



**UNIVERSITY
OF LONDON**

Global Superstore Report

A coursework for ST2187 Business Analytics, Applied Modelling and
Prediction

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1. Executive Summary

In general, the company is doing well. However, not all countries are earning.

Based on my analysis of the data, we would strongly suggest closing down all the businesses in Nigeria and Turkey as they are not profiting at all and are causing huge losses to the company. It will be better to invest the money in other areas that can help improve the efficiency and profitability of the company.

In addition, we found out that a sub-category product, Tables, are also making losses in general. As there is insufficient data to figure out the exact cause, it is recommended to find out the real reason by directly asking the salesperson for the situation in detail. Some methods proposed would be to sell tables in a set, together with chairs.

Moreover, in the US, there are some sub-category products that are not profitable as well, which may be the reason for its lowered profit ratio in comparison to India. The key to having a high profit ratio might probably be to decrease the discount rates.

Furthermore, there is no correlation between Profit Ratio and Discount, Quantity and Shipping Costs. Nonetheless, there might be a possibility that there is a relationship between Profit Ratio and Shipping Mode when the Order Priority is "Critical".

Finally, there is definitely a sales seasonality that every company can prepare for and come up with strategies to improve sales and profits based on that.

2. Introduction

Using all the data provided for the Global Superstore from 2011 to 2014, we have created a story to present our insights and offer recommendations to improve the profitability and efficiency of the company. We will be looking at the overall performance globally first, followed by a detailed analysis of the 4 countries, United States (US), India, Nigeria and Turkey. Subsequently, we will study the shopping behaviour of the US customers and the sales seasonality.

