



Project Report on RFM Analysis

AUTOMOBILE PART MANUFACTURING COMPANY

SUBMITTED BY :-
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 - ▶ Lost Customers

Information About the Data

- ▶ Shape of our Data
 - ▶ 2747 rows and 20 Columns
- ▶ Information about Dataset
 - ▶ There are 1 datetime, 2 float64, 5 int64 and 12 object datatypes columns
- ▶ The Dataset is of 3 years i.e., 2018, 2019 and 2020.
- ▶ In 2020, we have data for only 2 months i.e., January & February
- ▶ There are no missing values in the dataset.
- ▶ There are no duplicates in the dataset.

Descriptive Statistics of the Dataset

NUMERIC COLUMNS DESCRIPTIVE STATS								
Columns	count	mean	std	min	25%	50%	0.75	max
ORDERNUMBER	2747	10259.76	91.878	10100	10181	10264	10334.50	10425
QUANTITYORDERED	2747	35.10	9.762	6	27	35	43.00	97
PRICEEACH	2747	101.10	42.043	26.88	68.745	95.55	127.10	252.87
ORDERLINENUMBER	2747	6.49	4.231	1	3	6	9.00	18
SALES	2747	3553.05	1838.954	482.13	2204.35	3184.8	4503.10	14082.8
DAYS_SINCE_LASTORDER	2747	1757.09	819.281	42	1077	1761	2436.50	3562
MSRP	2747	100.69	40.115	33	68	99	124.00	214

INFERENCES: -

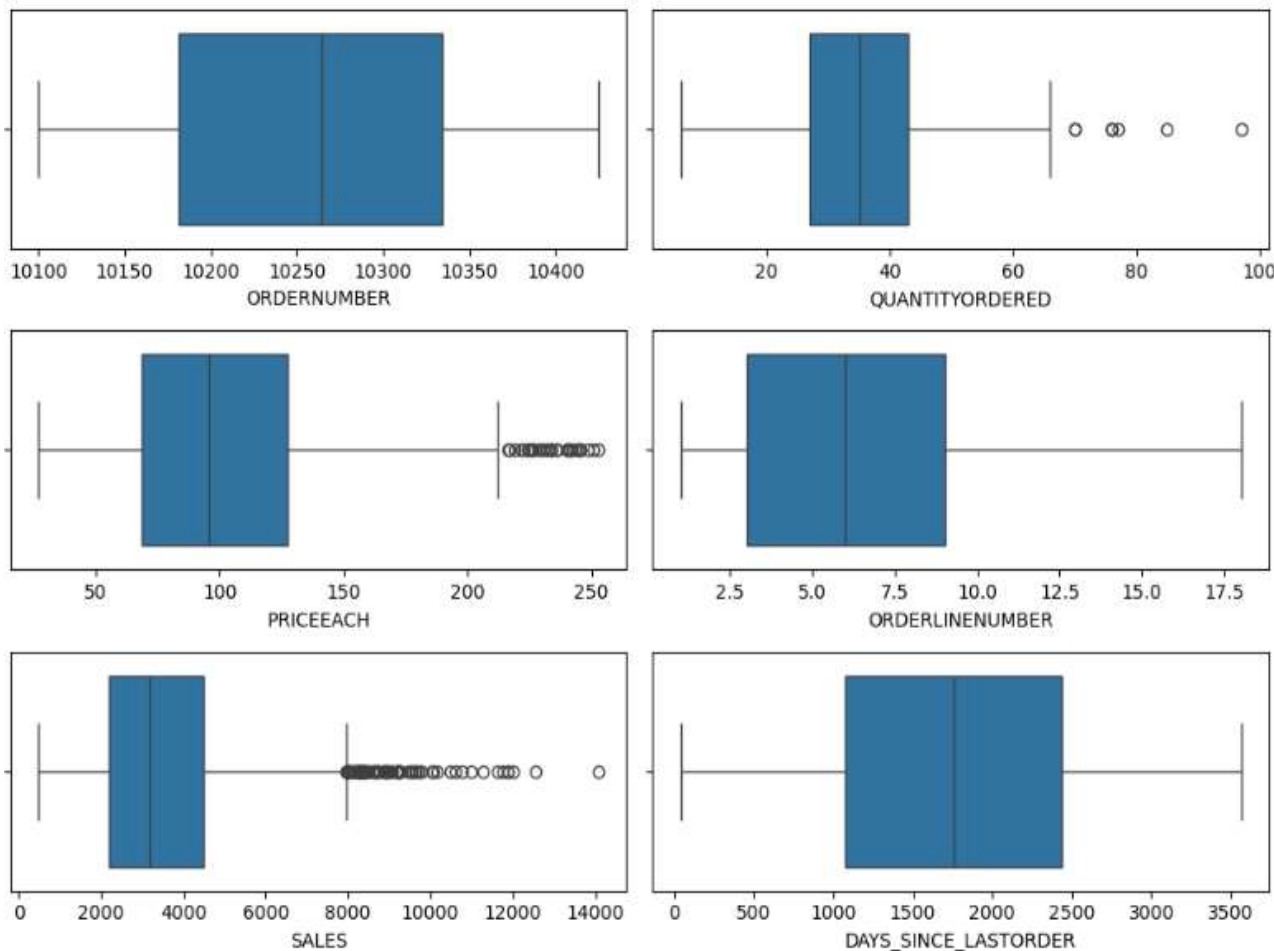
- There are total **88 or 89 Customers**
- Number of Orders Placed = **289**
- There 9 different products spares which are sold by the company, out of which most orders are placed for **Classic Cars**
- Orders are placed from **19** different Country, out of which maximum number of Orders are placed from **USA**

CATEGORICAL COLUMNS DESCRIPTIVE STATS				
Columns	count	unique	top	freq
STATUS	2747	6	Shipped	2541
PRODUCTLINE	2747	7	Classic Cars	949
PRODUCTCODE	2747	109	S18_3232	51
CUSTOMERNAME	2747	89	Euro Shopping Channel	259
PHONE	2747	88	(91) 555 94 44	259
ADDRESSLINE1	2747	89	C/ Moralarzal, 86	259
CITY	2747	71	Madrid	304
POSTALCODE	2747	73	28034	259
COUNTRY	2747	19	USA	928
CONTACTLASTNAME	2747	76	Freyre	259
CONTACTFIRSTNAME	2747	72	Diego	259
DEALSIZE	2747	3	Medium	1349

The background features abstract geometric shapes, primarily triangles, in various shades of blue (light blue, medium blue, and dark blue) against a white background. These shapes are positioned on the left and right sides of the slide, framing the central text.

