



MRA

SALES DATA

MARKETING & RETAIL ANALYSIS

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Problem Statement

The Company's Data Challenge

For the past three years, an automobile parts manufacturing company has diligently collected transaction data. However, they lack an in-house data science team to unlock its potential. They've turned to us, to leverage our expertise.

Objective:

Our objective is to :

- **Discover buying patterns:** comprehend how customers make purchasing decisions.
- **Find Useful Customer Insights:** insights unique to the company's operations and customer base.
- **Share Marketing Plans basis Customer Segments:** formulate marketing strategies for distinct customer segments.

About Data : Data Characteristics

```
RangeIndex: 2747 entries, 0 to 2746
Data columns (total 20 columns):
 #   Column                Non-Null Count  Dtype
---  -
 0   ORDERNUMBER           2747 non-null   int64
 1   QUANTITYORDERED       2747 non-null   int64
 2   PRICEEACH             2747 non-null   float64
 3   ORDERLINENUMBER       2747 non-null   int64
 4   SALES                 2747 non-null   float64
 5   ORDERDATE             2747 non-null   datetime64[ns]
 6   STATUS                2747 non-null   object
 7   PRODUCTLINE           2747 non-null   object
 8   MSRP                  2747 non-null   int64
 9   PRODUCTCODE           2747 non-null   object
10   CUSTOMERNAME          2747 non-null   object
11   PHONE                 2747 non-null   object
12   ADDRESSLINE1          2747 non-null   object
13   CITY                  2747 non-null   object
14   POSTALCODE            2747 non-null   object
15   COUNTRY                2747 non-null   object
16   CONTACTLASTNAME       2747 non-null   object
17   CONTACTFIRSTNAME      2747 non-null   object
18   DEALSIZE              2747 non-null   object
19   DAYS_SINCE_LASTORDER  2747 non-null   int64
dtypes: datetime64[ns](1), float64(2), int64(5), object(12)
```

Sample of dataset

	ORDERNUMBER	QUANTITYORDERED	PRICEEACH	ORDERLINENUMBER	SALES	ORDERDATE	DAYS_SINCE_LASTORDER	STATUS	PRODUCTLINE	MSRP	PRODUCTCC
0	10107	30	95.70	2	2871.00	2018-02-24	828	Shipped	Motorcycles	95	S10_1
1	10121	34	81.35	5	2765.90	2018-05-07	757	Shipped	Motorcycles	95	S10_1
2	10134	41	94.74	2	3884.34	2018-07-01	703	Shipped	Motorcycles	95	S10_1
3	10145	45	83.26	6	3746.70	2018-08-25	649	Shipped	Motorcycles	95	S10_1
4	10168	36	96.66	1	3479.76	2018-10-28	586	Shipped	Motorcycles	95	S10_1

Inference:

- **Shape of the data:** The dataset contains 2747 rows and 20 columns.
- **Data types :** We have the columns with data type as datetime64(1), float64(2), int64(5), object(12)
- **No Duplicate or Missing** values in the data
- Key columns include **sales transaction** details, **customer information**, **geographical data**, **product details**, **order status**, and **recency information**.

About Data : Data Dictionary

- ORDERNUMBER : Order Number
- CUSTOMERNAME : customer
- QUANTITYORDERED : Quantity ordered
- PHONE : Phone of the customer
- PRICEEACH : Price of Each item
- ADDRESSLINE1 : Address of customer
- ORDERLINENUMBER : order line
- CITY : City of customer
- SALES : Sales amount
- POSTALCODE : Postal Code of customer

- ORDERDATE : Order Date
- COUNTRY : Country customer
- DAYS_SINCE_LASTORDER : Days_Since_Lastorder
- CONTACTLASTNAME : Contact person customer
- STATUS : Status of order like Shipped or not
- CONTACTFIRSTNAME : Contact person customer
- PRODUCTLINE : Product line – CATEGORY
- DEALSIZE : Size of the deal based on Quantity and Item Price
- MSRP : Manufacturer's Suggested Retail Price
- PRODUCTCODE : Code of Product

Numeric columns: ORDERNUMBER, QUANTITYORDERED, PRICEEACH, ORDERLINENUMBER SALES, DAYS_SINCE_LASTORDER, MSRP.

Assumptions:

Each row in the data represents a unique transaction made by a customer.

The customer segments may be defined based on the purchasing frequency, amount spent, and recency of purchases (RFM Analysis).

The marketing strategies may vary for each customer segment, and the company may need to personalize their marketing efforts accordingly.

The order date and days since last order columns are accurately calculated.

The sales column is calculated as the product of quantity ordered and price each.

The status column indicates the current status of the order accurately.

The recommendations provided in the presentation are based on the insights gained from the analysis of the transaction data.

About Data : Descriptive Statistics- Numerical

	count	mean	std	min	25%	50%	75%	max
QUANTITYORDERED	2747.0	35.10	9.76	6.00	27.00	35.00	43.00	97.00
PRICEEACH	2747.0	101.10	42.04	26.88	68.74	95.55	127.10	252.87
ORDERLINENUMBER	2747.0	6.49	4.23	1.00	3.00	6.00	9.00	18.00
SALES	2747.0	3553.05	1838.95	482.13	2204.35	3184.80	4503.09	14082.80
MSRP	2747.0	100.69	40.11	33.00	68.00	99.00	124.00	214.00
DAYS_SINCE_LASTORDER	2747.0	384.09	230.23	1.00	197.00	343.00	571.00	877.00

Inference:

- **Sales:** The **average sales** per transaction is approximately **\$3,553.05**. Customers make purchases ranging from **\$482.13' to \$14,082.80**. The data is **skewed** with presence of **outliers on right tail**
- **Quantity Ordered:** On average, customers order approximately **35 items per transaction**, with a **minimum of 6** and a **maximum of 97 items**. Data is **slightly skewed towards right**.
- **Price Each:** The average price of each item in an order is approximately **101.10** Prices vary between a **minimum of 26.88** and a **maximum of 252.87**. The data is **skewed** with presence of **outliers on right tail**
- **Manufacturer's Suggested Retail Price (MSRP):** The average MSRP is approximately **384.09**, with prices ranging from **33 to 214**. Data is **slightly skewed towards right**.

About Data : Descriptive Statistics - Categorical

	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

Inference:

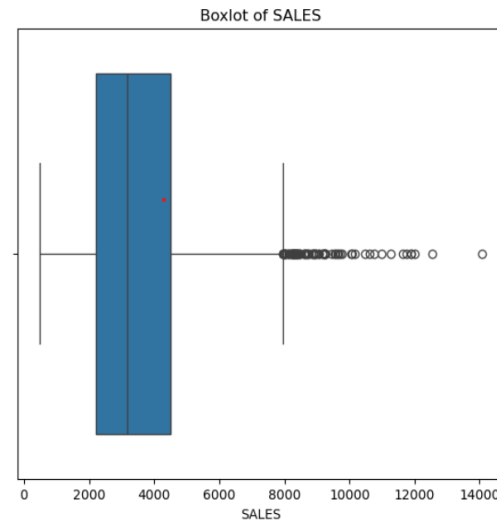
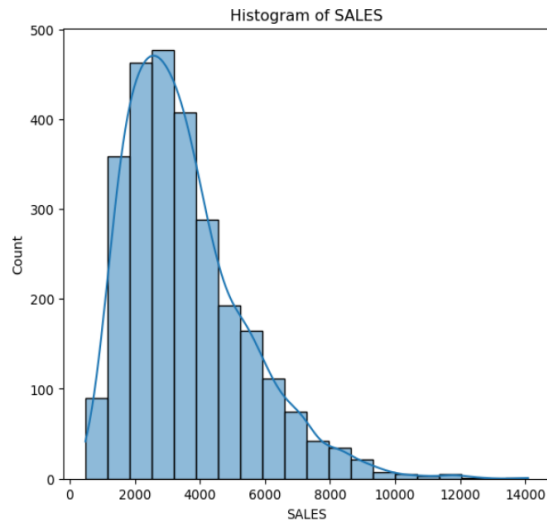
- **Order Status:** The most common order status is "Shipped," occurring 2541 times.
- **Product Line:** "Classic Cars" is the dominant product line with 949 entries.
- **Customer Concentration:** "Euro Shopping Channel" is the top customer, with 259 transactions.
- **Geographic Trends:** "Madrid" and "USA" are the most frequent city and country, respectively.
- **Deal Sizes:** The majority of deals fall into the "Medium" category, accounting for 1349 cases.

About Data : Assumptions & Modification in data

- Data Modifications :-

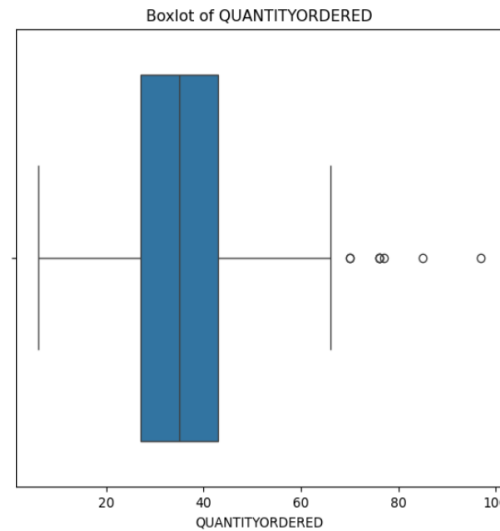
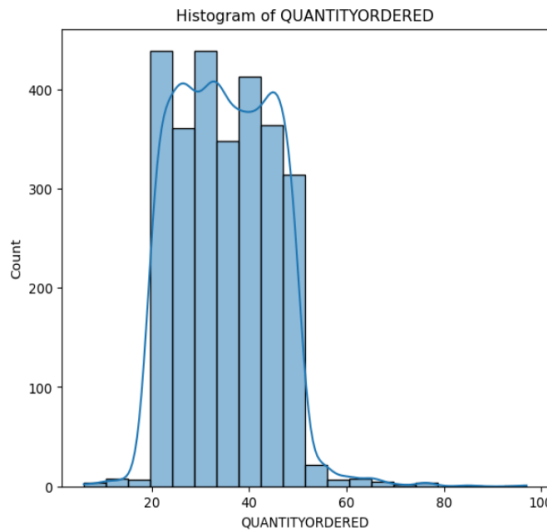
- In the raw data, DAYS_SINCE_LASTORDER is taken as 2022-06-07 for the difference, we will be removing it & creating new Days difference baseline as 01-06-2020 (1st June 2020)
- For Exploratory Analysis, we have created below features:
 - Year
 - Month
 - Week
 - Quarter
 - SALES (K) : Custom sales feature with scaling of 1000s
 - Profit : Difference between Manufacturer's Suggested Retail Price (MSRP) and PRICEEACH
- New temporary data frames creates for the Categorical & Numerical features, and below features were excluded in it: 'ORDERNUMBER', PHONE', 'ADDRESSLINE1', 'CONTACTLASTNAME', ' CONTACTFIRSTNAME as these have no relevance in the data

Univariate Analysis - Sales



Inference:

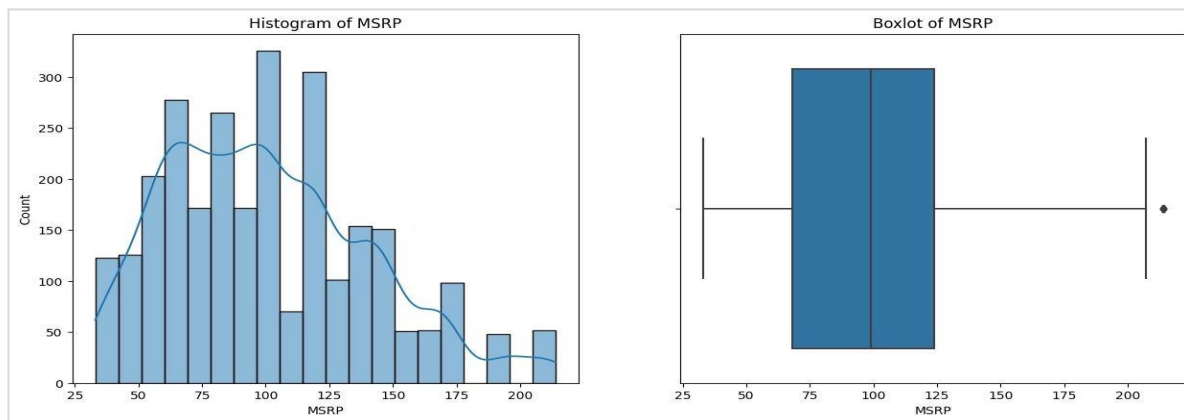
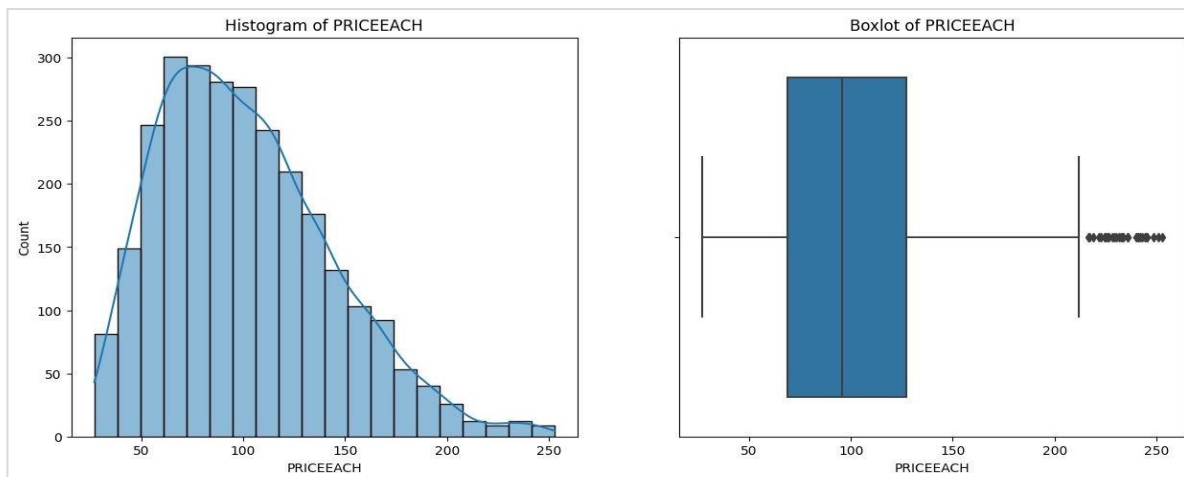
- Total **2,747** sales transactions having total sales of **\$9.76M**
- The **average sales** amount is approximately **\$3,553.05** and with a **standard deviation** of about **\$1,838.95**
- The data is **highly skewed** with presence of **outliers on right tail**



Inference:

- Average quantities ordered - **35.10**
- Range: From **6 to 97**, showing a span of 91 units.
- Most ordered quantities are **between 20-50**

