P3 Assignment: Data Visualization

ISM 6208: Data Warehousing

Group 8 -

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Scenario 1: To have a study about sectors and their stock prices. And what are the top companies that are making that sector popular

Screenshot showing SQL analytical query in tableau

The Edit Custom SQL dialog shows:

```
SELECT
 a.gics_sector,
 a.company,
 a.ticker_symbol,
 AVG(b.open)
FROM
 dberndt.sp500_stocks a,
 dberndt.sp500_eod_stocks b
WHERE
 a.ticker_symbol=b.ticker_symbol
 AND
 a.gics_sector is NOT NULL
GROUP BY CUBE(a.gics_sector, a.ticker_symbol,a.company)
```

The Query

```
SELECT
 a.gics_sector,
 a.company,
 a.ticker_symbol,
 AVG(b.open)
FROM
 dberndt.sp500_stocks a,
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GROUP BY CUBE(a.gics_sector, a.ticker_symbol,a.company)
```

Dashboard:

We can see what the most popular sectors are in the bubble-like Financials Consumer Discreditionary and Information technology.

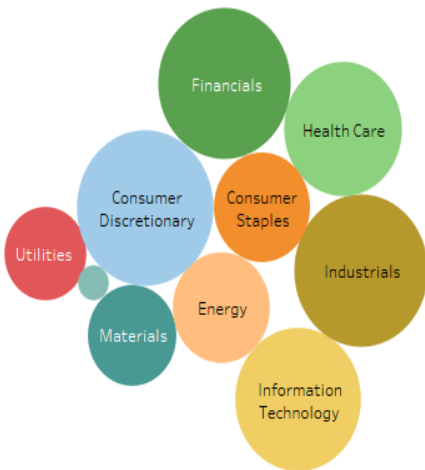Bar chart shows top 10 companies among some of the popular sectors

We can see how a sector stocks are completely ruled by mostly only one company
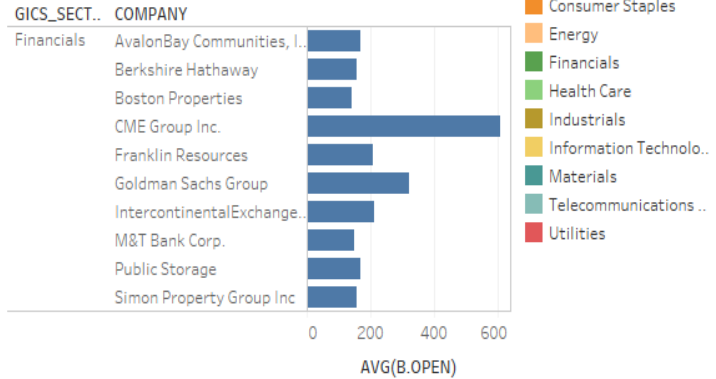
Financials: CME group

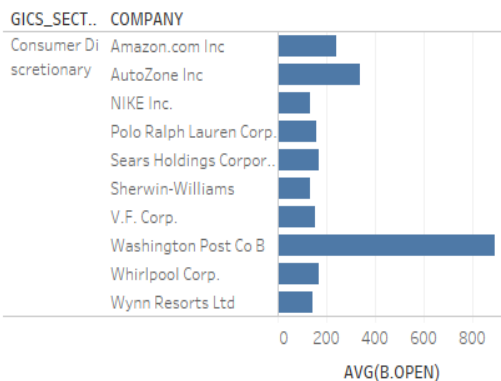**IT: Google**
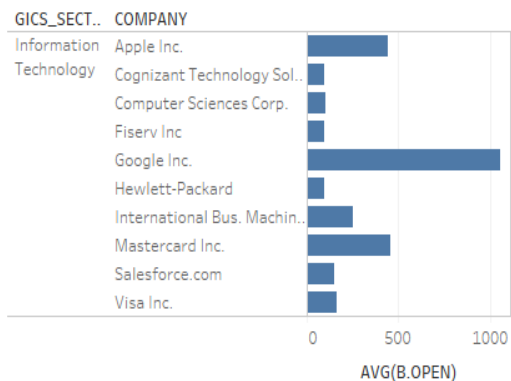
Consumer Discreditionary : Washington Post

Scenario 2: Trend Analysis

This scenario explains the trend in the stocks of google versus other stocks and then compares it with the volume for the year between 2013-2018.