EXPLORATORY DATA ANALYSIS

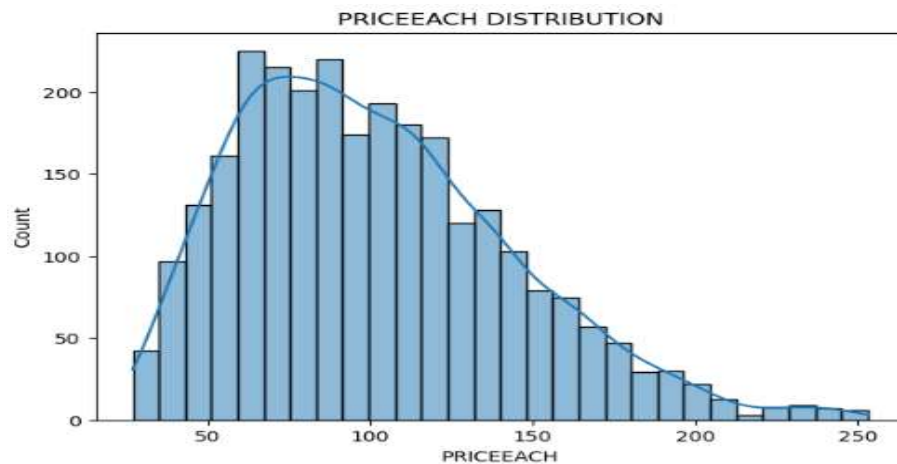
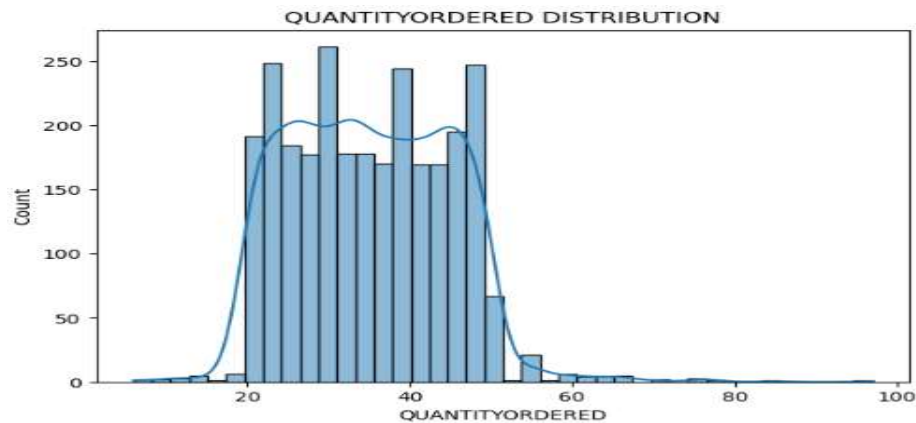
ANALYSIS OF NUMERIC VARIABLES



INFERENCES: -

- **QUANTITYORDERED** has few outliers, which can be due to high ordered quantity of spares which are easily damaged
- **PRICEEACH** has lots of outliers which can be due to higher price of some of the spares
- **SALES** is **QUANTITYORDERED** times **PRICEEACH** hence it also has lots of outliers

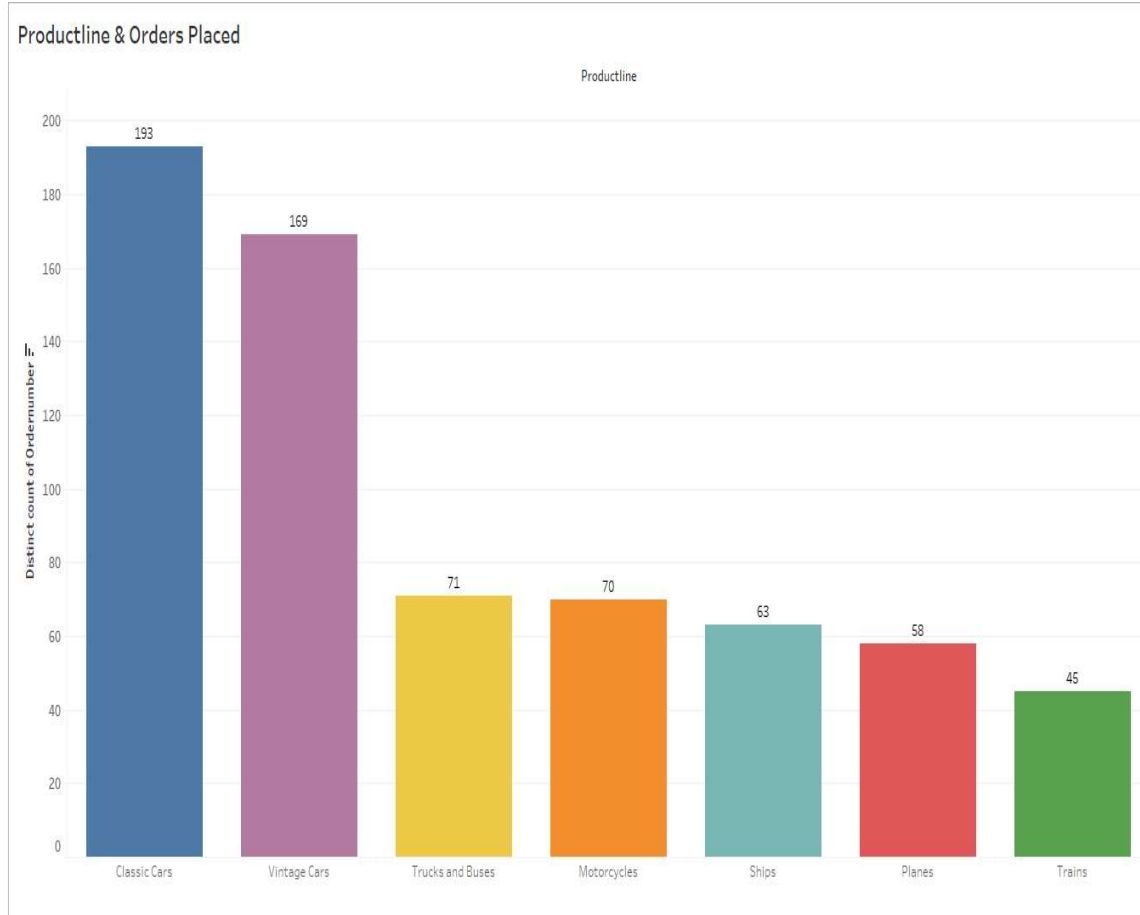
QUNATITY ORDERED & PRICE DISTRIBUTION



INFERENCES

- ▶ QUANTITYORDERED range varies from minimum of 6 to maximum of 97. Most of the ordered quantity are in range of 20 to 50
- ▶ Unit Price range varies from \$26.88 to \$252.87. Most of price varies from \$60 to \$100

