



# Power BI **Visualization**

## Module 6

# Outline

1. What is Power BI?
2. Components of Power BI
3. Power BI Dashboard Interface
4. Creating your First Visualization
5. Power Query
6. DAX



# Problem statement

Suppose I work for a company that sells **products** in Australia through a membership program.

I wanted to create a report on our **customer performance**.

The visuals in the report should also include the:

- Gender distribution
- Civil status distribution
- Customer distribution per state



M06\_demo - Power BI Desktop

File Home Insert Modeling View Help

Cut Copy Format painter

Get data Excel Power BI SQL Server Data Enter Dataverse Recent sources Transform Refresh data New visual Text box More visuals

New measure Quick measure Sensitivity Publish

Clipboard Data Queries Insert Calculations Sensitivity Share

**CUSTOMER BASE PER MONTH**

Month-Year	Customer Base
2017 Februar	276
2017 März	272
2017 April	296
2017 Mai	272
2017 Juni	282
2017 Juli	622
2017 August	927
2017 September	832
2017 Oktober	727
2017 November	982
2017 Dezember	982
2018 Januar	152
2018 Februar	876
2018 März	273
2018 April	269
2018 Mai	528
2018 Juni	528
2018 Juli	152
2018 August	982
2018 September	152
2018 Oktober	852
2018 November	852
2018 Dezember	952
2019 Januar	152
2019 Februar	152
2019 März	292
2019 April	292
2019 Mai	192
2019 Juni	292
2019 Juli	292
2019 August	152
2019 September	152
2019 October	152
2019 November	252
2019 Dezember	992

**MONTH-YEAR**

All

**GENDER DISTRIBUTION**

Gender	Count	Percentage
M	3.31K	33.05%
F	3.33K	33.33%
O	3.33K	33.6%

**CIVIL STATUS DISTRIBUTION**

Civil Status	Count	Percentage
S	2.44K	24.35%
D	2.49K	24.92%
M	2.51K	25.07%
W	2.57K	25.66%

**AUSTRALIA MAP**

**Page 1 of 4**

CUST SALES CSR Page 1 +

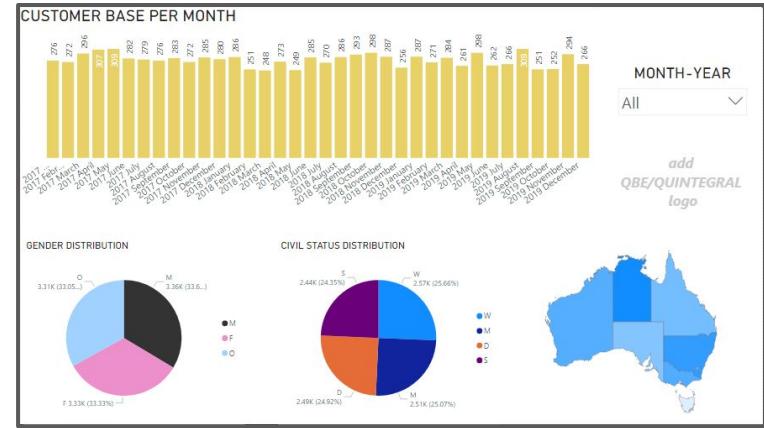
Type here to search

7:38 am 04/11/2021

PC > Documents > 1\_QBE > for\_demo

Name	Date modified	Type	Size
6_cust	15/07/2021 3:30 am	Microsoft Excel C...	499 KB
6_sales	21/09/2021 12:21 pm	Microsoft Excel C...	561 KB
rates	27/10/2021 1:05 am	Microsoft Excel C...	1 KB

# How do we get to here from scratch?



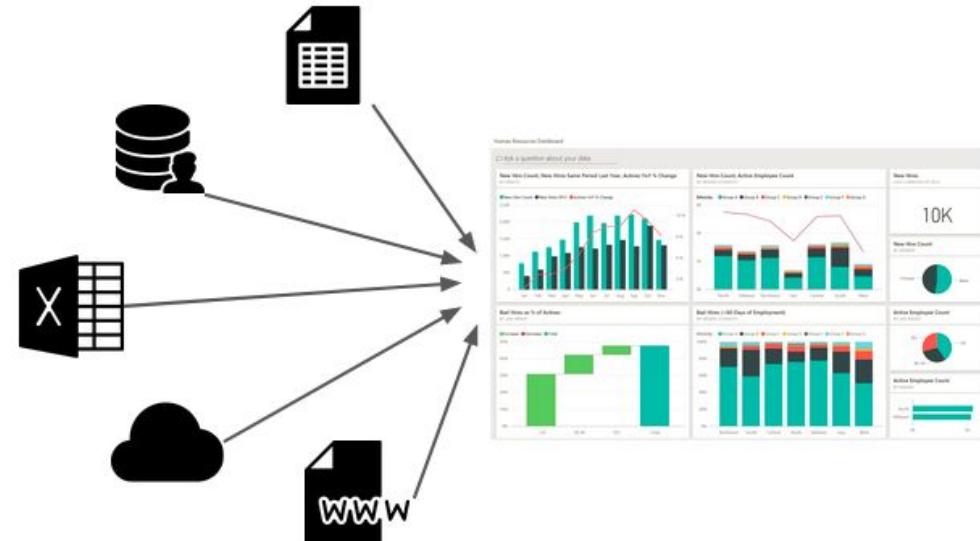


# Power BI

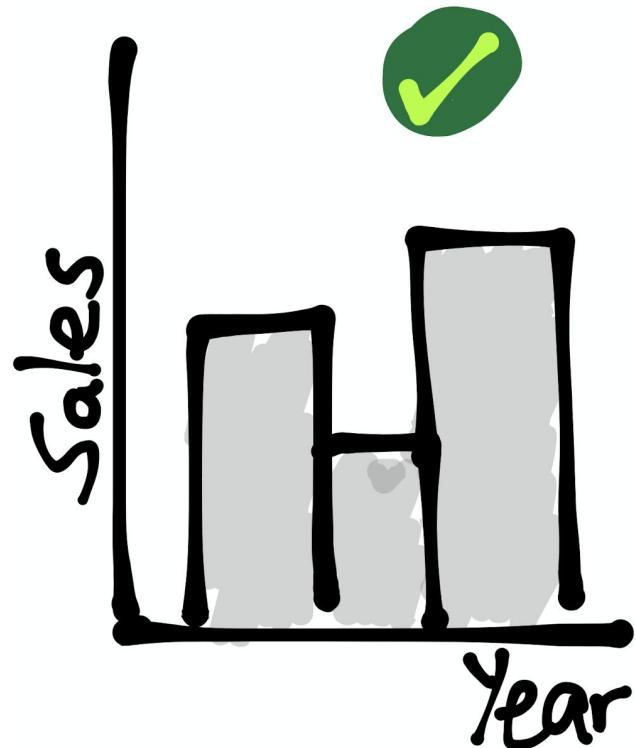
# What is Power BI?

Power BI is a tool that:

- allows **interactive data exploration** to gain insights
- effectively reports insights through **easy-to-use customizable visualizations**



Visually  
representing data  
lets people interpret  
and analyze data  
faster.



Year	Sales
...	...
...	...
...	...
...	...

M06\_demo - Power BI Desktop

File Home Insert Modeling View Help

Cut Copy Format painter Paste Clipboard

Get data Data

Clipboard

Search

Refresh

TOTAL SALES

New measure

Quick measure

Sensitivity

Publish

Calculations

Sensitivity

Share



# Power BI Desktop vs. Service

## Power BI Desktop

- Desktop version
- Tool for data analysis and report creation
- **FREE**
- *Windows OS only*

## Power BI Service

- Cloud-based version
- Suitable for light report editing
- Can share reports



# Download and Installation

1. Installer
2. Microsoft Store



# 1 Installer

Go from data to insight to action with  
Power BI Desktop



Create rich, interactive reports with visual analytics at your fingertips—for free.

[Download free >](#)

[See download or language options >](#)

Go to >> <https://powerbi.microsoft.com/en-us/desktop/> <<



## 2. Microsoft Store



### Power BI Desktop

Microsoft Corporation • Business > Data & analytics

Share

Power BI Desktop

Free

Get

More



IARC  
3+



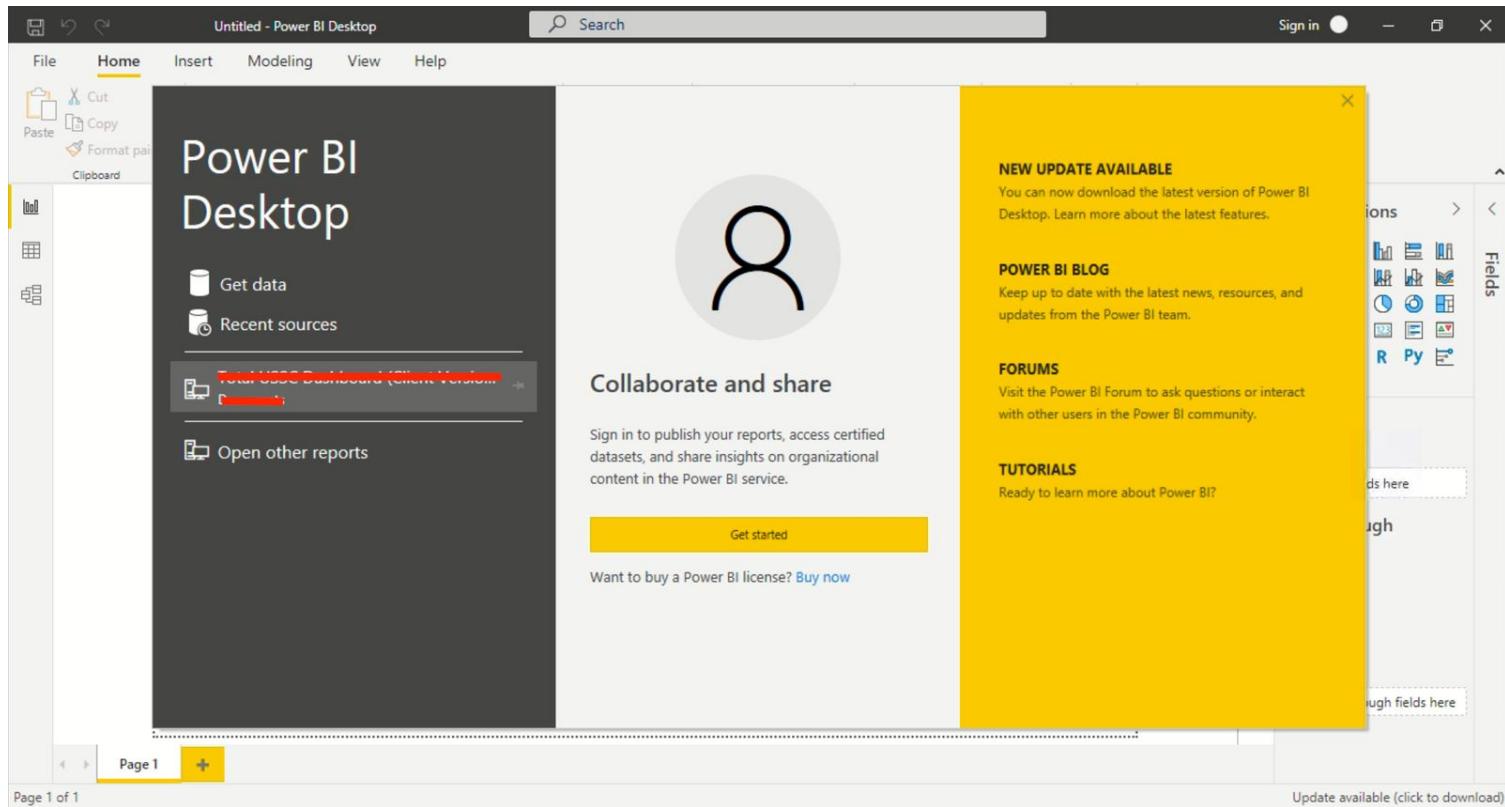
Type here to search



10:07 pm  
27/10/2021 ENG

14

# Power BI interface



**File**   **Home**   Insert   Modeling   View   Help

Clipboard

Data

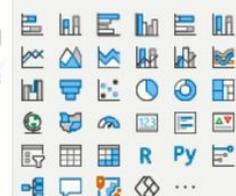
Queries

Insert

Calculations

Sensitivity

Share

**Visualizations**

Values

Add data fields here

**Drill through**

Cross-report

Off 

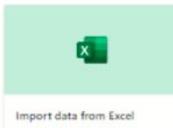
Keep all filters

On 

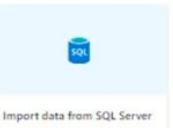
Add drill-through fields here

**Add data to your report**

Once loaded, your data will appear in the Fields pane.