Query :

select open, high, close, low, adj_close, volume, year_nbr, co_name,ticker_symbol

from

 fin.stk_stock_facts inner join fin.stk_date_dims

on fin.stk_stock_facts.julian_day_key = fin.stk_date_dims.julian_day_key

inner join

 fin.stk_stock_dims

on

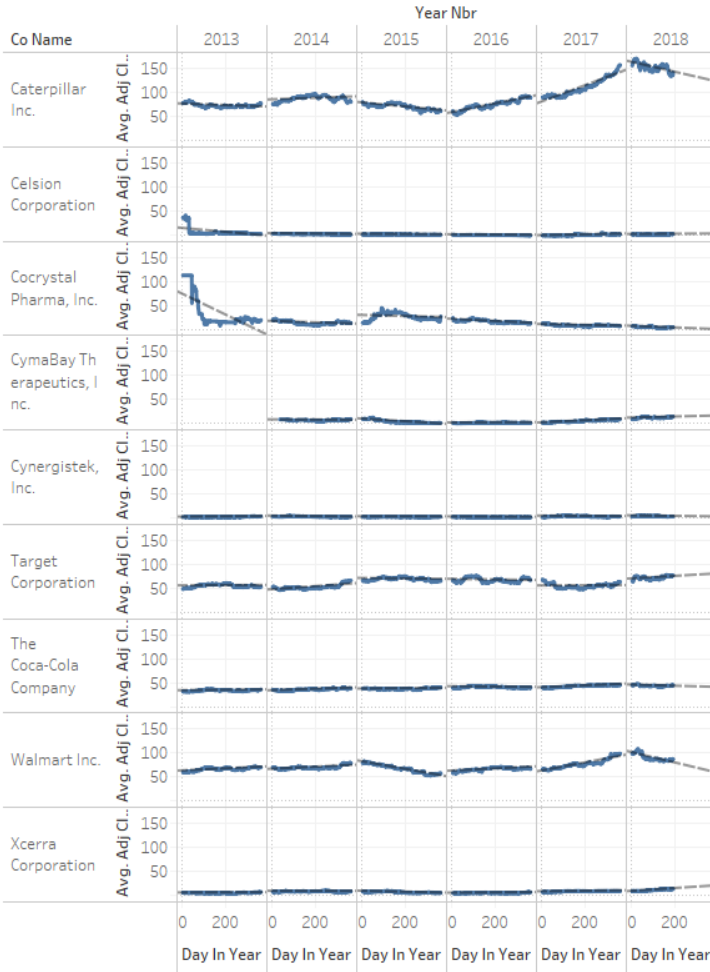 fin.stk_stock_dims.stock_key= fin.stk_stock_facts.stock_key

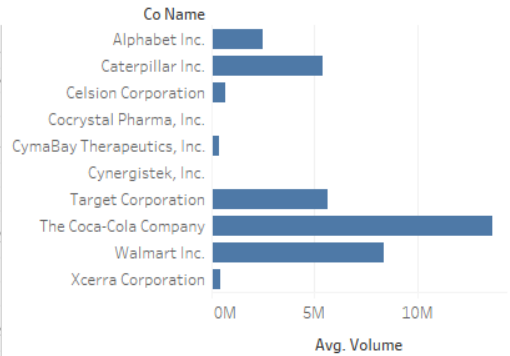where year_nbr in (2013,2018) and ticker_symbol not like 'G%'