3. Overall Performance

Profits by Country

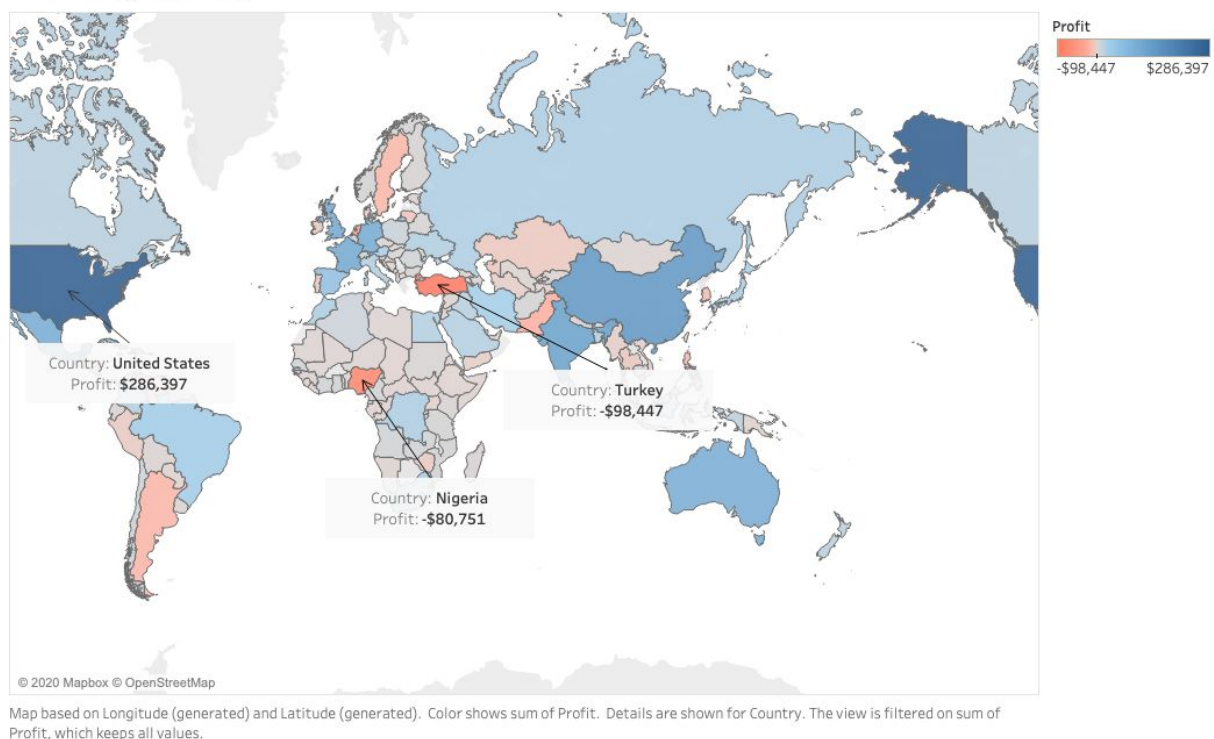
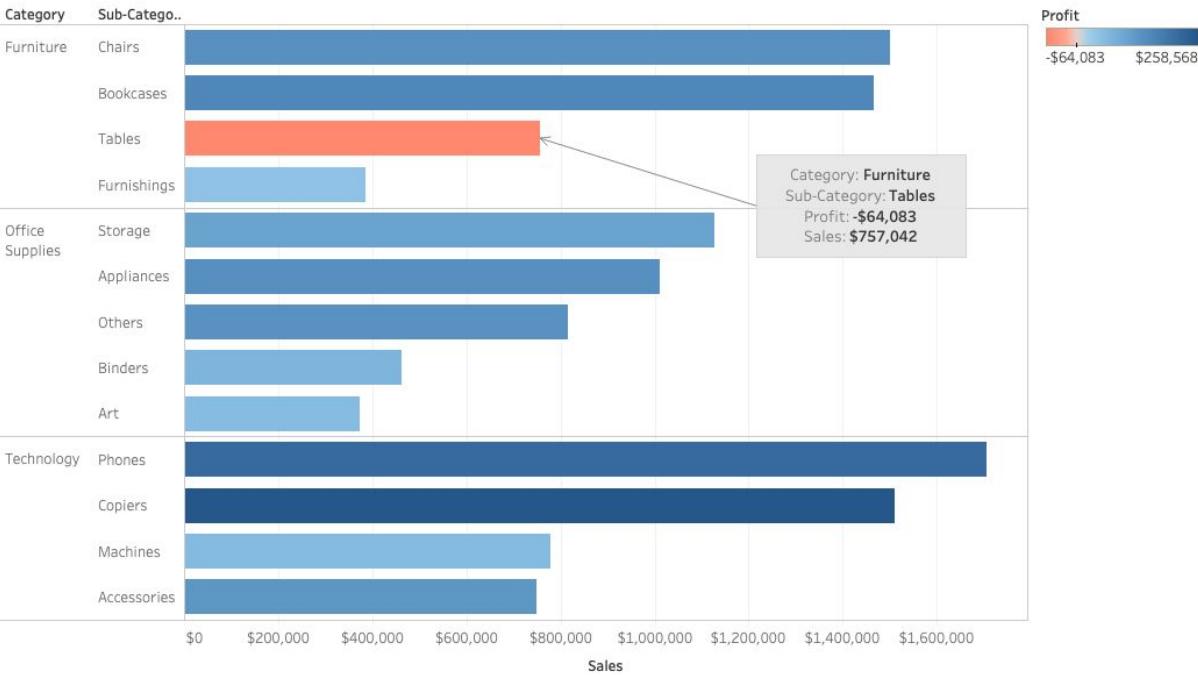


Figure 1

Looking at the Figure 1 above, the US has the highest sum of profits between 2011 to 2014. Meanwhile, Nigeria and Turkey are the 2 worst performing countries, resulting in close to \$200,000 worth of profit loss.

Sales by Sub-Category



Sum of Sales for each Sub-Category broken down by Category. Color shows sum of Profit.

