Marketing and Retail Analysis

Milestone 1 - Garima Gangwar

Agenda-

Agenda of this project is to find the underlying buying patterns of the customers of an automobile part manufacturer. based on the past 3 years of the Company's transaction data and recommend them customized marketing strategies for different segments of customers.

Executive Summary of the Data-

We have received the 3 years data of automobile part manufacture. Consisting 2747 entries with 20 variable details regarding the demography of the product and customer information.

Contents-

Problem Statement-

An automobile parts manufacturing company has collected data on transactions for 3 years. They do not have any in-house data science team, thus they have hired you as their consultant. Your job is to use your data science skills 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.

Auto sales data: Sales_data.xlsx

Data Summary-

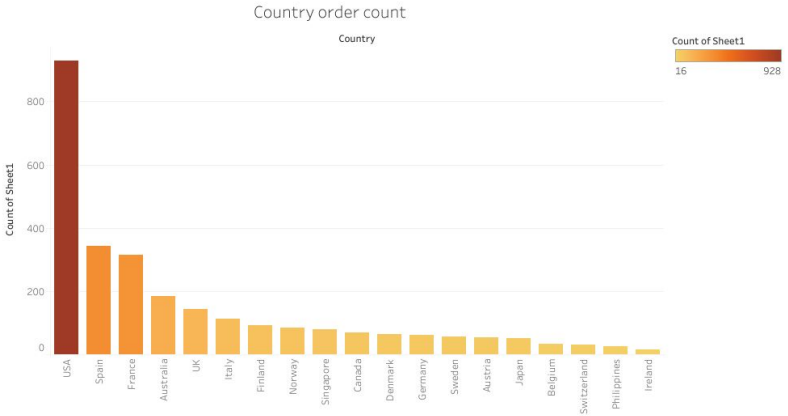
- The data is about an automobile parts manufacturing company. They have provided the data collected of transactions for 3 years.
- The data has 2747 entries (0 To 2746) of rows and 20 columns.
- The dataset has both no null values and no duplicate rows of data.
- This data more or less reflects the purchasing behavior of customers in different categories . The company is into automobile part manufacture, and they have different product line like Classic car , Motorcycle, plane, train, ship, Bus truck, vintage cars etc.
- There is presence of outliers in variables such as Quantity ordered, Price and Sales.
- Variable ‘Sales’ has highest positive skewness(0.784) and Variable ‘Days_since_lastorder’ has lowest negative skewness(-0.002).
- The data maintained each transactions entry as order number and for each order number maintained all required information like customer identity details and product details like price , quantity , product code, and sales for each customer.

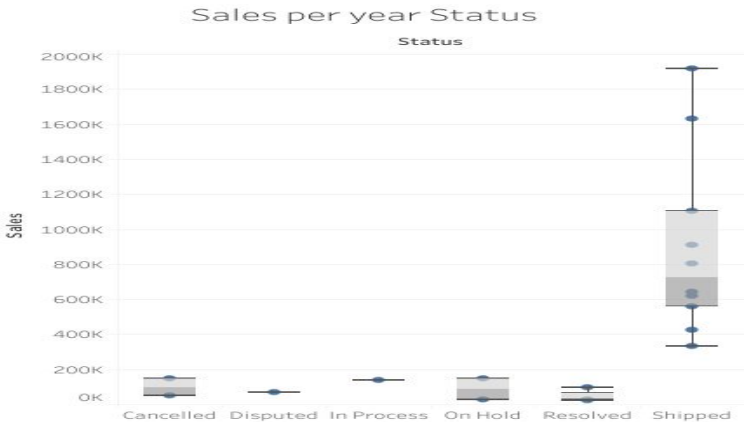
EDA (Data Overview)-

- Shape of data- (2747,20)
- Continuous variables- 7
- Categorical variables- 12
- Date-Time variables- 1
- Null values- 0
- Duplicate records- 0

Exploratory Data Analysis-

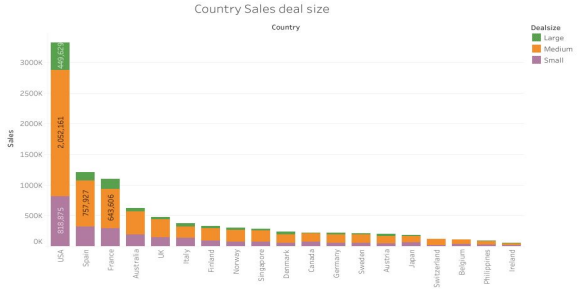
Univariate, Bivariate and Multivariate Analysis using data Data Visualization

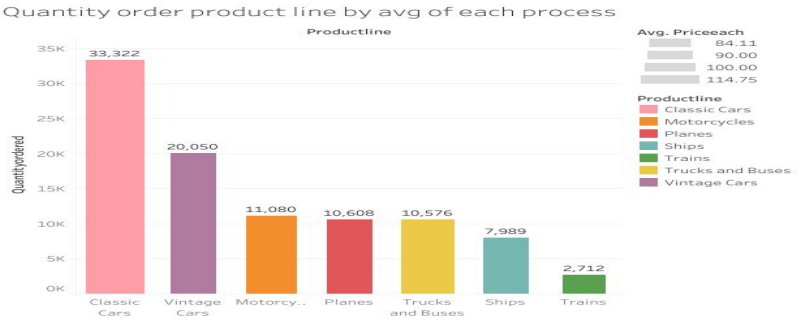


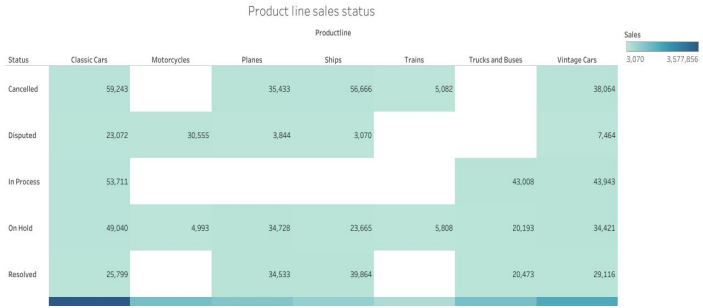


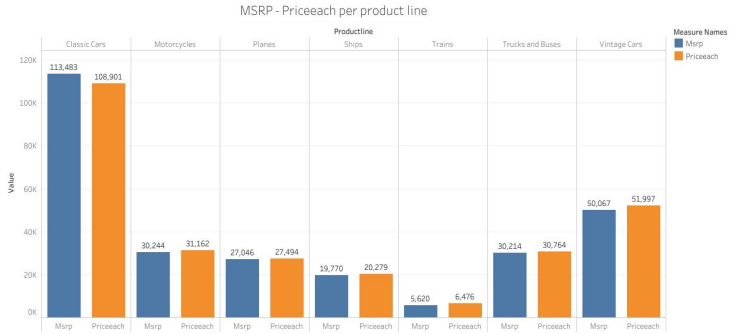
- Using boxplot on sales and status variable we have plotted univariate analysis. We can clearly see that outlier is present there. Also using histogram on sales variable we did univariate analysis. For categorical variable like product line we also did univariate analysis using bar plot.