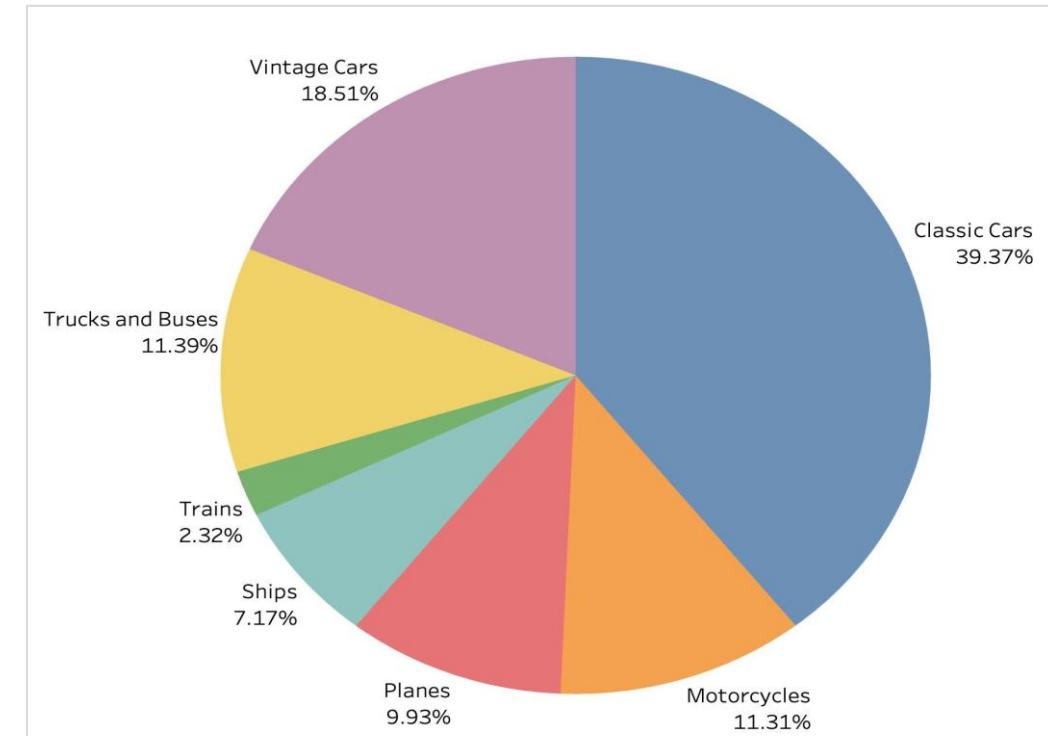
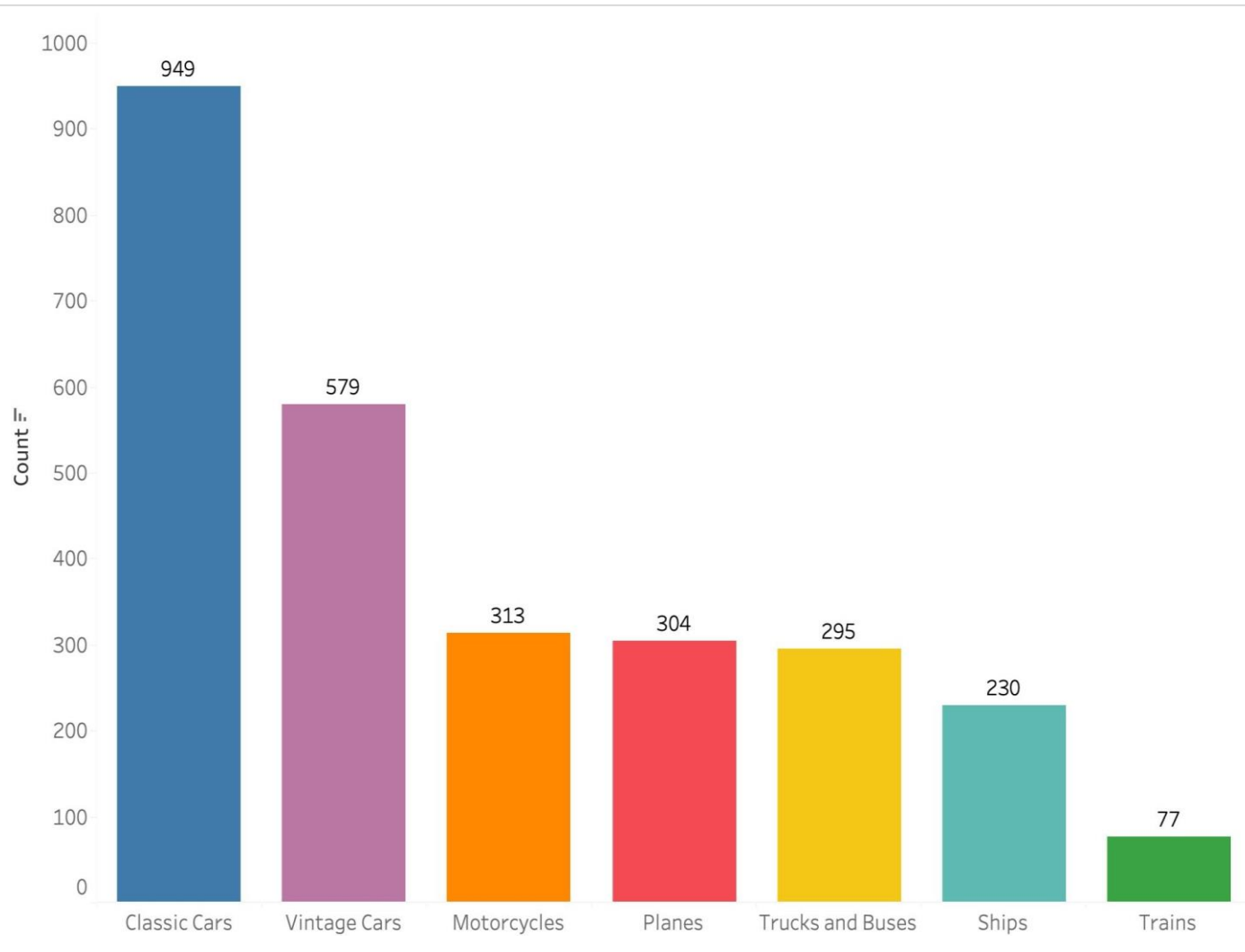
Univariate Analysis - Price & MSRP



Inference:

- **Selling Price**
 - **Average MSRP:** \$101.10
 - **Price Range:** vary widely, ranging from \$26.88 to \$252.87
 - **Distribution:** The 25th %tile is \$68.75, **median is \$95.55**, and the 75th %tile is \$127.10.
 - Skewed towards right.
- **MSRP(Manufacturer Suggested Selling Price)**
 - **Average MSRP:** \$100.69,
 - **Price Range:** vary widely, ranging from \$33 to \$214
 - **Distribution:** The 25th %tile is **\$68**, **median is \$99**, and the 75th %tile is \$124.

Univariate Analysis - Product Line

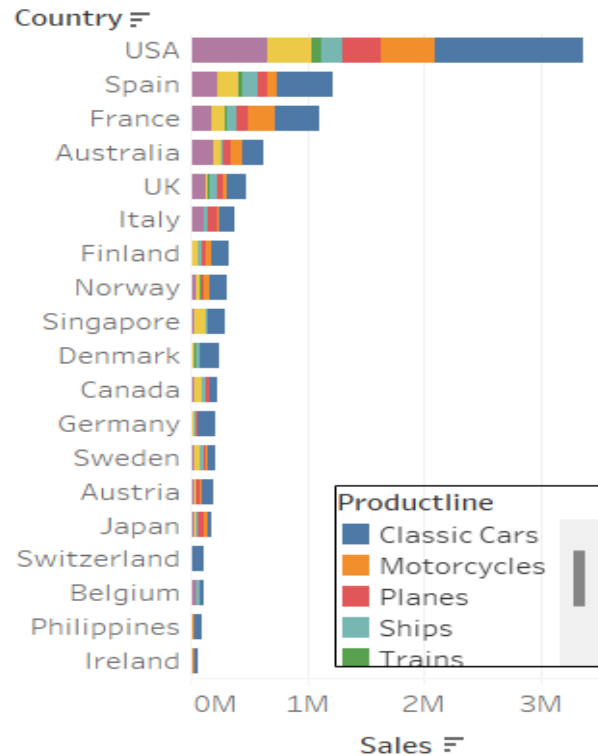


Inference:

- Total **7 product lines**.
- **Most sold** parts are of **Classic & Vintage** automobiles having a share of **approx. 57.9%**
- **Train parts** are sold the **least (7.2%)**

Geographical Overview of Sales - Country

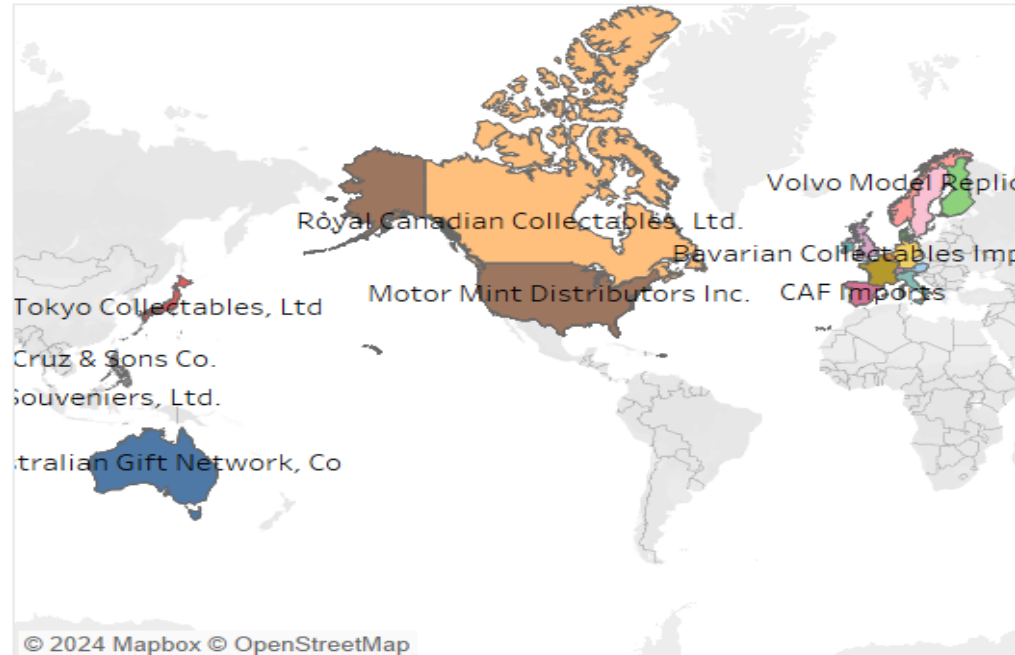
country sales



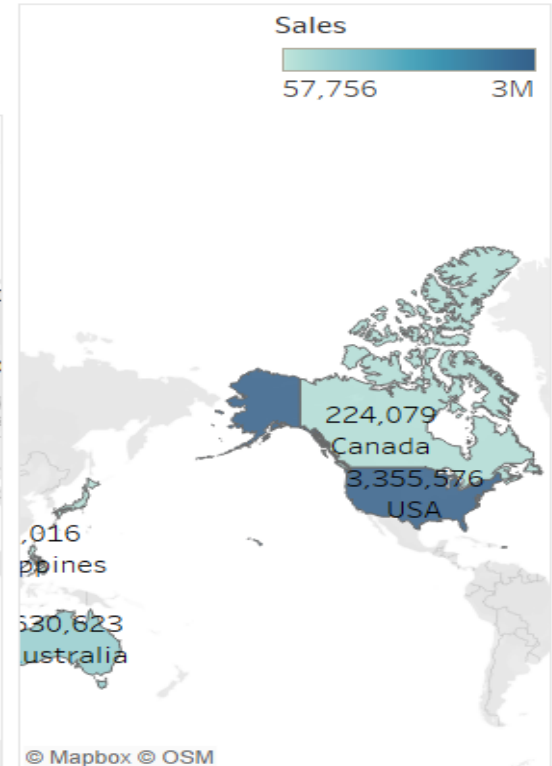
Country

Australia Austria Belgium Canada De

Sales all over the world



sales 2

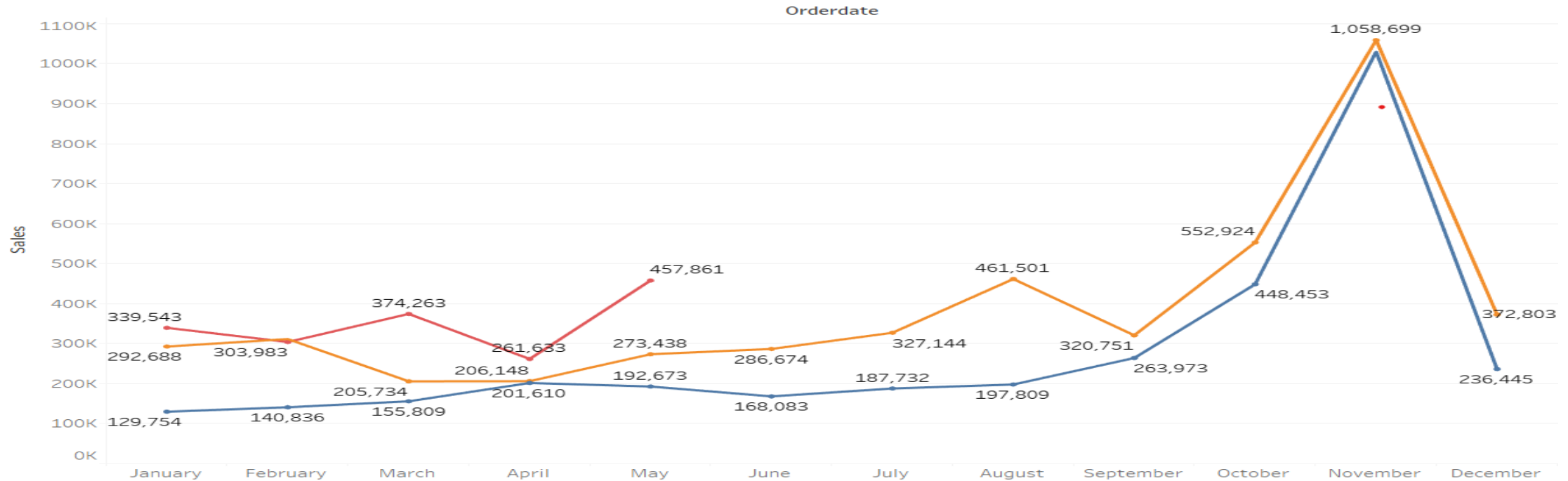


Inference:

- **Top 5 countries with Highest Sales value** are **USA, Spain, France, Australia** and **UK**.
- **Highest Sales** are from **USA** i.e. **\$3.36M**, while **Lowest sales** are from **Ireland** i.e **\$57.7K**

Sales Over Time: YOY Monthly Sales Trend

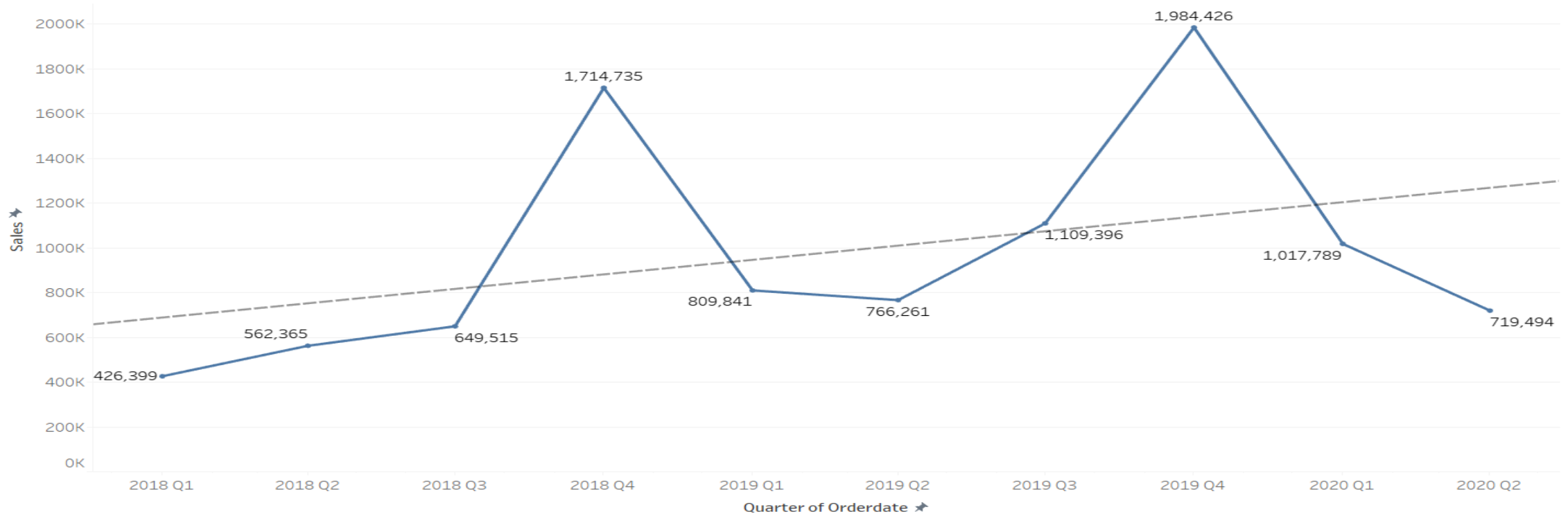
year wise sale comparision



Inference:

- **Highest sales** are in **Nov.** every year
- This Sales Trend indicates **Seasonality**
- **Sales in 2020** are **comparatively higher** than the rest 2 years shows **upward Trend**.

