

# The Sales Report

the question we answer about it in this report ?

Q1:

what is hidden pattern in the data ?

and we get trend and seasonality and also cycle happen every year

which is the most quarter that have sales ?

which is the most month that have sales ?

which is the most day that have sales ?

compare between profit and sales ?

what is the growth rate

which region and product that affect on the profit and make that loss?

what is the percentage of acquisition new customer and retention new customer?

what are the top customer ?

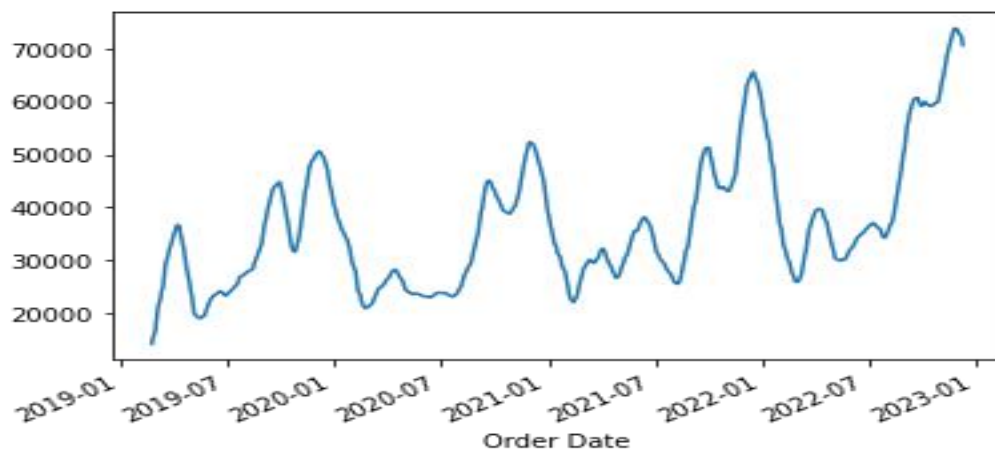
what is the probability to get more than 800 order per month?

what is the probability the period of shipment more than 10 days?

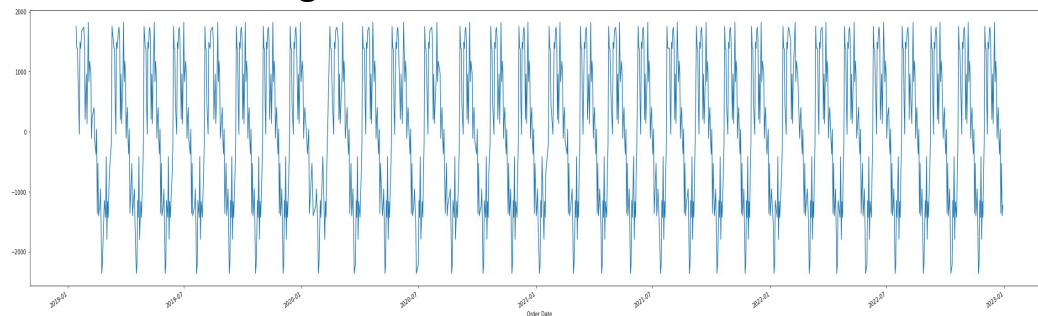
For analysis project I analyze 3 side :

### Financial:

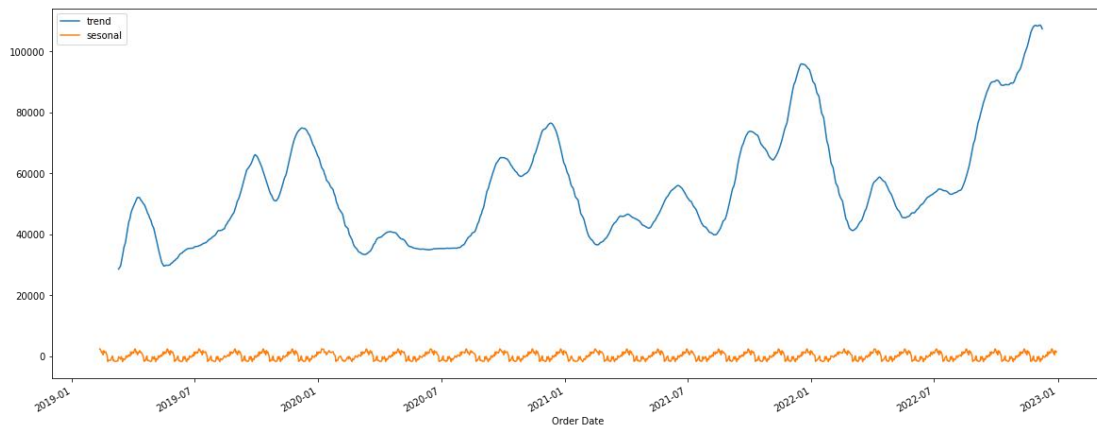
1. Find out that the **trend** in data is **increase** year by year



