Data Visualization of Sales data

Introduction to the Data set

The sales Data is from Kaggle website and the period covers from 2003 to 2005. The sales data record the sales of transportation tools, classic cars, moto cycles, planes, ships, trains, trucks and buses, vintage cars around the world for one certain company. The dimensions of Sample Sales Data include Order Info, Sales, Customer, Shipping, etc., I was used for Segmentation, Customer Analytics, Clustering and More and inspired for retail analytics. This was originally used for Pentaho DI Kettle and originally written by María Carina Roldán, Pentaho Community Member, BI consultant (Assert Solutions), Argentina. As the number of sales transactions is numerous, the data set is just sampled from the whole population data set for us to do analysis. However, we are still able to see all picture of sales in three years so that we can do more research and trend analysis for this company and make strategy for the future development of the company. Moreover, one of the most attractive point of this data set for me is that I can see the complete information of each order information and the location distribution of each sale.

The advantage of using this dataset is that it is an so organized, detailed sales data for us to use in the Tableau, such as the dimensions day, month, quarter, and year are separated with each other by the one who uploaded it online and we can testify analysis skill and see whether I evaluate correctly for sale markets in the following year. Furthermore, it is a data without the cost or profit of each transaction, so we could not observe whether it is a profitable company or not even if its sale performance is not bad. However, the disadvantage of this dataset is that we are not able to acquire the timely useful information for nowadays since it is a dataset cover the

period 10 years ago. In conclusion, it is an excellent dataset to practice data visualization and test what we have learn and what we have done but for its outdated characteristics, it is not that useful for create current sales prediction model.

My purpose on the data visualization of the sales data sets is to show the overall sale performance of each product line and evaluate which market or product line should the company invest more in the following years in order to obtain maximum development and profit.

Layouts of the data set

This is the screen shot of the data set and the dimensions are in the following:

ORDERNUMBER, QUANTITYORDERED, PRICEEACH, ORDERLINENUMBER, SALES, ORDERDATE, STATUS, QTR_ID, MONTH_ID, YEAR_ID, PRODUCTLINE, MSRP, PRODUCTCODE, CUSTOMERNAME, PHONE, ADDRESSLINE1, ADDRESSLINE2, CITY, STATE, POSTALCODE, COUNTRY, TERRITORY, CONTACTLASTNAME, CONTACTFIRSTNAME, DEALSIZE.

MSRP: Manufacture Suggested Retail Price

Description of any data cleansing that was done to the data set

Since the sales data set is really perfect and organized for us to evaluate, I do not clean the data and directly use the dataset to do data visualization.

Two high level analytical problems

1. The sales strategy of the company

From data visualization, we can conclude that the sales performance company during the three years are increasingly better than before which shows a promising growth potential for us. Moreover, the most of sales of the company is from the North America and Europe, which are the common developed countries. In addition, the sales of classic car, vintage car and motorcycles takes up almost two out of three of the all sales which demonstrate the future development direction for the company: invest and develop the personal transportation vehicles.

However, there still exists some flaws for its sales strategy. First, the company should not only consolidate and keep relationship with the current customers but also expand their market as fast as possible since it is not easy to do that if their competitors have already come into local markets. For example, the company may exploit their market to China, India, Brazil, Chile, Malaysia and so on. Second, the current markets still have not been exploited completed yet. Except for the top five markets, USA, Spain, France, Australia and UK, the others such as Italy Finland Norway, Singapore stay at a medium level, but the countries like Philippine, Iceland, still stay at a low sale level.

Although the North American market is huge, but it's not large enough for a growth-minded business owners, the rest of the world is their oyster. Seeking international growth by going global as an importer-exporter offers opportunity aplenty. Some of the specific advantages presented by successfully growing globally include it can extend the sales life of existing products and services by finding new markets to sell them in as well as it can reduce

dependence on the markets the company has developed in North America. Finally, by entering the global marketplace, the company will learn how to compete against foreign companies and there are too many international opportunities for its further growth. Therefore, it is significant for the company do research for the target market in advance for avoiding the culture difference, the various policies and regulations in local markets.However, the above recommendation is based on a profitable operating state on the condition that there is no profit statistics shown in the data set.

2. The future growth point

   The overall performance of this industry is growing over the three years which is shown in the second one dashboard as three line charts for three years. And we can also conclude from the sales by product line chart that plane, train and ships really shows a low level of sales. So it is necessary for the company to take much more effort to promote these products for itself. For example, try to sign a long-term agreement with local government and companies to keep a stable sale. Moreover, the sales always fall into a low point in June Therefore, the company should always display sales campaign in June to drive sales. Besides, the higher sales of USA may give rise to its higher product price. So perhaps it is useful for the total sales growth if the product price increases to a reasonable extent. Eventually, the controlling cost, maintain its variation from others, innovation and creativity of the company are the key points to improve in order to keep competitive among all the companies.

7 bullet points questions that can be answered by this dataset

- Which countries is the best sales generator for this company?

- Compared with the sales performance of other countries, which product has the most potential to improve in the next few years for Australia?

- Which month would you recommend this company to do sales campaigns in order to drive sales growth?

- For all the product lines, which one takes up the majority of the sales for the company?

