Product data Analysis - Tableau

General Information

e-commerce is the process of buying and selling tangible products and services online. It involves more than one party along with the exchange of data or currency to process a transaction. It is part of the greater industry that is known as electronic business (e-business), which involves all of the processes required to run a company online.

E-commerce has changed the way people shop and consume products and services. More and more people are turning to their computers and smart devices to order goods, which can easily be delivered to their homes.

Most of us have shopped online for something at some point, which means we've taken part in e-commerce. So, it goes without saying that ecommerce is everywhere.

Pros

- Is convenient
- Offers a wider selection of goods and services

Cons

- Limited customer service
- Lacks instant gratification
- Products can't be seen or handled until delivered

Benefits of Ecommerce Analytics

- Helps to build a robust supply chain
- Analyse information to detect fraud
- Predicts what's in store for you
- Personalize recommendations for your customers
- Forecast inventory for the next season
- Measure your marketing
- Personalize the customer's shopping experience
- Let's to know your customers better
- Optimize pricing of the products

About the Dataset

The data contains information on sales of electronic products in different cities of USA. Originally the data contains 12 files for every month in the year 2019 and each file consists of data in 6 columns, namely {Order ID, Price, Quantity Ordered, Product, Purchase Address, Order date}

Steps taken in Excel: -

1. Combined all files in a single file.
2. Cleaned the data in Excel
3. Extracted Product type from Product Name in a separate column and named it as "Product Type"
4. Extracted city names from purchase address in a separate column and named it as "City"
5. Order date contains date in 2 different formats which was an issue. To convert them to one format, first I split the day, month, year and time into different columns and then with the help of "Date function", I joined the date into 1 format in a single column
6. Extracted time of order from Order date column to gain more insights on order time (additional column)
7. The columns after cleaning are {Order ID, Price, Purchase Address, City, Product, Product Type, Quantity Ordered, Time, Order Date}

Order ID – int

Price - double

Purchase Address - string

City - string

Product - string

Product Type - string

Quantity Ordered - int

Time – time date

Order Date – date

Original data view: -

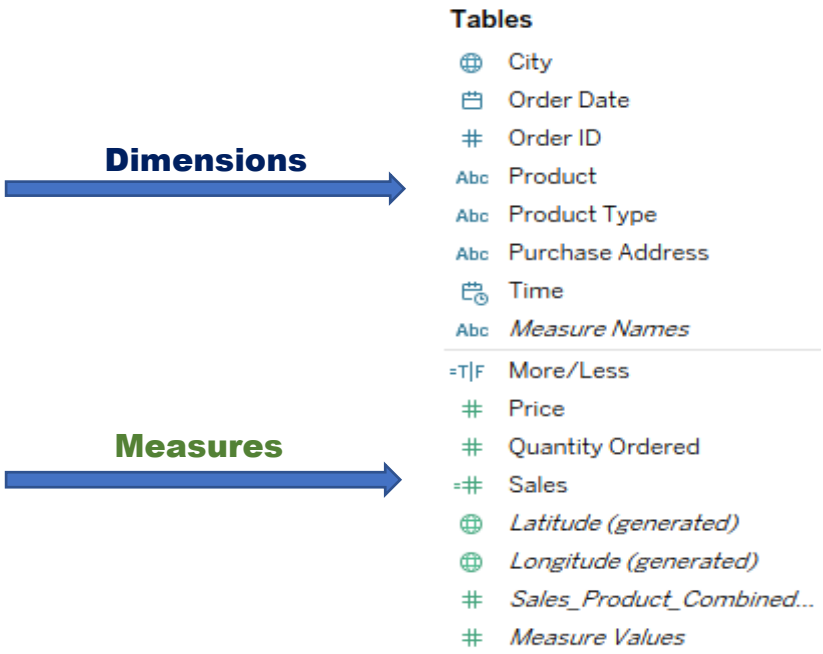
A	B	C	D	E	F
Order ID	Product	Quantity Ordered	Price Each	Order Date	Purchase Address
236670	Wired Headphones	2	11.99	08/31/19 22:21	359 Spruce St, Seattle, WA 98101
236671	Bose SoundSport Headphones	1	99.99	08/15/19 15:11	492 Ridge St, Dallas, TX 75001
236672	iPhone	1	700	08-06-2019 14:40	149 7th St, Portland, OR 97035
236673	AA Batteries (4-pack)	2	3.84	08/29/19 20:59	631 2nd St, Los Angeles, CA 90001
236674	AA Batteries (4-pack)	2	3.84	08/15/19 19:53	736 14th St, New York City, NY 10001
236675	Wired Headphones	1	11.99	08-02-2019 23:54	470 Hill St, San Francisco, CA 94016
236676	34in Ultrawide Monitor	1	379.99	08-04-2019 19:52	470 Cherry St, Los Angeles, CA 90001
236677	20in Monitor	1	109.99	08/13/19 07:16	918 6th St, San Francisco, CA 94016
236678	Wired Headphones	1	11.99	08/25/19 20:11	58 9th St, San Francisco, CA 94016
236679	Macbook Pro Laptop	1	1700	08-07-2019 15:43	239 Spruce St, Los Angeles, CA 90001
236680	LG Washing Machine	1	600	08-09-2019 19:38	967 Willow St, San Francisco, CA 94016
236681	AA Batteries (4-pack)	1	3.84	08/26/19 20:52	295 1st St, Boston, MA 02215
236682	AA Batteries (4-pack)	1	3.84	08/19/19 12:40	118 Johnson St, Portland, OR 97035
236683	27in FHD Monitor	1	149.99	08/31/19 15:47	196 West St, Dallas, TX 75001
236684	Lightning Charging Cable	1	14.95	08-09-2019 16:50	669 12th St, New York City, NY 10001
236685	Apple Airpods Headphones	1	150	08/23/19 19:29	238 Highland St, Atlanta, GA 30301
236686	AAA Batteries (4-pack)	1	2.99	08/15/19 19:13	766 Maple St, Dallas, TX 75001
236687	USB-C Charging Cable	1	11.95	08/23/19 12:54	668 Meadow St, New York City, NY 10001
236688	34in Ultrawide Monitor	1	379.99	08-08-2019 16:06	821 7th St, Los Angeles, CA 90001
236689	AAA Batteries (4-pack)	1	2.99	08/21/19 10:55	13 Cedar St, San Francisco, CA 94016
236690	AAA Batteries (4-pack)	1	2.99	08-08-2019 12:00	139 River St, San Francisco, CA 94016
236691	USB-C Charging Cable	1	11.95	08/23/19 07:34	916 Meadow St, Boston, MA 02215
236692	USB-C Charging Cable	1	11.95	08/20/19 13:26	567 Center St, San Francisco, CA 94016