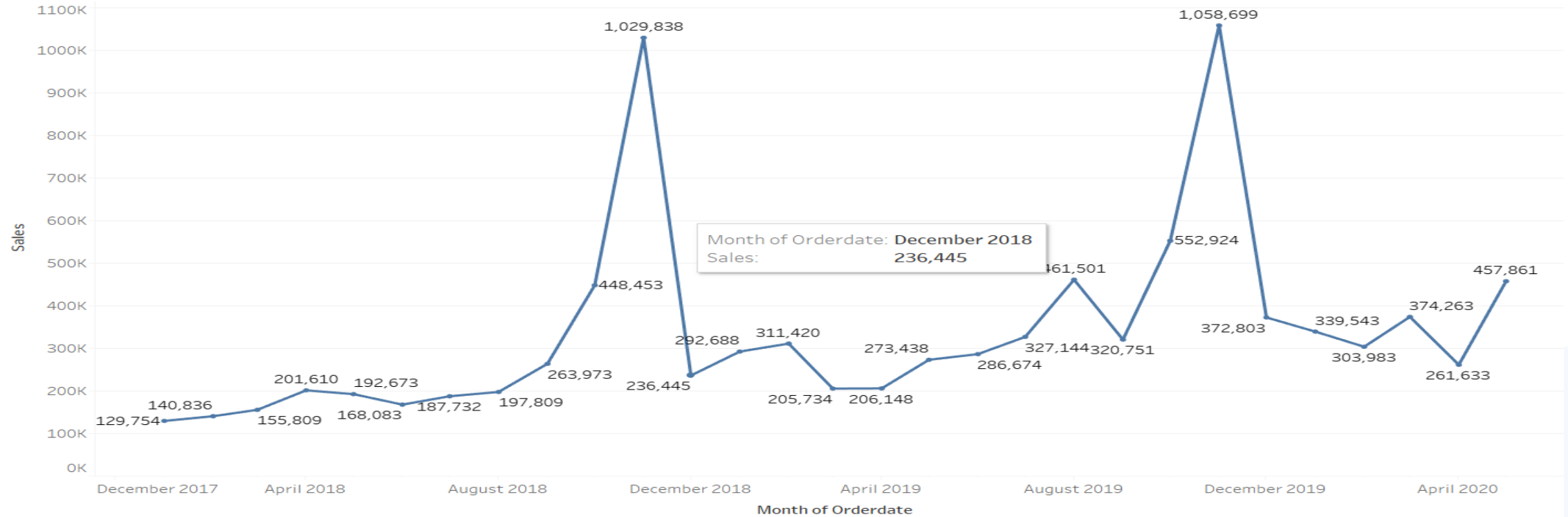
Sales Over Time: Quarterly Sales Trend



Inference:

- Highest sales are in **Quarter 4**
- This Sales Trend indicates **Seasonality**
- Post reaching highest in Q4, sales drops in Q1 & starts going up after Q2 (Except 2020)
- Overall sales Trend is **upward**

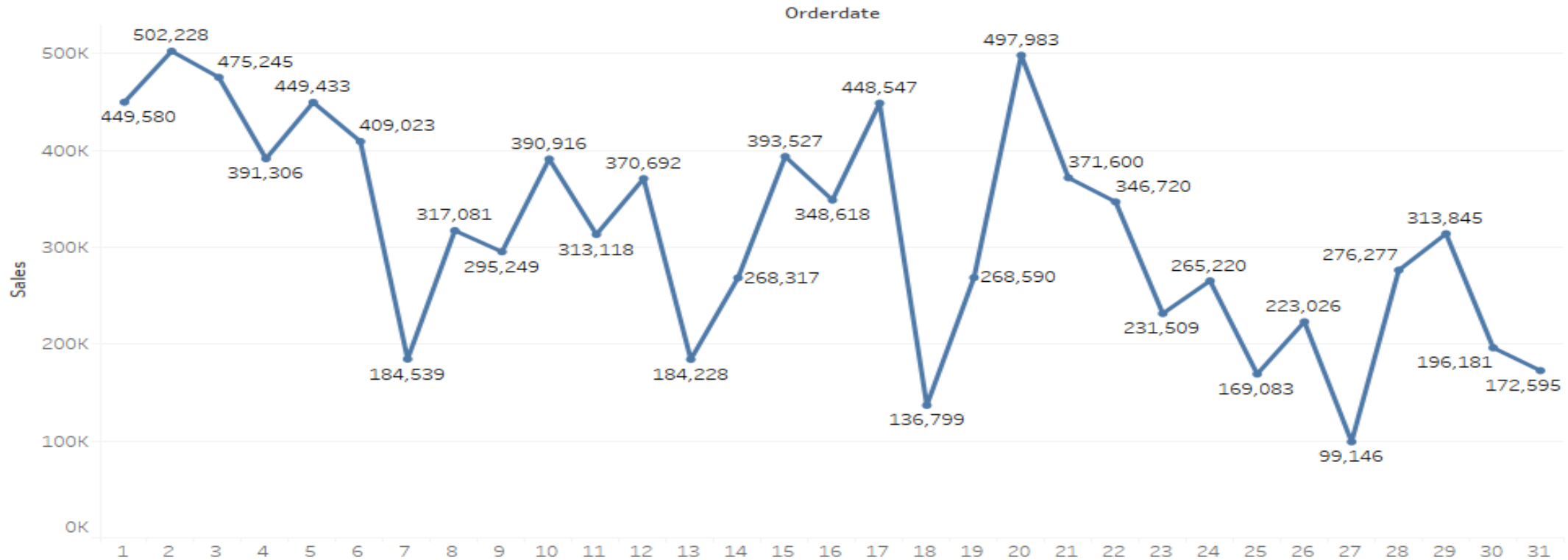
Sales Over Time: Monthly Sales Trend



Inference:

- **Highest sales** are in **Nov.** every year.
- Sales **goes up** in **Sept. till Nov.**
- This Sales Trend indicates **Seasonality**
- Overall sales Trend is **upward**

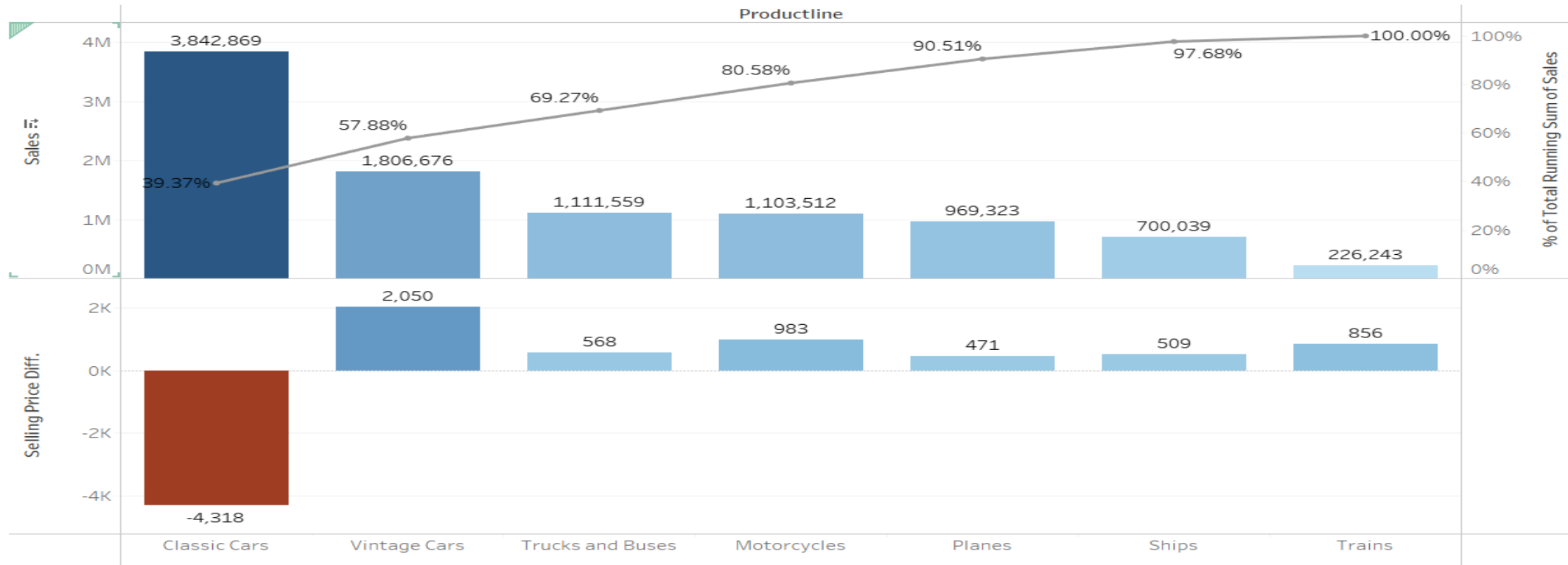
Sales Over Time: Day Sales Trend



Inference:

- The sales are **generally highest** at the **start of the month** and **trend decreases towards the end** with spikes in mid.
- **On Weekdays**, the sales **decreases** while **highest on weekend**.
- In the stating days of month there is more sales as compared to the end days.

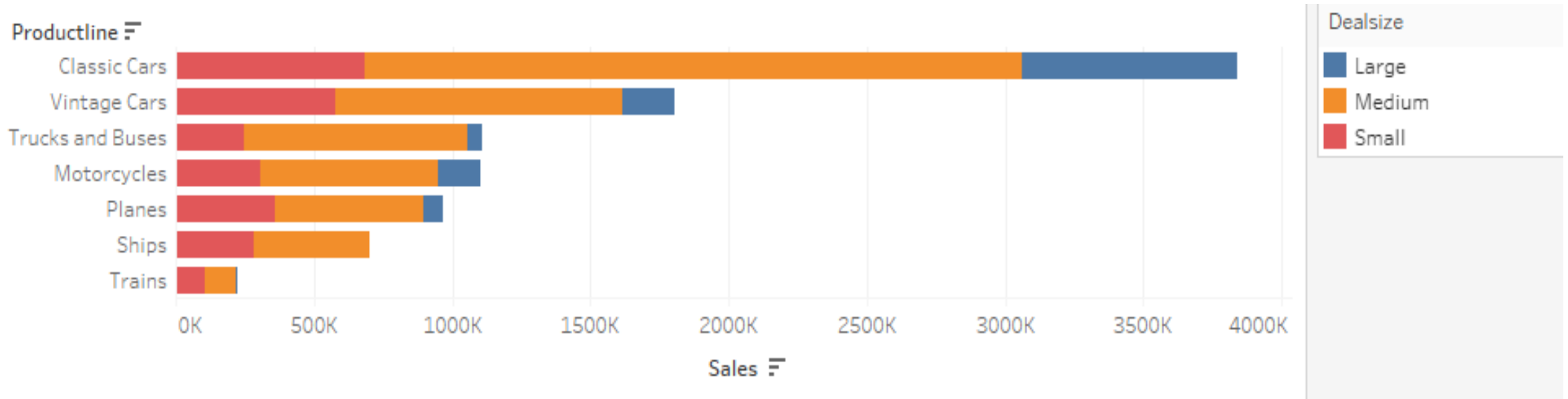
Product Line & Sales



Inference:

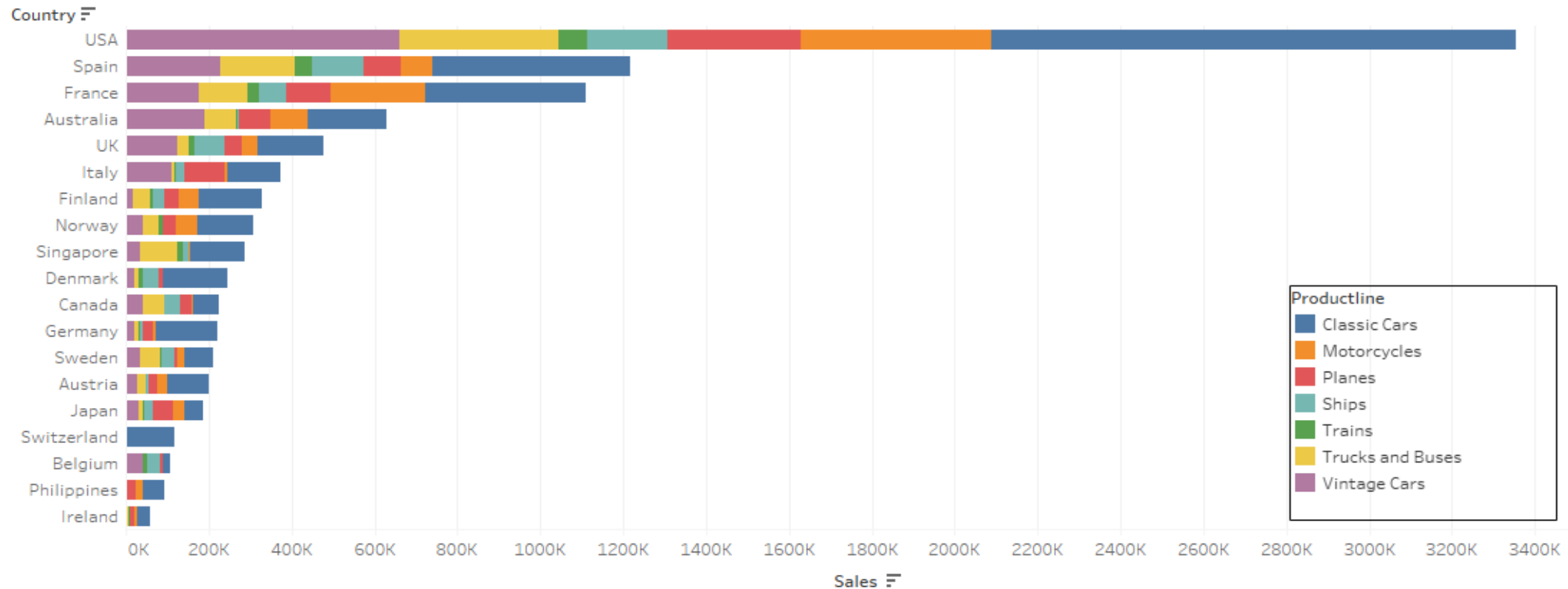
- Most Sales are from **Classic car parts** i.e. ~39.4%.
- **Car, Truck, Bus & Motorcycle** parts accounts for **80%** of the company's revenue.
- **Train parts** generates the **least revenue**.
- While **Classic cars** has Highest Sales, it also has the **Least Selling price difference in negative**(MSRP - Actual selling price)

