

Axon Retailer Sales Analysis

(Odin School – PowerBI Capstone Project)

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Axon Retailer Sales Analysis

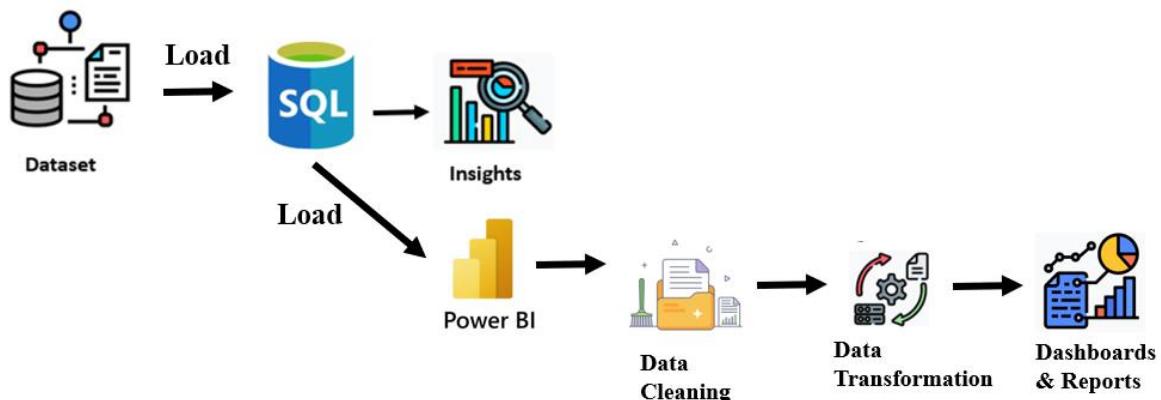
Business Problem: Sales Analysis of “Axon company”

Axon is a small company, which is a retailer selling classic cars, is facing issues in managing and analyzing their sales data. We need to manage and analyze their sales data and create sales reports for better decision-making. Given dataset named “Classicmodels” contains 8 Tables. This dataset contains information about Customers, Employees, Products, Order details. We need to use Business Intelligence (BI) tools like Microsoft PowerBI and SQL for this project.

Proposal:

Axon company has given their past three years of data which contains information regarding their orders, sales, customers, employees and offices. We need to analyze this data and retrieve meaningful insights from it. First, we need to load these files into MySQL and using few queries we can retrieve some meaningful insights. Later we load this sql file into PowerBI and do data cleaning and data transformation. And then create interactive Sales dashboards in PowerBI and retrieve meaningful insights and sales reports through which Axon company can make better decision-making.

Tools Required: MySQL, PowerBI



Proposal for Sales Analysis of “Axon company”

Approach/ Implementation:

Step 1: Creating a new Database in MySQL

We need to first create a Database called “Classicmodels” in MySQL. Download a file from the below link:

https://drive.google.com/file/d/1OB_iGw6vVS5KS7QwiwVChbeTfR4WvUy3/view?usp=share_link

Load this downloaded file into MySQL and execute this file. A new database called “Classicmodels” will be created in MySQL.

The screenshot shows the MySQL Workbench interface. In the left pane, under 'Schemas', the 'classicmodels' database is selected, indicated by a red box and the handwritten note 'Database is Created'. The 'Tables' section lists: customers, employees, offices, orderdetails, orders, payments, productlines, products, and views. In the main pane, a SQL script titled 'covid-detection.sql-queries' is displayed. The first few lines of the script are:

```
16  
17  
18 • /*!40101 SET NAMES utf8 */;  
19  
20 • /*!40101 SET SQL_MODE=''' */;  
21  
22 • /*!40014 SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS, UNIQUE_CHECKS=0 */;  
23 • /*!40014 SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS, FOREIGN_KEY_CHECKS=0 */;  
24 • /*!40101 SET @OLD_SQL_MODE=@@SQL_MODE, SQL_MODE='NO_AUTO_VALUE_ON_ZERO' */;  
25 • /*!40111 SET @OLD_SQL_NOTES=@@SQL_NOTES, SQL_NOTES=0 */;  
26 • CREATE DATABASE /*!32312 IF NOT EXISTS*/`classicmodels`/*!40100 DEFAULT CHARACTER SET latin1 */;
```

A red circle highlights the 'Execute' button at the top of the query editor. To the right of the code, the handwritten note 'Downloaded file' is written above a large curly brace that spans the entire code area, indicating that the entire script was downloaded from the provided link.

Step 2: Data Exploration using sql queries

In this step we try to understand the given data. We have 8 Tables namely:

- **Customers:** stores customer's data (13 columns, **customerNumber** -> primary key)
- **Products:** stores a list of scale model cars (9 columns, **productCode** -> Primary key)
- **ProductLines:** stores a list of product line categories (4 columns, **productLine** -> Primary key)
- **Orders:** stores sales orders placed by customers (7 columns, **orderNumber**, **productCode**-> Primary keys)
- **OrderDetails:** stores sales order line items for each sales order (5 columns, **orderNumber**-> Primary key)
- **Payments:** stores payments made by customers based on their accounts (4 columns, **customerNumber**, **checkNumber** -> Primary keys)
- **Employees:** stores all employee information as well as the organization structure such as who reports to whom (8 columns, **employeeNumber** -> primary key)
- **Offices:** stores sales office data (9 columns, **officeCode** -> Primary key)

i) SQL Queries

Task 1: Total No. of Unique Customers

```
11      -- Total no.of Unique customers  
12 •  SELECT COUNT(DISTINCT customerNumber) AS Unique_Customers FROM customers;  
13  
14      Total no.of products
```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|------------------|--------------|---------|--------------------|
| | Unique_Customers | | | |
| ▶ | 122 | | | |

Task 2: Total No. of Products

```
14      -- Total no.of products  
15 •  SELECT COUNT(DISTINCT productCode) AS total_products FROM products;  
16
```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|----------------|--------------|---------|--------------------|
| | total_products | | | |
| ▶ | 110 | | | |

Task 3: Total No. of orders

```
17      -- Total no.of orders  
18 •  SELECT COUNT(DISTINCT orderNumber) AS total_orders FROM orders;  
19
```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|--------------|--------------|---------|--------------------|
| | total_orders | | | |
| ▶ | 326 | | | |

Task 4: Total Quantity Ordered

```
23      -- Total Quantity ordered  
24 •  SELECT SUM(quantityOrdered) AS Total_Quantity FROM orderdetails;  
25
```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|----------------|--------------|---------|--------------------|
| | Total_Quantity | | | |
| ▶ | 105516 | | | |

Task 5: Total cost price, selling price, profit

```

31      -- Total profit
32 •  SELECT
33      selling_price,
34      cost_price,
35      (selling_price - cost_price) AS Profit
36  FROM (
37      SELECT
38          SUM(quantityordered * priceEach) AS selling_price,
39          SUM(quantityordered * buyprice) AS cost_price
40      FROM orderdetails
41      INNER JOIN products ON products.productcode=orderdetails.productCode
42 )Profit;
43

```

| Result Grid | | | |
|-------------|---------------|------------|------------|
| | selling_price | cost_price | Profit |
| ▶ | 9604190.61 | 5778310.36 | 3825880.25 |

Task 6: Total Sales by Product line

```

44      -- Total sales by product line
45 •  SELECT productLine,
46      SUM(quantityordered * priceEach) AS Total_Sales
47      FROM orderdetails od
48      JOIN products p ON od.productCode = p.productCode
49      GROUP BY productLine
50      ORDER BY Total_Sales DESC;
51

```

| Result Grid | |
|------------------|-------------|
| productLine | Total_Sales |
| ▶ Classic Cars | 3853922.49 |
| Vintage Cars | 1797559.63 |
| Motorcycles | 1121426.12 |
| Trucks and Buses | 1024113.57 |
| Planes | 954637.54 |
| Ships | 663998.34 |
| Trains | 188532.92 |

Task 7: Total Profit by Product line

```

52      -- Profit by Product Line
53 •  SELECT productLine,
54     SUM(quantityordered * priceEach)-SUM(quantityordered * buyprice) as Profit
55     FROM orderdetails od
56     JOIN products p ON od.productCode = p.productCode
57     GROUP BY productLine
58     ORDER BY Profit DESC;
59

```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|------------------|--------------|---------|--------------------|
| | productLine | Profit | | |
| ▶ | Classic Cars | 1526212.20 | | |
| | Vintage Cars | 737268.33 | | |
| | Motorcycles | 469255.30 | | |
| | Trucks and Buses | 400553.22 | | |
| | Planes | 365960.71 | | |
| | Ships | 261289.47 | | |
| | Trains | 65341.02 | | |

Task 8: Top 5 order count by Year and Month

```

60      -- Top 5 Order count by Year and Month
61 •  SELECT LEFT(orderDate, 7) AS Year_Mon,
62     COUNT(DISTINCT ordl.orderNumber) AS Distinct_Orders
63     FROM orders ord
64     JOIN orderdetails ordl ON ord.orderNumber=ordl.orderNumber
65     GROUP BY Year_Mon
66     ORDER BY Distinct_Orders DESC
67     LIMIT 7;
68

```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|----------|-----------------|---------|--------------------|
| | Year_Mon | Distinct_Orders | | |
| ▶ | 2004-11 | 33 | | |
| | 2003-11 | 30 | | |
| | 2003-10 | 18 | | |
| | 2005-05 | 15 | | |
| | 2004-12 | 13 | | |
| | 2005-03 | 13 | | |
| | 2004-10 | 13 | | |

Task 9: Top 5 Sales by Year and Month

```

69      -- Top 5 Total Sales by Year and Month
70 •  SELECT LEFT(orderDate, 7) AS Year_Mon,
71      SUM(quantityordered * priceEach) AS Total_Sales
72      FROM orders ord
73      JOIN orderdetails ordl ON ord.orderNumber=ordl.orderNumber
74      GROUP BY Year_Mon
75      ORDER BY Total_Sales DESC
76      LIMIT 5;
77
78

```

Result Grid | Filter Rows: Export: Wrap Cell Content:

| Year_Mon | Total_Sales |
|----------|-------------|
| 2003-11 | 988025.15 |
| 2004-11 | 979291.98 |
| 2003-10 | 514336.21 |
| 2004-10 | 500233.86 |
| 2005-05 | 441474.94 |

Task 10: Top 5 customers by Sales

```

78
79      -- Top 5 Customers by Total Sales
80 •  SELECT customerName,
81      SUM(quantityordered * priceEach) AS Total_Sales
82      FROM orders ord
83      JOIN orderdetails ordl ON ord.orderNumber=ordl.orderNumber
84      JOIN customers c ON ord.customerNumber=c.customerNumber
85      GROUP BY customerName
86      ORDER BY Total_Sales DESC
87      LIMIT 5;
88

```

Result Grid | Filter Rows: Export: Wrap Cell Content:

| customerName | Total_Sales |
|------------------------------|-------------|
| Euro+ Shopping Channel | 820689.54 |
| Mini Gifts Distributors Ltd. | 591827.34 |
| Australian Collectors, Co. | 180585.07 |
| Muscle Machine Inc | 177913.95 |
| La Rochelle Gifts | 158573.12 |

Task 11: Bottom 5 customers by Sales

```
90 •   SELECT customerName,
91     SUM(quantityordered * priceEach) AS Total_Sales
92     FROM orders ord
93     JOIN orderdetails ordl ON ord.orderNumber=ordl.orderNumber
94     JOIN customers c ON ord.customerNumber=c.customerNumber
95     GROUP BY customerName
96     ORDER BY Total_Sales
97     LIMIT 5;
98
```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|-------------------------|--------------|---------|--------------------|
| | customerName | Total_Sales | | |
| ▶ | Boards & Toys Co. | 7918.60 | | |
| | Auto-Moto Classics Inc. | 21554.26 | | |
| | Atelier graphique | 22314.36 | | |
| | Frau da Collezione | 25358.32 | | |
| | Royale Belge | 29217.18 | | |