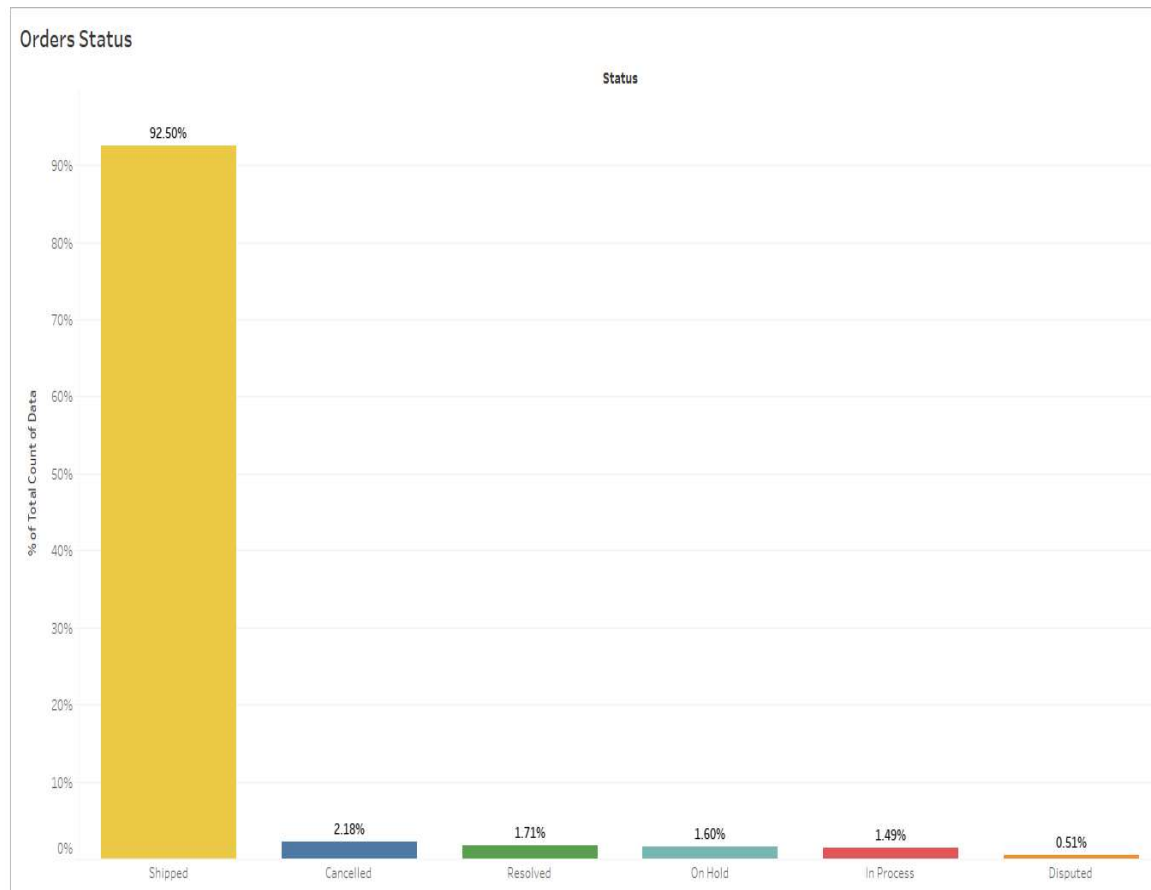
ProductLine



INFERNCES

- ▶ Maximum Orders has been placed for Classic Cars i.e., 193 followed by Vintage Cars i.e., 169
- ▶ Minimum orders has been placed for Trains i.e., 45 followed by Planes i.e., 58

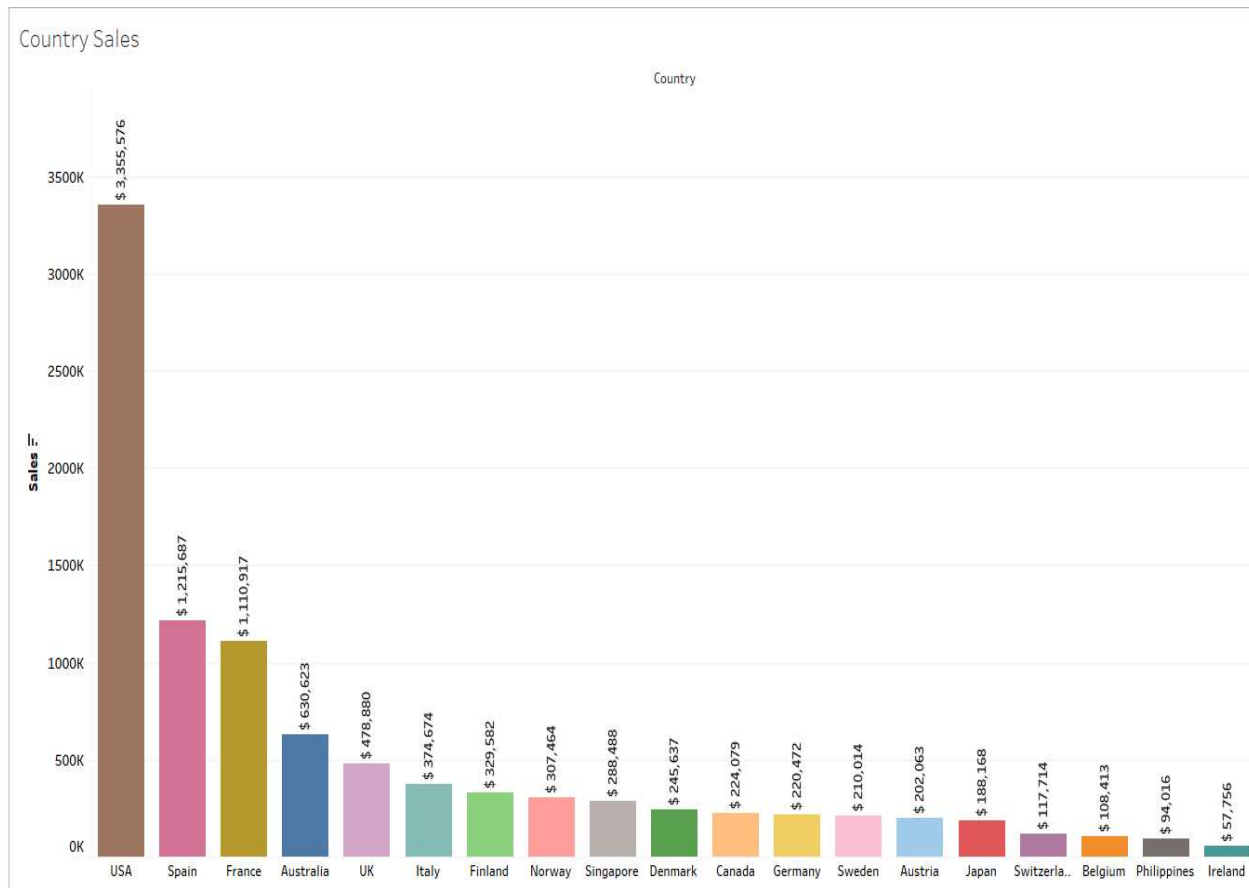
Orders Status



INFERENCES

- ▶ 92.50% of Orders has been shipped
- ▶ 2.18% of Orders has been Cancelled
- ▶ 1.71% of total orders had issues which has been resolved
- ▶ 1.60% of total orders are on Hold
- ▶ 1.49% of total orders are in-process
- ▶ 0.51% of total orders has some sort of disputed