Tableau Demonstration

Trend Analysis

Average Volume

Google time series Analysis(2013-2018)
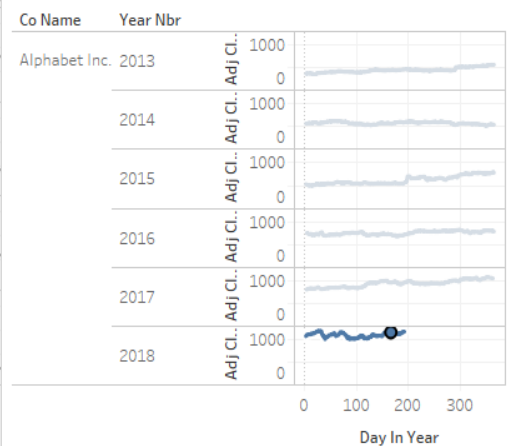
Line graphs shows average adjusted close over time frame.

This Graphs shows how google is dominating from last five years passing adjusted close to 1000 in year 2018. While rest of the companies struggling around 150.

Inference: The addition of volume bar chart is because it can be observed that companies high in volume for year 2013-2018 have a declining adjusted close over the years

Scenario 3: Superstore sales on the date dimension

This Story tells us all about the declining sales and profit over the years.

For 2010 it can be observed that profits are decreasing but the sales are increasing, we want to investigate why.

Question we are trying to answer is factors involved in decreasing superstore profit

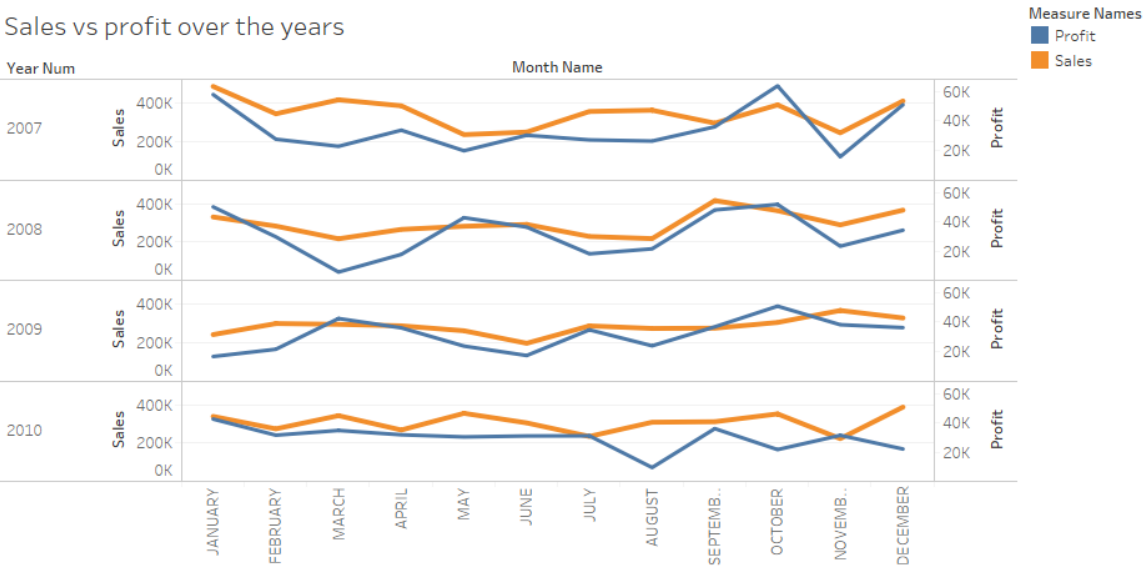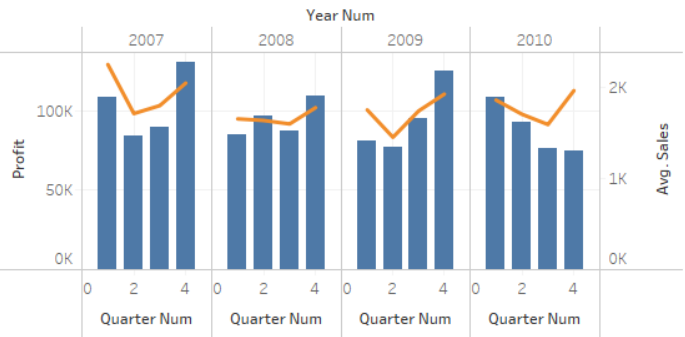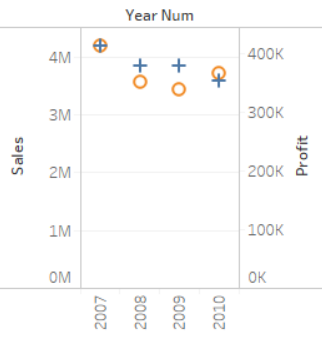**Seeing the bar graph above we can see how quarterly sales are decreasing for year 2010 and what the superstore manager can do to increase it in 2011**