Cleaned data view: -

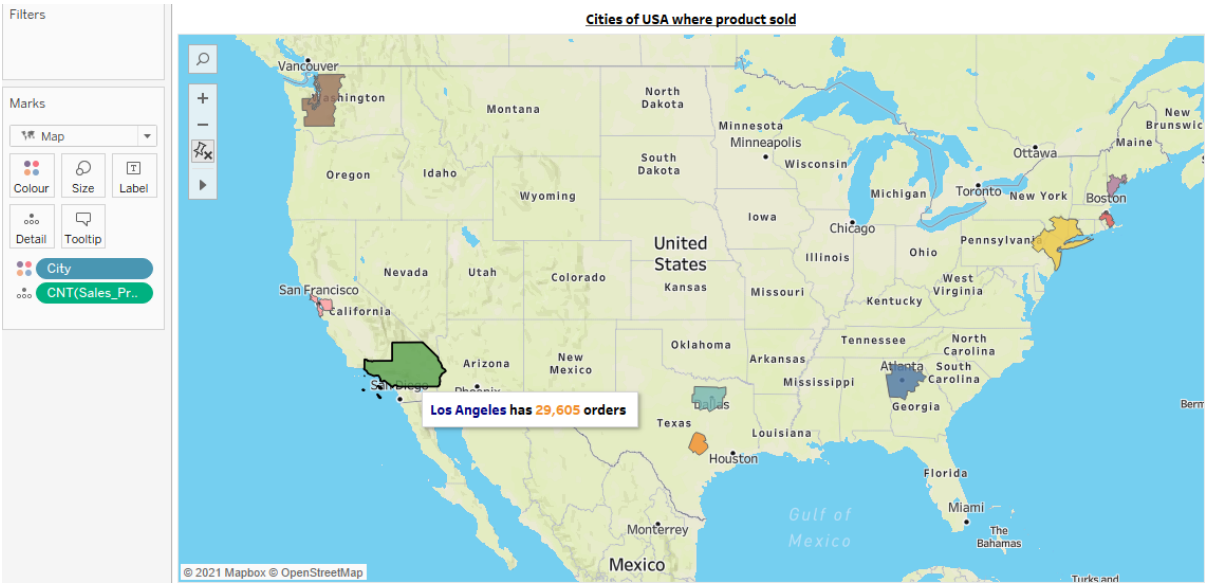
A	B	C	D	E	F	G	H	I
Order ID	Product	Quantity Ordered	Price	Order Date	Time	Purchase Address	City	Product Type
176558	USB-C Charging Cable	2	11.95	19-04-2019	8:46 AM	917 1st St, Dallas, TX 75001	Dallas	Cable
176559	Bose SoundSport Headphones	1	99.99	07-04-2019	10:30 PM	682 Chestnut St, Boston, MA 02215	Boston	Headphones
176560	Google Phone	1	600.00	12-04-2019	2:38 PM	669 Spruce St, Los Angeles, CA 90001	Los Angeles	Phone
176560	Wired Headphones	1	11.99	12-04-2019	2:38 PM	669 Spruce St, Los Angeles, CA 90001	Los Angeles	Headphones
176561	Wired Headphones	1	11.99	30-04-2019	9:27 AM	333 8th St, Los Angeles, CA 90001	Los Angeles	Headphones
176562	USB-C Charging Cable	1	11.95	29-04-2019	1:03 PM	381 Wilson St, San Francisco, CA 94016	San Francisco	Cable
176563	Bose SoundSport Headphones	1	99.99	02-04-2019	7:46 AM	668 Center St, Seattle, WA 98101	Seattle	Headphones
176564	USB-C Charging Cable	1	11.95	12-04-2019	10:58 AM	790 Ridge St, Atlanta, GA 30301	Atlanta	Cable
176565	Macbook Pro Laptop	1	1700.00	24-04-2019	10:38 AM	915 Willow St, San Francisco, CA 94016	San Francisco	Laptop
176566	Wired Headphones	1	11.99	08-04-2019	2:05 PM	83 7th St, Boston, MA 02215	Boston	Headphones
176567	Google Phone	1	600.00	18-04-2019	5:18 PM	444 7th St, Los Angeles, CA 90001	Los Angeles	Phone
176568	Lightning Charging Cable	1	14.95	15-04-2019	12:18 PM	438 Elm St, Seattle, WA 98101	Seattle	Cable
176569	27in 4K Gaming Monitor	1	389.99	16-04-2019	7:23 PM	657 Hill St, Dallas, TX 75001	Dallas	Monitor
176570	AA Batteries (4-pack)	1	3.84	22-04-2019	3:09 PM	186 12th St, Dallas, TX 75001	Dallas	Batteries
176571	Lightning Charging Cable	1	14.95	19-04-2019	2:29 PM	253 Johnson St, Atlanta, GA 30301	Atlanta	Cable
176572	Apple Airpods Headphones	1	150.00	04-04-2019	8:30 PM	149 Dogwood St, New York City, NY 10001	New York City	Headphones
176573	USB-C Charging Cable	1	11.95	27-04-2019	6:41 PM	214 Chestnut St, San Francisco, CA 94016	San Francisco	Cable
176574	Google Phone	1	600.00	03-04-2019	7:42 PM	20 Hill St, Los Angeles, CA 90001	Los Angeles	Phone
176574	USB-C Charging Cable	1	11.95	03-04-2019	7:42 PM	20 Hill St, Los Angeles, CA 90001	Los Angeles	Cable
176575	AAA Batteries (4-pack)	1	2.99	27-04-2019	12:30 AM	433 Hill St, New York City, NY 10001	New York City	Batteries
176576	Apple Airpods Headphones	1	150.00	28-04-2019	11:42 AM	771 Ridge St, Los Angeles, CA 90001	Los Angeles	Headphones
176577	Apple Airpods Headphones	1	150.00	04-04-2019	7:25 PM	260 Spruce St, Dallas, TX 75001	Dallas	Headphones
176578	Apple Airpods Headphones	1	150.00	09-04-2019	11:35 PM	513 Church St, Boston, MA 02215	Boston	Headphones