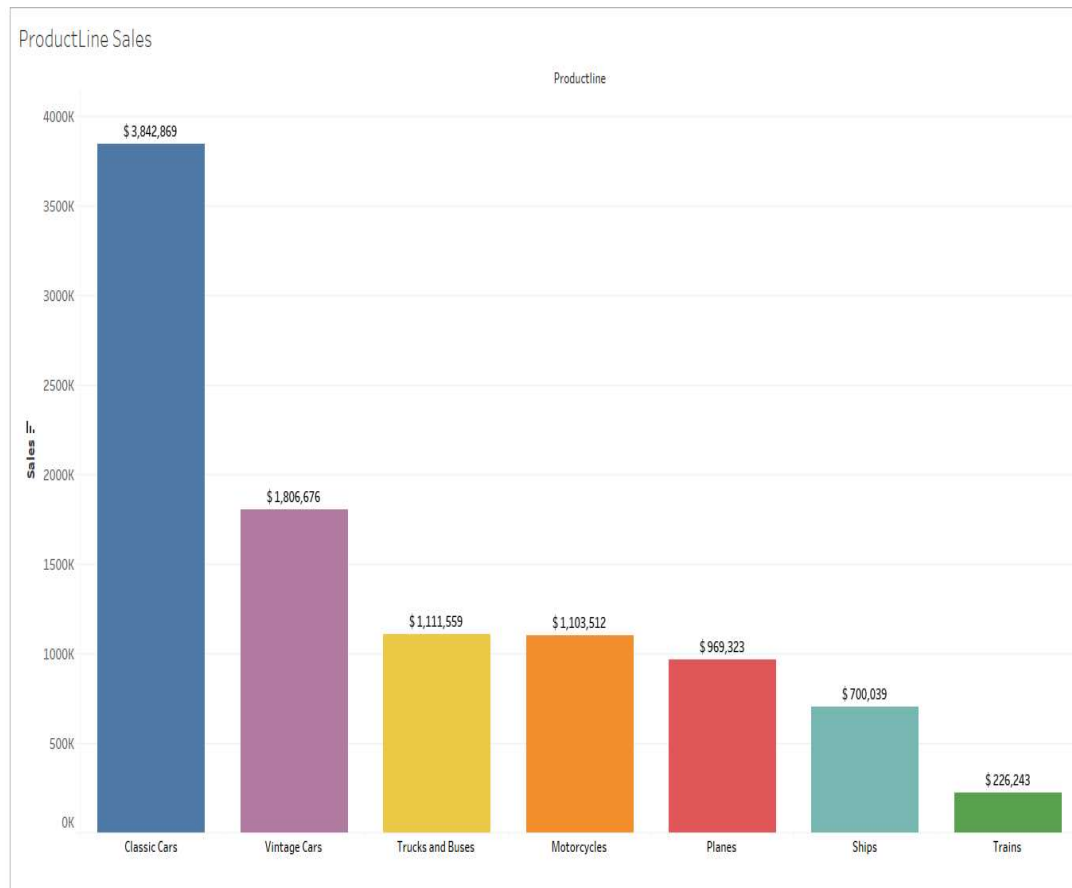
Country-wise Sales



INFERENCES

- ▶ USA has maximum sales i.e., \$3,355,576 and has maximum number of orders.
- ▶ Ireland has Minimum sales i.e., \$ 57,756 and has least number of orders i.e., 2.

