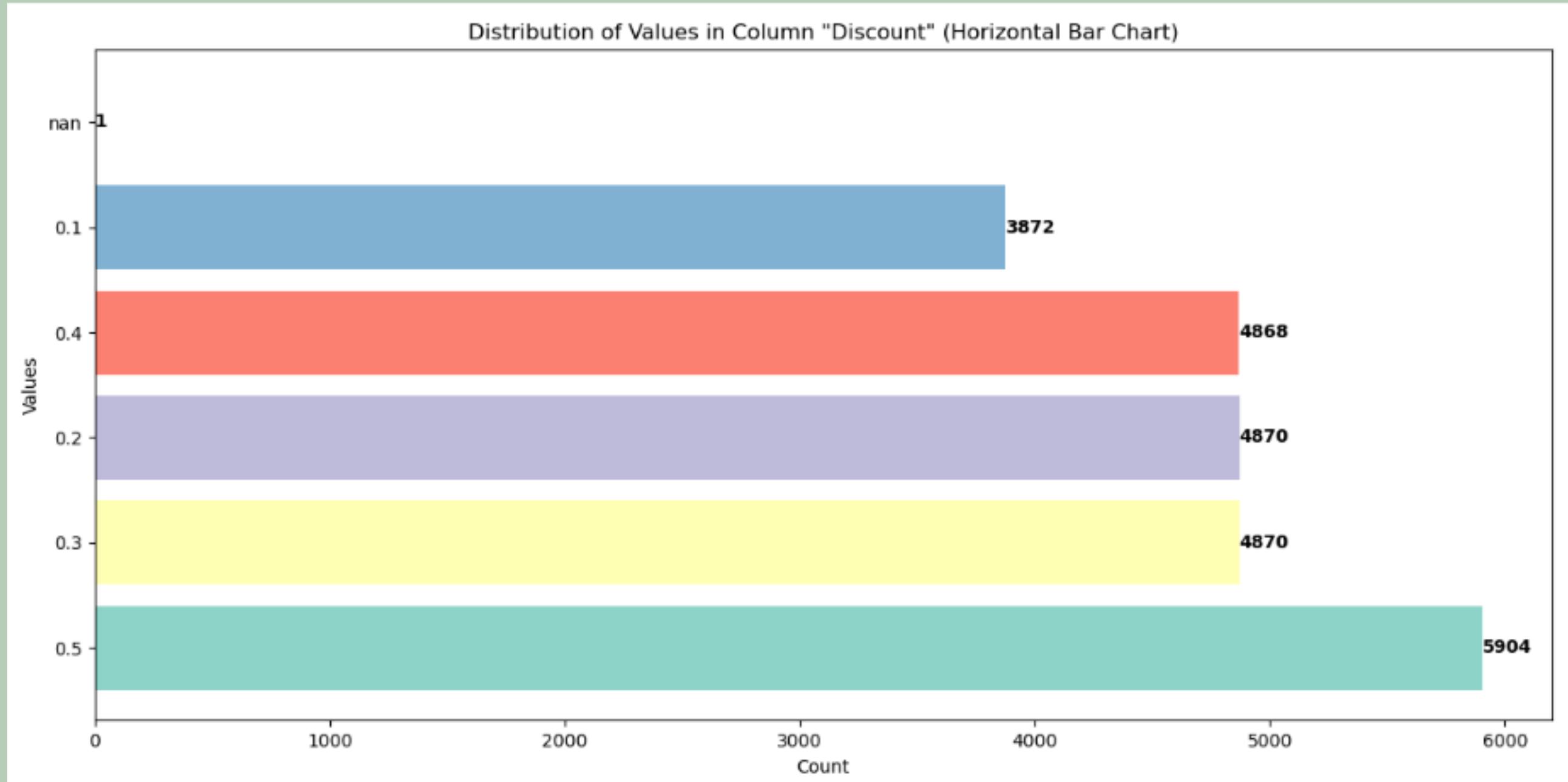


Figure 15 : Distribution of Values in Column "Discount"

```
.: Discount Values :.  
*****  
Categorical:  
0.5      5904  
0.3      4870  
0.2      4870  
0.4      4868  
0.1      3872  
NaN        1  
Name: Discount, dtype: int64
```

```
Null Values:
```

```
1
```

Figure 17: Count Discount column before processing data

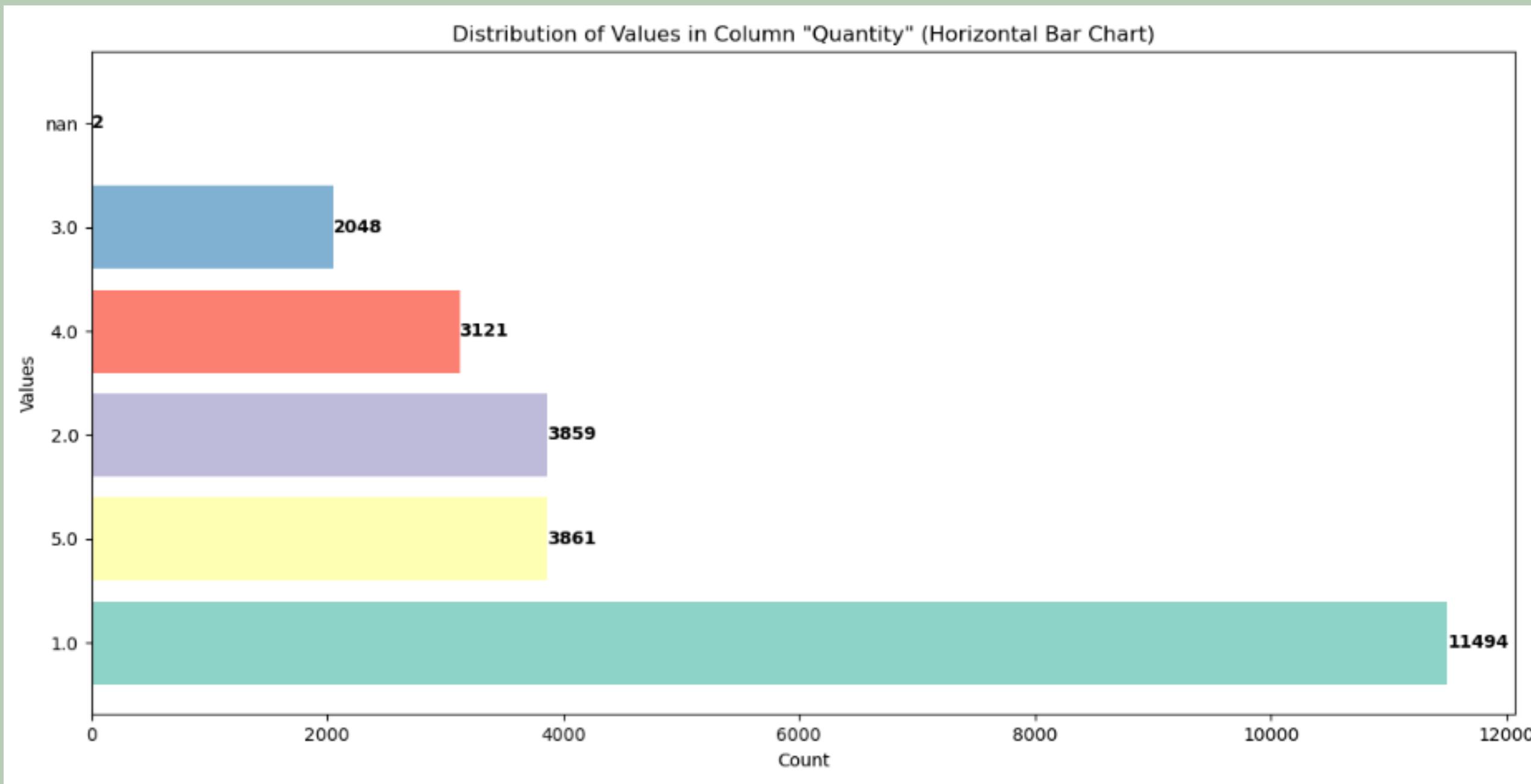


Figure 16 : Distribution of Values in Column "Quantity"

```
.: Quantity Values :.  
*****  
Categorical:  
1.0      11494  
5.0      3861  
2.0      3859  
4.0      3121  
3.0      2048  
NaN        2  
Name: Quantity, dtype: int64
```

```
Null Values:  
2
```

Figure 18: Count Quantity column before processing data

Distribution of Values in Column "Sales" (Horizontal Bar Chart)