Steps taken in Tableau:

1. Data import
2. Setting the correct data types
3. Created a calculated field called Sales which is a product of quantity and price. (Sales = Price*Quantity)



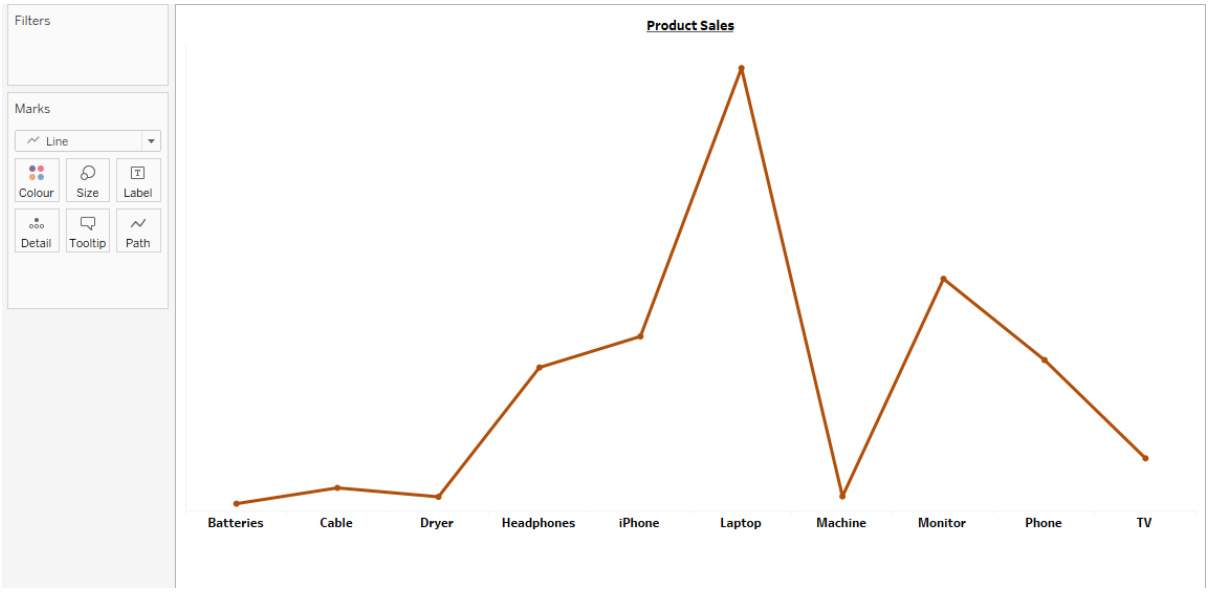
Sheet 1:



It contains 9 cities:

- Los Angeles
- New York
- Seattle
- San Francisco
- Dallas
- Austin
- Atlanta
- Boston
- Portland

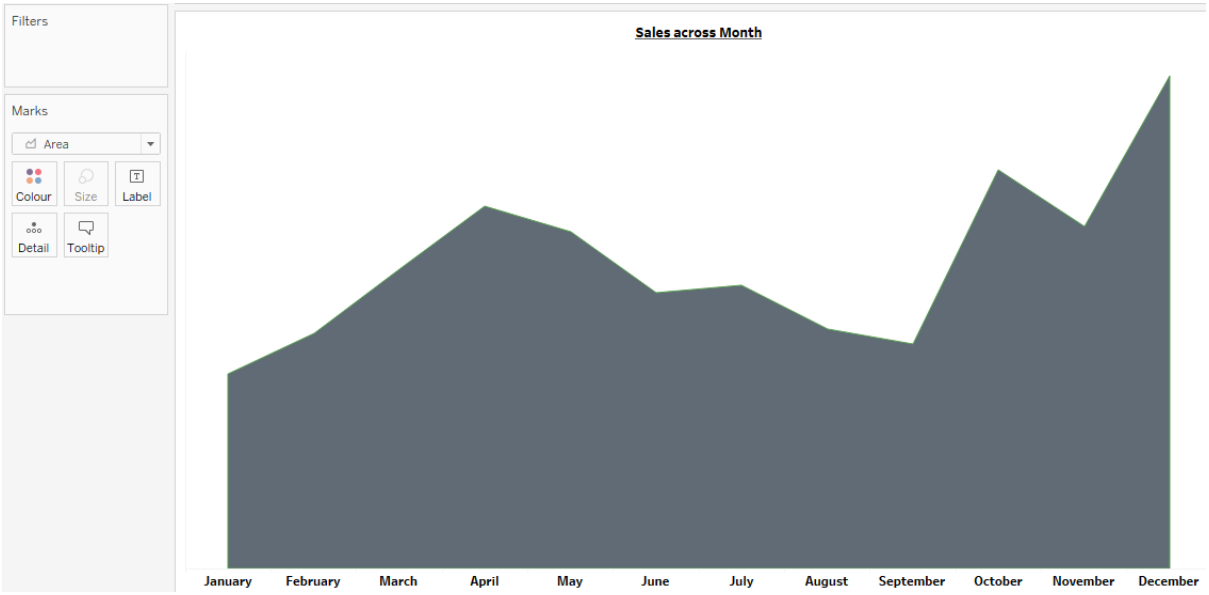
Sheet 2:



It contains product vs product sales:

Laptop, Monitor, iPhone, Phone, Headphones are the top products with most sales.