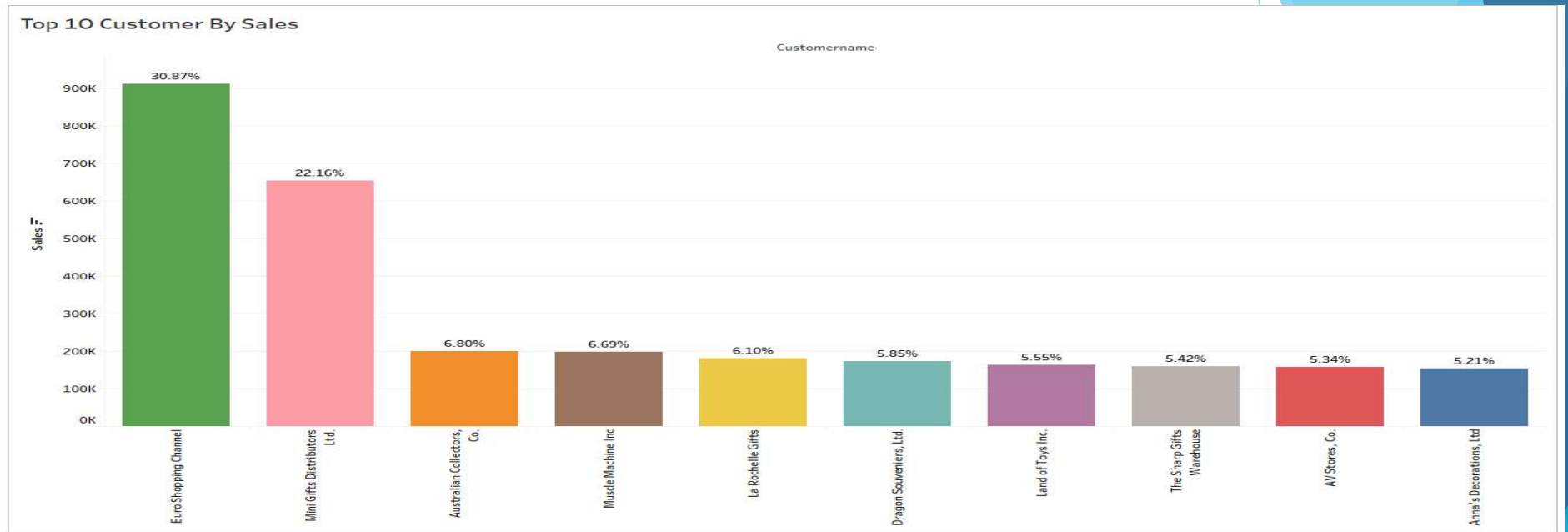
Sales by ProductLine



INFERENCES

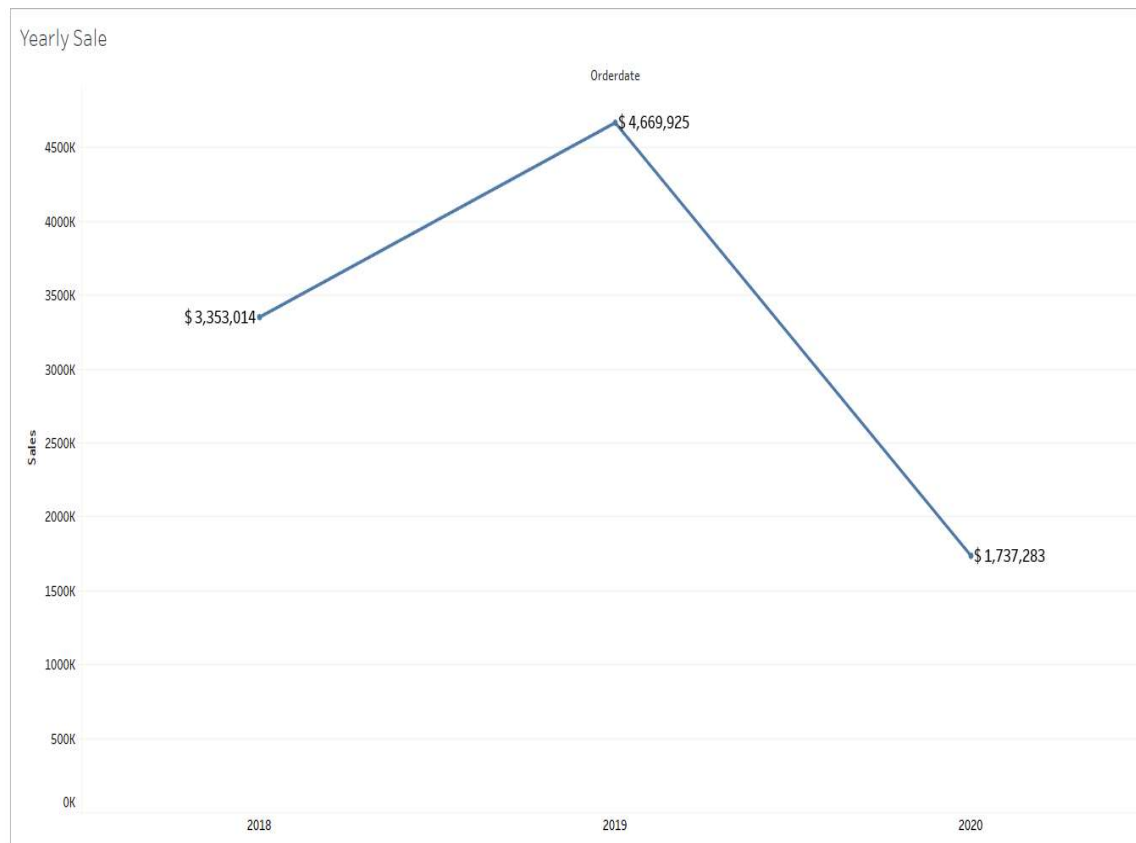
- ▶ **Classic Cars** have maximum sales i.e., \$3,842,869 followed by **Vintage Cars** \$1,806,676
- ▶ **Trains** have least sales i.e., \$226,243 preceded by **Ships** \$700,039

Top 10 Customers by Sales



- ▶ Euro Shopping Channel has contributed most to the sales i.e., 30.87% of total sales followed by Mini Gifts Distributors Limited 22.16% of total sales
- ▶ The above 2 Customer contributes to more than 50% of total sales

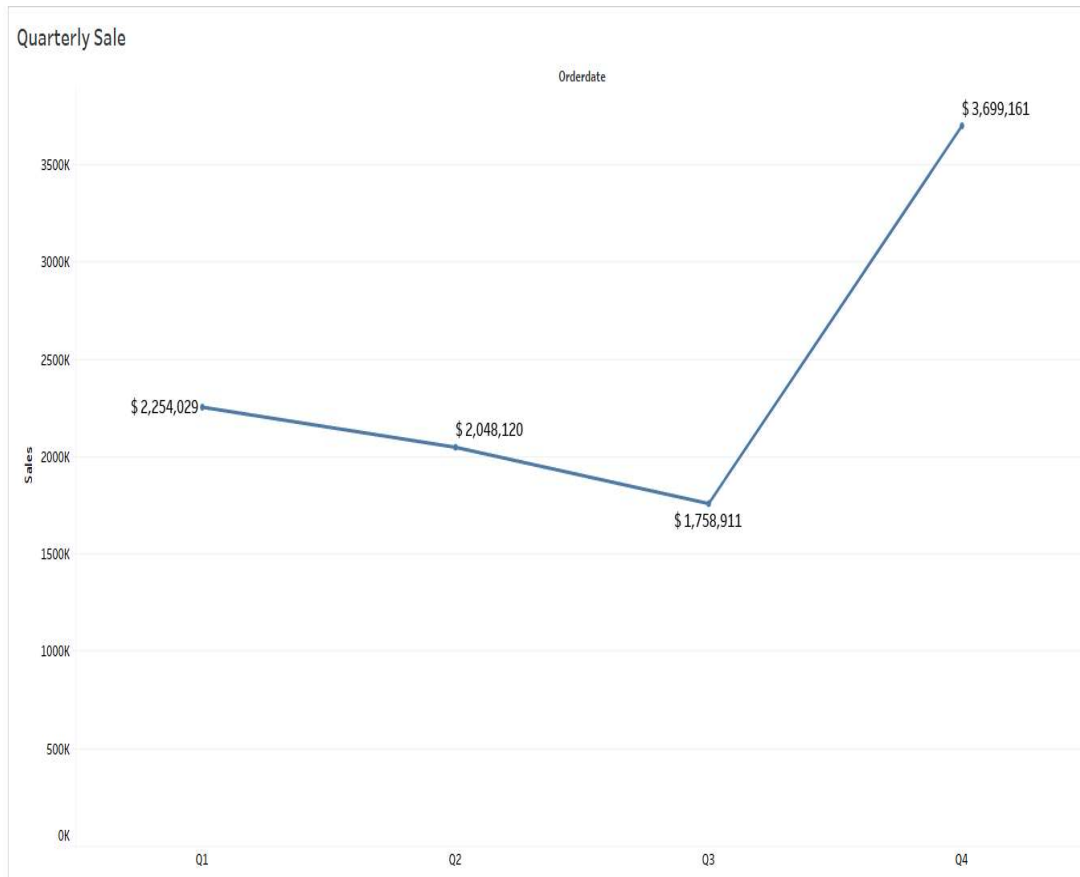
YEARLY SALES DATA



INFERENCES

- ▶ Sales has increased from 2018 to 2019 i.e., \$3,353,014 to \$4,669,925
- ▶ There is sharp drop in sales from 2019 to 2020 which is because for 2020 data is available until the month of May only
- ▶ There is a increasing trend in sales from 2018 to 2019 and sharp drop in 2020 as data provided is up to month of May 2020 only.