Task 12: Top 5 customers by Orders

```
99      -- Top 5 Customers by orders
100 •   SELECT customerName,
101     count(DISTINCT orderNumber) AS Total_orders
102     FROM orders o
103     JOIN customers c ON o.customerNumber=c.customerNumber
104     GROUP BY customerName
105     ORDER BY Total_orders DESC
106     LIMIT 5;
107
```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|------------------------------|--------------|---------|--------------------|
| | customerName | Total_orders | | |
| ▶ | Euro+ Shopping Channel | 26 | | |
| | Mini Gifts Distributors Ltd. | 17 | | |
| | Danish Wholesale Imports | 5 | | |
| | Australian Collectors, Co. | 5 | | |
| | Down Under Souveniers, Inc | 5 | | |

Task 13: Bottom 5 customers by Orders

```

108      -- Bottom 5 Customers by orders
109 •  SELECT customerName,
110      count(DISTINCT orderNumber) AS Total_orders
111      FROM orders o
112      JOIN customers c ON o.customerNumber=c.customerNumber
113      GROUP BY customerName
114      ORDER BY Total_orders
115      LIMIT 5;
116

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

| | customerName | Total_orders |
|---|------------------------------------|--------------|
| ▶ | Bavarian Collectables Imports, Co. | 1 |
| | Amica Models & Co. | 2 |
| | Vida Sport, Ltd | 2 |
| | Norway Gifts By Mail, Co. | 2 |
| | Mini Classics | 2 |

Task 14: Top 5 products by Sales

```

-- 
117      -- Top 5 Products by Total Sales
118 •  SELECT productName,
119      SUM(quantityordered * priceEach) AS Total_Sales
120      FROM orders ord
121      JOIN orderdetails ord1 ON ord.orderNumber=ord1.orderNumber
122      JOIN customers c ON ord.customerNumber=c.customerNumber
123      JOIN products p ON ord1.productCode=p.productCode
124      GROUP BY productName
125      ORDER BY Total_Sales DESC
126      LIMIT 5;
127

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

| | productName | Total_Sales |
|---|--------------------------------------|-------------|
| ▶ | 1992 Ferrari 360 Spider red | 276839.98 |
| | 2001 Ferrari Enzo | 190755.86 |
| | 1952 Alpine Renault 1300 | 190017.96 |
| | 2003 Harley-Davidson Eagle Drag Bike | 170686.00 |
| | 1968 Ford Mustang | 161531.48 |

Task 15: Bottom 5 products by Sales

```

128      -- Bottom 5 Products by Total Sales
129 •  SELECT productName,
130      SUM(quantityordered * priceEach) AS Total_Sales
131      FROM orders ord
132      JOIN orderdetails ordl ON ord.orderNumber=ordl.orderNumber
133      JOIN customers c ON ord.customerNumber=c.customerNumber
134      JOIN products p ON ordl.productCode=p.productCode
135      GROUP BY productName
136      ORDER BY Total_Sales
137      LIMIT 5;
138

```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|-------------------------------------|--------------|---------|--------------------|
| | productName | Total_Sales | | |
| ▶ | 1939 Chevrolet Deluxe Coupe | 28052.94 | | |
| | 1936 Mercedes Benz 500k Roadster | 29763.39 | | |
| | 1982 Lamborghini Diablo | 30972.87 | | |
| | 1958 Chevy Corvette Limited Edition | 31627.96 | | |
| | 1982 Ducati 996 R | 33268.76 | | |

Task 16: Top 10 Employees by order count

```

143 •  SELECT CONCAT(e.firstName, ' ', e.lastName) AS Employee_Name,
144      COUNT(ordl.orderNumber) AS Order_Count
145      FROM employees e
146      JOIN customers c ON e.employeeNumber=c.employeeNumber
147      JOIN orders ord ON c.customerNumber=ord.customerNumber
148      JOIN orderdetails ordl ON ord.orderNumber=ordl.orderNumber
149      GROUP BY Employee_Name
150      ORDER BY Order_Count DESC
151      LIMIT 10;
152

```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: | Fetch row |
|-------------|-----------------|--------------|---------|--------------------|-----------|
| | Employee_Name | Order_Count | | | |
| | Larry Bott | 236 | | | |
| | Barry Jones | 220 | | | |
| | George Vanauf | 211 | | | |
| | Andy Fixter | 185 | | | |
| | Peter Marsh | 185 | | | |
| | Loui Bondur | 177 | | | |
| | Steve Patterson | 152 | | | |

Task 17: Total Sales, Quantity ordered, cost price ordered by each country

```

153      -- Total Sales, Actual Sales, Quantity ordered by Country
154 •  SELECT country,
155      COUNT(o.orderNumber) AS Quantity_Ordered,
156      SUM(quantityordered * priceEach) AS Total_Sales,
157      SUM(quantityordered * buyprice) AS Actual_Sales
158  FROM orderdetails o
159  JOIN products p ON o.productCode=p.productCode
160  JOIN orders ord ON o.orderNumber=ord.orderNumber
161  JOIN customers c ON ord.customerNumber=c.customerNumber
162  GROUP BY country
163  ORDER BY Quantity_Ordered DESC;

```

The screenshot shows the MySQL Workbench interface. At the top, there is a code editor window containing the provided SQL query. Below it is a results grid titled "Result Grid". The grid has four columns: "country", "Quantity_Ordered", "Total_Sales", and "Actual_Sales". The data is as follows:

| country | Quantity_Ordered | Total_Sales | Actual_Sales |
|-------------|------------------|-------------|--------------|
| USA | 1004 | 3273280.05 | 1964464.46 |
| Spain | 342 | 1099389.09 | 659384.55 |
| France | 314 | 1007374.02 | 594357.90 |
| Australia | 185 | 562582.59 | 340375.41 |
| New Zealand | 149 | 476847.01 | 287340.43 |
| UK | 144 | 436947.44 | 263983.18 |
| Italy | 121 | 360616.81 | 216156.95 |
| Finland | 97 | 705140.35 | 177010.07 |

Step 3: Loading schema from MySQL to POWERBI

Open PowerBI Desktop and follow the below steps:

Powerbi ribbon -> Home --> get data -> more -> mysql database

For first time it gives error box like “connectors are missing install them”

Go to below links and install 8.0.31 version. ALWAYS .net connector and ODBC connector should be of SAME VERSION ONLY. Then only it works.

<https://downloads.mysql.com/archives/c-net/>

<https://downloads.mysql.com/archives/c-odbc/>

<https://downloads.mysql.com/archives/c-net/>

MySQL Product Archives

MySQL Connector/NET (Archived Versions)

Please note that these are old versions. New releases will have recent bug fixes and features!
To download the latest release of MySQL Connector/NET, please visit [MySQL Downloads](#).

Product Version: 8.0.31
Operating System: Microsoft Windows

| Windows (x86, 32-bit), MSI Installer | Sep 15, 2022 | 15.2M | Download |
|--------------------------------------|--------------|-------|---|
| (mysql-connector-net-8.0.31.msi) | | | MD5: a8430c50e3854f1561f2be095a9f4eb4 Signature |

We suggest that you use the MD5 checksums and GnuPG signatures to verify the integrity of the packages you download.

<https://downloads.mysql.com/archives/c-odbc/>

MySQL Product Archives

MySQL Connector/ODBC (Archived Versions)

Please note that these are old versions. New releases will have recent bug fixes and features!
To download the latest release of MySQL Connector/ODBC, please visit [MySQL Downloads](#).

Product Version: 8.0.31
Operating System: Microsoft Windows
OS Version: All

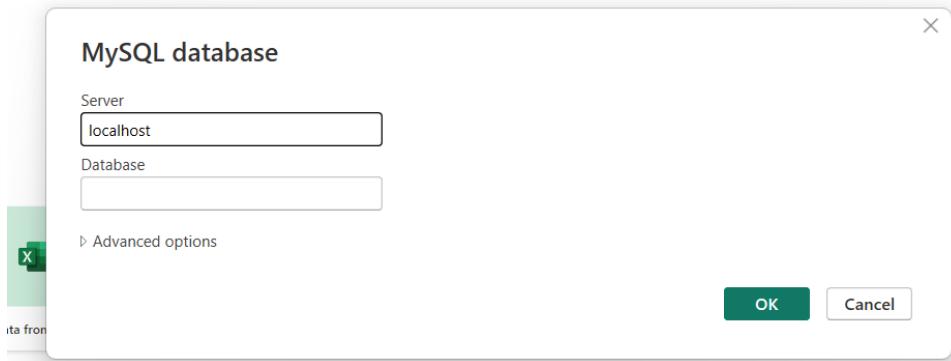
| Windows (x86, 32-bit), MSI Installer | Sep 4, 2022 | 8.9M | Download |
|---|-------------|------|---|
| (mysql-connector-odbc-8.0.31-win32.msi) | | | MD5: 8bb73062c1afae504817f078a9e47498 Signature |

| Windows (x86, 64-bit), MSI Installer | Sep 4, 2022 | 10.9M | Download |
|---|-------------|-------|---|
| (mysql-connector-odbc-8.0.31-win64.msi) | | | MD5: b3c955d5f837af80736a0b529c4db40c Signature |

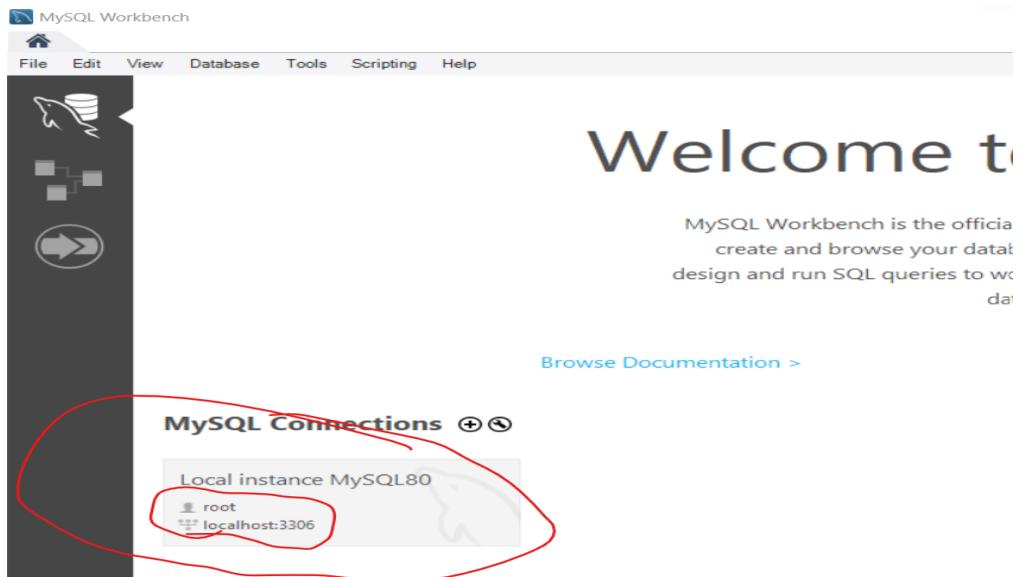
INSTALL THIS OLDER VERSION. Close powerbi refresh your system and open powerbi again.

Home → get data → more → mysql database → connect

We get a new pop up box as below:



Now open mysql workbench. It is installed in localhost:3306



And we have the following databases:

```
1 • Create Database CovidD
2 • use CovidDetection;
3 • select * from covid_mo
4
5 -- Task1 : Find the nu
6 • select count(*) from c
7 where Test_result = 'p'
8
9 -- Task2: Find the num
10 • select count(*) from c
```

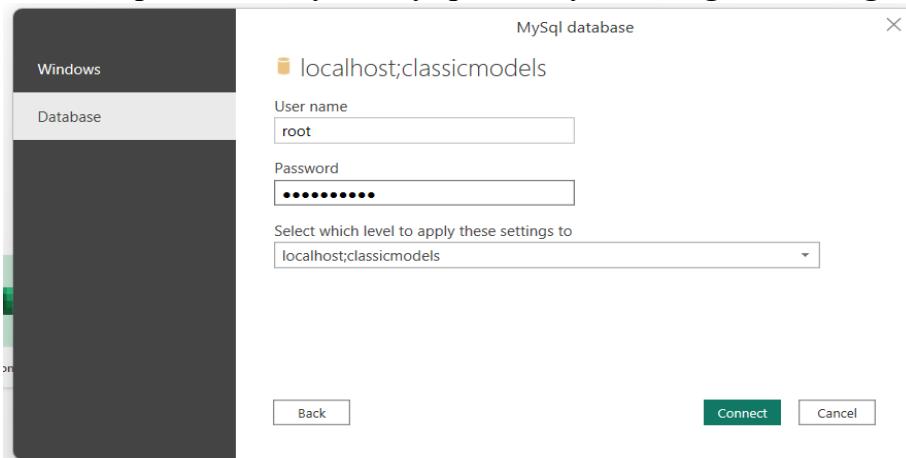
We want to load “classicmodels” database into powerbi.