Figure 2

While analysing the data, another problematic issue appears and is shown in Figure 2. It is very prominent that there is a large profit loss for the sub-category product, Tables. Although the sales are considerably acceptable, it still has a negative profit of about \$65,000.

4. Analysis of Nigeria & Turkey

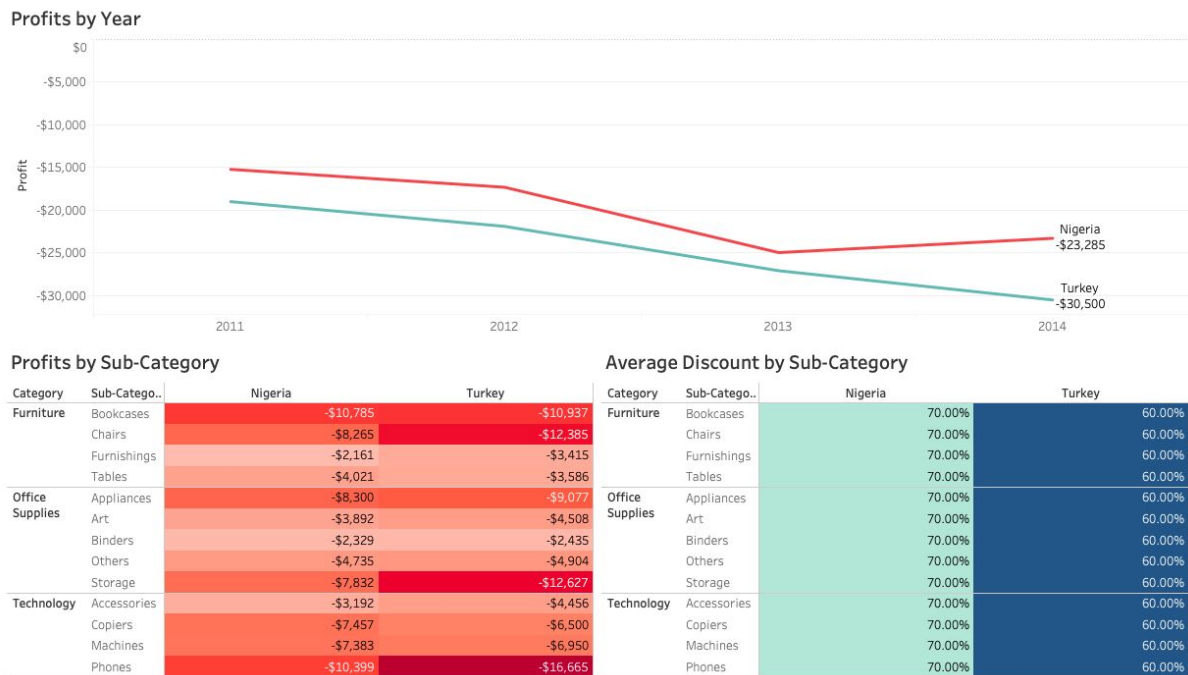


Figure 3

First of all, we will investigate the cases of Nigeria and Turkey, which are the bottom 2 countries in terms of overall profits, and evaluate if we should still continue operations there. Based on the dashboard above, we can observe that these 2 countries have been giving rise to at least \$15,000 worth of loss of earnings every year, which means that they have negative growth throughout the 4 years. To make matters worse, there is not even a single sub-category product that is money making. This can be attributed to the average discount for the sub-category products. On the bottom right side of the dashboard, we can see that the average discount for ALL sub-category products are 70% and 60% for Nigeria and Turkey respectively.