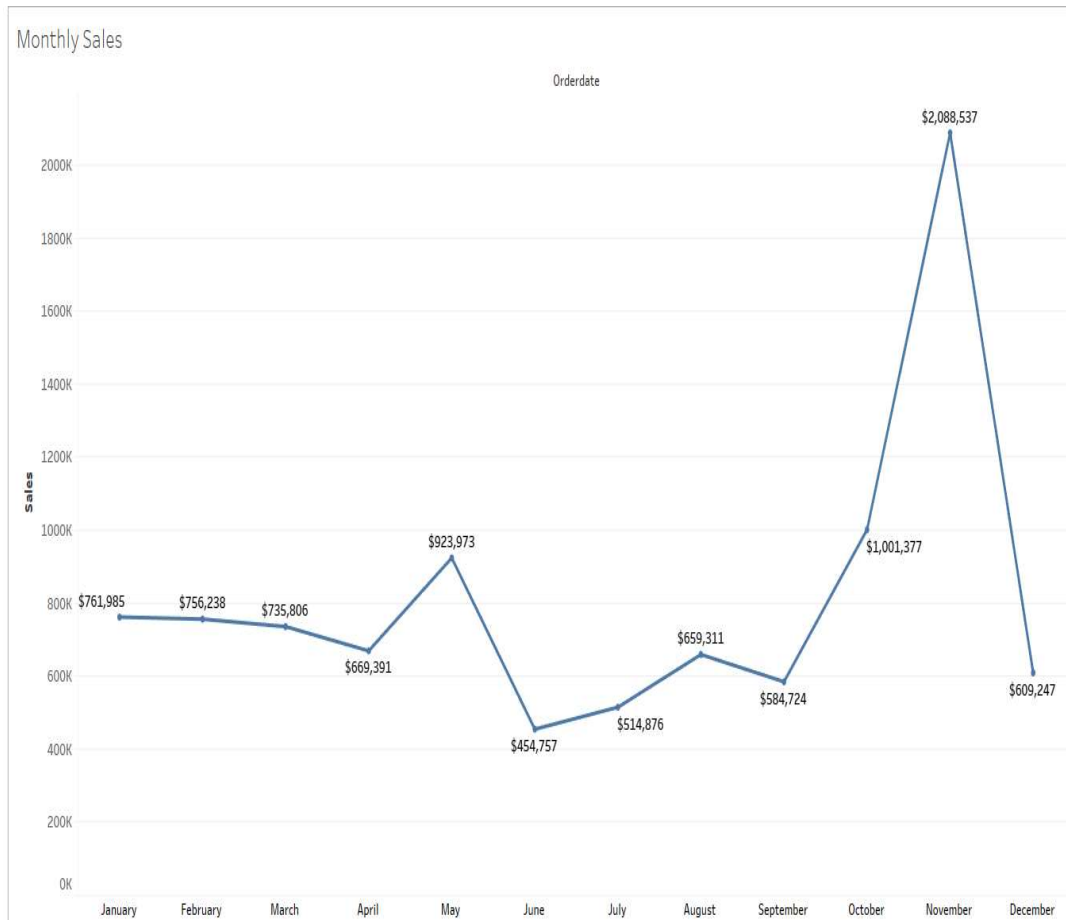
QUARTERLY SALES DATA



INFERENCES

- ▶ Maximum Sales is contributed by 4th Quarter i.e., \$3,699,161 which is 45% of total sales.
- ▶ Minimum sales is contributed by 2nd Quarter i.e., \$2,048,120 not 3rd Quarter i.e., \$1,758,911 as for 3rd Quarter data is only available for 2018 & 2019 and it has achieved almost 85% of sales compared to 2nd Quarter
- ▶ Sales has dropped from Quarter 1 to Quarter 2 & Quarter 3 but it increased sharply from Quarter 3 to Quarter 4