So now goto powerbi and give below details and click ok.



Or server: 127.0.0.1:3306, Database: “schema name” can also be given. Both works well.

Give username password of your mysql which you have given during installation if



asked.

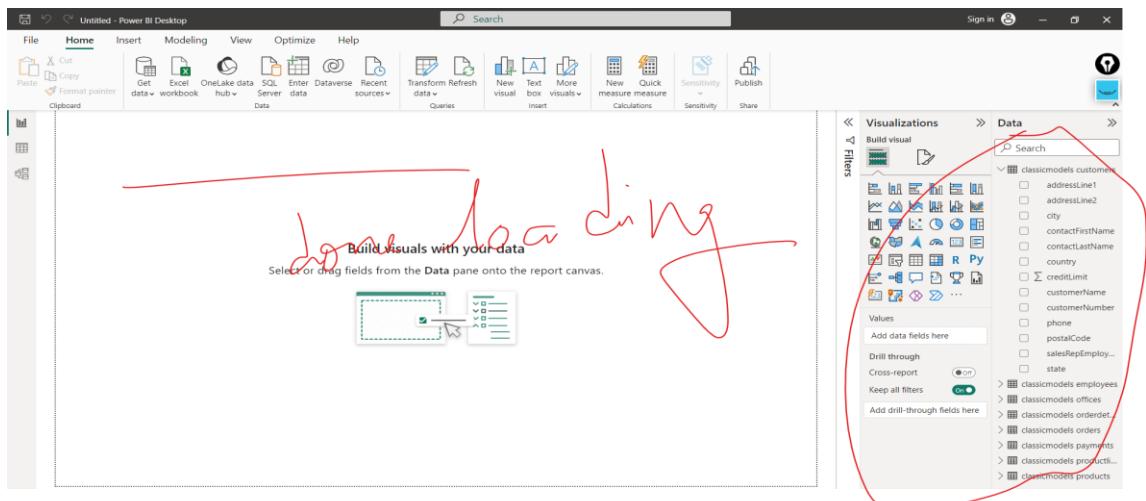
Or else it opens a page like below. Tick mark/choose tables which you want to load into powerbi from MySQL database named “classicmodels”.

The screenshot shows the Power BI Navigator interface. On the left, there's a tree view under "Display Options" for "localhost: classicmodels [8]". The "classicmodels.products" table is highlighted with a red circle. On the right, the "classicmodels.products" table is displayed in a grid format. The first few rows of the table are:

| productCode | productName | productLine | prod |
|-------------|--|------------------|------|
| S10_1678 | 1969 Harley Davidson Ultimate Chopper | Motorcycles | 1: |
| S10_1949 | 1952 Alpine Renault 1300 | Classic Cars | 1: |
| S10_2016 | 1996 Moto Guzzi 1100i | Motorcycles | 1: |
| S10_4698 | 2003 Harley-Davidson Eagle Drag Bike | Motorcycles | 1: |
| S10_4757 | 1972 Alfa Romeo GTA | Classic Cars | 1: |
| S10_4962 | 1962 Lancia Delta 16V | Classic Cars | 1: |
| S12_1099 | 1968 Ford Mustang | Classic Cars | 1: |
| S12_1108 | 2001 Ferrari Enzo | Classic Cars | 1: |
| S12_1666 | 1958 Setra Bus | Trucks and Buses | 1: |
| S12_2823 | 2002 Suzuki XREO | Motorcycles | 1: |
| S12_3148 | 1969 Corvair Monza | Classic Cars | 1: |
| S12_3380 | 1968 Dodge Charger | Classic Cars | 1: |
| S12_3891 | 1969 Ford Falcon | Classic Cars | 1: |
| S12_3990 | 1970 Plymouth Hemi Cuda | Classic Cars | 1: |
| S12_4473 | 1957 Chevy Pickup | Trucks and Buses | 1: |
| S12_4675 | 1969 Dodge Charger | Classic Cars | 1: |
| S18_1097 | 1940 Ford Pickup Truck | Trucks and Buses | 1: |
| S18_1129 | 1993 Mazda RX-7 | Classic Cars | 1: |
| S18_1342 | 1937 Lincoln Berline | Vintage Cars | 1: |
| S18_1367 | 1936 Mercedes-Benz 500K Special Roadster | Vintage Cars | 1: |
| S18_1589 | 1965 Aston Martin DB5 | Classic Cars | 1: |
| S18_1662 | 1980s Black Hawk Helicopter | Planes | 1: |
| S18_1749 | 1917 Grand Touring Sedan | Vintage Cars | 1: |

At the bottom of the interface are "Select Related Tables", "Load" (highlighted in green), "Transform Data", and "Cancel" buttons.

‘classicmodels’ schema is now loaded into powerbi.



Step 4: Data Cleaning

We use power Query editor in POWERBI Desktop for Data Cleaning.

Home → Transform Data

A new power query editor window opens as below:

The screenshot shows the Power Query Editor interface with two tables loaded:

- Customers Table:**

| | CustomerID | CustomerName | ContactPersonName | PhoneNo | Address | City |
|---|------------|------------------------------|-------------------------|-------------------|-------------------------------|---------------|
| 1 | 103 | Atelier graphique | Carine Schmitt | 40322555 | 54, rue Royale, | Nantes |
| 2 | 112 | Signal Gift Stores | JeanKing | 7025551838 | 8489 Strong St., | Las Vegas |
| 3 | 114 | Australian Collectors. Co. | PeterFerguson | 03 9520 4555 | 636 St Kilda Road,Level 3 | Melbourne |
| 4 | 119 | La Rochelle Gifts | Janine Labrune | 40678555 | 67, rue des Cinquante Otages, | Nantes |
| 5 | 121 | Baane Mini Imports | Jonas Bergulfsson | 0798 9555 | Erling Skakkes gate 78, | Stavern |
| 6 | 124 | Mini Gifts Distributors Ltd. | SusanNelson | 4155551450 | 5677 Strong St., | San Rafael |
| 7 | 125 | Havel & Zbysek Co | Zbyszek Piestrzeniewicz | +26 6427555 | ul. Filtrowa 68, | Warszawa |
| 8 | 128 | Blauer See Auto. Co. | RolandKittel | +49 69 66 90 2555 | Lyonerstr. 34, | Frankfurt |
| 9 | 129 | Mini Wheels Co. | JulieMurphy | 6505555787 | 5557 North Pendale Street, | San Francisco |
- customerAddress Table:**

| | customerNumber | customerName | contactLastName | contactFirstName | phone | addressLine1 |
|----|----------------|------------------------------|-----------------|------------------|-------------------|-------------------------------|
| 1 | 103 | Atelier graphique | Schmitt | Carine | 40322555 | 54, rue Royale, |
| 2 | 112 | Signal Gift Stores | King | Jean | 7025551838 | 8489 Strong St., |
| 3 | 114 | Australian Collectors. Co. | Ferguson | Peter | 03 9520 4555 | 636 St Kilda Road,Level 3 |
| 4 | 119 | La Rochelle Gifts | Labrune | Janine | 40678555 | 67, rue des Cinquante Otages, |
| 5 | 121 | Baane Mini Imports | Bergulfsson | Jonas | 0798 9555 | Erling Skakkes gate 78, |
| 6 | 124 | Mini Gifts Distributors Ltd. | Nelson | Susan | 4155551450 | 5677 Strong St., |
| 7 | 125 | Havel & Zbysek Co | Piestrzeniewicz | Zbyszek | +26 6427555 | ul. Filtrowa 68, |
| 8 | 128 | Blauer See Auto. Co. | Kittel | Roland | +49 69 66 90 2555 | Lyonerstr. 34, |
| 9 | 129 | Mini Wheels Co. | Murphy | Julie | 6505555787 | 5557 North Pendale Street, |
| 10 | 132 | Land of Toys Inc. | Lee | Kwai | 212 555 1234 | 897 Long Airport Avenue |
| 11 | 142 | Euro Shopping Channel | Freyre | Diego | 011 555 94 44 | C/ Muralzaral, 86 |
| 12 | 144 | Volvo Model Replicas. Co | Berglund | Christina | 021 12 3555 | Bergvaggen 8 |
| 13 | 145 | Danish Wholesale Imports | Petersen | Marie | 31 3555 | Vinbaltet 34 |
| 14 | 146 | Savile & Henriet, Co. | Natividad | Jeff | 78.3555 | 2, rue du Commerce |
| 15 | 148 | Dragon Novelties Inc. | Leong | Eric | +65 221 1555 | Broni Sok. |
| 16 | 152 | Woolworths Stores Inc. | Hoshimoto | Jeff | 212 555 1234 | 490 Park Circle |
| 17 | 157 | Diesel Classics Inc. | Victorino | Adam | 011 555 9809 | 1788 Pompton St. |
| 18 | 160 | Handy Gifts Co. | de Castro | Andy | +47 2297 3215 | 5408 Fort Circle |
| 19 | 167 | Herkis Gifts | Rancé | Veyrel | +65 224 1555 | 106 Linden Road Sandown |
| 20 | 168 | American Souvenirs Inc. | Franco | Keith | 2035557849 | 2nd Floor |
| 21 | 169 | Porto Imports Co. | de Castro | Isabel | (1) 356-5555 | Brehmen St. 121 |
| 22 | 172 | Daedalus Designs Imports | Rancé | Martine | 20.16.1555 | 149 Spinaker Dr. |
| 23 | 172 | La Creme D'abondance, Co. | Bertrand | Marie | (1) 42.34.2555 | Strada da saude n. 58 |
| 24 | 172 | La Creme D'abondance, Co. | | | | PR 334 Sen |
| 25 | 172 | La Creme D'abondance, Co. | | | | Suite 101 |

Column profiling based on entire data set

- i) **Rename Column Names:** We have 8 tables and each table has few columns. We can rename column names according to our requirement or business problem statement. Go to each table double click on the column which you want to rename and type the new name and press enter. Column name will be renamed.

| A ^B productCode | A ^B productName | A ^B productLine |
|----------------------------|---------------------------------------|----------------------------|
| Valid Error Empty | 100% 0% 0% | Valid Error Empty |
| S10_1678 | 1969 Harley Davidson Ultimate Chopper | Motorcycles |
| S10_1949 | 1952 Alpine Renault 1300 | Classic Cars |
| S10_2016 | 1996 Moto Guzzi 1100i | Motorcycles |
| S10_4698 | 2003 Harley-Davidson Eagle Drag Bike | Motorcycles |
| S10_4757 | 1972 Alfa Romeo GTA | Classic Cars |

Like this rename all the necessary columns from all tables. The new column names are:

- ✓ **Customers:** CustomerID, CustomerName, ContactFirstName, ContactLastName, PhoneNo, Address, City, State, PostalCode, Country, EmployeeID, CreditLimit
- ✓ **Employees:** EmployeeID, lastName, FirstName, Extension, Email, OfficeCode, ManagerID, JobTitle.
- ✓ **Offices:** OfficeCode, City, PhoneNo, Address, State, Country, PostalCode, Territory
- ✓ **Orderdetails:** OrderID, ProductID, QuantityOrdered, UnitPrice, OrderLineNumber
- ✓ **Orders:** OrderID, OrderDate, RequiredDate, ShippedDate, OrderStatus, Comments, CustomerID
- ✓ **Payments:** CustomerID, CheckNumber, paymentDate, Amount
- ✓ **Productlines:** ProductLine, textDescription, htmlDescription, image
- ✓ **Products:** ProductID, ProductName, ProductLine, ProductScale, ProductVendor, ProductDescription, QuantityInStock, Costprice, MSRP(Sellingprice)
- ✓ **State:** OfficeCode, city, phoneNo, Address, State, country, PostalCode, Territory

