

Power BI – Data Transformations

April 2018

Insights & Data



AGENDA



Data Connectivity

- Files
- Database
- Azure
- Online Services
- Other

Data Transformations

- Choose Columns
- Remove Columns
- Keep Rows
- Remove Rows
- Split Column
- Group By
- Use First Row as Headers
- Replace Values
- Combine
- Transpose
- Reverse Rows
- Count Rows
- Rename



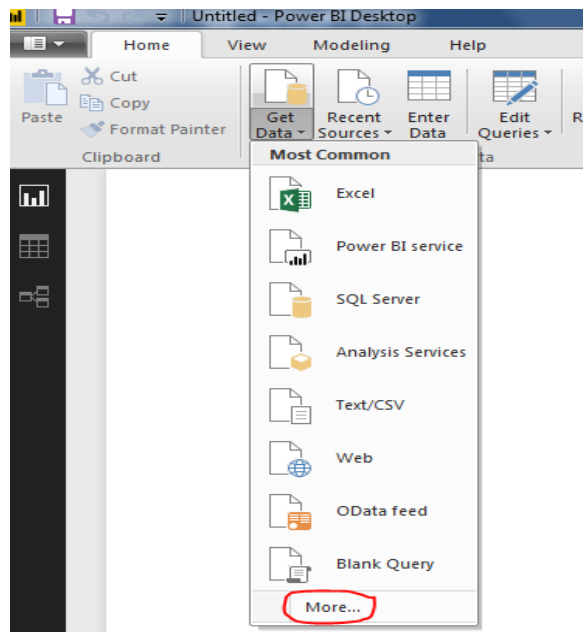
Contd.. Data Transformations

- Pivot Column
 - Unpivot Columns
 - Move
 - Convert to List
 - Fill
 - Transform
 - Change Type
 - Duplicate Column
 - Format (Lowercase, Uppercase, Capitalize Each Word, Add Prefix etc...)
 - Extract (First Characters, Last Characters, Length, Range etc...)
 - Statistics (Sum, Minimum, Maximum, Median, Average etc...)
- Standard (Add, Subtract, Multiply, Divide etc...)
 - Scientific (Power, Square Root, Absolute Value etc...)
 - Rounding (Round Up, Round Down)
 - Information (Is Even, Is Odd and Sign)
 - Trigonometry (Sine, Cosine, Tangent etc...)



Data Connectivity

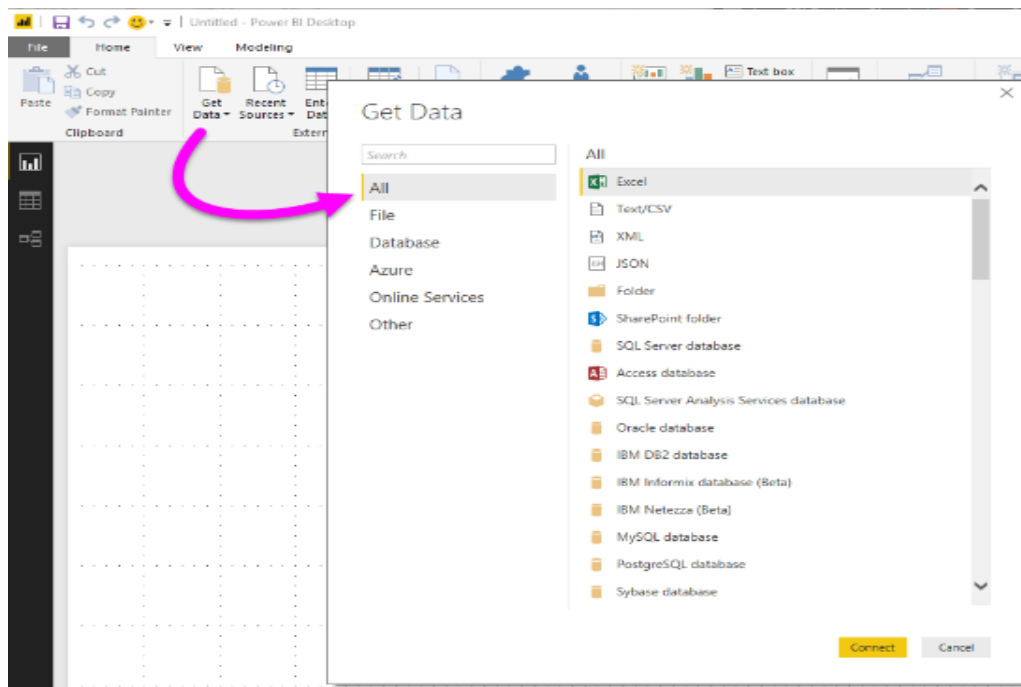
- With Power BI Desktop, you can connect to data from many different sources.
- To connect to data, select **Get Data** from the **Home** ribbon. Selecting the down arrow, or the **Get Data** text on the button, shows the **Most Common** data types menu. Please refer below screenshot.





Data Connectivity cont....

- Selecting **More...** from the **Most Common** menu displays the **Get Data** window.





Data Connectivity cont....

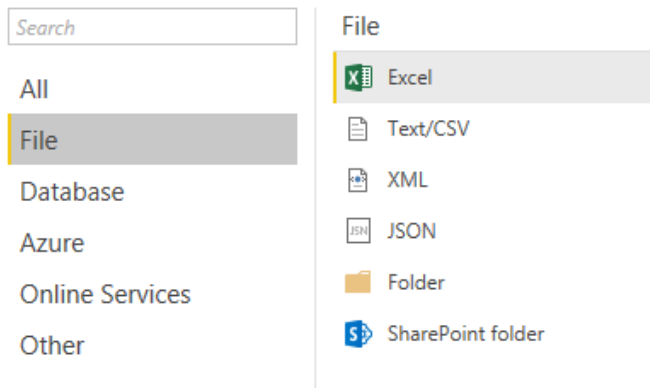
- **Data Sources** are organized in the following categories.
 - All
 - File
 - Database
 - Azure
 - Online Services
 - Other

- The **All** category includes all data connection types from all categories.
- The File category provides the following data connections:
 - Excel
 - Text/CSV
 - XML
 - JSON
 - Folder
 - SharePoint Folder



Data Connectivity cont....

