

# Market & Retail Analytics

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01

Analysis of Automobile parts  
manufacturing company

# Today's agenda

Executive Summary of the data

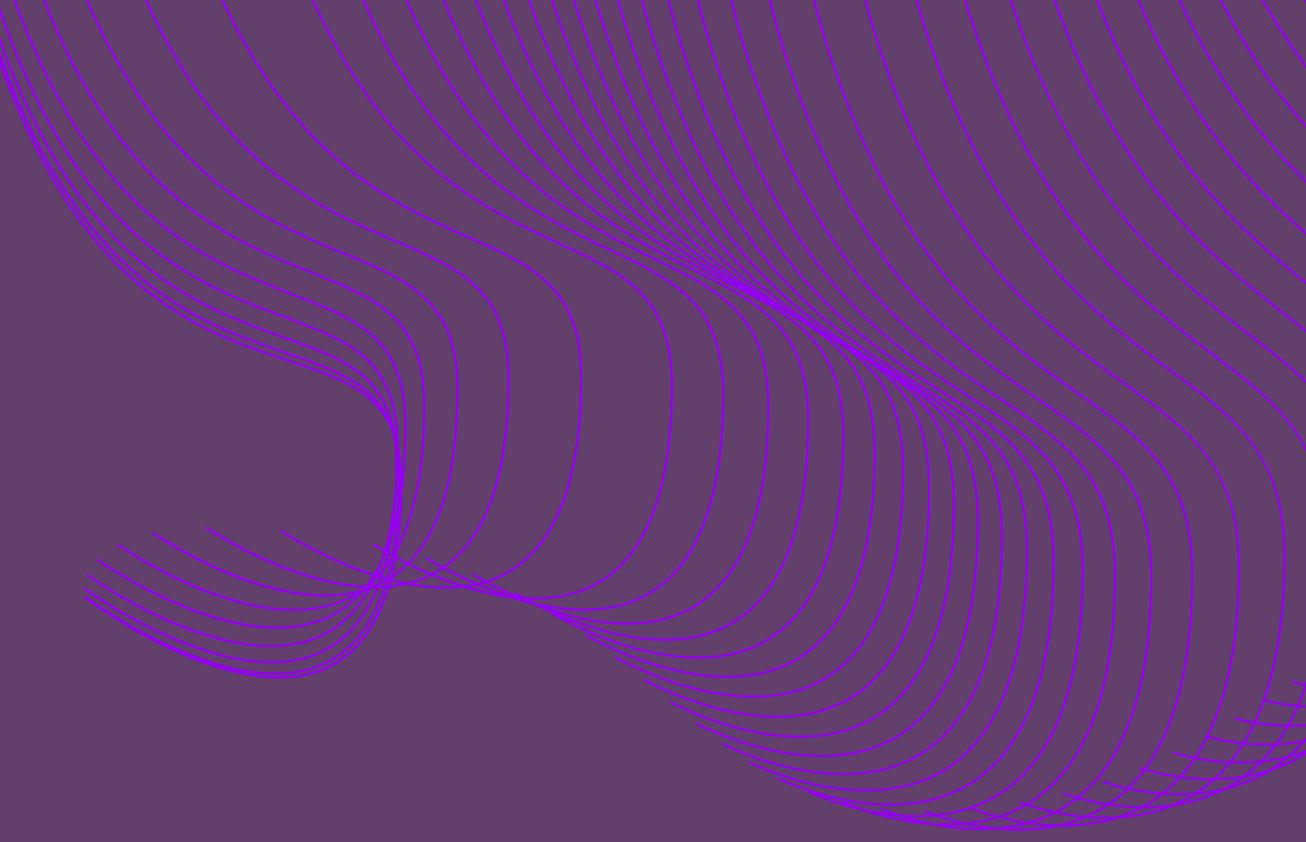
Exploratory Analysis and Inferences

Summary of the Inferences

Customer Segmentation using RFM analysis

Inferences from RFM Analysis

Recommendations



# Executive Summary



# Problem Statement

- An automobile parts manufacturing company has provided us the data of their last 3 years transactions.
- Our role is to find the underlying buying patterns of the customers, provide the company with suitable insights about their customers, and recommend customized marketing strategies for different segments of customers.

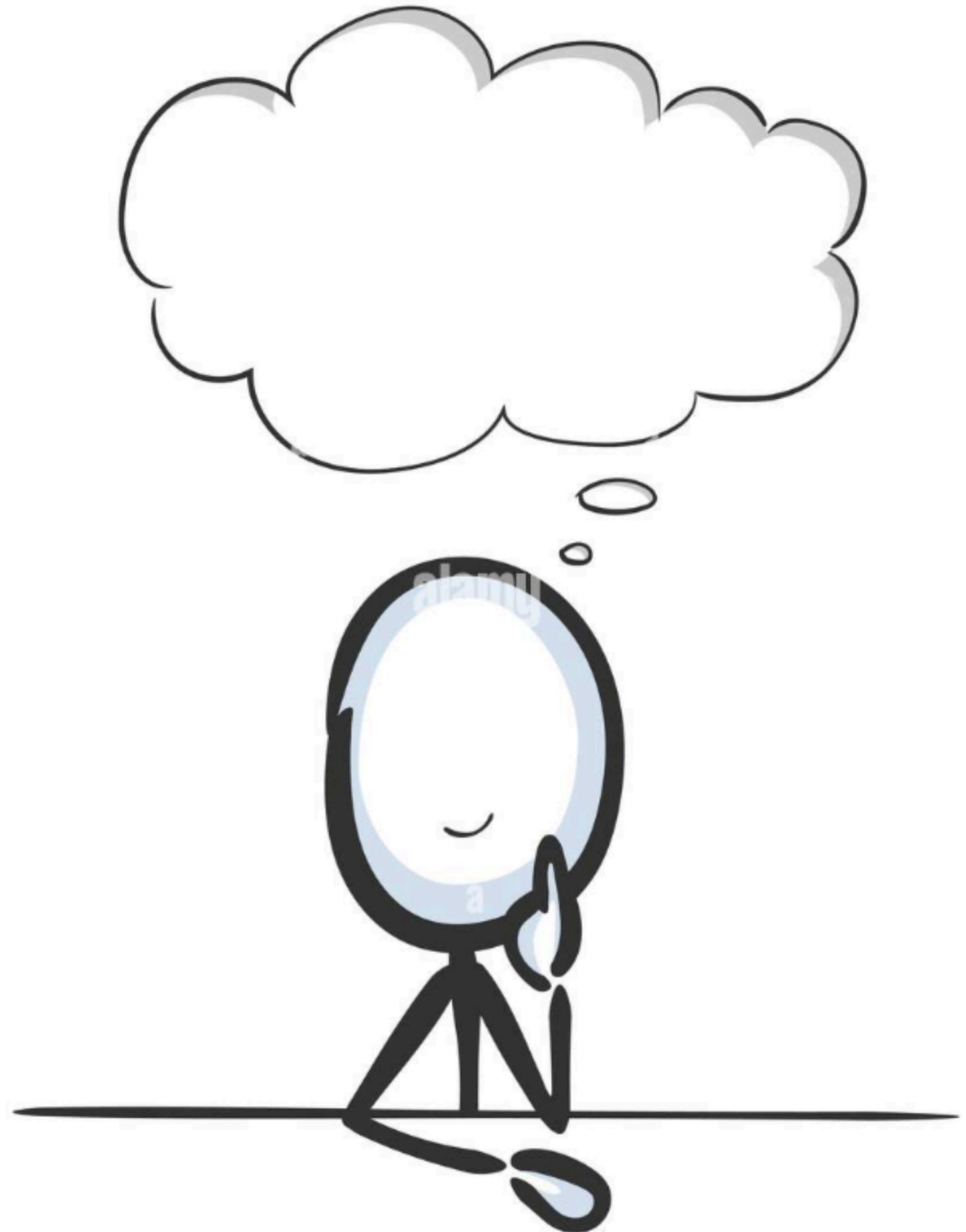
# Executive Summary

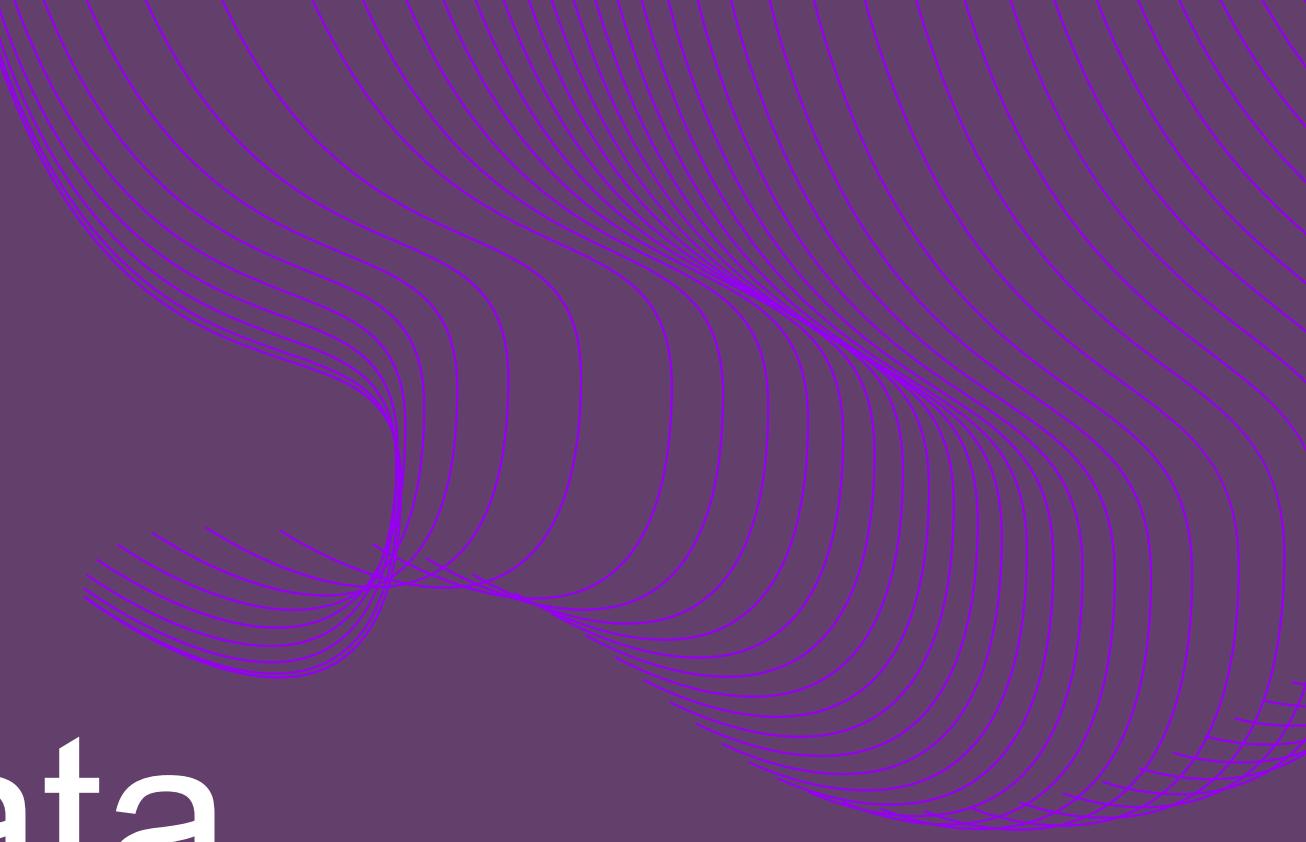
- The objective of this project is to use RFM Analysis to segment the customers based on their transactional patterns.
- The dataset consists of 2748 rows and 20 columns.
- The mean quantities order is around 35.
- There are no duplicate values present.
- The sales exhibit significant variability, with a standard deviation of 1839.
- The most recent transaction is made by Euro Shopping Channel.
- The average selling price or retail price is less than the actual price.
- The highest transaction recorded to date is \$14,082, attributed to The Sharp Gifts Warehouse.

