**ST2187 Business Analytics, applied modeling and prediction.**

Coursework Report.

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## Summary

The following report is a collection of ideas and insights derived from the exploratory data analysis on provided dataset of a retail company using Tableau software. Such numerical indicators as Sales, Profit, Quantity, Discount were used together with the information on Countries, Customers and Orders to conduct a research and create a general picture of the world trading of particular company.

## Main body

Dashboard 1.

The first dashboard contains an overall analysis of sales by segments and markets and its fluctuation at a particular time interval. The graph on the top of the dashboard shows us the total amount of sales by month from 01.12.2016 to 01.12.2020, presumably in dollars. We can see an uptrend and conclude that number of sales is constantly rising. With the help of packed bubbles visualization, it becomes clear that the consumer segment is the largest one and makes up more than half of all sales. The share of this segment in the market increases over time relative to other 2 segments: corporate and home office. Moreover, it is interesting to note that the peak of sales comes just before the New Year in December, followed by its bottom in January. The table of sales by market and segment confirms the superiority of the consumer segment and also gives us information about the distribution of sales by the market. The largest one is APAC, while the smallest is Canada.

Dashboard 2.

The second dashboard starts with customer analysis by markets. Again we could notice that APAC market is dominating in sales amount, however, the number of customers remains approximately the same among the top 4 markets: APAC, EU, US and LATAM. It shows us the differences in purchasing power depending on the region. For example, take a look at the LATAM market. It has almost the largest number of consumers, but profit and sales are on quite a low level compared to top markets. Then, there is also a list of bottom cities by profit and amount of sales supported by scatter plot of cities by sales. We could conclude which cities are unprofitable for the company and advice it to think about doing business in these cities or reworking the whole delivery system to reduce costs.

Dashboard 3.

On this dashboard, we could emphasize the influence of discounts on profit by country. The histogram on the top of the dashboard show countries with the highest average discount and some of them are highlighted on the other histogram of the most unprofitable countries. For instance, Nigeria, Kazakhstan, Zimbabwe, UAE and Lithuania have an average discount equal to 0.7 and all of them have negative profits. The scatter plot below these histograms could verify the existence of a correlation between discount and profit because the points on the graph clearly show the linear dependence. The best example is Lithuania, it has 70% discount on average, but average loss is equal to $179.3 - worst number among all countries.

Dashboard 4.

From the following table of profit by sub-category and market, we could make a conclusion that selling tables is very unprofitable on most markets. The largest markets APAC, EU, LATAM and US suffer from losses equal to about $20000 in total each. In my opinion, it is better to revise the idea of trading tables in order to avoid losses. This insight is visible on the histogram of profit by sub-category above as well. In addition, on the US market bookcases and supplies are unprofitable. As for the most beneficial sub-categories, we could highlight copiers and phones. The profit from copiers is distributed across all markets almost equivalent, while phones sub-category is beneficial mostly because of huge gains from sales in the APAC market. So, this table could be used to show that every market should be treated individually to avoid losses and maximize profit.

Dashboard 5.

The last dashboard contains product analysis. The horizontal bar graphs show the most and the least profitable products with the coloring on the average profit from these products. As we can see, the best seller is Canon imageCLASS 2200 Advanced Copier, which has a total profit of $25200 and $5040 on average from one sale. It is followed by such products as Cisco Smart Phone and Motorola Smart Phone, which have $17239 and $17027 in total, $454 and $448 on average respectively. The retail company could focus on trading products from this graph to maximize profit. On the other hand, there is a graph of the most unprofitable products. So, Cubify CubeX 3D Printer Double Head Print has a total loss of $8880, losing $2960 on average respectively. Other products have almost the same loss in total - about $3000-$5000. I would recommend paying attention to these products and maybe stopping trading them.