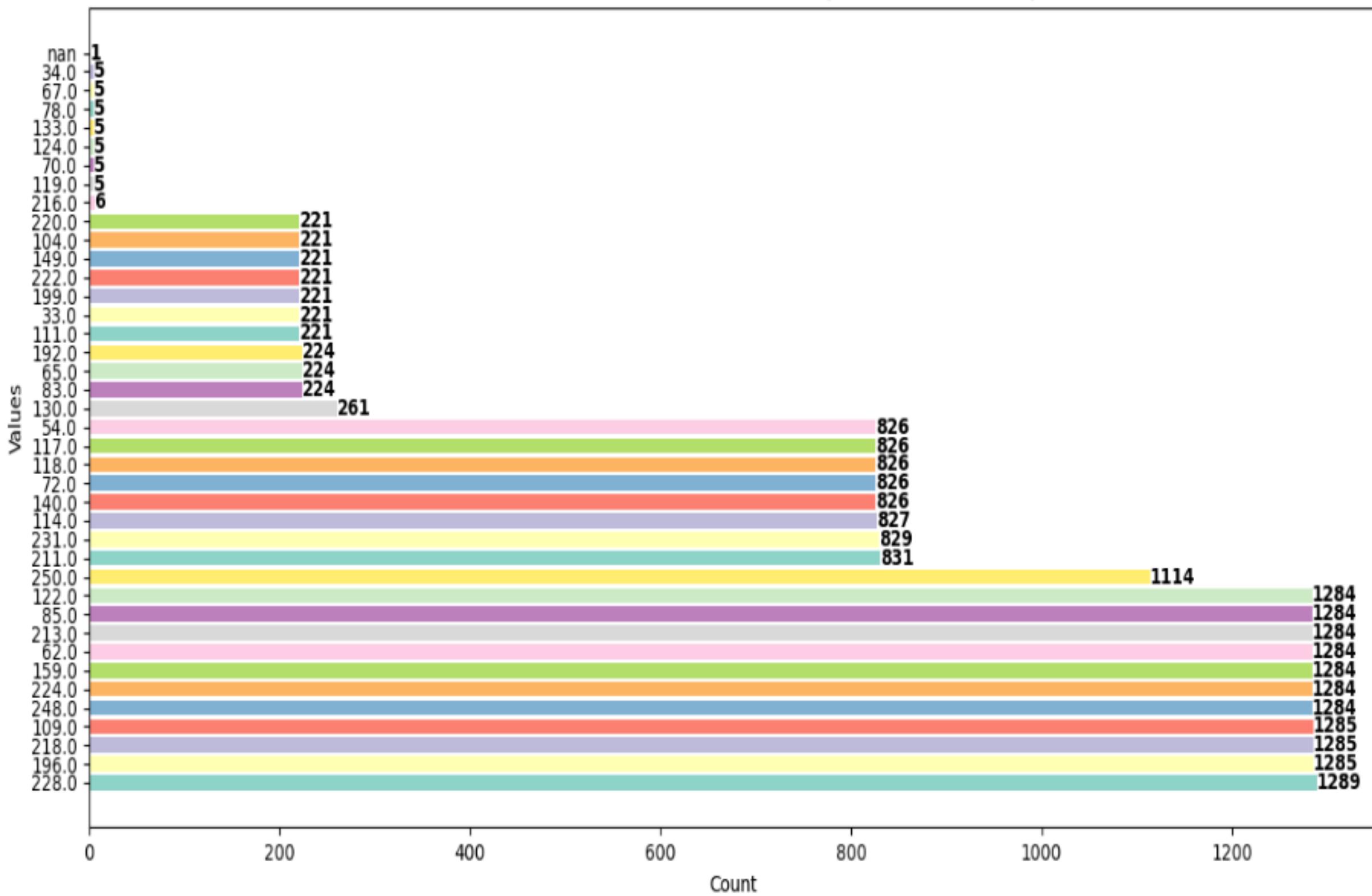


Figure 19 : Distribution of Values in Column "Sales"

```
.: Sales Values :.  
*****  
Numerical:  
0      140.0  
1      211.0  
2      117.0  
3      118.0  
4      250.0  
     ...  
24380    159.0  
24381    248.0  
24382    196.0  
24383    218.0  
24384    109.0  
Name: Sales, Length: 24385, dtype: float64
```

```
Null Values:
```

```
1
```

Figure 21: Count Sales column before processing data

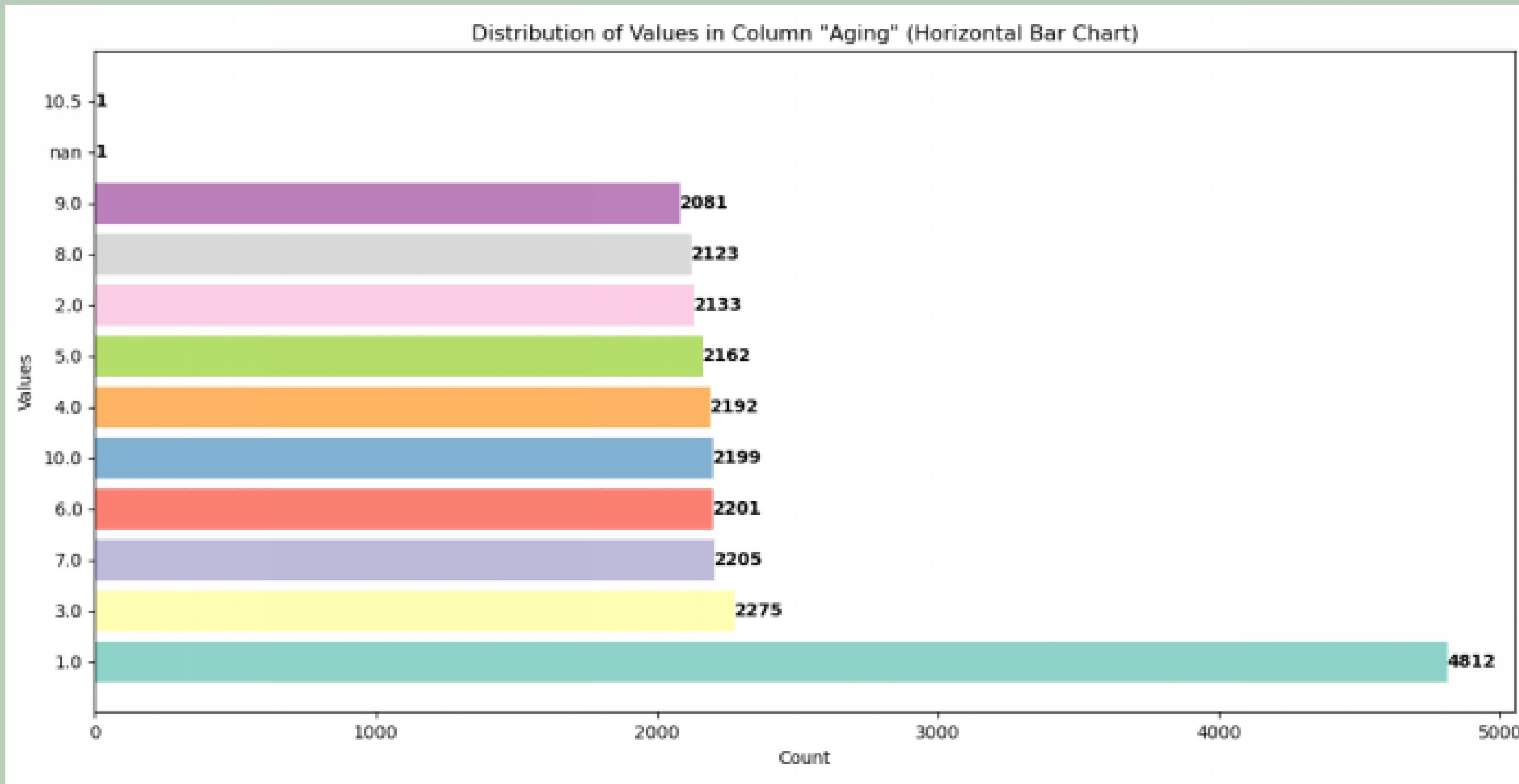


Figure 20: Distribution of Values in Column "Aging"

```
.: Aging Values :.  
*****  
Numerical:  
0      8.0  
1      2.0  
2      8.0  
3      7.0  
4      9.0  
     ...  
24380    7.0  
24381    3.0  
24382    2.0  
24383    9.0  
24384    10.0  
Name: Aging, Length: 24385, dtype: float64
```

```
Null Values:
```

```
1
```