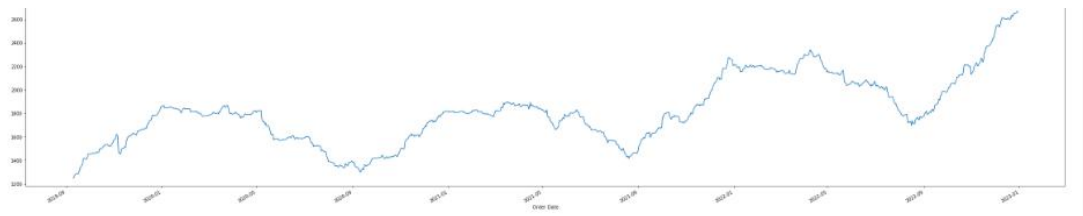
2. Data have **seasonality** pattern that happen every **three month** the sales get increase for the third month



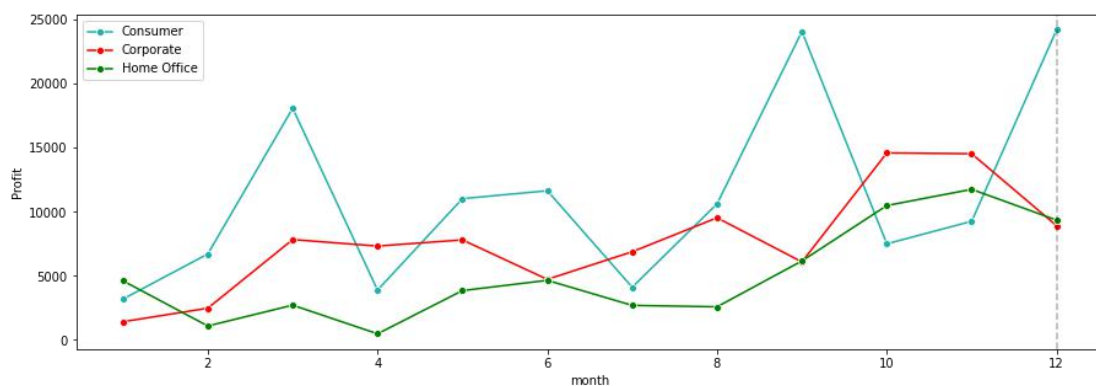
**The seasonality and trend**



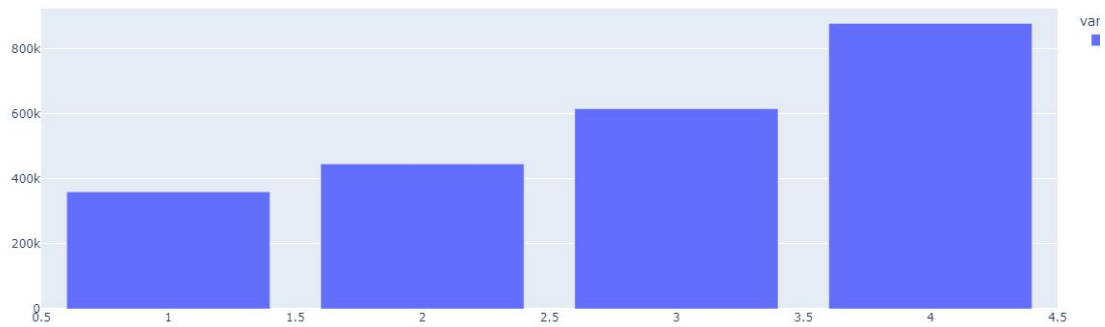
The cycle of sales that happen every year:



3. The **hype month** for sales is **September** and **December** for some states and for contributed segment  
And other state and other segment the hype months is **October** and **November**

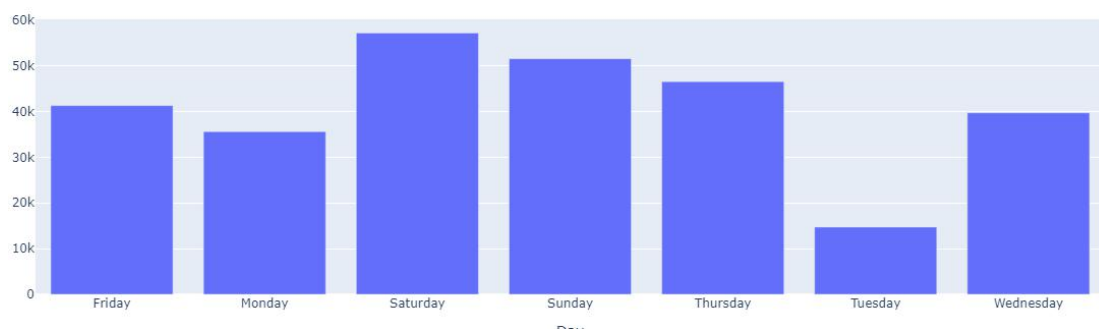


4. The **fourth quarter** is the hype of sales in year followed by 3,2,1



5. The most day have sales is saturated and Sunday the weekend days

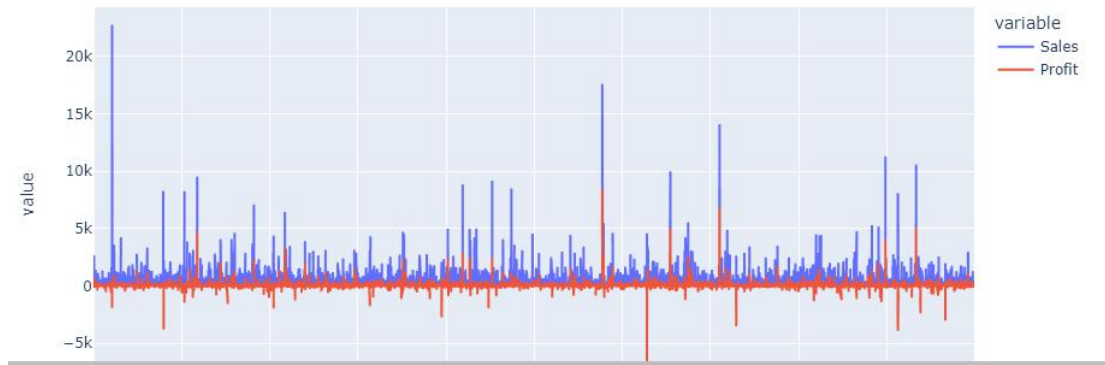
the profit per day



**Issue in profit that have a loss** so I get deeper analysis  
And discover that after conduct the **chi-square** test if  
the states and products influence on the profit and yes  
they are have significant influence