Variables	count	mean	std	min	25%	50%	75%	max
Quantity Ordered	2747	35.1	9.8	6.0	27.0	35.0	43.0	97.0
Price Each	2747	101.1	42.0	26.9	68.7	95.6	127.1	252.9
Sales	2747	3553.0	1839.0	482.1	2204.4	3184.8	4503.1	14082.8
Days Since Last order	2748	1756.5	819.7	42.0	1077.0	1760.5	2436.3	3562.0
MSRP	2747	100.7	40.1	33.0	68.0	99.0	124.0	214.0

# Assumptions

- Each transaction is unique as there are no duplicate records.
- We are not considering the canceled, disputed, and on-hold transactions as they are redundant in this case.
- Phone number is considered as the unique identifier for each customer.
- The sales are in dollars \$.

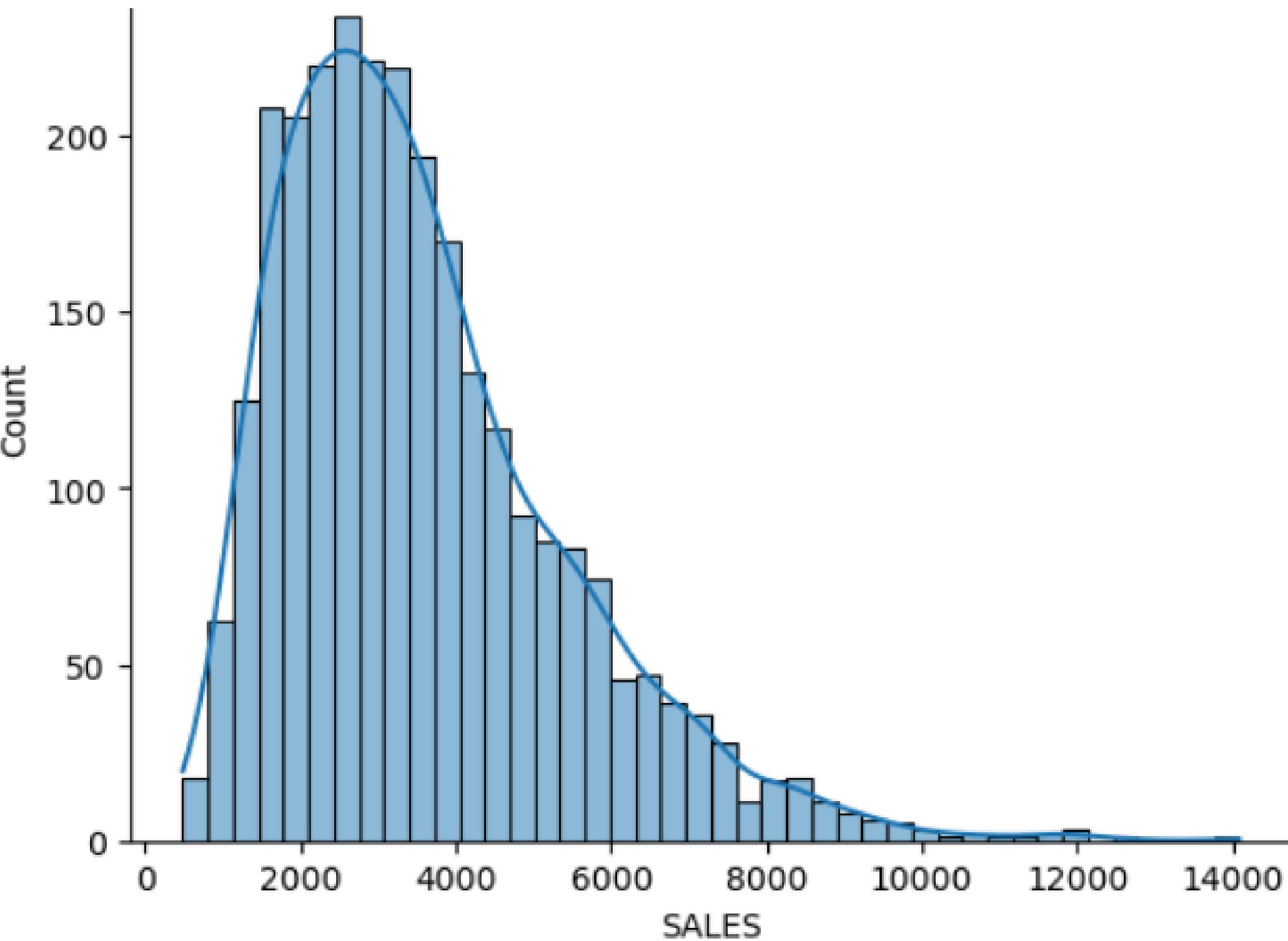




# Exploratory Data Analysis

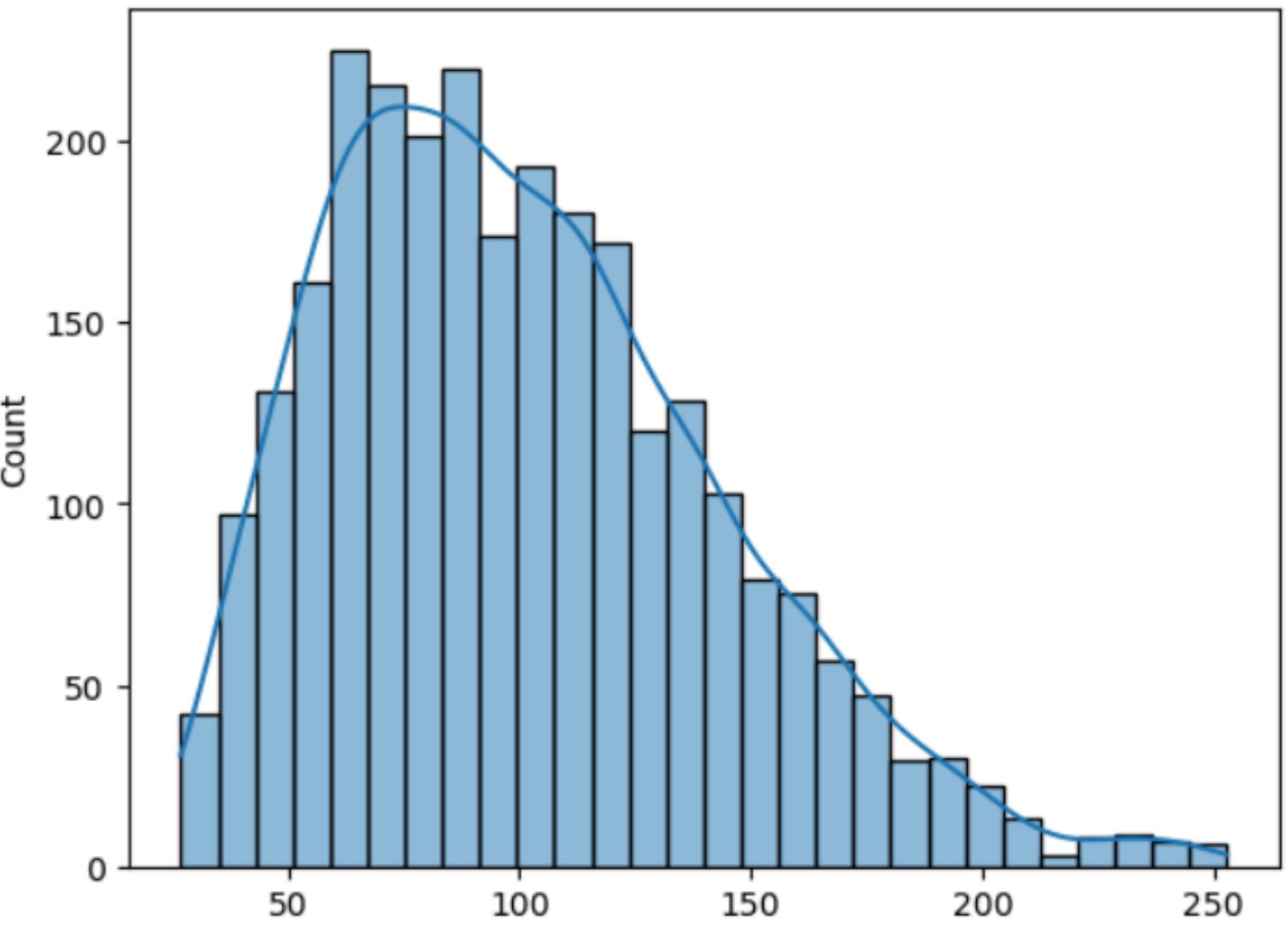
# Sales Trend

- The sales follow a right skewed normal distribution.
- Most of the sales are between 1900\$ to 6000\$.



