Here, I add a few reference videos that provide insights into creating some software applications and functions. These resources will give you a clear understanding of how to develop functions, and a universal approach to creating content within Power BI for your project

THINGS TO ANALYSIS

Setting Up Environment

ENVIRONMENT SETUP	
Installing PostgreSQL Database	https://youtu.be/HmziePvMwkE?si=-iq1-vvYtJiEulYB

Installing Power BI	• Download Power BI Desktop:
	  ○ Visit the Power BI Desktop download page (https://powerbi.microsoft.com/en-us/desktop/) and download the Power BI Desktop installer for your operating system.
	• Run the Installer:
	  ○ Run the downloaded Power BI Desktop installer.
	• Install Power BI:
	  ○ Follow the installation wizard's instructions to install Power BI Desktop on your computer.

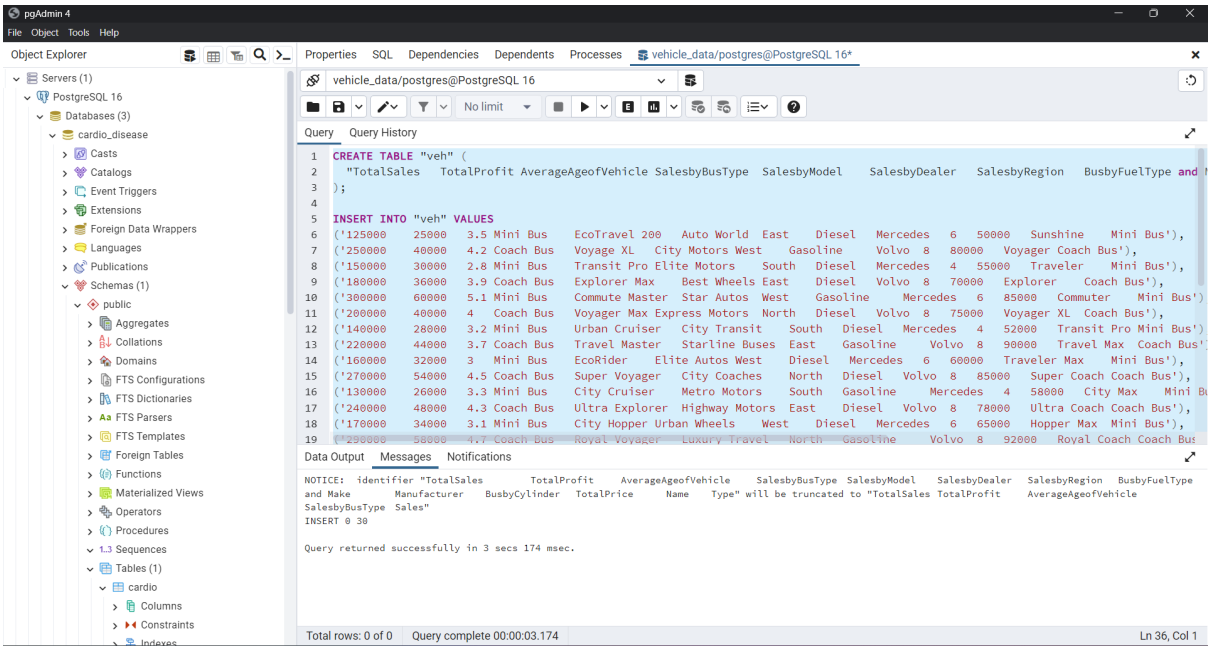
Creating Database

Creating a PostgreSQL Database and Adding Data	
Opening PostgreSQL	• Ensure PostgreSQL is Installed and Running:

	○ Make sure PostgreSQL is installed on your system and is running as a service. If it's not running, you can start it. ● Open pgAdmin: ○ Locate the pgAdmin application on your system. ○ Launch pgAdmin by double-clicking its icon. ● Connect to Your PostgreSQL Server: ○ In pgAdmin, on the left-hand panel, you will typically see "Servers." Right-click on "Servers" and choose "Connect Server." ● Provide Connection Details: ○ In the "Connect to Server" dialog box, you will need to provide the following information: ■ Host name/address: This is the hostname or IP address where your PostgreSQL server is running. It's usually "localhost" if PostgreSQL is installed on your local machine. ■ Port: The default port for PostgreSQL is 5432, but it may be different if you've configured it otherwise. ■ Username: Your PostgreSQL username. ■ Password: Your PostgreSQL password. ■ Data connectivity mode:Import ● Connect to the Server: ○ After providing the connection details, click the "Connect" button.
Create a Database in PostgreSQL:Open PostgreSQL Workbench and connect to your ● To create a new database, you can execute the following SQL command in PostgreSQL	● Once connected to your PostgreSQL server, you can create a new database by executing SQL commands. ● In your SQL editor within PostgreSQL Workbench, execute the following SQL command to create a new database, replacing

	your_database_name with the desired name for your database: CREATE DATABASE vehicle_data; • After executing this command, the new database will be created.
Create a Table:	https://youtu.be/9PxaTPZIYmc?si=wG8WEmhlNw0itxuD
Insert Data:	https://youtu.be/9PxaTPZIYmc?si=wG8WEmhlNw0itxuD

I already created table and fields, you just copy and paste and run in the PostgreSQL

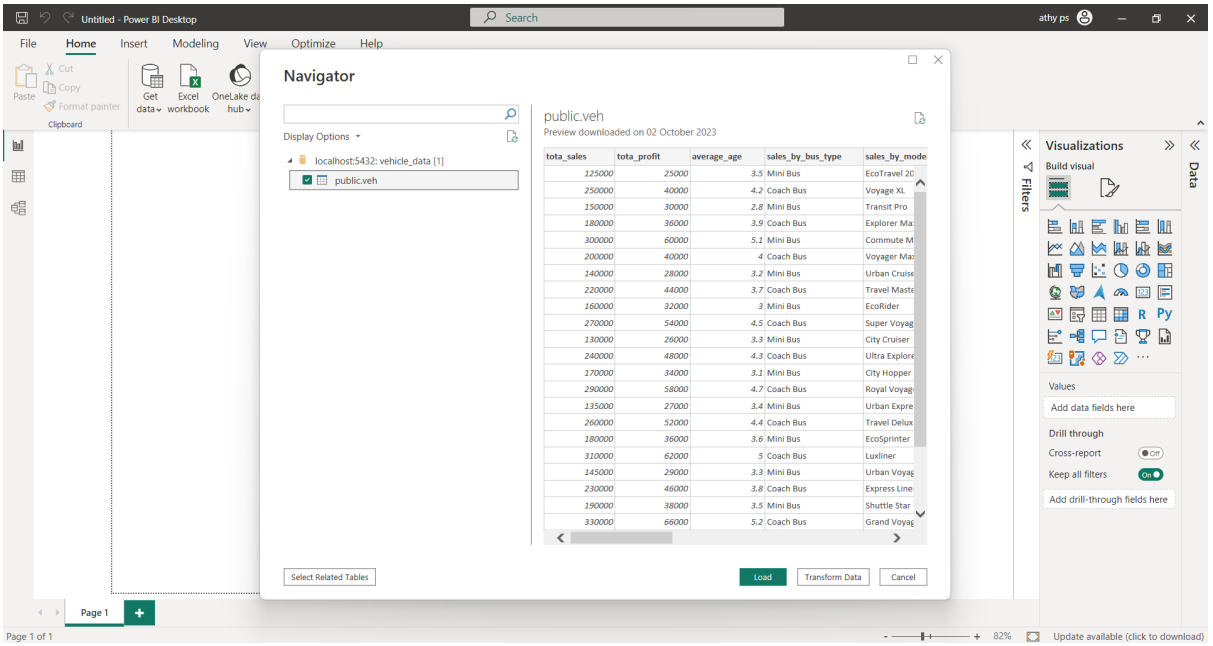


ETL Process with Power BI

ETL WITH PostgreSQL AND POWER BI	
Connecting, Extracting	• Open Power BI Desktop:

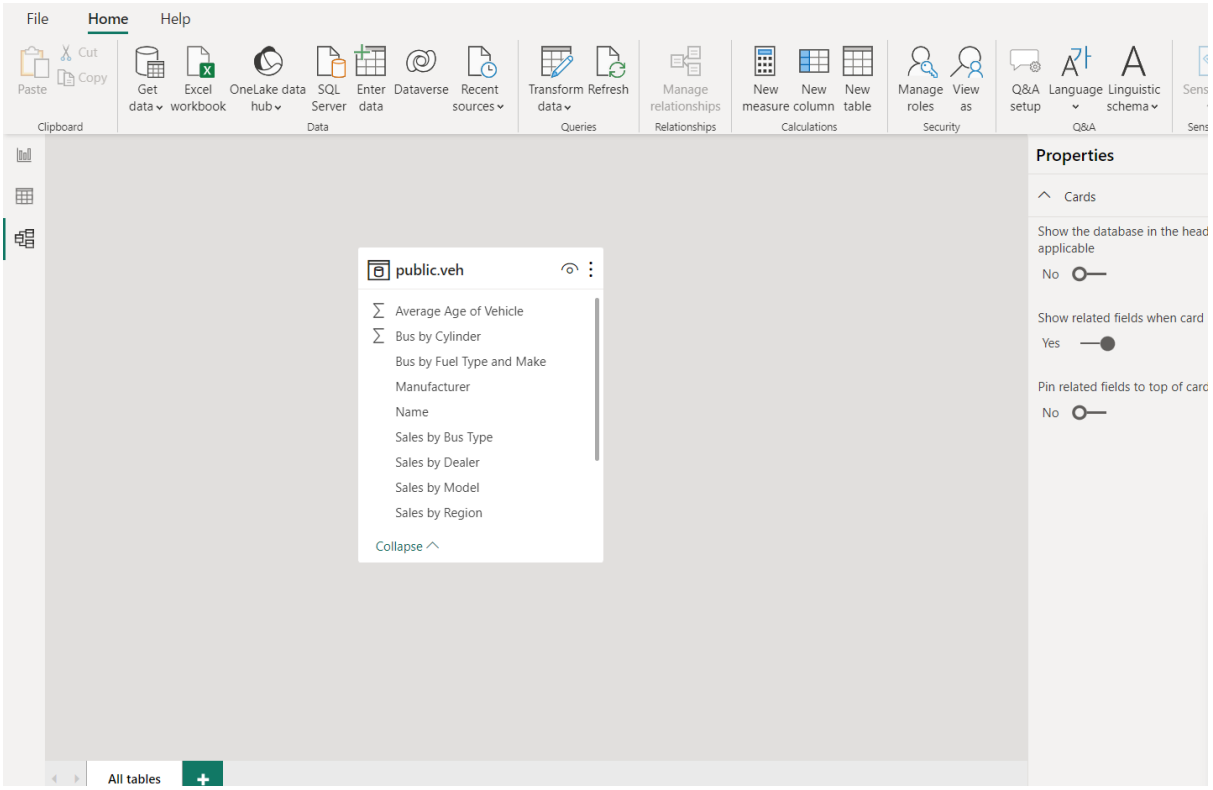
	○ Launch Power BI Desktop after it's installed on your computer. ● Connect to PostgreSQL Database: ○ In Power BI Desktop, click on "Get Data" from the Home tab. ● Choose PostgreSQL Database: ○ In the "Get Data" window, select "Database" and then "PostgreSQL database." Click "Connect." ● Provide Connection Details: ○ In the PostgreSQL database connection dialog: ■ Enter the Server Name: This is the address of your PostgreSQL database. Eg:localhost:1234 ■ Enter the Database Name: This is the name of the PostgreSQL database you created. Database:vehicle_data ■ Choose Data connectivity mode as Import ■ Click "OK." ● Navigator Window: ○ In the Navigator window, you'll see a list of tables and views from your PostgreSQL database. Select the tables you want to import into Power BI by checking the boxes next to them. ○ Click "Load" to bring this data into Power BI.
Transforming	● Select Tables: ○ Review the list of tables and views, and select the ones you want to import into Power BI. To do this, check the boxes next to the tables or views you wish to include in your data transfer. ● Data Transformation (Cleaning and Checks): ● Data Type Conversion: ● In Power Query Editor, select the column you want to convert to a different data type. ● Right-click on the selected column. ● Choose "Change Type" from the context menu. ● Select the desired data type (e.g., Date, Number, Text) from the submenu. ● Power Query will attempt to convert the data in the selected column to the chosen data type.