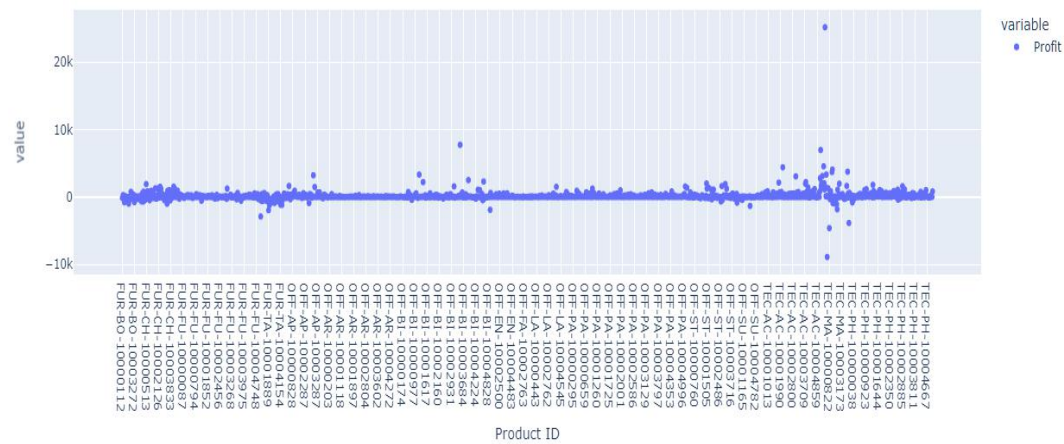
**Product and profit**

**Compare between the profit and sales:**



That show us that despite the sales is greater profit get loss

## The analysis :



from previous graph we note that some of product made loss for us and we have to see why and we can see **\*\*TEC-CO-10004722\*\*** IS THE MOST product make profit

## Recommendation:

we sold with high price but something happened in profit we get negative we have to know more data to find out where is

the issue but i can consider the common reason that usually cause that :

1 margin of profit the cost of goods is expensive than the price sale

2 price strategy that apply in this states if they have individual strategy or the company make one strategy that apply for all stats that mean poor in the financial and we have develop more than one to apply different areas

3 a loss in inventory that happen in that stats

5 .the final is the company branch have expense that pay once like they are rent bigger store or buy new equipment

### What are the growth rate of profit year by year

*Order Date*

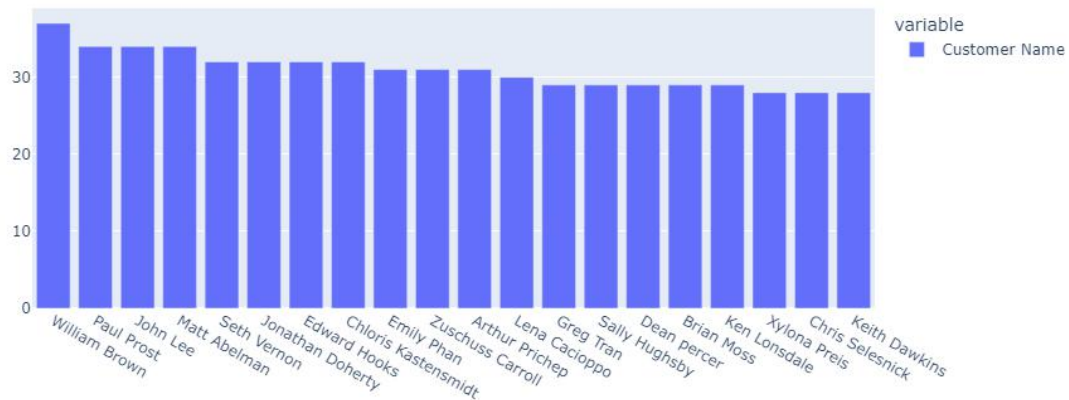
2019	NaN
2020	24.341276
2021	32.744284
2022	14.235675

### Which country that make a loss?

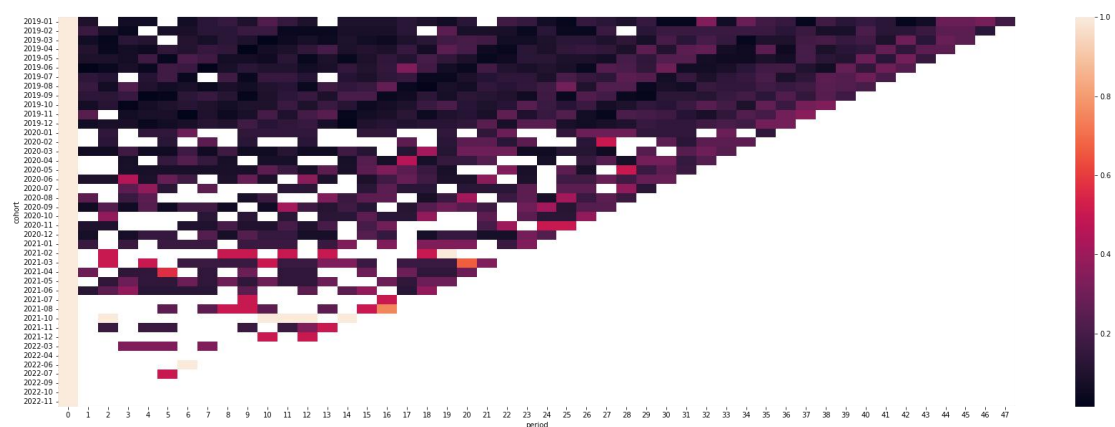


Customer analysis I use two technique :

Who are the top customer ?