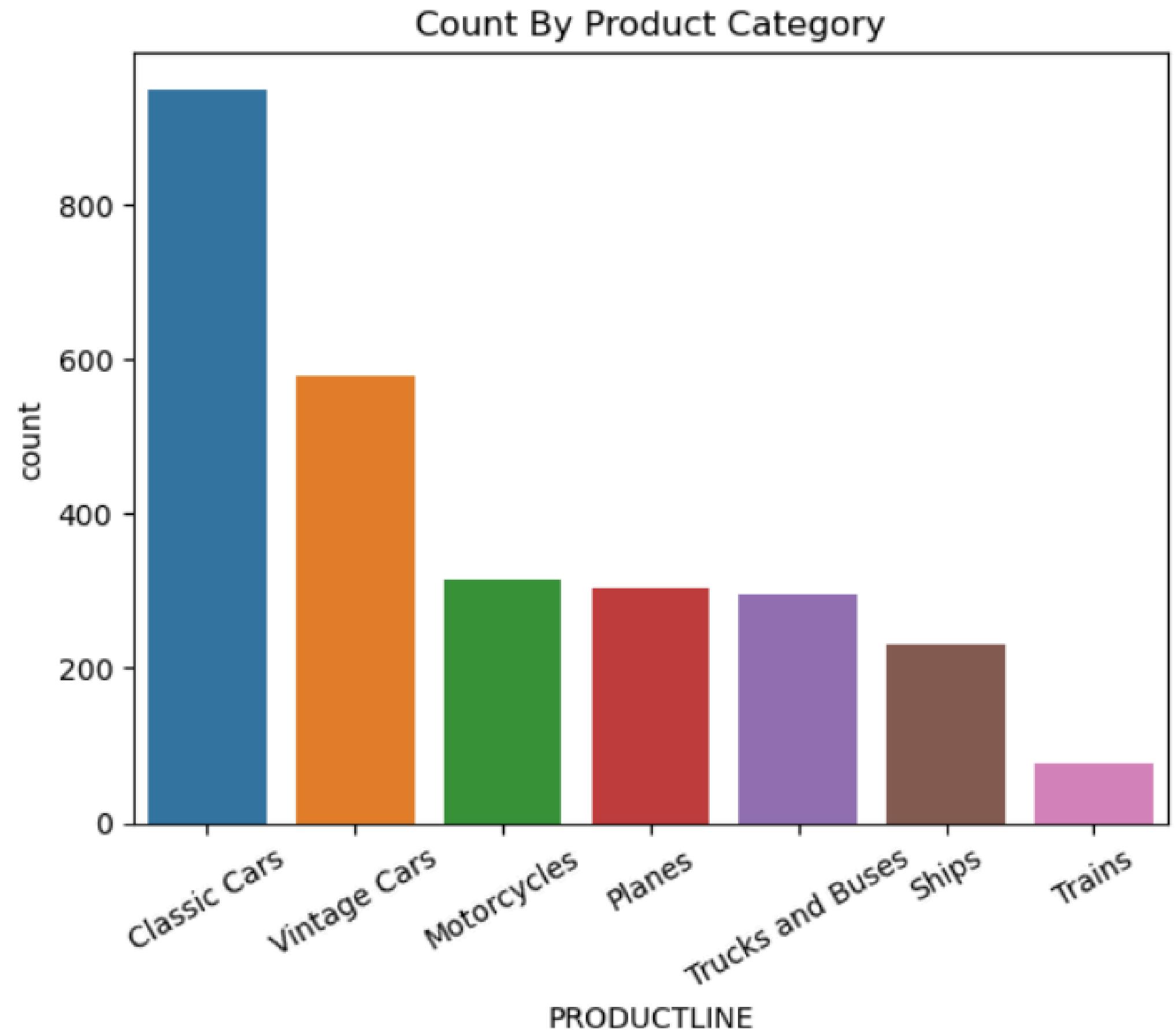
# Price

- Each quantity's price adheres to a normal distribution.
- Majority of the products have prices in the range of 50\$ to 150\$.



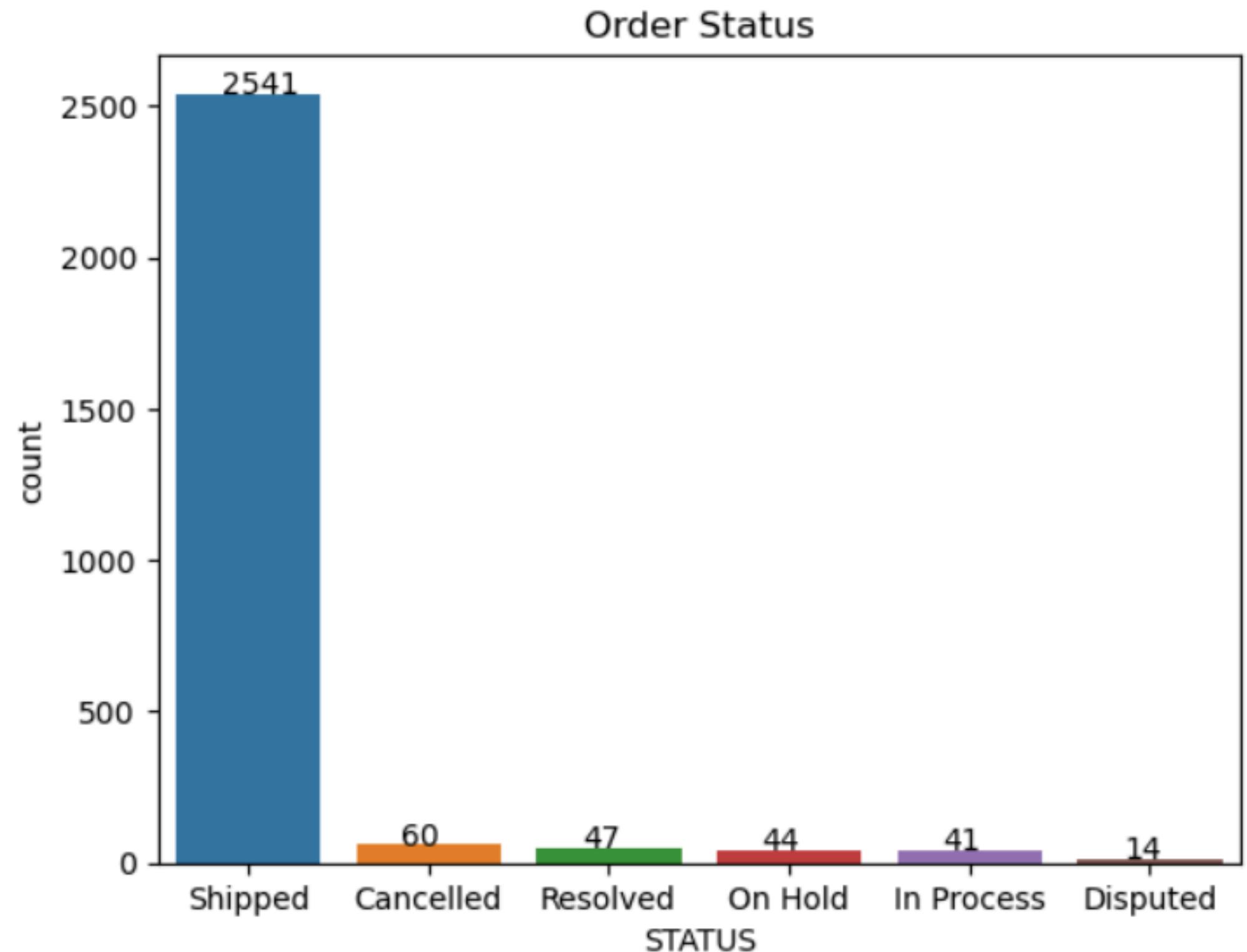
# Product Category

- The highest sales of parts were for classic cars, followed by vintage cars and motorcycles.
- The higher sales of parts for classic and vintage cars can be attributed to their older components and the need for frequent maintenance.
- Heavy vehicles have comparatively lower sales.