	Ensure that the conversion is successful, as errors can occur if the data cannot be converted as intended. ● Repeat these steps for any other columns that require data type conversion. ● Handling Missing Values: ● To handle missing values, you can use various techniques in Power Query, including: ○ Remove Rows: To remove rows with missing values, select the column containing missing values, right-click, and choose "Remove Rows" > "Remove Blank." ○ Fill Down or Up: To fill missing values with adjacent values, select the column, right-click, and choose "Fill Down" or "Fill Up." ○ Replace Values: To replace missing values with specific default values, select the column, right-click, and choose "Replace Values." ○ Interpolation: For more advanced handling, you can use interpolation techniques to estimate missing values based on existing data. ● Choose the appropriate method based on your data and analysis requirements. ● Removing Duplicates: ● In Power Query Editor, select the table or tables where you want to remove duplicate rows. ● Click on the "Remove Duplicates" button in the "Home" tab. ● A dialog box will appear, allowing you to select the column(s) based on which you want to identify duplicates. You can select one or more columns. ● Click the "OK" button to remove duplicate rows based on your selection. These steps should help you convert data types, handle missing values, remove duplicates, and calculate the average age of vehicles in Power Query within Power BI.
Loading	● Load Data: ○ Once you've completed data transformation and enrichment, click "Close & Apply" in the Power Query Editor to load the data into Power BI.



DATA MODELLING

Single-table-model	I have a table from PostgreSQL that doesn't have any relationships with other tables, you can call it a "standalone table" or a "single-table model." This means that the table exists independently in your data model without any connections or relationships to other tables. You can use it for creating reports and visualisations that solely rely on the data within that table.



CREATE VISUALIZATION

CHART CREATION		
Total Sales-Card chart		○ Drag and drop the "Sales" field into the Values area. ○ Choose the "Card" visualization type.
Total profit-Card chart		• Drag and drop the "Profit" field into the Values area. • Choose the "Card" visualization type
Average year of vehicles-Card chart		• Select Average year of vehicles column • Click on "•••" on this icon • Click New measure • A new measure appear • Type Average age = AVERAGE([Average Age of Vehicle])

		• Drag and drop the "Average age" field into the Values area. • Choose the "Card" visualization type
Sales percentage by Bus Type-		• Drag and drop the "Bus Type" field into the "Values" area of your visualization. • For the "Sales" field, drag it into the "Values" area as well. • Click on the "Visualization" type selector (it looks like a chart icon) in the "Visualizations" pane. • Choose the "Pie Chart" visualization type

Sales by Model- Clustered Bar chart		• Defining the Chart Axis:
		  ○ Drag and drop the "Model" field into the "Axis" or "Category" area of the clustered bar chart. This will define the categories or X-axis values.
		  ○ Drag and drop the "Sales" field into the "Values" area of the clustered bar chart. This will define the values or heights of the bars.
		• Data Sorting:
		  ○ Depending on your data, you might want to sort the

		bars in the chart to make it more meaningful. You can do this by clicking on the "Sort ascending" or "Sort descending" options in the "Visualizations" pane.
Sales by dealer-Clustered Bar chart		● Defining the Chart Axis: ○ Drag and drop the "Dealer" field into the "Axis" or "Category" area of the clustered bar chart. This will define the categories or X-axis values. ○ Drag and drop the "Sales" field into the "Values" area of the clustered bar chart. This will define the values or heights of the bars. ● Data Sorting: ○ Depending on your data, you might want to sort the bars in the chart to make it more meaningful. You can do this by clicking on the "Sort ascending" or "Sort descending"