Analysis on sales, Country, Deal size, Quantity order, Product line and MSRP-



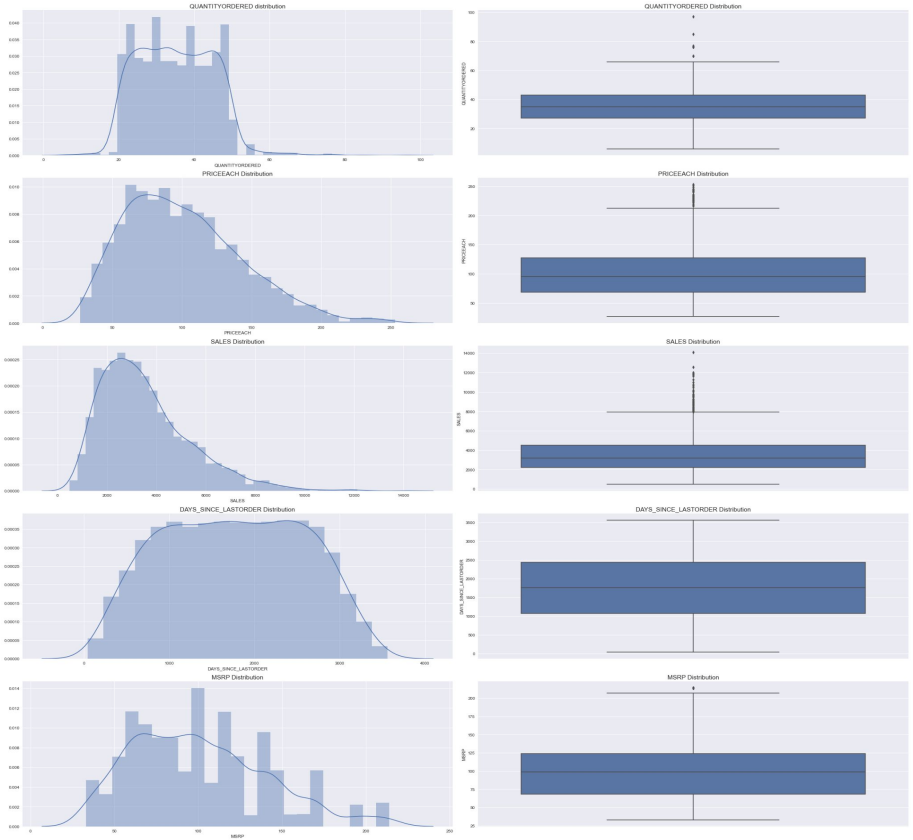




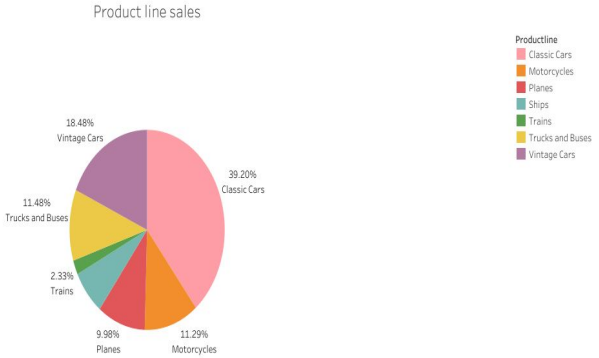


- Sales are high for classic cars, the company has even sold below MSRP, there might be a chances that the company has given more discounts to its customers.