Import data from Excel



Import data from SQL Server



Paste data into a blank table



Try a sample dataset

Get data from another source →

Page 1

+

# Supported data sources\*

## File data sources

- **Excel**
- **Text/CSV**
- **XML**
- **JSON**
- **Folder**
- **PDF**

## Database data sources

- SQL Server database
- **MySQL database**
- PostgreSQL database
- Access database
- Oracle database
- IBM Db2 database
- Google BigQuery
- Amazon Redshift

\*the supported file types are just a part of a non-exhaustive list. Please refer to this [link](#) for more information.

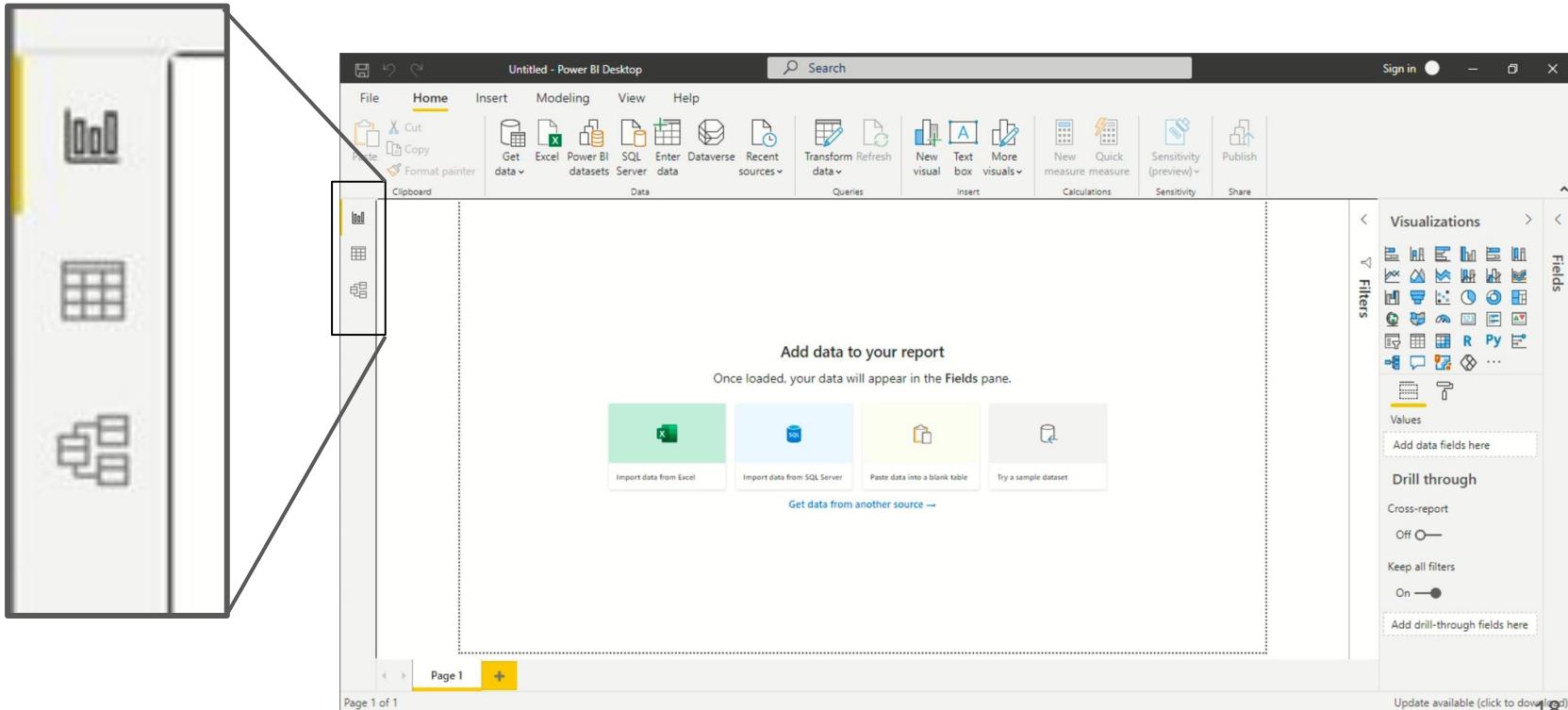


# Power BI Views

Report

Data

Model



# Report View

Untitled - Power BI Desktop

File Home Insert Modeling View Help

Cut Copy Format painter Paste Get data Excel Power BI datasets SQL Server Enter data Dataverse Recent sources Transform Refresh data New visual Text box More visuals Insert Quick measure measure Sensitivity (preview) Publish Share

Sales by Year, Month and Country

Country: Canada, France, Germany, Mexico, United States of America

- Default view  
- User can create reports and visuals

Visualizations Fields

Filters

Values

Add data fields here

Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here

Financials

- Sales
- COGS
- Country

Date

- Discount Band
- Discounts
- Gross Sales
- Manufacturing Pr...
- Month Name
- Month Number
- Product
- Profit
- Sale Price
- Segment
- Units Sold
- Year

Page 1 +

Page 1 of 1

Update available (click to download)

# Data View

Untitled - Power BI Desktop

File Home Help Table tools

Name financials

Mark as date table Manage relationships New measure Quick New measure column New table

Structure Calendars Relationships Calculations

Segment Country Product Discount Band Units Sold Manufacturing Price Sale Price Gross Sales Discounts Sales COGS Profit Date

Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	Gross Sales	Discounts	Sales	COGS	Profit	Date
Government	Germany	Carretera	None	1513	3	350	529550	0	529550	393380	136170	Monday, 1 Decem
Government	Germany	Paseo	None	1006	10	350	352100	0	352100	261560	90540	Sunday, 1 Ju
Government	Canada	Paseo	None	1725	10	350	603750	0	603750	448500	155250	Friday, 1 Novem
Government	Germany	Paseo	None	1513	10	350	529550	0	529550	393380	136170	Monday, 1 Decem
Government	Germany	Velo	None	1006	120	350	352100	0	352100	261560	90540	Sunday, 1 Ju
Government	France	VTT	None	1527	250	350	534450	0	534450	397020	137430	Sunday, 1 Septem
Government	France	Amarilla	None	2750	260	350	962500	0	962500	715000	247500	Saturday, 1 Febru
Government	Mexico	Carretera	Low	1210	3	350	423500	4235	419265	314600	104665	Saturday, 1 Mai
Government	Mexico	Carretera	Low	1397	3	350	488950	4889.5	484060.5	363220	120840.5	Wednesday, 1 Octob
Government	France	Carretera	Low	2155	3	350	754250	7542.5	746707.5	560300	186407.5	Monday, 1 Decem
Government	France	Paseo	Low	2155	10	350	754250	7542.5	746707.5	560300	186407.5	Monday, 1 Decem
Government	Canada	VTT	Low	943.5	250	350	330225	3302.25	326922.75	245310	81612.75	Tuesday, 1 Apr
Government	Mexico	VTT	Low	1397	250	350	488950	4889.5	484060.5	363220	120840.5	Wednesday, 1 Octob
Government	Canada	Carretera	Low	2852	3	350	998200	19964	978236	741520	236716	Monday, 1 Decem
Government	Canada	Paseo	Low	2852	10	350	998200	19964	978236	741520	236716	Monday, 1 Decem
Government	Germany	Velo	Low	2966	120	350	1038100	20762	1017338	771160	246178	Tuesday, 1 Octob
Government	Germany	Velo	Low	2877	120	350	1006950	20139	986811	748020	238791	Wednesday, 1 Octob
Government	Germany	VTT	Low	2877	250	350	1006950	20139	986811	748020	238791	Wednesday, 1 Octob
Government	United States of America	VTT	Low	266	250	350	93100	1862	91238	69160	22078	Sunday, 1 Decem
Government	Mexico	VTT	Low	1940	250	350	679000	13580	665420	504400	161020	Sunday, 1 Decem
Government	Germany	Amarilla	Low	2966	260	350	1038100	20762	1017338	771160	246178	Tuesday, 1 Octob
Government	Germany	Montana	Low	1797	5	350	628950	18868.5	610081.5	457220	142861.5	Sunday, 1 Septem

Table: financials (700 rows) Update available (click to download)

User can view the data used in report/s

# Model View

The screenshot shows the Power BI Desktop interface with the 'Home' tab selected in the ribbon. The ribbon also includes 'File', 'Help', and other tabs like 'Clipboard'. Below the ribbon are several data import options: 'Get data' (with sub-options for 'Excel', 'Power BI datasets', 'SQL Server', 'Enter data', 'Dataverse', and 'Recent sources'), 'Transform Refresh data', 'Manage relationships', 'Relationships', 'Security', 'Q&A', 'Language setup', 'Linguistic schema', and 'Publish'. On the left, there's a navigation pane with icons for 'All tables', 'Relationships', and 'Model'. A context menu for a table named 'financials' is open, listing items like Sales, COGS, Country, Date, Discount Band, Discounts, Gross Sales, Manufacturing Price, Month Name, Month Number, and Product. The main workspace is titled 'Properties' and contains a message: 'Select one or more model objects to set their properties.' To the right, under 'Fields', there's a search bar and a list containing 'financials'. At the bottom, there are buttons for 'All tables' and a plus sign, along with a status bar indicating 'Update available (click to download)'.

User can view and manage the relationships among tables in the **data model**

# Power Query Editor

The screenshot shows the Microsoft Power Query Editor interface with the title bar "M06 - Power Query Editor". The ribbon menu includes File, Home, Transform, Add Column, View, Tools, and Help. The Home tab is selected, displaying various icons for file operations like Close & Apply, New, Recent, Enter Data, Data source settings, Manage Parameters, Refresh, Advanced Editor, Properties, and Preview. Below the ribbon is a toolbar with buttons for Close, New Query, Data Sources, Manage Columns, Sort, and Transform.

The main area displays a table titled "6\_claims" with the following columns and data:

	MEMBER_NO	DATE	BRANCH_CODE	BRANCH_TYPE	AMOUNT	CURRENCY
1	773806167	06/12/2020	MOB	MOBILE	9831.75	PHP
2	8656135657	20/09/2020	963	STORE	1369.25	PHP
3	5509330826	28/10/2020	MOB	MOBILE	3539	PHP
4	3064271133	20/10/2020	826	STORE	153.75	PHP
5	443118051	02/02/2020	MOB	MOBILE	2043.25	PHP
6	9559647049	22/09/2020	447	STORE	6436.25	PHP
7	9959931848	12/12/2020	MOB	MOBILE	3889.5	PHP
8	6365985243	26/02/2020	MOB	MOBILE	2160.25	PHP
9	8700231322	02/07/2020	MOB	MOBILE	5330.5	PHP
10	7011759861	26/02/2020	520	STORE	8742.75	PHP
11	9102619148	21/04/2020	300	STORE	7341	PHP
12	9806062431	11/03/2020	MOB	MOBILE	861.25	PHP
13	695049755	06/07/2020	MOB	MOBILE	6559.5	PHP
14	5345946297	17/01/2020	782	STORE	9082	PHP
15	136694797	31/10/2020	MOB	MOBILE	6499.25	PHP
16	4251479882	22/07/2020	849	STORE	379	PHP
17	6530320511	19/09/2020	893	STORE	3182.5	PHP
18	9446539303	21/11/2020	319	STORE	5437.75	PHP
19	567560413	20/03/2020	926	STORE	6367	PHP
20	6960727671	24/07/2020	078	STORE	8794.5	PHP
21	9608488197	30/12/2020	342	STORE	5103.25	PHP
22	6247149141	26/11/2020	686	STORE	4639	PHP
23	672443754	05/02/2020	MOB	MOBILE	6327.25	PHP
24						

Below the table, status bars indicate "8 COLUMNS, 999+ ROWS" and "Column profiling based on top 1000 rows". The bottom right corner shows "PREVIEW DOWNLOADED AT 10:53 PM" and the date "28/10/2021".

The right side of the screen features the "Query Settings" pane, which includes sections for "PROPERTIES" (Name: 6\_claims) and "APPLIED STEPS" (Promoted Headers, Changed Type). The "APPLIED STEPS" section also lists "Source".