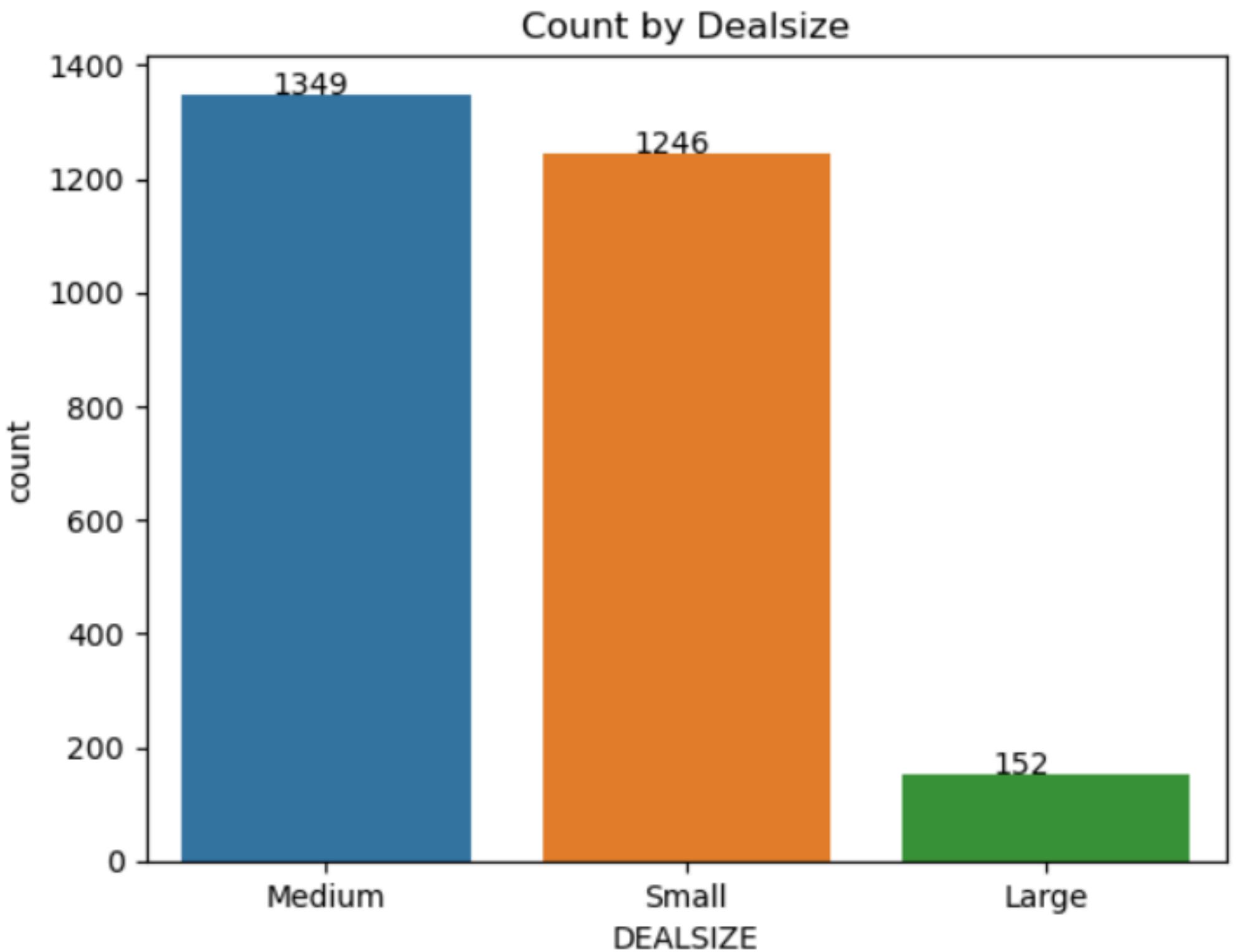
# Order Status

- Around 92% of the transactions are shipped to the respective clients.
- Although cancelled and disputed transactions account for only 2% of the total, it is crucial to investigate and resolve them to prevent future issues.



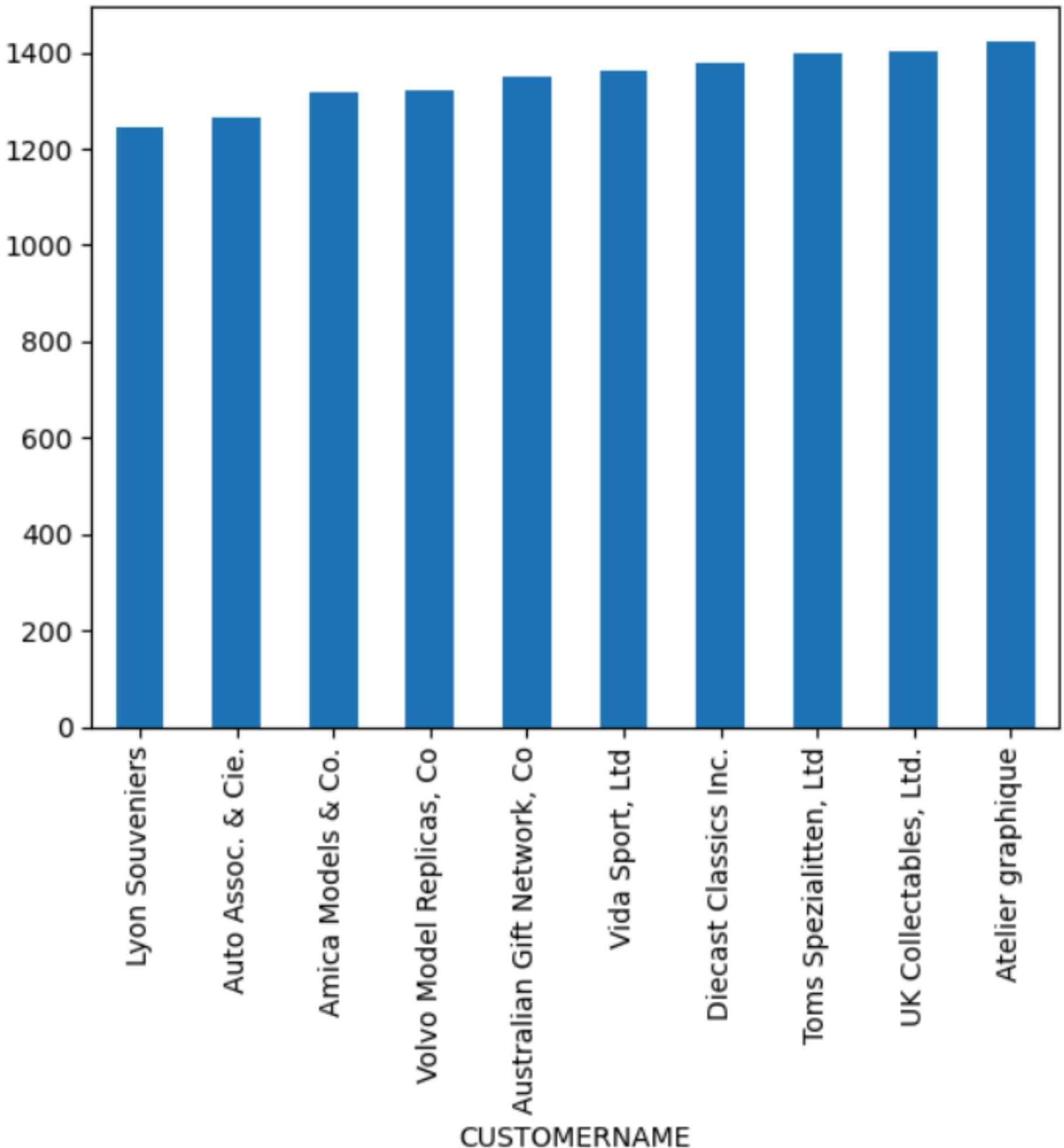
# Deal Size

- Approximately 95% of the deals fall into the medium or small lot size category.
- Only 5% of the total transactions are classified as large-scale orders.



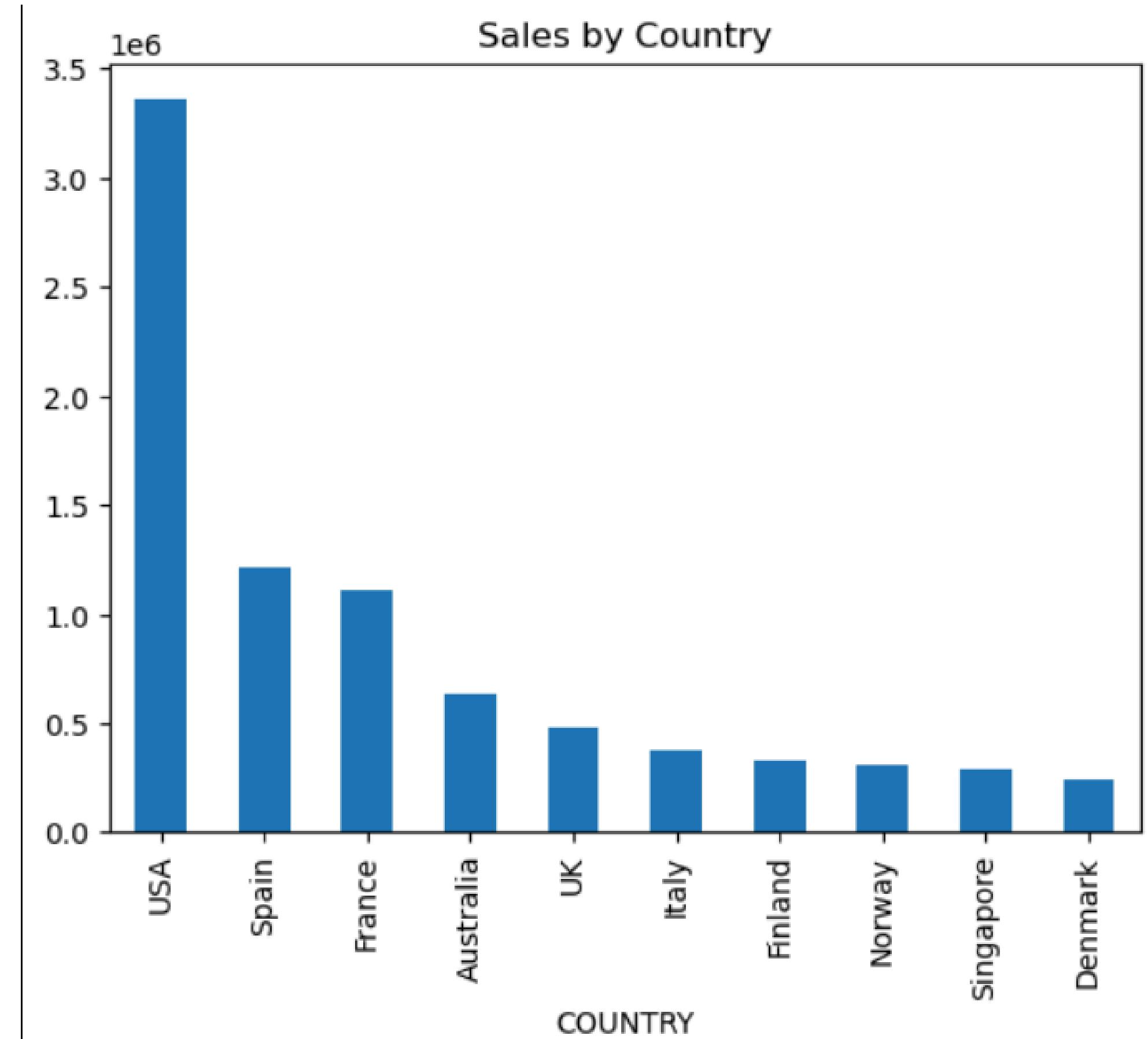
# Recent Customers

- The plot shows the top 10 customers with the least days since last order.
- It is vital to focus on these customer as they have the high recency and are more likely to stay.
- Lyon Souveniers have contributed to the sales of around 78570 \$ in total.