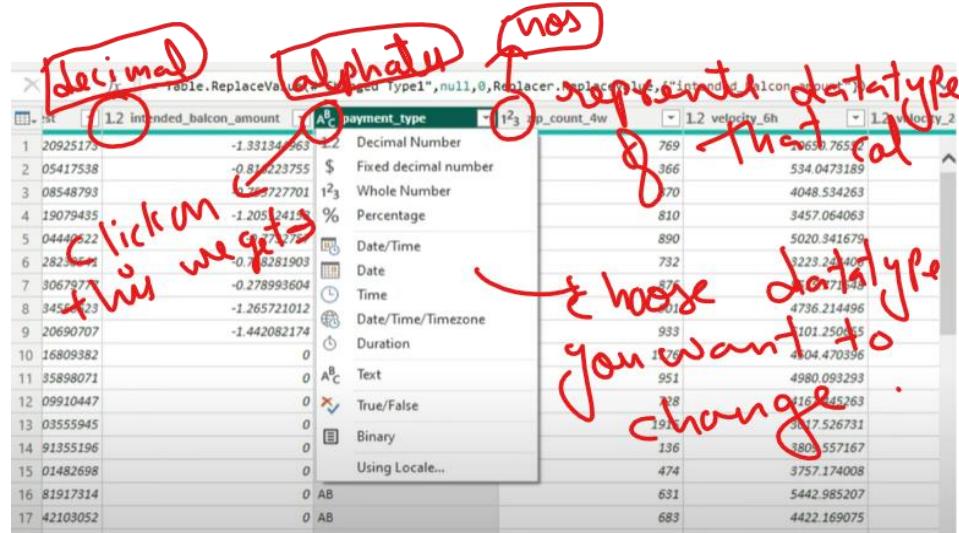
- ii) **Removing Columns:** If we have any unnecessary columns we can remove them from the tables. Select any column right click and select “remove”.

From Productlines table we removed htmlDescription and image columns as they are not needed for any sales analysis.

- iii) **Merging Columns:** We can merge/ combine two columns if needed. Select two columns which you want to merge then right click → merge columns. Give new column name and any separator if needed and click ok.
In customers Table: ContactFirstName, ContactLastName we merged into “ContactpersonName”.

In Employees table: lastname, Firstname columns are merged together as “EmployeeName” column.

- iv) **Changing datatypes:** double click on the datatype in column name and choose the new datatype.

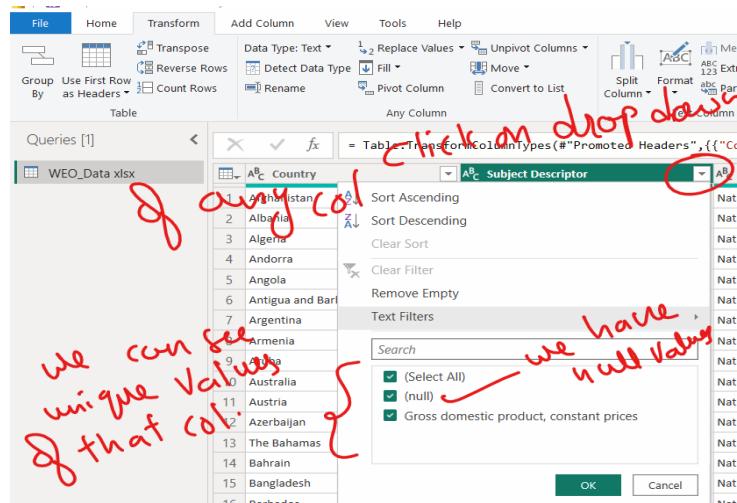


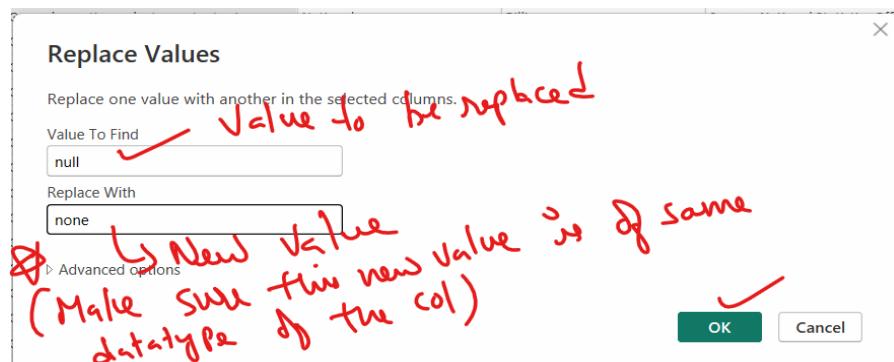
For date column always choose date datatype in powerbi format.

In customers table, “phoneNo” column is changed to text datatype.

- v) **Replacing null & wrong values:**

select any column Transform → Replace values or right click on selected column → replace values





Check all unnecessary values like null, n/a etc and replace them appropriately according to the column data.

- In customers table: PhoneNo column has different number styles. All “(“ are replaced with “+” and all “)” replaced with space. All “-“ values are replaced with “” empty space. State and PostalCode columns have null values they are replaced with “unknown”. EmployeeId column has null values replaced with “0”.
- In Employees table: ManagerID column has null values replaced with “0”.
- In offices table: State column null values are replaced with “Unknown”.
- In orders table: Comments column null values are replaced with “Unknown”
- In State table: State column null values are replaced with “Unknown”.

In Data cleaning process we can even split columns, append columns and filter columns. But these steps are not needed for the given Data.

After all cleaning is done make sure you click on power query editors File -> close and apply. Or else changes done will not be reflected in powerbi desktop.

Step 5: Data Transformation

We need to create few measures and new columns using power query editor and dax formulas for further analysis of given data.

i) Creating new columns

- In “orders table” we have ‘OrderDate’ column. We need to extract day, month and year from this column separately. To do that follow as below:

In power query editor: select OrderDate column → Transform → Date → Day/Month Name/Year/Quarter

Power Query Editor - sales

File Home Transform Add Column View Tools Help

Queries [10]

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------------|------------------------------------|---------------------|-----------------------------|-------------|------------------|------------|---------|--------------------|--------------------|
| CustomerID | CustomerName | ContactName | Address | City | Region | PostalCode | Country | Phone | Fax |
| 1 | Alfreds Futterkiste | Anjaani Kestner | Mönchengladbachstr. 12 | Köln | NRW | 50737 | Germany | (0221) 07 62 43 12 | (0221) 07 62 43 17 |
| 2 | Ana Trujillo Emparedados y helados | Manuela Gómez | Ave. 5 de Abril, 23 | Madrid | Madrid | 28010 | Spain | (91) 553 22 30 | (91) 553 22 32 |
| 3 | Antonio Moreno Taquería | Manuel Moreno | Calle Dr. Mariano Arana, 20 | Sevilla | Andalucía | 41002 | Spain | (954) 23 90 32 | (954) 23 90 32 |
| 4 | Centro comercial Moctezuma | Francisco Chang | Sierra de los Padres, 20 | México D.F. | México | 11530 | México | (55) 55 98 72 90 | (55) 55 98 72 90 |
| 5 | Ernesto Halpern | Yolanda Müller | Avda. 19 de Septiembre, 33 | Quito | Ecuador | 1722 | Ecuador | (02) 22 66 44 11 | (02) 22 66 44 11 |
| 6 | Isabella Guitierrez Restaurante | Isabella Guitierrez | Avda. 19 de Septiembre, 33 | Quito | Ecuador | 1722 | Ecuador | (02) 22 66 44 11 | (02) 22 66 44 11 |
| 7 | La Dália | Patricia Márquez | Avda. 19 de Septiembre, 33 | Quito | Ecuador | 1722 | Ecuador | (02) 22 66 44 11 | (02) 22 66 44 11 |
| 8 | Magazzino Italiano | Gianni Mazza | Via Monte Berico, 33 | Bologna | Emilia-Romagna | 40137 | Italy | (051) 12 45 67 89 | (051) 12 45 67 89 |
| 9 | Montrachet | Paulin Goutal | 24, rue des Saussaies | Paris | Ile-de-France | 75006 | France | (1) 45 49 69 01 | (1) 45 49 69 01 |
| 10 | Plutzer Einkaufsgesellschaft mbH | Elmar Plutzer | Obere Waltzerallee 10 | Wien | Niederösterreich | 1070 | Austria | (1) 66 00 44 40 | (1) 66 00 44 40 |

New columns will be generated after this as below. We replaced 1 as Q1, 2 as Q2, 3 as Q3 and 4 as Q4 in OrderQuarter column. Similarly, OrderDay and Month name are replaced as three letter days and month names.

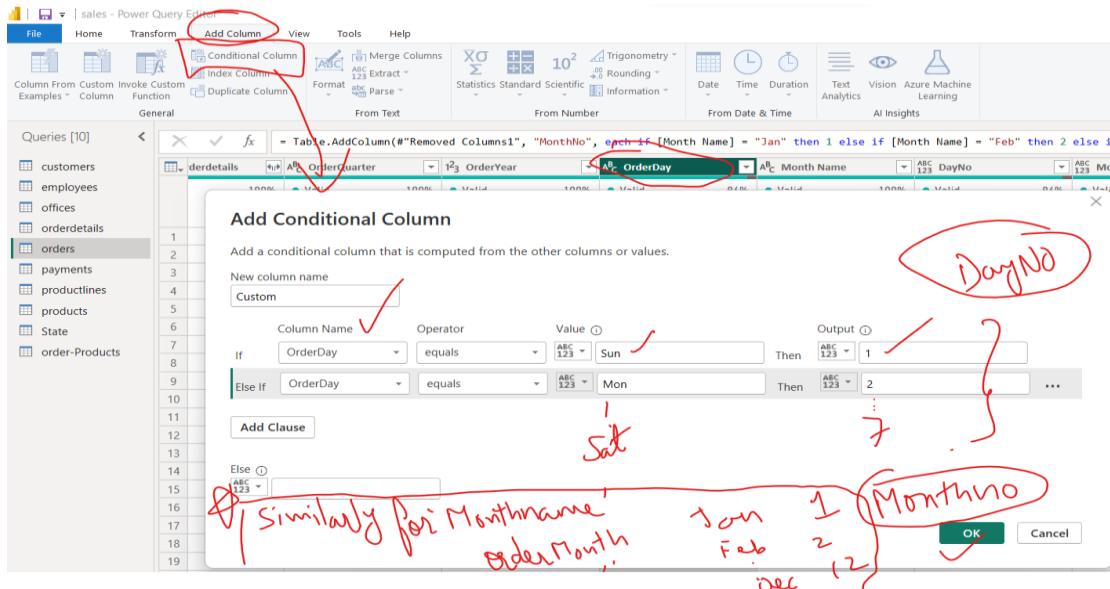
Power Query Editor - sales

File Home Transform Add Column View Tools Help

Queries [10]

