**PART 1 : DATA CLEANING:**

\* Missing values were not deleted because its rows might be needed for later analysis, missing values are highlighted in yellow via conditional formatting.

\*To clean data I duplicated the uncleaned data (named the duplicate cleaned data) then took each column to the cleaning room one by one (documented the cleaning process in the cleaning room sheet then just pasted back the finish product(column) on its original column in the cleaned data sheet.

\*For numbers you just need to make sure the formatting is appropriate

\*All formatting was executed correctly

\*For the column sales date A was corrupted and the adjacent column just had the month, the later was deleted and a right and left function was used on the prior to extract the year and month into separate columns, the sales date A column was then hidden

**PART 2 : DATA ANALYSIS AND VISUALIZATION**

\*The total vehicle sales by value is the sum of all sales prices (values)

\*the total vehicle sales by unit is the number of vehicles sold(we count by vin as to be sure)

\*We don’t need to calculate the average selling price by make / model we can just make a pivot table for that

\*to calculate sales performance by vehicle category i just added a column to the pivot table that was showing sales by vehicle category , and that column is just showing the share of each specific category in the total sum of sales by vehicle category

\*for the combined charts i went with a vehicle category sales per region in order to identify the best performing category in each region and to make recommendation accordingly.

**PART 3 : INSIGHTS AND RECOMMENDATIONS**

1/ the best performing make is Toyota, and the best performing model is the Nissan GTR but that is mainly due to its high selling price if we were looking at the most quantity sold that would be the Toyota prius. Overall Toyota is the best performing make/model by quantity and sum of sales.

we can also notice that there are seasonal patterns in car buying , the year starts slow but in an upwards direction its reach a high point in the month of July but start dropping back down right after probably due to the start of the school year, it again starts picking up momentum where it peaks at the end of the year.

2/

.According to the vehicle category sales per month chart, we can notice that the coupe category witnessed the sharpest rise in sale volume. It went from 200 to almost 600 k between the months of July and December. On the other hand, the SUV category is seeing the most stable growth rate over the months.

There is not really a shift in consumer preferences when it comes to fuel type. If we look at the fuel type per qty sold chart, we can see that it is still all clustered around gasoline. Even during the year, there is not that big of a change, and all fuel types pretty much stay at the same level.

We can comment on vehicle category sales’ correlation to time periods if we look at the category sales per month chart. Coupes are in demand during peak season (July and December). Hatchbacks experience their peak during spring. Sedans too but have a much larger volume and a more steady growth. Trucks are only in demand during summer, and SUVs perform well year-round.

If we compare market segment by quantity sold, we can clearly see that premium models (luxury) perform slightly better than economy models, but both are outclassed by standard models.

3.

According to my findings, it would be recommended to grow the SUV inventory because they perform well year-round, which brings stability and a steady flow of income.

It would also be recommended to revise the eco\_friendly segment pricing to better performance( it is the worst performing segment).

Marketing campaigns should also be revised for certain vehicle categories in each area. For example, hatchbacks should be marketed more in the West, SUVs in the Midwest, and the Northeast. (This is according to the vehicle category per region analisys

seasonal promotions are also encouraged for the start of the year and the start of the school year. This is in order to encourage buying during the low season (this is based on historical buying patterns throughout the year).