Figure 22: Count Aging column before processing data

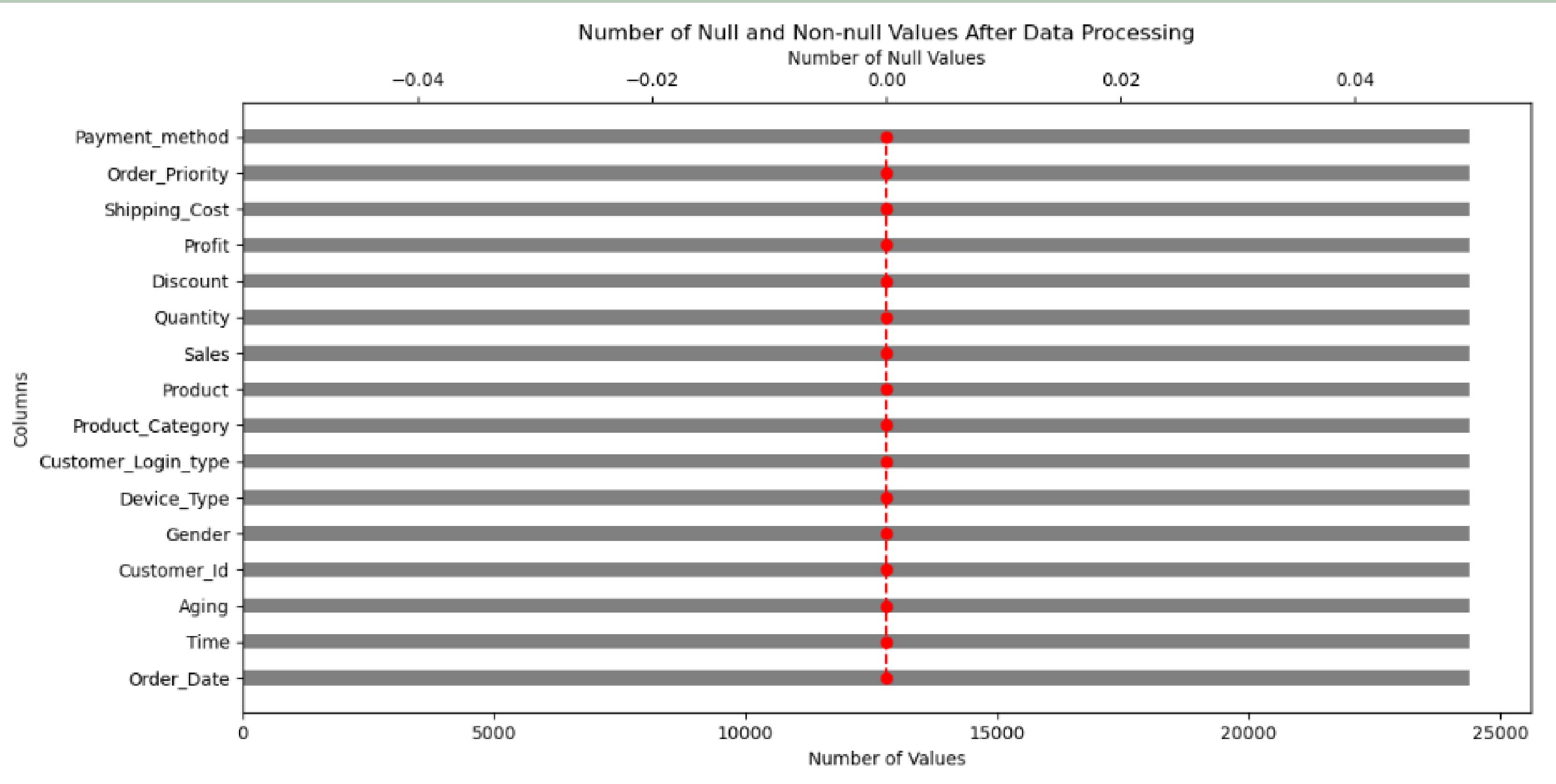


Figure 23 : Number of Null and Non-null Values After Data Processing

Number of processed null values in each column:

Order_Date	0
Time	0
Aging	0
Customer_Id	0
Gender	0
Device_Type	0
Customer_Login_type	0
Product_Category	0
Product	0
Sales	0
Quantity	0
Discount	0
Profit	0
Shipping_Cost	0
Order_Priority	0
Payment_method	0

Figure 25: Count Null value after processing data

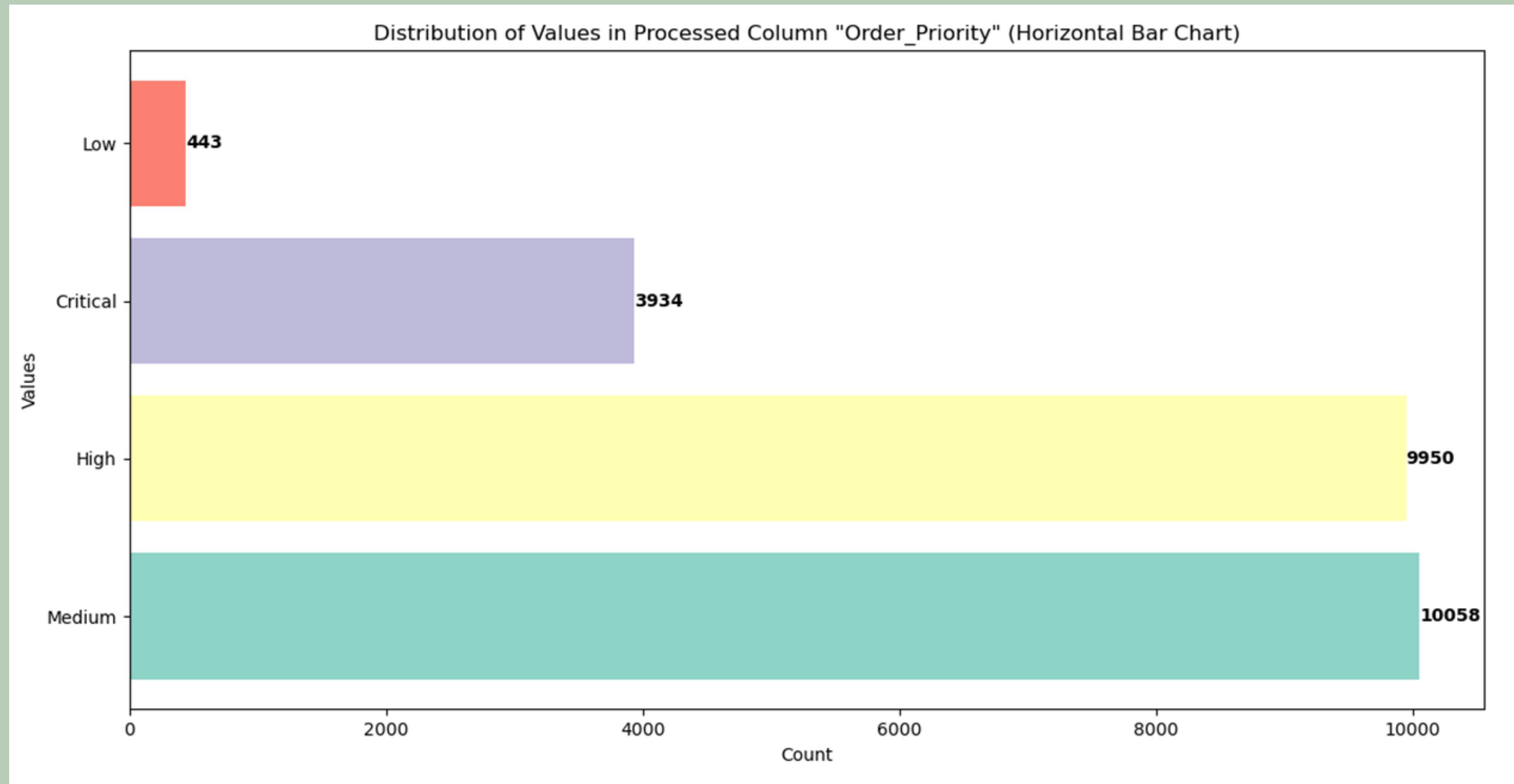


Figure 24: Order_Priority column after processing data

```
.: Order_Priority Values :.  
*****  
Medium      10058  
High        9950  
Critical    3934  
Low         443  
Name: Order_Priority, dtype: int64  
Number of null values: 0
```

Figure 26: Count Order_Priority column after processing data

Distribution of Values in Processed Column "Shipping_Cost" (Horizontal Bar Chart)

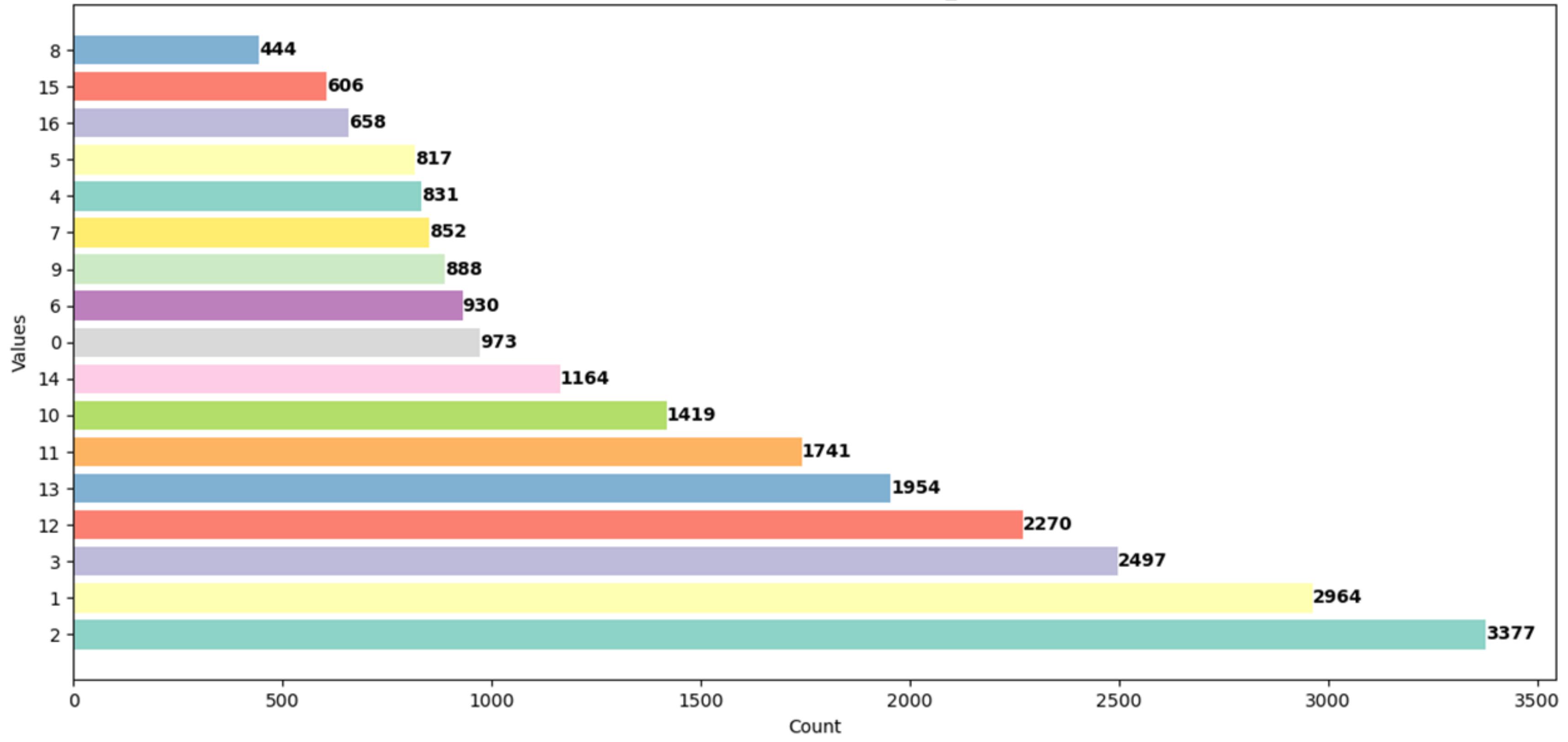


Figure 27: Shipping_cost column after processing data

```
.: Shipping_Cost Values :.  
*****  
2      3377  
1      2964  
3      2497  
12     2270  
13     1954  
11     1741  
10     1419  
14     1164  
0      973  
6      930  
9      888  
7      852  
4      831  
5      817  
16     658  
15     606  
8      444  
Name: Shipping_Cost, dtype: int64  
Number of null values: 0
```