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------------|------------------------------------|---------------------|-----------------------------|-------------|------------------|------------|---------|--------------------|--------------------|
| CustomerID | CustomerName | ContactName | Address | City | Region | PostalCode | Country | Phone | Fax |
| 1 | Alfreds Futterkiste | Anjaani Kestner | Mönchengladbachstr. 12 | Köln | NRW | 50737 | Germany | (0221) 07 62 43 12 | (0221) 07 62 43 17 |
| 2 | Ana Trujillo Emparedados y helados | Manuela Gómez | Ave. 5 de Abril, 23 | Madrid | Madrid | 28010 | Spain | (91) 553 22 30 | (91) 553 22 32 |
| 3 | Antonio Moreno Taquería | Manuel Moreno | Calle Dr. Mariano Arana, 20 | Sevilla | Andalucía | 41002 | Spain | (954) 23 90 32 | (954) 23 90 32 |
| 4 | Centro comercial Moctezuma | Francisco Chang | Sierra de los Padres, 20 | México D.F. | México | 11530 | México | (55) 55 98 72 90 | (55) 55 98 72 90 |
| 5 | Ernesto Halpern | Yolanda Müller | Avda. 19 de Septiembre, 33 | Quito | Ecuador | 1722 | Ecuador | (02) 22 66 44 11 | (02) 22 66 44 11 |
| 6 | Isabella Guitierrez Restaurante | Isabella Guitierrez | Avda. 19 de Septiembre, 33 | Quito | Ecuador | 1722 | Ecuador | (02) 22 66 44 11 | (02) 22 66 44 11 |
| 7 | La Dália | Patricia Márquez | Avda. 19 de Septiembre, 33 | Quito | Ecuador | 1722 | Ecuador | (02) 22 66 44 11 | (02) 22 66 44 11 |
| 8 | Magazzino Italiano | Gianni Mazza | Via Monte Berico, 33 | Bologna | Emilia-Romagna | 40137 | Italy | (051) 12 45 67 89 | (051) 12 45 67 89 |
| 9 | Montrachet | Paulin Goutal | 24, rue des Saussaies | Paris | Ile-de-France | 75006 | France | (1) 45 49 69 01 | (1) 45 49 69 01 |
| 10 | Plutzer Einkaufsgesellschaft mbH | Elmar Plutzer | Obere Waltzerallee 10 | Wien | Niederösterreich | 1070 | Austria | (1) 66 00 44 40 | (1) 66 00 44 40 |

If we try to plot graphs for these above columns we will not get them in sorted order like Sun, Mon,.. etc or Jan, Feb etc. To make them in sorted order we need to create new columns as below:



| Column | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|------------|-----------------|------------------|-----------------|-------------------------|--------------------|------------------|-----------------|-----------------|-----------------|-----------------|------------------|--------------------|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| CustomerID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| Name | Alfreds | Berglunds | Cai | Ernesto | Faber | Gilligan's | Hilbert | K&M | Lamark | Megastore | Nikolskij | Oncore | Obelix | Paris | Regal | Sirop巿 | Tiedje | Uncle | Vista |
| Address | Obelix 72 | Åkevallsgatan 45 | Brorström 12 | Br. K. & S. Galleria 24 | Florabergsgatan 24 | Frösundaviken 34 | Götgatan 14 | Hagsgatan 32 | Järntorget 5 | Kungsgatan 10 | Lilla Nygatan 10 | Östermalmsgatan 54 | Östermalmsgatan 57 | Östermalmstorg 17 | Östermalmstorg 21 | Östermalmstorg 23 | Östermalmstorg 25 | Östermalmstorg 27 | Östermalmstorg 29 |
| City | Paris | Åre | Brorström | Galleria | Florabergsgatan | Götgatan | Hagsgatan | Järntorget | Kungsgatan | Lilla Nygatan | Östermalmsgatan | Östermalmsgatan | Östermalm | Östermalm | Östermalm | Östermalm | Östermalm | Östermalm | |
| PostalCode | 753 04 | 901 17 | 121 55 | 101 34 | 113 55 | 141 60 | 141 10 | 141 60 | 141 10 | 141 60 | 141 60 | 141 60 | 141 60 | 141 60 | 141 60 | 141 60 | 141 60 | 141 60 | |
| Country | France | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | |
| Phone | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | |
| Fax | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | (010) 123 45 67 | |
| Region | France | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | Sweden | |

- Next, we created a new table “order-products” by merging orders, products, employees and customers tables together. Only required columns are kept in this new merged table.

| OrderID | OrderDate | RequiredDate | ShippedDate | OrderStatus | Comments | CustomerID | OrderQuarter | OrderYear | OrderDay | Month Name | DayNo | Month |
|---------|------------------|------------------|------------------|-------------|----------|------------|--------------|-----------|----------|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 10208 | 02 January 2004 | 11 January 2004 | 04 January 2004 | Shipped | Unknown | 146 | Q1 | 2004 | Sun | Jan | 1 | Jan | 1 | 1 | 1 | 1 | 1 | 1 |
| 10209 | 09 January 2004 | 15 January 2004 | 12 January 2004 | Shipped | Unknown | 347 | Q1 | 2004 | Mon | Jan | 2 | Jan | 1 | 1 | 1 | 1 | 1 | 1 |
| 10210 | 12 January 2004 | 22 January 2004 | 20 January 2004 | Shipped | Unknown | 177 | Q1 | 2004 | Tue | Jan | 3 | Jan | 1 | 1 | 1 | 1 | 1 | 1 |
| 10211 | 15 January 2004 | 25 January 2004 | 18 January 2004 | Shipped | Unknown | 406 | Q1 | 2004 | Sun | Jan | 1 | Jan | 1 | 1 | 1 | 1 | 1 | 1 |
| 10212 | 16 January 2004 | 24 January 2004 | 18 January 2004 | Shipped | Unknown | 141 | Q1 | 2004 | Sun | Jan | 1 | Jan | 1 | 1 | 1 | 1 | 1 | 1 |
| 10214 | 26 January 2004 | 04 February 2004 | 29 January 2004 | Shipped | Unknown | 458 | Q1 | 2004 | Thu | Jan | 5 | Jan | 1 | 1 | 1 | 1 | 1 | 1 |
| 10216 | 02 February 2004 | 10 February 2004 | 04 February 2004 | Shipped | Unknown | 256 | Q1 | 2004 | Wed | Feb | 4 | Feb | 2 | 1 | 1 | 1 | 1 | 1 |
| 10217 | 04 February 2004 | 14 February 2004 | 06 February 2004 | Shipped | Unknown | 166 | Q1 | 2004 | Fri | Feb | 6 | Feb | 2 | 1 | 1 | 1 | 1 | 1 |
| 10219 | 10 February 2004 | 17 February 2004 | 12 February 2004 | Shipped | Unknown | 487 | Q1 | 2004 | Thu | Feb | 5 | Feb | 2 | 1 | 1 | 1 | 1 | 1 |
| 10220 | 12 February 2004 | 19 February 2004 | 16 February 2004 | Shipped | Unknown | 189 | Q1 | 2004 | Mon | Feb | 2 | Feb | 2 | 1 | 1 | 1 | 1 | 1 |
| 10221 | 18 February 2004 | 26 February 2004 | 19 February 2004 | Shipped | Unknown | 314 | Q1 | 2004 | Thu | Feb | 5 | Feb | 2 | 1 | 1 | 1 | 1 | 1 |
| 10222 | 19 February 2004 | 27 February 2004 | 20 February 2004 | Shipped | Unknown | 239 | Q1 | 2004 | Fri | Feb | 6 | Feb | 2 | 1 | 1 | 1 | 1 | 1 |
| 10223 | 20 February 2004 | 29 February 2004 | 24 February 2004 | Shipped | Unknown | 114 | Q1 | 2004 | Tue | Feb | 3 | Feb | 2 | 1 | 1 | 1 | 1 | 1 |
| 10225 | 22 February 2004 | 01 March 2004 | 24 February 2004 | Shipped | Unknown | 298 | Q1 | 2004 | Tue | Feb | 3 | Feb | 2 | 1 | 1 | 1 | 1 | 1 |
| 10226 | 26 February 2004 | 06 March 2004 | 02 March 2004 | Shipped | Unknown | 239 | Q1 | 2004 | Tue | Feb | 3 | Feb | 2 | 1 | 1 | 1 | 1 | 1 |
| 10227 | 02 March 2004 | 12 March 2004 | 08 March 2004 | Shipped | Unknown | 146 | Q1 | 2004 | Mon | Mar | 2 | Mar | 3 | 1 | 1 | 1 | 1 | 1 |
| 10228 | 10 March 2004 | 18 March 2004 | 13 March 2004 | Shipped | Unknown | 173 | Q1 | 2004 | Sat | Mar | 7 | Mar | 3 | 1 | 1 | 1 | 1 | 1 |
| 10229 | 11 March 2004 | 20 March 2004 | 12 March 2004 | Shipped | Unknown | 124 | Q1 | 2004 | Fri | Mar | 6 | Mar | 3 | 1 | 1 | 1 | 1 | 1 |
| 10231 | 19 March 2004 | 26 March 2004 | 25 March 2004 | Shipped | Unknown | 344 | Q1 | 2004 | Thu | Mar | 5 | Mar | 3 | 1 | 1 | 1 | 1 | 1 |
| 10232 | 20 March 2004 | 30 March 2004 | 25 March 2004 | Shipped | Unknown | 240 | Q1 | 2004 | Thu | Mar | 5 | Mar | 3 | 1 | 1 | 1 | 1 | 1 |
| 10234 | 30 March 2004 | 05 April 2004 | 02 April 2004 | Shipped | Unknown | 412 | Q1 | 2004 | Fri | Mar | 6 | Mar | 3 | 1 | 1 | 1 | 1 | 1 |
| 10235 | 02 April 2004 | 12 April 2004 | 05 April 2004 | Shipped | Unknown | 260 | Q2 | 2004 | Tue | Apr | 3 | Apr | 4 | 1 | 1 | 1 | 1 | 1 |
| 10236 | 03 April 2004 | 11 April 2004 | 08 April 2004 | Shipped | Unknown | 486 | Q2 | 2004 | Thu | Apr | 5 | Apr | 4 | 1 | 1 | 1 | 1 | 1 |
| 10237 | 05 April 2004 | 12 April 2004 | 10 April 2004 | Shipped | Unknown | 181 | Q2 | 2004 | Sat | Apr | 7 | Apr | 4 | 1 | 1 | 1 | 1 | 1 |
| 10238 | 09 April 2004 | 16 April 2004 | 10 April 2004 | Shipped | Unknown | 145 | Q2 | 2004 | Sat | Apr | 7 | Apr | 4 | 1 | 1 | 1 | 1 | 1 |
| 10239 | 12 April 2004 | 21 April 2004 | 17 April 2004 | Shipped | Unknown | 311 | Q2 | 2004 | Sat | Apr | 7 | Apr | 4 | 1 | 1 | 1 | 1 | 1 |
| 10240 | 13 April 2004 | 20 April 2004 | 20 April 2004 | Shipped | Unknown | 177 | Q2 | 2004 | Tue | Apr | 3 | Apr | 4 | 1 | 1 | 1 | 1 | 1 |

- In “Order-Products” table we created few new columns using below Dax formulas:

sales - Power BI Desktop

File Home Help Table tools Column tools

Cut Copy Get data workbook OneLake data hub SQL Server Enter data Data Refresh data Recent sources

Transform Relationships New measure Quick measure column New table

Clipboard Data Queries Relationships Calculations

1 Profit = 'order-Products'[Sales]-'order-Products'[CostPrice]

| products.QuantityInStock | products.CostPrice | products.MSRP(SellingPrice) | Sales | CostPrice | Profit | orders.ShippedDate |
|--------------------------|--------------------|-----------------------------|--------|-----------|--------|--------------------|
| 68 | 95.34 | 194.57 | 8171.9 | 7273.1 | 898.8 | 03 July 2003 Sh |
| 9123 | 75.16 | 117.44 | 5637.1 | 5298.7 | 338.4 | 03 July 2003 Sh |
| 5663 | 31.92 | 79.8 | 1915.2 | 1742.9 | 172.3 | 03 July 2003 Sh |
| 7323 | 58.73 | 115.16 | 3339.6 | 3005.6 | 334.1 | 03 July 2003 Sh |

sales - Power BI Desktop

File Home Help Table tools Column tools

Name Sales Format Decimal number Summarization Sum Data category Uncategorized Sort by column

123 Data type Decimal number \$ % , . 0 1 Properties

Structure Formatting Properties

1 Sales = 'order-Products'[products.MSRP(SellingPrice)]*''order-Products'[QuantityOrdered]

| products.QuantityInStock | products.CostPrice | products.MSRP(SellingPrice) | Sales | CostPrice | Profit | orders.ShippedDate |
|--------------------------|--------------------|-----------------------------|--------|-----------|--------|--------------------|
| 68 | 95.34 | 194.57 | 8171.9 | 7273.1 | 898.8 | 03 July 2003 Sh |
| 9123 | 75.16 | 117.44 | 5637.1 | 5298.7 | 338.4 | 03 July 2003 Sh |
| 5663 | 31.92 | 79.8 | 1915.2 | 1742.9 | 172.3 | 03 July 2003 Sh |
| 7323 | 58.73 | 115.16 | 3339.6 | 3005.6 | 334.1 | 03 July 2003 Sh |

sales - Power BI Desktop

File Home Help Table tools Column tools

Name CostPrice Format Decimal number Summarization Sum Data category Uncategorized