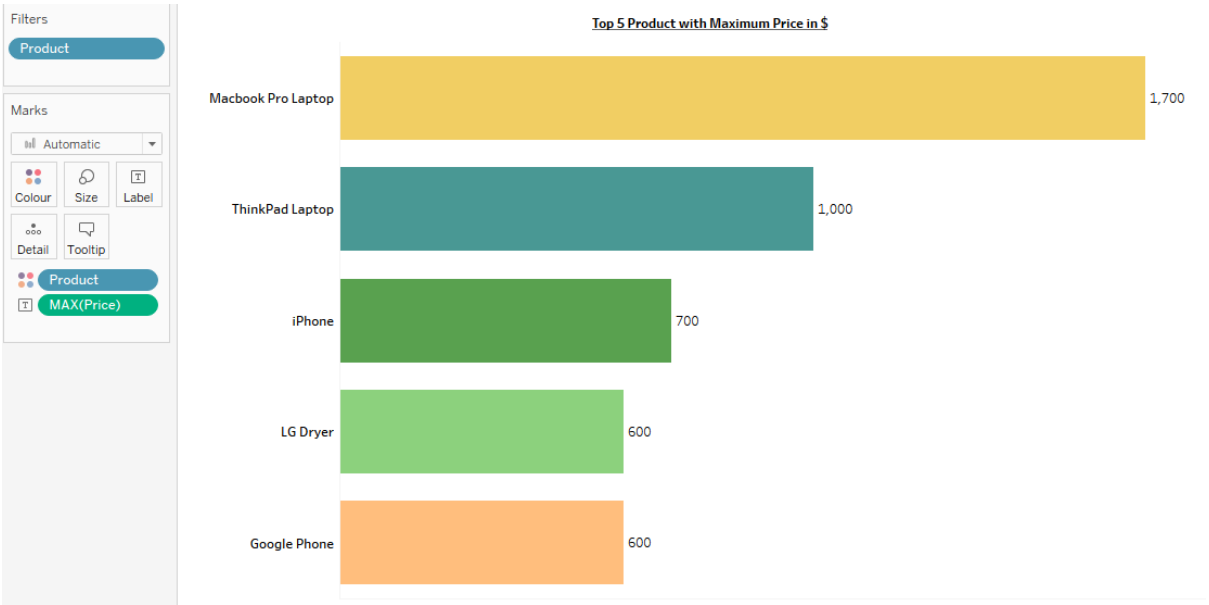
Sheet 3:



Sum of Sales across months in the year 2019:

December, October, April, November are the months with the max sales.

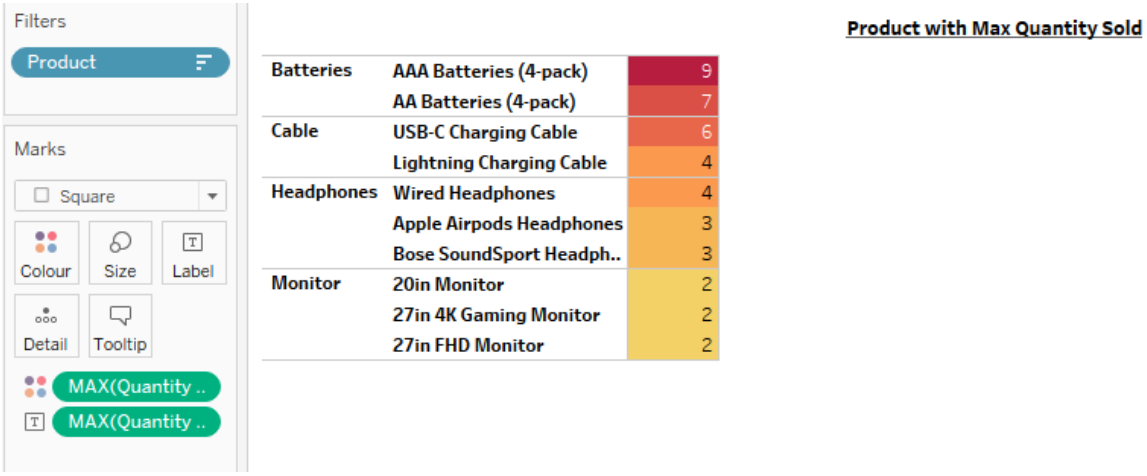
Sheet 4:



Filtering top 5 only to gain products with maximum price in the whole list

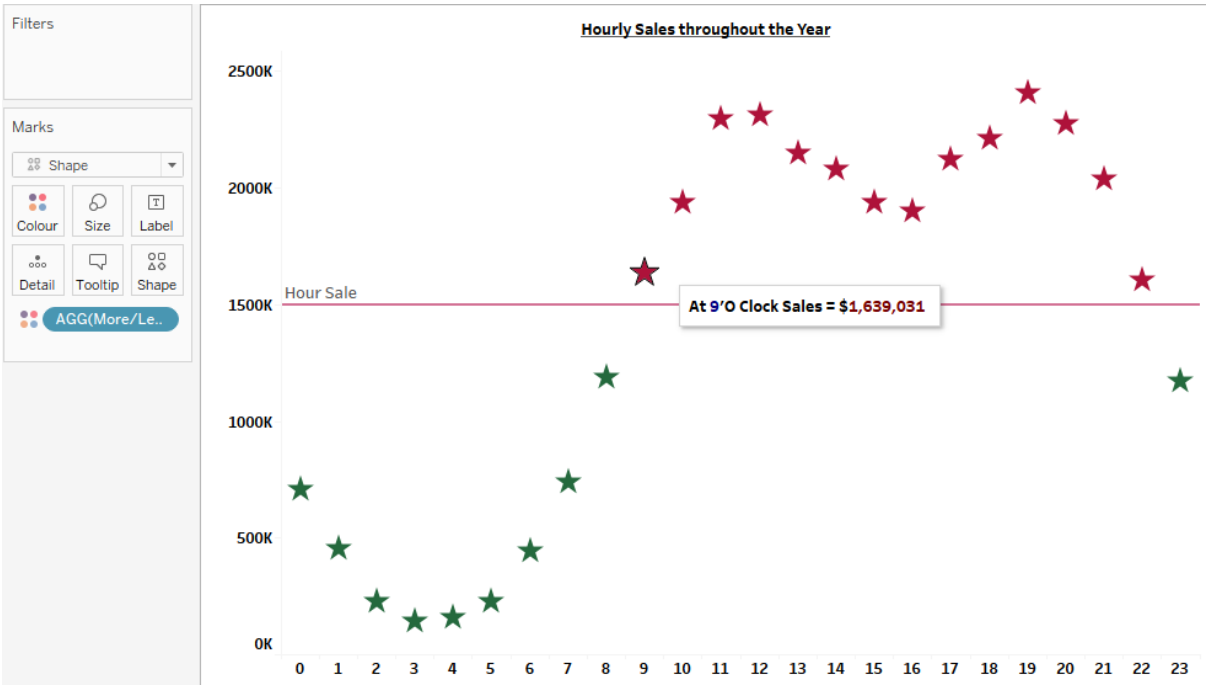
MacBook > ThinkPad > iPhone > LG Dryer > Google Phone