Sales & Deal Size



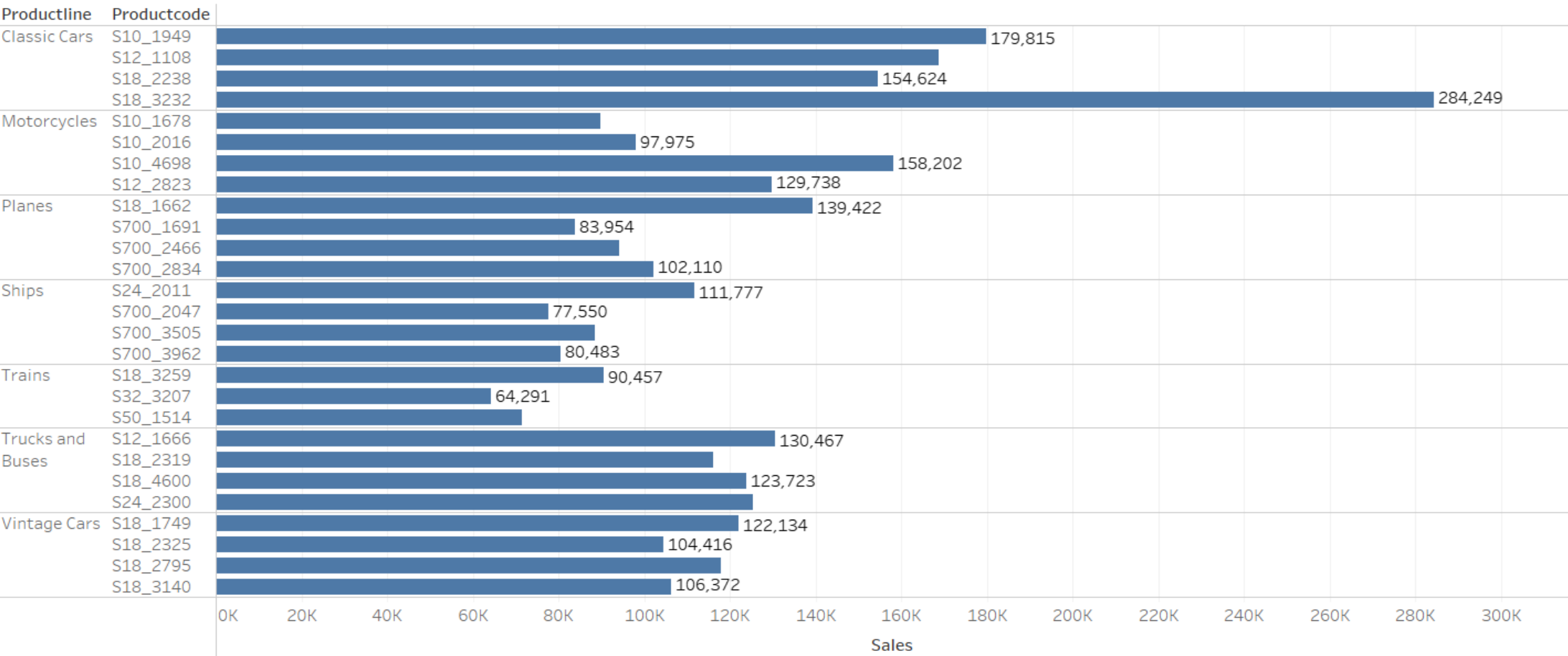
- Most sales: Classic cars
- Least sales: Trains
- Most Deal size: medium
- Least Deal size: large
- Sales of truck and buses and motorcycle are approx. same

Country, Product line, Sales



- Highest sales : USA
- Least sales: Ireland
- Switzerland deals with Only classic car parts.

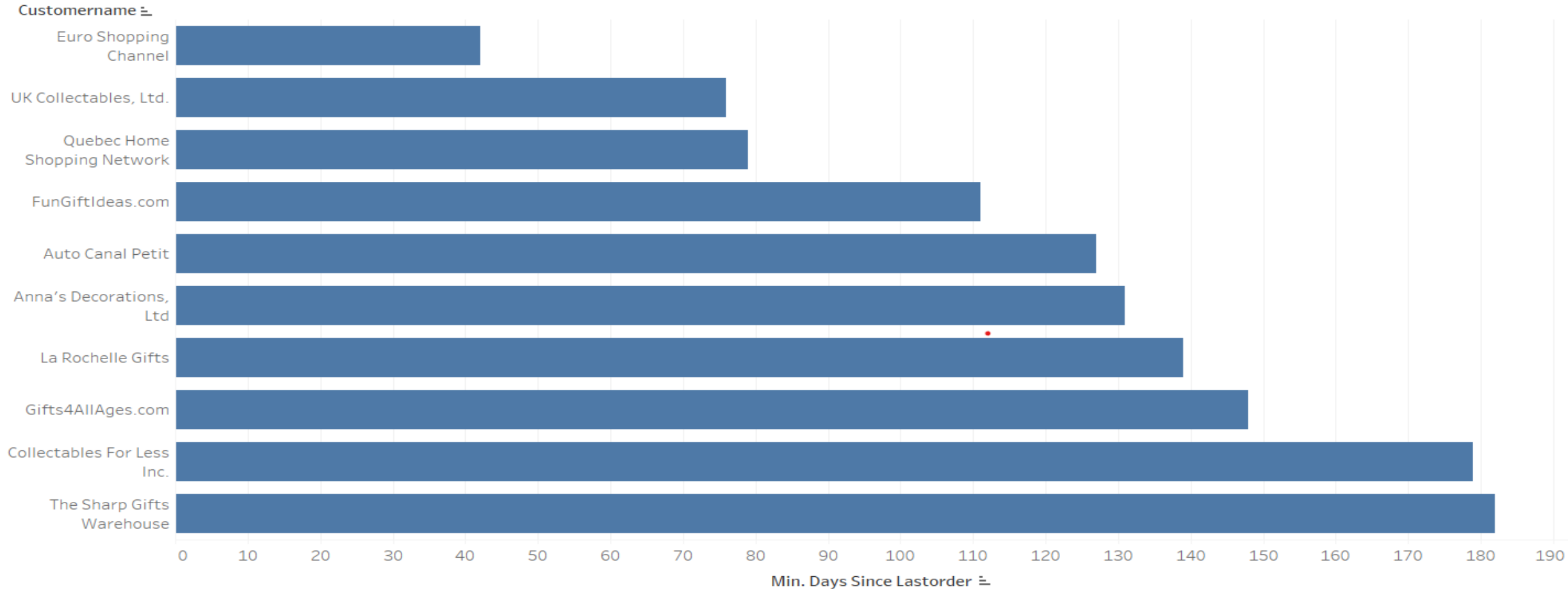
Product Line & Sales : Top Products



Insights

- **S18_3232** is the **most selling** item across all Product Lines & Classic car parts.

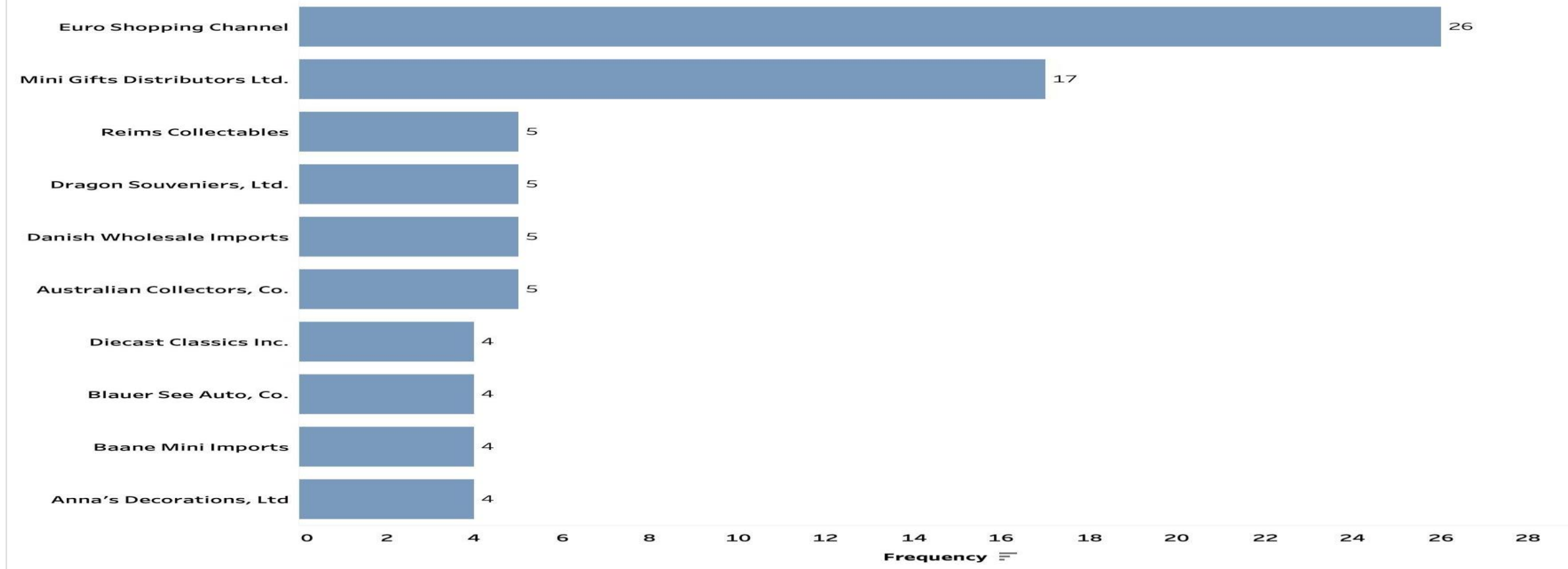
Top Customers : Recency



Inference:

- The most recent customers are: **Euro Shopping Channel, UK Collectables, Ltd., Quebec Home Shopping Network.**

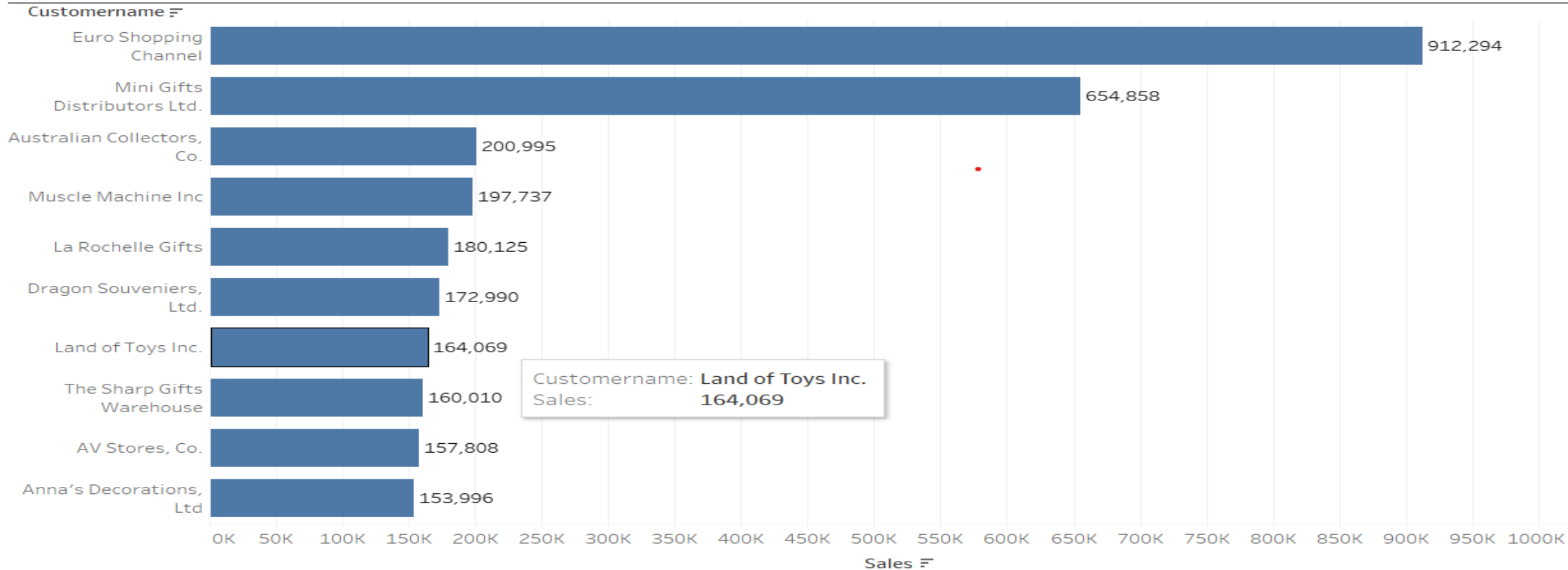
Top Customers : Frequency



Inference:

- The most recent customers are : **Euro Shopping Channel & Mini Gifts Distributors Ltd.**

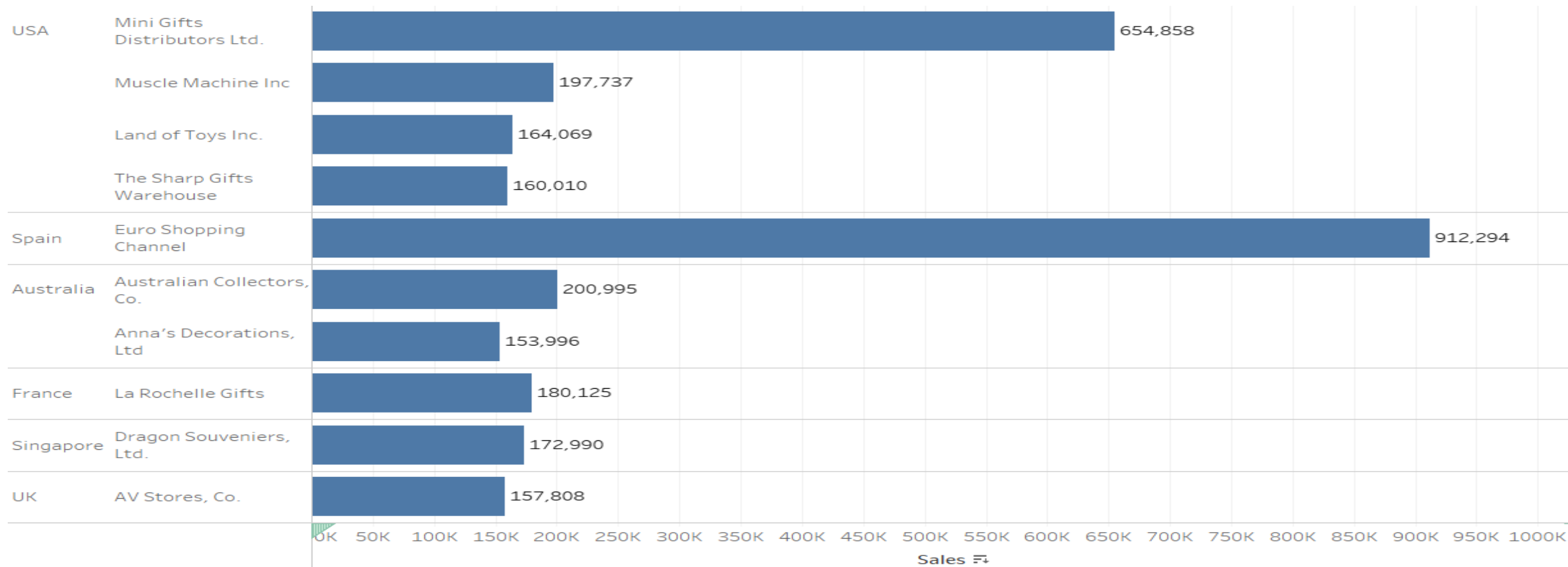
Top Customers : Monetary



Inference:

- The most recent customers are : **Euro Shopping Channel & Mini Gifts Distributors Ltd.**
- The **above customers** were **most recent & frequent as well**, indicating them as the most valuable customers for the brand

