First, we have created a storage container in azure, in azure datalake gen 2 storage from there we have connected it to power BI using account sign key and load the data into power BI.

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**Data Cleaning:**

Now we can see the data, and performing the data cleaning to check we using power query, to check quality of data.

By using transform Data

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There are no error or empty in the dataset

In any data valid should be always 100%

Empty can be null or blank.

Date should be all the 100%.

We can say the price shouldn’t be null and price is like fact here. Customer name is dist. value

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Then we close and apply .

**Calendar Table :**

Now are creating a Calendar table, where in our first KPI requirement we are doing sales overview for year-to-date(YTD), month-to-date(MTD),year-over-year(YOY). These are called by Microsoft as time intelligence function.

*q)Why to create a calendar table?*

*a)A calendar table allows you to run reports with flexibility, efficiency, and most importantly, it is necessary for time intelligence functions. Therefore, every model should include such a table (sometimes more than one).*

In the home tab, we have new table

Now are using Dax coding to build, so we name it as date table

Command: Date Table = CALENDAR(min(carsalesdata[Date]),MAX(carsalesdata[Date]))

It automatically pick up

It will have all the dates

Command: Year = YEAR('Date Table'[Date])

To extract year

Command: Month = FORMAT('Date Table'[Date],"MMMM")

For month we use format, because month command gives us the number so we are using format to extract string.

Command : Week = WEEKNUM('Date Table'[Date])

To extract the week num

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The tables are independent from each other, so we want to depented on each other now we use data modelling.

**Data Modelling:**

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Connect the date column in carsalesdata with date in datetable, in many to 1.

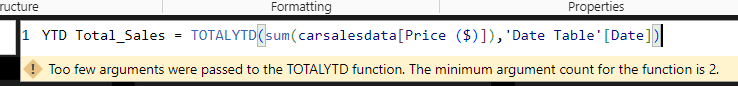
Carsalesdata (fk) , datetable(pk)

* We have used the canvas background which we have created. In visualizations -> Format-> canvas background upload it and transparency to 0%
* Canvas settings -> vertical alignment to middle

1st Total Sales KPI :

In the data right click -> new measure

Command : YTD Total\_Sales = TOTALYTD(sum(carsalesdata[Price ($)]),'Date Table'[Date])



Here the Total YTD data picks the latest year from dataset. Ytd sales we are using card from visualizations to show case the ytd sales.

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We have now perfom some formatting that, now have to turn off the background

**A screenshot of a computer

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Now create a new measure

Command : PYTD Total\_Sales = CALCULATE(SUM(carsalesdata[Price ($)]),SAMEPERIODLASTYEAR('Date Table'[Date]))

Command : Sales Difference = [YTD Total\_Sales]-[PYTD Total\_Sales]

Q) Now if whenever sales are +ve and if diffence is +ve should be in green

And if difference if -Ve it should be in red should be dynamic and automatically it should be done.

Command : Sales Diff Colour = IF([Sales Difference]>0,"Green","Red")

Create a new measure sales diff colour

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In format, we could see fx(conditional formatting), select format style as rule :

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A screenshot of a computer

Description automatically generated

We will next is year on year sales growth

Command : YOY Sales Growth = [Sales Difference]/ [PYTD Total\_Sales]

A screen shot of a computer

Description automatically generated

Change this

Next, mtd sales :

Command : MTD Total\_Sales = TOTALMTD(sum(carsalesdata[Price ($)]),'Date Table'[Date])

Next for the MTDKPI:

Command : MTD KPI = CONCATENATE("MTD Total Sales :",FORMAT([MTD Total\_Sales]/1000000,"$0.00M"))

**The Finial 1st KPI Output**

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KPI 2 :

We need to find the price of car :

Command : Avg Price = SUM(carsalesdata[Price ($)])/COUNT(carsalesdata[Car\_id])

Year to date price :

Command : YTD AVG Price = TOTALYTD([Avg Price],'Date Table'[Date])

Previous Year date Price :

Command: PYTD AVG Price = CALCULATE([Avg Price],SAMEPERIODLASTYEAR('Date Table'[Date]))

Now, to Find the Avg Price Difference:

Command : AVG Price Difference = [YTD AVG Price]-[PYTD AVG Price]

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Description automatically generated

We are getting like this means the value is -ve

For changing colour we create another measure

Command: AVG Price colour = IF([AVG Price Difference]>0,"Green","Red")

YOY avg price growth:

Command: YOY AVG Price Growth = [AVG Price Difference]/[PYTD AVG Price]

MTD AVG Price: -

Command: MTD AVG Price = TOTALMTD([Avg Price],'Date Table'[Date])

MTD AVG KPI: -

Command: MTD AVG Price KPI = CONCATENATE("MTD AVG Price :",FORMAT([MTD AVG Price]/1000,"$0.00K"))

A screenshot of a video game

Description automatically generated

**3 KPI :**

YTD cars Sold :

Command : YTD Cars Sold = TOTALYTD(count(carsalesdata[Car\_id]),'Date Table'[Date])

count(carsalesdata[Car\_id]) -> count of field of need to be unique to find to count of the cars year cars sold.