123 Data type Decimal number \$ % , . 0 1 Properties

Structure Formatting Properties

1 CostPrice = 'order-Products'[UnitPrice]*''order-Products'[QuantityOrdered]

| products.QuantityInStock | products.CostPrice | products.MSRP(SellingPrice) | Sales | CostPrice | Profit | orders.ShippedDate |
|--------------------------|--------------------|-----------------------------|--------|-----------|--------|--------------------|
| 68 | 95.34 | 194.57 | 8171.9 | 7273.1 | 898.8 | 03 July 2003 Sh |
| 9123 | 75.16 | 117.44 | 5637.1 | 5298.7 | 338.4 | 03 July 2003 Sh |
| 5663 | 31.92 | 79.8 | 1915.2 | 1742.9 | 172.3 | 03 July 2003 Sh |
| 7323 | 58.73 | 115.16 | 3339.6 | 3005.6 | 334.1 | 03 July 2003 Sh |

The screenshot shows the Power BI Desktop interface with the 'Column tools' ribbon tab selected. In the 'Formatting' section, the 'Format' dropdown is set to 'Decimal number'. Below it, the formula bar displays the measure definition: 'Profit = 'order-Products'[Sales]-'order-Products'[CostPrice]'. A red box highlights this formula.

ii) Creating New Measures:

To create a new measure do as below:

Table view → Home → New Measure:

```
1 Total Customers = DISTINCTCOUNT(customers[CustomerID])

Total Orders = DISTINCTCOUNT(orderdetails[OrderID])

Total products = DISTINCTCOUNT(products[ProductID])

Total Profit = SUM('order-Products'[Profit])

Total Sales = SUM('order-Products'[Sales])

Total Revenue = SUM(payments[Amount])
```

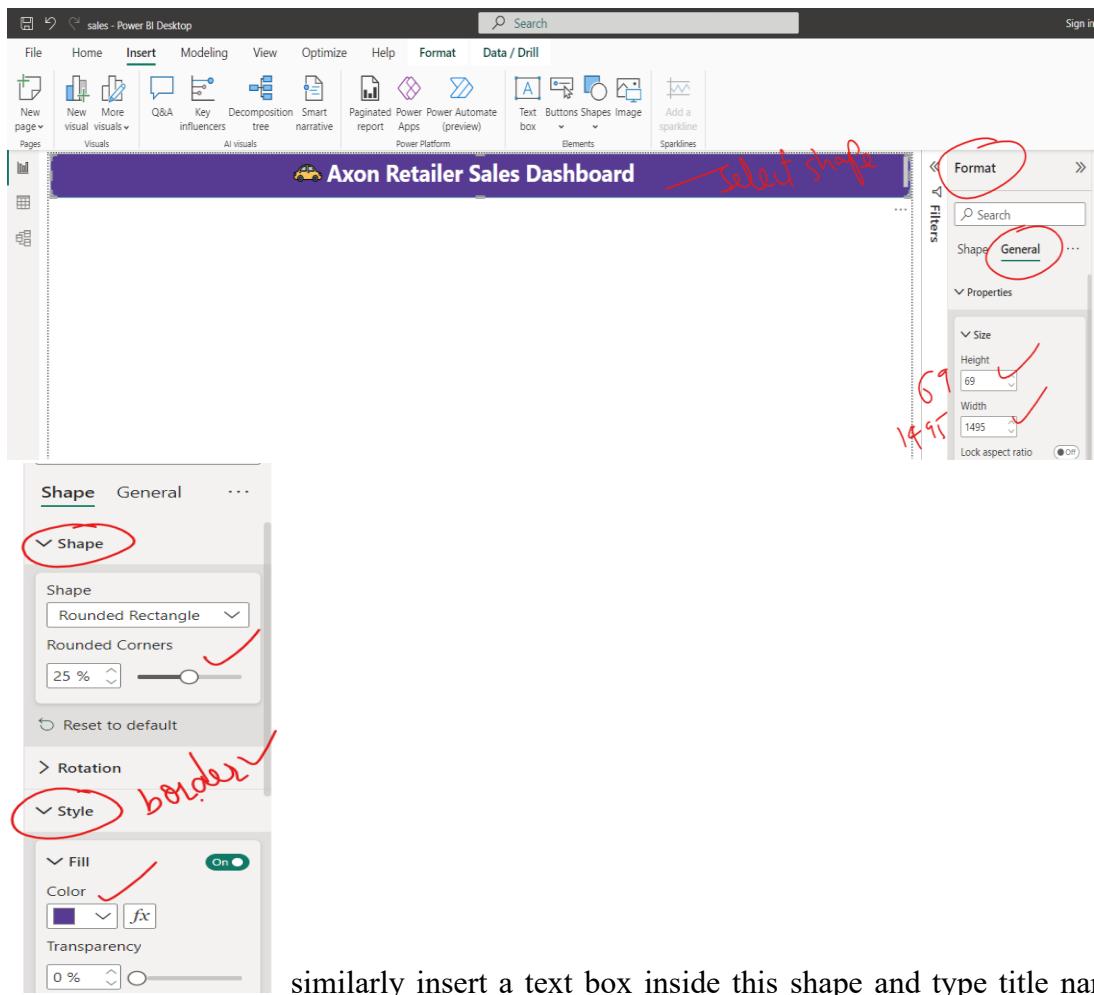
These new measures and columns will be used for creating interactive dashboards.

Step 6: Dashboard Creation

Creating Title bar:

Go to report view → insert → shapes → select rounded rectangle

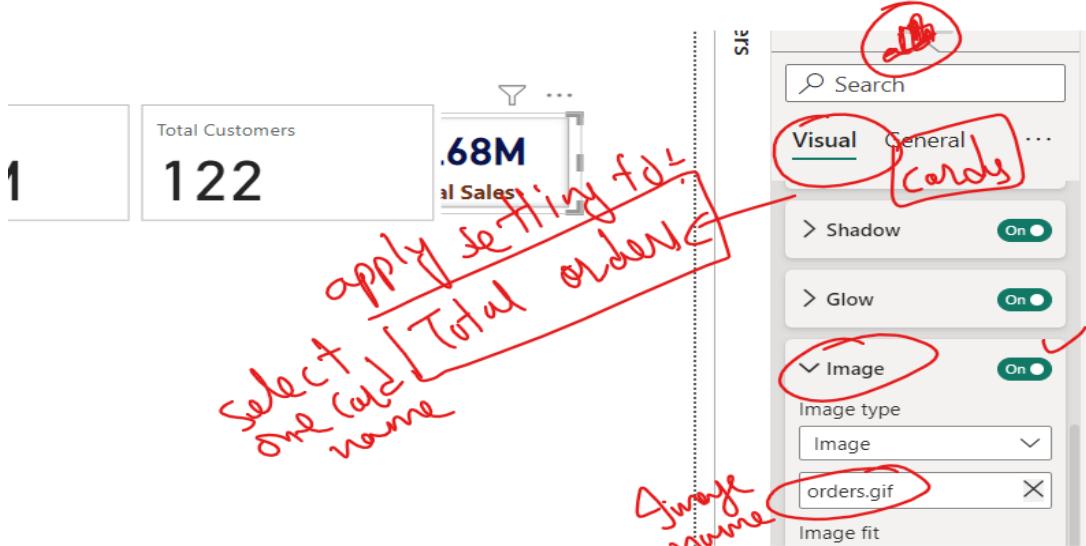
The screenshot shows the Power BI Desktop interface with the 'Insert' ribbon tab selected. In the 'Shapes' group, the 'Shapes' icon is highlighted with a red box. A red box also highlights the 'Rectangles' icon in the dropdown menu that appears when the 'Shapes' icon is selected.



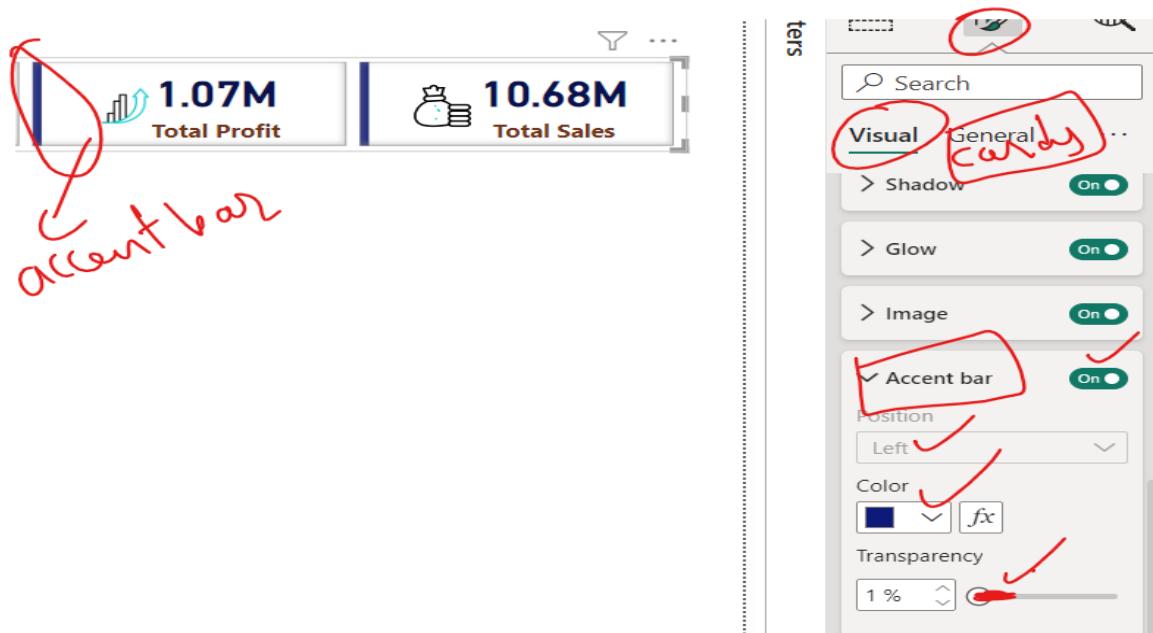
similarly insert a text box inside this shape and type title name. Insert slicers in title bar too (country, year slicers)

Creating cards:

Later format their color title color etc. We can insert images in cards as below:

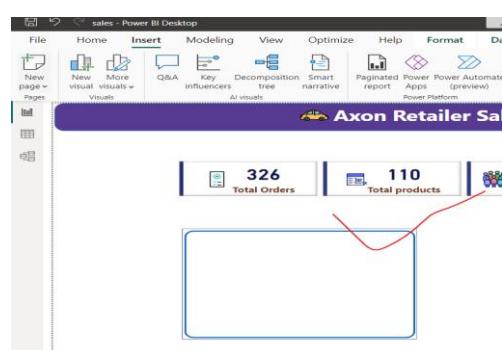


We can even insert accent bars as below in cards:

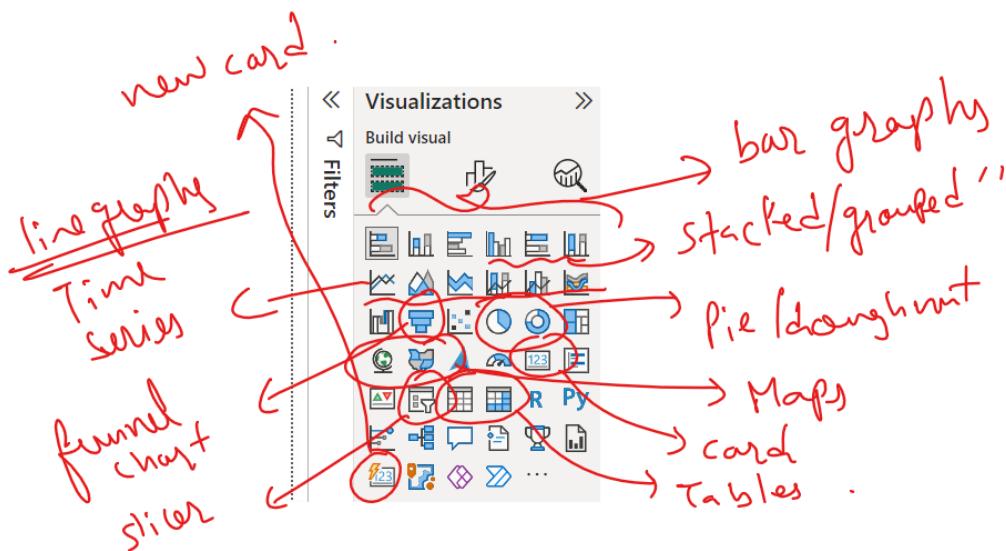


Next goto insert → shapes → rectangle:

Shape: rounded rectangle, rounded corners: 6%, style: color: white, border:color-> blue, width:3



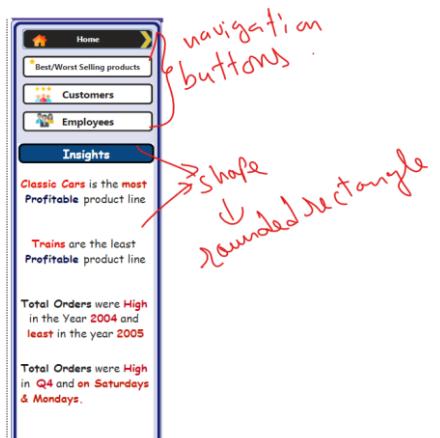
Now create graphs which are needed according to the requirement.