		options in the "Visualizations" pane.
Bus by fuel type and Manufacturer-Clustered Column chart		● Defining the Chart Axis: ○ Drag and drop the "Bus by fuel type" field into the "Axis" or "Category" area of the clustered column chart. This will define the categories or X-axis values. ○ Drag and drop the "Manufacturer" field into the "Y axis" area of the clustered column chart. This will define the values or heights of the columns. ○ Drag and drop “Type” to the Legend area ○ Data Sorting: ○ Depending on your data, you might want to sort the columns in the chart to make it more meaningful. You can do this by clicking on the "Sort ascending" or "Sort descending" options in the "Visualizations" pane.

Cylinder count and Manufacturer-Funnel Chart		• Defining the Funnel Stages:
		  ○ Drag and drop the "Cylinder Count" field into the "Values" area of the funnel chart.
		  ○ Drag and drop the "Manufacturer" field into the "Category" or "Axis" area of the funnel chart. This will create different stages for each manufacturer.
		• Data Sorting:
		  ○ Depending on your data, you might want to sort the stages of the funnel chart to make it more meaningful. You can do this by clicking on the "Sort ascending" or "Sort descending" options in the "Visualizations" pane.

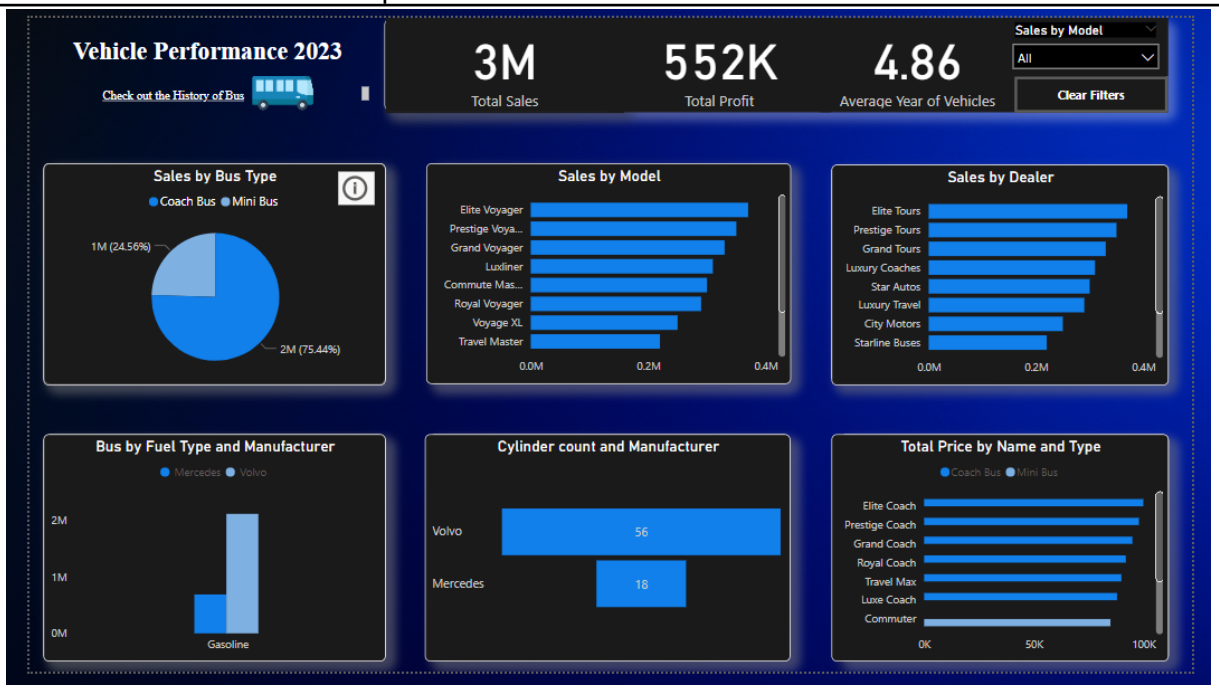
Total price by name and type-Clustered Bar chart		• Drag and drop the "Name" field into the "Axis" or "Category" area. • For the "Total Price" field, drag it into the "Values" area. • Choose the "Clustered Bar Chart" visualization type.