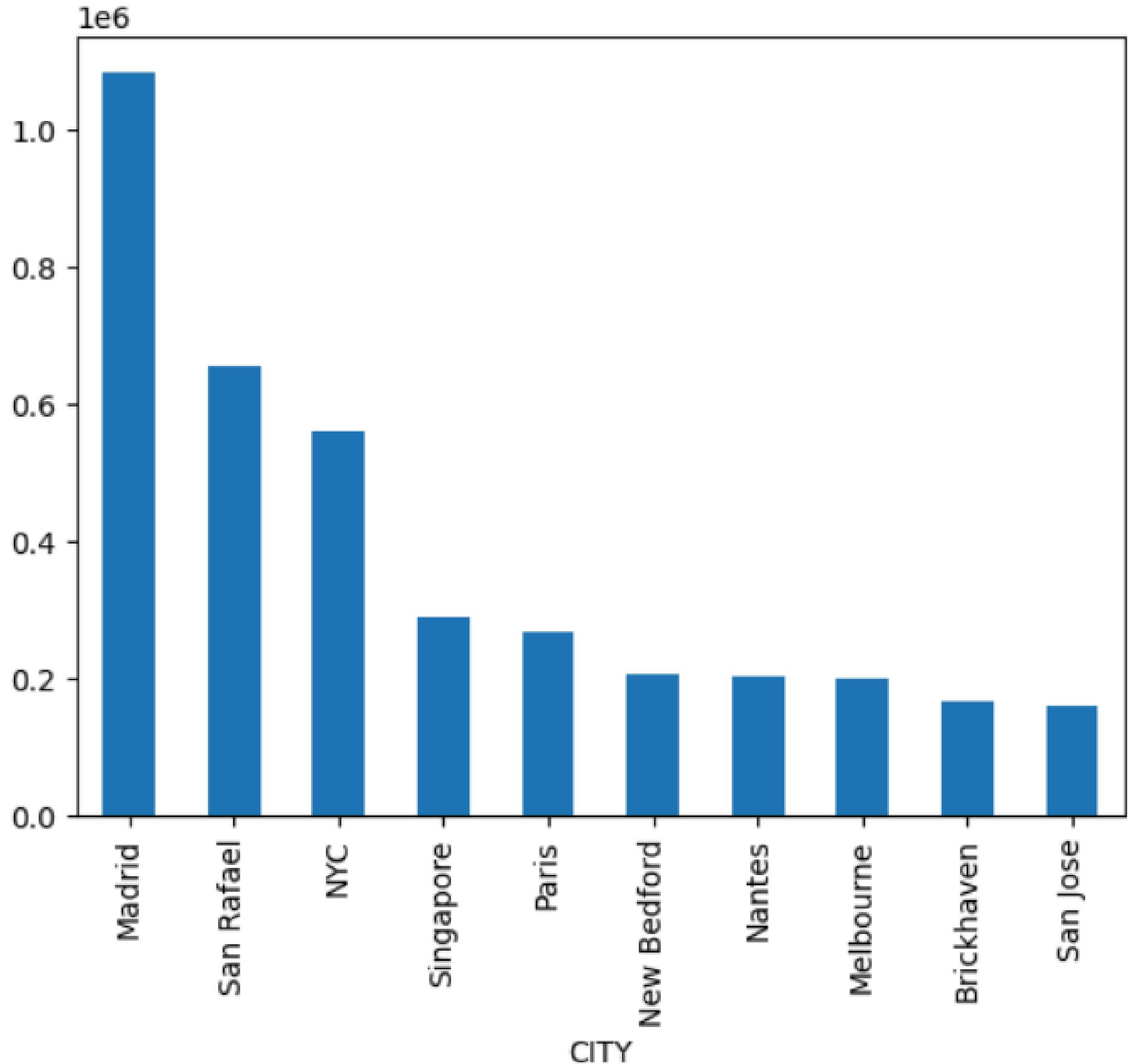
# Sales by Country

- Clients from The United States stands out as the primary contributors to sales
- The share of US is around 35% of the total sales.
- The top 10 countries account for approximately 85% of the total sales



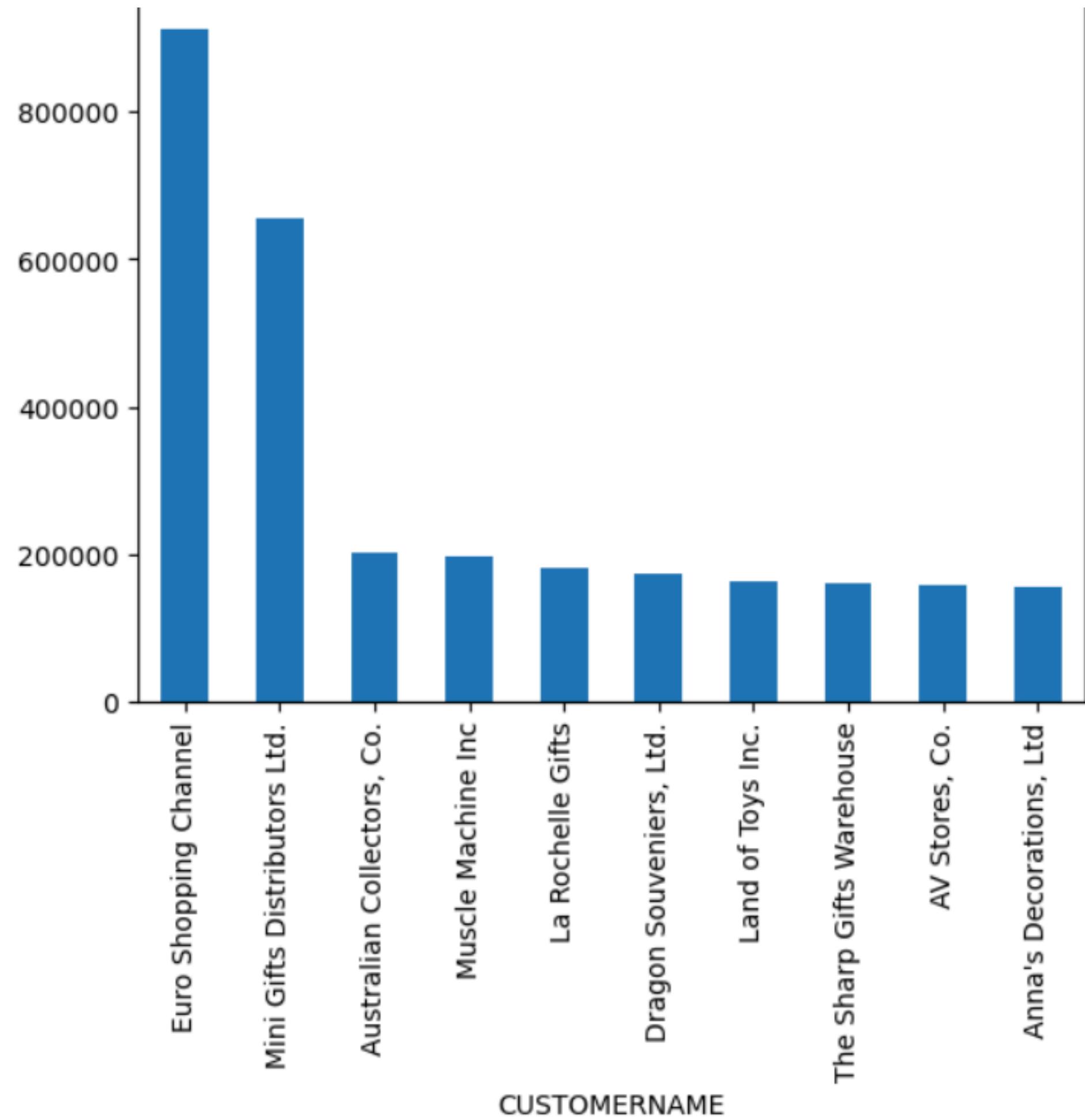
# Sales by City

- Madrid, San Rafael & Newyork are the top 3 contributors to sales.
- Madrid accounts for 89% of Spain's total sales.
- The top 5 cities have a total sale of 2855630 \$ which is 30% of the overall sales.