- Where are the main sales markets of this company distributing around the world?

- Which countries has the biggest average sales and the sales data has a largest variance? Which one has the smallest average sales a lowest variance?

- Which country has the highest price for Classic Cars?

Answers of the 7 bullet questions and Design Data Visualizations using Tableau

1) Which countries is the best sales generator for this company?

------As the screenshot shown, the main sales market of the company is USA and Europe. The USA

is the biggest one sale market, and then Spain, France, Australia and UK.

Sales By Country
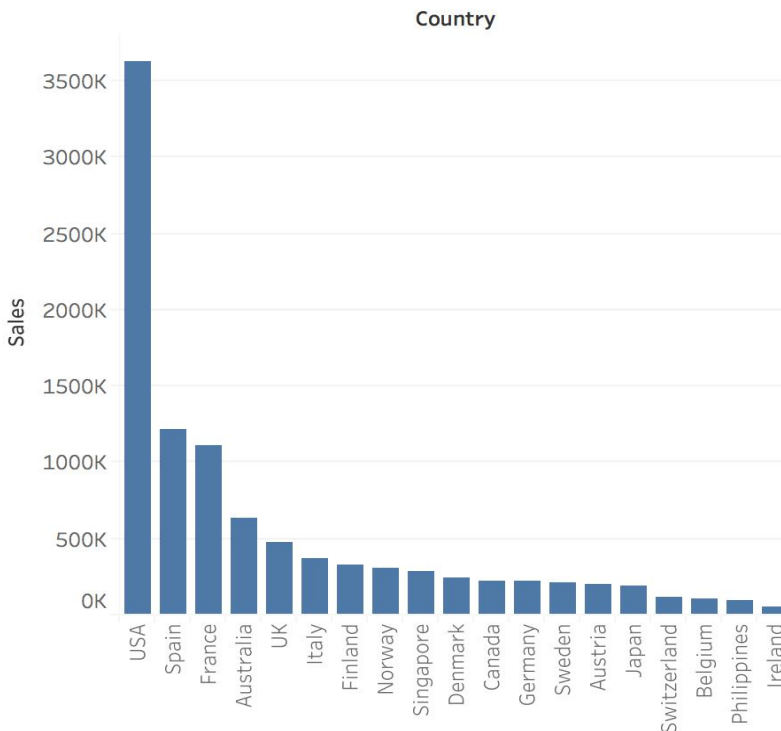
Sum of Sales for each Country.

2) Compared with the sales performance of other countries, which product has the most

potential to be improved in the next few years for Australia?

------We choose the top five best sale country from all the countries and from this chart, we can

know sales performance of each product for each country. And see through the comparison, it

is seen that the classic car sale of Australia is supposed to improve because the normally the

sale of classic cars will outperform vintage cars however Australia shows an equality of these

two sales. And the ship and train sales of Australia is also awful, thus the company should pay

more attention to the Australia markets in the following years.

Sales By each Country and product
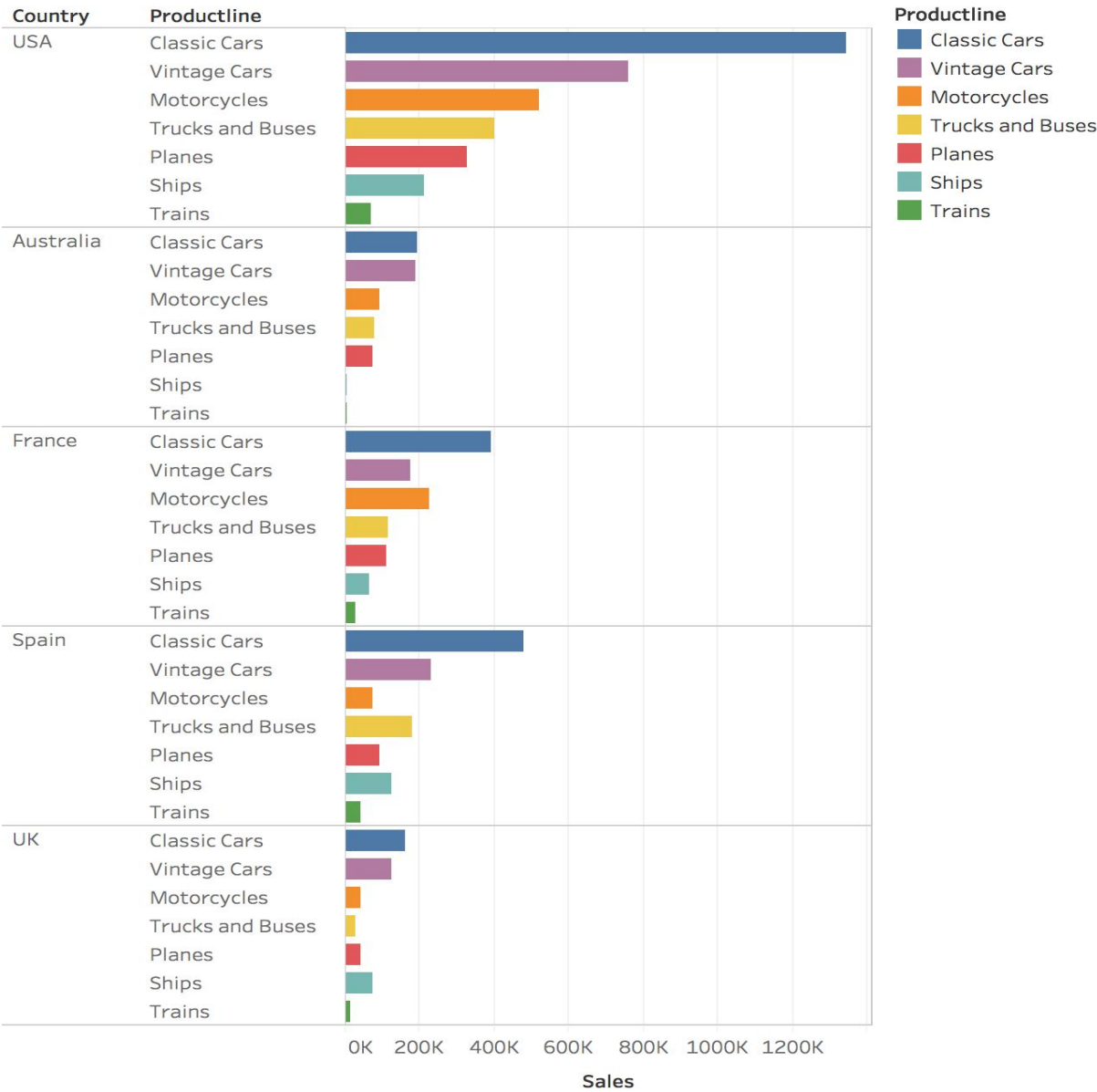
Sum of Sales for each Productline broken down by Country. Color shows details about Productline. The view is filtered on Country, which keeps Australia, France, Spain, UK and USA.