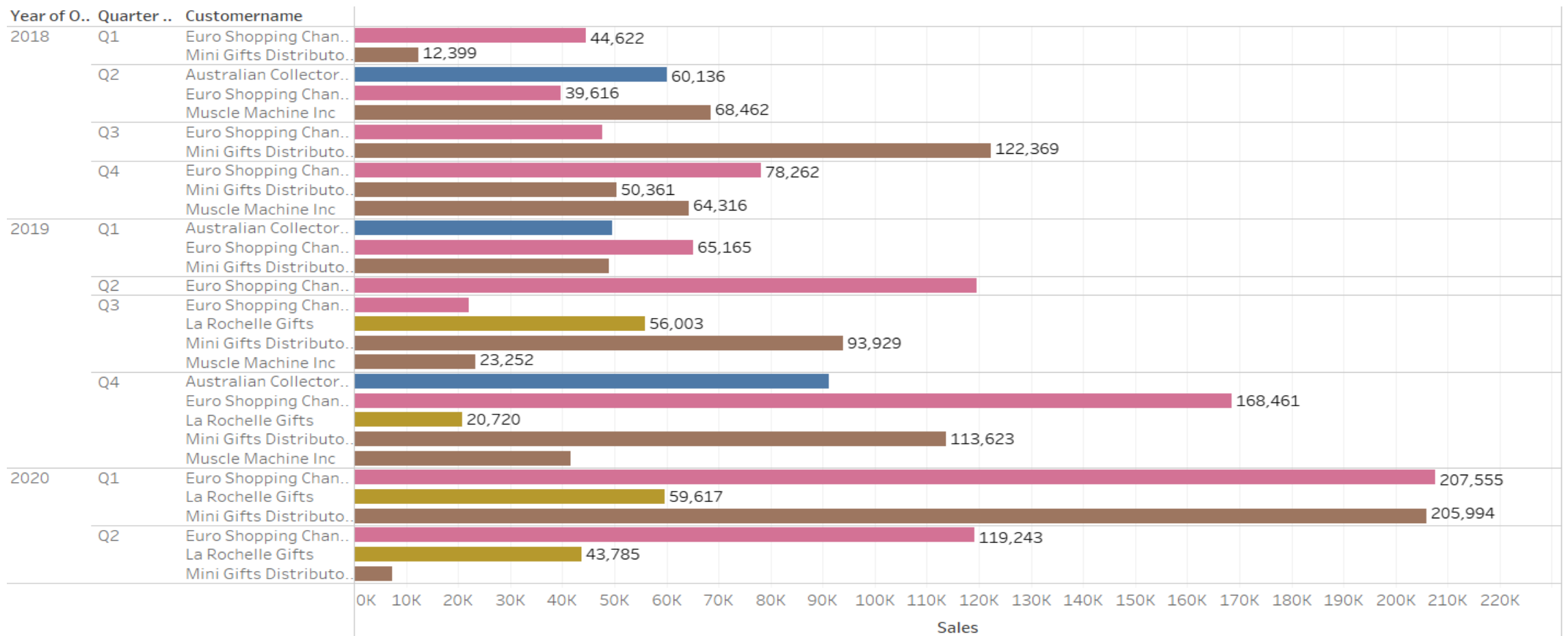
Top 10 Customers distribution across Countries



Inference:

- **Most** of the customers belongs to **USA**
- **Euro Shopping Channel** is the **most spending Customer** across all countries as well as **Spain**. It contributes over 80% of the sales from **Spain**.

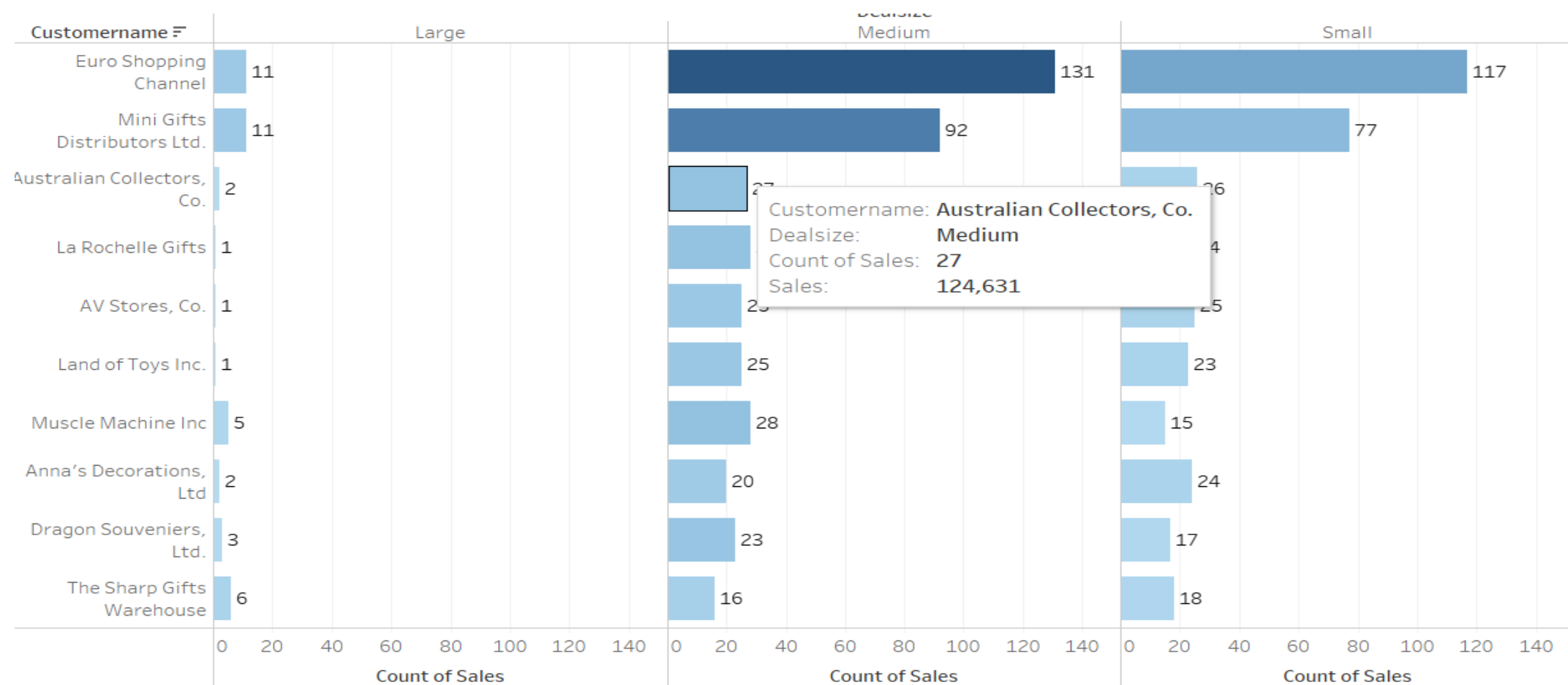
Top Customers : Year & Quarter



Inference:

- **Sales in Q1 of 2020** are comparatively **higher than rest** of the quarters.
- **Highest Contribution** to sales in most quarters are from **Euro Shopping channel & Mini Gifts distributors Ltd.**

Top Customers by Deal Size



Inference:

- The **Top customer** Euro Shopping channel & Mini Gifts distributors Ltd has **majority of medium** followed by Small Deals

Status, Sales and Deal Size

Deal size	Status					
	Cancelled	Disputed	In Process	On Hold	Resolved	Shipped
Large		42,747	27,152	42,941	8,885	1,137,231
Medium	137,575	22,165	83,787	106,342	103,967	5,477,396
Small	56,912	7,301	33,791	29,697	37,867	2,404,467

Inference:

- No order of large deal type is cancelled it's a good sign.
- Most shipped parts belong to medium deal size type.

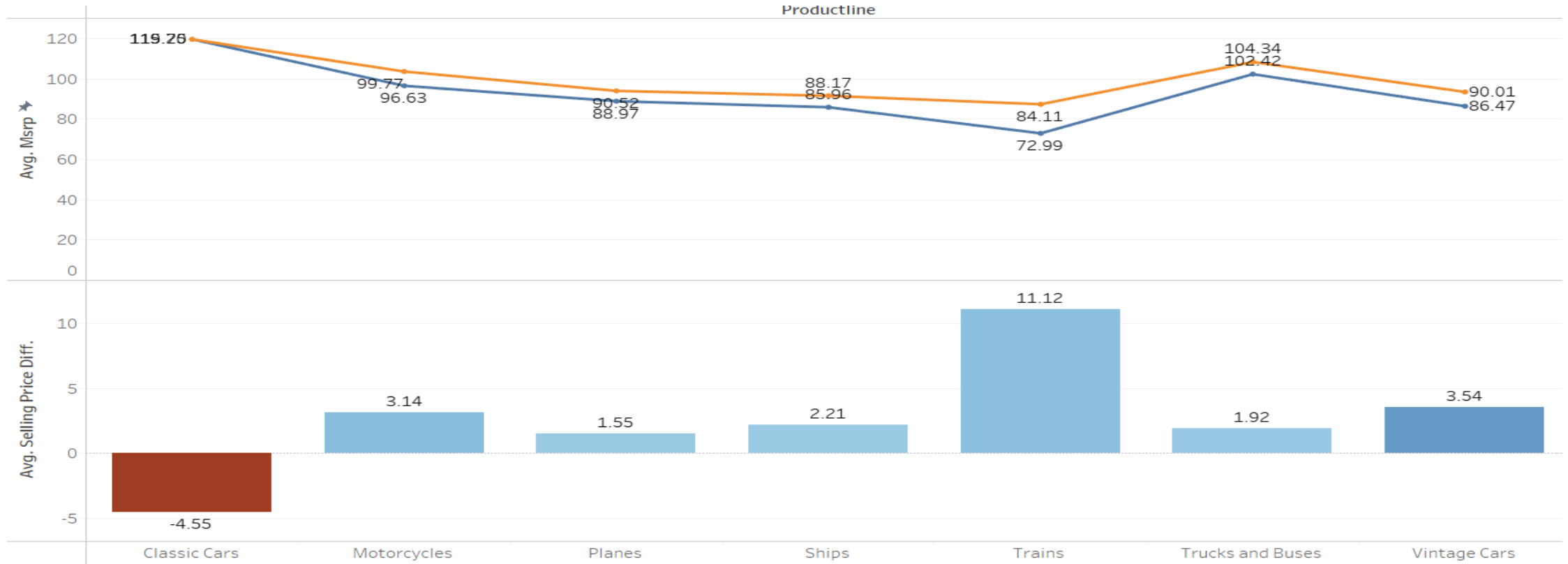
Product Live & Status

Status	Classic Cars	Motorcycles	Planes	Ships	Trains	Trucks and Buses	Vintage Cars
Cancelled	1.69%		3.95%	7.83%	1.30%		2.25%
Disputed	0.32%	1.92%	0.66%	0.43%			0.35%
In Process	1.48%					3.73%	2.76%
On Hold	1.26%	0.32%	2.96%	3.48%	1.30%	1.36%	1.55%
Resolved	0.84%		3.95%	5.22%		1.69%	1.73%
Shipped	94.42%	97.76%	88.49%	83.04%	97.40%	93.22%	91.36%

Inference:

- **Most** of the orders in each Product Line are currently in **shipping status**.
- **Ships** has the **highest cancellation rate of 8%** among all
- **Motorcycles, Truck & Buses parts** have **no cancellations** at all.

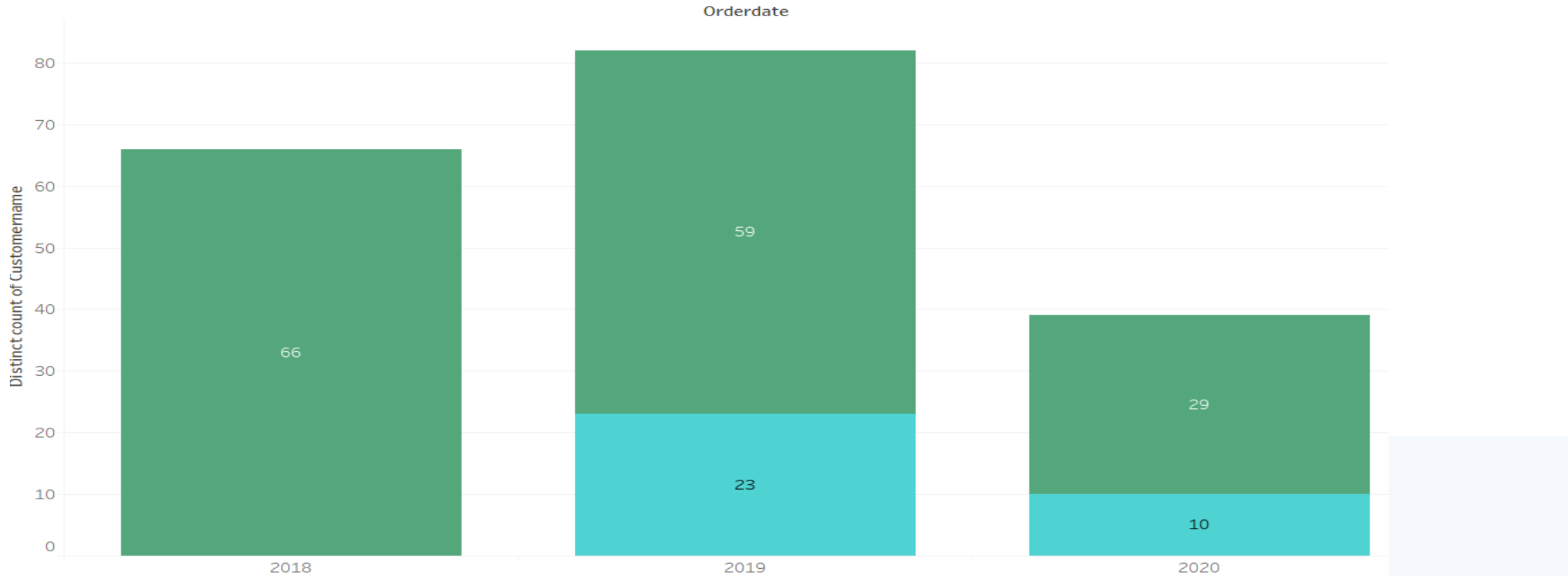
Selling Price vs Suggested - Product Line



Inference:

- The average of Selling price & suggested price is between **-4.55**, indicating **sold on lower price than suggested** to **+11.12** indicates **sold at higher price**.
- **Classic cars** have the **highest difference in negative**, while **trains** have the **highest difference in positive**

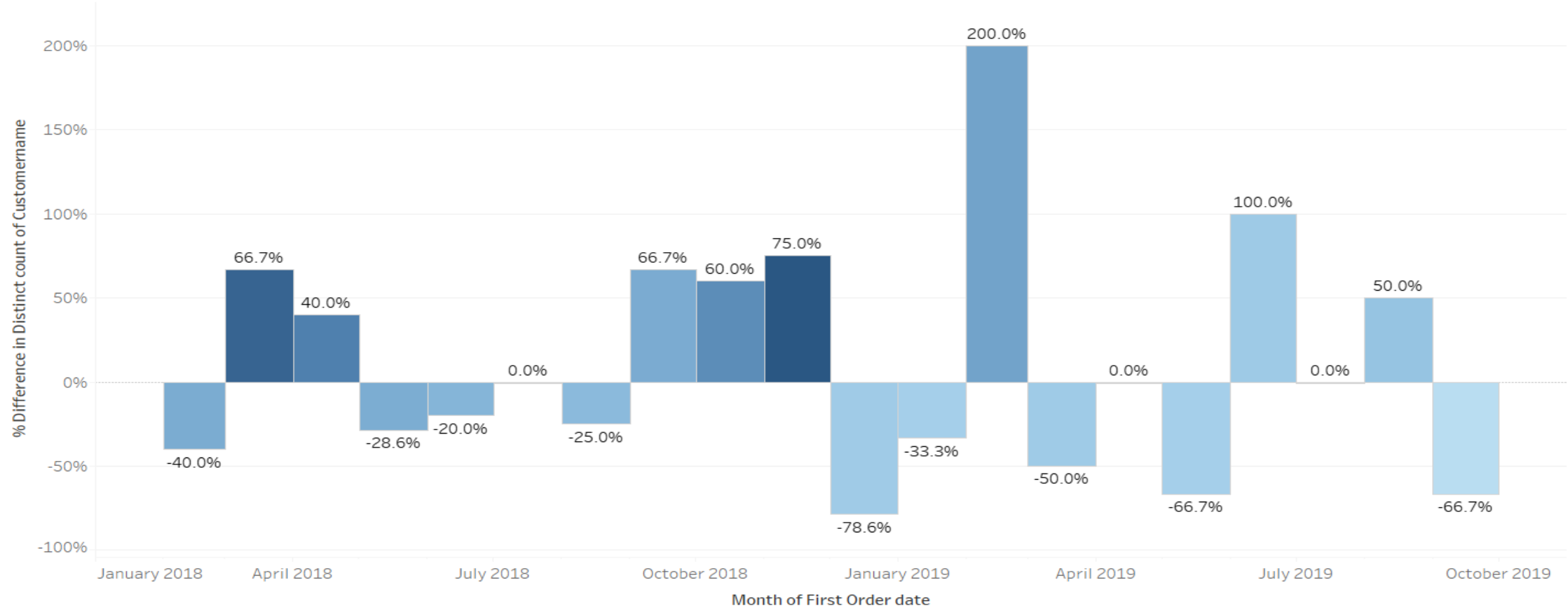
New Customer Acquisition & Retention



Inference:

- **No new** customers acquired in **2020**.
- Only **23 new customers** acquired in **2019**.
- **90%** customers of 2018 were retained in **2019**.