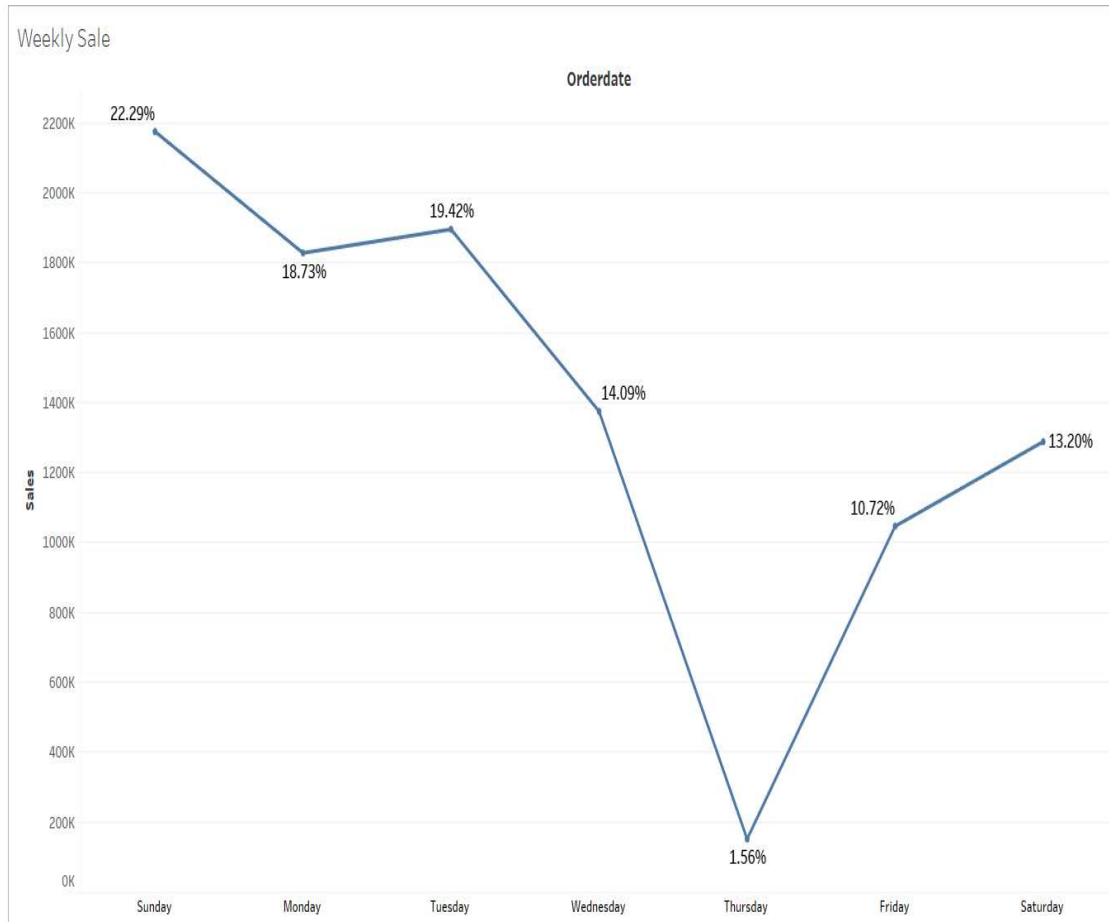
MONTHLY SALES DATA



INFERNCES

- ▶ November contributes maximum sales of all months \$2,088,537 i.e., almost 21.4% of total sales
- ▶ June contributes least sales of all months i.e., 4.66% of total sales
- ▶ We observe mix trend from January to September but sales increased from September to October and even more sharply from October to November and dropped drastically from November to December

WEEKLY SALES DATA



INFERENCES

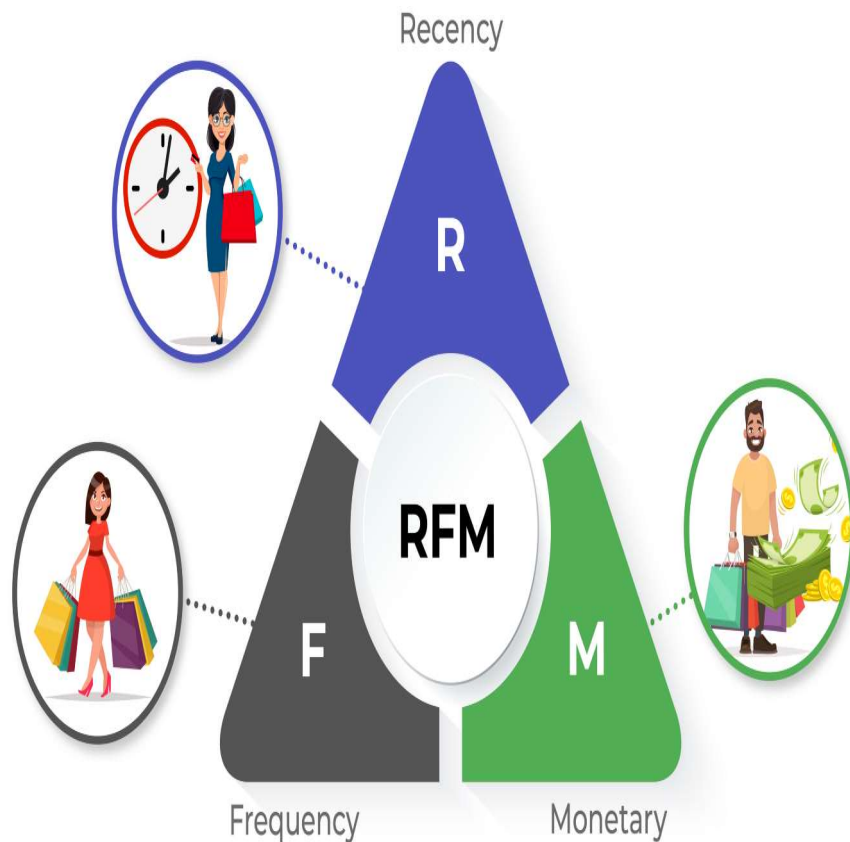
- ▶ Maximum Sales are done on Sunday i.e., 22.29% of total Sales
- ▶ Least Sales are done on Thursday i.e., 1.56%
- ▶ Weekly Sales also shows mix trends or somewhat downward Trends

RFM ANALYSIS

Abstract geometric shapes in various shades of blue (light blue, medium blue, and dark blue) are positioned on the right side of the slide. These shapes include triangles and polygons of different sizes and orientations, some overlapping each other. A thin, light blue line extends from the bottom left towards the center of the composition.

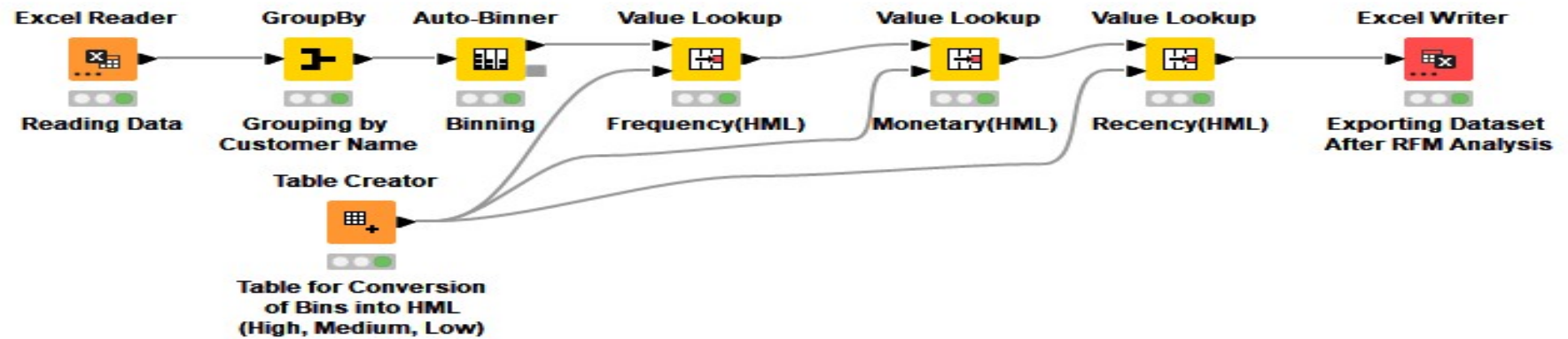
Customer Segmentation Using RFM Analysis