3) Which month would you recommend this company to do sales campaigns in order to drive sales growth?

------As the sales trend line depicted, the sales will fall into a low point $454,757 in June and increase extremely to $2,118,886 in November. Therefore, the company should display sales campaign in June to drive sales.

Monthly Sales Trend
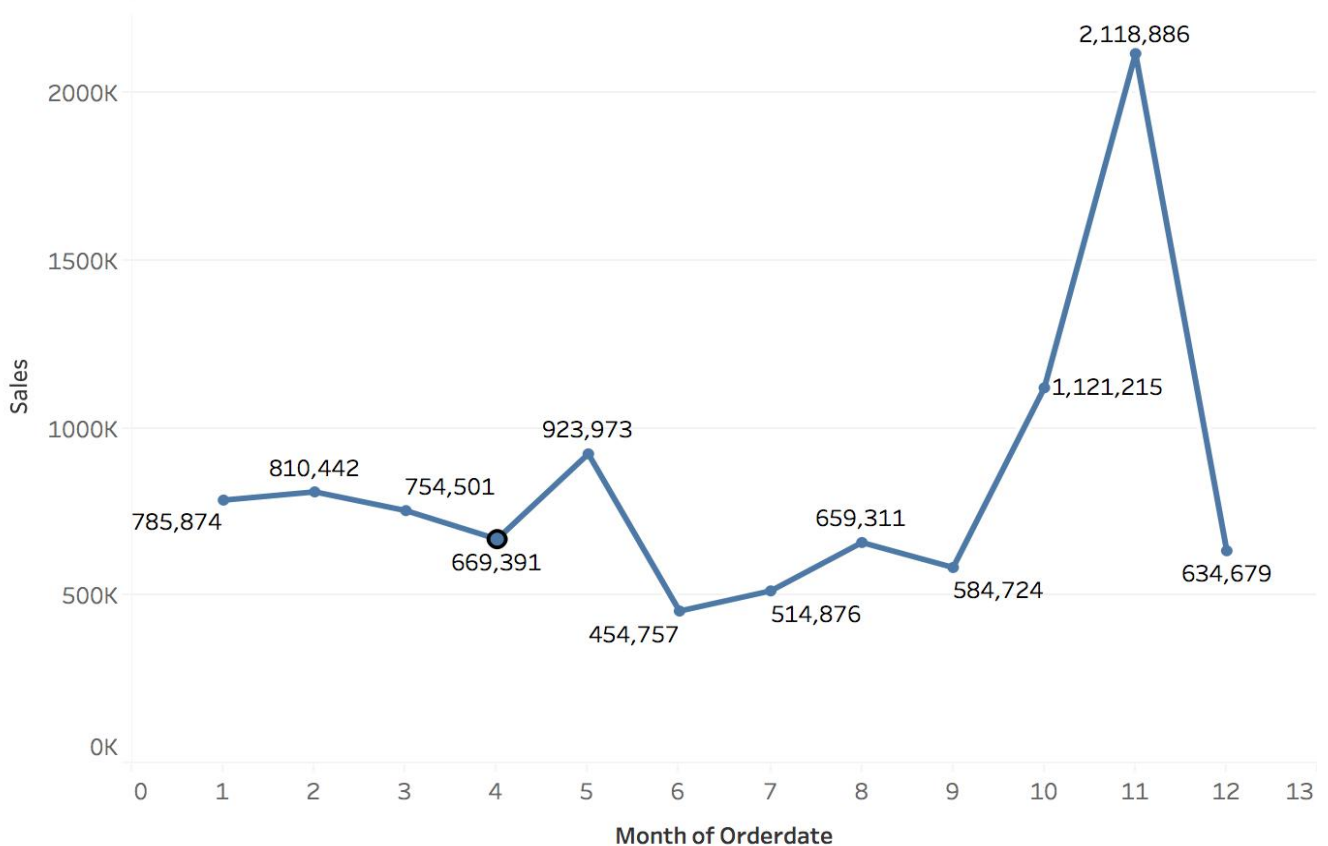
The trend of sum of Sales for Orderdate Month. The marks are labeled by sum of Sales. The data is filtered on Action (State) and Action (Productline). The Action (State) filter keeps 17 members. The Action (Productline) filter keeps 7 members.