Executive Overview

Sales	Profit	Profit Ratio	Profit per Order	Sales per Customer	Avg. Discount	Quantity
\$12,642,502	\$1,467,457	11.61%	\$58.62	\$15,902.52	14.29%	178,312

Executive Overview (without Nigeria & Turkey)

Sales	Profit	Profit Ratio	Profit per Order	Sales per Customer	Avg. Discount	Quantity
\$12,479,644	\$1,646,655	13.19%	\$68.63	\$15,697.66	11.98%	173,232

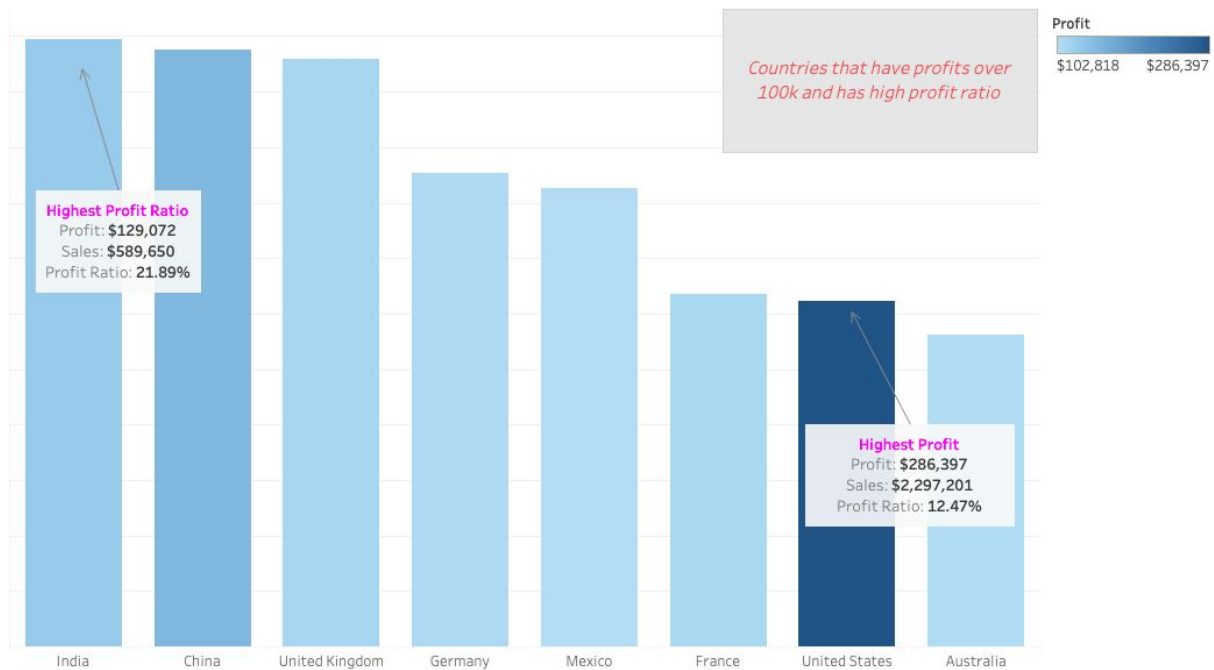
Figure 4

Now, let us take a look at Figure 4. If we were to compare the difference between the Executive Overviews of the company with and without Nigeria & Turkey for the 4 years, we will realise that without these 2 countries, Profit, Profit Ratio, Profit per Order will increase tremendously and Average Discount will reduce. Even though Sales and Quantity will drop as well, it does not matter.

The possible reason for losses in these 2 countries might be due to the political instability in those countries, such as wars and conflicts happening in these countries. It is almost impossible for stores in Nigeria and Turkey to be profitable or earn all the losses in the next few years. Thus, I would suggest closing down all the businesses in Nigeria and Turkey as these 2 countries have been causing huge losses to the company and WILL NOT be beneficial for the company at all. The money used to invest in Nigeria and Turkey can be better used in other areas, such as improving the customer services, renovating any of the old stores or many more.