New Customer Growth Rate



Inference:

- **Highest growth rate in new customers** was seen in between **Jan & Apr'2019**
- Between **Oct 2018 - Jan 2019** saw the least new customer growth.
- **No new customers** acquired post Sept 2019.

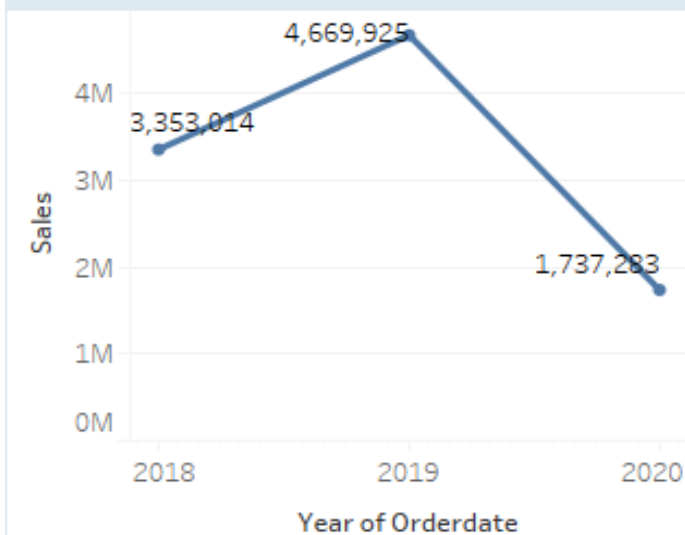


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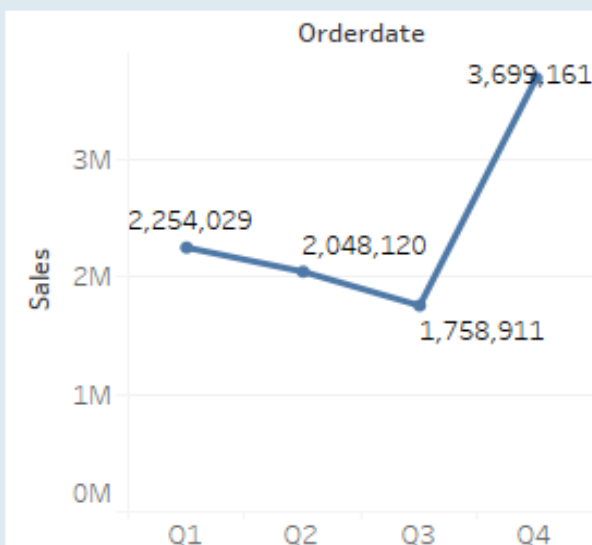
Dashboard : Sales

mph

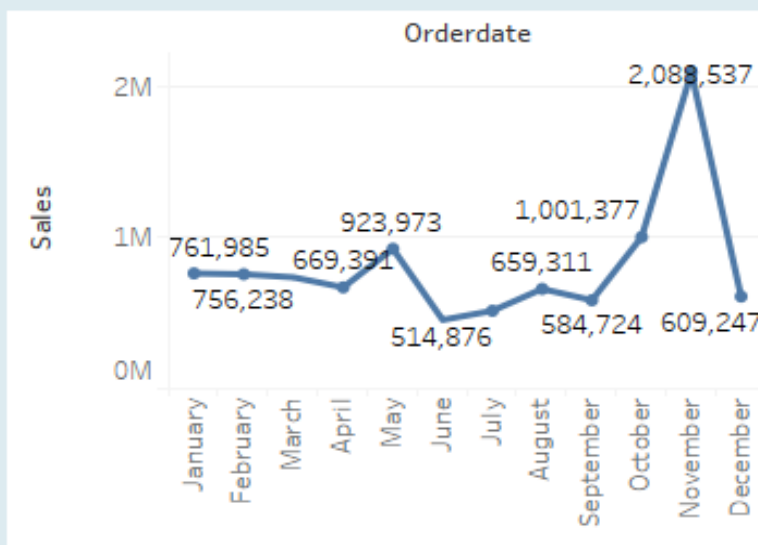
Year Sales



Quartly Sales



Monthly Sales



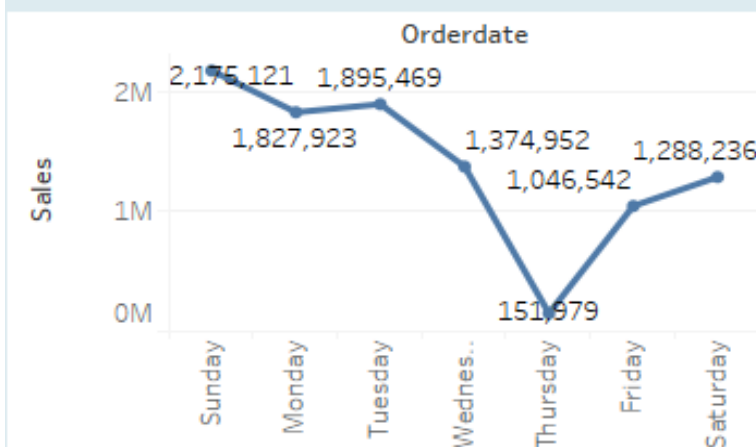
Productline

(All) ▼

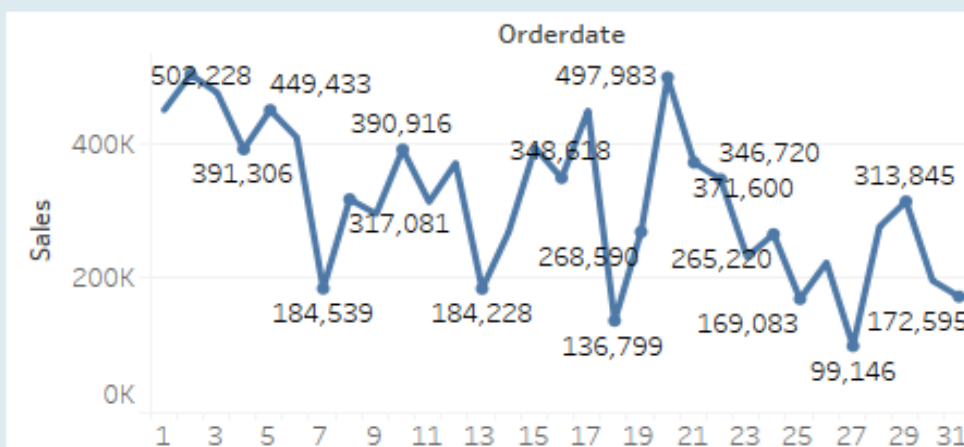
Sales %

Productline	
Classic Cars	39.37%
Motorcycles	11.31%
Planes	9.93%
Ships	7.17%
Trains	2.32%
Trucks and ..	11.39%
Vintage Cars	18.51%

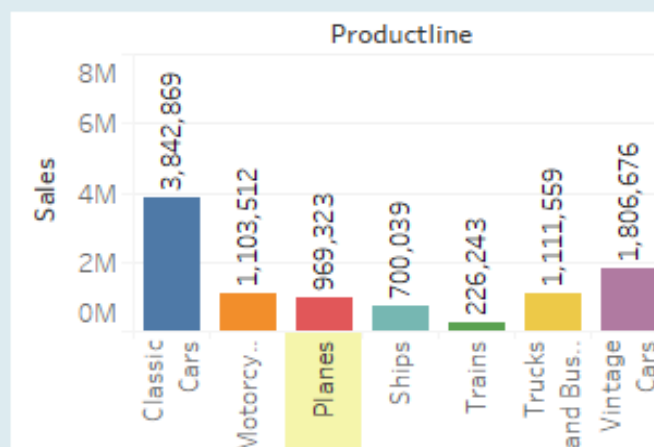
Weekday Sales



Day Sales



Product line and Sales



Key Insights

Sales Overview:

- **298 orders** placed by **89** customers from **19** countries in the last **2.5 years**.
- **United States** leads in sales, followed by **Spain and France**. Notable sales from **Australia** and **Singapore** in the **Eastern Hemisphere**.
- Among cities, **Madrid tops sales**, with **San Rafael** and **New York City** following.
- In the **Eastern Hemisphere**, sales from **Australia and Singapore declined**, while customers from **Japan were added in 2019**.
- Significant sales **increase** observed in **US and France in 2019**.

Product and Revenue:

- The company manufactures **109 automobile parts under 7 product lines** with **prices ranging from 26 to 252**.
- **Classic Car parts generate the maximum** revenue through **sales (approx. 40%)**.
- **Car, Truck, Bus, and Motorcycle parts** account for **80% of the company's revenue**.

Key Insights

Sales Trends:

- **Upward sales trend** with **monthly seasonality**. **Peak sales in October and November** annually.
- **Higher sales** and customer activity in the **early months of 2020** compared to previous years.
- Concern: **No new customers added since September 2019**.

Transaction Characteristics:

- **Most deals** are of **medium** and **small size**, with transactions typically containing **20 to 50 items**.

Key Customers:

- **Euro Shopping Channel and Mini Gifts Distribution Ltd.** are best customers (**highest spending, most frequent, and recent**).

Customer Retention:

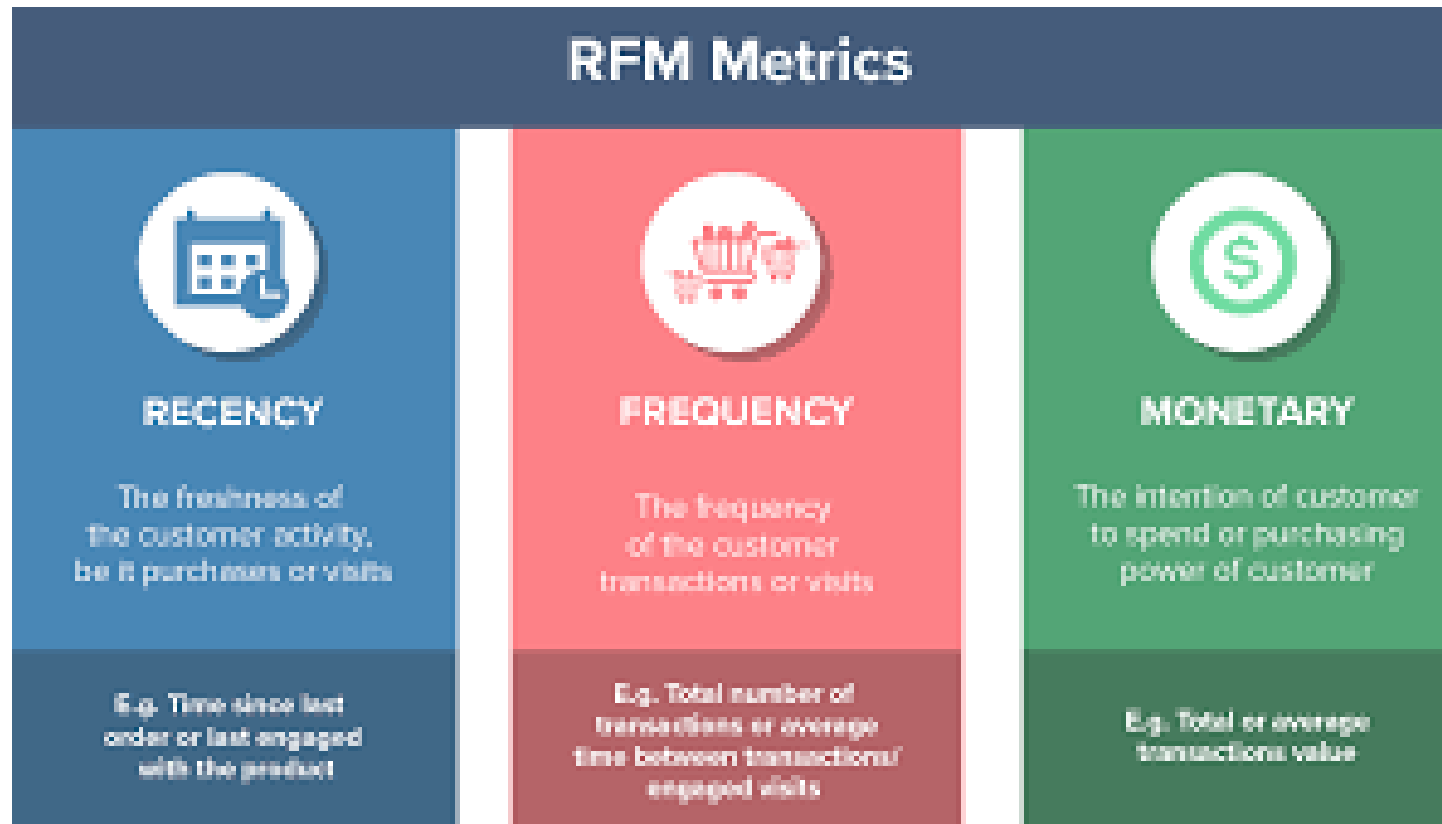
- A good customer **retention rate** of approximately **90%** was observed **in 2019**.



ABOUT RFM

What is RFM?

The RFM analysis model enables the business to categorize customers using three criteria derived from a customer's transaction history, specifically:



Benefits of RFM Analysis

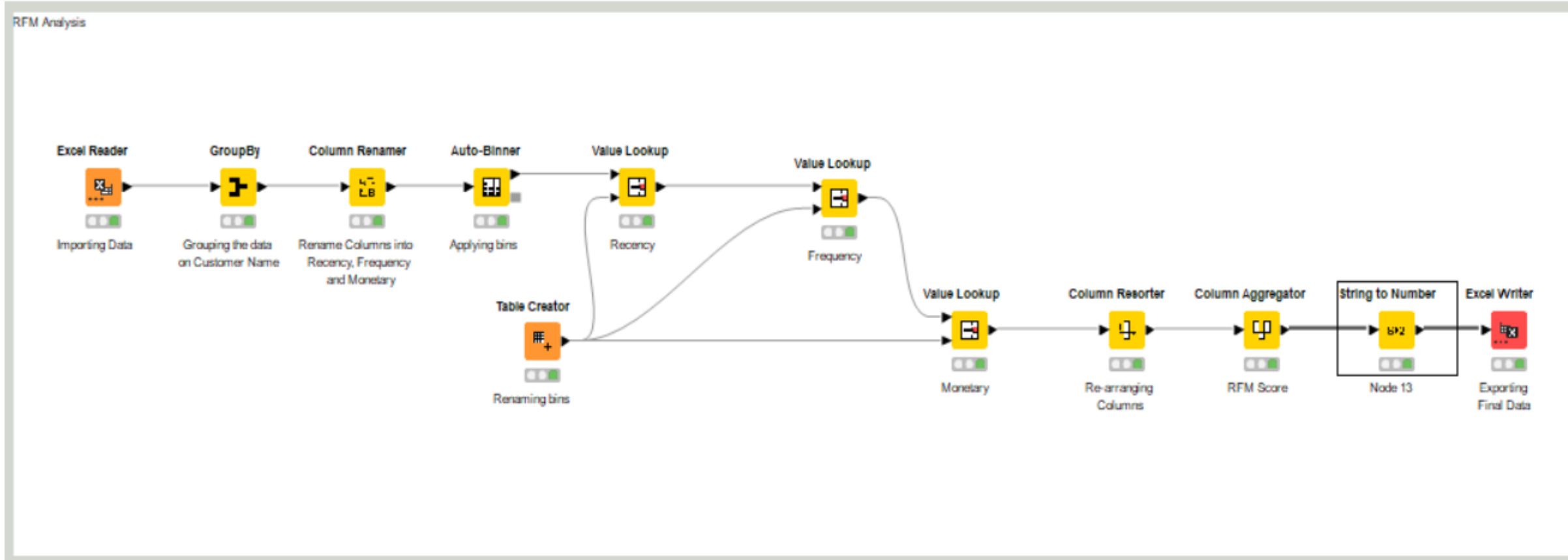
- **Personalization:** By creating effective customer segments, you can create relevant, personalized offers.
- **Improve Conversion Rates:** Personalized offers will yield higher conversion rates because your customers are engaging with products they care about.
- **Improve** unit economics
- **Increase** revenue and profits

Tool used : KNIME

KNIME, the Konstanz Information Miner, is a free and open-source data analytics, reporting and integration platform.