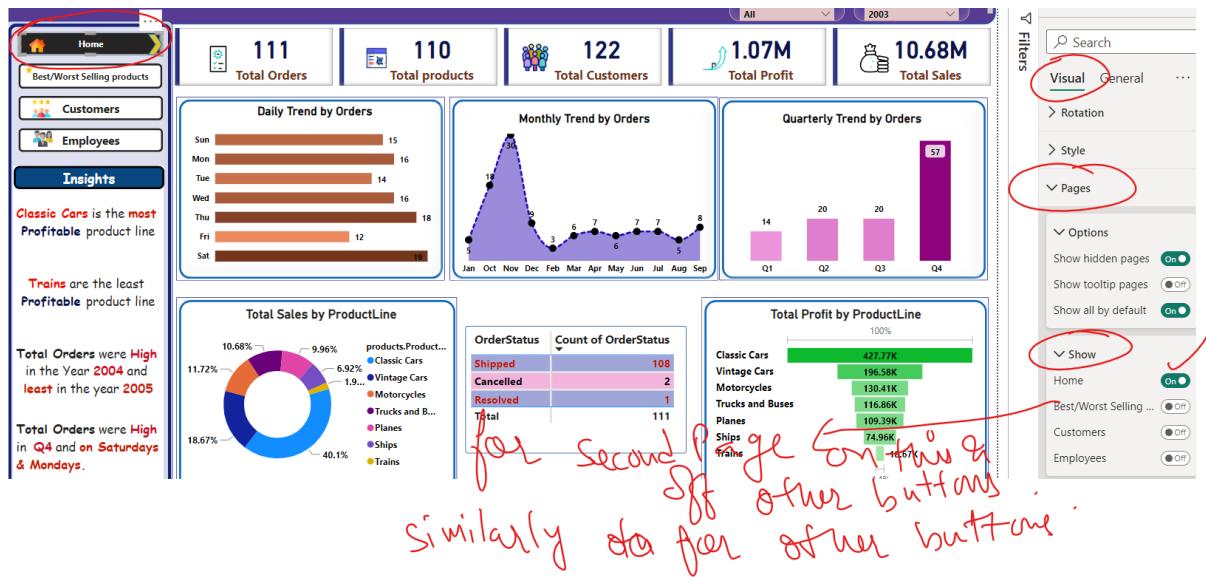


Creation of Navigation buttons

The screenshot shows a Power BI dashboard titled 'Axon Retailer Sales D'. A sidebar on the left contains a menu with 'Home', 'Best/Worst Selling products', 'Customers', 'Employees', 'Insights', and two text boxes stating 'Classic Cars' and 'Trains' are the most/profitable product lines. The main area displays two cards: 'Total Orders' (111) and 'Total products' (110). Below these are two charts: 'Daily Trend by Orders' (a horizontal bar chart showing order counts for each day of the week) and 'Monthly Trend' (a line chart showing total sales per month). A sidebar on the right lists navigation options: Left arrow, Right arrow, Reset, Back, Information, Help, Q&A, Bookmark, Blank, Apply all slicers, Clear all slicers, and Navigator. The 'Navigator' option is circled in red with the handwritten note 'Page Navigation'.

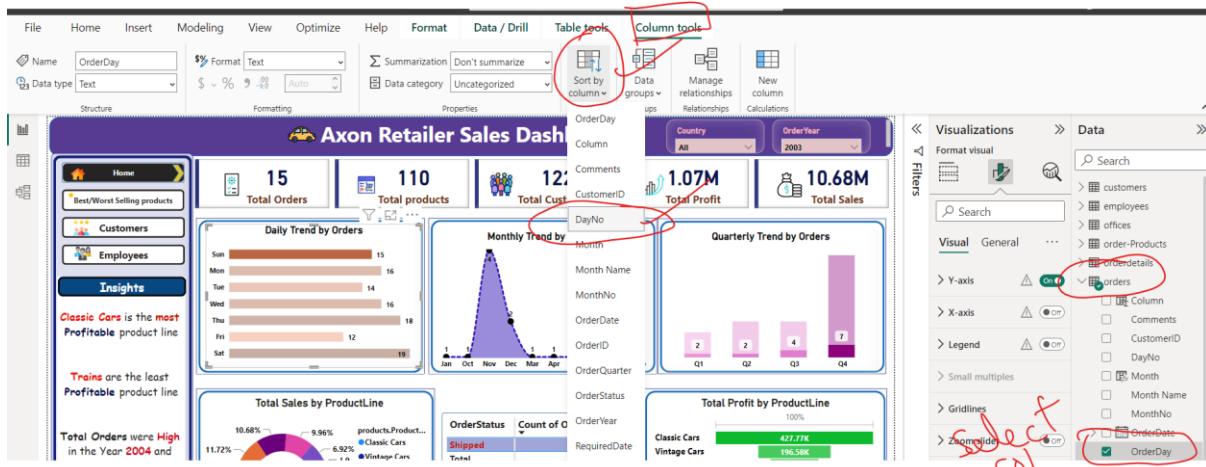
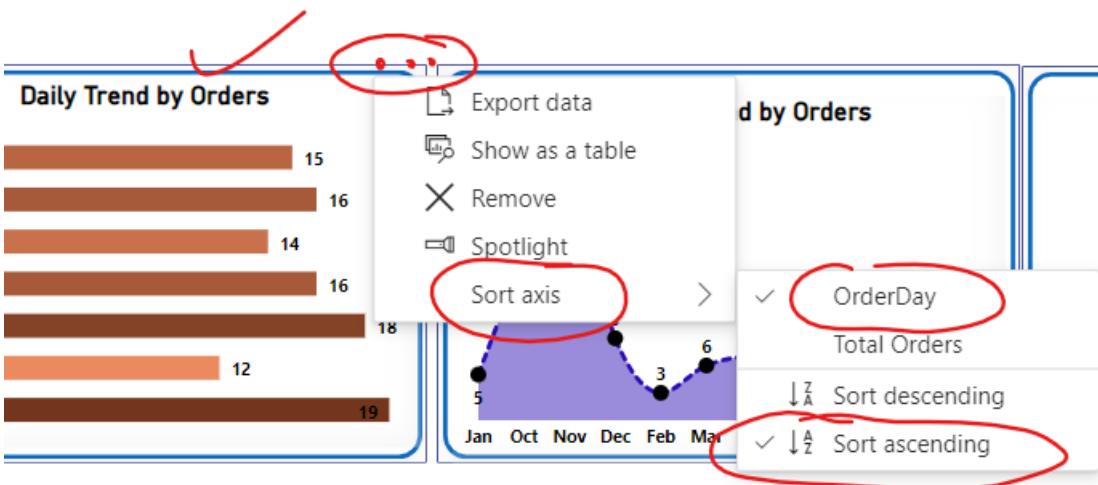
Say if we have 4 pages then 4 buttons are created automatically horizontally. Say now if we want these buttons vertically then delete 3 other page buttons.





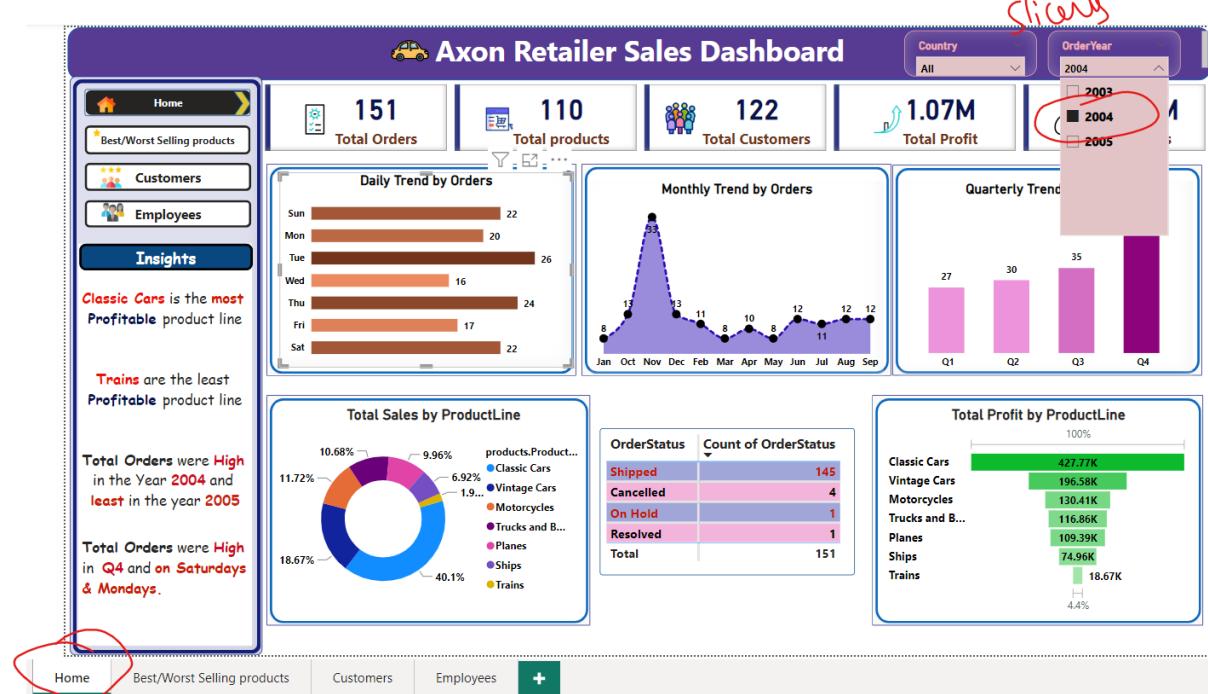
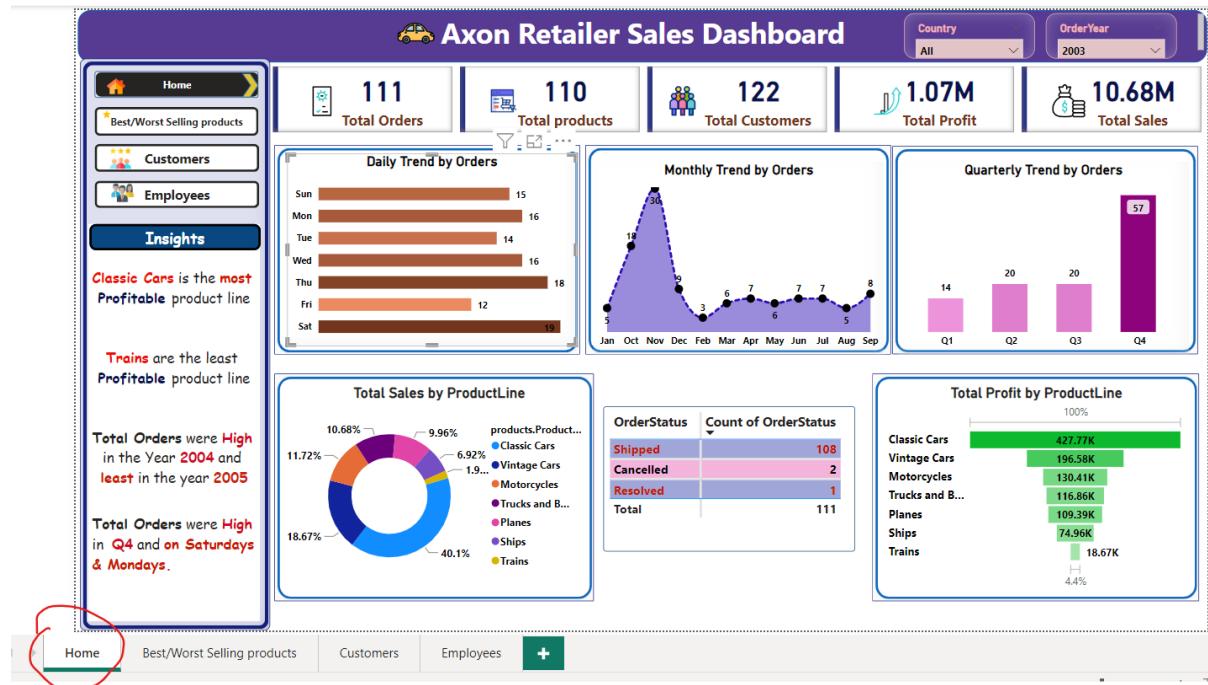
***We need to first press the button and press ctrl key in keyboard then only button navigation works in PowerBI Desktop. For PowerBI service directly if we press buttons it works.