5. Analysis of US & India

Profit Ratio by Country

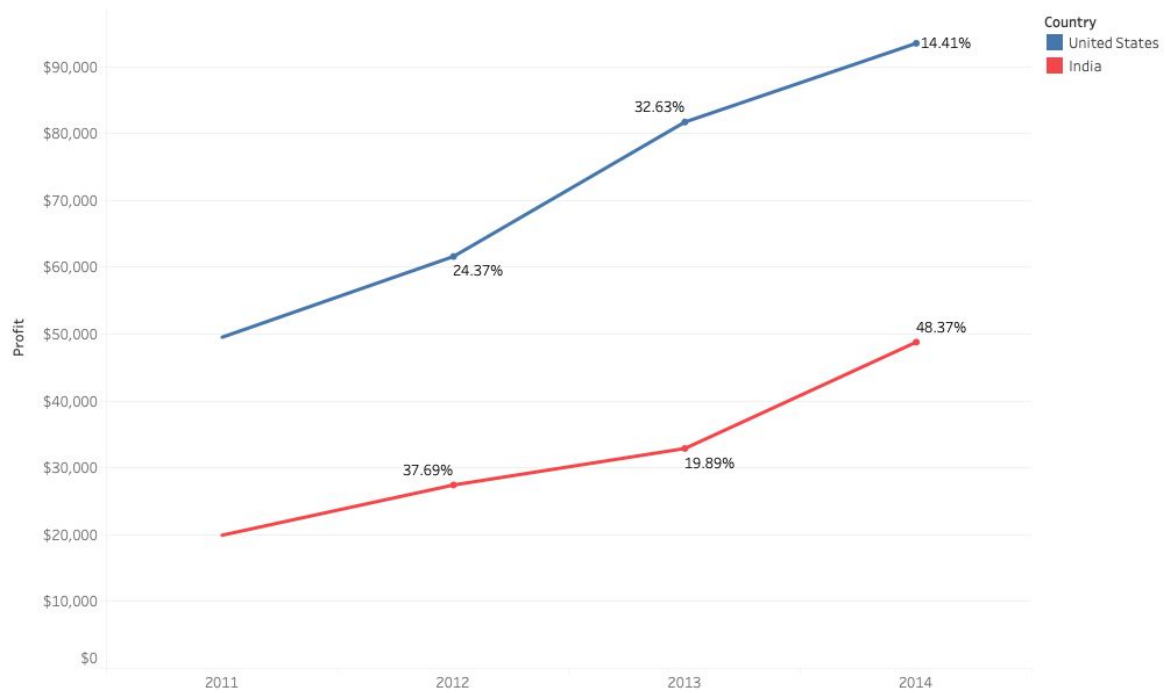


Profit Ratio for each Country. Color shows sum of Profit. The view is filtered on sum of Profit, which ranges from \$100,000 to \$286,397.

Figure 5

Next, we will be examining the US and India. Figure 5 shows the countries that are exceptionally profitable and are able to maintain a high profit ratio simultaneously. Profit Ratio is a measure of profitability, which is also a reflection of the efficiency and performance of a company. The figure above showed 8 countries that have obtained more than \$100,000 profits in total for the 4 years and have a high profit ratio of more than 11%. The US, which is the most profitable country, has appeared in the figure once again. On top of that, India has shown to have the highest profit ratio among the 8 countries.

Year Over Year Growth



The trend of sum of Profit for Order Date Year. Color shows details about Country. The marks are labeled by % Difference in Profit. The view is filtered on Country, which keeps India and United States.

Figure 6

Indeed, these 2 outstanding countries are constantly growing in the 4 years, which suggests that businesses in the US and India are improving every year. It is also clear that the US is profiting about twice as much as that of India.