- ▶ RFM Analysis is a marketing analysis tool used to identify and perform customer segmentation.
- ▶ RFM stands for RECENCY, FREQUENCY and MONETARY
- ▶ RFM are the key indicators of a customer behavior and lifetime values
- ▶ Customer Segmentation allows marketers to target specific group of customers
- ▶ With Segmentation of customers, we can target those customers who more loyal or less focus on customers who are about to churn or lost



- ▶ Recency stands for how recent customer has visited the store
- ▶ Frequency means how frequent customer visits the store
- ▶ Monetary means monetary value of the customer
- ▶ Aggregation is done: -
 - ▶ Recency - Min. of days since last visit
 - ▶ Frequency - Unique Count of Orders
 - ▶ Monetary - Sum of Sales
- ▶ Here we have segmented the customers into 4 groups
 - ▶ 1 - Low Value Customer
 - ▶ 2,3 - Medium Value Customer
 - ▶ 4 - High value Customer

KNIME WORKFLOW



Dataset After Customer Segmentation

CUSTOMERNAME	ORDERNUMBER	SALES	DAYS_SINCE_LASTORDER	Recency	Frequency	Monetary
Alpha Cognac	20	70488.44	675	Low	Low	Low
Amica Models & Co.	26	94117.26	328	Medium	Medium	Medium
Anna's Decorations, Ltd	46	153996.13	131	High	High	High
Atelier graphique	7	24179.96	312	Medium	Low	Low
Australian Collectables, Ltd	23	64591.46	1018	Low	Medium	Low
Australian Collectors, Co.	55	200995.41	229	High	High	High
Australian Gift Network, Co	15	59469.12	190	High	Low	Low
Auto Assoc. & Cie.	18	64834.32	275	Medium	Low	Low
Auto Canal Petit	27	93170.66	127	High	Medium	Medium
Auto-Moto Classics Inc.	8	26479.26	1353	Low	Low	Low
AV Stores, Co.	51	157807.81	421	Medium	High	High
Baane Mini Imports	32	116599.19	245	High	Medium	Medium
Bavarian Collectables Imports, Co.	14	34993.92	801	Low	Low	Low
Blauer See Auto, Co.	22	85171.59	705	Low	Medium	Medium
Boards & Toys Co.	3	9129.35	410	Medium	Low	Low
CAF Imports	13	49642.05	625	Medium	Low	Low
Cambridge Collectables Co.	11	36163.62	484	Medium	Low	Low
Canadian Gift Exchange Network	22	75238.92	364	Medium	Medium	Medium
Classic Gift Ideas, Inc	21	67506.97	344	Medium	Medium	Low
Classic Legends Inc.	20	77795.2	309	Medium	Low	Medium

Inferences from RFM Analysis & Customer Segmentation



Summary of RFM Analysis

RFM Analysis	Monetary				
Recency	Frequency	High	Low	Medium	Grand Total
High	High	11	0	0	11
	Low	0	1	1	2
	Medium	1	0	9	10
Low	High	2	0	0	2
	Low	0	10	1	11
	Medium	0	1	8	9
Medium	High	7	0	2	9
	Low	0	10	4	14
	Medium	1	1	19	21
Grand Total		22	23	44	89

INFERENCES: -

- There are 11 customers which has RFM value High (each) and are most Loyal
- There are 10 customers which has RFM value of Low and churn or lost
- Out of 68 Customers we need to look for loyal, target or about to churn.

Best Customer Based on RFM Analysis

- ▶ Customer who has Recency, Frequency, Monetary value are High considered as Best Customers. Here we have 11 Customers who have RFM as high.

CUSTOMERNAME	ORDERNUMBER	SALES	DAYS_SINCE_LASTORDER	Recency	Frequency	Monetary
Euro Shopping Channel	259	912294.11	42	High	High	High
Mini Gifts Distributors Ltd.	180	654858.06	219	High	High	High
Australian Collectors, Co.	55	200995.41	229	High	High	High
La Rochelle Gifts	53	180124.9	139	High	High	High
Land of Toys Inc.	49	164069.44	216	High	High	High
Anna's Decorations, Ltd	46	153996.13	131	High	High	High
Souvenirs And Things Co.	46	151570.98	186	High	High	High
Salzburg Collectables	40	149798.63	188	High	High	High
The Sharp Gifts Warehouse	40	160010.27	182	High	High	High
Online Diecast Creations Co.	34	131685.3	253	High	High	High
Technics Stores Inc.	34	120783.07	241	High	High	High

Customer on the verge of Churning

- ▶ Customer on the verge of Churning are those Customers who has not purchased any item from the store in a long time

CUSTOMERNAME	ORDERNUMBER	SALES	DAYS_SINCE_LASTORDER	Recency	Frequency	Monetary
Rovelli Gifts	48	137955.72	1032	Low	High	High
Australian Collectables, Ltd	23	64591.46	1018	Low	Medium	Low
Cruz & Sons Co.	26	94015.73	971	Low	Medium	Medium
Norway Gifts By Mail, Co.	24	79224.23	825	Low	Medium	Medium
Marseille Mini Autos	25	74936.14	757	Low	Medium	Medium

Lost Customer

- ▶ Customer who has Recency, Frequency, Monetary value of low (each) are considered as Lost Customers. Here we have 10 Customers who have RFM as high.

CUSTOMERNAME	ORDERNUMBER	SALES	DAYS_SINCE_LASTORDER	Recency	Frequency	Monetary
Alpha Cognac	20	70488.44	675	Low	Low	Low
Auto-Moto Classics Inc.	8	26479.26	1353	Low	Low	Low
Bavarian Collectables Imports, Co.	14	34993.92	801	Low	Low	Low
Clover Collections, Co.	16	57756.43	659	Low	Low	Low
Double Decker Gift Stores, Ltd	12	36019.04	670	Low	Low	Low
Gift Ideas Corp.	19	57294.42	947	Low	Low	Low
Iberia Gift Imports, Corp.	15	54723.62	904	Low	Low	Low
Mini Auto Werke	15	52263.9	717	Low	Low	Low
Royale Belge	8	33440.1	737	Low	Low	Low
Signal Collectibles Ltd.	15	50218.51	836	Low	Low	Low

Most Loyal Customer

- ▶ Loyal Customer are those customer who buy from the store very frequently. Their monetary or recency value might not be very high but are treated as most loyal customer

CUSTOMERNAME	ORDERNUMBER	SALES	DAYS_SINCE_LASTORDER	Recency	Frequency	Monetary
AV Stores, Co.	51	157807.81	421	Medium	High	High
Muscle Machine Inc	48	197736.94	502	Medium	High	High
Rovelli Gifts	48	137955.72	1032	Low	High	High
Dragon Souvenirs, Ltd.	43	172989.68	649	Low	High	High
Reims Collectables	41	135042.94	287	Medium	High	High