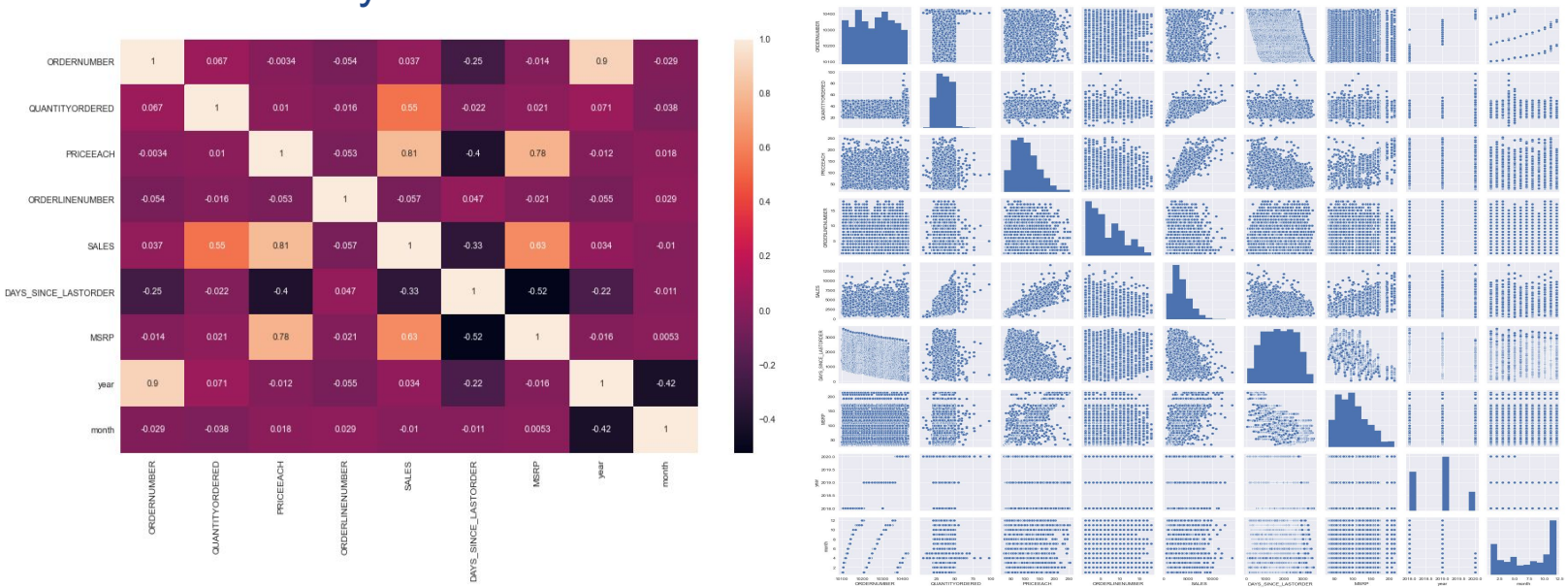
Distplot and Boxplot-



1.There is presence of outliers in variables such as Quantity ordered, Price and Sales.
2.Variable ‘Sales’ has highest positive skewness and Variable ‘Days_since_lastorder’ has lowest negative skewness.
3.Using boxplot on sales & product line variables we have plotted bivariate analysis. We can clearly see that outlier is present in each product line category. Using boxplot on sales & deal size variables we have plotted bivariate analysis.We can clearly see that outlier is present in Large deal size. In Pie chart we can see the larger portion of classic cars followed by vintage cars were as trains has the least demand.

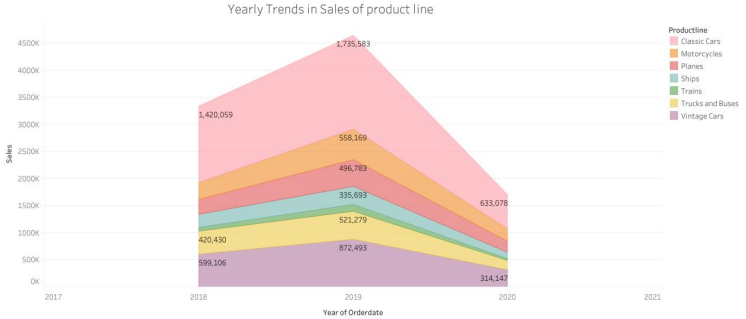


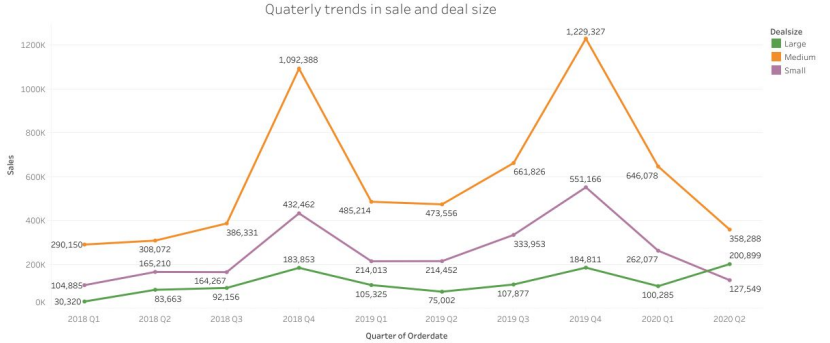
Multivariate Analysis-

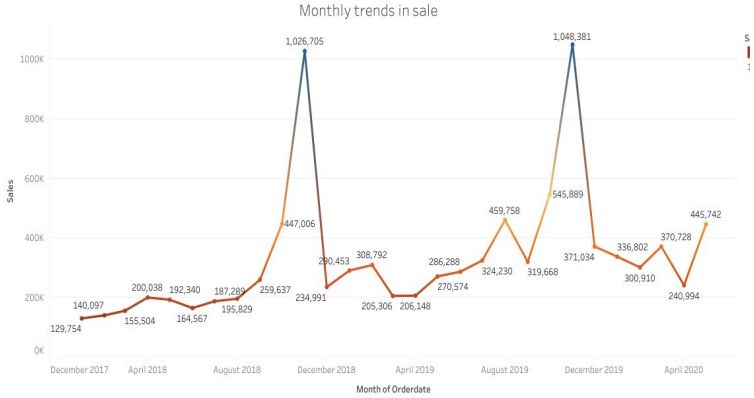


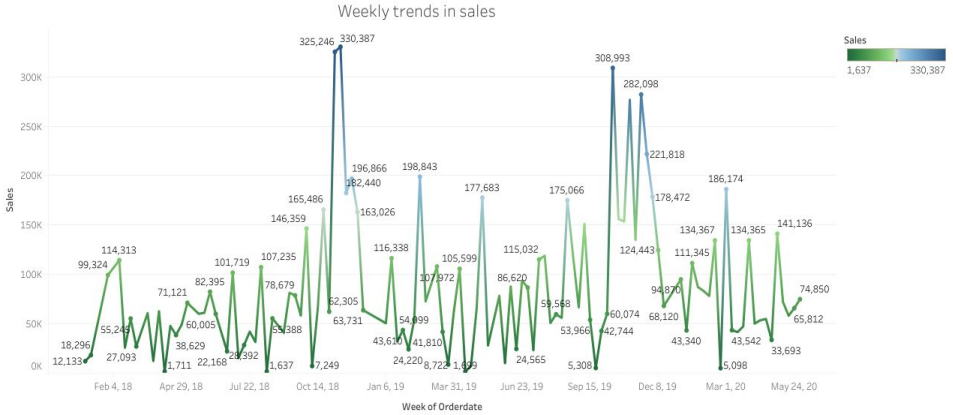
- Variables **‘Sales**’ and **‘Price each**’ have **highest positive** Correlation) and Variables ‘**Days_since_lastorder**’ and ‘**MSRP**’ have highest **negative** Correlation.
- From the plot , we can see that none of the variables are symmetric.
- Variables **‘Sales**’ and **‘Price each**’ have almost linear relationship between them.
- From the plots , we can see there is higher spread of data along the trend line for MSRP compared to Price each. So we need to maximize sales by identifying respective items for which there is higher price change.