RFM Analysis - KNIME Workflow



Note:

The data is preprocessed in **Python** along with Date Difference. No preprocessing or EDA done here

The data is binned in 4 buckets 1,2,3 & 4 for **Recency**, **Frequency** & **Monetary**.

RFM Score: 4 being the **best** & 1 being the **lowest score**

RFM Analysis - KNIME Output Sample

Row ID	S CUSTO...	I Recency	I Freque...	D Monetary	S Recenc...	S Freque...	S Moneta...	D QUANT...	D PRICEE...	S PRODUCTLINE	D MSRP	S COUNTRY	I Recenc...	I Freque...	I Moneta...	D RFM Sc...
Row0	AV Stores, Co.	421	3	157,807.81	Bin 3	Bin 2	Bin 4	34.863	91.085	Classic Cars, Vintage Cars, Trains, Ships	92.843	UK	2	2	4	224
Row1	Alpha Cognac	675	3	70,488.44	Bin 4	Bin 2	Bin 1	34.35	101.16	Classic Cars, Planes, Ships, Vintage Cars	97.15	France	1	2	1	121
Row2	Amica Model...	328	2	94,117.26	Bin 2	Bin 1	Bin 3	32.423	110.853	Classic Cars, Trucks and Buses, Vintag...	107.654	Italy	3	1	3	313
Row3	Anna's Decor...	131	4	153,996.13	Bin 1	Bin 4	Bin 4	31.935	106.424	Classic Cars, Trucks and Buses, Motor...	104.717	Australia	4	4	4	444
Row4	Atelier graph...	312	3	24,179.96	Bin 2	Bin 2	Bin 1	38.571	92.239	Motorcycles, Classic Cars, Vintage Cars	95.571	France	3	2	1	321
Row5	Australian C...	1018	3	64,591.46	Bin 4	Bin 2	Bin 1	30.652	90.042	Vintage Cars, Classic Cars, Planes, Ships	88.13	Australia	1	2	1	121
Row6	Australian C...	229	5	200,995.41	Bin 1	Bin 4	Bin 4	35.018	104.59	Motorcycles, Classic Cars, Trucks and ...	103.527	Australia	4	4	4	444
Row7	Australian G...	190	3	59,469.12	Bin 1	Bin 2	Bin 1	36.333	110.554	Classic Cars, Motorcycles, Trucks and ...	111.533	Australia	4	2	1	421
Row8	Auto Assoc. ...	275	2	64,834.32	Bin 2	Bin 1	Bin 1	35.389	99.488	Classic Cars, Trucks and Buses, Vintag...	100.389	France	3	1	1	311
Row9	Auto Canal P...	127	3	93,170.66	Bin 1	Bin 2	Bin 3	37.074	94.255	Motorcycles, Classic Cars	94.852	France	4	2	3	423
Row10	Auto-Moto Cl...	1353	3	26,479.26	Bin 4	Bin 2	Bin 1	35.875	92.8	Ships, Vintage Cars, Planes	87.375	USA	1	2	1	121
Row11	Baane Mini I...	245	4	116,599.19	Bin 1	Bin 4	Bin 3	33.812	108.574	Motorcycles, Classic Cars, Trucks and ...	107.469	Norway	4	4	3	443
Row12	Bavarian Coll...	801	1	34,993.92	Bin 4	Bin 1	Bin 1	28.643	84.289	Planes, Ships, Vintage Cars	82.714	Germany	1	1	1	111
Row13	Blauer See A...	705	4	85,171.59	Bin 4	Bin 4	Bin 2	36.864	108.031	Classic Cars, Vintage Cars, Trucks and...	105.818	Germany	1	4	2	142
Row14	Boards & To...	410	2	9,129.35	Bin 2	Bin 1	Bin 1	34	89.807	Classic Cars, Vintage Cars, Ships	92.333	USA	3	1	1	311
Row15	CAF Imports	625	2	49,642.05	Bin 3	Bin 1	Bin 1	36	104.963	Classic Cars, Vintage Cars, Trains, Ships	106.923	Spain	2	1	1	211
Row16	Cambridge C...	484	2	36,163.62	Bin 3	Bin 1	Bin 1	32.455	101.329	Classic Cars, Trucks and Buses, Vintag...	97.364	USA	2	1	1	211
Row17	Canadian Gift...	364	2	75,238.92	Bin 2	Bin 1	Bin 2	31.955	105.341	Classic Cars, Trucks and Buses, Vintag...	106.409	Canada	3	1	2	312
Row18	Classic Gift I...	344	2	67,506.97	Bin 2	Bin 1	Bin 1	31.81	103.32	Classic Cars, Trucks and Buses, Planes...	102.476	USA	3	1	1	311
Row19	Classic Lege...	309	3	77,795.2	Bin 2	Bin 2	Bin 2	36	109.803	Classic Cars, Trucks and Buses, Vintag...	106.65	USA	3	2	2	322
Row20	Clover Collec...	659	2	57,756.43	Bin 4	Bin 1	Bin 1	30.625	112.87	Classic Cars, Planes, Motorcycles, Trai...	106.875	Ireland	1	1	1	111
Row21	Collectable M...	575	2	87,489.23	Bin 3	Bin 1	Bin 2	38.16	91.535	Classic Cars, Planes, Ships, Vintage Cars	93.12	USA	2	1	2	212
Row22	Collectables ...	179	3	81,577.98	Bin 1	Bin 2	Bin 2	33.125	97.237	Classic Cars, Vintage Cars, Planes, Ships	99.458	USA	4	2	2	422
Row23	Corrida Auto...	407	3	120,615.28	Bin 2	Bin 2	Bin 4	36.344	105.175	Classic Cars, Trucks and Buses, Vintag...	102.625	Spain	3	2	4	324
Row24	Cruz & Sons ...	971	3	94,015.73	Bin 4	Bin 2	Bin 3	36.962	96.08	Classic Cars, Planes, Motorcycles, Vint...	97.962	Philippines	1	2	3	123
Row25	Daedalus De...	573	2	69,052.41	Bin 3	Bin 1	Bin 1	34.95	95.474	Motorcycles, Classic Cars	94.5	France	2	1	1	211
Row26	Danish Whol...	499	5	145,041.6	Bin 3	Bin 4	Bin 4	36.528	108.038	Classic Cars, Vintage Cars, Planes, Shi...	106.417	Denmark	2	4	4	244
Row27	Diecast Class...	228	4	122,138.14	Bin 1	Bin 4	Bin 4	35.839	108.566	Motorcycles, Classic Cars, Trucks and ...	106.581	USA	4	4	4	444
Row28	Diecast Colle...	672	2	70,859.78	Bin 4	Bin 1	Bin 2	38.611	101.783	Classic Cars, Trucks and Buses, Vintag...	103.722	USA	1	1	2	112
Row29	Double Deck...	670	2	36,019.04	Bin 4	Bin 1	Bin 1	29.75	99.108	Classic Cars, Planes, Ships, Vintage Cars	93.25	UK	1	1	1	111
Row30	Dragon Souv...	649	5	172,989.68	Bin 4	Bin 4	Bin 4	35.442	113.106	Classic Cars, Trucks and Buses, Vintag...	113.442	Singapore	1	4	4	144
Row31	Enaco Distrib...	659	3	78,411.86	Bin 4	Bin 4	Bin 2	38.348	88.783	Classic Cars, Ships, Vintage Cars, Mot...	87.087	Spain	1	2	2	122
Row32	Euro Shoppin...	42	26	912,294.11	Bin 1	Bin 4	Bin 4	36.012	97.383	Motorcycles, Classic Cars, Trucks and ...	97.015	Spain	4	4	4	444
Row33	FunGiftIdeas...	111	3	98,923.73	Bin 1	Bin 2	Bin 3	34.731	109.587	Motorcycles, Classic Cars, Vintage Car...	108	USA	4	2	3	423
Row34	Gift Depot Inc.	226	3	101,894.79	Bin 1	Bin 2	Bin 3	36.12	108.932	Motorcycles, Classic Cars, Planes, Trains	110.92	USA	4	2	3	423
Row35	Gift Ideas Co...	947	3	57,294.42	Bin 4	Bin 2	Bin 1	35.053	87.6	Planes, Motorcycles, Classic Cars, Vint...	86.526	USA	1	2	1	121
Row36	Gifts4AllAges...	148	3	83,209.88	Bin 1	Bin 2	Bin 2	35.885	91.564	Classic Cars, Ships, Vintage Cars, Trai...	90.731	USA	4	2	2	422
Row37	Handji Gifts&...	488	4	115,498.73	Bin 3	Bin 4	Bin 3	34.333	95.593	Classic Cars, Trucks and Buses, Vintag...	97.222	Singapore	2	4	3	243
Row38	Heintze Colle...	414	2	100,595.55	Bin 2	Bin 1	Bin 3	32.667	112.268	Classic Cars, Trucks and Buses, Vintag...	110.926	Denmark	3	1	3	313
Row39	Herkku Gifts	567	3	111,640.28	Bin 3	Bin 2	Bin 3	33.552	113.559	Motorcycles, Classic Cars, Vintage Car...	109.759	Norway	2	2	3	223
Row40	Iberia Gift Im...	904	2	54,723.62	Bin 4	Bin 1	Bin 1	39.267	93.283	Trucks and Buses, Classic Cars, Vintag...	93.133	Spain	1	1	1	111
Row41	L'ordine Sou...	493	3	142,601.33	Bin 3	Bin 2	Bin 4	32.821	111.147	Classic Cars, Planes, Motorcycles, Trai...	107.795	Italy	2	2	4	224
Row42	La Corne D'a...	387	3	97,203.68	Bin 2	Bin 2	Bin 3	36.348	113.65	Classic Cars, Trucks and Buses, Vintag...	112.826	France	3	2	3	323
Row43	La Rochelle ...	139	4	180,124.9	Bin 1	Bin 4	Bin 4	34.566	97.046	Motorcycles, Classic Cars, Trucks and ...	96.151	France	4	4	4	444
Row44	Land of Toys...	216	4	164,069.44	Bin 1	Bin 4	Bin 4	33.286	104.121	Motorcycles, Classic Cars, Trucks and ...	102.98	USA	4	4	4	444