Get Data



- The **Database** category provides the following data connections.
 - SQL Server Database
 - Access Database
 - SQL Server Analysis Services Database



Data Connectivity cont....

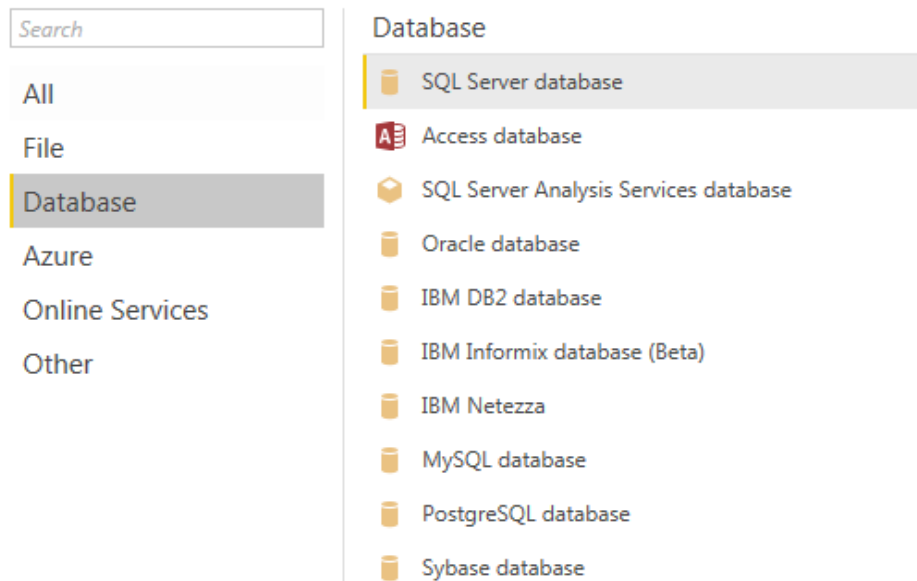
- Oracle Database
- IBM DB2 Database
- IBM Informix database (Beta)
- IBM Netezza
- MySQL Database
- PostgreSQL Database
- Sybase Database
- Teradata Database
- SAP HANA Database
- SAP Business Warehouse Application Server
- SAP Business Warehouse Message Server (Beta)
- Amazon Redshift
- Impala
- Google BigQuery (Beta)



Data Connectivity cont....

- The following Image shows the **Get Data** window for **Database**.

Get Data





Data Connectivity cont....

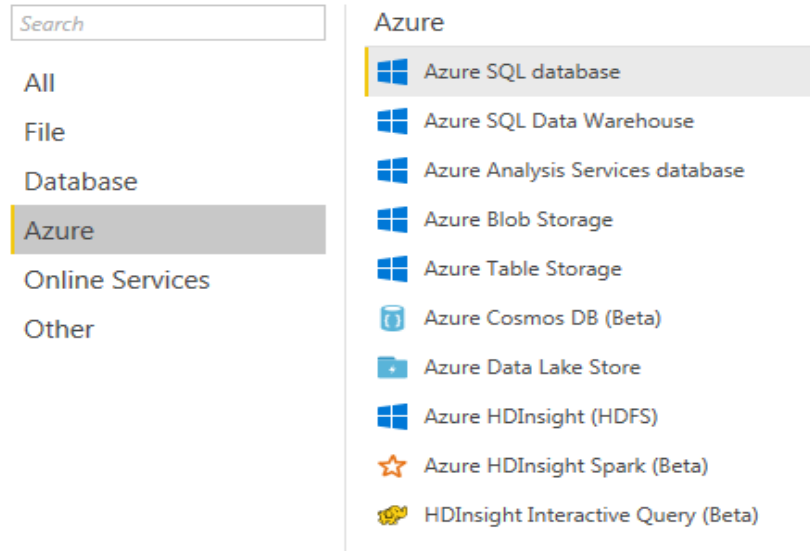
- The **Azure** category provides the following data connections.
 - Azure SQL Database
 - Azure SQL Data Warehouse
 - Azure Analysis Services database
 - Azure Blob Storage
 - Azure Table Storage
 - Azure Cosmos DB (Beta)
 - Azure Data Lake Store
 - Azure HDInsight (HDFS)
 - Azure HDInsight Spark (Beta)
 - HDInsight Interactive Query (Beta)



Data Connectivity cont....

- The following image shows the **Get Data** window for **Azure**.

Get Data





Data Connectivity cont....

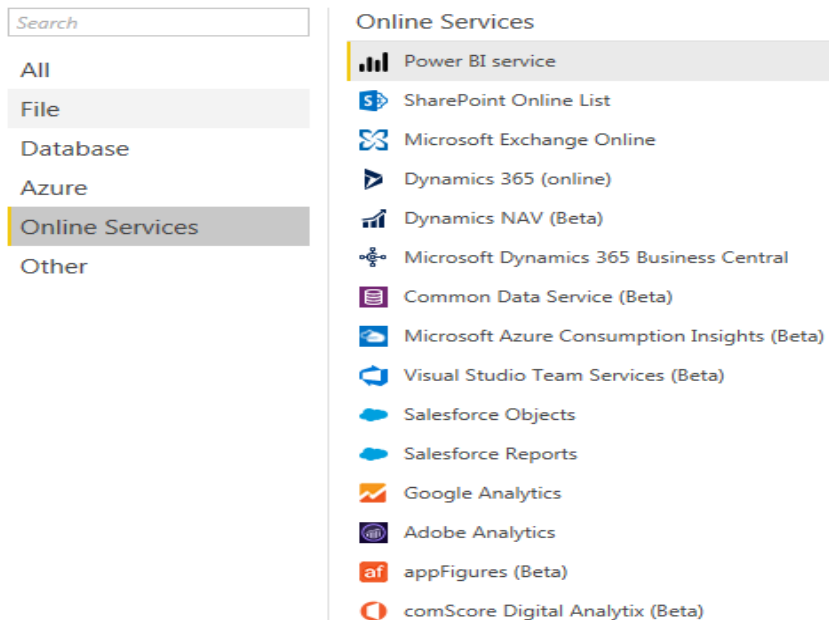
- The **Online Services** category provides the following data connections.
 - Power BI service
 - SharePoint Online List
 - Microsoft Exchange Online
 - Dynamics 365 (online)
 - Dynamics NAV (Beta)
 - Dynamics 365 for Financials (Beta)
 - Common Data Service (Beta)
 - Microsoft Azure Consumption Insights (Beta)
 - Visual Studio Team Services (Beta)
 - Salesforce Objects
 - Salesforce Reports
 - Google Analytics
 - Adobe Analytics
 - appFigures (Beta)



Data Connectivity cont....