M06 - Power Query Editor

**File** Home Transform Add Column View Tools Help

Close & Apply New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor Properties Choose Columns Remove Columns Keep Rows Remove Rows Sort Data Type: Whole Number Merge Queries Text Analytics Append Queries Vision Combine Files Combine Azure Machine Learning Close New Query Parameters Query Manage Columns Manage Rows Reduce Rows Group By Use First Row as Headers Replace Values Transform

**Queries [4]**

6\_cust  
6\_claims  
Table 3  
csr\_operations\_data

= Table.TransformColumnTypes(#"Promoted Headers",{{"MEMBER\_NO", Int64.Type}, {"DATE", type date}, {"BRANCH\_CODE", type string}, {"BRANCH\_TYPE", type string}, {"AMOUNT", type decimal}, {"CURRENCY", type string})

	MEMBER_NO	DATE	BRANCH_CODE	BRANCH_TYPE	AMOUNT	CURRENCY
1	773806167	06/12/2020	MOB	MOBILE	9831.75	PHP
2	8666135657	20/09/2020	963	STORE	1369.25	PHP
3	5509330826	28/10/2020	MOB	MOBILE	3539	PHP
4	3064271133	20/10/2020	826	STORE	153.75	PHP
5	443118051	02/02/2020	MOB	MOBILE	2043.25	PHP
6	9559647049	22/09/2020	447	STORE	6436.25	PHP
7	9959931848	12/12/2020	MOB	MOBILE	3889.5	PHP
8	6365985243	26/02/2020	MOB	MOBILE	2160.25	PHP
9	8700231322	02/07/2020	MOB	MOBILE	5330.5	PHP
10	7011759861	26/02/2020	520	STORE	8742.75	PHP
11	9102619148	21/04/2020	300	STORE	7341	PHP
12	9806062431	11/03/2020	MOB	MOBILE	861.25	PHP
13	695049755	06/07/2020	MOB	MOBILE	6559.5	PHP
14	5345946297	17/01/2020	782	STORE	9082	PHP
15	136694797	31/10/2020	MOB	MOBILE	6499.25	PHP
16	4251479882	22/07/2020	849	STORE	379	PHP
17	6530320511	19/09/2020	893	STORE	3182.5	PHP
18	9446539303	21/11/2020	819	STORE	5437.75	PHP
19	567560413	20/03/2020	926	STORE	6367	PHP
20	6960727671	24/07/2020	078	STORE	8794.5	PHP
21	9608488197	30/12/2020	342	STORE	5103.25	PHP
22	6247149141	26/11/2020	686	STORE	4639	PHP
23	672443754	05/02/2020	MOB	MOBILE	6327.25	PHP
24						

8 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 10:53 PM

**Query Settings**

**PROPERTIES**

Name: 6\_claims

All Properties

**APPLIED STEPS**

Source  
Promoted Headers  
Changed Type



# Canvas Area

The screenshot shows the Microsoft Power BI desktop interface. The main area displays a grouped bar chart titled "Sales by Year, Month and Country" for the years 2013 and 2014. The chart has four bars per month, representing Canada (blue), France (orange), Mexico (purple), and United States of America (pink). The Y-axis represents sales in millions, ranging from 0M to 4M. The X-axis shows months from September 2013 to December 2014. The chart is titled "CANVAS AREA".

**File Home Insert Modeling View Help**

Cut Copy Format painter Get data Excel Power BI datasets Server data Refresh data Transform data New visual Text box More visuals New measure Quick measure Sensitivity (preview) Publish Share

Sales by Year, Month and Country  
Country: Canada, France, Germany, Mexico, United States of America

4M

3M

2M

1M

0M

2013 September October November December 2013 January February 2014 March April May June July August September October November December 2014

Date Month

**Visualizations Fields**

Search

financials

- $\sum$  Sales
- $\sum$  COGS
- Country

Date

- Discount Band
- $\sum$  Discounts
- $\sum$  Gross Sales
- $\sum$  Manufacturing Pr...
- Month Name
- $\sum$  Month Number
- Product
- $\sum$  Profit
- $\sum$  Sale Price
- Segment
- $\sum$  Units Sold
- $\sum$  Year

Add data fields here

Values

Add drill-through fields here

Drill through

Cross-report

Off

Keep all filters

On

Update available (click to download)

Page 1 +

Page 1 of 1

# Filters pane

The screenshot shows a Microsoft Power BI interface with a bar chart titled "Sales by Year, Month and Country". The chart displays monthly sales for five countries: Canada (blue), France (orange), Germany (yellow), Mexico (purple), and United States of America (pink). The Y-axis represents Sales in millions, ranging from 0M to 4M. The X-axis represents the Date Month, from September 2013 to December 2014. A legend at the top left identifies the countries by color. To the right of the chart, the "Filters" pane is open, showing filter settings for the visual. The pane includes sections for "Filters on this visual" (Sales is (All), Country is (All), Date - Month is (All), Date - Year is (All)), "Add data fields here", and "Filters on this page" (Add data fields here). The "Visualizations" pane is also visible on the right, showing icons for various chart types. A large black arrow points from the text "FILTERS PANE" at the bottom center towards the open filters pane.

FILTERS PANE →

# Visualizations pane

The screenshot shows the Microsoft Power BI desktop application. The ribbon at the top includes File, Home, Insert, Modeling, View, Help, Format, Data / Drill, and Sensitivity. The Home tab is selected. The main area displays a grouped bar chart titled "Sales by Year, Month and Country". The chart shows sales figures for five countries (Canada, France, Germany, Mexico, United States of America) across twelve months from September 2013 to December 2014. The Y-axis represents Sales in millions, ranging from 0M to 4M. The X-axis represents the Date Month. A legend at the bottom identifies the colors for each country: Canada (blue), France (orange), Germany (red), Mexico (purple), and United States of America (pink).

**VISUALIZATIONS PANES**

The Visualizations pane is open on the right side of the screen, displaying various visualization icons. It includes sections for Filters, Visualizations, Fields, and other settings.

**Fields**

- Search: financials
  - Sales
  - COGS
  - Country
- Date
  - Date
  - Discount Band
  - Discounts
  - Gross Sales
  - Manufacturing Pr...
  - Month Name
  - Month Number
  - Product
  - Profit
  - Sale Price
  - Segment
  - Units Sold
  - Year

Page 1

Page 1 of 1

Update available (click to download)

# Fields pane

The screenshot shows the Power BI interface with the Fields pane open on the right side. The main area displays a grouped bar chart with four bars per month, colored blue, orange, purple, and pink. The x-axis labels are '14 June', '2014 July', '2014 August', '2014 September', '2014 October', '2014 November', and '2014 December'. The y-axis has numerical tick marks at 100, 200, 300, 400, and 500.

The Fields pane contains the following sections:

- Filters**:
  - Search bar
  - Filters on this visual:
    - Sales (is (All))
    - Country (is (All))
    - Date - Month (is (All))
    - Date - Year (is (All))
    - Add data fields here
  - Filters on this page
- Visualizations**: A grid of icons representing various visualization types.
- Fields**:
  - Search bar
  - financials
    - Sales
    - COGS
    - Country
  - Date
    - Date
    - Discount Band
    - Discounts
    - Gross Sales
    - Manufacturing Pr..
    - Month Name
    - Month Number
  - Legend
    - Product
    - Profit
    - Sale Price
    - Segment
  - Values
    - Sales

# Creating the first dashboard

M06\_demo - Power BI Desktop

File Home Insert Modeling View Help

Clipboard

Get data Excel Power BI SQL Enter data Data

Transform Refresh data Queries

New visual Text box More visuals Insert

Transform Refresh data Queries

Text box More visuals Insert

Calculated measure Sensitivity Quick measure Publish

Customer Base per Month

Month-Year

All

Fields

Visualizations

Filters

CUSTOMER BASE PER MONTH

MONTH-YEAR

All

Fields

Visualizations

Filters

GENDER DISTRIBUTION

CIVIL STATUS DISTRIBUTION

AUSTRALIA MAP

3.31K (33.05%) M  
3.36K (33.6%) O  
F 3.33K (33.33%) F

2.44K (24.35%) S  
2.49K (24.92%) D  
2.51K (25.07%) M  
W 2.57K (25.66%) W

CUST SALES CSR Page 1 +

Page 1 of 4

Type here to search

7:38 am 04/11/2021

28

PC > Documents > 1\_QBE > for\_demo

Name	Date modified	Type	Size
6_cust	15/07/2021 3:30 am	Microsoft Excel C...	499 KB
6_sales	21/09/2021 12:21 pm	Microsoft Excel C...	561 KB
rates	27/10/2021 1:05 am	Microsoft Excel C...	1 KB



6 sales.csv

```
1 MEMBER_NO,DATE,BRANCH_CODE,BRANCH_TYPE,AMOUNT,CURRENCY,TRAN_CODE,TRAN_DESC
2 0773806167,2020-12-06,MOB,MOBILE,9831.75,PHP,IN1003,TYPE3
3 8666135657,2020-09-20,963,STORE,1369.25,PHP,IN1005,TYPE5
4 5509330826,2020-10-28,MOB,MOBILE,3539.00,PHP,IN1002,TYPE2
5 3064271133,2020-10-20,826,STORE,153.75,PHP,IN1001,TYPE1
6 0443118051,2020-02-02,MOB,MOBILE,2043.25,PHP,IN1001,TYPE1
7 9559647049,2020-09-22,447,STORE,6436.25,PHP,IN1003,TYPE3
8 9959931848,2020-12-12,MOB,MOBILE,3889.50,PHP,IN1002,TYPE2
9 6365985243,2020-02-26,MOB,MOBILE,2160.25,PHP,IN1004,TYPE4
10 8700231322,2020-07-02,MOB,MOBILE,5330.50,PHP,IN1003,TYPE3
11 7011759861,2020-02-26,520,STORE,8742.75,PHP,IN1001,TYPE1
12 9102619148,2020-04-21,300,STORE,7341.00,PHP,IN1005,TYPE5
13 9806062431,2020-03-11,MOB,MOBILE,861.25,PHP,IN1001,TYPE1
14 0695049755,2020-07-06,MOB,MOBILE,6559.50,PHP,IN1003,TYPE3
15 5345946297,2020-01-17,782,STORE,9082.00,PHP,IN1005,TYPE5
16 0136694797,2020-10-31,MOB,MOBILE,6499.25,PHP,IN1005,TYPE5
17 4251479882,2020-07-22,849,STORE,379.00,PHP,IN1004,TYPE4
18 6530320511,2020-09-19,893,STORE,3182.50,PHP,IN1002,TYPE2
19 9446539303,2020-11-21,319,STORE,5437.75,PHP,IN1002,TYPE2
```

## sales data

MEMBER\_NO: 10-digit number

DATE: {2020}-{1-12}-{1-28/29/30/31} (transaction date)

BRANCH: 123 / MOB (MOB means that transaction was done via mobile app)

BRANCH\_TYPE: STORE / MOBILE

AMOUNT: range = [10.00-10000.75]

CURRENCY: {PHP}

TRAN\_CODE: {IN1001, IN1002, ..., IN1005}

TRAN\_DESC: {TYPE1, TYPE2, .., TYPE5} (product type)



	MEMBER_NO,ENROLLED_DATE,BIRTH_DATE,GENDER,CIVIL_STATUS,BRANCH_CODE,BRANCH_TYPE,STATE
1	9946910374,2018-01-04,1995-10-21,M,S,443,STORE,VIC
2	5218880921,2019-04-20,1983-11-09,F,D,119,STORE,TAS
3	1231130840,2019-03-02,1985-03-16,O,W,MOB,MOBILE,ACT
4	6417181135,2018-06-08,1988-02-29,M,W,MOB,MOBILE,NSW
5	4457034841,2018-06-01,1997-07-21,M,W,431,STORE,SA
6	4161099774,2017-09-25,1995-05-23,O,D,MOB,MOBILE,ACT
7	2797877520,2018-02-02,2001-04-08,O,D,646,STORE,WA
8	2690183236,2019-04-29,1981-10-27,M,S,MOB,MOBILE,QLD
9	9213400351,2018-04-30,1988-07-19,M,D,MOB,MOBILE,NSW
10	7118793488,2017-01-18,1975-11-12,O,W,517,STORE,NT
11	5385825171,2018-05-07,1977-10-24,M,S,477,STORE,VIC
12	4114118930,2017-02-22,1992-08-15,O,S,657,STORE,SA
13	3494985156,2019-06-05,1998-06-09,O,S,MOB,MOBILE,ACT
14	

## customer data

MEMBER\_NO: 10-digit number

DATE: {2017-2019}-{1-12}-{1-28/29/30/31} (date enrolled)

BDATE: {1970-2005}-{1-12}-{1-28/29/30/31} (birthdate)

GENDER: {M/F/Other}

CIVIL\_STATUS: {S/single, M/married, D/divorced, W/widowed}

BRANCH: BRANCH\_123 / BRANCH\_MOB (branch enrolled)

BRANCH\_TYPE: STORE / MOBILE

STATE: Australian state (NSW, VIC, QLD, WA, SA, TAS, ACT, NT)





rates.csv



	TRAN_CODE, REV_RATE
1	IN1001, 0.01
2	IN1002, 0.10
3	IN1003, 0.25
4	IN1004, 0.3
5	IN1005, 0.5
6	

rate data

TRAN\_CODE: {IN1001, IN1002, ..., IN1005}  
RATE: Net profit rate per product type



← → ⌂ https://docs.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-types-for-reports-and-q-and-a ⌂ ⌂ Import bookmarks... Getting Started Apple Find my iDevice Google Maps YouTube News Popular LinkedIn GitHub DataCamp Duolingo Calm App > Other Bookmark

This article lists visualizations available in Power BI. We'll be adding new visualizations, stay tuned!