Weekly, Monthly, Quarterly, Yearly Trends in Sales-



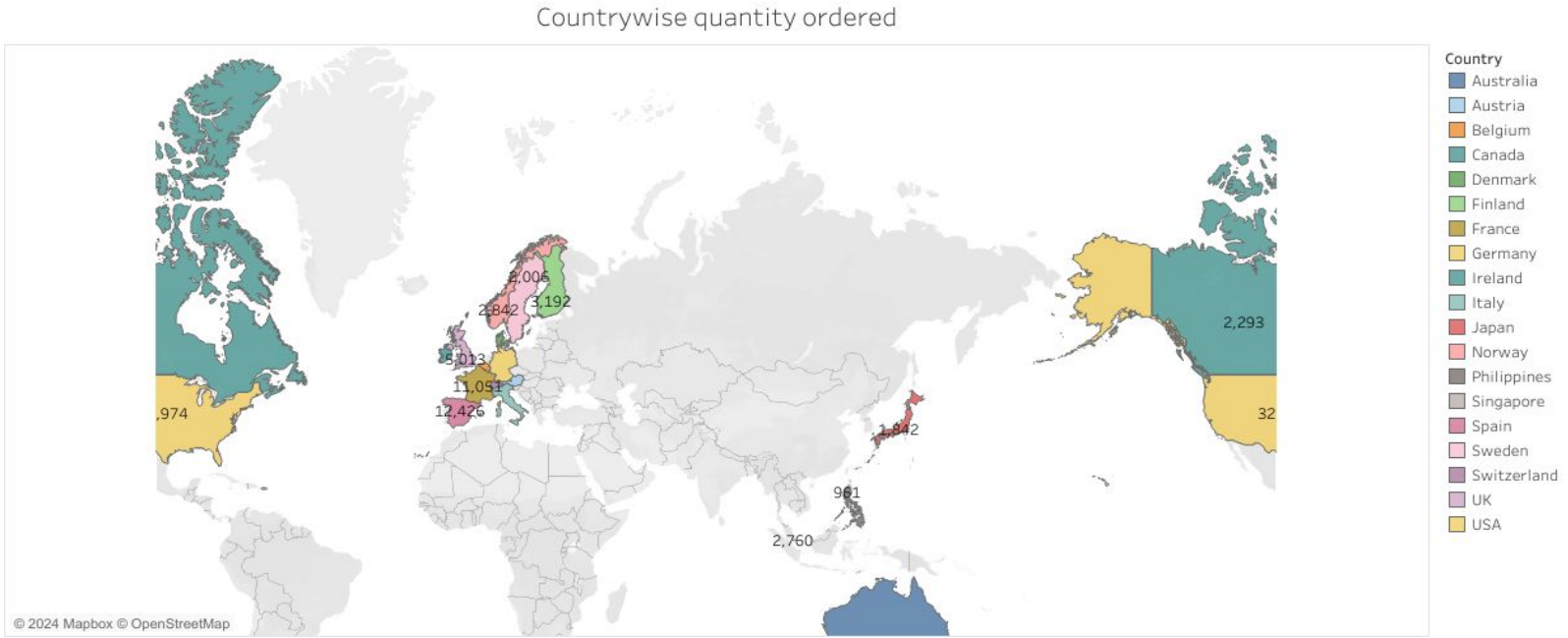






- **Yearly, Quarterly, monthly, Weekly time series analysis & its trend are been shown. We observed that in Last quarter sales are high as compared to other quarters. There is a seasonality seen.**

Country Wise Quantity ordered-



- USA has the highest count of customers(32) and Ireland has the least count of customers(1).
- Also USA has the highest quantity ordered, in which San Rafael, NYC holds the highest record.

Inferences-

- Using histogram on sales variable, we did univariate analysis.
- For categorical variable like product line we did univariate analysis using bar plot.
- Using boxplot on sales, product line, deal size variable we have plotted bivariate analysis.
- Using MSRP, Price each, status, sales & product line variables we did multivariate analysis.
- After doing the analysis, we can see there is a high demand of classic cars followed by vintage cars and the least is for trains.
- The sales are high for the last Quarter of the year.
- The demand for classic cars are so high that the company have sold the product below MSRP giving the customers a good discount.
- Vintage were sold above MSRP.

Customer Segmentation using RFM Analysis-

- Customer Segmentation done by using KNIME and MS Excel by dividing the data based on Recency, Frequency and Monetary variables through grouping data by variable ‘Order Number’.
- As per the suggestion about ignoring the column "Days Since last order".
- Created new column name Recency as "[Max(order date) - order date)]"
- If we can see the data there are same order number repeated for different product Code. So we can assume count of each order number as frequency of an order number.
- In SALES column we get sales amount for each transaction. We can use SALES parameter and using an assumption of sum of aggregation we created a new column as Monetary
- Then created four different bin for each Recency, frequency & Monetary using percentile range(0,0.10, 0.70,100).Based on above 4 bin assumption we have considered 4 segments like Loyal , Best , Lost and the customers on the verge of Churn.

Row ID	S RECENCY_HML	S CUSTOMER_TYPE
Row0	'H'_'H'_'H'	Best Customer
Row1	'H'_'M'_'H'	Best Customer
Row2	'H'_'M'_'L'	Best Customer
Row3	'H'_'M'_'M'	Best Customer
Row4	'M'_'H'_'H'	Best Customer
Row5	'M'_'H'_'M'	Loyal Customer
Row6	'M'_'L'_'M'	Loyal Customer
Row7	'M'_'M'_'H'	Loyal Customer
Row8	'M'_'M'_'M'	Loyal Customer
Row9	'H'_'L'_'M'	Loyal Customer
Row10	'L'_'H'_'H'	Customer on the Verge of Churn
Row11	'L'_'M'_'M'	Customer on the Verge of Churn
Row12	'L'_'H'_'M'	Customer on the Verge of Churn
Row13	'L'_'M'_'H'	Customer on the Verge of Churn
Row14	'M'_'L'_'L'	Lost Customer
Row15	'H'_'L'_'L'	Lost Customer
Row16	'L'_'L'_'L'	Lost Customer
Row17	'L'_'L'_'M'	Lost Customer

What is RFM-

- R: Recency- is the most recent customer order which is calculated taking difference of order date and current date in days.

  RECENCY in Days = ORDERDATE - Current Date

- F: Frequency- is the how often the orders are placed by customers, from the excel sheet the variable DAYS_SINCE_LASTORDER.
- M: Monetary- Sales can be used as monetary but in this project used the calculation of price and Quantity.