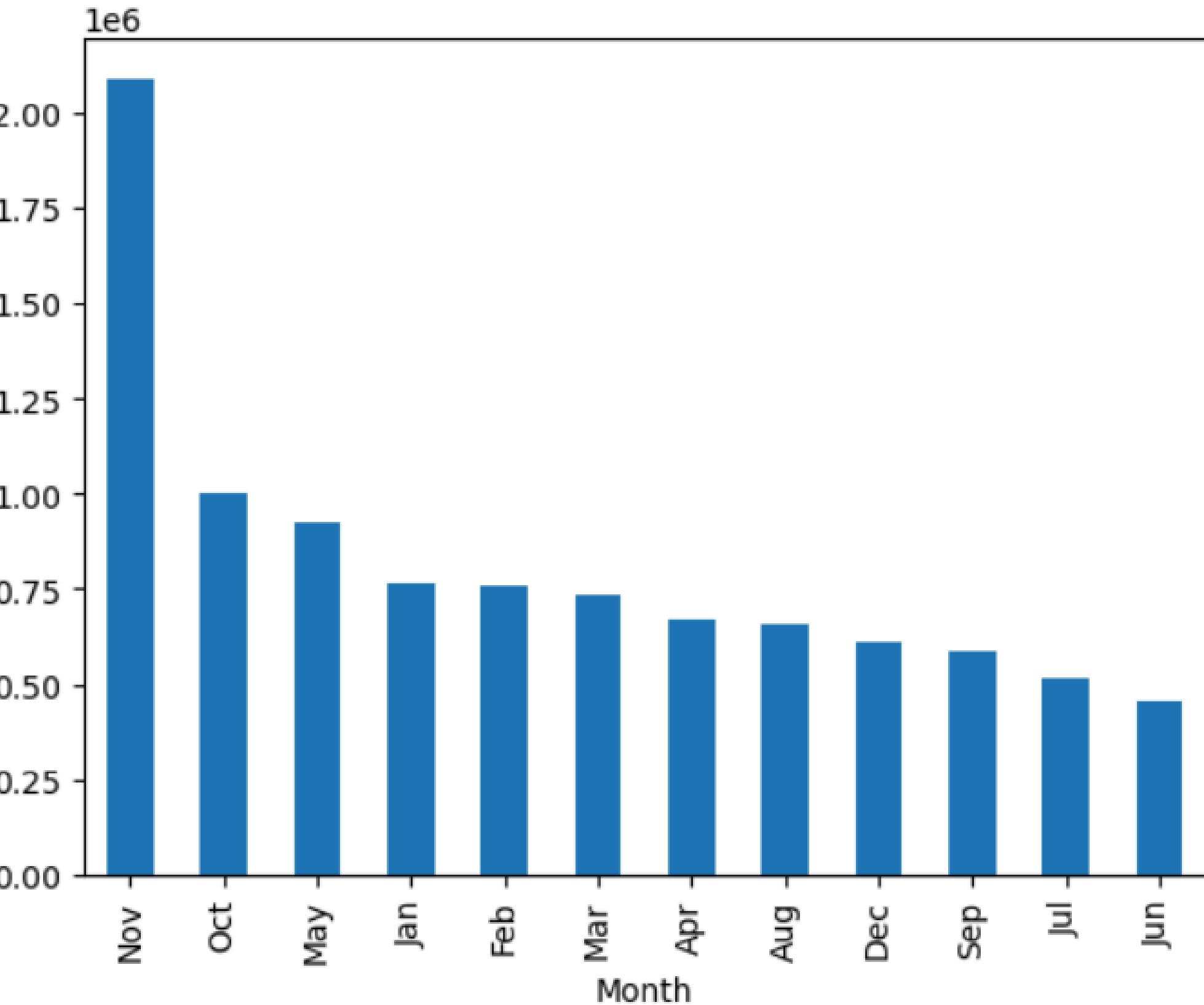
# Sales by Customer

- The top 2 customers in terms of sales are Euro shopping channel and Mini gifts distribution Ltd.
- They contribute to 15% of the total revenue.



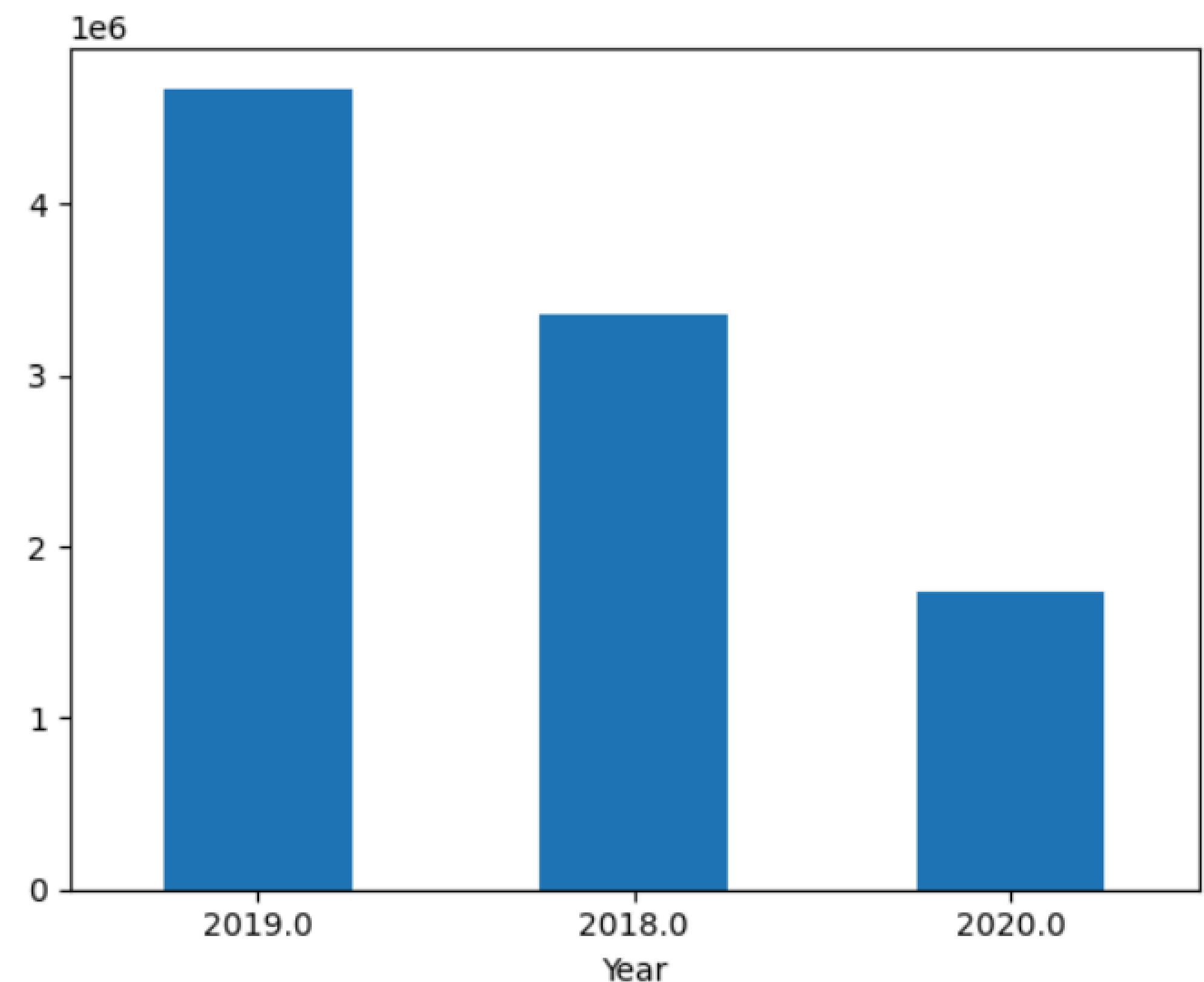
# Sales by Month

- Sales experienced a sharp increase from September to October.
- October & November are top two months in terms of revenue with November being significantly higher.
- Sales remain approximately constant in all other months except for November.



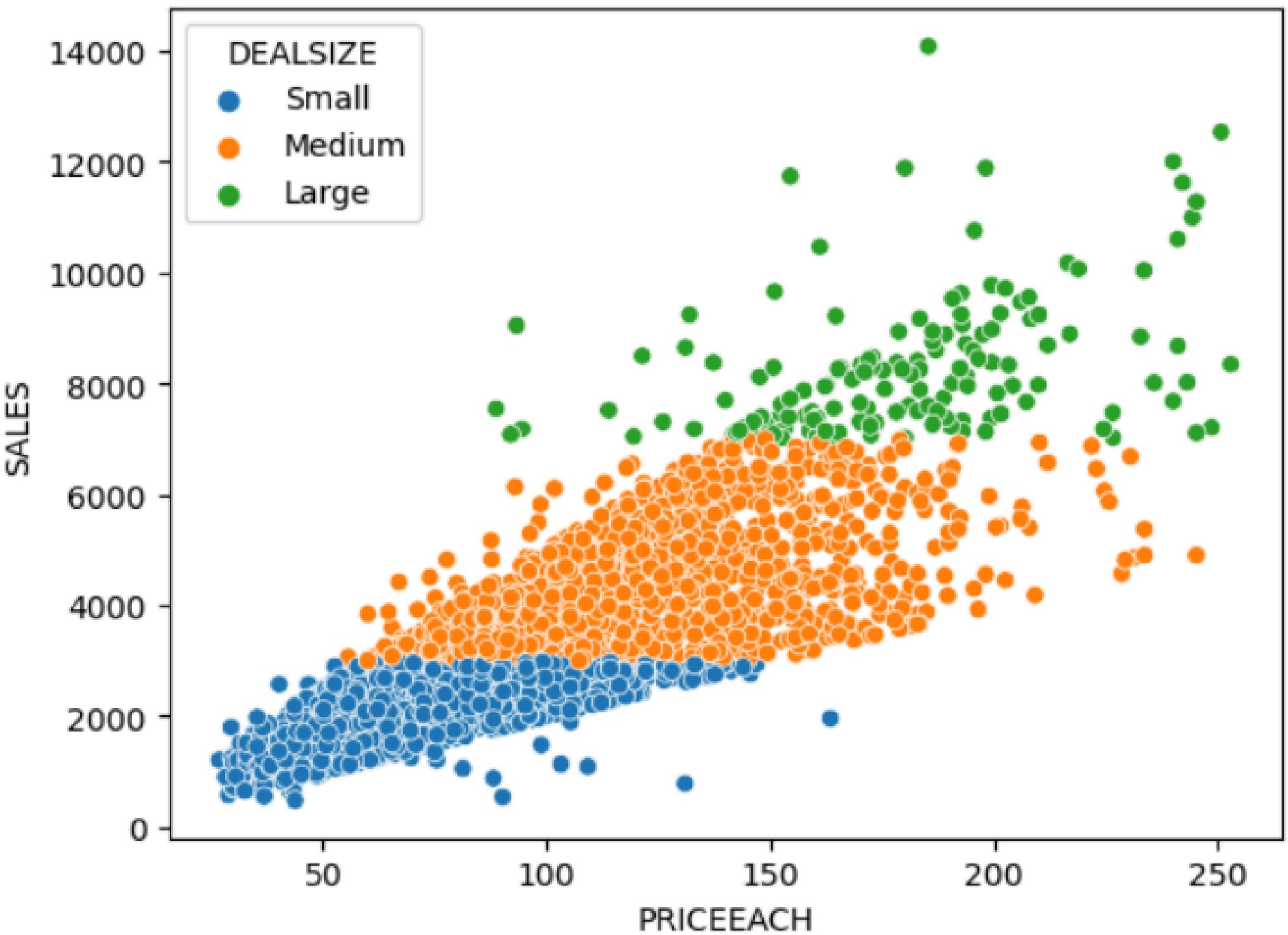
# Sales by Year

- The revenue exhibited growth from 2018 to 2019
- However, in 2020 there is a significant dip in sales.



# Price Vs Sales

- The plot clearly shows that as the price per unit increases, sales also increase.
- This increase becomes particularly pronounced for larger deal sizes.