Filter by title

Which Power BI license do I have?

Learn how to ask questions using natural language

How to

- > Dashboards
- > Reports

Visualizations

Types of visualizations

- Show the data that was used to create the visualization
- Copy a visual and paste it elsewhere
- Drill down in a visualization

> Power BI in Teams

> Common tasks

> Get data

> Ask questions of your data

> Resources

Download PDF

And check out the [Microsoft AppSource](#), where you'll find a growing list of [Power BI visuals](#) you can download and use in your own dashboards and reports. Feeling creative? [Learn how to create and add your own visuals to this community site.](#)

## Visualizations in Power BI

All of these visualizations can be added to Power BI reports, specified in Q&A, and pinned to dashboards.

### Area charts: Basic (Layered) and Stacked

This Year Sales and Last Year Sales by Fiscal Month

● This Year Sales ● Last Year Sales

\$2M \$3M \$4M

The chart displays two stacked areas representing sales data. The teal area represents 'This Year Sales' and the grey area represents 'Last Year Sales'. The total sales fluctuate between approximately \$2.5M and \$3.5M across the fiscal months.

Is this page helpful?

Yes No

In this article

- Visualizations in Power BI
- Area charts: Basic (Layered) and Stacked
- Bar and column charts
- Cards
- Combo charts
- Decomposition tree
- Doughnut charts
- Funnel charts
- Gauge charts
- Key influencers chart
- KPIs
- Line charts
- Maps
- Matrix
- Pie charts
- Power Apps visual
- Q&A visual

M06\_demo - Power BI Desktop

File Home Insert Modeling View Help

Cut Copy Format painter

Get data Excel Power BI SQL Server Enter Dataverse Recent sources

Transform Refresh data New visual Text box More visuals

New measure Quick measure Sensitivity Publish

Clipboard Data Queries Insert Calculations Sensitivity Share

**CUSTOMER BASE PER MONTH**

Month	Customer Base
2017 Februar	276
2017 März	27
2017 April	296
2017 Mai	30
2017 Juni	28
2017 Juli	62
2017 August	62
2017 September	92
2017 Oktober	27
2017 November	152
2017 Dezember	152
2018 Januar	982
2018 Februar	152
2018 März	273
2018 April	876
2018 Mai	269
2018 Juni	982
2018 Juli	152
2018 August	152
2018 September	152
2018 Oktober	152
2018 November	152
2018 Dezember	152
2019 Januar	152
2019 Februar	152
2019 März	152
2019 April	152
2019 Mai	152
2019 Juni	152
2019 Juli	152
2019 August	152
2019 September	152
2019 Oktober	152
2019 November	152
2019 Dezember	294

**MONTH-YEAR**

All

**GENDER DISTRIBUTION**

Gender	Count	Percentage
M	3.31K	33.05%
F	3.33K	33.33%
O	3.36K	33.62%

**CIVIL STATUS DISTRIBUTION**

Civil Status	Count	Percentage
S	2.44K	24.35%
D	2.49K	24.92%
M	2.51K	25.07%
W	2.57K	25.66%

**AUSTRALIA MAP**

**Page 1 of 4**

CUST SALES CSR Page 1 +

Type here to search

7:38 am 04/11/2021

**M06\_demo - Power BI Desktop**

File Home Insert Modeling View Help

Clipboard

**CUSTOMER BASE PER MONTH**

Month-Year	Customer Count
2017 January	296
2017 February	276
2017 March	272
2017 April	208
2017 May	282
2017 June	282
2017 July	227
2017 August	227
2017 September	227
2017 October	295
2017 November	272
2017 December	152
2018 January	296
2018 February	282
2018 March	273
2018 April	273
2018 May	269
2018 June	265
2018 July	286
2018 August	262
2018 September	282
2018 October	262
2018 November	271
2018 December	284
2019 January	282
2019 February	282
2019 March	271
2019 April	192
2019 May	282
2019 June	269
2019 July	262
2019 August	259
2019 September	259
2019 October	259
2019 November	259
2019 December	295

**MONTH-YEAR**

All

**GENDER DISTRIBUTION**

Gender	Count	Percentage
M	3.31K	(31.05%)
F	3.33K	(33.33%)
O	3.33K	(33.6%)

**CIVIL STATUS DISTRIBUTION**

Civil Status	Count	Percentage
S	2.44K	(24.31%)
M	2.51K	(25.07%)
D	2.49K	(24.92%)
W	2.57K	(25.66%)

**Fields**

**Visualizations**

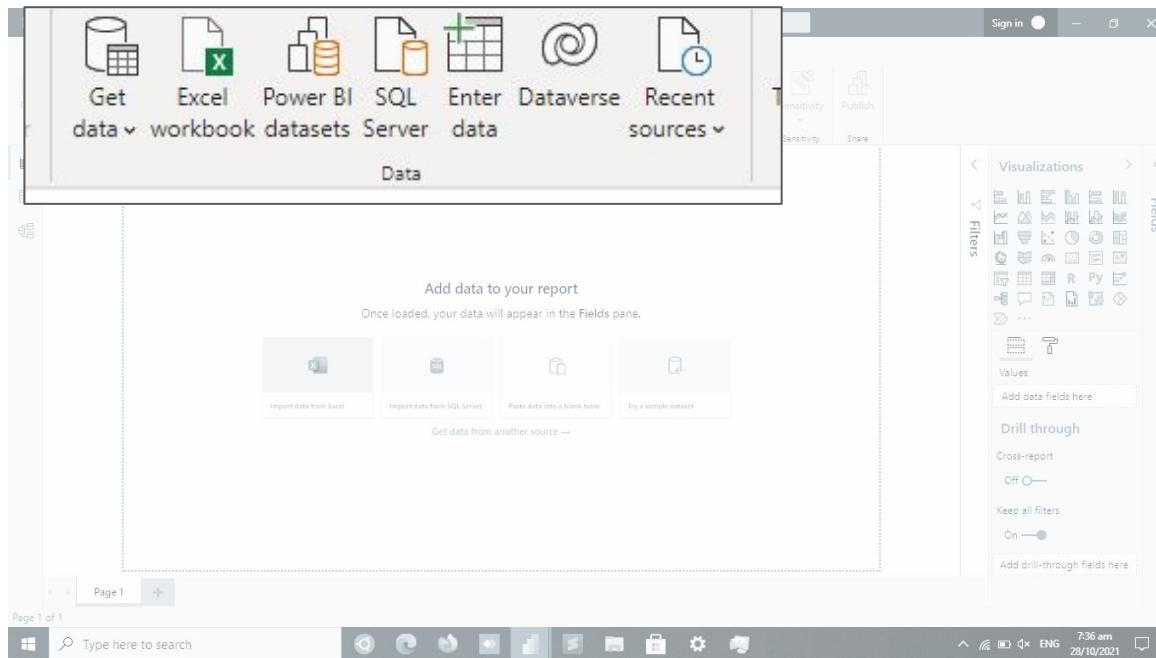
**Filters**

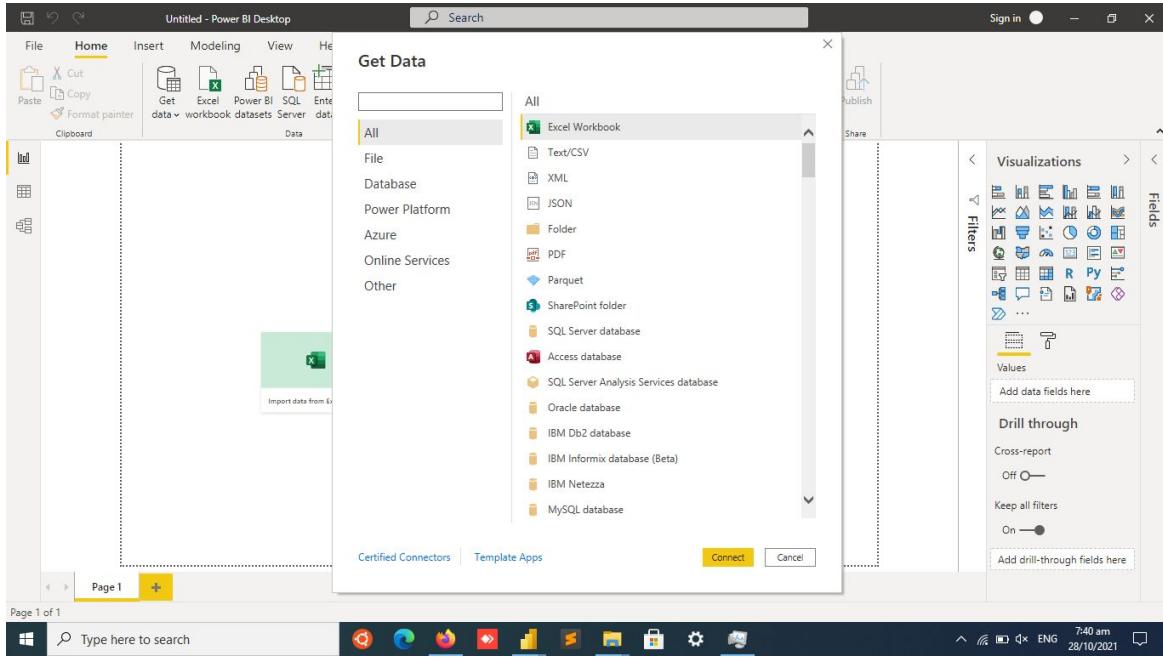
CUST SALES CSR Page 1 +

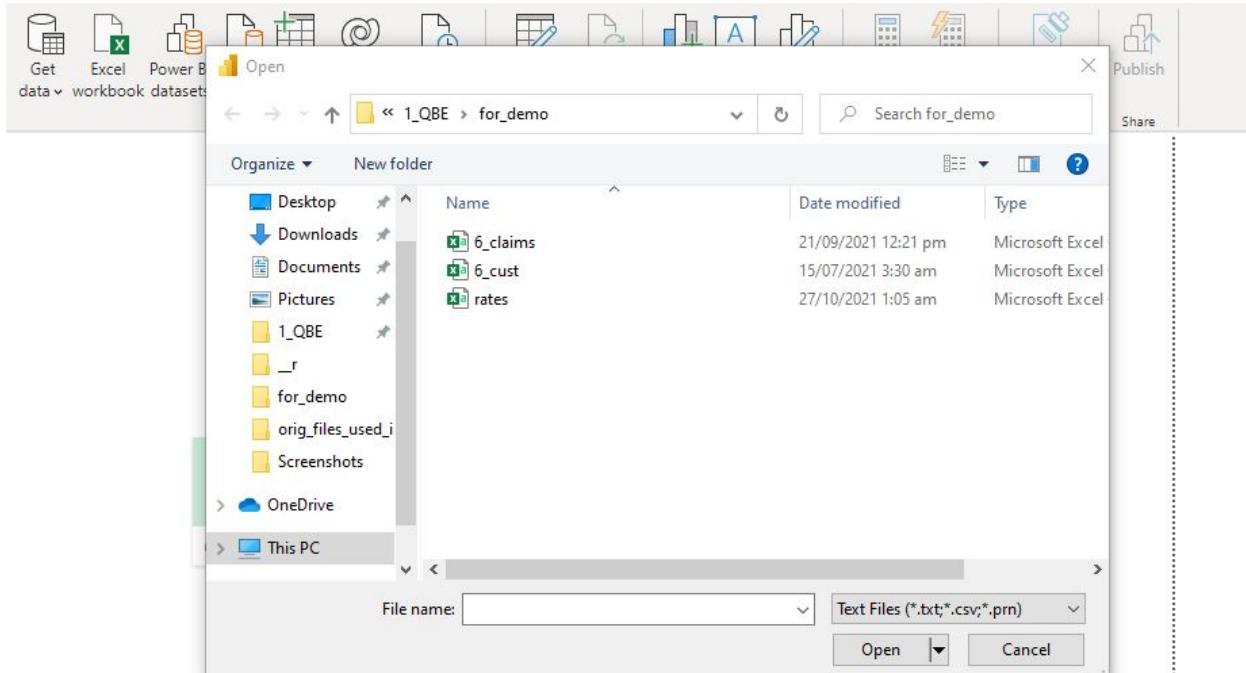
Type here to search

7:38 am 04/11/2021

# Get data







- a. Select Get Data → Text/CSV\*
- b. Go to the target folder and select the desired file
- c. Click open

\*can be any data type you wish to open



# Navigator dialog

The screenshot shows the Power BI Desktop application interface with the 'Navigator' dialog open. The dialog displays a preview of a CSV file named '6\_cust.csv'. The preview shows a table with columns: MEMBER\_NO, ENROLLED\_DATE, BIRTH\_DATE, GENDER, CIVIL\_STATUS, BRANCH\_CODE, BRANCH\_TYPE, and STATE. The data type detection is set to 'Based on first 200 rows'. The 'Delimiter' is set to 'Comma'. The 'File Origin' is '1252: Western European (Windows)'. The 'Home' tab is selected in the ribbon.