4) For all the product lines, which one takes up the majority of the sales for the company?

------As the graph shown, the overall sales around the world from the top to bottom respectively are classic cars, vintage cars, motorcycles, Trucks and Buses, Planes, ships and Trains. Thus, the classic cars take up the majority of the sales.

Sales By Productline-descend
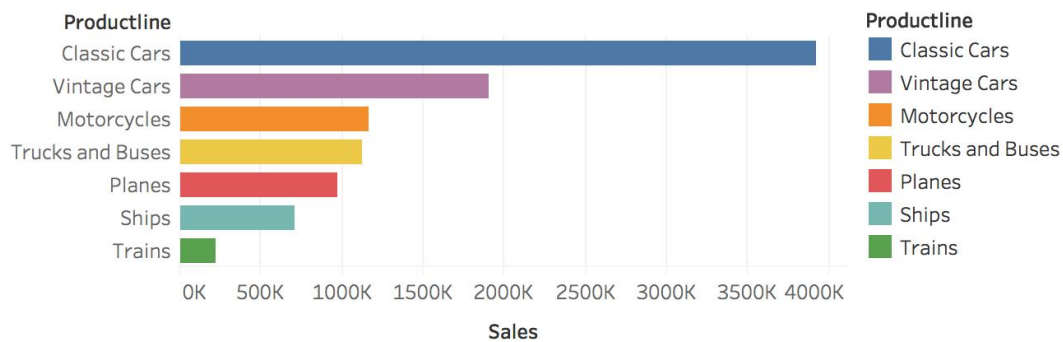
Sum of Sales for each Productline. Color shows details about Productline. The data is filtered on Dealsize and Action (State). The Dealsize filter keeps Large, Medium and Small. The Action (State) filter keeps 17 members.

This graph is for ranking the sales of different products.

Percentage by product
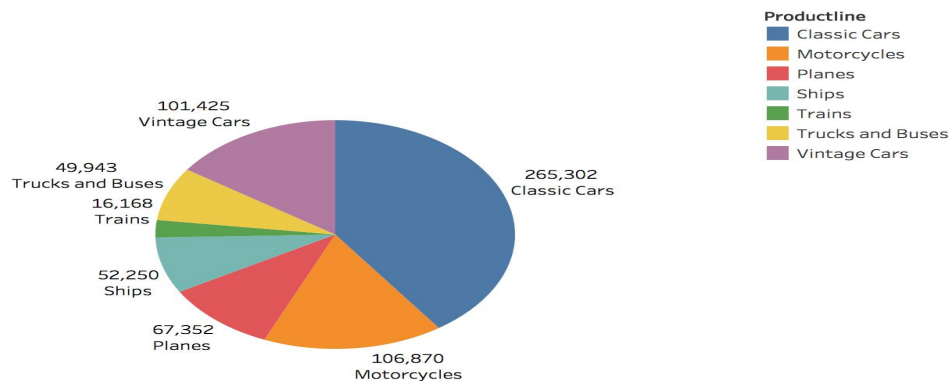
Sum of Sales and Productline. Color shows details about Productline. The marks are labeled by sum of Sales and Productline. The data is filtered on Action (Country,MONTH(Orderdate)), which keeps 10 members. The view is filtered on Productline, which keeps 7 of 7 members.

This graph is for showing the sales percentage of the each product.

5) Where are the main sales markets of this company distributing around the world?

------As the sales map showing to us the main sales markets of this company distributed around the world are the North America, Europe and Australia.