# Summary

- As the top 10 countries alone account for 85% of the total sales, it is recommended to focus on clients in those regions.
- The month of November has a significantly higher sale comparatively.
- Transactions involving larger deal sizes result in maximum revenue.
- Spain is the second-highest contributor to sales, and Madrid, a city in Spain, accounts for 89% of its total sales.
- Sales have experienced a downturn since their peak in 2019.





# RFM ANALYSIS

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## RECENCY

How recently a customer made a purchase. Recent customers are more likely to engage in future transactions.

## FREQUENCY

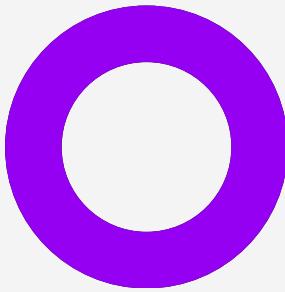
How often a customer buys. Frequent buyers contribute significantly to revenue

## MONETARY

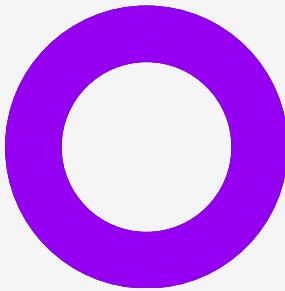
The amount of money a customer spends on purchases.

# Application of RFM Analysis

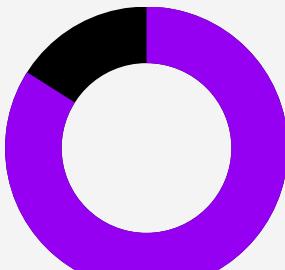
- RFM Analysis is a clustering technique used to segment customers based on their historical data.
- It is vital in allocating budget for business.
- It helps us to narrow down the target customers.
- It also assists organizations in predicting the churn rate.



**Recency**



**Frequency**



**Monetary**

# Assumptions

## Best Customers:

- The best Customers are those with at least two ones. Ex: Customers with ratings 111,112 etc.

## Loyal Customers:

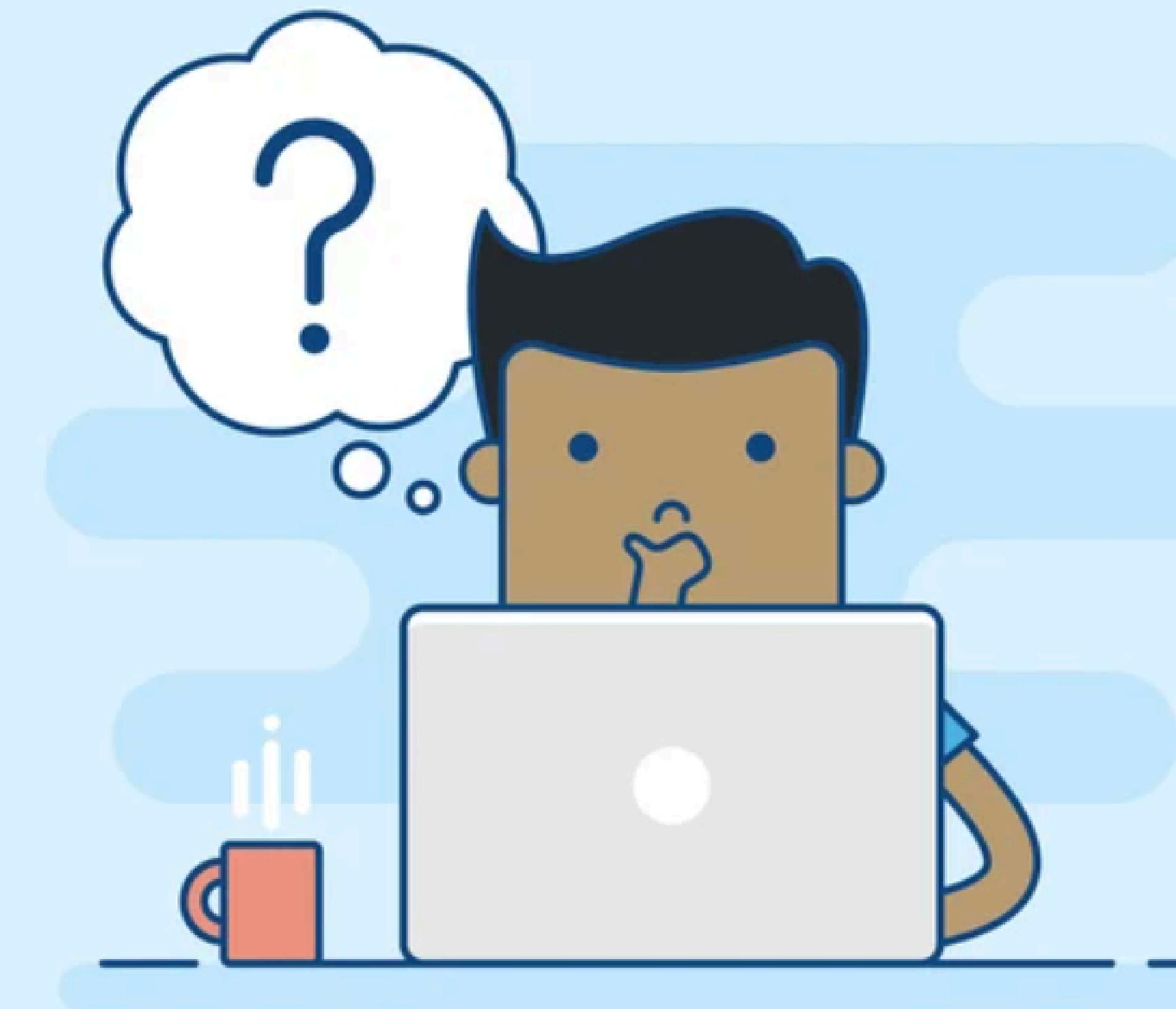
- Customers with at most 2 in either recency or frequency and not more than one 3.

## On the verge of churning:

- Customers with values more than 2 in either recency or frequency and no 4's.  
Ex.312,311.