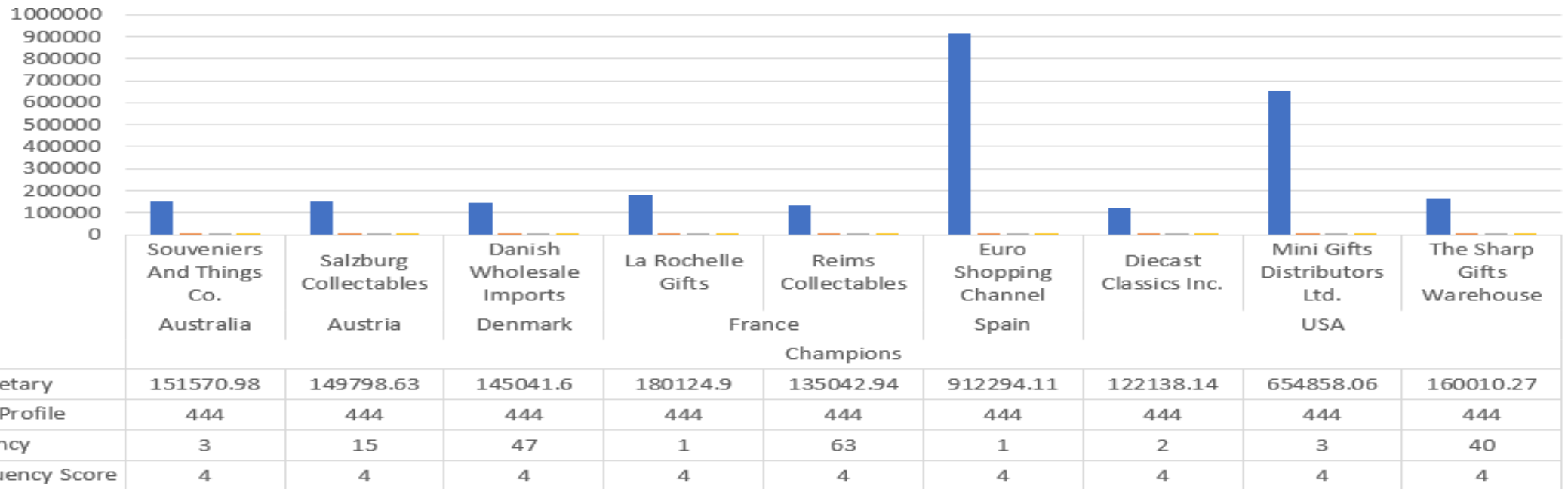
RFM Analysis Segmentation

RFM : Sample of Customer List

COUNTRY	Customer	Description	Frequency	Monetary	PRODUCT	Recency (E	Recommen	RFM Segm	Frequency	Frequency	Monetary	Monetary	MSRP (RFM	PRICEEACH	QUANTITY	Recency	Recency S	RFM Profil
UK	AV Stores,	High-value	Bin 2	Bin 4	Classic Car	Bin 3	Provide co	Can't Lose	3	2	157807.8	4	92.84314	91.08451	34.86275	197	2	224
France	Alpha Cog	These cust	Bin 2	Bin 1	Classic Car	Bin 1	Provide co	Price Sensi	3	2	70488.44	1	97.15	101.16	34.35	65	4	421
Italy	Amica Mo	These cust	Bin 1	Bin 3	Classic Car	Bin 4	Revive inte	Lost	2	1	94117.26	3	107.6538	110.8527	32.42308	266	1	113
Australia	Anna's Dec	This segme	Bin 4	Bin 4	Classic Car	Bin 2	Loyalty pro	Loyal	4	4	153996.1	4	104.7174	106.4241	31.93478	84	3	344
France	Atelier gra	These cust	Bin 2	Bin 1	Classic Car	Bin 3	Provide co	Price Sensi	3	2	24179.96	1	95.57143	92.23857	38.57143	189	2	221
Australia	Australian	These cust	Bin 2	Bin 1	Vintage Ca	Bin 1	Provide co	Price Sensi	3	2	64591.46	1	88.13043	90.04174	30.65217	23	4	421
Australia	Australian	This segme	Bin 4	Bin 4	Motorcycl	Bin 2	Loyalty pro	Loyal	4	4	200995.4	4	103.5273	104.5902	35.01818	185	3	344
Australia	Australian	These cust	Bin 2	Bin 1	Classic Car	Bin 2	Provide co	Price Sensi	3	2	59469.12	1	111.5333	110.554	36.33333	120	3	321
France	Auto Assoc	These cust	Bin 1	Bin 1	Trucks and	Bin 4	Revive inte	Lost	2	1	64834.32	1	100.3889	99.48778	35.38889	234	1	111
France	Auto Cana	High-value	Bin 2	Bin 3	Motorcycl	Bin 1	Provide co	Can't Lose	3	2	93170.66	3	94.85185	94.25519	37.07407	55	4	423
USA	Auto-Mote	These cust	Bin 2	Bin 1	Ships, Vint	Bin 2	Provide co	Price Sensi	3	2	26479.26	1	87.375	92.8	35.875	181	3	321
Norway	Baane Min	This segme	Bin 4	Bin 3	Classic Car	Bin 3	Loyalty pro	Loyal	4	4	116599.2	3	107.4688	108.5738	33.8125	209	2	243
Germany	Bavarian C	These cust	Bin 1	Bin 1	Planes, Shi	Bin 4	Revive inte	Lost	1	1	34993.92	1	82.71429	84.28929	28.64286	260	1	111
Germany	Blauer See	These cust	Bin 4	Bin 2	Vintage Ca	Bin 3	Provide co	Price Sensi	4	4	85171.59	2	105.8182	108.0314	36.86364	209	2	242
USA	Boards & T	This segme	Bin 1	Bin 1	Vintage Ca	Bin 2	Send persc	At Risk	2	1	9129.35	1	92.33333	89.80667	34	114	3	311
Spain	CAF Impor	These cust	Bin 1	Bin 1	Vintage Ca	Bin 4	Revive inte	Lost	2	1	49642.05	1	106.9231	104.9631	36	440	1	111
USA	Cambridge	These cust	Bin 1	Bin 1	Classic Car	Bin 4	Revive inte	Lost	2	1	36163.62	1	97.36364	101.3291	32.45455	390	1	111
Canada	Canadian C	This segme	Bin 1	Bin 2	Classic Car	Bin 3	Send persc	At Risk	2	1	75238.92	2	106.4091	105.3409	31.95455	223	2	212
USA	Classic Gif	This segme	Bin 1	Bin 1	Classic Car	Bin 3	Send persc	At Risk	2	1	67506.97	1	102.4762	103.3205	31.80952	231	2	211
USA	Classic Leg	These cust	Bin 2	Bin 2	Trucks and	Bin 3	Provide co	Price Sensi	3	2	77795.2	2	106.65	109.8035	36	193	2	222
Ireland	Clover Col	These cust	Bin 1	Bin 1	Classic Car	Bin 4	Revive inte	Lost	2	1	57756.43	1	106.875	112.87	30.625	259	1	111
USA	Collectabl	These cust	Bin 1	Bin 2	Classic Car	Bin 4	Revive inte	Lost	2	1	87489.23	2	93.12	91.5348	38.16	461	1	112
USA	Collectabl	These cust	Bin 2	Bin 2	Classic Car	Bin 2	Provide co	Price Sensi	3	2	81577.98	2	99.45833	97.23708	33.125	133	3	322
Spain	Corrida Au	High-value	Bin 2	Bin 4	Classic Car	Bin 3	Provide co	Can't Lose	3	2	120615.3	4	102.625	105.175	36.34375	213	2	224
Philippines	Cruz & Sor	High-value	Bin 2	Bin 3	Classic Car	Bin 3	Provide co	Can't Lose	3	2	94015.73	3	97.96154	96.08	36.96154	198	2	223

RFM - Best Customers - Champions

Sum of Monetary by RFM Segmentaion



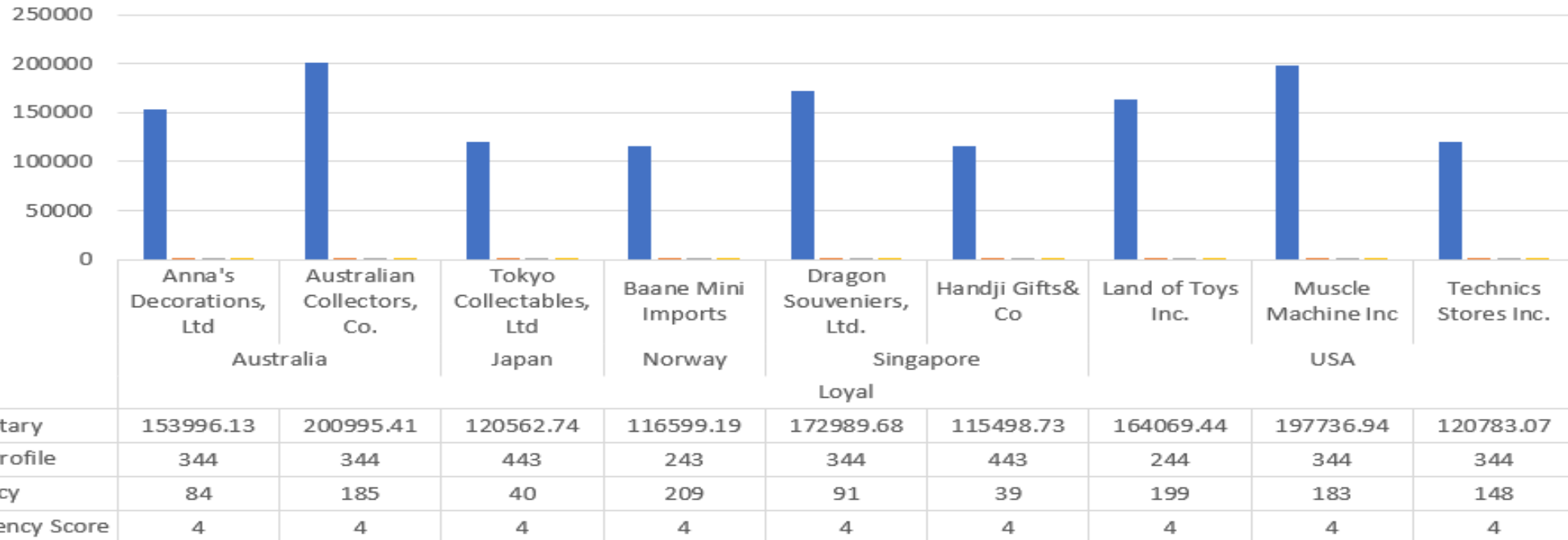
- Customers having a **perfect 4-4-4** score
- **Total 9** customers are segmented as **Best customers**
- They Bought **most recently**, **Buys most frequently**, and **buys big**.
- Create **positive WOM** (word of mouth)

Recommendation:

- **Loyalty programs, new product** and **value-added** recommendations based on past purchase

RFM - Loyal Customers

Sum of Monetary by RFM Segmentaion

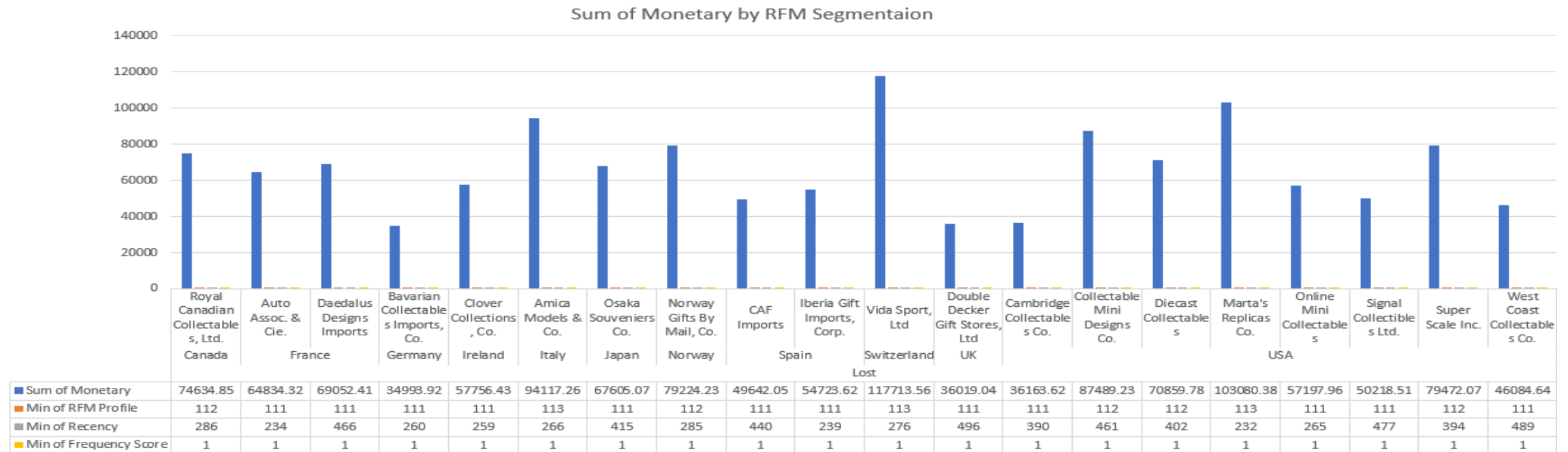


- Recent, most frequent and spends High.
- **Total 9** customers are segmented as **Loyal customers**
- Clear and positive view of the brand.
- **Happy** with the product and service provided, and are **unlikely to switch** to **alternatives**.
- **Important** to make these customers **feel valued**

Recommendation

- Offer **Loyalty programs**, ask for reviews, **reward** (e.g., Free Shipping) and **Engage** them.

RFM - Lost Customers

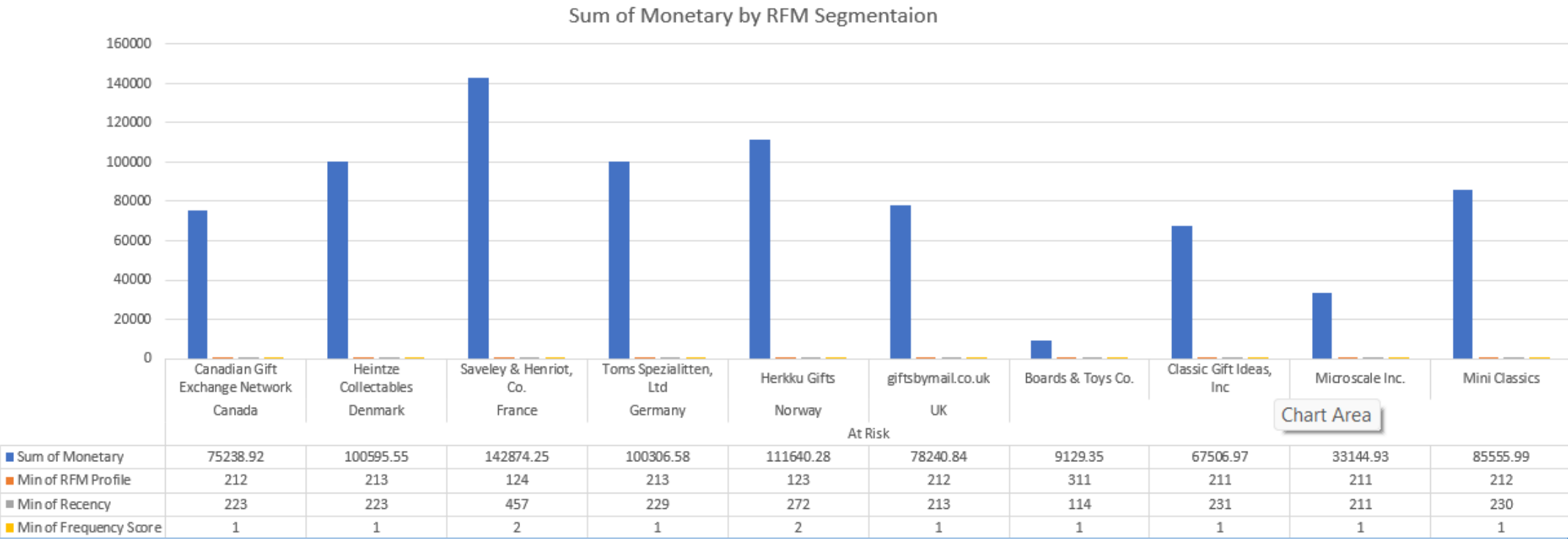


- Inactive since a while, **lowest frequent** and **low spends (11X)**
- **Total 20** customers are segmented as **Lost**
- We can say **Stopped** using services altogether
- **Very difficult** to **re-engage** with this segment, as they either have a negative view of the service or a more trustworthy alternative.
- **Most customers** are from **USA(9)**

Recommendation

- **Revive** interest with **reach out campaign** ignore otherwise

RFM - At Risk Customers- On The Verge of Churning



- **Relatively less active** since a while, **low frequent** and average spends
- **Total 10** customers are segmented as **At Risk**
- **Considering stopping** use of the service due to various reasons.
- Might had **bad experience** with services. In order to prevent this, it's necessary to scrutinize their behavior.

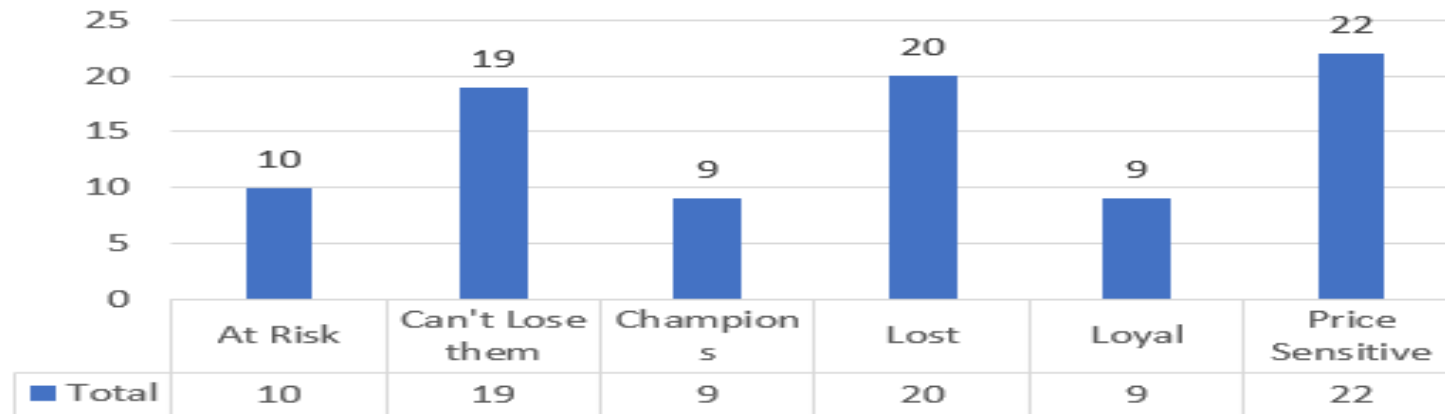
Recommendation

- **Send personalized emails** to reconnect
- Improve trust & loyalty. **Offer renewals**, provide helpful resources.



Recommendations

Count of Customer Name by RFM Segmentaion



- According to RFM analysis, customers can be categorized into Six distinct groups: Champion, loyal, Price Sensitive, Can't Lose Them, At Risk and lost customers. It is important to develop a focused approach for each group in order to optimize customer retention and enhance customer experience.
- **best customers(Champions)**, it is recommended to provide personalized recognition, exclusive offers, and incentives to ensure that they continue to choose our company over others. By doing so, we can maintain their loyalty and strengthen the long-term relationship.
- **loyal customers(Loyal & Price Sensitive)**, it is essential to offer periodic discounts and offers to keep them engaged by providing cost effective deals and tailored offers and interested in our products or services. By keeping them engaged, we can turn them into our best customers and improve their satisfaction level with our brand.
- **verge of churn customer(At Risk & Can't Lose Them)**, we need to develop an effective action plan to prevent them from leaving the company. We can conduct surveys, offer incentives, and personalize the communication to identify and address their concerns, and thereby increase their loyalty towards our brand.
- **lost customers**, it is important to analyze their behavior and preferences to identify the reasons for their departure. By identifying the key drivers of customer churn, we can develop targeted strategies to prevent such occurrences in the future and improve our overall retention rate.

Thank You