Figure 29: Count Shipping_cost column
after processing data

Distribution of Values in Processed Column "Discount" (Horizontal Bar Chart)

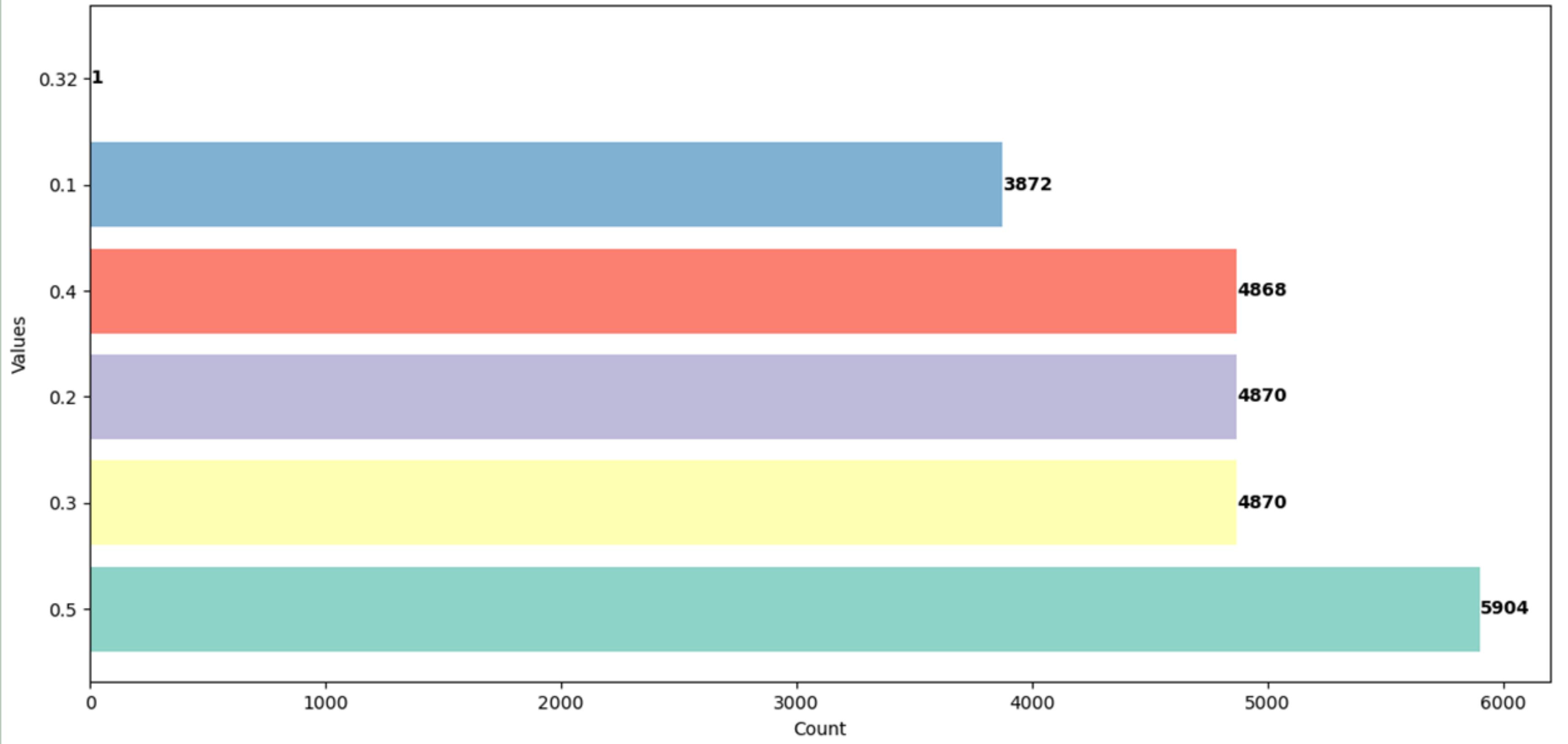


Figure 28: Discount column after processing data

.: Discount Values :.

0.50 5904

0.30 4870

0.20 4870

0.40 4868

0.10 3872

0.32 1

Name: Discount, dtype: int64

Number of null values: 0

Figure 30: Count Discount column after processing data

Distribution of Values in Processed Column "Quantity" (Horizontal Bar Chart)

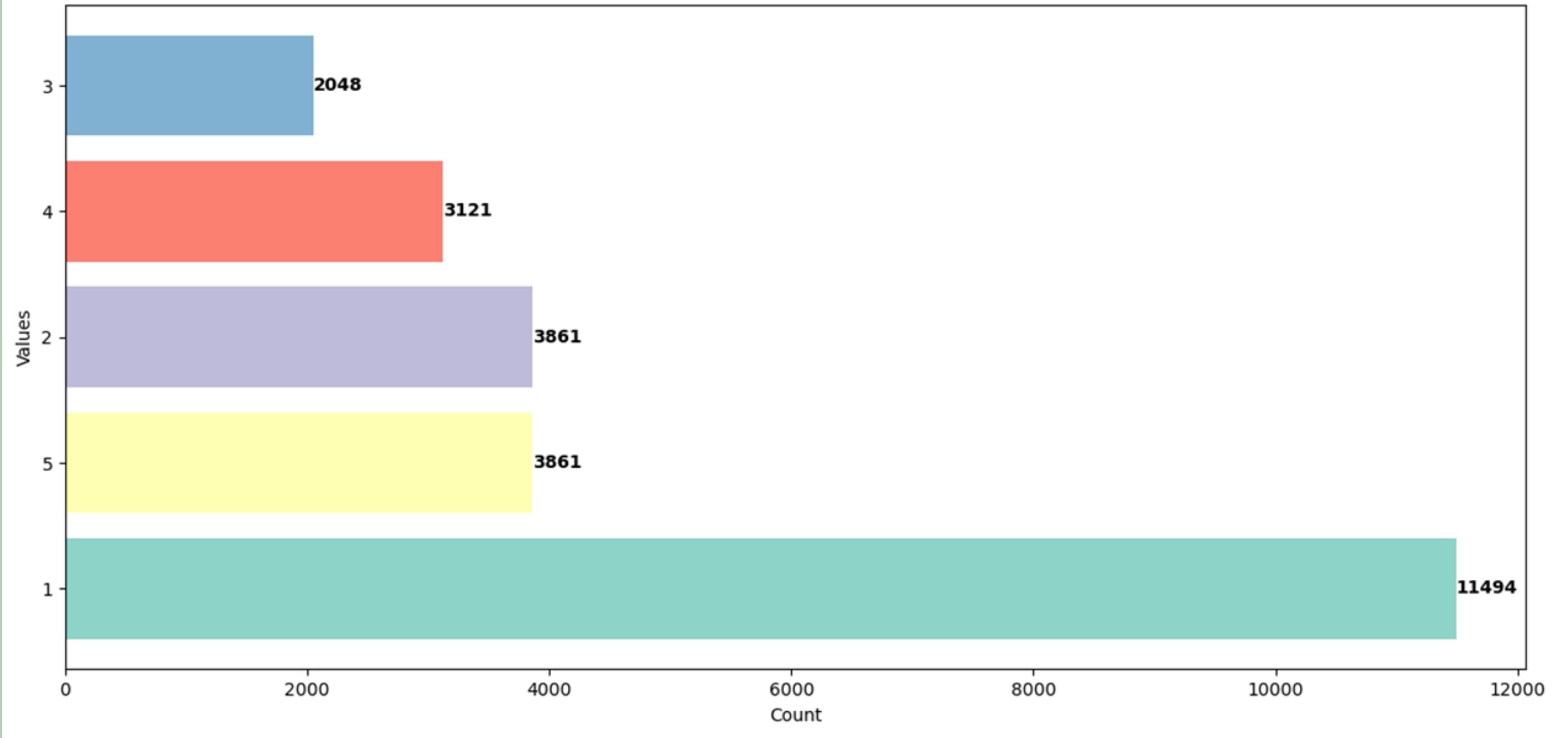


Figure 31: Quantity column after processing data

```
.: Quantity Values :.  
*****  
1    11494  
5    3861  
2    3861  
4    3121  
3    2048  
Name: Quantity, dtype: int64  
Number of null values: 0
```

Figure 33: Count Quantity column after processing data

Distribution of Values in Processed Column "Sales" (Horizontal Bar Chart)