  Monetary = QUANTITYORDERED * PRICEEACH

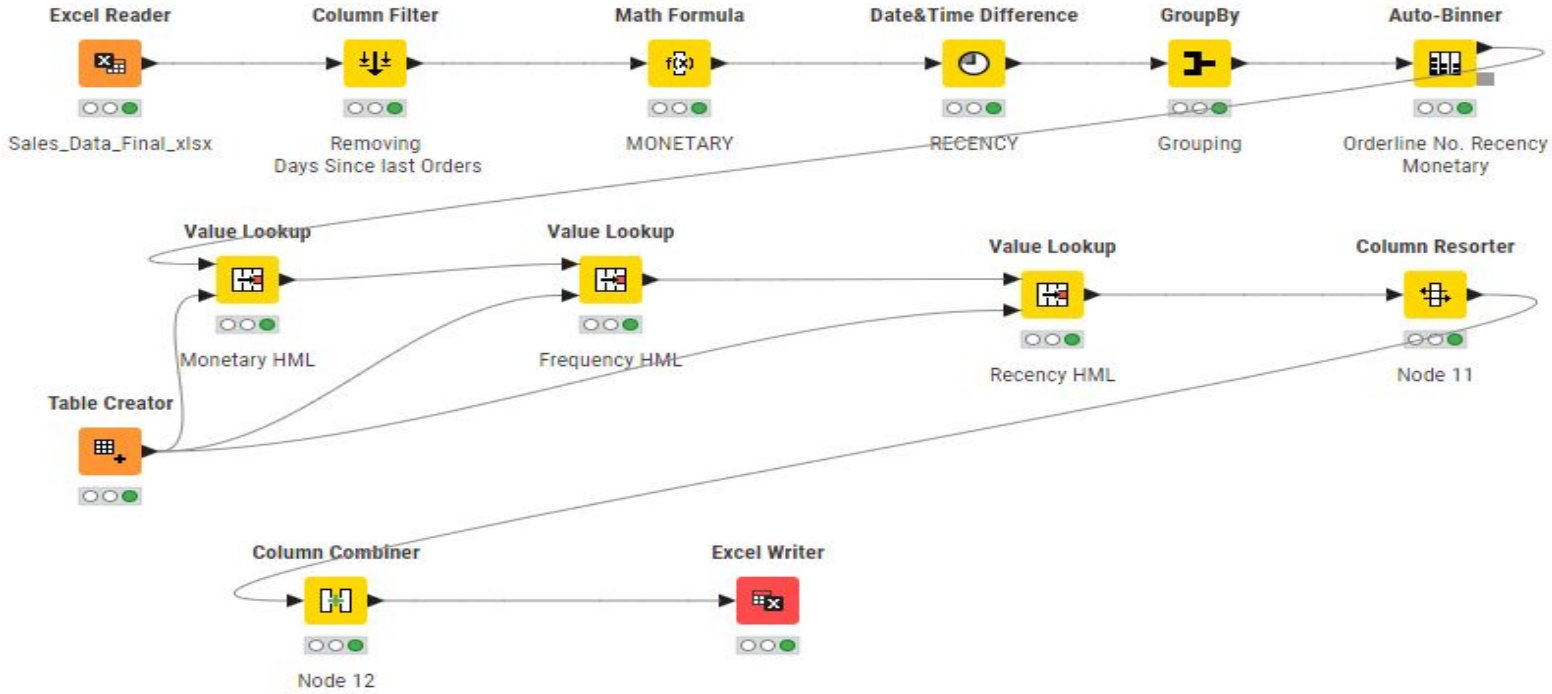
Parameters and Assumptions-

Assumption 1- All the prices and sales figure are in same currency.

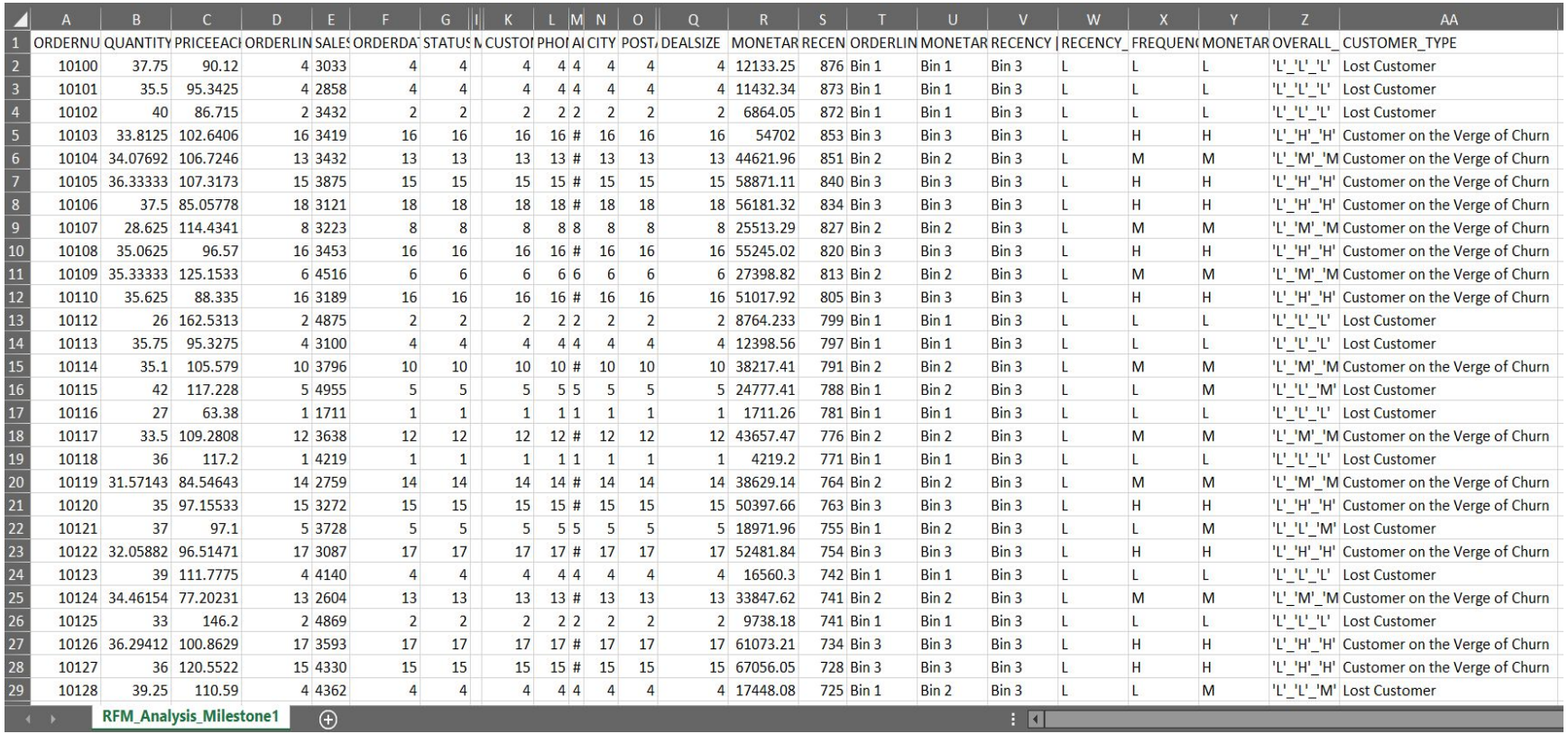
Assumption 2- Sales and (Quantity * Price) may or may not be same.