## 1. cohort analysis



the first year is the best retention and acquisition customer and when the year pass the customer retention get little and get seasonality in purchase period

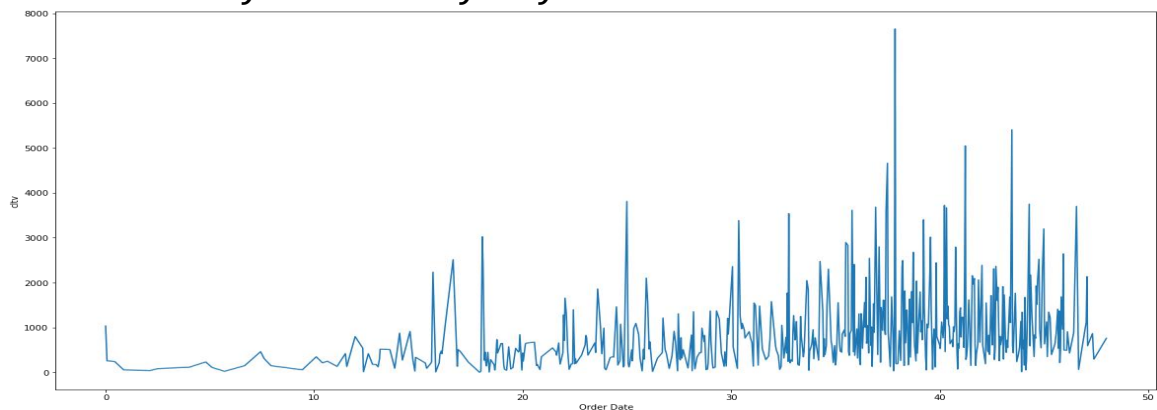
## 2. CITV analysis :

Data sample

	Order Date	Sales	Quantity	Order ID	aov	frequency	cltv
Customer ID							
AA-10315	1186	5563.560	30	11	185.452000	0.037831	1112.7120
AA-10375	1330	1056.390	41	15	25.765610	0.051702	211.2780
AA-10480	1077	1790.512	36	12	49.736444	0.045397	358.1024
AA-10645	1232	5086.935	64	18	79.483359	0.080706	1017.3870
AB-10015	996	886.156	13	6	68.165846	0.016393	177.2312

that mean most of customer life period is bigger than 40 month

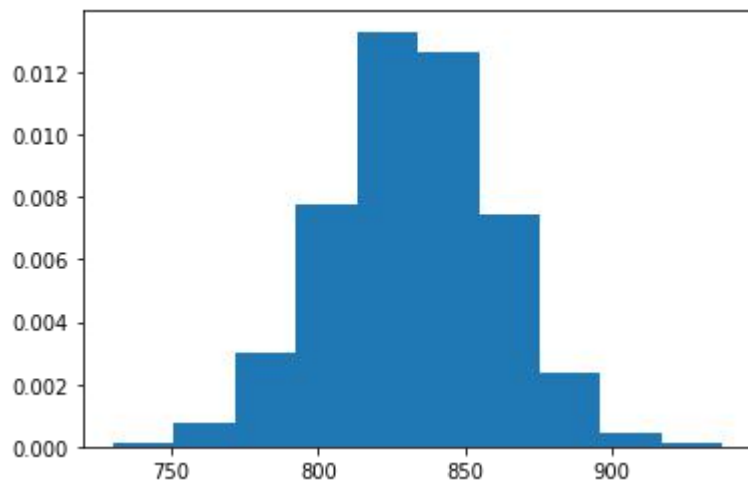
also mean we acquisition new customer and save the old customer they have a loyalty for



## Probability :

I use Poisson distribution to get the probability for order per month





Then I use exponent distribution to figure out the prob  
for day shipment is take