Sheet 5:



Products with max quantity sold in a single order. Pack of AAA Batteries stands at first. The smaller the product, the higher the quantity. Price also pays an important role here.

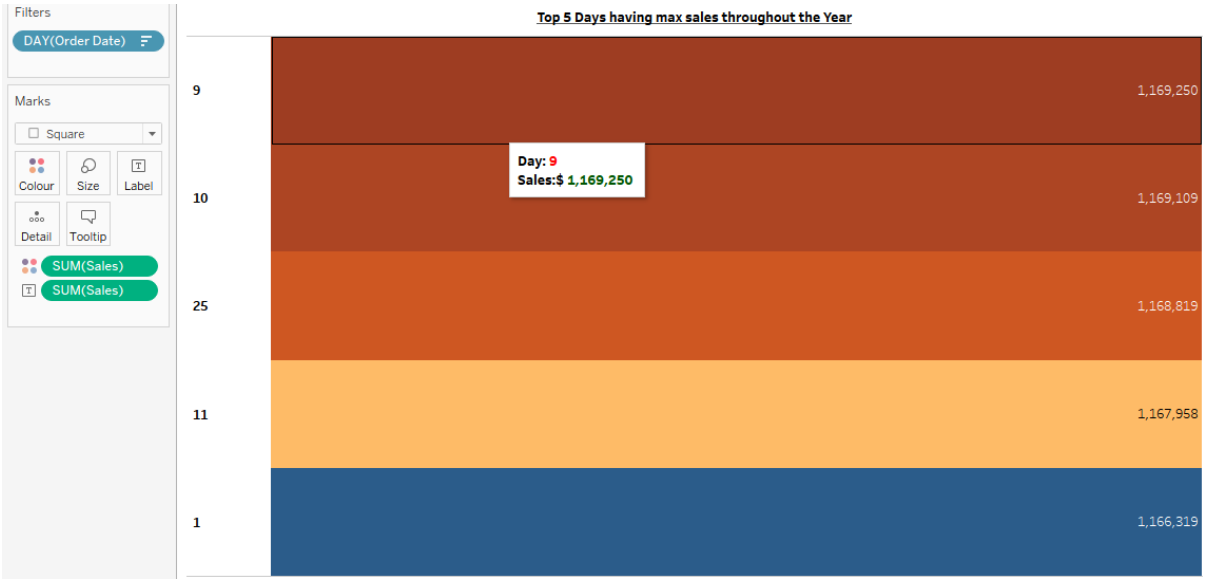
Sheet 6:



The red line represents the mean line, created using parameter in tableau. The line works as threshold to know the sales above and below a particular point.

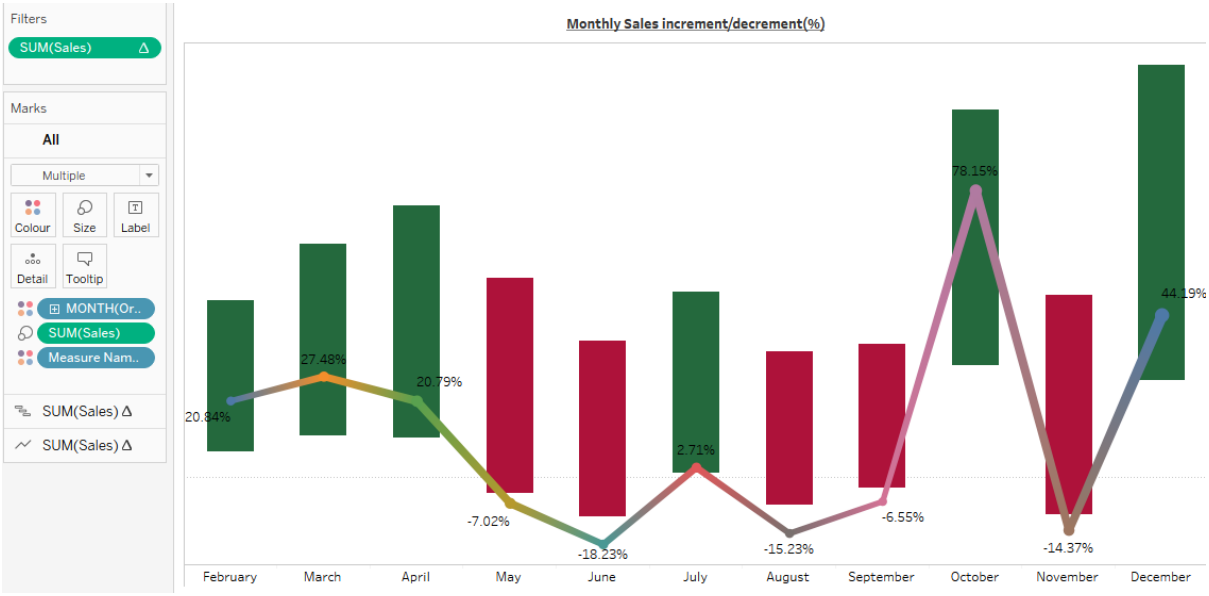
For example – the red line in graph is set on $1600000. The green stars show lower sales than the threshold and red stars shows the opposite.