- The following image shows the **Get Data** window for **Online Services**.

Get Data





Data Connectivity cont....

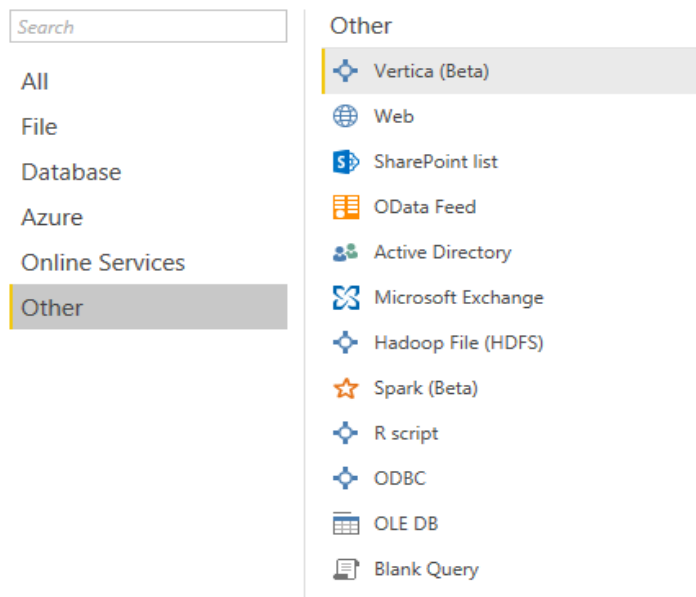
- The **Other** category provides the following data connections.
 - Vertica (Beta)
 - Kusto (Beta)
 - Web
 - SharePoint List
 - OData Feed
 - Active Directory
 - Microsoft Exchange
 - Hadoop File (HDFS)
 - Spark (Beta)
 - R Script
 - ODBC
 - OLE DB
 - Blank Query



Data Connectivity cont....

- The following image shows the **Get Data** window for **Other**.

Get Data





Data Transformations:

Choose Columns:

- It is used to keep the required columns in the report view.
- This can be used to select the necessary columns from the existing columns.

The screenshot shows the Power Query Editor window titled 'Untitled - Power Query Editor'. The ribbon includes tabs for Home, Transform, Add Column, View, and Help. The 'Transform' tab is active, displaying various options like 'Close & Apply', 'New Source', 'Recent Sources', 'Enter Data', 'Data source settings', 'Manage Parameters', 'Refresh Preview', 'Properties', 'Advanced Editor', 'Manage', 'Choose Columns', 'Remove Columns', 'Keep Rows', 'Remove Rows', 'Reduce Rows', and 'Sort'. The 'Choose Columns' dropdown menu is open, showing 'Choose Columns' and 'Go to Column' options. The main area displays a table with columns: Column1, Fullname, FirstName, and LastName. The data rows are as follows:

	Column1	Fullname	FirstName	LastName
1	1	Sai A	Sai	A
2	2	Prameela V	Prameela	V
3	3	Sharath D	Sharath	D



Remove Columns:

- It is used to remove the required columns in the report view.
- This can be used to remove the unnecessary columns from the existing columns.

The screenshot shows the Power Query Editor window titled 'Untitled - Power Query Editor'. The ribbon includes tabs for Home, Transform, Add Column, View, and Help. The 'Transform' tab is active, showing various options like 'Close & Apply', 'New Source', 'Recent Sources', 'Enter Data', 'Data source settings', 'Manage Parameters', 'Refresh Preview', 'Properties', 'Advanced Editor', 'Manage', 'Choose Columns', 'Remove Columns', 'Keep Rows', 'Remove Rows', 'Sort', 'Split Column', and 'Group By'. The 'Remove Columns' option is highlighted, and a dropdown menu is visible with two options: 'Remove Columns' and 'Remove Other Columns'. The 'Queries [2]' pane on the left shows 'Sheet1' and 'Sheet1 (2)'. The main data view shows a table with columns 'Column1', 'Fullname', 'FirstName', and 'LastName'.

	Column1	Fullname	FirstName	LastName
1	1	Sai A	Sai	A
2	2	Prameela V	Prameela	V
3	3	Sharath D	Sharath	D



Keep Rows:

- It is used to keep the required rows in the report view.
- This can be used to keep the necessary columns from the existing columns.

The screenshot shows the Power Query Editor window titled 'Untitled - Power Query Editor'. The ribbon includes tabs for Home, Transform, Add Column, View, and Help. The 'Home' tab is active, displaying various icons for data operations. A dropdown menu is open under the 'Keep Rows' icon, showing options: 'Keep Top Rows', 'Keep Bottom Rows', 'Keep Range of Rows', 'Keep Duplicates', and 'Keep Errors'. The main data area shows a table with columns: Column1, Fullname, FirstName, and LastName. The data rows are numbered 1 to 3.

	Column1	Fullname	FirstName	LastName
1		Sai A	Sai	A
2		Prameela V	Prameela	V
3		Sharath D	Sharath	D



Split Column:

- It is used to split the column text value to different columns.
- A column of text can be split into multiple columns in two ways:
 - By delimiter
 - By a number of characters.