- Using KNIME for generating RFM figures and Bins accordingly.
- Created Bins each for R,F,M.

KNIME Workflow image-



Knime Workflow and Output table Image-



	A	B	C	D	E	F	G	K	L	M	N	O	Q	R	S	T	U	V	W	X	Y	Z	AA
1	ORDERNU	QUANTITY	PRICEEACH	ORDERLIN	SALES	ORDERDA	STATUS	CUSTOI	PHOI	AI	CITY	POST/	DEALSIZE	MONETAR	RECEN	ORDERLIN	MONETAR	RECENCY	RECENCY_	FREQUEN	MONETAR	OVERALL_	CUSTOMER_TYPE
2	10100	37.75	90.12	4	3033	4	4	4	4	4	4	4	4	12133.25	876	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
3	10101	35.5	95.3425	4	2858	4	4	4	4	4	4	4	4	11432.34	873	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
4	10102	40	86.715	2	3432	2	2	2	2	2	2	2	2	6864.05	872	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
5	10103	33.8125	102.6406	16	3419	16	16	16	16	#	16	16	16	54702	853	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
6	10104	34.07692	106.7246	13	3432	13	13	13	13	#	13	13	13	44621.96	851	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M	Customer on the Verge of Churn
7	10105	36.33333	107.3173	15	3875	15	15	15	15	#	15	15	15	58871.11	840	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
8	10106	37.5	85.05778	18	3121	18	18	18	18	#	18	18	18	56181.32	834	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
9	10107	28.625	114.4341	8	3223	8	8	8	8	8	8	8	8	25513.29	827	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M	Customer on the Verge of Churn
10	10108	35.0625	96.57	16	3453	16	16	16	16	#	16	16	16	55245.02	820	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
11	10109	35.33333	125.1533	6	4516	6	6	6	6	6	6	6	6	27398.82	813	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M	Customer on the Verge of Churn
12	10110	35.625	88.335	16	3189	16	16	16	16	#	16	16	16	51017.92	805	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
13	10112	26	162.5313	2	4875	2	2	2	2	2	2	2	2	8764.233	799	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
14	10113	35.75	95.3275	4	3100	4	4	4	4	4	4	4	4	12398.56	797	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
15	10114	35.1	105.579	10	3796	10	10	10	10	#	10	10	10	38217.41	791	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M	Customer on the Verge of Churn
16	10115	42	117.228	5	4955	5	5	5	5	5	5	5	5	24777.41	788	Bin 1	Bin 2	Bin 3	L	L	M	'L'_'L'_'M'	Lost Customer
17	10116	27	63.38	1	1711	1	1	1	1	1	1	1	1	1711.26	781	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
18	10117	33.5	109.2808	12	3638	12	12	12	12	#	12	12	12	43657.47	776	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M	Customer on the Verge of Churn
19	10118	36	117.2	1	4219	1	1	1	1	1	1	1	1	4219.2	771	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
20	10119	31.57143	84.54643	14	2759	14	14	14	14	#	14	14	14	38629.14	764	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M	Customer on the Verge of Churn
21	10120	35	97.15533	15	3272	15	15	15	15	#	15	15	15	50397.66	763	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
22	10121	37	97.1	5	3728	5	5	5	5	5	5	5	5	18971.96	755	Bin 1	Bin 2	Bin 3	L	L	M	'L'_'L'_'M'	Lost Customer
23	10122	32.05882	96.51471	17	3087	17	17	17	17	#	17	17	17	52481.84	754	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
24	10123	39	111.7775	4	4140	4	4	4	4	4	4	4	4	16560.3	742	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
25	10124	34.46154	77.20231	13	2604	13	13	13	13	#	13	13	13	33847.62	741	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M	Customer on the Verge of Churn
26	10125	33	146.2	2	4869	2	2	2	2	2	2	2	2	9738.18	741	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
27	10126	36.29412	100.8629	17	3593	17	17	17	17	#	17	17	17	61073.21	734	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
28	10127	36	120.5522	15	4330	15	15	15	15	#	15	15	15	67056.05	728	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
29	10128	39.25	110.59	4	4362	4	4	4	4	4	4	4	4	17448.08	725	Bin 1	Bin 2	Bin 3	L	L	M	'L'_'L'_'M'	Lost Customer