INSIDE CHART CUSTOMIZATION FOR ALL CHARTS	
Changing Chart Colors to Blue	• In the "Format Visual" pane, scroll down to the "Bars" section • Under “colors” select your colour
Turning Off Gridlines	• In the "Format Visual" pane, scroll down to the "Gridlines" section. • Under “Vertical”Toggle off the "Grid" switch to hide gridlines on the chart.
Title Heading Alignment to Center	• In the "Format" pane, scroll down to the "Title" section. • Under "Alignment," select "Center" to align the chart title to the center.
Hiding Y-Axis Title	• In the "Format" pane, scroll down to the "Y-Axis" section. • Toggle off the "Title" switch to hide the Y-axis title.
Hiding X-Axis Title	• In the "Format" pane, scroll down to the "X-Axis" section. • Toggle off the "Title" switch to hide the X-axis title.
Do these steps together for a glowing border for each charts: These steps will help you customise the appearance of your charts in Power BI as per your specific preferences. Make sure to repeat these steps for each chart you want to modify	

• Adding Shapes	○ In the "Insert Tab” ○ Under the "Shapes" section ○ Choose the shape you want (e.g., Rectangle). Resize and position the shape as needed by clicking and dragging its edges and corners.
• Applying White Glow Effect	• Under Format Pane, Shape, Select “Style” • Select Shadow • Choose a colour,burness,transparency and position • Then scroll down to the Glow option • Select colour,transparency and Blurriness
• Customising Shape Properties:	• To further customise the shape's appearance, you can adjust its fill colour by • Select Fill option under Style • Select colour and transparency • Under border,choose colour, and border thickness and transparency
• Layering Shapes	To ensure the shape appears in the background, you may need to adjust the layering order: • Clickon the shape. • Click Format Tab • Click “Send backward” • Choose "Send to Back" to move the shape behind the chart.

DASHBOARD CUSTOMIZATION AND INTERACTIVITY	
Adding background images	• Go to the "Format Page" tab: In Power BI Desktop, click on the "Format" tab located in the ribbon at the top of the application window. • Select "Wallpaper" and choose an image
adding images/logo	• To insert images or logos into your report, you can use the “Insert Tab” then"Image" • Select your logo/picture • I am using logos from the site “ flaticon.com”.
Creating Info icons	• To create info icons, you can add text boxes or shapes from the "Insert" tab's "Buttons". • Under the Format pane,Button,Click on the toggle of Action button. • Toggle on the Tooltip • Type the text you want to show
Adding URL/Hyperlinks	• Click on the Insert tab • Select the Text Box • Click on the link icon • Type/paste the link,Done.
Adding Filters	https://youtube.com/shorts/s5RULdBfU2o?si=ukpXNrwb1cGEUbgz
Adding Slicer	https://youtu.be/2JH-3qhmeiY?si=yG6bs_oNM23OBC2y

Creating “Reset All” button	1. https://youtube.com/shorts/SzjSzc_BBwc?si=Cx_i9sL_UQ97VxVh



Testing and Validation

Testing and Validating	

Preview of Report, Testing the interactivity	• Preview Your Report:
	  ○ Click "View" and then "Report" to preview your report and dashboard.
	• Interact and Test:
	  ○ Interact with your report to ensure that visualisations respond correctly to filtering and drill-through actions.
	  ○ Validate that calculated measures provide

	accurate results.

Deployment

Deployment	
Saving files	• Click "File" > "Save" to save your Power BI Desktop file.