Breakdown of Sub-Category

Category	Sub-Catego..	Profit		Country Avg. Discount		Sales		Profit
		India	United States	India	United States	India	United States	
Furniture	Bookcases	\$15,937	-\$3,473	2.55%	21.11%	\$88,983	\$114,880	
	Chairs	\$13,904	\$26,590	2.52%	17.02%	\$68,874	\$328,449	
	Furnishings	\$4,340	\$13,059	0.51%	13.83%	\$16,215	\$91,705	
	Tables	\$8,254	-\$17,725	4.17%	26.13%	\$41,983	\$206,966	
Office Supplies	Appliances	\$10,252	\$18,138	0.00%	16.65%	\$45,209	\$107,532	
	Art	\$1,913	\$6,528	2.63%	7.49%	\$7,878	\$27,119	
	Binders	\$2,488	\$30,222	1.03%	37.23%	\$9,794	\$203,413	
	Others	\$9,510	\$46,324	1.60%	7.53%	\$40,815	\$157,140	
	Storage	\$6,381	\$21,279	3.24%	7.47%	\$27,638	\$223,844	
Technology	Accessories	\$7,856	\$41,937	0.98%	7.85%	\$33,645	\$167,380	
	Copiers	\$18,079	\$55,618	2.38%	16.18%	\$70,386	\$149,528	
	Machines	\$6,878	\$3,385	1.02%	30.61%	\$33,600	\$189,239	
	Phones	\$23,279	\$44,516	1.68%	15.46%	\$104,627	\$330,007	

Profit, Avg. Discount and Sales broken down by Country vs. Category and Sub-Category. Color shows Profit. The marks are labeled by Profit, Avg. Discount and Sales. The view is filtered on Country, which keeps India and United States.

Figure 7

However, “Nobody is perfect”. In this case, even the best countries have areas that they can improve on. For the US, there are profits gained from most of the sub-category products, except for Bookcases and Tables. Although there is high sales for Tables in the US, there are still losses. This trend follows the general trend across all countries as seen in the results shown in Figure 2. Based on the figure above, the discount for Tables might be the reason for causing a loss. As for Bookcases, it is likely to be the same situation as for Tables.

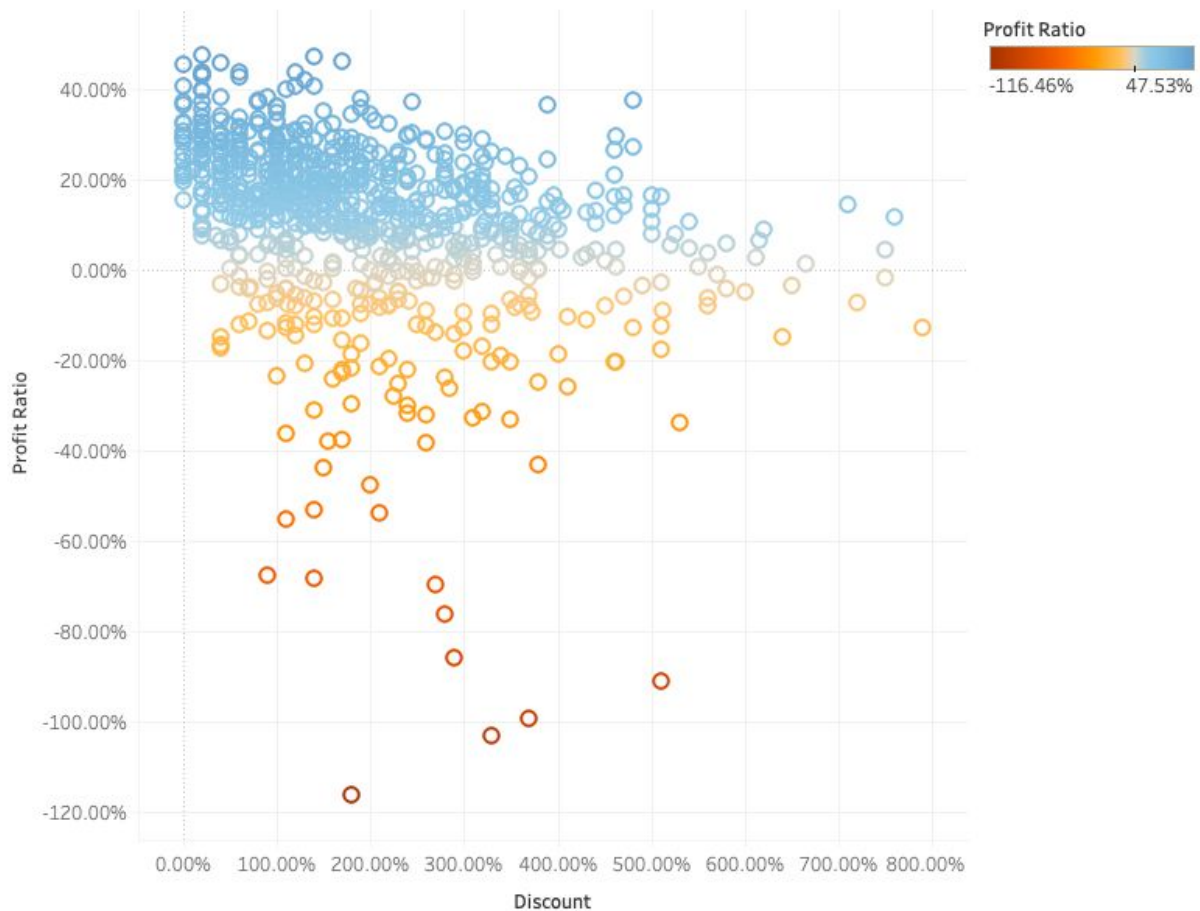
There is insufficient data to find out exactly why Bookcases and Tables are not profitable. It is highly recommended to find out more from the sales managers in the US stores to find out the reason for the losses in Bookcases and Tables since they are the ones who are serving the customers and have a better understanding of the customers. Thereafter, we can evaluate and decide on a strategy to sell these 2 products more profitably. Some methods could be selling tables as a set with chairs or selling bookcases in bundles as it seems like the sales for bookcases are not as high as tables and chairs in the furniture category.