RFM_Analysis_Milestone1

Best Customer-

	A	B	C	D	E	F	G	K	L	M	N	O	Q	R	S	T	U	V	W	X	Y	Z	AA
1	ORDERNUMBER	QUANT	PRICEA	ORDERI	SA	ORDERI	STAT	CUST	PH	ADDRESSLINE1	CI	PO	DEALSIZ	MONET	REC	ORDERI	MONET	RECENC	RECENC	FREQUE	MONET	OVERALL_SEG	CUSTOMER_TYPE
75	10181	30.70588	116.3371	17	3576	17	17	17	17	17	17	17	17	60795.84	566	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
76	10182	33.58824	88.29882	17	2962	17	17	17	17	17	17	17	17	50360.89	566	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
79	10185	32.5	99.13625	16	3262	16	16	16	16	16	16	16	16	52191.44	564	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
85	10192	36.5625	111.3581	16	3999	16	16	16	16	16	16	16	16	63981.45	558	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
94	10204	36.41176	104.9518	17	3783	17	17	17	17	17	17	17	17	64316.09	546	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
97	10207	38.4375	104.4763	16	3983	16	16	16	16	16	16	16	16	63730.78	539	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
98	10208	35.33333	103.6447	15	3592	15	15	15	15	15	15	15	15	54536.87	515	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
99	10210	33.94118	91.21	17	2970	17	17	17	17	17	17	17	17	50490.64	505	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
100	10211	35.33333	96.93933	15	3412	15	15	15	15	15	15	15	15	51172.65	502	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
101	10212	38.25	105.0331	16	4073	16	16	16	16	16	16	16	16	65165.17	501	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
110	10222	39.83333	84.82111	18	3423	18	18	18	18	18	18	18	18	61617.01	467	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
111	10223	33.13333	95.572	15	3188	15	15	15	15	15	15	15	15	49637.57	466	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
115	10227	33.46667	93.32	15	3120	15	15	15	15	15	15	15	15	46802.27	456	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
147	10262	37.8125	82.04438	16	3126	16	16	16	16	16	16	16	16	50010.65	342	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer
151	10266	33	113.808	15	3681	15	15	15	15	15	15	15	15	56421.65	330	Bin 3	Bin 3	Bin 2	M	H	H	'M'_'H'_'H'	Best Customer

- On basis on Recency, frequency & monetary we have grouped our top customers.
- We have given the most significance to recency parameter as these customers has recently purchased our products.
- Also according to RFM model the most important is given to recency. Hence we have kept it as our first parameter for selecting top customers for e.g. Customer number -10181,10182, 10185
- We should not loose these customers at any cost as they are the biggest contributors of the business.

Loyal Customer-

	A	B	C	D	E	F	G	I	K	L	M	N	O	Q	R	S	T	U	V	W	X	Y	Z	A
1	ORDERNUMBER	QUANT	PRICEE	ORDER	SA	ORDER	STAT		CUS	PH	ADDRESSLINE1	CI	PO	DEALSIZ	MONET	REC	ORDER	MONET	RECENC	RECENC	FREQUE	MONET	OVERALL_SEG	CUSTOMER_TYP
74	10180	32.71429	99.92161	14	3424	14	14		14	14	14	14	14	14	48781.31	567	Bin 2	Bin 3	Bin 2	M	M	H	'M'_'M'_'H'	Loyal Customer
77	10183	32.58333	106.5885	12	3338	12	12		12	12	12	12	12	12	39625.64	565	Bin 2	Bin 2	Bin 2	M	M	M	'M'_'M'_'M'	Loyal Customer
78	10184	39.92308	100.7685	13	3962	13	13		13	13	13	13	13	13	51502.74	564	Bin 2	Bin 3	Bin 2	M	M	H	'M'_'M'_'H'	Loyal Customer
80	10186	29.66667	100.8633	9	3060	9	9		9	9	9	9	9	9	27541.82	564	Bin 2	Bin 2	Bin 2	M	M	M	'M'_'M'_'M'	Loyal Customer
81	10188	37.625	112.3038	8	4215	8	8		8	8	8	8	8	8	34481.34	560	Bin 2	Bin 2	Bin 2	M	M	M	'M'_'M'_'M'	Loyal Customer
84	10191	35.22222	106.9	9	3485	9	9		9	9	9	9	9	9	31363.18	558	Bin 2	Bin 2	Bin 2	M	M	M	'M'_'M'_'M'	Loyal Customer
86	10193	27.9375	87.45688	16	2367	16	16		16	16	16	16	16	16	37878.55	557	Bin 3	Bin 2	Bin 2	M	H	M	'M'_'H'_'M'	Loyal Customer
87	10194	36	106.1818	11	3776	11	11		11	11	11	11	11	11	41535.11	553	Bin 2	Bin 2	Bin 2	M	M	M	'M'_'M'_'M'	Loyal Customer
88	10195	38.5	98.385	10	3868	10	10		10	10	10	10	10	10	38682.95	553	Bin 2	Bin 2	Bin 2	M	M	M	'M'_'M'_'M'	Loyal Customer
89	10196	39.5	138.14	8	5195	8	8		8	8	8	8	8	8	42498.76	552	Bin 2	Bin 2	Bin 2	M	M	M	'M'_'M'_'M'	Loyal Customer
90	10197	35.92857	86.77714	14	3144	14	14		14	14	14	14	14	14	44009.31	552	Bin 2	Bin 2	Bin 2	M	M	M	'M'_'M'_'M'	Loyal Customer
91	10198	40.33333	93.53667	6	3807	6	6		6	6	6	6	6	6	22841.96	551	Bin 2	Bin 2	Bin 2	M	M	M	'M'_'M'_'M'	Loyal Customer
93	10203	35.54545	114.3655	11	4071	11	11		11	11	11	11	11	11	45116.18	546	Bin 2	Bin 2	Bin 2	M	M	M	'M'_'M'_'M'	Loyal Customer
96	10206	32.27273	104.1445	11	3414	11	11		11	11	11	11	11	11	38662.21	543	Bin 2	Bin 2	Bin 2	M	M	M	'M'_'M'_'M'	Loyal Customer
103	10214	34.42857	100.4357	7	3345	7	7		7	7	7	7	7	7	24995.47	491	Bin 2	Bin 2	Bin 2	M	M	M	'M'_'M'_'M'	Loyal Customer

- On basis on Recency, frequency & monetary we have grouped our loyal customers. These customers have purchased multiple times with good monetary value.
- If we focus more on this segment of customers, we can easily turn them into our top best customers too. Also, in this segment we can see the customers for product line - classic cars are many.
- These are the still valuable customers as they are with better level in all aspects Frequency and Monetary. We have to look after the needs of these customers to bring them into the pool of best.