- For graphs to be in ascending order for day wise, month wise graphs do as below:

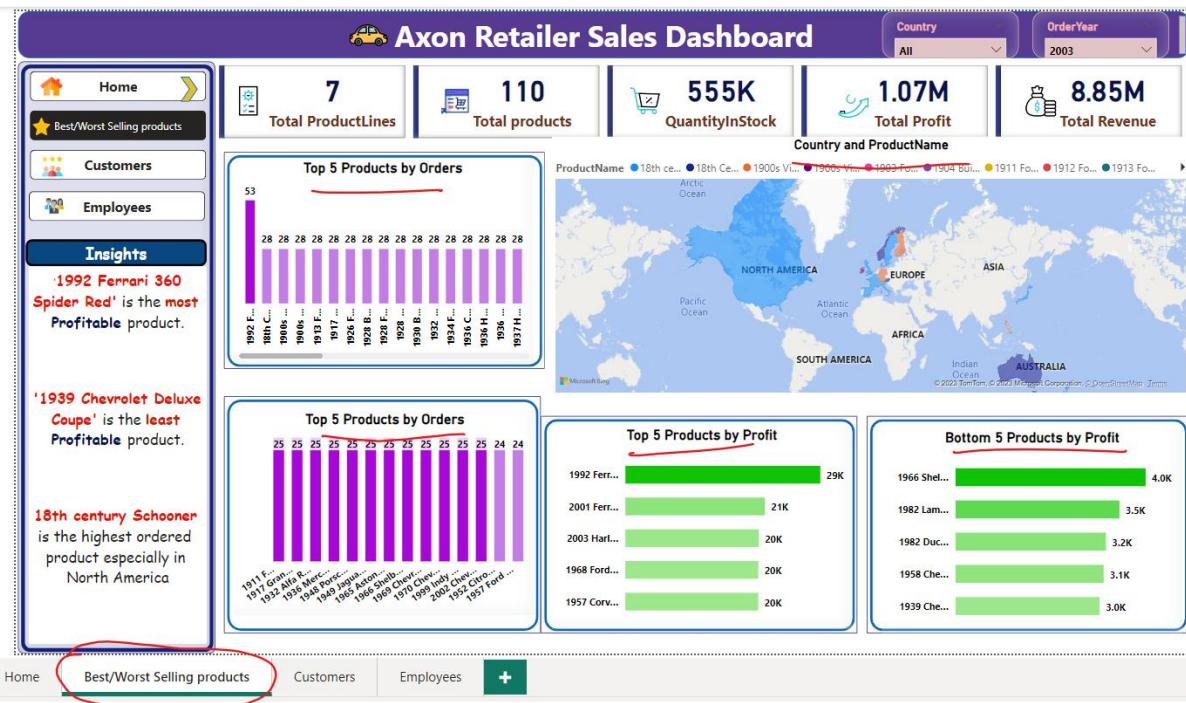


We created 4 pages namely: Home, Best/Worst Selling Products, Customers and Employees pages. Each page has graphs and tables accordingly.

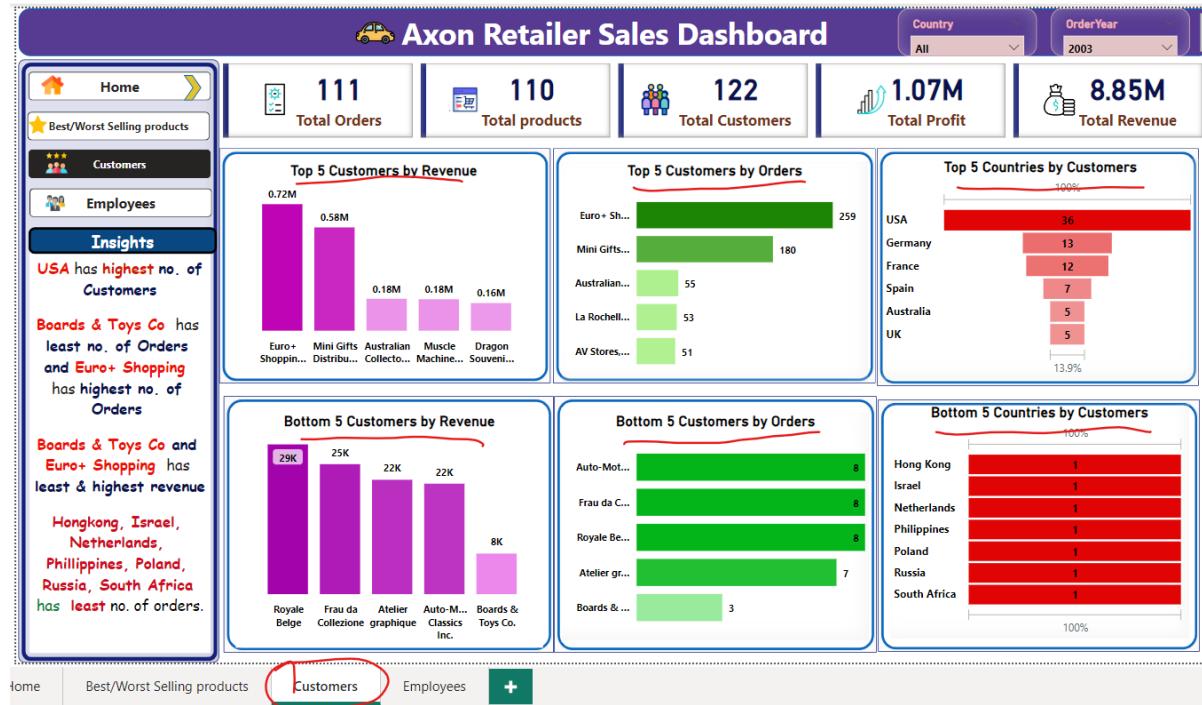
Home page:



Best/Worst Selling Products page:

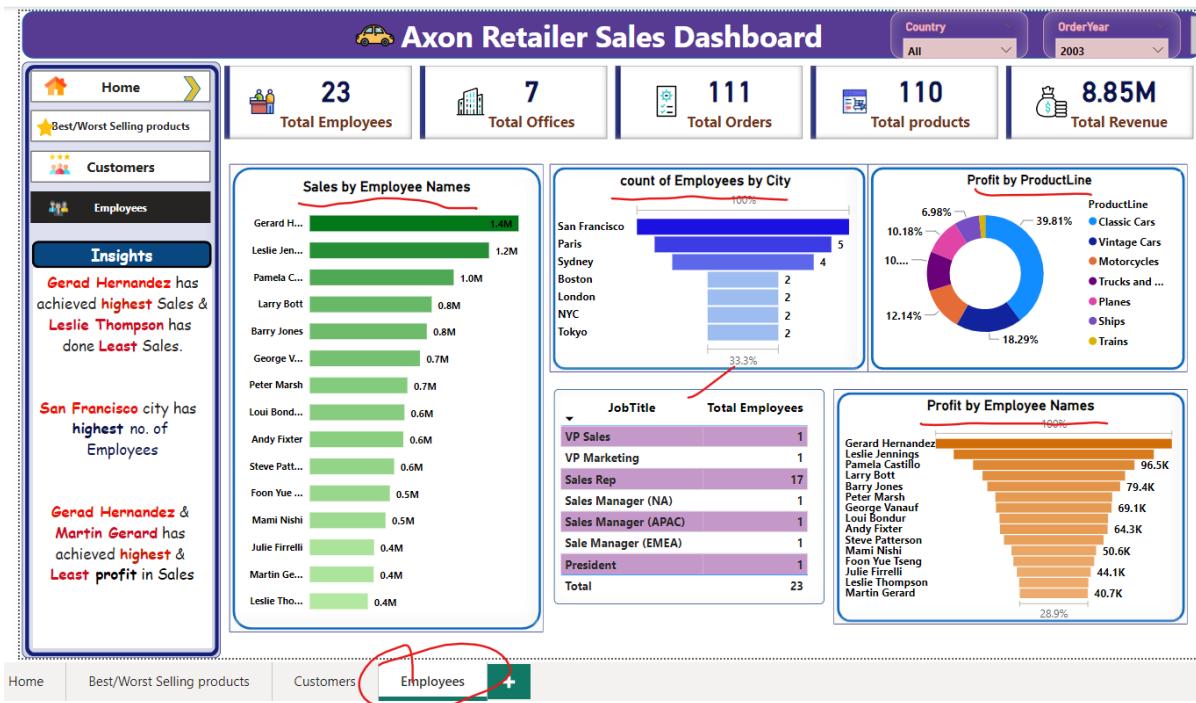


Customers page:



Employees Page:

When any button is selected it is black in color.



Insights:

The following are some of the insights from the above dashboards:

- **Classic Cars** is the **most Profitable** product line
- **Trains** are the **least Profitable** product line
- **Total Orders** were **High** in the Year **2004** and **least** in the year **2005**
- **Total Orders** were **High** in **Q4** and **on Saturdays & Mondays**.
- '**1992 Ferrari 360 Spider Red**' is the **most Profitable** product.
- '**1939 Chevrolet Deluxe Coupe**' is the **least Profitable** product
- **USA** has **highest no. of Customers**
- **Boards & Toys Co** has **least no. of Orders** and **Euro+ Shopping** has **highest no. of Orders**
- **Boards & Toys Co** and **Euro+ Shopping** has **least & highest revenue**
- **Hongkong, Israel, Netherlands, Philippines, Poland, Russia, South Africa** has **least no. of orders**.
- **18th century Schooner** is the highest ordered product especially in North America
- **Gerad Hernandez** has achieved **highest Sales** & **Leslie Thompson** has done **Least Sales**.
- **San Francisco** city has **highest no. of Employees**
- **Gerad Hernandez & Martin Gerard** has achieved **highest & Least profit** in Sales

Suggestions for Sales improvement:

- ✓ **Target New customers** by marketing campaigns in countries with less Sales like Hongkong, Israel, Netherlands, Philippines, Poland, Russia, South Africa.
- ✓ **Train and reward employees** to improve their performance.
- ✓ **Cut costs** by less advertising in North America region as orders are more there.