Sales Size By Location
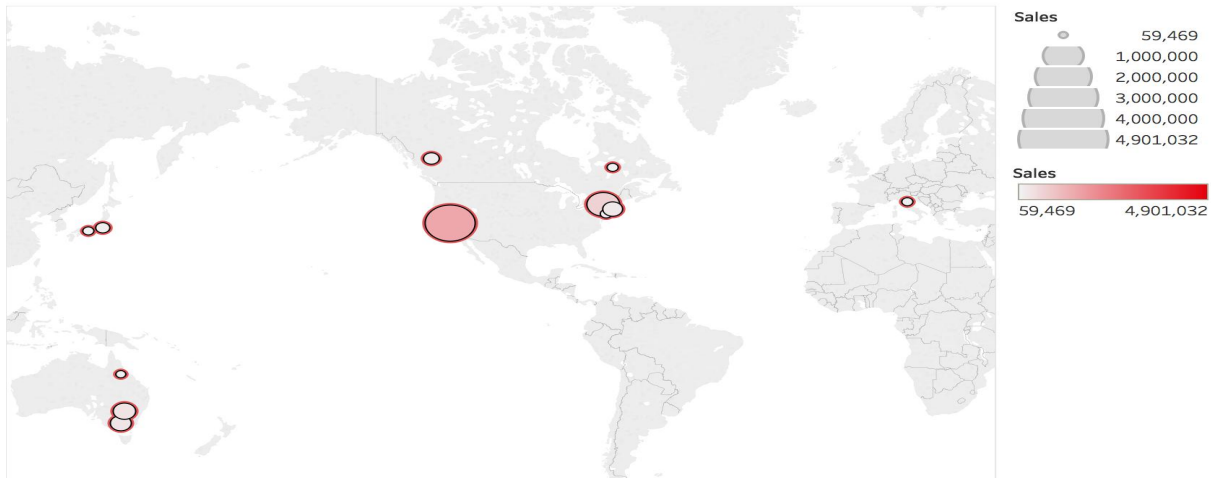
Map based on Longitude (generated) and Latitude (generated). Color shows sum of Sales. Size shows sum of Sales. Details are shown for State and Territory.

Sales Distribution
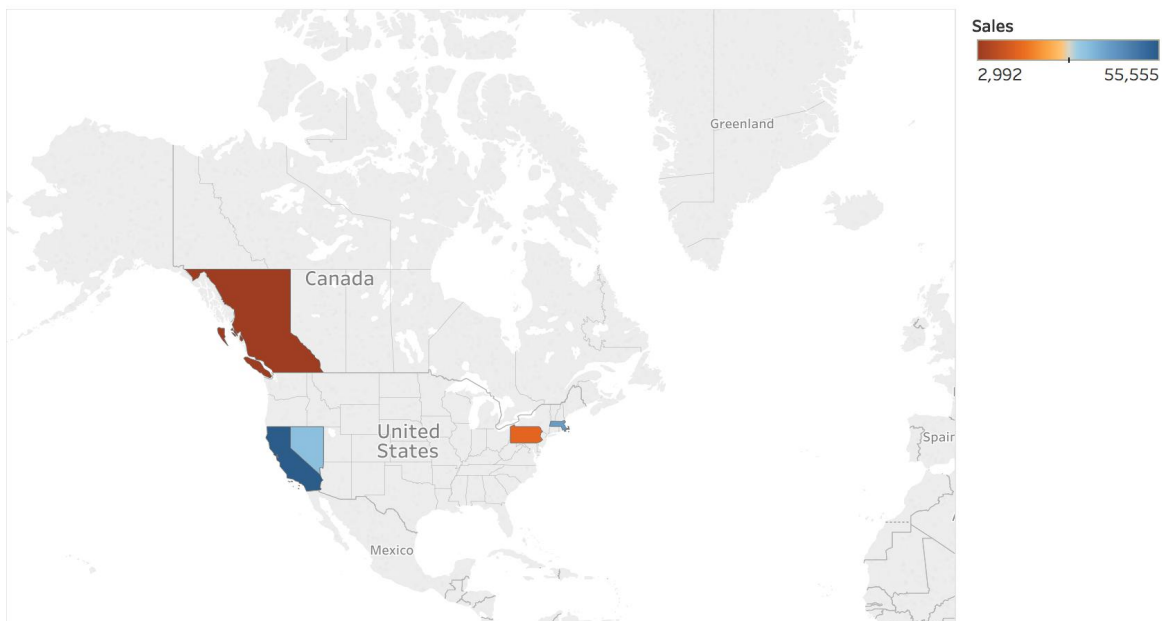
Map based on Longitude (generated) and Latitude (generated). Color shows sum of Sales. Details are shown for State and Country. The data is filtered on Action (Productline) and Action (Country,MONTH(Orderdate)). The Action (Productline) filter keeps 1 member. The Action (Country,MONTH(Orderdate)) filter keeps 10 members. The view is filtered on Latitude (generated) and Longitude (generated). The Latitude (generated) filter keeps non-Null values only. The Longitude (generated) filter keeps non-Null values only.

These two charts are for showing the sales size and distribution of each country.

6) Which countries has the biggest average sales and the sales data has a largest variance? Which one has the smallest average sales a lowest variance?

------As the image below shown, Spain has the largest average sales and its sales has the largest

variance out of the all countries. Belgium has the lowest average sales and Singapore has the

lowest variance for its only one order transaction existing.