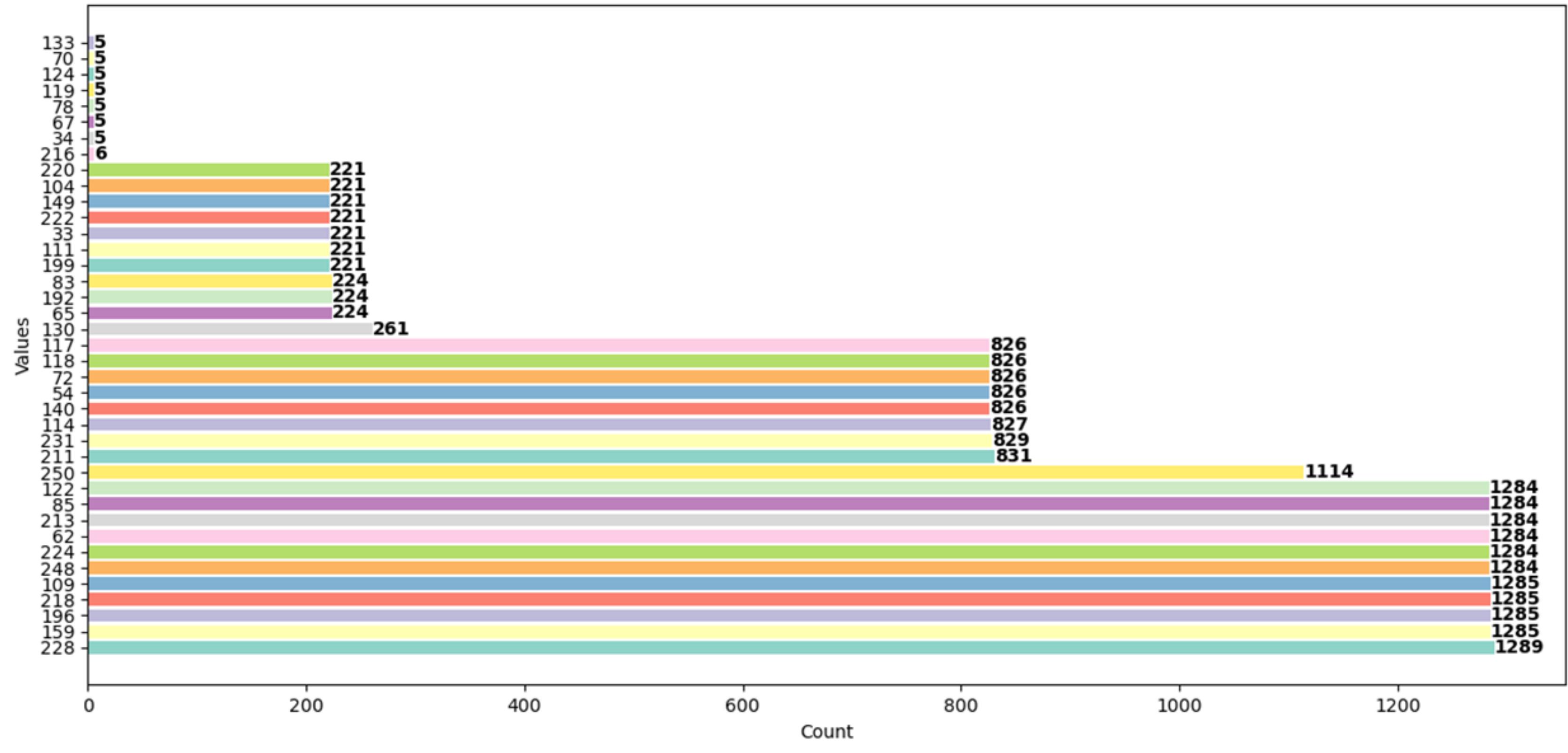


Figure 32: Sales column after processing data

```
.: Sales Values :.  
*****  
228    1289  
159    1285  
196    1285  
218    1285  
109    1285  
248    1284  
224    1284  
62     1284  
213    1284  
85     1284  
122    1284  
250    1114  
211    831  
231    829  
114    827  
140    826  
54     826  
72     826  
118    826  
117    826  
130    261  
65     224  
192    224  
83     224  
199    221  
111    221  
33     221  
222    221  
149    221  
104    221  
220    221  
216    6  
34     5  
67     5  
78     5  
119    5  
124    5  
70     5  
133    5  
Name: Sales, dtype: int64  
Number of null values: 0
```

Figure 34: Count Sales column after processing data

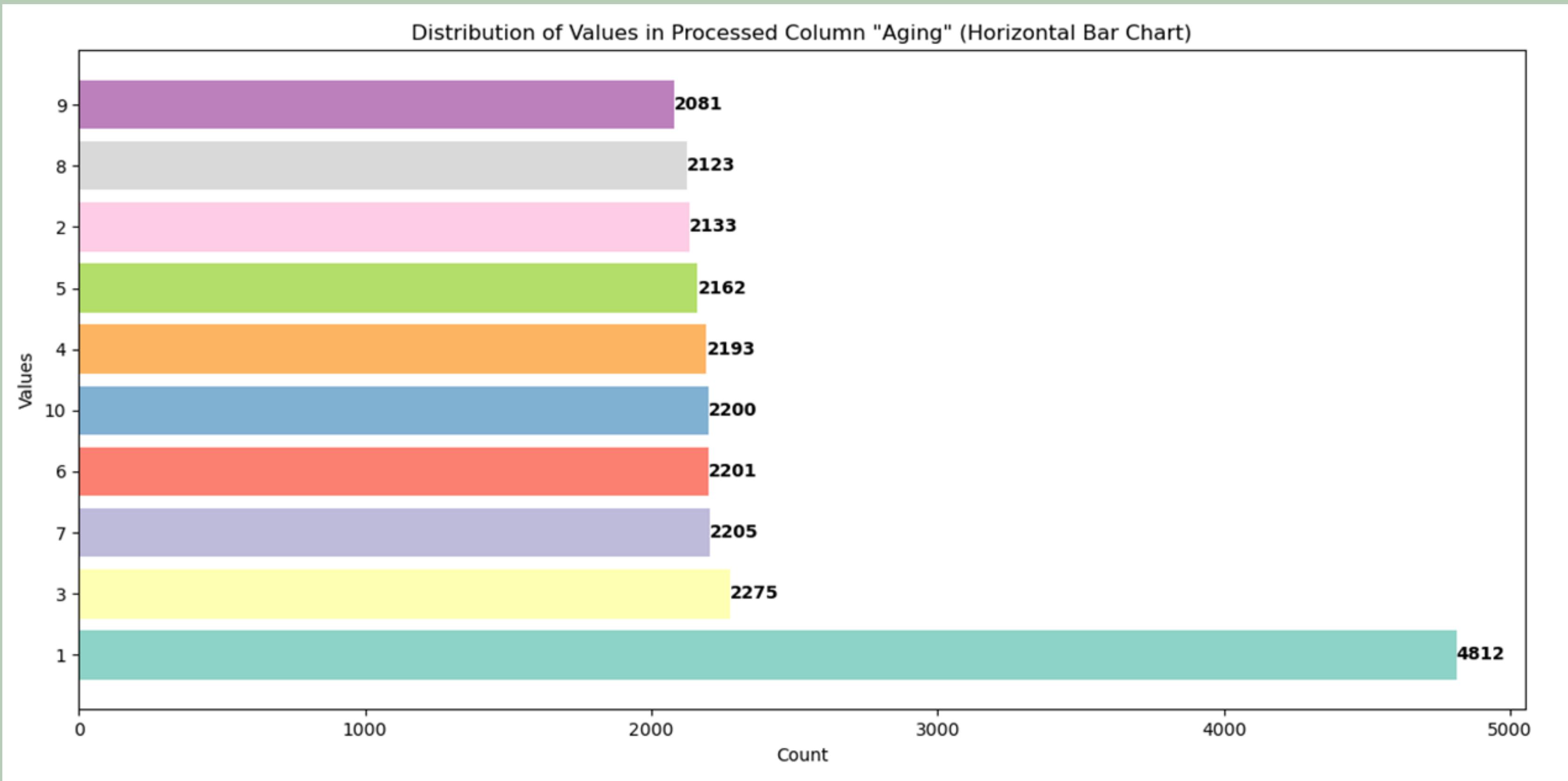


Figure 35: Aging column after processing data

```
.: Aging Values :.  
*****  
1      4812  
3      2275  
7      2205  
6      2201  
10     2200  
4      2193  
5      2162  
2      2133  
8      2123  
9      2081  
Name: Aging, dtype: int64  
Number of null values: 0
```