The screenshot shows the Power Query Editor interface. The 'Transform' tab is active, and the 'Split Column' button is highlighted. A dropdown menu is open, showing two options: 'By Delimiter' and 'By Number of Characters'. The background shows a data table with columns 'Column1', 'FullName', 'FirstName', and 'LastName'.

	Column1	FullName	FirstName	LastName
1		Sai A	Sai	A
2		Prameela V	Prameela	V
3		Sharath D	Sharath	D



Group By:

It is like our SQL Group By.

Group the values in multiple rows into a single value. This can be useful when summarizing the number of products offered, the total sales, or the count of students etc...

The screenshot shows the Power Query Editor interface. The 'Group By' dialog box is open, showing the 'Basic' tab. The 'Group by' dropdown is set to 'Name', the 'New column name' is 'Count', and the 'Operation' is 'Count Rows'. The background shows a table with columns 'Name' and 'Count'.

	Name	Count
1	Sai A	2
2	Prameela V	1
3	Sharath D	1



Use First Row as Headers:

- It is used to keep the First Row as Headers.
- When you want to make the first row as your header row, we need to use "Use First Row as Header" option

The screenshot shows the Power Query Editor window titled 'Test-PBI - Power Query Editor'. The ribbon is set to 'Home' and includes tabs for 'Transform', 'Add Column', 'View', and 'Help'. The 'Reduce Rows' group contains the 'Use First Row as Headers' button, which is highlighted with a red line. A tooltip for this button is visible, showing the option 'Promote the first row into columns'. The data view shows a table with 2 rows and 4 columns. The first row is highlighted in yellow, indicating it is the header row. The data is as follows:

1	2	3	4
1	Prameela V	Prameela	V
2	Sharath D	Sharath	D

The 'Queries [3]' pane on the left shows 'Sheet1', 'Sheet1 (2)', and 'Sheet1 (3)'. The 'QUERY SETTINGS' pane on the right shows the 'Name' as 'Sheet1'.



Replace Values:

- It is used to Replace one value with another value in the selected columns.
- This can be useful when you want to replace Null values with some default values like '0' or '1' etc..

Close & Apply Close

New Source Recent Sources Enter Data

Data source settings Data Sources

Manage Parameters Parameters

Refresh Preview Query

Properties Advanced Editor Manage

Choose Columns Remove Columns Manage Columns

Keep Rows Remove Rows Reduce Rows

Sort

Split Column Group By

Data Type: Any Use First Row as Headers

Replace Values

Transform

Queries [3]

Sheet1

Sheet1 (2)

Sheet1 (3)

4 COLUMNS, 3 ROWS

Replace Values

Replace one value with another in the selected columns.

Value To Find

Prameela

Replace With

Lakshmi

Advanced options

OK Cancel

QUERY SETTINGS

PROPERTIES

STEPS

Applied Column4

placed Value3

placed Value4

named Columns3

removed Columns2

PREVIEW DOWNLOAD



Combine:

- There are two primary ways of combining queries – merging and appending.
- When you have one or more columns that you'd like to add to another query, you merge the queries. Merge is kind of join (in sql terms).
- When you have additional rows of data that you'd like to add to an existing query, you append the query.
- One of the important thing is Append Queries will NOT remove duplicates.
- Append only appends data below each other.

The screenshot shows the Power Query Editor window titled 'Test-PBI - Power Query Editor'. The ribbon includes tabs for Home, Transform, Add Column, View, and Help. The 'Transform' tab is active, showing various options like 'Close & Apply', 'New Source', 'Recent Sources', 'Enter Data', 'Data source settings', 'Manage Parameters', 'Refresh Preview', 'Properties', 'Advanced Editor', 'Manage', 'Choose Columns', 'Remove Columns', 'Keep Rows', 'Remove Rows', 'Sort', 'Split Column', 'Group By', 'Data Type: Text', 'Use First Row as Headers', 'Replace Values', and 'Combine'. The 'Combine' dropdown menu is open, showing options: 'Merge Queries', 'Append Queries', 'Combine Files', and 'Combine'. A red line highlights the 'Combine' option. The 'Queries [3]' pane on the left shows 'Sheet1', 'Sheet1 (2)', and 'Sheet1 (3)'. The main area displays a table with columns 'Column1', 'FullName', 'FirstName', and 'LastName' and three rows of data.

Column1	FullName	FirstName	LastName
1	Sai A	Sai	A
2	Lakshmi V	Prameela	V
3	Sharath D	Sharath	D

QUERY SETTINGS

PROPERTIES

Name: Sheet1



Transpose:

- Transpose the table, treating rows as columns and columns as rows.
- Sometimes you need to switch or rotate cells. We can do this by using the "Transpose".
- For example:

Jan	100		
Feb	200		
Mar	300		
Apr	400		
↘ Transpose			
Jan	Feb	Mar	Apr
100	200	300	400

Test-PBI - Power Query Editor

Home Transform Add Column View Help

Group By Use First Row as Headers Count Rows

Table

Transpose

Reverse Rows

Count Rows

Data Type: Text

Detect Data Type

Rename

Any Column

Split Column

Format

Merge Columns

Extract

Parse

Text Column

Number Column

Statistics Standard Scientific

Queries [3]

Sheet1

Sheet1 (2)

Sheet1 (3)

Transpose

Transpose this table, treating rows as columns and columns as rows.

	FullName	FirstName	LastName
1	Sai A	Sai	A
2	Lakshmi V	Prameela	V
3	Sharath D	Sharath	D



Reverse Rows:

It is used to reverse the table's rows, hence the last rows are displayed first.

We can use this, when we want to display last rows as first.

For example:

Month	Qty
Jan	100
Feb	200
Mar	300
Month	Qty
Mar	300
Feb	200
Jan	100

Reverse Rows

The screenshot shows the Power Query Editor window with the 'Transform' tab selected. The 'Reverse Rows' option is highlighted in the 'Table' group. A tooltip for 'Reverse Rows' is displayed, stating: 'Invert this table's rows such that the last rows are displayed first.'