In addition, there is also a bigger range of profits from the sub-category products for the US as compared to that of India. As for India, it has more consistent and positive profits from all of its products.

On average, there is a discount for all products in the US and India. Nonetheless, India's discount is much lower than that of the US. That may be the reason for India's higher profit ratio.

6. Customer Breakdown in US

Profit Ratio vs Discount



Sum of Discount vs. Profit Ratio. Color shows Profit Ratio. Details are shown for Customer Name. The data is filtered on Country, which keeps United States.

Figure 8

Previously, we have found out that the US has higher discount rates as compared to India which is a country that has high profits as well. Nevertheless, Figure 8 above has proven that there is no correlation between the profit ratio and discount rates in the US. The R-squared value is 0.103727, which suggests that it has no linear relationship. We did a check with Shipping Cost and Quantity against Profit Ratio, but it also demonstrated that there is no linear relationship.

Profit Ratio vs Shipping Mode & Order Priority



Profit Ratio for each Ship Mode. Color shows details about Order Priority. Size shows details about Order Priority. The data is filtered on Country, which keeps United States.

Figure 9

According to Figure 9, there is no particular relationship between Shipping Mode & Order Priority and Profit Ratio. However, interestingly, there is a trend for the “Critical” Order Priority. From the figure, we can see that as the shipping mode increases from “Second Class” to “First Class” and to “Same Day”, the profit ratio increases. Hence, it would be recommended for the company to do targeted advertising especially for customers who tend to shop at the very last minute. For them, it will be good to advertise products to them when they are really in need of it and “encourage” them to opt for the “Same Day” shipping mode.