sales average
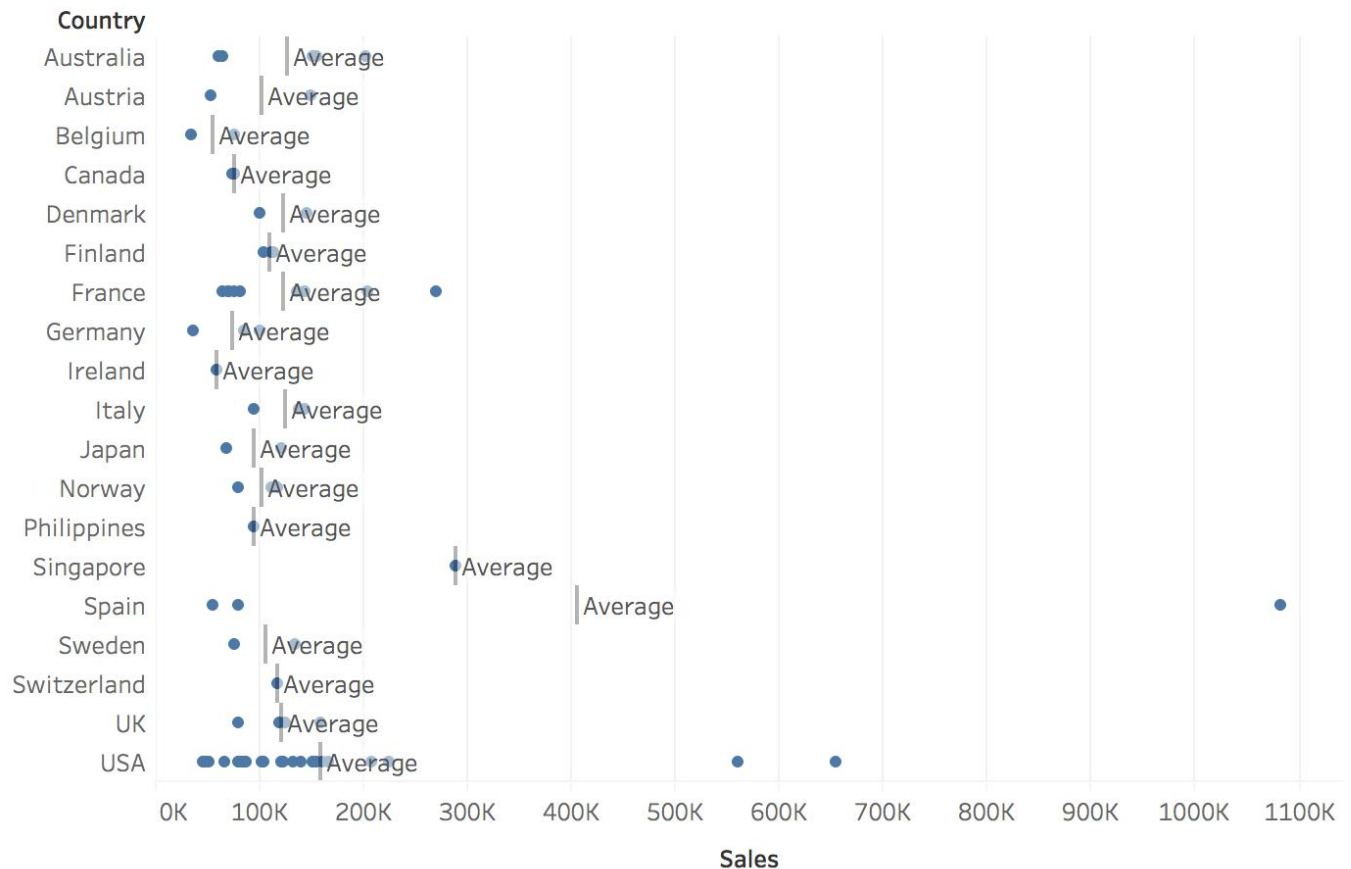
Sum of Sales for each Country. Details are shown for City.

This diagram presents the average and variance for each country.

7) Which country has the highest price for Classic Cars?

------As the charts below shown, the cell of USA for Classic Cars is the darkest blue one which means it is of the highest price of classic cars. And the circle charts in the below can also prove this conclusion.

Price by location

Productline	Australia	Austria	Belgium	Canada	Denmark	Finland	France	Germany	Ireland	Italy	Japan	Norway	Philippin..	Singapore	Spain	Sweden	Switzerl..	UK	USA
Classic Cars	4,522	2,259	400	1,335	3,078	3,325	8,340	3,196	556	2,543	781	3,083	1,172	2,810	10,162	1,556	2,713	3,920	28,705
Motorcycles	2,153	471		100		1,096	5,479	183	166	188	683	1,249	504	95	1,549	281		740	12,536
Planes	2,137	437	100	821	200	893	2,631	656	355	2,562	1,333	890	398		2,341	212		1,160	7,889
Ships	141	326	937	1,117	1,116	808	1,734	196		515	446			307	3,328	827		1,925	5,898
Trains	51		244		328	114	615	113	121	228	143	200		365	1,066	100		298	1,838
Trucks and ..	1,730	454		1,370	200	979	2,691	200	100	200	261	830		1,973	3,962	975		708	9,714
Vintage Cars	4,715	812	1,206	1,215	582	508	4,431	640	80	3,092	643	1,067	72	1,032	5,636	993		3,131	17,580

Country

Priceeach 51   28,705

Sum of Priceeach broken down by Country vs. Productline. Color shows sum of Priceeach. The marks are labeled by sum of Priceeach.

This graph shows the price of each order.