MEMBER_NO	ENROLLED_DATE	BIRTH_DATE	GENDER	CIVIL_STATUS	BRANCH_CODE	BRANCH_TYPE	STATE
9946910374	04/01/2018	21/10/1995	M	S	443	STORE	VIC
5218880921	20/04/2019	09/11/1983	F	D	119	STORE	TAS
1231130840	02/03/2019	16/03/1985	O	W	MOB	MOBILE	ACT
6417181135	08/06/2018	29/02/1988	M	W	MOB	MOBILE	NSW
4457034841	01/06/2018	21/07/1997	M	W	431	STORE	SA
4161099774	25/09/2017	23/05/1995	O	D	MOB	MOBILE	ACT
2797877520	02/02/2018	08/04/2001	O	D	646	STORE	WA
2690183236	29/04/2019	27/10/1981	M	S	MOB	MOBILE	QLD
9213400351	30/04/2018	19/07/1988	M	D	MOB	MOBILE	NSW
7118793488	18/01/2017	12/11/1975	O	W	517	STORE	NT
5385825171	07/05/2018	24/10/1977	M	S			
4114118930	22/02/2017	15/08/1992	O	S			
3494985156	05/06/2019	09/06/1998	O	S			
5368151888	27/08/2017	20/12/1998	F	M			
5737997553	27/02/2017	10/12/1981	M	M			
6430175244	16/09/2019	18/08/1986	O	M			
448812065	20/05/2019	13/02/1983	M	W			
5844507028	03/07/2018	12/08/1970	O	W			
8124118770	11/03/2017	27/12/1976	F	S			
6748268100	01/03/2017	28/07/2003	M	M			

The data in the preview has been truncated due to size limits.

Buttons at the bottom of the dialog include 'Extract Table Using Examples', 'Load' (highlighted in yellow), 'Transform Data', and 'Cancel'.

On the right side of the dialog, there are sections for 'Visualizations' and 'Fields'.

At the bottom right, there is a decorative graphic of overlapping bars.

**Load** - loads the data to the data model

**Transform Data** - opens the Query Editor and do the editing

**Cancel** - closes the dialog without loading data

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor

Choose Columns Remove Columns Keep Rows Remove Rows Sort Split Column Group By Use First Row as Headers Data Type: Whole Number

Merge Queries Append Queries Combine Files Combine

Text Analytics Vision Azure Machine Learning AI Insights

Queries [1]

6\_cust

	MEMBER_NO	ENROLLED_DATE	BIRTH_DATE	GENDER	CIVIL_STATUS	BRANCH_CODE
1	9946910374	04/01/2018	21/10/1995	M	S	443
2	5218880921	20/04/2019	09/11/1983	F	D	119
3	1231130840	02/03/2019	16/03/1985	O	W	MOB
4	6417181135	08/06/2018	29/02/1988	M	W	MOB
5	4457034841	01/06/2018	21/07/1997	M	W	431
6	4161099774	25/09/2017	23/05/1995	O	D	MOB
7	2797877520	02/02/2018	08/04/2001	O	D	646
8	2690183236	29/04/2019	27/10/1981	M	S	MOB
9	9213400351	30/04/2018	19/07/1988	M	D	MOB
10	7118793488	18/01/2017	12/11/1975	O	W	517
11	5385825171	07/05/2018	24/10/1977	M	S	477
12	4114118930	22/02/2017	15/08/1992	O	S	657
13	3494985156	05/06/2019	09/06/1998	O	S	MOB
14	5368151888	27/08/2017	20/12/1998	F	M	MOB
			10/12/1981	M	M	MOB
			18/08/1986	O	M	MOB
			13/02/1983	M	W	966
18	5844507028	03/07/2018	12/08/1970	O	W	MOB
19	8124118770	11/03/2017	27/12/1976	F	S	MOB
20	6748268100	01/03/2017	28/07/2003	M	M	MOB
21	8566110014	28/08/2019	26/11/1996	O	M	079
22	555951155	14/06/2018	24/03/1970	O	D	076
23	3527159635	16/10/2017	31/10/2001	O	M	MOB
24						

= Table.TransformColumnTypes(#"Promoted Headers",{{"MEMBER\_NO", Int64.Type}, {"ENROLLED\_DATE", type date}})

Query Settings

PROPERTIES

Name: 6\_cust

All Properties

APPLIED STEPS

Source, Promoted Headers, Changed Type

Each file is loaded as a query.

8 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 11:00 PM



Type here to search



11:00 pm  
28/10/2021

40

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor

Choose Columns Remove Columns Keep Rows Remove Rows Sort Data Type: Whole Number

Merge Queries Append Queries Text Analytics Vision Combine Files Azure Machine Learning

New Query Close Data Sources Parameters Query Manage Columns Reduce Rows Transform

Queries [1]

6\_cust

	MEMBER_NO	ENROLLED_DATE	BIRTH_DATE	GENDER	CIVIL_STATUS	BRANCH_CODE
1	9946910374	04/01/2018	21/10/1995	M	S	443
2	5218880921	20/04/2019	09/11/1983	F	D	119
3	1231130840	02/03/2019	16/03/1985	O	W	MOB
4	6417181135	08/06/2018	29/02/1988	M	W	MOB
5	4457034841	01/06/2018	21/07/1997	M	W	431
6	4161099774	25/09/2017	23/05/1995	O	D	MOB
7	2797877520	02/02/2018	08/04/2001	O	D	646
8	2690183236	29/04/2019	27/10/1981	M	S	MOB
9	9213400351	30/04/2018	19/07/1988	M	D	MOB
10	7118793488	18/01/2017	12/11/1975	O	W	517
11	5385825171	07/05/2018	24/10/1977	M	S	477
12	4114118930	22/02/2017	15/08/1992	O	D	657
13	3494985156	05/06/2019	09/06/1977	M	W	MOB
14	5368151888	27/08/2017	20/12/1992	M	W	MOB
15	5737997553	27/02/2017	10/12/1991	M	W	MOB
16	6430175244	16/09/2019	18/08/1986	O	M	MOB
17	448812065	20/05/2019	13/02/1983	M	W	966
18	5844507028	03/07/2018	12/08/1970	O	W	MOB
19	8124187185	15/01/2017	27/11/1995	M	S	MOB
20	6748268100	01/03/2017	28/07/2003	M	M	MOB
21	8566111680	18/06/2018	11/11/1989	O	M	079
22	5556811556	11/06/2018	24/02/2020	O	D	076
23	3527159633	16/10/2017	31/10/2001	O	M	MOB
24						

Each step in the query is recorded in the APPLIED STEPS section.

CAUTION: There is NO undo button yet in this section, so be careful when deleting step/s.

Query Settings

PROPERTIES

Name: 6\_cust

All Properties

APPLIED STEPS

Source, Promoted Headers, Changed Type

8 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

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11:00 pm  
28/10/2021

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor

Choose Columns Remove Columns Keep Rows Remove Rows Sort Split Column Group By Use First Row as Headers Data Type: Text

Merge Queries Append Queries Combine Files Combine

Text Analytics Vision Azure Machine Learning AI Insights

Queries [1]

6\_cust

= Table.TransformColumnTypes(#"Promoted Headers",{{"MEMBER\_NO", Int64.Type}, {"ENROLLED\_DATE", type date},

	A <sup>B</sup> C GENDER	A <sup>B</sup> C CIVIL_STATUS	A <sup>B</sup> C BRANCH_CODE	A <sup>B</sup> C BRANCH_TYPE	A <sup>B</sup> C STATE
1	21/10/1995	M			1.2 Decimal Number
2	09/11/1983	F			\$ Fixed decimal number
3	16/03/1985	O			123 Whole Number
4	29/02/1988	M			% Percentage
5	21/07/1997	M			Date/Time
6	23/05/1995	O			Date
7	08/04/2001	O			Time
8	27/10/1981	M			Date/Time/Timezone
9	19/07/1988	M			Duration
10	12/11/1975	O			A <sup>B</sup> C Text
11	24/10/1977	M			True/False
12	15/08/1992	O			Binary
13	09/06/1998	O			Using Locale...
14	20/12/1998	F			MOB MOBILE WA
15	10/12/1981	M			966 STORE TAS
16	18/08/1986	O			MOB MOBILE ACT
17	13/02/1983	M			MOB MOBILE WA
18	12/08/1970	O			MOB MOBILE NSW
19	27/12/1976	F			079 STORE QLD
20	28/07/2003	M			076 STORE NSW
21	26/11/1996	O			MOB MOBILE WA
22	24/03/1970	O			
23	31/10/2001	O			
24					

8 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

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28/10/2021

42

Untitled - Power Query Editor

**File** **Home** **Transform** **Add Column** **View** **Tools** **Help**

**Close & Apply** **New Source** **Recent Sources** **Enter Data** **Data source settings** **Manage Parameters** **Refresh Preview** **Advanced Editor**

**Choose Columns** **Remove Columns** **Keep Rows** **Remove Rows** **Sort** **Split Column** **Group By** **Use First Row as Headers**

**Data Type: Text** **Merge Queries** **Append Queries** **Text Analytics**  
**Combine Files** **Azure Machine Learning** **Combine** **All Insights**

**Queries [1]**

**6\_cust**

	GENDER	CIVIL_STATUS	BRANCH_CODE	BRANCH_TYPE	STATE
1	21/10/1995	M		STORE	VIC
2	09/11/1983	F		STORE	TAS
3	16/03/1985	O		MOBILE	ACT
4	29/02/1988	M		MOBILE	NSW
5	21/07/1997	M		STORE	SA
6	23/05/1995	O		MOBILE	ACT
7	08/04/2001	O			
8	27/10/1981	M			
9	19/07/1988	M			
10	12/11/1975	O			
11	24/10/1977	M			
12	15/08/1992	O			
13	09/06/1998	O			
14	20/12/1998	F			
15	10/12/1981	M			
16	18/08/1986	O			
17	13/02/1983	M			
18	12/08/1970	O			
19	27/12/1976	F			
20	28/07/2003	M			
21	26/11/1996	O			
22	24/03/1970	O			
23	31/10/2001	O			
24					

= Table.TransformColumnTypes(#"Promoted Headers",{{"MEMBER\_NO", Int64.Type}, {"ENROLLED\_DATE", type date}})

**Sort**: Sort Ascending, Sort Descending, Clear Sort  
**Filter**: Clear Filter, Remove Empty, Text Filters

**Text Filters** search bar: Search

- (Select All)
- 004
- 005
- 009
- 010
- 011
- 012
- 013
- 014
- 015
- 020
- 024
- 031

**Applied Steps**

- Source
- Promoted Headers
- Changed Type

**Query Settings**

**PROPERTIES**

Name: 6\_cust

**APPLIED STEPS**

Source, Promoted Headers, Changed Type

8 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

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28/10/2021

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Sources Advanced Editor Properties Data Type: Text Merge Queries Append Queries Text Analytics Vision Azure Machine Learning AI Insights

Close New Query Queries [1] 6\_cust

Advanced Editor

6\_cust

Display Options ?

```
let
    Source = Csv.Document(File.Contents("C:\Users\JP\Documents\1_QBE\for_demo\6_cust.csv"),[Delimiter=",", Columns=8, Encoding=1252, QuoteStyle=QuoteStyle.None]),
    #"Promoted Headers" = Table.PromoteHeaders(Source, [PromoteAllScalars=true]),
    #"Changed Type" = Table.TransformColumnTypes(#"Promoted Headers",{{"MEMBER_NO", Int64.Type}, {"ENROLLED_DATE", type date}, {"BIRTH_DATE", type date}, {"GENDER", type text}, {"STATE", type text}, {"CITY", type text}, {"STREET", type text}, {"POSTCODE", type text}}),
in
    #"Changed Type"
```

No syntax errors have been detected.