The 'Queries [3]' pane on the left shows 'Sheet1', 'Sheet1 (2)', and 'Sheet1 (3)'. The main area displays a table with columns: Fullname, FirstName, and LastName. The data rows are:

Fullname	FirstName	LastName
Sai A	Sai	A
Lakshmi V	Prameela	V
Sharath D	Sharath	D



Count Rows:

It is used to return the number of rows in the table.

For example: If you want to find out the Source file record count we can use this transformation.

The screenshot shows the Power Query Editor interface. The ribbon is set to the 'Transform' tab. The 'Count Rows' button, located in the 'Table' group, is highlighted with a red circle. Below the ribbon, the 'Queries [3]' pane on the left lists 'Sheet1', 'Sheet1 (2)', and 'Sheet1 (3)'. The main area displays a table with the following data:

	ABC 123 Column1	ABC 123 Fullname	ABC 123 FirstName	ABC 123 LastName
1	1	Sai A	Sai	A
2	2	Lakshmi V	Prameela	V
3	3	Sharath D	Sharath	D



Rename:

- It is used to change the name of the currently selected column.
- There are a couple ways (at least) to rename a column. The following two approaches achieve the same result of changing the name of the column:
- In the **Query Editor**, **double-click** on a column, and enter the new name.
- In the **Query Editor**, you can also **right-click** on the column you want to rename, and select **Rename** from the menu that appears.

The screenshot shows the Power Query Editor window titled 'Test-PBI - Power Query Editor'. The 'Transform' ribbon is active, and the 'Rename' option is circled in red. The interface displays a table with columns: Column1, Fullname, FirstName, and LastName. The 'Fullname' column is currently selected.

	Column1	Fullname	FirstName	LastName
1	1	Sai A	Sai	A
2	2	Lakshmi V	Prameela	V
3	3	Sharath D	Sharath	D



Pivot Column:

- With Power BI Desktop, you can pivot columns, and create a table that contains aggregated values for each unique value in a column.
- For example, if you need to know how many different products you have in each product category, you can quickly create a table the does precisely that.

The screenshot shows the Power Query Editor window titled 'Test-PBI - Power Query Editor'. The 'Transform' tab is active, and the 'Add Column' group is expanded. The 'Pivot Column' icon, which shows a table with a column being pivoted, is circled in red. Other icons in the 'Add Column' group include 'Data Type: Text', 'Detect Data Type', 'Rename', 'Split Column', 'Format', 'Merge Columns', 'Extract', and 'Parse'. The 'Table' group contains 'Group By', 'Use First Row as Headers', 'Transpose', 'Reverse Rows', and 'Count Rows'. The 'Text Column' group contains 'Statistics', 'Standard', 'Scientific', 'Rounding', and 'Information'. The 'Number Column' group contains 'Trigonometry'. The 'Queries [3]' pane on the left shows 'Sheet1', 'Sheet1 (2)', and 'Sheet1 (3)'. The main data view shows a table with 3 rows and 4 columns: 'Column1', 'FullName', 'FirstName', and 'LastName'.

	Column1	FullName	FirstName	LastName
1	1	Sai A	Sai	A
2	2	Lakshmi V	Prameela	V
3	3	Sharath D	Sharath	D



Unpivot Columns:

Transform selected columns into attribute-value pairs where columns become rows.

Unpivot Columns creates an **Attribute** column for each selected column heading and a **Value** column for each selected column cell value.

For example:

Category	1/31/2017	2/28/2017	3/31/2017
Beverages	969	399	300
Condimen	440	183	115
Category	Attribute	Value	
Beverages	1/31/2017	969	
Beverages	2/28/2017	399	
Beverages	3/31/2017	300	

←
unpivot

The screenshot shows the Power Query Editor with the 'Transform' tab selected. The 'Unpivot Columns' icon, which shows a grid with arrows pointing from columns to a single row, is circled in red. Below the ribbon, the 'Queries [3]' pane on the left lists 'Sheet1', 'Sheet1 (2)', and 'Sheet1 (3)'. The main data area displays a table with columns 'Column1', 'FullName', 'FirstName', and 'LastName'. The data rows are:

	Column1	FullName	FirstName	LastName
1	1	Sai A	Sai	A
2	2	Lakshmi V	Prameela	V
3	3	Sharath D	Sharath	D



Move:

- Move selected columns to a different position in the table.
- We can adjust the columns by using this 'Move' transformation.
- By selecting the column we can adjust to left/right/To beginning/To End.
- For example: 2nd image shows "FirstName" column moved to Right.

The screenshot shows the Power Query Editor interface. The 'Transform' tab is active, and the 'Move' button (represented by a blue arrow) is highlighted with a red circle. The data table below shows columns: Column1, FullName, FirstName, and LastName. The data rows are:

	Column1	FullName	FirstName	LastName
1		Sai A	Sai	A
2		Lakshmi V	Prameela	V
3		Sharath D	Sharath	D

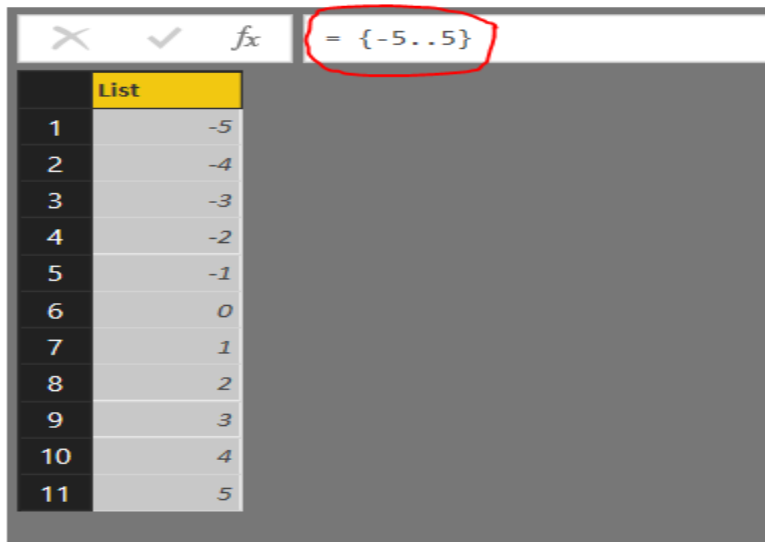
The screenshot shows the Power Query Editor interface after the 'Move' transformation. The 'Move' button is still highlighted with a red circle. The data table below shows the result of moving the 'FirstName' column to the right, after the 'Column1' column has been removed. The columns are: FullName, Column1, LastName, and FirstName. The data rows are:

	FullName	Column1	LastName	FirstName
1	Sai A		A	Sai
2	Prameela V		V	Prameela
3	Sharath D		D	Sharath



Convert to List:

- Converts the currently selected columns to a list.
- Disconnected lists of items can be useful for various purposes. For example, one can be used as a parameter table.
- We can also generate lists of characters and decimals, as well as non-continuous lists.



	List
1	-5
2	-4
3	-3
4	-2
5	-1
6	0
7	1
8	2
9	3
10	4
11	5



Fill:

- Fill cell values to neighboring empty cells in the currently selected columns.
- This helps when your data contains cells or rows with blank (null) values, and you want to copy down the value from the cell above.
- The values will be filled down to replace the null values with the value above.
- The Fill function will NOT replace any existing values in the column. Once it hits a cell with a value, it will then look for the next blank cell and fill it with the value above.

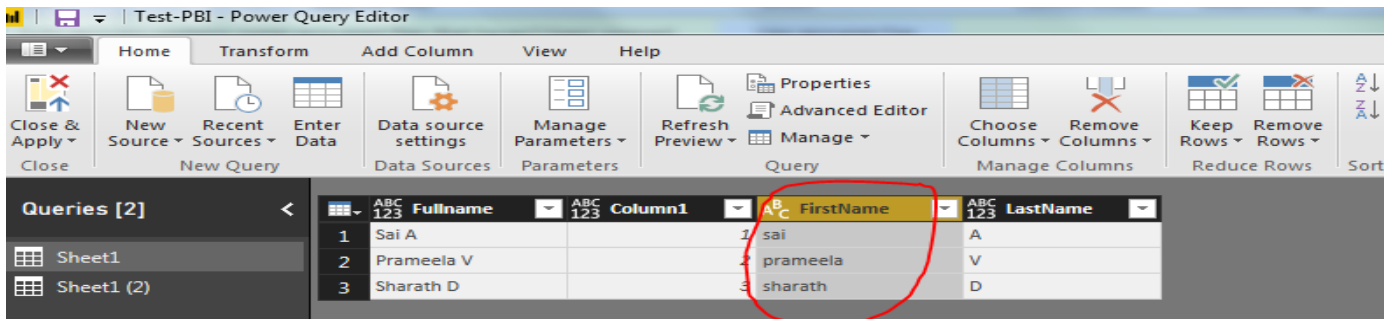
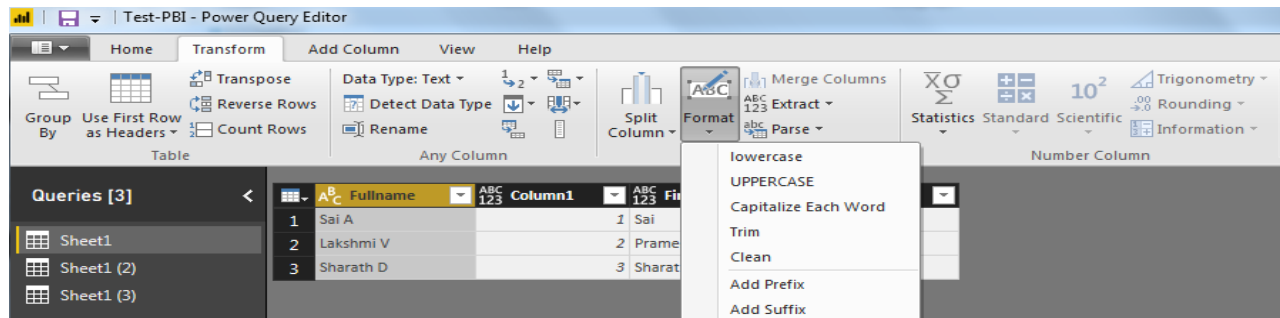
The screenshot shows the Power Query Editor window with the title bar 'Test-PBI - Power Query Editor'. The 'Transform' tab is active, and the 'Fill' function is highlighted with a red circle in the 'Any Column' group. The ribbon also shows 'Table' (Group By, Use First Row as Headers, Count Rows), 'Text Column' (Split Column, Format, Merge Columns, Extract, Parse), and 'Number Column' (Statistics, Standard, Scientific, Rounding, Information). The 'Queries [3]' pane on the left lists 'Sheet1', 'Sheet1 (2)', and 'Sheet1 (3)'. The main data table has 4 columns: 'Column1', 'FullName', 'FirstName', and 'LastName'. The data rows are:

	Column1	FullName	FirstName	LastName
1	1	Sai A	Sai	A
2	2	Lakshmi V	Prameela	V
3	3	Sharath D	Sharath	D



Format:

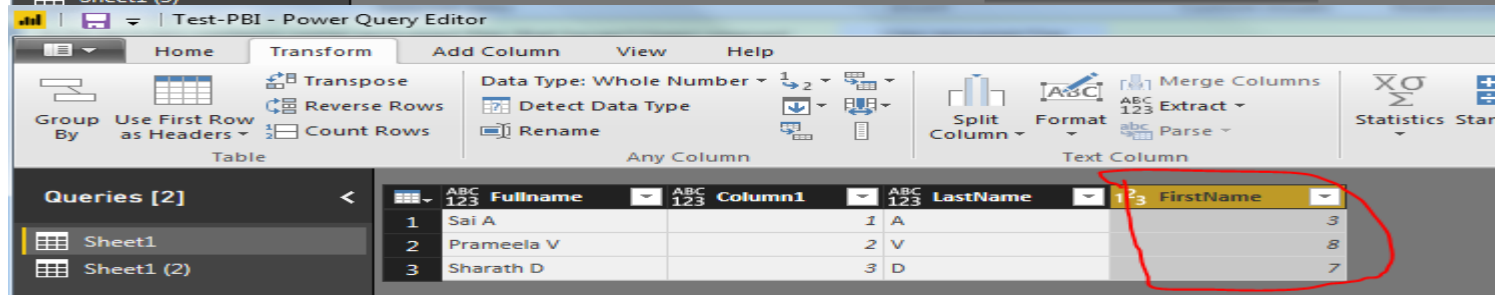
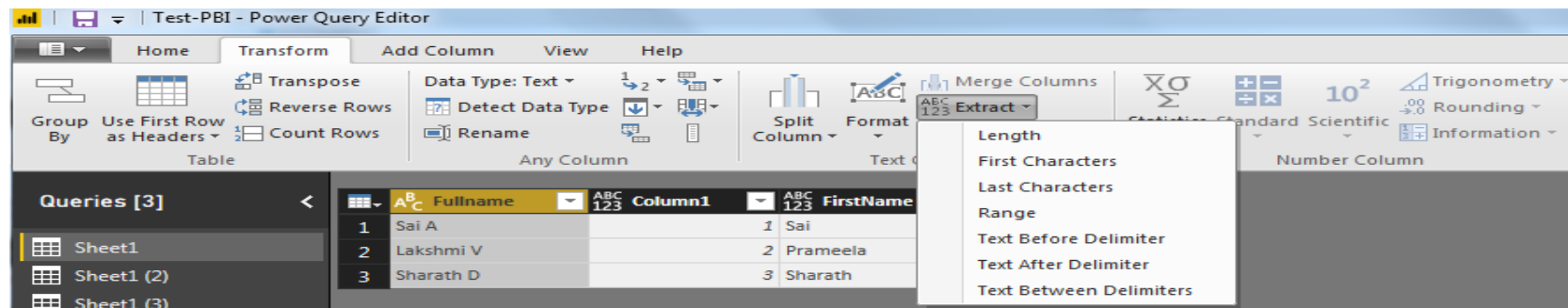
- Change casing of text or cleanse text.
- This can be used, when we want to change the particular column values to either lowercase / uppercase / trim etc....
- For example: 2nd image shows the lowercase of Firstname column.





Extract:

- It is used to extract characters from text values.
- Using this transformation we can find out the length of each row in a column. For example: 2nd image shows the length of "FirstName":
- Can extract range of characters in a selected column of a row.
- Can extract First character/Last character etc....





Statistics:

- It is used to perform statistical operations.
- Sum – It returns the sum of all the values in the currently selected column.
- Minimum - It returns the minimum of all the values in the currently selected column.
- Maximum - It returns the minimum of all the values in the currently selected column.

Power Query Editor interface showing the Statistics menu open.

Queries [3]: Sheet1, Sheet1 (2), Sheet1 (3)

	AB C Fullname	ABC 123 Column1	ABC 123 FirstName	ABC 123 LastName
1	Sai A		1 Sai	A
2	Lakshmi V		2 Prameela	V
3	Sharath D		3 Sharath	D

Statistics menu options:

- Sum
- Minimum
- Maximum
- Median
- Average
- Standard Deviation
- Count Values
- Count Distinct Values



Standard:

- It is used to perform basic math operations.
- Useful to find out the % of profit / deriving threshold values etc.. by using the basic Math operations.

The screenshot shows the Power Query Editor window titled "Test-PBI - Power Query Editor". The ribbon has tabs for Home, Transform, Add Column, View, and Help. The Transform tab is active, showing various options grouped by type: Table (Group By, Use First Row as Headers, Count Rows), Any Column (Transpose, Reverse Rows, Detect Data Type, Rename), Text Column (Split Column, Format, Merge Columns, Extract, Parse), Statistics (X, Y, Z, Sigma), Standard (Basic math operations), Scientific (10^2), Rounding (Rounding), and Information (Information). The Standard category is expanded, showing a list of operations: Add, Multiply, Subtract, Divide, Integer-Divide, Modulo, Percentage, and Percent Of. The background shows a data table with columns: Fullname, Column1, FirstName, and LastName. The data rows are: 1 Sai A, 2 Lakshmi V, 3 Sharath D.

	Fullname	Column1	FirstName	LastName
1	Sai A		Sai	A
2	Lakshmi V		Prameela	V
3	Sharath D		Sharath	D



Scientific:

- It is used to perform scientific operations.
- This can be used to find out the Absolute Value / Square Root / Factorial etc.. of a selected column.

The screenshot shows the Power Query Editor window titled "Test-PBI - Power Query Editor". The ribbon has tabs for Home, Transform, Add Column, View, and Help. The Transform tab is active, showing various transformation options grouped by data type: Table, Any Column, Text Column, and Number. The "Scientific" group is expanded, displaying a dropdown menu with the following options: Absolute Value, Power, Square Root, Exponent, Logarithm, and Factorial. The background shows a data table with columns: Fullname, Column1, FirstName, and LastName. The data rows are:

	Fullname	Column1	FirstName	LastName
1	Sai A		Sai	A
2	Lakshmi V		Prameela	V
3	Sharath D		Sharath	D



Rounding:

- It is used to perform rounding on number values.
- This can be used to rounding up the values to a nearest values.

The screenshot shows the Power Query Editor window titled "Test-PBI - Power Query Editor". The ribbon includes tabs for Home, Transform, Add Column, View, and Help. The Transform tab is active, displaying various data transformation options. A dropdown menu for the "Rounding" function is open, showing options: "Round Up", "Round Down", and "Round...".

The data table below shows the following columns and rows:

	AB C Fullname	ABC 123 Column1	ABC 123 FirstName	ABC 123 LastName
1	Sai A		1 Sai	A
2	Lakshmi V		2 Prameela	V
3	Sharath D		3 Sharath	D



Information:

Extract information about a column.