One dimension could be looking at the categories

Following query was used

```
select
year_num, month_num, sum(profit), product_category, product_subcategory
from
superstore.date_dim
inner join
superstore.sales_fact
on
superstore.date_dim.date_key = superstore.sales_fact.order_date_key
inner join
superstore.product_dim
on
superstore.sales_fact.product_key = superstore.product_dim.product_key
group by
cube(year_num,month_num,product_category,product_subcategory)
order by
sum(profit) desc
```

First

Product Category / Year Num

Furniture | Office Supplies | Technology

Profit: 250K, 200K, 150K, 100K, 50K, 0K

Years: 2007, 2008, 2009, 2010

Second

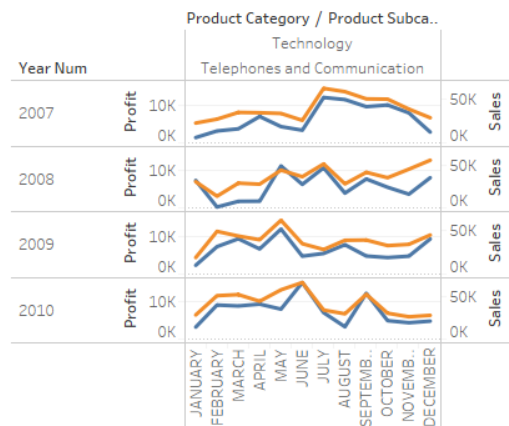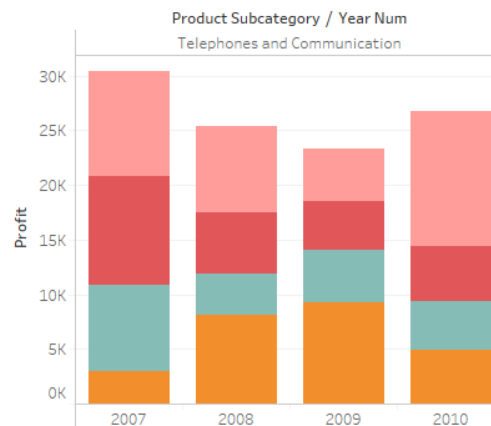| Product Cat..	Product Subcategory	
Technology	Computer Peripherals	94,534
	Copiers and Fax	167,361
	Office Machines	276,590
	Telephones and Communi..	316,952

Year Num
- 2007
- 2008
- 2009
- 2010

Profit
94,534 — 316,952

Measure Names
- Profit
- Sales

Month Name
- SEPTEMBER
- OCTOBER
- NOVEMBER
- DECEMBER

Third

Product Category / Product Subca..

Technology

Telephones and Communication

Year Num: 2007, 2008, 2009, 2010

Profit 10K, 0K / Sales 50K, 0K

Months: JANUARY, FEBRUARY, MARCH, APRIL, MAY, JUNE, JULY, AUGUST, SEPTEMB.., OCTOBER, NOVEMB.., DECEMBER

Fourth

Product Subcategory / Year Num

Telephones and Communication

Profit: 30K, 25K, 20K, 15K, 10K, 5K, 0K

Years: 2007, 2008, 2009, 2010

Breakdown of story:

- We can observe how profits were falling over the years
- We decided to have a look on categories
- We can see the technology is the most profitable category for the superstore over the years but even, so it is falling and it is minimum in 2010
- In the technology we can observe how office machines and telephones dominates
- In the third graph for the year 2010 there we sharp increase in sales and profits but then it degraded very badly. We can observe peak June and September then a sudden decline
- Also, the fourth graph suggests that sales and profit increases after September but not for 2010
- In 2010 they had a very good sale but as seen by graph third they cannot capitulate further rather it decline.