## Lost Customers:

- Customers with Recency 4 or more than one 4's. Ex.444



# RFM Segmentation

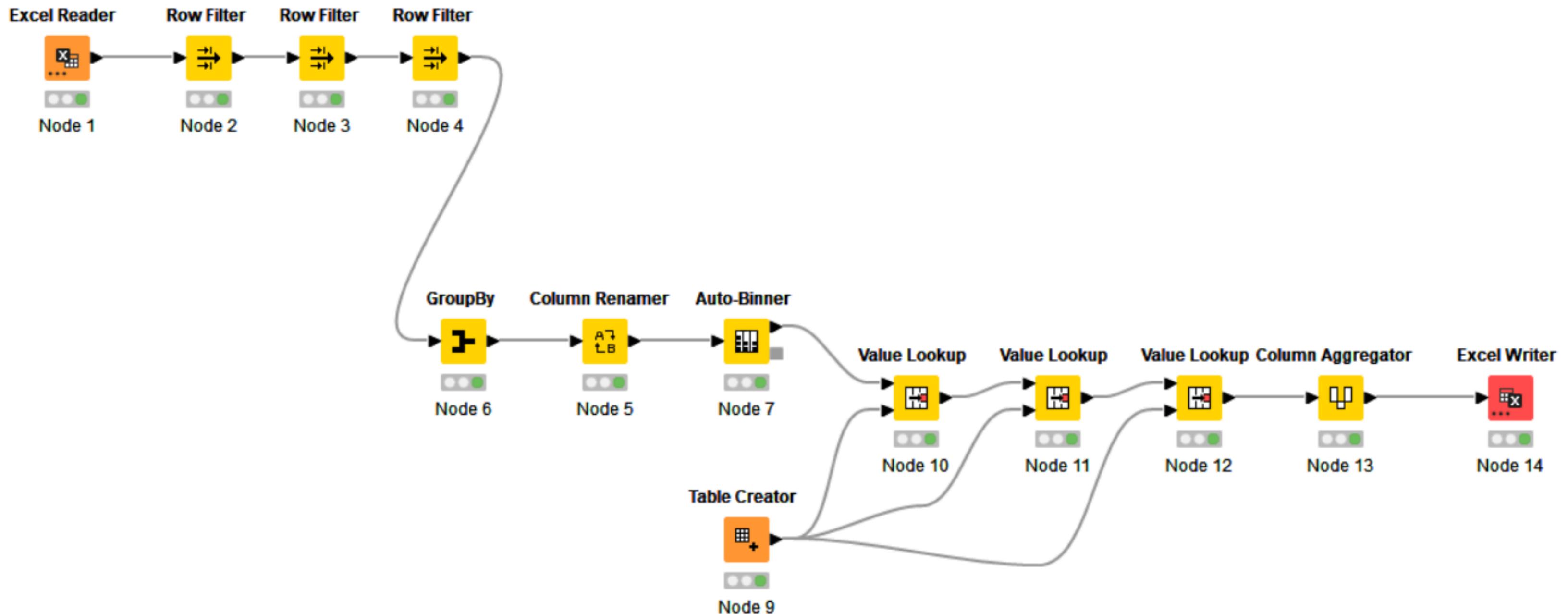
Top Customers	
111	10
112	1
131	2
211	2

Loyal Customers	
132	5
311	2
312	1
231	1
232	3
133	2

Verge of Churning	
432	3
411	1
413	1
414	1
431	1
331	3
332	3

Lost Customers	
444	6
443	2
434	3
433	4

# Knime Workflow



# Output Table

Row ID	S PHONE	I	I	D	D	31	I	I	S First(CUSTOMERNAME)	S	S	S	S	S	S	S	S	Freque...	S	Moneta...	S	Recency [Binned]	I	Recency (#1)	I	Freque...	I	Moneta...	S	Concatenate
Row0	(02) 5554 67	3	.....	....	25	...	25	...	Petit Auto	.....	.....	.....	.....	.....	.....	.....	Bin 2	Bin 2	Bin 2	Bin 3	3	3	3	3	3	3	333			
Row1	(071) 23 67 2555	4	.....	....	8	...	8	...	Royale Belge	.....	.....	.....	.....	.....	.....	.....	Bin 4	Bin 1	Bin 4	Bin 4	4	1	4	4	4	4	414			
Row2	(1) 42.34.2555	3	.....	....	23	...	23	...	La Corne D'abondance, Co.	.....	.....	.....	.....	.....	.....	.....	Bin 2	Bin 3	Bin 2	Bin 2	2	3	2	2	2	2	232			
Row3	(1) 47.55.6555	3	.....	....	27	...	27	...	Auto Canal Petit	.....	.....	.....	.....	.....	.....	.....	Bin 2	Bin 3	Bin 1	Bin 1	1	3	2	2	2	2	132			
Row4	(171) 555-0297	3	.....	....	26	...	26	...	Stylish Desk Decors, Co.	.....	.....	.....	.....	.....	.....	.....	Bin 2	Bin 3	Bin 4	Bin 4	4	3	2	2	2	2	432			
Row5	(171) 555-1555	3	.....	....	51	...	51	...	AV Stores, Co.	.....	.....	.....	.....	.....	.....	.....	Bin 2	Bin 4	Bin 3	Bin 3	3	3	1	1	1	1	331			
Row6	(171) 555-2282	2	.....	....	76	15	...	15	UK Collectables, Ltd.	.....	.....	.....	.....	.....	.....	.....	Bin 1	Bin 2	Bin 1	Bin 1	1	4	3	3	3	3	143			
Row7	(171) 555-7555	2	.....	....	12	...	12	...	Double Decker Gift Stores, ...	.....	.....	.....	.....	.....	.....	.....	Bin 1	Bin 1	Bin 4	Bin 4	4	4	4	4	4	4	444			
Row8	(198) 555-8888	2	.....	....	26	...	26	...	giftsbymail.co.uk	.....	.....	.....	.....	.....	.....	.....	Bin 1	Bin 2	Bin 2	Bin 2	2	4	3	3	3	3	243			
Row9	(514) 555-8054	3	.....	....	79	22	...	22	Quebec Home Shopping Ne...	.....	.....	.....	.....	.....	.....	.....	Bin 2	Bin 2	Bin 1	Bin 1	1	3	3	3	3	3	133			
Row10	(604) 555-3392	2	.....	....	22	...	22	...	Canadian Gift Exchange Ne...	.....	.....	.....	.....	.....	.....	.....	Bin 1	Bin 2	Bin 2	Bin 2	2	4	3	3	3	3	243			
Row11	(604) 555-4555	2	.....	....	26	...	26	...	Royal Canadian Collectable...	.....	.....	.....	.....	.....	.....	.....	Bin 1	Bin 2	Bin 2	Bin 2	2	4	3	3	3	3	243			
Row12	(91) 555 22 82	3	.....	....	32	...	32	...	Corrida Auto Replicas, Ltd	.....	.....	.....	.....	.....	.....	.....	Bin 2	Bin 4	Bin 2	Bin 2	2	3	1	1	1	1	231			
Row13	(91) 555 94 44	24	....	....	50	...	50	...	Euro Shopping Channel	.....	.....	.....	.....	.....	.....	.....	Bin 4	Bin 4	Bin 1	Bin 1	1	1	1	1	1	1	111			
Row14	(93) 203 4555	3	.....	....	23	...	23	...	Enaco Distributors	.....	.....	.....	.....	.....	.....	.....	Bin 2	Bin 2	Bin 4	Bin 4	4	3	3	3	3	3	433			
Row15	(95) 555 82 82	2	.....	....	15	...	15	...	Iberia Gift Imports, Corp.	.....	.....	.....	.....	.....	.....	.....	Bin 1	Bin 1	Bin 4	Bin 4	4	4	4	4	4	4	444			
Row16	+33 1 46 62 7555	3	.....	....	20	...	20	...	Lyon Souveniers	.....	.....	.....	.....	.....	.....	.....	Bin 2	Bin 2	Bin 1	Bin 1	1	3	3	3	3	3	133			
Row17	+34 913 728 555	2	.....	....	13	...	13	...	CAF Imports	.....	.....	.....	.....	.....	.....	.....	Bin 1	Bin 1	Bin 3	Bin 3	3	4	4	4	4	4	344			
Row18	+353 1862 1555	2	.....	....	16	...	16	...	Clover Collections, Co.	.....	2	...	....	...	...	...	Bin 1	Bin 1	Bin 4	Bin 4	4	4	4	4	4	4	444			
Row19	+358 9 8045 555	3	.....	....	30	...	30	...	Suominen Souveniers	.....	.....	.....	.....	.....	.....	.....	Bin 2	Bin 3	Bin 2	Bin 2	2	3	2	2	2	2	232			
Row20	+47 2212 1555	2	.....	....	24	...	24	...	Norway Gifts By Mail, Co.	.....	.....	.....	.....	.....	.....	.....	Bin 1	Bin 2	Bin 4	Bin 4	4	4	3	3	3	3	443			
Row21	+47 2267 3215	3	.....	....	29	...	29	...	Herkku Gifts	.....	.....	.....	.....	.....	.....	.....	Bin 2	Bin 3	Bin 3	Bin 3	3	3	2	2	2	2	332			
Row22	+49 69 66 90 2555	4	....	....	22	...	22	...	Blauer See Auto, Co.	.....	.....	.....	.....	.....	.....	.....	Bin 4	Bin 2	Bin 4	Bin 4	4	1	3	3	3	3	413			
Row23	+49 89 61 08 9555	1	....	....	14	...	14	...	Bavarian Collectables Impo...	.....	.....	.....	.....	.....	.....	.....	Bin 1	Bin 1	Bin 4	Bin 4	4	4	4	4	4	4	444			
Row24	+61 2 9495 8555	4	....	....	46	...	46	...	Souveniers And Things Co.	.....	.....	.....	.....	.....	.....	.....	Bin 4	Bin 4	Bin 1	Bin 1	1	1	1	1	1	1	111			
Row25	+63 2 555 3587	3	....	....	26	...	26	...	Cruz & Sons Co.	.....	.....	.....	.....	.....	.....	.....	Bin 2	Bin 3	Bin 4	Bin 4	4	3	2	2	2	2	432			
Row26	+65 221 7555	5	....	....	43	...	43	...	Dragon Souveniers, Ltd.	.....	.....	.....	.....	.....	.....	.....	Bin 4	Bin 4	Bin 4	Bin 4	4	1	1	1	1	1	411			
Row27	+65 224 1555	4	....	....	36	...	36	...	Handji Gifts& Co	.....	.....	.....	.....	.....	.....	.....	Bin 4	Bin 3	Bin 3	Bin 3	3	1	2	2	2	2	312			
Row28	+81 06 6342 5555	2	....	....	20	...	20	...	Osaka Souveniers Co.	.....	.....	.....	.....	.....	.....	.....	Bin 1	Bin 2	Bin 3	Bin 3	3	4	3	3	3	3	343			
Row29	+81 3 3584 0555	4	....	....	32	...	32	...	Tokyo Collectables, Ltd	.....	.....	.....	.....	.....	.....	.....	Bin 4	Bin 4	Bin 2	Bin 2	2	1	1	1	1	1	211			
Row30	011-4988555	2	....	....	26	...	26	...	Amica Models & Co.	.....	.....	.....	.....	.....	.....	.....	Bin 1	Bin 3	Bin 2	Bin 2	2	4	2	2	2	2	242			
Row31	02 9936 8555	4	....	....	46	...	46	...	Anna's Decorations, Ltd	.....	.....	.....	.....	.....	.....	.....	Bin 4	Bin 4	Bin 1	Bin 1	1	1	1	1	1	1	111			
Row32	0221-5554327	2	....	....	26	...	26	...	Toms Spezialitten, Ltd	.....	.....	.....	.....	.....	.....	.....	Bin 1	Bin 3	Bin 2	Bin 2	2	4	2	2	2	2	242			
Row33	03 9520 4555	5	....	....	55	...	55	...	Australian Collectors, Co.	.....	.....	.....	.....	.....	.....	.....	Bin 4	Bin 4	Bin 1	Bin 1	1	1	1	1	1	1	111			
Row34	035-640555	3	....	....	48	...	48	...	Rovelli Gifts	.....	.....	.....	.....	.....	.....	.....	Bin 2	Bin 4	Bin 4	Bin 4	4	3	1	1	1	1				

# BEST CUSTOMERS

CUSTOMERS WITH 111 RATING

Euro Shopping Channel

1

Mini Gifts Distributors Ltd.

2

Australian Collectors, Co.

3

Marta's Replicas Co.

4

La Rochelle Gifts

5

Anna's Decorations, Ltd

6

# LOYAL CUSTOMERS

CUSTOMERS WITH 232 RATING

Toys of Finland, Co.

1

Suominen Souveniers

2

La Corne D'abondance, Co.

3

Danish Wholesale Imports

4

Muscle Machine Inc

5

# ON THE VERGE OF CHURNING

Online Mini Collectables

1

Cambridge Collectables Co.

2

West Coast Collectables Co.

3

Microscale Inc.

4

CAF Imports

5

# **LOST CUSTOMERS**

CUSTOMERS WITH 444 RATING

Australian Collectables, Ltd

**1**

Signal Collectibles Ltd.

**2**

Bavarian Collectables Imports, Co.

**3**

Clover Collections, Co.

**4**

Iberia Gift Imports, Corp.

**5**

Double Decker Gift Stores, Ltd

**6**

# Recommendation



- Offer discounts, exclusive access to your new launches, redeemable coupons.
- Maintain a good relationship with your loyal and best customers.
- Regularly communicate with them via email. Share updates, promotions, and personalized offers.
- Targeted marketing on top 10 customers by country and city.
- Implement targeted marketing for the top 10 customers, by focusing on geographic segmentation. This involves grouping customers based on their location, whether by country or city.
- By understanding where your high-value customers are located, you can tailor marketing efforts specifically to those areas.
- Enhance the experience for elite customers, including those from Euro Shopping Channel and Mini Gifts Distributors Ltd., by providing additional perks such as free delivery and vacation coupons.
- Try not to waste your monetary resources on the lost customers.
- Focus on reducing the churn rate. Regularly check in with customers, Address concerns and build strong relationships

Thank You!!