Done Cancel

21	26/11/1996	O	M	079	STORE	QLD
22	24/03/1970	O	D	076	STORE	NSW
23	31/10/2001	O	M	MOB	MOBILE	WA
24	<					

8 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows PREVIEW DOWNLOADED AT 11:00 PM

Type here to search

11:11 pm ENG 28/10/2021 44

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor Choose Columns Remove Columns Keep Rows Remove Rows Sort Split Column Data Type: Date ▾ Merge Queries ▾ Append Queries ▾ Combine Files Combine Text Analytics Vision Azure Machine Learning AI Insights

Close New Query Data Sources Parameters Query Manage Columns Reduce Rows Sort By Delimiter

Queries [1]

6\_cust

	ENROLLED_DATE	BIRTH_DATE	GENDER	CIVIL_STA
1	10374	04/01/2018	21/10/1995	M
2	180921	20/04/2019	09/11/1983	F
3	30840	02/03/2019	16/03/1985	O
4	81135	08/06/2018	29/02/1988	M
5	134841	01/06/2018	21/07/1997	M
6	199774	25/09/2017	23/05/1995	O
7	177520	02/02/2018	08/04/2001	O
8	83236	29/04/2019	27/10/1981	M
9	100351	30/04/2018	19/07/1988	M
10	193488	18/01/2017	12/11/1975	O
11	125171	07/05/2018	24/10/1977	M
12	18930	22/02/2017	15/08/1992	O
13	185156	05/06/2019	09/06/1998	O
14	51888	27/08/2017	20/12/1998	F
15	197553	27/02/2017	10/12/1981	M
16	75244	16/09/2019	18/08/1986	O
17	112065	20/05/2019	13/02/1983	M
18	107028	03/07/2018	12/08/1970	O
19	18770	11/03/2017	27/12/1976	F
20	168100	01/03/2017	28/07/2003	M
21	10014	28/08/2019	26/11/1996	O
22	151155	14/06/2018	24/03/1970	O
23	59635	16/10/2017	31/10/2001	O
24				

By Number of Characters  
By Position Split Column by Delimiter  
By Lowercase  
Split values in the selected column based on the specified delimiter  
By Uppercase to Lowercase STOR  
By Digit to Non-Digit STOR  
By Non-Digit to Digit MOB

Query Settings

PROPERTIES

Name: 6\_cust

All Properties

APPLIED STEPS

Source Promoted Headers Changed Type

LIVE (( ))

8 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

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11:11 pm  
28/10/2021

**Contents** come first before aesthetics.



M06\_demo - Power BI Desktop

File Home Insert Modeling View Help

Cut Copy Format painter

Get data Excel Power BI SQL Server Enter Dataverse Recent sources

Transform Refresh data New visual Text box More visuals

New measure Quick measure Sensitivity Publish

Clipboard Data Queries Insert Calculations Sensitivity Share

**CUSTOMER BASE PER MONTH**

Month	Customer Base
2017 Februar	276
2017 März	27
2017 April	296
2017 Mai	30
2017 Juni	28
2017 Juli	62
2017 August	62
2017 September	38
2017 Oktober	92
2017 November	27
2017 Dezember	582
2018 Januar	982
2018 Februar	152
2018 März	876
2018 April	273
2018 Mai	269
2018 Juni	528
2018 Juli	27
2018 August	982
2018 September	152
2018 October	852
2018 November	282
2018 Dezember	952
2019 Januar	172
2019 Februar	284
2019 März	192
2019 April	282
2019 Mai	296
2019 Juni	506
2019 Juli	152
2019 August	252
2019 September	152
2019 October	294
2019 November	292
2019 Dezember	292

**MONTH-YEAR**

All

**GENDER DISTRIBUTION**

Gender	Count	Percentage
M	3.31K	33.05%
F	3.33K	33.33%
O	3.30K	33.6%

**CIVIL STATUS DISTRIBUTION**

Civil Status	Count	Percentage
S	2.44K	24.35%
D	2.49K	24.92%
M	2.51K	25.07%
W	2.57K	25.66%

**AUSTRALIA MAP**

**Page Navigation**

CUST SALES CSR Page 1 +

Page 1 of 4

Type here to search

7:38 am 04/11/2021

M06\_demo - Power BI Desktop

File Home Insert Modeling View Help

Cut Copy Format painter

Get data v Excel Power BI SQL Enter Dataverse Recent sources v Transform Refresh data v New visual Text box More visuals v New Quick measure measure Publish

Sensitivity Share

**CUSTOMER BASE PER MONTH**

Month-Year	Customer Count
2017 Jan	276
2017 Feb	272
2017 Mar	276
2017 Apr	270
2017 May	282
2017 Jun	282
2017 Jul	277
2017 Aug	272
2017 Sep	272
2017 Oct	272
2017 Nov	272
2017 Dec	272
2018 Jan	292
2018 Feb	272
2018 Mar	152
2018 Apr	282
2018 May	273
2018 Jun	269
2018 Jul	265
2018 Aug	282
2018 Sep	282
2018 Oct	273
2018 Nov	271
2018 Dec	284
2019 Jan	271
2019 Feb	192
2019 Mar	282
2019 Apr	271
2019 May	262
2019 Jun	269
2019 Jul	262
2019 Aug	271
2019 Sep	259
2019 Oct	259
2019 Nov	261
2019 Dec	294

**MONTH-YEAR**

All

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**Fields**

**Visualizations**

**Filters**

CUST SALES CSR Page 1 +

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LIVE ((•))

Page 1 of 4

7:38 am 04/11/2021

M06\_demo - Power BI Desktop

File Home Insert Modeling View Help

Cut Copy Format painter

Get data Excel Power BI SQL Server Data Enter Dataverse Recent sources Transform Refresh data New visual Text box More visuals

New measure Quick measure Sensitivity Publish

Clipboard Data Queries Insert Calculations Sensitivity Share

**CUSTOMER BASE PER MONTH**

Month-Year	Customer Base
2017 Februar	276
2017 März	27
2017 April	307
2017 Mai	296
2017 Juni	28
2017 Juli	627
2017 August	627
2017 September	38
2017 Oktober	927
2017 November	272
2017 Dezember	982
2018 Januar	982
2018 Februar	152
2018 März	876
2018 April	273
2018 Mai	269
2018 Juni	528
2018 Juli	277
2018 August	982
2018 September	152
2018 October	852
2018 November	282
2018 Dezember	952
2019 Januar	172
2019 Februar	284
2019 März	192
2019 April	282
2019 Mai	296
2019 Juni	152
2019 Juli	252
2019 August	296
2019 September	152
2019 October	252
2019 November	296
2019 Dezember	992

**MONTH-YEAR**

All

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Gender	Count	Percentage
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**AUSTRALIA MAP**

**Page 1 of 4**

CUST SALES CSR Page 1 +

Type here to search

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File Home Insert Modeling View Help

Cut Copy Format painter

Get data workbook datasets Server Enter data Dataverse Recent sources

Transform Refresh data New visual Text box More visuals

New visual Insert Calculations Sensitivity Share

Clipboard Data Queries Insert Calculations Sensitivity Share

**CUSTOMER BASE PER MONTH**

Month-Year	Customer Base
2017 February	276
2017 March	276
2017 April	262
2017 May	262
2017 June	262
2017 July	262
2017 August	262
2017 September	272
2017 October	272
2017 November	272
2017 December	272
2018 January	982
2018 February	982
2018 March	876
2018 April	876
2018 May	876
2018 June	876
2018 July	982
2018 August	982
2018 September	982
2018 October	982
2018 November	982
2018 December	982
2019 January	876
2019 February	876
2019 March	727
2019 April	727
2019 May	876
2019 June	876
2019 July	876
2019 August	876
2019 September	876
2019 October	876
2019 November	876
2019 December	992

**MONTH-YEAR**

All

**GENDER DISTRIBUTION**

Gender	Count	Percentage
M	3.36K	33.6%
F	3.33K	33.33%
O	3.31K	33.05%

**CIVIL STATUS DISTRIBUTION**

Civil Status	Count	Percentage
S	2.44K	24.31%
M	2.51K	25.07%
D	2.49K	24.92%
W	2.57K	25.66%

**Fields**

**Visualizations**

**Filters**

CUST

Type here to search

Page 1 of 4

7:38 am 04/11/2021

LIVE ((•))

# Exercise

Screenshot of a Microsoft Power BI dashboard showing customer data analysis.

The dashboard includes the following visualizations:

- CUSTOMER BASE PER MONTH:** A bar chart showing the number of customers per month from 2017-01 to 2017-04. The values range from 272 to 992.
- CIVIL STATUS DISTRIBUTION:** A pie chart showing the distribution of civil statuses: W (25.66%), M (25.07%), D (24.92%), and S (24.35%).
- GENDER DISTRIBUTION:** A donut chart showing the gender distribution: F (33.3K or 33%) and M (33.3K or 33%).
- MONTH-YEAR:** A dropdown filter for selecting a specific month and year.
- AUSTRALIA MAP:** A map of Australia where states are color-coded according to the civil status distribution.

The ribbon menu at the top includes:

- Paste, Copy, Format painter
- Get data: Excel, Power BI, SQL, Enter data, Dataverse, Recent sources
- Transform data: Refresh data, New visual, Text box, More visuals
- Insert: New measure, Quick measure, Calculations, Sensitivity, Publish
- Fields, Visualizations, Filters

Bottom navigation and system status:

- Page 1 of 4
- Type here to search
- System icons: Windows, Task View, Start, Taskbar icons, Settings, Battery, Network, Volume, Language (ENG), Date (04/11/2021), Time (7:38 am)

# Merging in Power Query

	6_sales.csv
1	MEMBER_NO,DATE,BRANCH_CODE,BRANCH_TYPE,AMOUNT,CURRENCY,TRAN_CODE,TRAN_DESC
2	0773896167,2020-12-06,MOB,MOBILE,9831.75,PHP,IN1003,TYPE3
3	8666135657,2020-09-20,963,STORE,1369.25,PHP,IN1005,TYPE5
4	5509338826,2020-10-28,MOB,MOBILE,3539.00,PHP,IN1002,TYPE2
5	3064271133,2020-10-20,826,STORE,153.75,PHP,IN1001,TYPE1
6	0443118051,2020-02-02,MOB,MOBILE,2043.25,PHP,IN1001,TYPE1
7	9559647049,2020-09-22,447,STORE,6436.25,PHP,IN1003,TYPE3
8	9959931848,2020-12-12,MOB,MOBILE,3889.50,PHP,IN1002,TYPE2
9	6365985243,2020-02-26,MOB,MOBILE,2160.25,PHP,IN1004,TYPE4
10	8700231322,2020-07-02,MOB,MOBILE,5330.50,PHP,IN1003,TYPE3
11	7011759861,2020-02-26,520,STORE,8742.75,PHP,IN1001,TYPE1
12	9102619148,2020-04-21,300,STORE,7341.00,PHP,IN1005,TYPE5
13	9806062431,2020-03-11,MOB,MOBILE,861.25,PHP,IN1001,TYPE1
14	0695049755,2020-07-06,MOB,MOBILE,6559.50,PHP,IN1003,TYPE3
15	5345946297,2020-01-17,782,STORE,9882.00,PHP,IN1005,TYPE5
16	0136694797,2020-10-31,MOB,MOBILE,6499.25,PHP,IN1005,TYPE5
17	4251479882,2020-07-22,849,STORE,379.00,PHP,IN1004,TYPE4
18	6530320511,2020-09-19,893,STORE,3182.50,PHP,IN1002,TYPE2
19	9446539303,2020-11-21,319,STORE,5437.75,PHP,IN1002,TYPE2

	rates.csv
1	TRAN_CODE,REV_RATE
2	IN1001,0.01
3	IN1002,0.10
4	IN1003,0.25
5	IN1004,0.3
6	IN1005,0.5

How do we merge the rate into the sales dataset?