Figure 36: Count Aging column after processing data

II. Design Dashboard

1. Dashboard

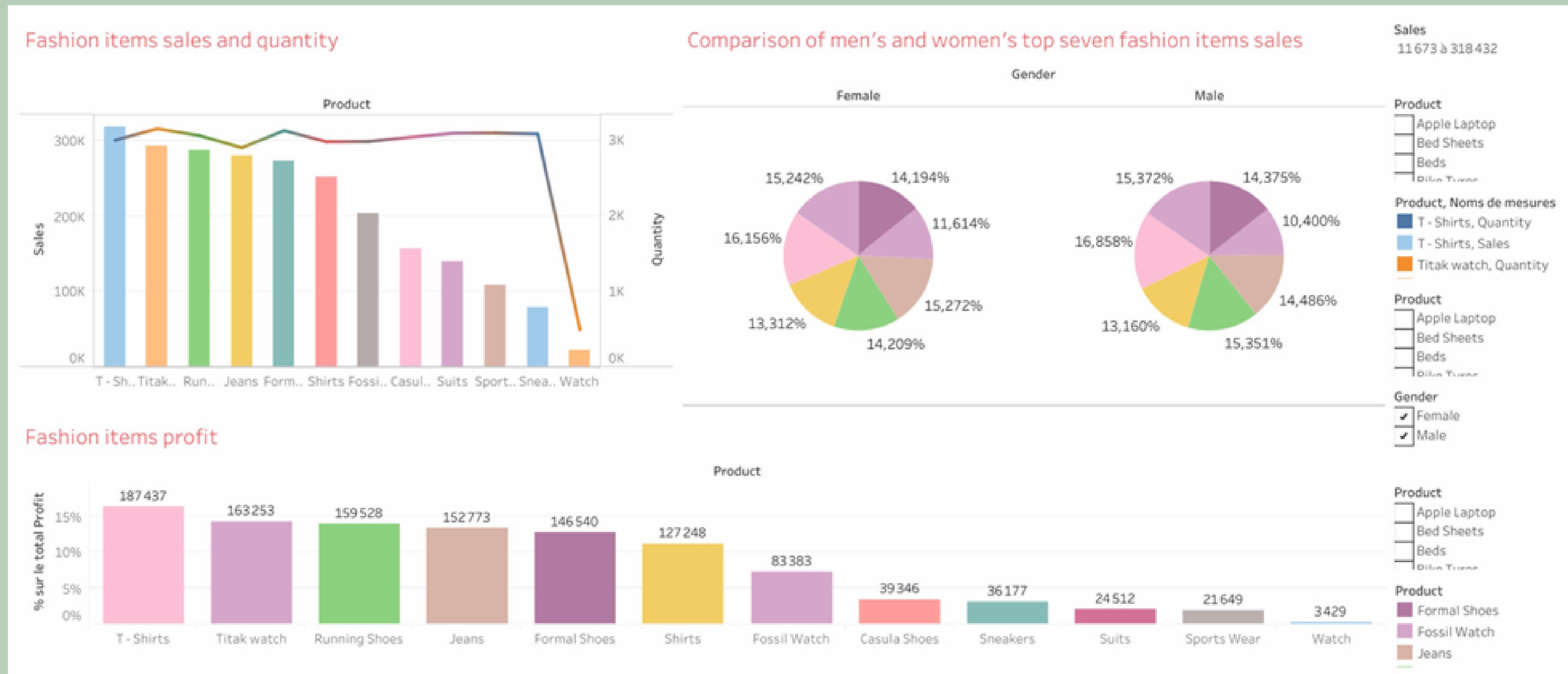


Figure 18 : Dashboard of fashion items

2. Chart

Fashion items sales and quantity

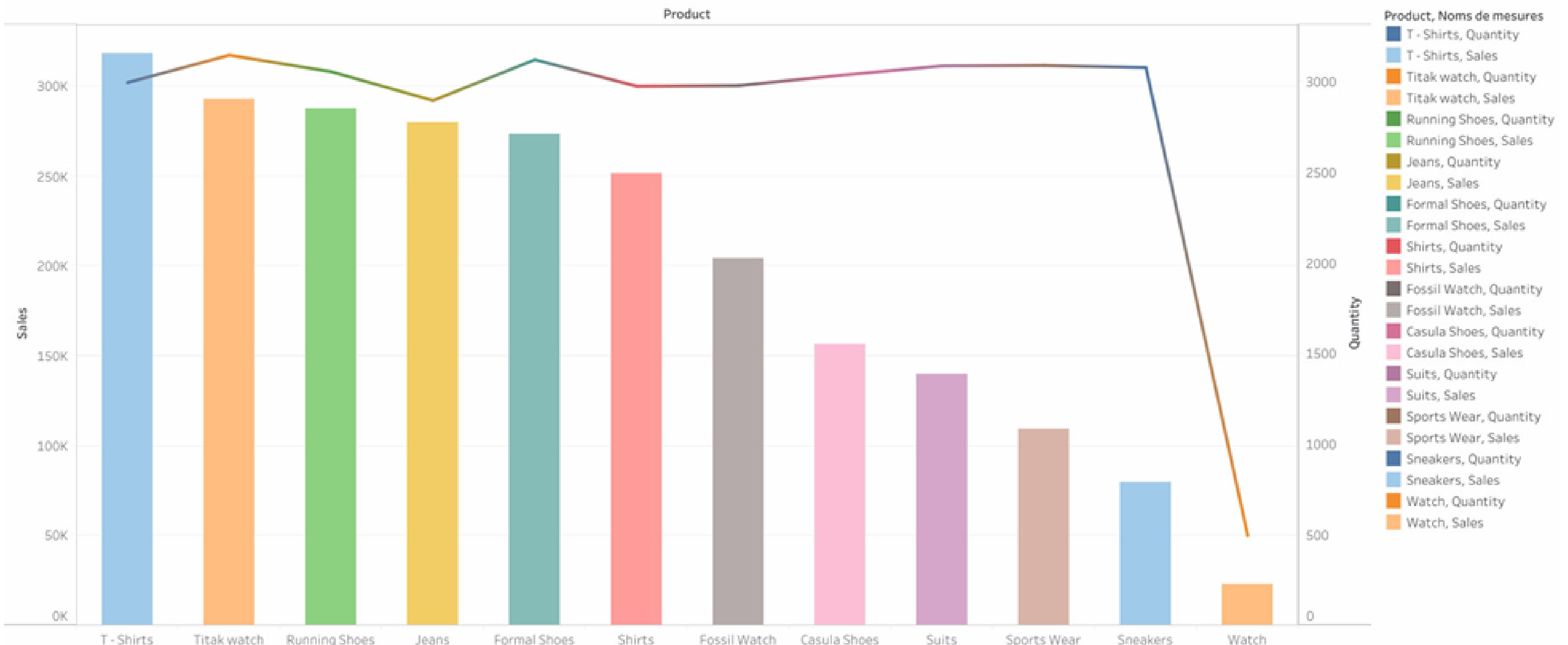


Figure 19 : Chart 1

Comparison of men's and women's top seven fashion items sales

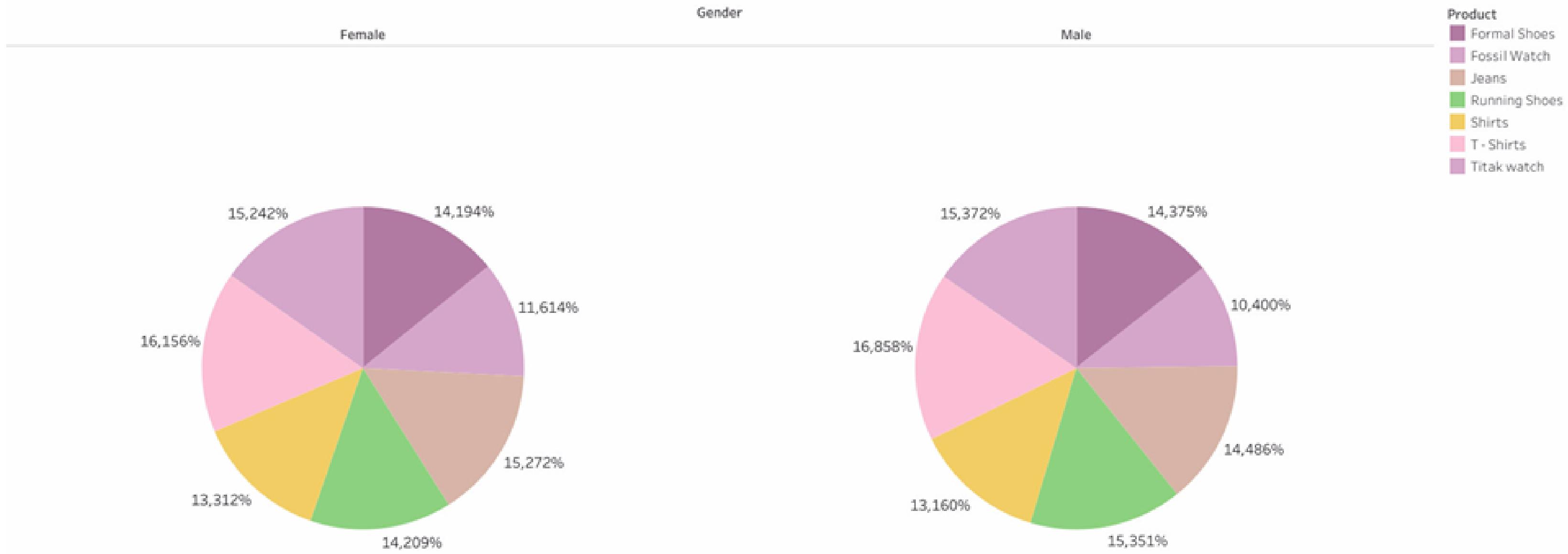


Figure 20 : Chart 2

Fashion items profit

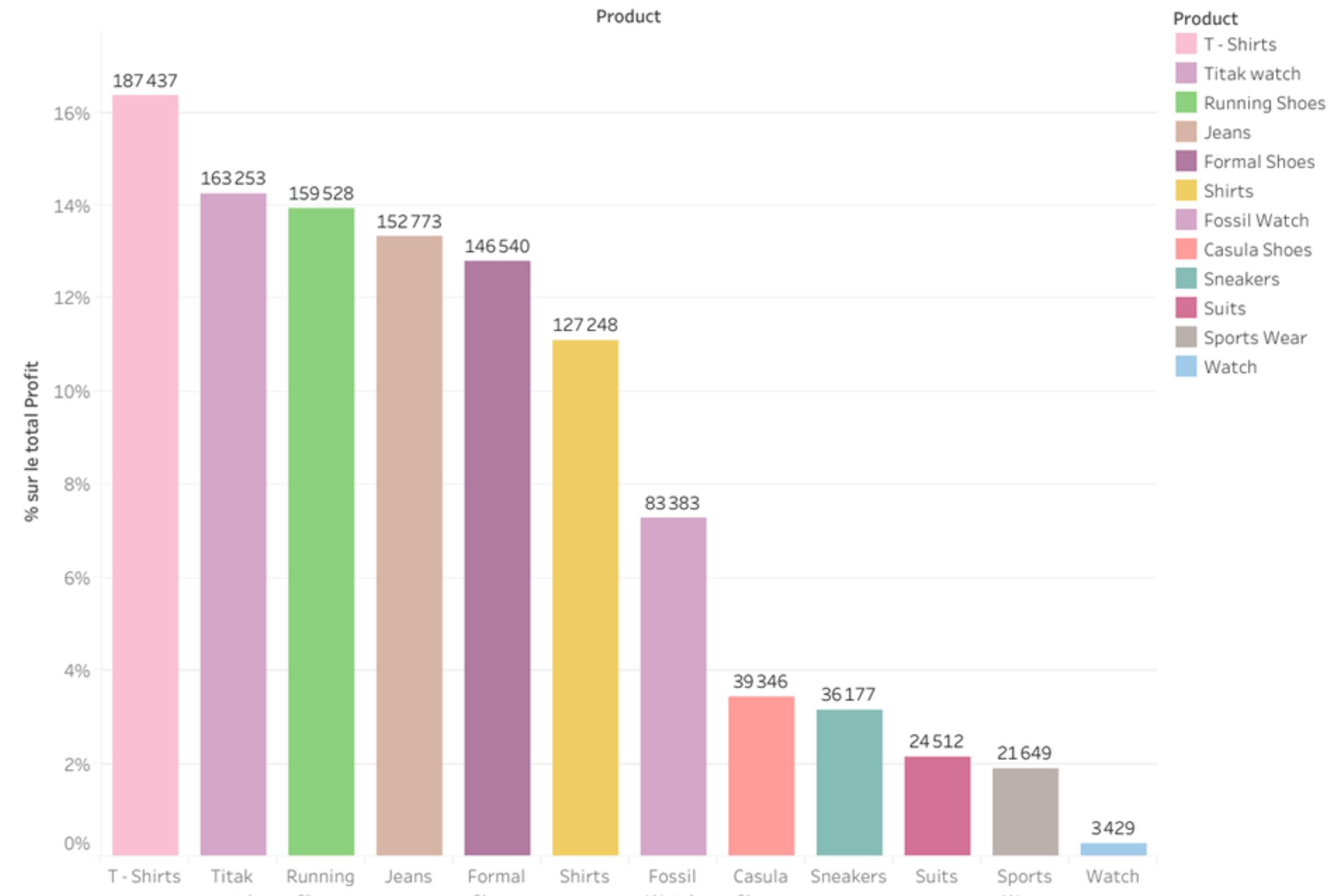


Figure 21 : Chart 3

3. Feedback

- Improve the color scheme in the first chart for better data presentation.
- Diversify chart types to enhance visualization in the first chart.
- Simplify the second chart comparing sales by gender to avoid confusion.
- Reduce the number of products in the second chart to enhance clarity.
- Further diversify the third chart displaying profit percentages for fashion items.
- Ensure clear and easy-to-understand presentation in the third chart's column format.
- Enhance the dashboard's overall coherence and effectiveness in conveying information.

4. Suggestion

- Updated chart 1 with a combination of bar and line chart for clearer visualization.
- Filtered and focused on top 7 fashion sales products in chart 2 to reduce complexity.
- Recognized the need for a more detailed and specific plan for the dashboard's scope and goals.
- Emphasized the importance of defining and calculating metrics through the dashboard.
- Acknowledged feedback to improve the overall coherence and effectiveness of the dashboard.

D. RESEARCH ABOUT DRIVING BUSINESS SUCCESS AND NAVIGATING LEGAL CHALLENGES:

- I. Shopee
- II. Tiki
- III. Some BI tools used in these company
- IV. Legal about security information

I. Shopee

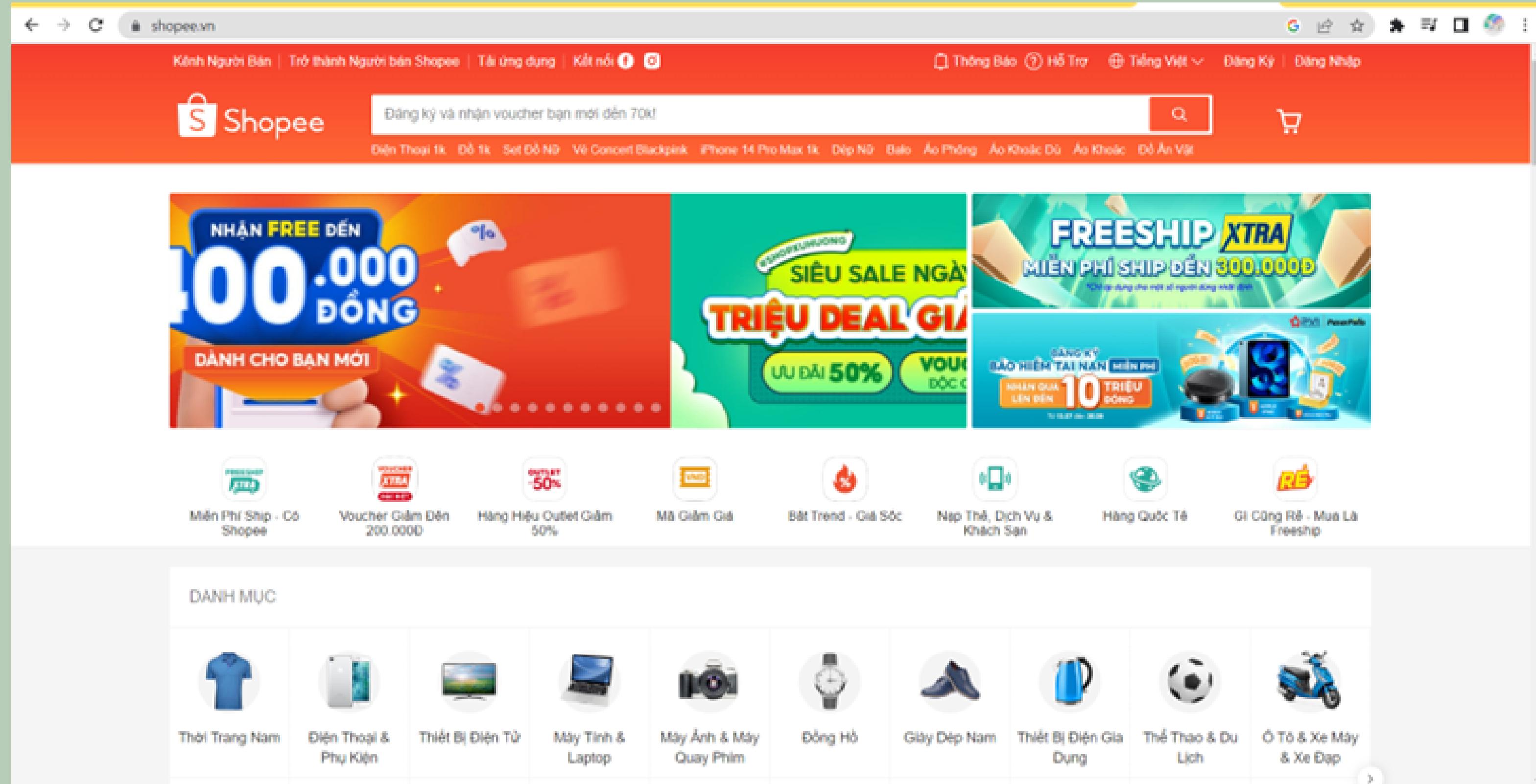


Figure 22 : Shopee website

II. Tiki

The screenshot shows the Tiki website interface. At the top, there is a search bar with the placeholder "Bạn tìm gì hôm nay?" (What are you looking for today?), a "Tim kiem" (Search) button, and links for "Trang chủ" (Home), "Astra", "Tài khoản" (Account), and a shopping cart icon. Below the search bar, there is a banner for "FREESHIP" (Free shipping) every day, followed by a "Tủ Sách Best Seller" (Best Seller Book Cabinet) offer where books are available from only 50k. To the right of these are two more promotional boxes: one for "FREESHIP KHÔNG GIỚI HẠN" (Unlimited Free Shipping) and another for "Gói hội viên VIP mới Freeship 