Overall looking at the previous story we can see for years 2007, 2008, 2009 that the sales keep increasing after September but did poorly in 2010 and in turn after September and one of the main reason as seen in the second dashboard that they could not fill the demand in technology in 2010. Although, they started well
We can say that they were behind demand in 2010 or they ran out of sale and lost their popularity to fail to deliver after their peak times
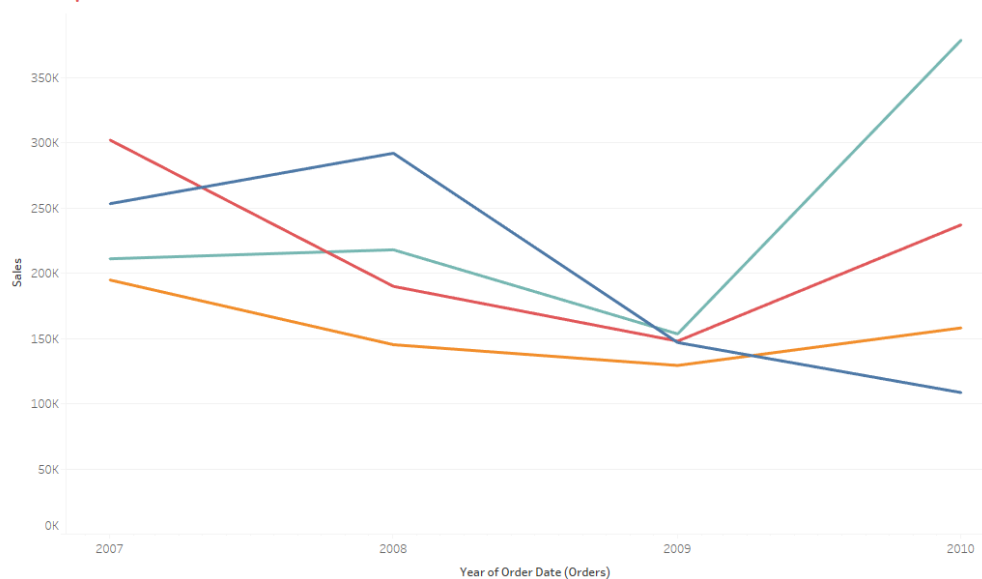
Analyzing Superstore data

Scenario 1: Sales trend by region

Query to show the total sales represented by region with ability to drilldown on year. These visuals can show monthly/weekly trend lines as needed.