7. Sales Seasonality by Category

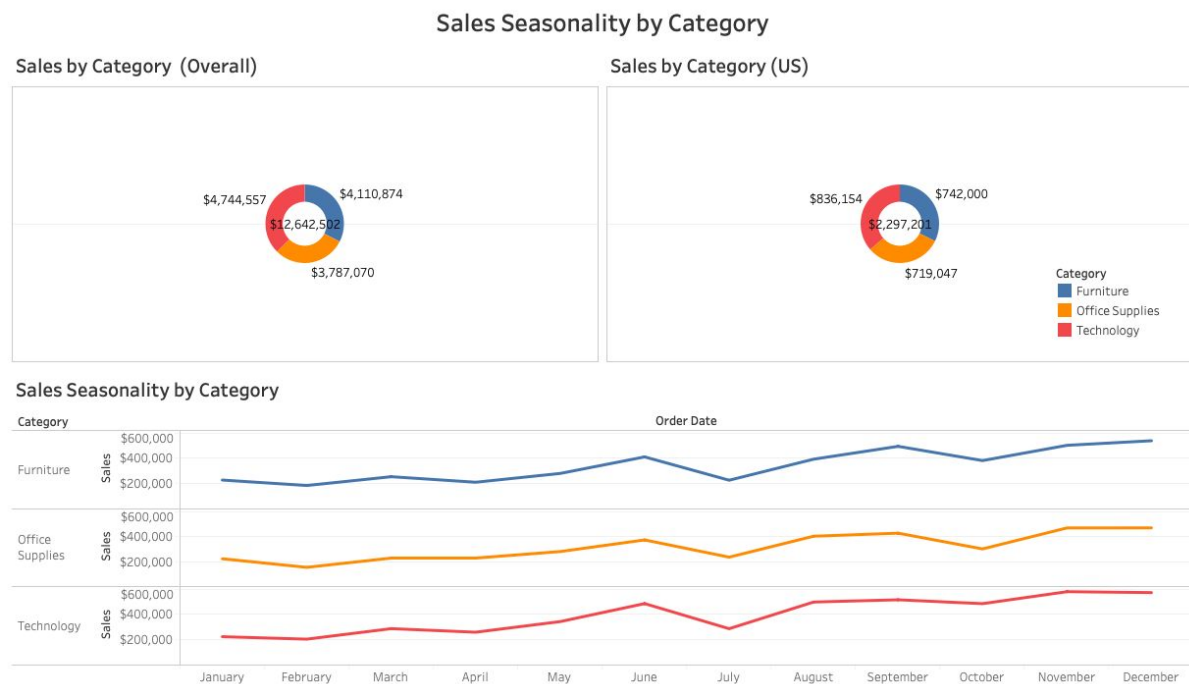


Figure 10

Based on the top part of Figure 10, we know that products in the technology category have the highest sales, be it overall or in the US. The sales divide in the US follows very closely to the overall sales divide. This might perhaps be another method for other countries to increase their sales and profits, which is to follow closely to the general trend.

Last but not least, there is always a seasonal trend in sales because of all the festivals and occasions that humans celebrate. We will now look at the bottom diagram. It represents the overall sales seasonality based on different product categories. There is a slight decrease in from January to February, which may be due to the fact that people go for holidays in December or they splurge too much during the year end sales. Thereafter, the trends seem to be increasing with a small peak in June, which again is another mini holiday period. Then, there is a significant drop in July, which slowly improves till December, with another slight drop in October. December is always the peak because it is the holiday season. It will be good to have more promotions during periods that have lower sales such as in February and July. Since Valentines' Day is in February, it will be beneficial to offer more couple or Valentines' Day related products, to attract customers to buy from our store for their significant other or loved ones.

8. Conclusion

There are some commercial insights and interesting findings found through analysing the data and we have come up with some recommendations to improve the profitability of the company.

Nevertheless, it would be better to talk to both the salesperson and customers in every country to find out the problems that salespeople are facing and also have a greater understanding as to why customers love or hate to shop at our store. With that, the company will be able to boost its growth. It is undoubtedly true that data is essential in improving businesses nowadays, but sometimes, data limits us from getting a real understanding of the problem or cause. Thus, the best way would be to analyze the data we have and go down to the location and find out what the data does not tell us.