Sheet 7:



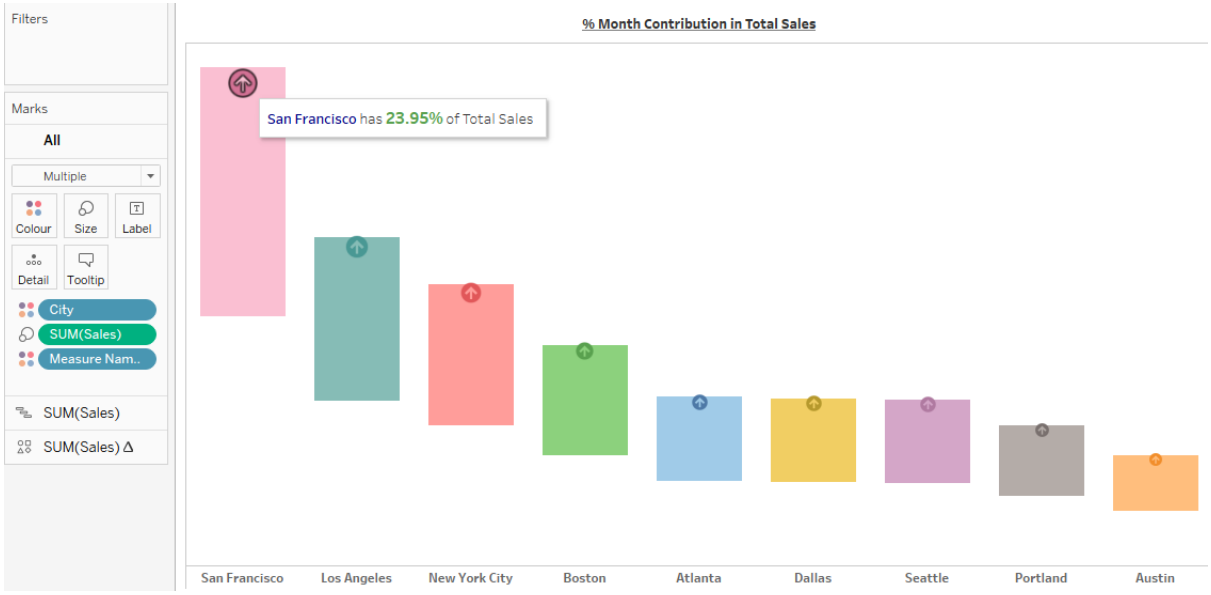
This chart shows the dates having maximum sales.

Sheet 8:



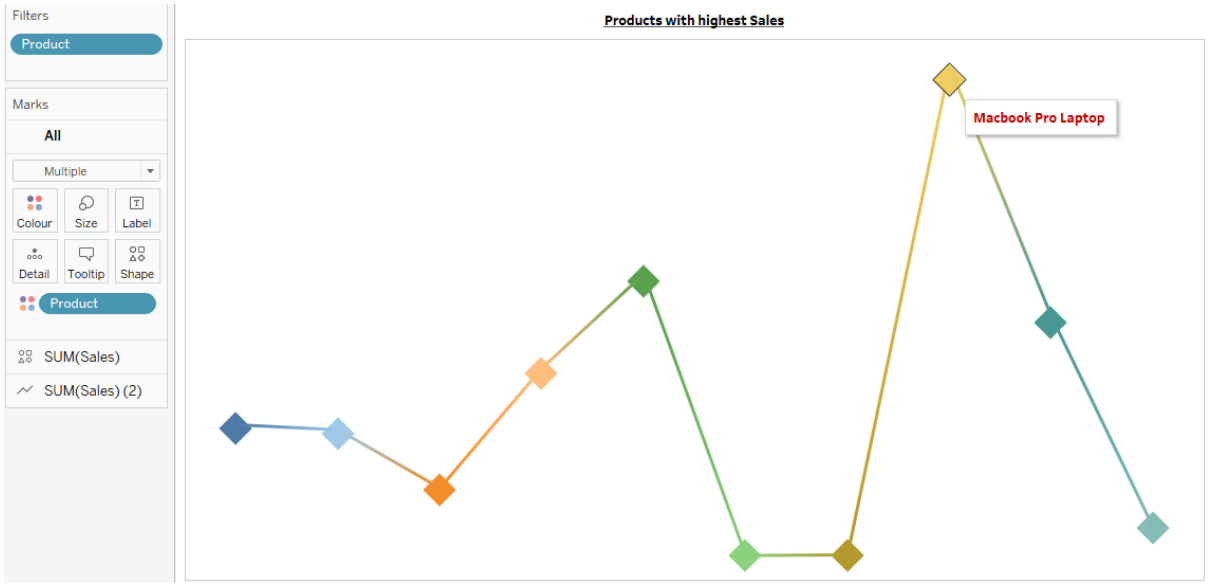
This is a waterfall chart showing the change in the monthly sales. Red bars show the lower sales compared to the previous month whereas green bars show higher sales compared to previous month. October month has the highest increment because august and September combined resulted in the sales drop. On the other hand, December has the highest sum of sales.

Sheet 9:



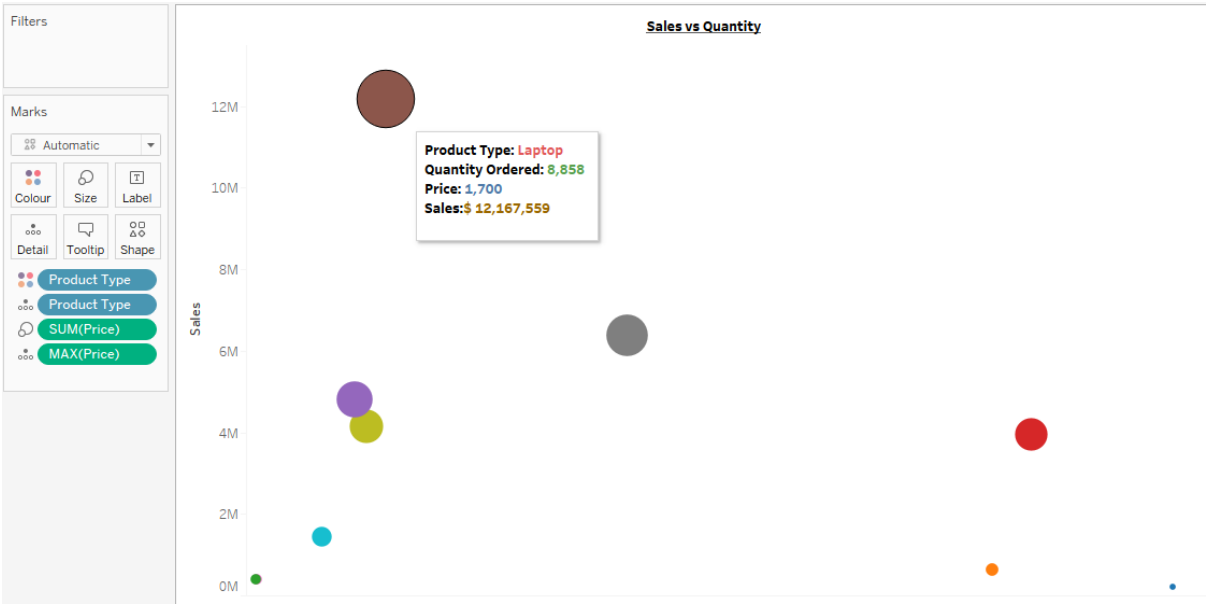
This chart is also a waterfall chart arranged in a decreasing order which shows the contribution of different cities in total sales. San Francisco is the biggest contributor whereas Austin is the smallest one.

Sheet 10:



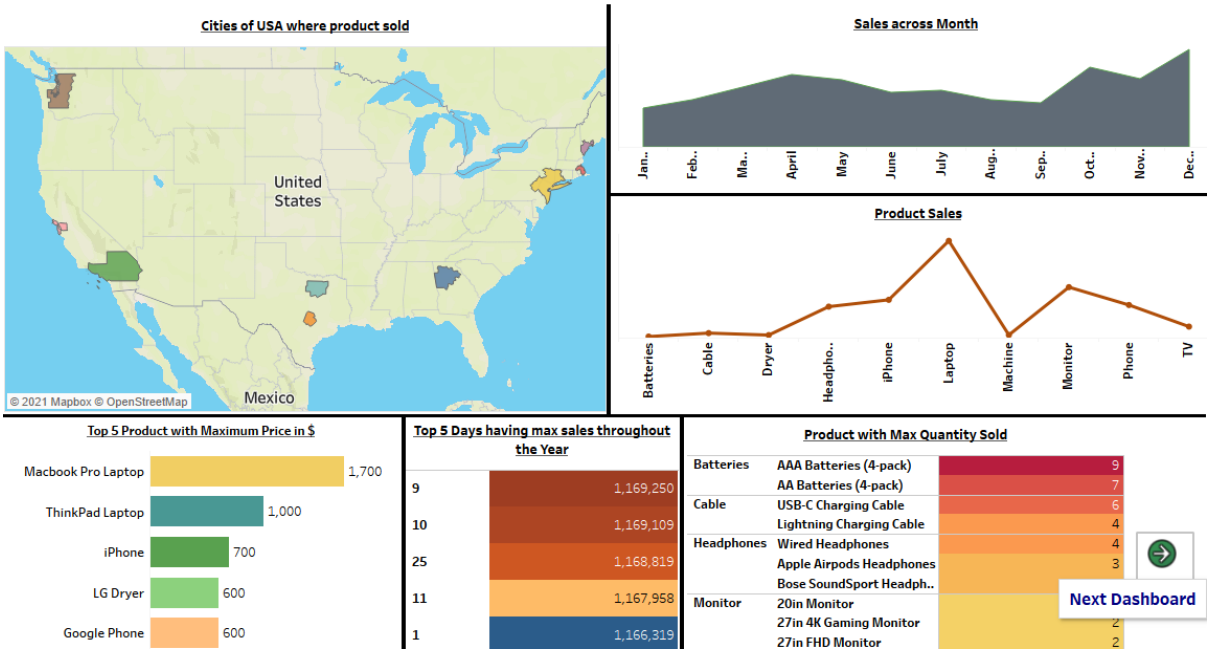
This chart shows the Product names having highest sales all over the country, represented in a line chart and shapes.

Sheet 11:

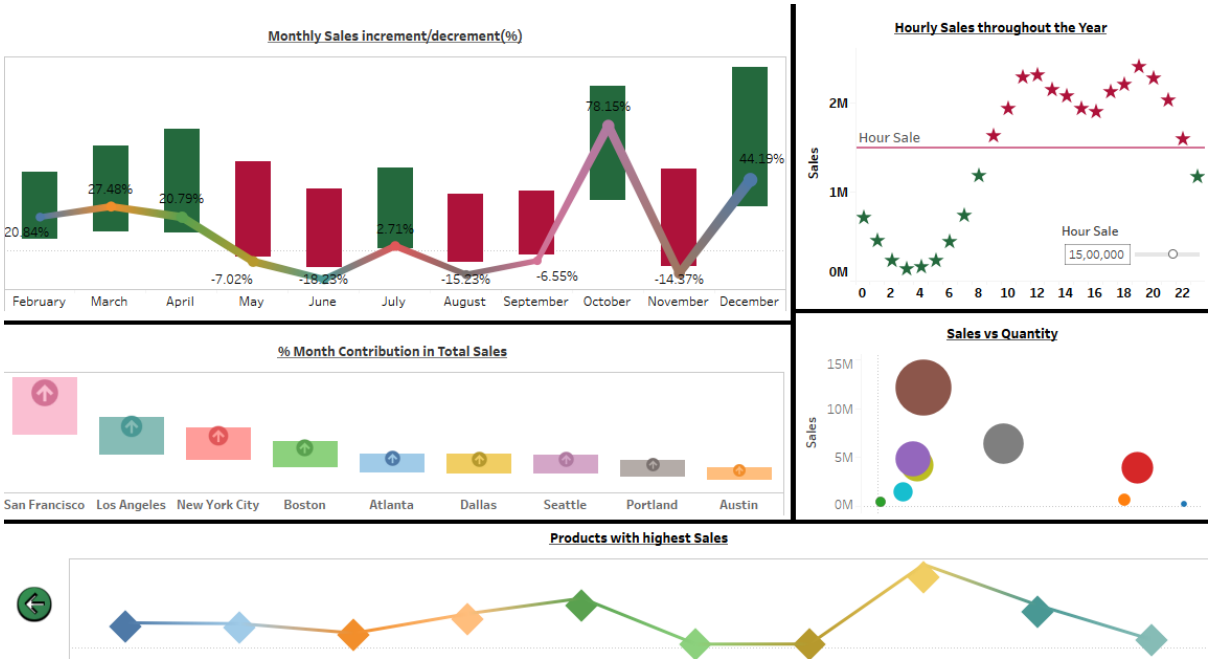


This chart is sales vs quantity represented in a scatter plot. The bigger the circle, the higher the sales. Pointers on the left side of the plane shows that the product quantity were less sold but the product price is higher which resulted in more sales. On the other hand, the red, yellow and navy-blue dot show that the products sold at higher quantities but the price was low making them the products with less sales.

Dashboard 1:

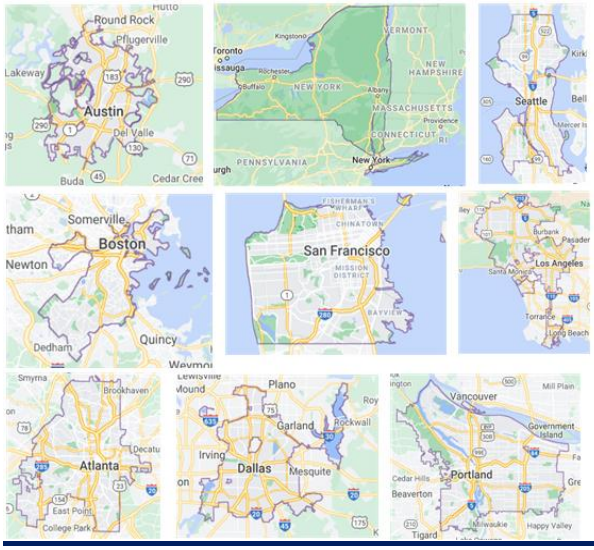


Dashboard 2:



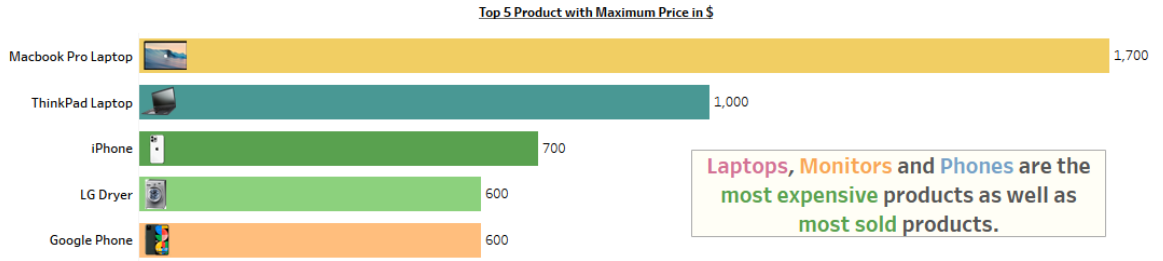
Story Points

The data contains Sales of Electronic Products over the months in a single Year

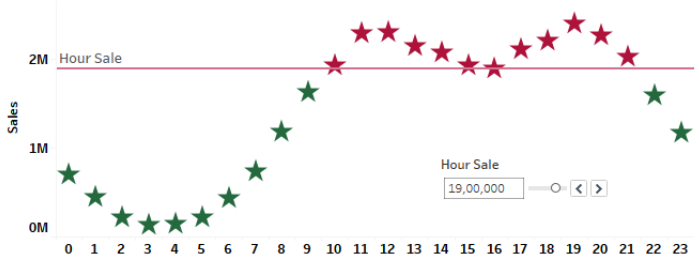


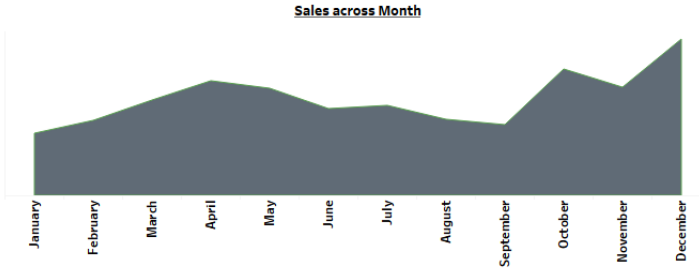
In 2019, the U.S. consumer electronics industry is predicted to have a market size of 301 billion U.S. dollars. Consumer electronics (CE) are devices specifically designed for entertainment, communication or information purposes. For most of the 20th century, the phonograph and radio were the most widely used such devices, but the development of computers contributed to the growth of the consumer electronics industry to include better technology.

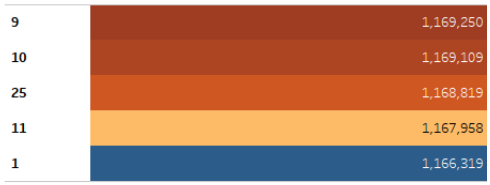
San Fransisco has the highest sales with 23.95% of Total Sales followed by Los Angeles(15.81%), New York City(13.52%), Boston(10.62%), Atlanta(8.10%), Dallas(8.02%), Seattle(7.97%), Portland(6.73%) and at last Austin has the least contribution in the overall sales having 5.28% of Total Sales.



Laptops, Monitors and Phones are the most expensive products as well as most sold products.







By looking at these 3 graphs we can clearly pick the important dates, time and Months to implement Sales boosting plan and Marketing strategy and renting extra servers to entertain extra customers' traffic.

Major Months could be:
April, October, December, (November)

Major Dates could be:
9, 10, 11

Major Time could be:
11 AM - 1 PM, 5 PM - 8:30 PM