Price comparison
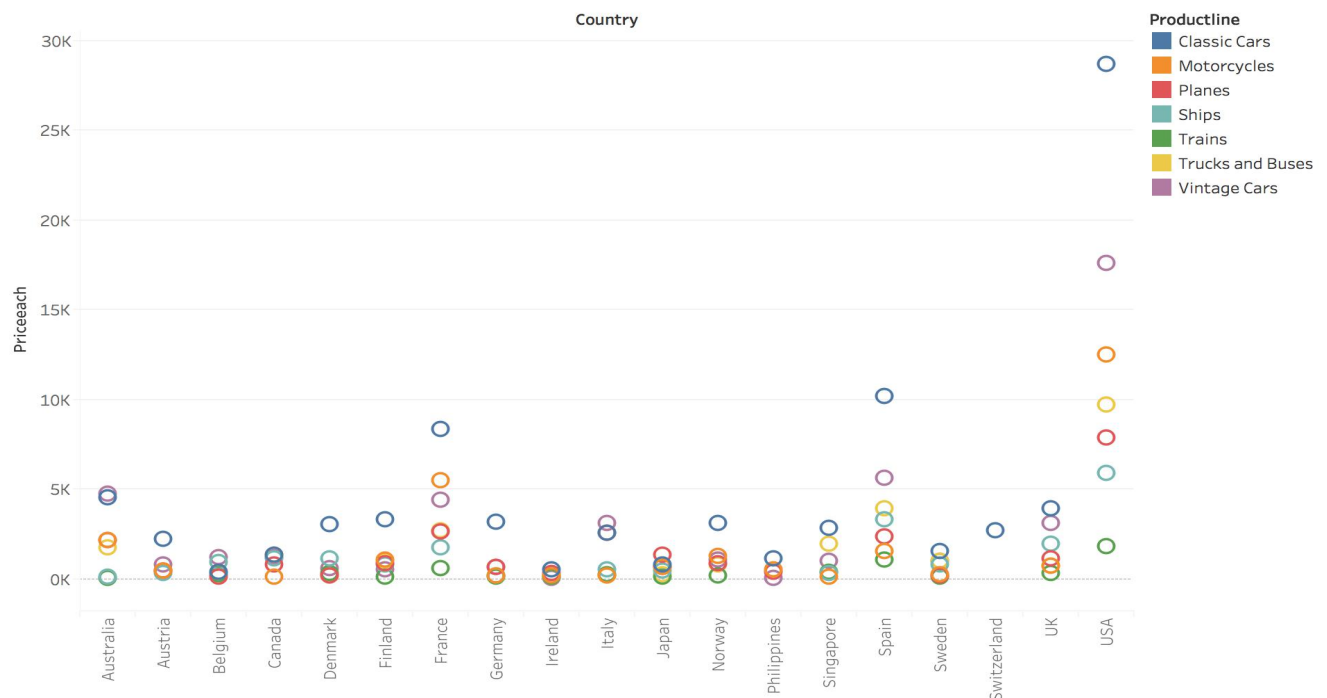
Sum of Priceeach for each Country. Color shows details about Productline.

This diagram compares price of every type of product from each country.

Dashboard1(with Mashup)

In the following dashboard, we can filter the sales by the deal size and see the rankings of sales for each product. In addition, the map shows the sales distribution and the trend line shows the monthly sales trend. What's more, we can use the mashup to search the latest industry data since it is a statistics portal for us to do that. Each parts of the Dashboard can be used as a filter except the mashup.
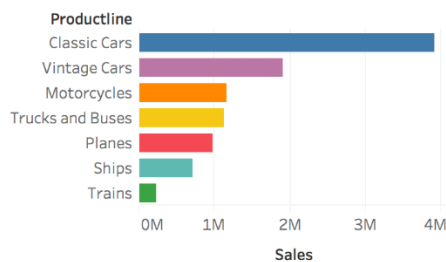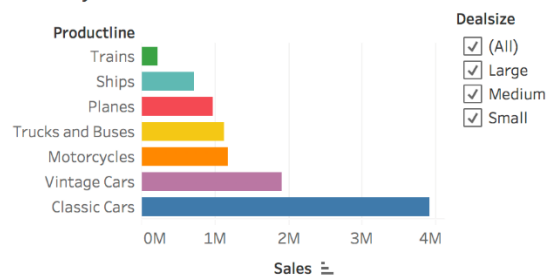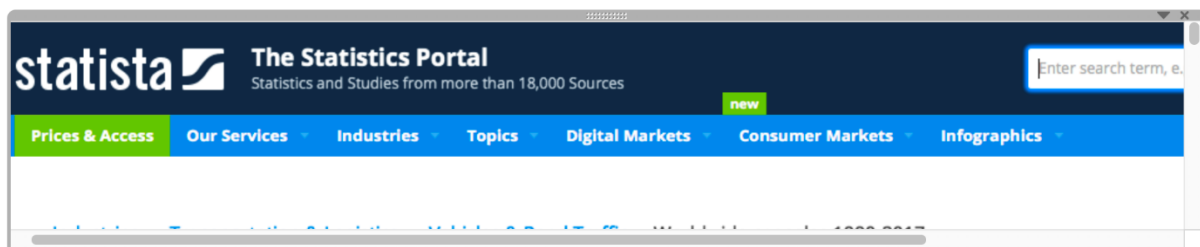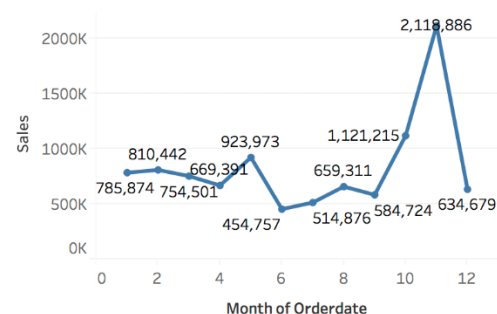
Dashboard2 （without mashup）

------From the graph below, we can get to know the sales over each month for different

countries, the sale percentage of each product and the sales distribution around the world.

