**A red and white logo

Description automatically generatedLYNOVA MOTORS SALES REPORT**

**INTRODUCTION TO DATA PROCESSING AND VIZUALIZATON PROJECT**

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1. **ABSTRACT**

The report is prepared to analyze the sales performance of Lynova Motors between January 2018 and May 2020. Sales revenue has been examined both in total and on the basis of product line, country and customer. The sales volume was examined both in total and on the basis of product line. The sales revenue and volume increased from 2018 to 2019, while decreased from 2019 to 2020. This report shows that sales strategies maybe should be revised.

1. **INTRODUCTION**

In the analysis of this report, the dataset containing 2747 different sales data of the company between January 2018 and May 2020 and the global country information dataset containing many data such as demographic statistics and economic indicators of 195 countries were used. The variables used in the report for both datasets are given in the table below:

A table with text on it

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1. **Data Preprocessing**

There are no missing values ​​or duplicate values ​​in our dataset, but there are variables that needed to be changed and some data that needed to be corrected. The corrections made during the data cleaning and tidying process are as follows (performed with Tableau):

- Order Number and Order Line Number variables are set as dimensions. (These variables are not used in the EDA)

- Gasoline Price variable is converted from string data type to decimal number data type and become measure. (This variable was not used in the EDA)

- GDP variable is converted to number whole data type and become measure. (This variable is not used in the EDA)

- In order for the names of the countries to be in the same format, “USA” is changed to “United States of America”; “UK” is changed to “United Kingdom” and in order for the names of the cities to be in the same format, “NYC” is changed to “New York City”. This is done via the “aliases” setting of the required field via Tableau.

Outlier analysis is performed for the sales revenue generated for each product code in each order.

A graph of sales

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A total of 75 of the 2,747 sales are outlier value sales. 11 of these are classic car sales, 15 are motorcycle sales, 15 are airplane sales, 8 are ship sales, 3 are train sales and 23 are vintage car sales. No outlier data is found for truck and bus sales.

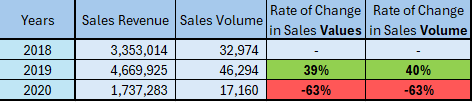
1. **Exploratory Data Analysis (EDA)**

Data analysis is performed via Tableau. There are 5 research questions are answered fort his research:

1. What are the company's annual, quarterly and monthly sales revenue and sales volume values?

A graph with a line

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A graph of a graph

Description automatically generated with medium confidence The Annual Sales Revenue and Volume graph shows that sales revenue and volume increased in 2019 compared to the previous year and decreased in 2020 compared to the previous year, and the least sales revenue and volume were achieved in 2020. Annual sales revenue and sales volume values ​​are shown in the table below. According to these values, the rate of change of sales value and volume over the years is almost same, and while there was a 40% increase in 2019 compared to 2018, there was a 63% decrease in 2020 compared to 2019.

A table with numbers and a number of sales

Description automatically generated with medium confidence

When we look at the Quarterly Sales Revenue and Volume graph, we see that sales and volume values ​​​​had a very serious increase from September to November in both 2018 and 2019, and a very serious decrease from November to December. We see that these values ​​​​increased approximately 3 times from September to November in 2018 and decreased by approximately 3/4 from November to December, and increased approximately 2.3 times from September to November in 2019 and decreased by approximately 65% ​​from November to December. We see that sales and volume increased from March to April in both years, but there was a decrease of approximately 31% from March to April in 2020. According to a report by Statista(2023), we see that car sales in Europe decreased by 65% ​​between March and April 2020 due to the pandemic. Lynova Motors' sales and volume values ​​may have also experienced a decline due to the pandemic between these dates.

1. What is our distribution of sales revenue and volume by product lines and is there a particular product line that specially impacted the decline in sales values ​​between 2019 and 2020?

A graph of sales

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A graph with different colored lines

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When all sales are analyzed, it is seen that approximately 58% of sales revenue and approximately 56% of volume are provided by car sales (both classic and vintage). Train sales occupy the smallest share with 2% sales revenue and 3% sales volume. When we look at the change in our sales values ​​for each product between the years, the sales values ​​of each product line increased from 2018 to 2019 and decreased from 2019 to 2020, as did the change in our total sales revenue and volume.

1. Which are the top 3 countries where the company get the most sales revenue?

A map of the united states

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A blue and green rectangular grid

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The country where the company get the most sales revenue is the United States, while the other two countries where the company get the most revenue are Spain and France, respectively. The revenue the company get from the United States is approximately 3 times the revenue the company get from each of these two countries. San Rafael and New York City are the top two cities with the largest share of the revenue the company get from the United States of America.

A screenshot of a computer

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A graph with blue lines

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However, when we look at the top 5 countries with the largest populations among the countries we sell, we see that the population of the United States of America is approximately 15 times than France. This population difference may also be the reason for the difference in sales revenue. We can make a more accurate analysis by comparing sales revenue of country populations. According to this analysis, we see that the top 3 countries with the highest sales revenue relative to population are Finland, Norway and Singapore, respectively.

1. Which countries have the company started to sell and which countries have the company did not sell since 2018?

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When we look at our table, which has been filtered to indicate the countries we do not sell to each year; we see that we started selling to Ireland, Japan and Switzerland in 2019. However, we see that we withdrew from the other 5 countries (Germany, Ireland, Norway, Philippines, and Switzerland) except Japan in 2020. The fact that we no longer sell to Norway may be an important issue because it was among the countries with the highest income in proportion to the population.

1. From which customers that company get the most sales revenue?

A graph of a bar chart

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Our top revenue generating customers are: Euro Shopping Channel (from Spain), Mini Gifts Distributors Ltd. (from USA), Australian Collectors Co. (from Australia), Muscle Machine Inc. (from USA), La Rochelle Gifts (from France). The top two revenue generating customers, Euro Shopping Channel and Mini Gift Distributors Ltd., account for approximately 25% of total sales revenue. There were no sales to the Australian Collectors Co., the customer from which the highest revenue was generated, in 2020.

1. **Conclusion**

The sales revenue and volume increased by approximately %40 from 2018 to 2019, while decreased by approximately %63 from 2019 to 2020. The most product sales were exhibited in the classic car category while the city where the most sales revenue was obtained was determined as the New York City. The country with the highest sales revenue in proportion to the population is Finland. There were no sales to the 5 countries where sales were made in 2020. The customer with the highest sales revenue is the Euro Shopping Channel (from Spain). The company's total sales revenue and volume seem to be decreasing. It should be investigated whether this decrease is due to the economic conditions of the countries, political reasons, company policies or sales strategies. It may also be important to investigate why we no longer sell to the countries where sales have stopped and why sales are no longer being made to the 3rd customer with the highest sales revenue, Australian Collectors Co., or at least why sales were not made in 2020.

References

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