Customer on the verge of churn-

	A	B	C	D	E	F	G	I	K	L	M	N	O	Q	R	S	T	U	V	W	X	Y	Z	AA
1	ORDERNUMBER	QUANT	PRICEE	ORD	SA	ORDERI	STAT		CUST	PH	ADDI	CI	PO	DEALSI	MONET	REC	ORDERI	MONET	RECENC	RECENC	FREQUE	MON	OVERALL_SEG	CUSTOMER_TYPE
5	10103	33.8125	102.6406	16	3419	16	16		16	16	16	16	16	16	54702	853	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
6	10104	34.07692	106.7246	13	3432	13	13		13	13	13	13	13	13	44621.96	851	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M'	Customer on the Verge of Churn
7	10105	36.33333	107.3173	15	3875	15	15		15	15	15	15	15	15	58871.11	840	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
8	10106	37.5	85.05778	18	3121	18	18		18	18	18	18	18	18	56181.32	834	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
9	10107	28.625	114.4341	8	3223	8	8		8	8	8	8	8	8	25513.29	827	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M'	Customer on the Verge of Churn
10	10108	35.0625	96.57	16	3453	16	16		16	16	16	16	16	16	55245.02	820	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
11	10109	35.33333	125.1533	6	4516	6	6		6	6	6	6	6	6	27398.82	813	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M'	Customer on the Verge of Churn
12	10110	35.625	88.335	16	3189	16	16		16	16	16	16	16	16	51017.92	805	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
15	10114	35.1	105.579	10	3796	10	10		10	10	10	10	10	10	38217.41	791	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M'	Customer on the Verge of Churn
18	10117	33.5	109.2808	12	3638	12	12		12	12	12	12	12	12	43657.47	776	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M'	Customer on the Verge of Churn
20	10119	31.57143	84.54643	14	2759	14	14		14	14	14	14	14	14	38629.14	764	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M'	Customer on the Verge of Churn
21	10120	35	97.15533	15	3272	15	15		15	15	15	15	15	15	50397.66	763	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
23	10122	32.05882	96.51471	17	3087	17	17		17	17	17	17	17	17	52481.84	754	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn
25	10124	34.46154	77.20231	13	2604	13	13		13	13	13	13	13	13	33847.62	741	Bin 2	Bin 2	Bin 3	L	M	M	'L'_'M'_'M'	Customer on the Verge of Churn
27	10126	36.29412	100.8629	17	3593	17	17		17	17	17	17	17	17	61073.21	734	Bin 3	Bin 3	Bin 3	L	H	H	'L'_'H'_'H'	Customer on the Verge of Churn

- On basis on Recency, frequency & monetary we have grouped our Customers who are on verge of churning. We should definitely focus on this group before we lose them and try to convert them into our regular customers.
- For e.g. 10103, 10104– Their frequency is good with good monetary value, but low recency made them stand in this group. If the company pays more attention and fulfill their requirement, then we can easily turn them into our regular customer and we can save them from churning out.
- We can still concentrate on them to increase business as they have got High Recency level.

Lost Customers-

	A	B	C	D	E	F	G	I	K	L	M	N	O	Q	R	S	T	U	V	W	X	Y	Z	AA
1	ORDERNUMBER	QUANT	PRICEA	ORD	SA	ORDERI	STAT		CUS	PH	ADDI	CI	PO	DEALSIZ	MONET	REC	ORDERI	MONET	RECENC	RECENC	FREQUE	MON	OVERALL_SEG	CUSTOMER_TYPE
2	10100	37.75	90.12	4	3033	4	4		4	4	4	4	4	4	12133.25	876	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
3	10101	35.5	95.3425	4	2858	4	4		4	4	4	4	4	4	11432.34	873	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
4	10102	40	86.715	2	3432	2	2		2	2	2	2	2	2	6864.05	872	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
13	10112	26	162.5313	2	4875	2	2		2	2	2	2	2	2	8764.233	799	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
14	10113	35.75	95.3275	4	3100	4	4		4	4	4	4	4	4	12398.56	797	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
16	10115	42	117.228	5	4955	5	5		5	5	5	5	5	5	24777.41	788	Bin 1	Bin 2	Bin 3	L	L	M	'L'_'L'_'M'	Lost Customer
17	10116	27	63.38	1	1711	1	1		1	1	1	1	1	1	1711.26	781	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
19	10118	36	117.2	1	4219	1	1		1	1	1	1	1	1	4219.2	771	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
22	10121	37	97.1	5	3728	5	5		5	5	5	5	5	5	18971.96	755	Bin 1	Bin 2	Bin 3	L	L	M	'L'_'L'_'M'	Lost Customer
24	10123	39	111.7775	4	4140	4	4		4	4	4	4	4	4	16560.3	742	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
26	10125	33	146.2	2	4869	2	2		2	2	2	2	2	2	9738.18	741	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
29	10128	39.25	110.59	4	4362	4	4		4	4	4	4	4	4	17448.08	725	Bin 1	Bin 2	Bin 3	L	L	M	'L'_'L'_'M'	Lost Customer
31	10130	36.5	100.045	2	3639	2	2		2	2	2	2	2	2	7277.35	715	Bin 1	Bin 1	Bin 3	L	L	L	'L'_'L'_'L'	Lost Customer
36	10136	34	165.1733	3	5624	3	3		3	3	3	3	3	3	17251.08	697	Bin 1	Bin 1	Bin 3	L	L	L	'L' 'L' 'L'	Lost Customer

- On basis on Recency, frequency & monetary parameters we have grouped our Customers who we'd lost
- Their recency is very low and hasn't made any purchase since long. So we can say these are our lost customers. If taken feedback from them and fulfill their demand we might bring them back to been a good customer.
- But suggestion is to not to invest much time on these type of customers.
- As these are the most avoidable customers as they are with lowest level in all aspects Recency, Frequency and Monetary. There is no point in spending time and effort to maintain business with these customers.

Recommendation-

- Using Recency, frequency & monetary parameters we have grouped our Top , loyal, on the verge of churning and lose customers. Customers with good recency has been our top customers were as we also have lost customer lists.
- Customers on verge of churning can be saved and can be converted into a good buyer.
- RFM model is used for deriving the customers types like Loyal, top or best, on verge of churning & lost customers.
- Recency, frequency & monetary parameters were widely used to bifurcate the types of customers.
- This model can be very helpful to the company to maintain its sales and customers and can focus on how the company has lost the customers & can take various actions to bring them back.
- It is vital for the company to convert the customers who are on verge of churning into a regular customer or at least maintain them.
- Also how to increase the sales ratio can be identified.

Tableau Workbook-

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Thank You