Moreover, we can use each one as a filter to remove the unnecessary parts from the other two

graphs.

Percentage by product

Sales over time

Sales Distribution

Dashboard3

The following graph is a dashboard shown can be used to filter every order information and

check whether the products have been shipped or not. And we can also filter the orders by year

of order date.

Year of Orderdate
- ✔ 2003
- ✔ 2004
- ✔ 2005

Order Infor.

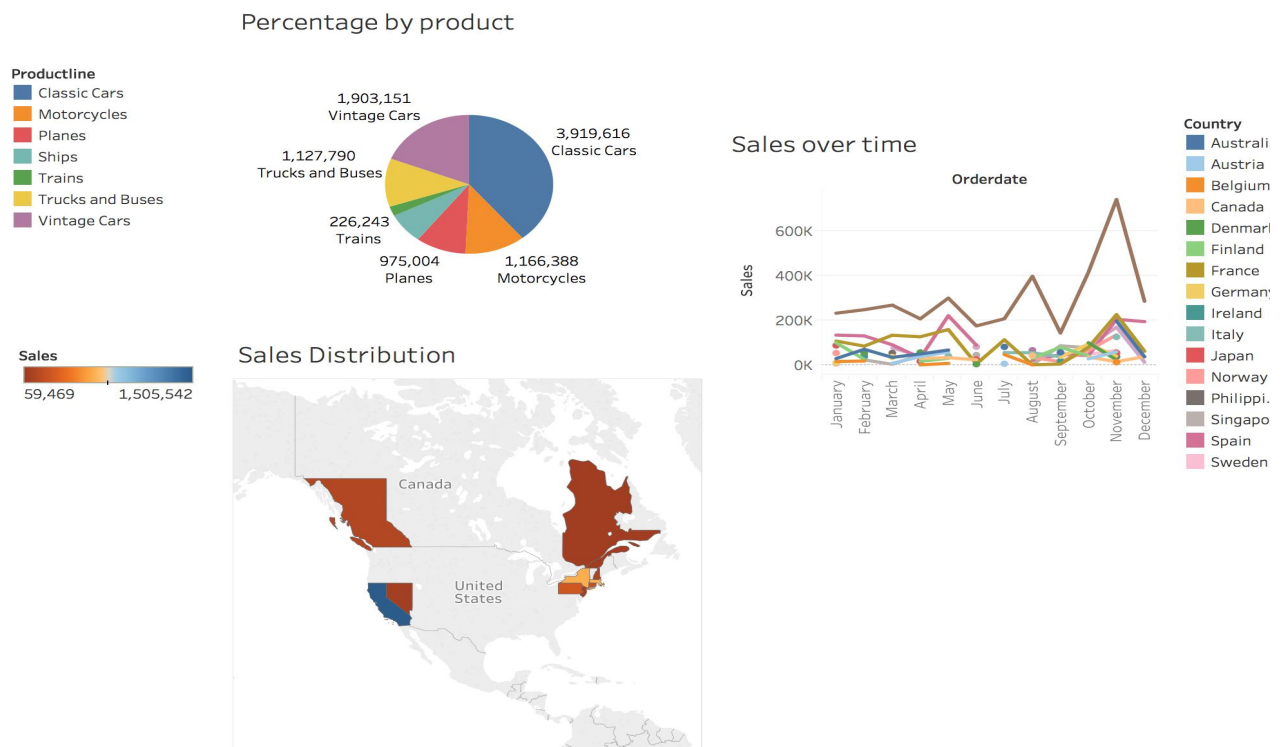| Customern..	1	2	3	4	5	6	7	Orderdate 8	9	10	11	12	13	14	15
Cambridge ..								14,381		21,783					
Euro Shopp..	53,816	97,385	68,673		41,318	17,448	29,884	5,774	21,986	103,211			31,822		22,35
Danish Who..								4,749	31,330	24,079	58,871				26,01
Boards & To..		5,142						3,987							
Amica Mod..									38,039						
Anna's Dec..				41,792					35,160		47,192				
Atelier grap..															
Australian ..		12,335							14,378						
Australian ..															
Australian ..		21,730				27,099									
Auto Assoc...		5,759								59,075					

Order Status

Ordernumb..	1	2	3	4	5	6	7	Orderdate 8	9	10	11	12	13	14	15
10100						Shipped									
10101									Shipped						
10102										Shipped					
10103															
10104															
10105											Shipped				
10106															
10107															
10108			Shipped												
10109										Shipped					
10110															