100%" (New VIP member package 100% free shipping). On the left side, there is a sidebar titled "Nổi bật" (Highlight) containing links to "Tiki ChatGPT", "Astra Reward", "Tiki Exchange", "Giá Rẻ Mỗi Ngày", "Xả kho", "Mã giảm giá", "Ưu đãi thẻ, ví", "Đông tiền, nạp thẻ", "Mua trước trả sau", and "Bảo hiểm Tiki360". Below this sidebar, there is a section titled "Bộ sưu tập nổi bật" (Popular Collection) featuring six product categories: "Thương Hiệu Chính Hãng" (Official Brand) with a red bottle, "TikiNOW Giao Nhanh 2H" (TikiNOW Fast Delivery 2H) with a green box, "Thương Hiệu Bán Chạy" (Best Selling Brand) with a red box, "Sách Thiếu Nhi" (Children's Books) with a blue book, "Phones - Tablets" with a black tablet, and "Công Nghệ Hiện Đại" (Modern Technology) with a black speaker. At the bottom, there is a "Danh mục" (Category) section with links to "Sản Nhà Cửa Đời Sống Mới Ngày", "Sản Dồ Tiêu Dùng Mỗi Ngày", "Sản Bách Hóa Online Mỗi Ngày", "Ưu Đãi 30%++", "Trả Góp 12 Tháng", and "Mua Trước Trả Sau".

Figure 23 : Tiki user's interface

	Challenging	Solution	Result
1	Sales and Revenue Analysis	Consolidate and analyze sales data from different sources	This enables Shopee to make data-driven decisions that drive revenue growth and maximize profitability
2	Customer Segmentation and Personalization	BI tools can help Shopee analyze customer data, segment customers	Increased conversion rates and repeat purchases, ultimately driving revenue growth and customer retention
3	Inventory Management and Demand Planning	Real-time visibility into stock levels, track sales trends, and forecast demand accurately	Improve order fulfillment, and reduce the costs associated with excess inventory
4	Marketing Performance Analysis	Integrate with Shopee's marketing platforms and analyze key marketing metrics	Optimize marketing campaigns, allocate resources effectively, and improve ROI

2. Rating of Shopee:



The image shows the Shopee mobile application interface. The screen displays various sections including a top banner for 'SALE THỜI TRANG THU HỒNG' (Fashion Sale), a payment method section for 'Ví ShopeePay' with a balance of 2,300, and a navigation bar with icons for Home, Categories, Search, and Profile. Below these are sections for 'Hàng tiêu dùng' (Consumer Goods) starting from 111K, and a promotional banner for '11.11 Ngày hội mua sắm' (11.11 Shopping Festival) offering free shipping and a 4-day delivery guarantee.