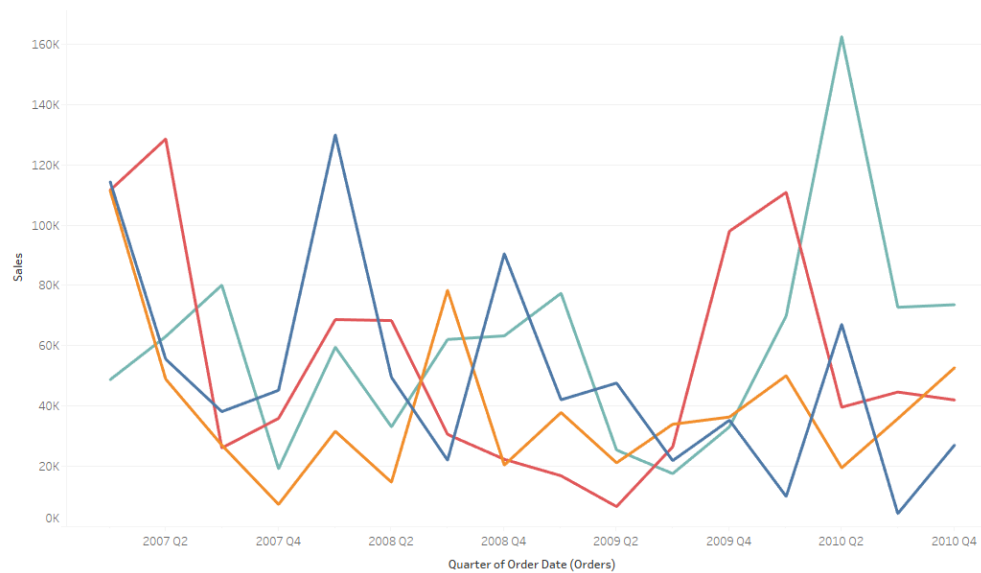https://public.tableau.com/profile/goutham16#!/vizhome/DataVisualizationSuperstoreSalesTrendTimeline/SalesTrend
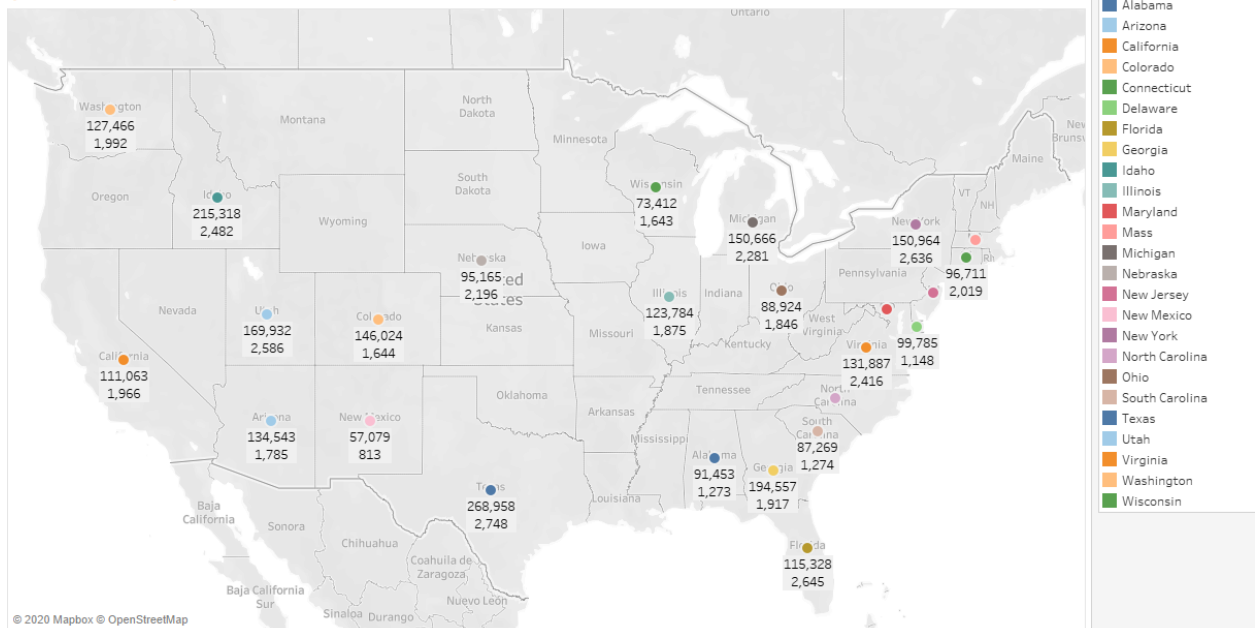
Yearly

Quarterly

Region Sales Trends

Scenario 2: Visual to illustrate sales and profits by states.

Sales/Profit by State

1. Visual to display sales by product category/ sub-category including profits by year.

https://public.tableau.com/profile/goutham16#!/vizhome/DataVisualizationSuperstoreProductSub-CategorySales/ProductSub-CategorySales?publish=yes