Using this transformation, we can find out each columns associated row value information

For example:

Month	Qty
Jan	100
Feb	200
Mar	300
Month	Qty
Jan	TRUE
Feb	TRUE
Mar	TRUE

Test-PBI - Power Query Editor

HomeTransformAdd ColumnViewHelp

Group By

Use First Row as Headers

Count Rows

Transpose

Reverse Rows

Count Rows

Data Type: Any

Detect Data Type

Rename

1 2

Split Column

Format

Parse

Merge Columns

Extract

\bar{X}

Σ

Statistics

\div

\times

Standard

10^2

Scientific

Trigonometry

Rounding

Information

Is Even

Is Odd

Sign

Queries [3]

Sheet1

Sheet1 (2)

Sheet1 (3)

	AB C Fullname	ABC 123 Column1	ABC 123 FirstName	ABC 123 LastName
1	Sai A		1 Sai	A
2	Lakshmi V		2 Prameela	V
3	Sharath D		3 Sharath	D



Trigonometry:

- It is used to perform trigonometric operations.
- If your data contains angular values ,you can find the sine, cosine values of it.
- It is helpful for mathematical data.

The screenshot shows the Power Query Editor window titled "Test-PBI - Power Query Editor". The ribbon has tabs for Home, Transform, Add Column, View, and Help. The Transform tab is active, displaying various data transformation options categorized by data type: Table, Any Column, Text Column, and Number Column. The "Trigonometry" option is highlighted in the ribbon, and its dropdown menu is open, listing the following functions: Sine, Cosine, Tangent, Arcsine, Arccosine, and Arctangent. The background shows a data table with columns: Fullname, Column1, FirstName, and LastName. The data rows are:

	Fullname	Column1	FirstName	LastName
1	Sai A		Sai	A
2	Lakshmi V		Prameela	V
3	Sharath D		Sharath	D



Transform:

- Change casing of text or transform to selected format.
- This can be used, when we want to change the particular column values to either lowercase / uppercase / trim etc....

The screenshot shows the Power Query Editor window titled "Test-PBI - Power Query Editor". The ribbon has tabs for Home, Transform, Add Column, View, and Help. The Transform tab is active, showing various options like Transpose, Reverse Rows, Count Rows, Data Type, Detect Data Type, Rename, Split Column, Merge Columns, and others. A context menu is open over the data table, showing options like Copy, Remove, Duplicate Column, Add Column From Examples..., Remove Duplicates, Remove Errors, Change Type, Transform, Replace Values..., Replace Errors..., Split Column, Group By..., Fill, Unpivot Columns, Unpivot Other Columns, and Unpivot Only Selected Columns. The "Transform" option is highlighted, and a sub-menu is open showing options like lowercase, UPPERCASE, Capitalize Each Word, Trim, Clean, Length, JSON, and XML. The data table has 4 columns (A, B, C, Fullname) and 3 rows of data.

A	B	C	Fullname
1	Sai	A	Sai
2	Lakshmi	V	Prameela
3	Sharath	D	Sharath



Change Type:

- It is used to change the data type of the selected column.
- We can use this transformation when we want to change the data type of a particular columns.

For example: We can change the numeric to Decimal/ixed Decimal etc..

The screenshot displays the Microsoft Power BI Desktop interface. The 'Transform' ribbon is active, showing various data transformation options. A context menu is open over a table with columns 'AB', 'C', 'Fullname', and 'ABC'. The 'Change Type' option is selected, opening a sub-menu with the following options: Decimal Number, Fixed decimal number, Whole Number, Percentage, Date/Time, Date, Time, Date/Time/Timezone, Duration, Text, True/False, and Binary. The 'QUERY SETTINGS' pane on the right shows the 'APPLIED STEPS' list, which includes 'Replaced Value5', 'Reversed Rows4', 'Reversed Rows5', 'Reordered Columns', and 'Filled Up'. The status bar at the bottom indicates 'PREVIEW DOWNLOADED AT 10:41 AM'.



Duplicate Column:

- It is used to duplicate the selected column.
- When we want to perform some transformations on the existing column, we can use the 'Duplicate Column'.

The screenshot shows the Power Query Editor window titled 'Test-PBI - Power Query Editor'. The ribbon includes 'Home', 'Transform', 'Add Column', 'View', and 'Help'. The 'Add Column' tab is active, showing options like 'Data Type: Any', 'Detect Data Type', 'Rename', 'Split Column', and 'Format'. A context menu is open over the 'Column1' header, with 'Duplicate Column' highlighted and underlined. The menu also includes options like 'Copy', 'Remove', 'Remove Other Columns', 'Remove Duplicates', 'Remove Errors', 'Change Type', and 'Transform'. The background shows a table with columns 'FullName', 'Column1', and 'FirstName'.

	FullName	Column1	FirstName
1	Sai A		Sai
2	Lakshmi V		Prameela
3	Sharath D		Sharath



AGENDA (A Look again)

Data Connectivity

- Files
- Database
- Azure
- Online Services
- Other

Data Transformations

- Choose Columns
- Remove Columns
- Keep Rows
- Remove Rows
- Split Column
- Group By
- Use First Row as Headers
- Replace Values
- Combine
- Transpose
- Reverse Rows
- Count Rows
- Rename



Contd.. Data Transformations

- Pivot Column
 - Unpivot Columns
 - Move
 - Convert to List
 - Fill
 - Transform
 - Change Type
 - Duplicate Column
 - Format (Lowercase, Uppercase, Capitalize Each Word, Add Prefix etc...)
 - Extract (First Characters, Last Characters, Length, Range etc...)
 - Statistics (Sum, Minimum, Maximum, Median, Average etc...)
- Standard (Add, Subtract, Multiply, Divide etc...)
 - Scientific (Power, Square Root, Absolute Value etc...)
 - Rounding (Round Up, Round Down)
 - Information (Is Even, Is Odd and Sign)
 - Trigonometry (Sine, Cosine, Tangent etc...)

Questions, Notes, Open Forum, Etc...



Thank You!