Shopee

- Head office: Singapore
- Countries: Singapore, Malaysia, Indonesia, Thailand, Philippines, Taiwan, Brazil, Mexico, Colombia, Finland and Spain
- Rating: 4.3 stars out of 1.62M reviews (CH Play), 4.4 stars out of 1M reviews (App Store)

SECOMM[®]
DIGITALIZE YOUR BUSINESS

Top 5 prominent eCommerce super apps in Vietnamese market – Shopee

Figure 24 : Rating of Shopee

2. Rating of Tiki:



Figure 25 : Rating of Tiki

	Challenging	Solution	Result
1	Supply Chain Optimization	Integrate data from various sources, including inventory management systems, order processing systems, and supplier databases	Optimize its supply chain by ensuring adequate inventory levels, reducing order processing times, and improving collaboration with suppliers
2	Customer Behavior Analysis	Help Tiki analyze customer data, segment customers	Can enhance customer satisfaction, drive repeat purchases, and foster customer loyalty
3	Pricing Optimization	Collect and analyze pricing data from competitors, track market trends, and analyze customer purchasing behavior	Set competitive prices while maximizing profitability
4	Marketing Campaign Performance Analysis	Integrate with Tiki's marketing platforms, track key marketing metrics, and provide comprehensive campaign performance analysis	Optimize marketing spend, improve ROI, and increase the effectiveness of its marketing efforts

III. Some BI tools used in these company:

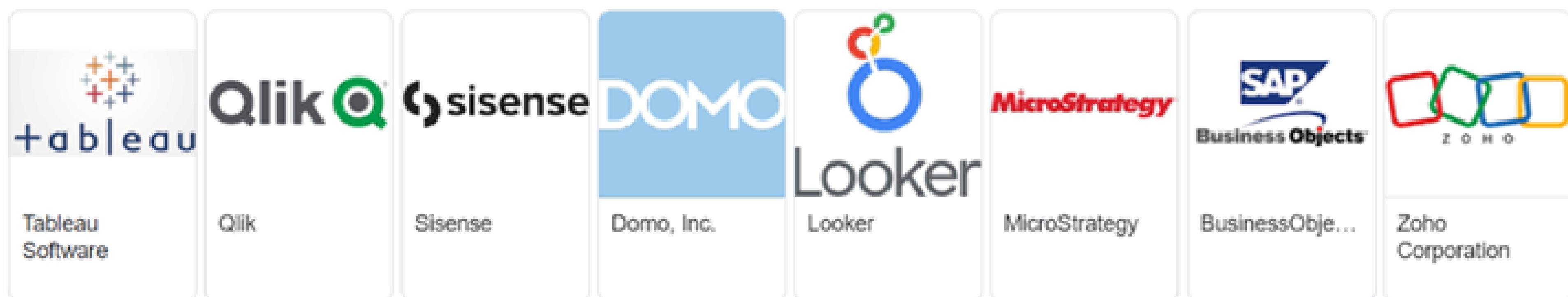


Figure 26 : Popular BI tools had been used nowadays

IV. Legal about security information

1. Legal security information in Viet Nam:

Decree No. 13/2023/NĐ-CP, recently issued by the Government, will take effect from July 1st, 2023. It regulates the protection of personal data and the responsibilities of relevant agencies, organizations, and individuals in safeguarding personal data.

2. What behaviors are prohibited?

- Processing personal data in violation of the laws on personal data protection
- Processing personal data to create information or data against the Socialist Republic of Vietnam;
- Processing personal data to create information or data that affects national security, Social order and safety, or the legitimate rights and interests of other organizations and individuals;
- Obstructing the activities of competent authorities in protecting personal data; and abusing activities related to the protection of personal data to violate the law.

3. Company successfully protected customer information:

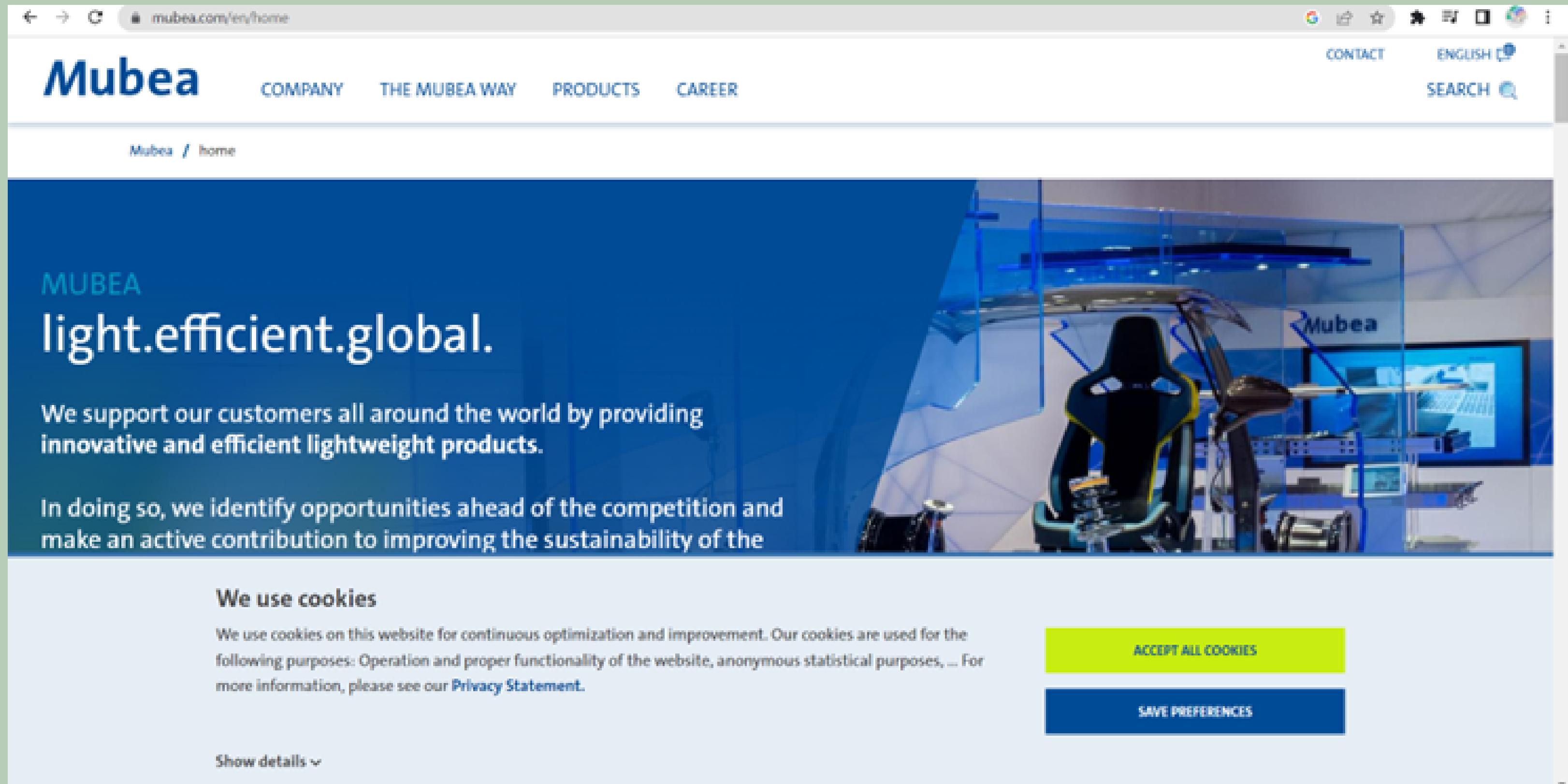


Figure 27 : Website of Mubea company

E. Conclusion

Overall, this report exhibits a thorough knowledge of business intelligence principles and their practical implementations. The completed tasks gave insights into the potential of BI for driving informed decision-making, streamlining corporate processes, and gaining a competitive edge. It also underlined the need of ensuring legal and ethical compliance while dealing with user data. Organizations may discover important insights and generate sustainable success in today's data-driven business world by leveraging the power of BI and embracing its promise.

F. References

- 롯데ON. (n.d.). 롯데ON. [online] Available at:
<https://www.lotteon.com/p/display/main/lotteon> [Accessed 19 Jul. 2023].
- Morris, A. (2021). *23 Examples of Business Intelligence*. [online] Oracle NetSuite. Available at: <https://www.netsuite.com/portal/resource/articles/business-strategy/business-intelligence-examples.shtml> [Accessed 19 Jul. 2023].
- www.domo.com. (n.d.). *Domo Resource - How business intelligence is revolutionizing the way we make decisions*. [online] Available at: <https://www.domo.com/learn/article/how-business-intelligence-is-revolutionizing-the-way-we-make-decisions> [Accessed 19 Jul. 2023].
- Le, D. (2022). *Top 5 Prominent eCommerce Super Apps in Vietnamese market*. [online] Available at: <https://secomm.vn/top-5-super-apps-in-vietnamese-ecommerce-market/> [Accessed 19 Jul. 2023].
- DQS (2022). *Bảo mật thông tin công ty: Nhóm các công ty Mubea*. [online] Dqsglobal.com. Available at: <https://www.dqsglobal.com/vi-vn/cac-khoa-hoc/dqs-blog/b%E1%BA%A3o-m%E1%BA%ADt-thong-tin-doanh-nghi%E1%BB%87p-m%E1%BB%99t-nghien-c%E1%BB%A9u-di%E1%BB%83n-hinh-c%E1%BB%A7a-nhom-muber> [Accessed 19 Jul. 2023].