The screenshot shows the Microsoft Power Query Editor interface. The top menu bar includes File, Home, Transform, Add Column, View, Tools, and Help. The ribbon below the menu has sections for Close & Apply, New Source, Recent Sources, Enter Data, Data source settings, Manage Parameters, Refresh Preview, Properties, Advanced Editor, Choose Columns, Remove Columns, Keep Rows, Remove Rows, Split Column, Group By, Sort, Reduce Rows, and Data Type. A preview pane shows a table with columns MEMBER\_NO, DATE, BRANCH\_CODE, BRANCH\_TYPE, and AMOUNT. The 'Transform' tab is selected. A context menu is open over the preview pane, listing options: Merge Queries, Append Queries, Combine Files, and Combine. The 'Combine' option is highlighted.

To merge:

1. Determine the **column/s shared** by the two tables
2. Use Merge Queries to do the merging.
3. Select the desired merging method.

LIVE ((•))



File

Close

Queries [3]

ODE	BRANCH_TYPE	AMOUNT	CURRENCY	TRAN_CODE	TRAN_DESC
1	MOBILE	9831.75	PHP	IN1003	TYPE3
2	STORE	1369.25	PHP	IN1005	TYPE5
3	MOBILE	3539	PHP	IN1002	TYPE2
4	STORE	153.75	PHP	IN1001	TYPE1
5	MOBILE	2043.25	PHP	IN1001	TYPE1
6	STORE	6436.25	PHP	IN1003	TYPE3
7	MOBILE	3889.5	PHP	IN1002	TYPE2
8	MOBILE	2160.25	PHP	IN1004	TYPE4
9	MOBILE	5330.5	PHP	IN1003	TYPE3
10	STORE	8742.75	PHP	IN1001	TYPE1
11	STORE	7341	PHP	IN1005	TYPE5
12	MOBILE	861.25	PHP	IN1001	TYPE1
13	MOBILE	6559.5	PHP	IN1003	TYPE3
14	STORE	9082	PHP	IN1005	TYPE5
15	MOBILE	6499.25	PHP	IN1005	TYPE5
16	STORE	379	PHP	IN1004	TYPE4
17	STORE	3182.5	PHP	IN1002	TYPE2
18	STORE	5437.75	PHP	IN1002	TYPE2
19	STORE	6367	PHP	IN1003	TYPE3
20	STORE	8794.5	PHP	IN1003	TYPE3
21	STORE	5103.25	PHP	IN1003	TYPE3
22	STORE	4639	PHP	IN1005	TYPE5
23	MOBILE	6327.25	PHP	IN1001	TYPE1

Query Settings

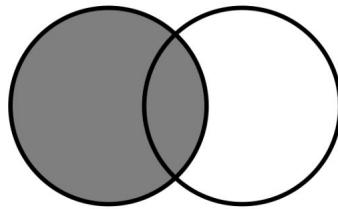
PROPERTIES

Name: 6\_claims  
All Properties

APPLIED STEPS

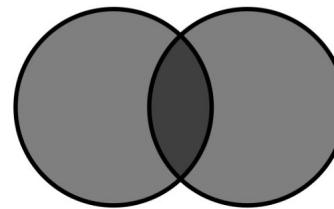
Source \*  
Promoted Headers \*  
Changed Type

# Merging Types in Power BI



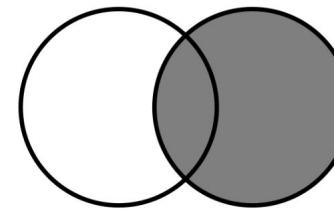
**LEFT OUTER**

all rows from left and matching from right



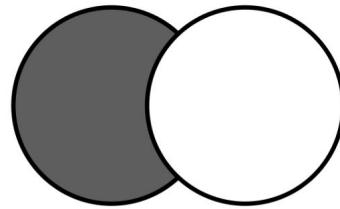
**FULL OUTER**

all rows from both; matching and not matching



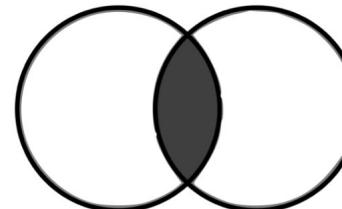
**RIGHT OUTER**

all rows from right and matching from left



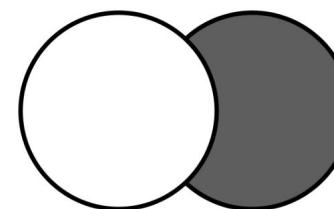
**LEFT ANTI**

not matching rows from left



**INNER**

only matching rows



**RIGHT ANTI**

not matching rows from right



# Data Analysis Expressions (DAX)

- formula language with expressions similar to Excel functions



https://docs.microsoft.com/en-us/dax/dax-function-reference

Import bookmarks... Getting Started Apple Find my iDevice Google Maps YouTube News Popular LinkedIn GitHub DataCamp Duolingo Calm App Other Bookmarks

NOT ALL DAX FUNCTIONS ARE SUPPORTED OR INCLUDED IN EARLIER VERSIONS OF POWER BI

Desktop, Analysis Services, and Power Pivot in Excel.

Filter by title

Data Analysis Expressions (DAX) Reference

> Learn

› DAX functions

- DAX function reference
- New DAX functions
- > Aggregation functions
- > Date and time functions
- > Filter functions
- > Financial functions
- > Information functions
- > Logical functions
- > Math and trig functions
- > Other functions
- > Parent and child functions
- > Relationship functions
- > Statistical functions
- ↳ Table manipulation functions

Download PDF

## In this section

**New DAX functions** - These functions are new or are existing functions that have been significantly updated.

**Aggregation functions** - These functions calculate a (scalar) value such as count, sum, average, minimum, or maximum for all rows in a column or table as defined by the expression.

**Date and time functions** - These functions in DAX are similar to date and time functions in Microsoft Excel. However, DAX functions are based on the datetime data types used by Microsoft SQL Server.

**Filter functions** - These functions help you return specific data types, look up values in related tables, and filter by related values. Lookup functions work by using tables and relationships between them. Filtering functions let you manipulate data context to create dynamic calculations.

**Financial functions** - These functions are used in formulas that perform financial calculations, such as net present value and rate of return.

Is this page helpful?

Yes No

In this article

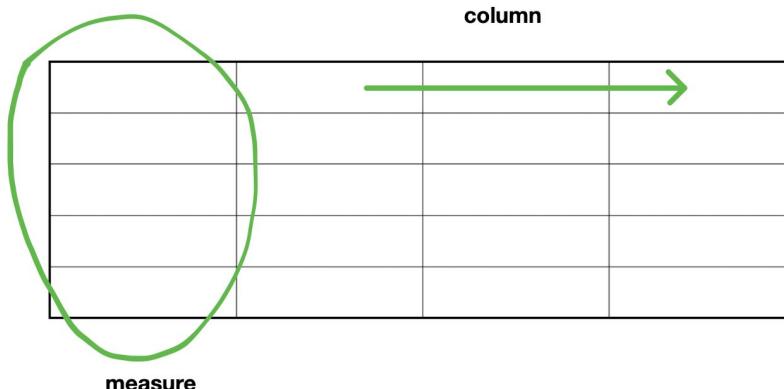
In this section

See also

# Columns and measures

Use calculated **columns** when you want to evaluate each row.

Use **measures** when you need aggregates.



	MEMBER_NO,ENROLLED_DATE,BIRTH_DATE,GENDER,CIVIL_STATUS,BRANCH_CODE,BRANCH_TYPE,STATE
1	9946910374,2018-01-04,1995-10-21,M,S,443,STORE,VIC
2	5218880921,2019-04-20,1983-11-09,F,D,119,STORE,TAS
3	1231130840,2019-03-02,1985-03-16,O,W,MOB,MOBILE,ACT
4	6417181135,2018-06-08,1988-02-29,M,W,MOB,MOBILE,NSW
5	4457034841,2018-06-01,1997-07-21,M,W,431,STORE,SA
6	4161099774,2017-09-25,1995-05-23,O,D,MOB,MOBILE,ACT
7	2797877520,2018-02-02,2001-04-08,O,D,646,STORE,WA
8	2690183236,2019-04-29,1981-10-27,M,S,MOB,MOBILE,QLD
9	9213400351,2018-04-30,1988-07-19,M,D,MOB,MOBILE,NSW
10	7118793488,2017-01-18,1975-11-12,O,W,517,STORE,NT
11	5385825171,2018-05-07,1977-10-24,M,S,477,STORE,VIC
12	4114118930,2017-02-22,1992-08-15,O,S,657,STORE,SA
13	3494985156,2019-06-05,1998-06-09,O,S,MOB,MOBILE,ACT
14	

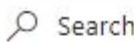
1. How many distinct customers does the company have?
2. What is the total sales?

LIVE ((•))



# Filtering

Filters ⌂ >



Search

Filters on this visual ⌂

BRANCH\_TYPE

is (All)

Filter type ⓘ

Basic filtering

Advanced filtering

Basic filtering

Top N

STORE

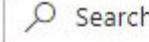
5061

Require single selection

DATE - Month

is (All)

Filters ⌂ >



Search

DATE - Month  
is (All)

TRAN\_CODE  
is (All)

Unique customers  
is (All)

Add data fields here

Filters on this page ⌂

Add data fields here

Filters on all pages ⌂

Add data fields here



# Exercise

1. What is the total amount for Sep & Oct combined?  
*(HINT: Use SUM() and a filter)*

LIVE ((•))



# (Calculated) columns

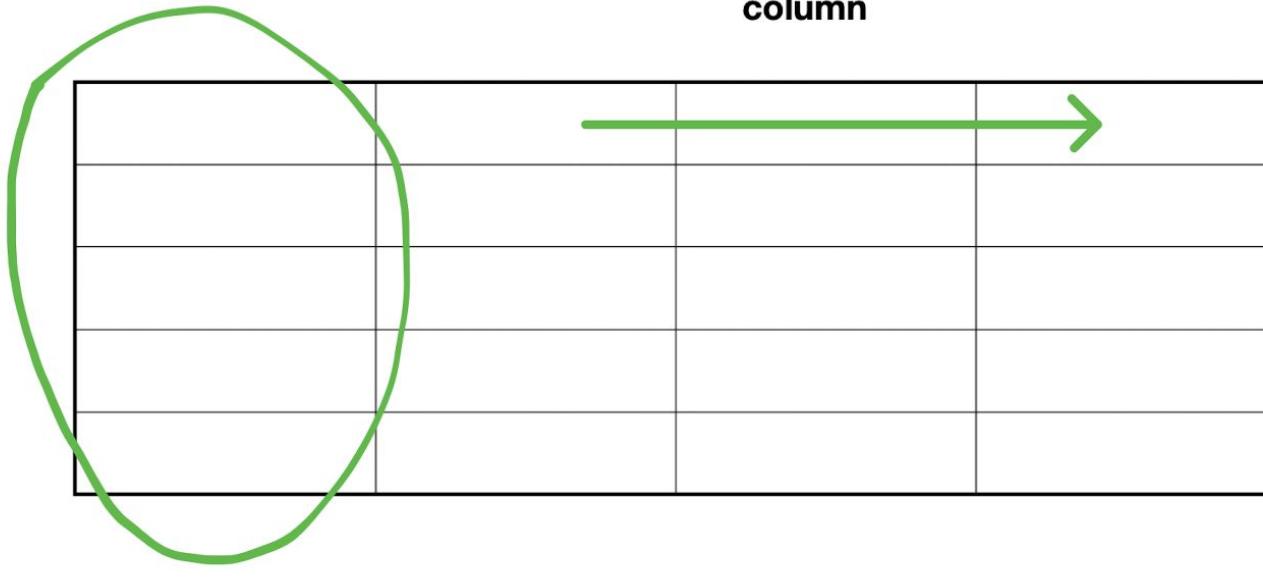
	MEMBER_NO,DATE,BRANCH_CODE,BRANCH_TYPE,AMOUNT,CURRENCY,TRAN_CODE,TRAN_DESC
1	0773806167,2020-12-06,MOB,MOBILE,9831.75,PHP,IN1003,TYPE3
2	8666135657,2020-09-20,963,STORE,1369.25,PHP,IN1005,TYPE5
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4	3064271133,2020-10-20,826,STORE,153.75,PHP,IN1001,TYPE1
5	0443118051,2020-02-02,MOB,MOBILE,2043.25,PHP,IN1001,TYPE1
6	9559647049,2020-09-22,447,STORE,6436.25,PHP,IN1003,TYPE3
7	9959931848,2020-12-12,MOB,MOBILE,3889.50,PHP,IN1002,TYPE2
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12	9806062431,2020-03-11,MOB,MOBILE,861.25,PHP,IN1001,TYPE1
13	0695049755,2020-07-06,MOB,MOBILE,6559.50,PHP,IN1003,TYPE3
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15	0136694797,2020-10-31,MOB,MOBILE,6499.25,PHP,IN1005,TYPE5
16	4251479882,2020-07-22,849,STORE,379.00,PHP,IN1004,TYPE4
17	6530320511,2020-09-19,893,STORE,3182.50,PHP,IN1002,TYPE2
18	9446539303,2020-11-21,319,STORE,5437.75,PHP,IN1002,TYPE2
19	