Previous year cars sold :

Command : PYTD Cars Sold = CALCULATE(COUNT(carsalesdata[Car\_id]),SAMEPERIODLASTYEAR('Date Table'[Date]))

Cars sold difference :

Command : Cars Sold Difference = [YTD Cars Sold]-[PYTD Cars Sold]

Cars sold colour:

Command : Cars Sold Colour = IF(carsalesdata[Cars Sold Difference]>0,"Green","Red")

YOY Cars Sold :

Command : YOY Cars Sold Growth = [Cars Sold Difference]/[PYTD Cars Sold]

MTD Cars Sold

Command : MTD Cars Sold = TOTALMTD(COUNT(carsalesdata[Car\_id]),'Date Table'[Date])

MTD Cars Sold KPI :

Command : MTD Cars Sold KPI = CONCATENATE("MTD Cars Sold : ",FORMAT([MTD Cars Sold]/1000,"0.00"))

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**KPI Chat Requirements :**

**Problem Statement:-**

**YTD Sales Weekly Trend:** Display a line chart illustrating the weekly trend of YTD sales. The X-axis should represent weeks, and the Y-axis should show the total sales amount.

First, we take area chart and in the x-axis as we have already calculated the week.

In y axis we take directly the price.

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Then add filter.

A screenshot of a computer

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We are only taking 2023. In the filter.

In the format -> general -> grid lines turn off both horizontal and vertical. And on markers and next we need to find the max week sales with yellow point showing that is the max sales.

Creatre max point :

Command : Total Sales = SUM(carsalesdata[Price ($)])

Then create that point we are using MAXX

Command :

Max Point = IF(MAXX(ALLSELECTED('Date Table'[Week]),[Total Sales])=[Total Sales],MAXX(ALLSELECTED('Date Table'[Week]),[Total Sales]),BLANK())

A screenshot of a computer

Description automatically generated

Now turn off the legends , and in markers :

A screenshot of a computer

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Now turn on the data labels and turn off the data lables for series, only on for max point

A screenshot of a computer

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A graph of blue lines and numbers

Description automatically generated

The border for horizontal are off but it is still showing

**Problem Statement 2 :**

**YTD Total Sales by Body Style:** Visualize the distribution of YTD total sales across different car body styles using a Pie chart.

A screenshot of a computer

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Copy area chart from format painter and copy on it

A chart with different colors and text

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**Problem statement3 :**

**YTD Total Sales by Color: Present the contribution of various car colors to the YTD total sales through a pie chart.**

Copy paste the previous donut chart and change legend from body style to colour

**A screenshot of a computer

Description automatically generated**

**A screenshot of a computer

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Using sicles changed the colour

**Probl0em Statement 4 :**

YTD Cars Sold by Dealer Region: Showcase the YTD sales data based on different dealer regions using a map chart to visualize the sales distribution geographically.

Now click on map from visualization :

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A screenshot of a computer

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A map of the united states

Description automatically generated

**Problem Statement 5 :**

**Company-Wise Sales Trend in Grid Form:** Provide a tabular grid that displays the sales trend for each company. The grid should showcase the company name along with their YTD sales figures.

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Visualization - > table

Add the columns.

**Data Flow**

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**Data Modelling:**

Link : <https://app.powerbi.com/reportEmbed?reportId=e5e61871-92c0-43bd-9aa7-7095d11b2a89>

**Background**: Our company is a car dealership that sells various car models. To effectively track and analyse our sales performance, we need a comprehensive Car Sales Dashboard in Power BI.

**Objective**: The objective of this project is to design and develop a dynamic and interactive Car Sales Dashboard using Power BI. The dashboard will visualize critical KPIs related to our car sales, helping us understand our sales performance over time and make data-driven decisions.

**Problem Statement 1: KPI’s Requirement**

The dashboard should provide real-time insights into key performance indicators (KPIs) related to our sales data. This will enable us to make informed decisions, monitor our progress, and identify trends and opportunities for growth.

1. **Sales** **Overview**:
   * Year-to-Date (YTD) Total Sales
   * Month-to-Date (MTD) Total Sales
   * Year-over-Year (YOY) Growth in Total Sales
   * Difference between YTD Sales and Previous Year-to-Date (PTYD) Sales
2. **Average Price Analysis:**
   * YTD Average Price
   * MTD Average Price
   * YOY Growth in Average Price
   * Difference between YTD Average Price and PTYD Average Price
3. **Cars Sold Metrics:**
   * YTD Cars Sold
   * MTD Cars Sold
   * YOY Growth in Cars Sold
   * Difference between YTD Cars Sold and PTYD Cars Sold

**Problem Statement 2: Charts Requirement**

1. **YTD Sales Weekly Trend:** Display a line chart illustrating the weekly trend of YTD sales. The X-axis should represent weeks, and the Y-axis should show the total sales amount.
2. **YTD Total Sales by Body Style:** Visualize the distribution of YTD total sales across different car body styles using a Pie chart.
3. **YTD Total Sales by Color:** Present the contribution of various car colors to the YTD total sales through a pie chart.
4. **YTD Cars Sold by Dealer Region:** Showcase the YTD sales data based on different dealer regions using a map chart to visualize the sales distribution geographically.
5. **Company-Wise Sales Trend in Grid Form:** Provide a tabular grid that displays the sales trend for each company. The grid should showcase the company name along with their YTD sales figures.
6. **Details Grid Showing All Car Sales Information:** Create a detailed grid that presents all relevant information for each car sale, including car model, body style, colour, sales amount, dealer region, date, etc