	TRAN_CODE,REV_RATE
1	IN1001,0.01
2	IN1002,0.10
3	IN1003,0.25
4	IN1004,0.3
5	IN1005,0.5
6	

Introduce variable

**NET PROFIT = AMOUNT \* REV\_RATE**





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M06\_demo - Power BI Desktop

File Home Insert Modeling View Help

Cut Copy Format painter

Get data Excel Power BI SQL Server Enter Dataverse recent sources

Transform Refresh data New visual Text box More visuals

New measure Quick measure Sensitivity Publish

Clipboard Data Queries Insert Calculations Sensitivity Share

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2019 Juni	152
2019 Juli	296
2019 August	152
2019 September	252
2019 October	152
2019 November	296
2019 Dezember	992

**MONTH-YEAR**

All

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**AUSTRALIA MAP**

**Page 1 of 4**

CUST SALES CSR Page 1 +

Type here to search

7:38 am 04/11/2021

2017-01

YYYY-MM

The screenshot shows a Power BI desktop interface with the title bar "M06\_demo - Power BI Desktop". The ribbon menu includes File, Home, Insert, Modeling, View, and Help. The Home tab is selected, showing various data import options like "Get data", "Clipboard", and "Data". Below the ribbon is a bar chart titled "CUSTOMER BASE PER MONTH" showing monthly counts from January 2017 to November 2019. To the right is a "slicer" visualization titled "MONTH-YEAR" with a dropdown menu set to "All". On the far right, there are sections for "Fields" and "Visualizations".

**MYE = FORMAT(ENROLLED\_DATE, “YYYY-MM”)**

The screenshot shows a Power BI desktop dashboard with three donut charts: "GENDER DISTRIBUTION" (M: 3.3K (33.05%), F: 3.33K (33.33%)), "CIVIL STATUS DISTRIBUTION" (S: 2.44K (24.92%), W: 2.57K (25.66%)), and a third chart showing "3.33K (33.33%)". Below the charts is a navigation bar with tabs for "CUST", "SALES", "CSR", "Page 1", and a plus sign. At the bottom is a search bar "Type here to search" and a taskbar with various icons.

LIVE ((•))

# IF Function

	MEMBER_NO,DATE,BRANCH_CODE,BRANCH_TYPE,AMOUNT,CURRENCY,TRAN_CODE,TRAN_DESC
1	0773806167,2020-12-06,MOB,MOBILE,9831.75,PHP,IN1003,TYPE3
2	8666135657,2020-09-20,963,STORE,1369.25,PHP,IN1005,TYPE5
3	5509330826,2020-10-28,MOB,MOBILE,3539.00,PHP,IN1002,TYPE2
4	3064271133,2020-10-20,826,STORE,153.75,PHP,IN1001,TYPE1
5	0443118051,2020-02-02,MOB,MOBILE,2043.25,PHP,IN1001,TYPE1
6	9559647049,2020-09-22,447,STORE,6436.25,PHP,IN1003,TYPE3
7	9959931848,2020-12-12,MOB,MOBILE,3889.50,PHP,IN1002,TYPE2
8	6365985243,2020-02-26,MOB,MOBILE,2160.25,PHP,IN1004,TYPE4
9	8700231322,2020-07-02,MOB,MOBILE,5330.50,PHP,IN1003,TYPE3
10	7011759861,2020-02-26,520,STORE,8742.75,PHP,IN1001,TYPE1
11	9102619148,2020-04-21,300,STORE,7341.00,PHP,IN1005,TYPE5
12	9806062431,2020-03-11,MOB,MOBILE,861.25,PHP,IN1001,TYPE1
13	0695049755,2020-07-06,MOB,MOBILE,6559.50,PHP,IN1003,TYPE3
14	5345946297,2020-01-17,782,STORE,9082.00,PHP,IN1005,TYPE5
15	0136694797,2020-10-31,MOB,MOBILE,6499.25,PHP,IN1005,TYPE5
16	4251479882,2020-07-22,849,STORE,379.00,PHP,IN1004,TYPE4
17	6530320511,2020-09-19,893,STORE,3182.50,PHP,IN1002,TYPE2
18	9446539303,2020-11-21,319,STORE,5437.75,PHP,IN1002,TYPE2
19	

**How do we check if the AMOUNT transacted is > 5000 PHP?**

Question that involves per-row evaluation → use a **column**

LIVE ((•))



# Introduction to CALCULATE

	MEMBER_NO,DATE,BRANCH_CODE,BRANCH_TYPE,AMOUNT,CURRENCY,TRAN_CODE,TRAN_DESC
1	0773806167,2020-12-06,MOB,MOBILE,9831.75,PHP,IN1003,TYPE3
2	8666135657,2020-09-20,963,STORE,1369.25,PHP,IN1005,TYPE5
3	5509330826,2020-10-28,MOB,MOBILE,3539.00,PHP,IN1002,TYPE2
4	3064271133,2020-10-20,826,STORE,153.75,PHP,IN1001,TYPE1
5	0443118051,2020-02-02,MOB,MOBILE,2043.25,PHP,IN1001,TYPE1
6	9559647049,2020-09-22,447,STORE,6436.25,PHP,IN1003,TYPE3
7	9959931848,2020-12-12,MOB,MOBILE,3889.50,PHP,IN1002,TYPE2
8	6365985243,2020-02-26,MOB,MOBILE,2160.25,PHP,IN1004,TYPE4
9	8700231322,2020-07-02,MOB,MOBILE,5330.50,PHP,IN1003,TYPE3
10	7011759861,2020-02-26,520,STORE,8742.75,PHP,IN1001,TYPE1
11	9102619148,2020-04-21,300,STORE,7341.00,PHP,IN1005,TYPE5
12	9806062431,2020-03-11,MOB,MOBILE,861.25,PHP,IN1001,TYPE1
13	0695049755,2020-07-06,MOB,MOBILE,6559.50,PHP,IN1003,TYPE3
14	5345946297,2020-01-17,782,STORE,9082.00,PHP,IN1005,TYPE5
15	0136694797,2020-10-31,MOB,MOBILE,6499.25,PHP,IN1005,TYPE5
16	4251479882,2020-07-22,849,STORE,379.00,PHP,IN1004,TYPE4
17	6530320511,2020-09-19,893,STORE,3182.50,PHP,IN1002,TYPE2
18	9446539303,2020-11-21,319,STORE,5437.75,PHP,IN1002,TYPE2
19	

**How many unique customers bought IN1003 and paid over 2000 PHP?**

Aggregation problem → use a **measure**

LIVE ((•))

**CALCULATE(<expression>, <filter1>, <filter2>, ...)**



# Q&A visual

The screenshot shows the Power BI Desktop application window titled "Untitled - Power BI Desktop". The "Home" tab is selected in the ribbon. A floating "Q&A" visual is displayed in the center of the workspace. The Q&A visual interface includes:

- A search bar at the top with the placeholder "Ask a question about your data".
- A button "Add synonyms now" with a "X" icon.
- A section "Try one of these to get started" containing six suggested questions:
  - top tran desc by sum of insurance claims
  - what is the sum of insurance claims by tran desc
  - show me sum of insurance claims for the last year
  - top 6 claim branch codes by sum of insurance claims
  - what is the sum of insurance claims by 6 claim branch type
  - what is the calculate unique cust in1003 over 2k by tran desc
- A "Show all suggestions" link.

The Power BI ribbon tabs include: File, Home, Insert, Modeling, View, Help, Format, Data / Drill. The Home tab has sub-sections: Clipboard, Data, Queries, Insert, Calculations, Sensitivity, Share. The right side of the interface shows Fields, Visualizations, and Filters sections. The bottom navigation bar shows pages from 1 to 5, with "Page 5" highlighted. A red "LIVE ((•))" button is located in the bottom right corner. The taskbar at the bottom includes the Start button, a search bar, and various pinned application icons. The system tray shows the date and time as "03/11/2021 2:48 pm".

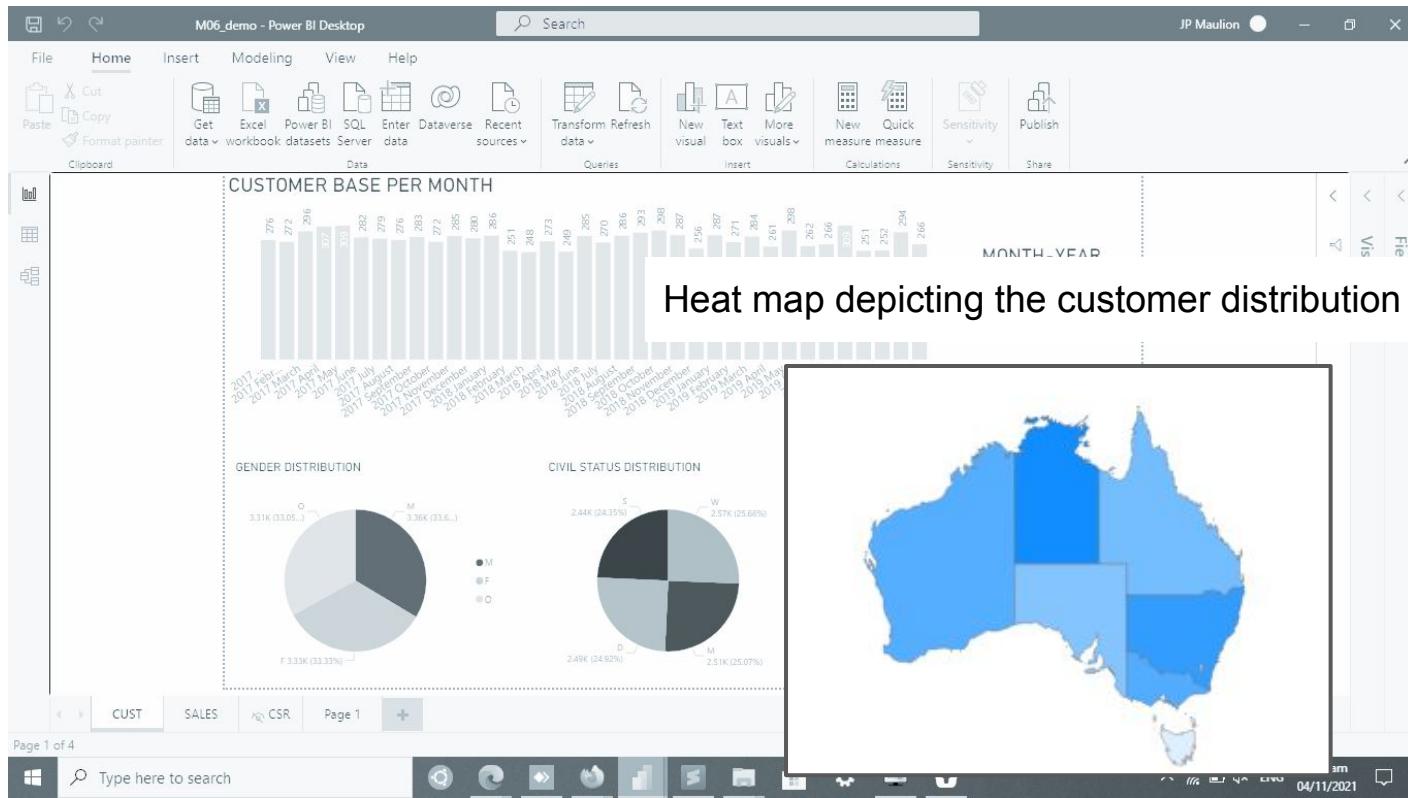
LIVE ((•))

# Exercise

Provide a card that displays the number of unique customers that did transactions of more than 5000 PHP.

LIVE ((•))







# Power BI **Visualization**

## Module 6