Power BI Interview QnA E-Book

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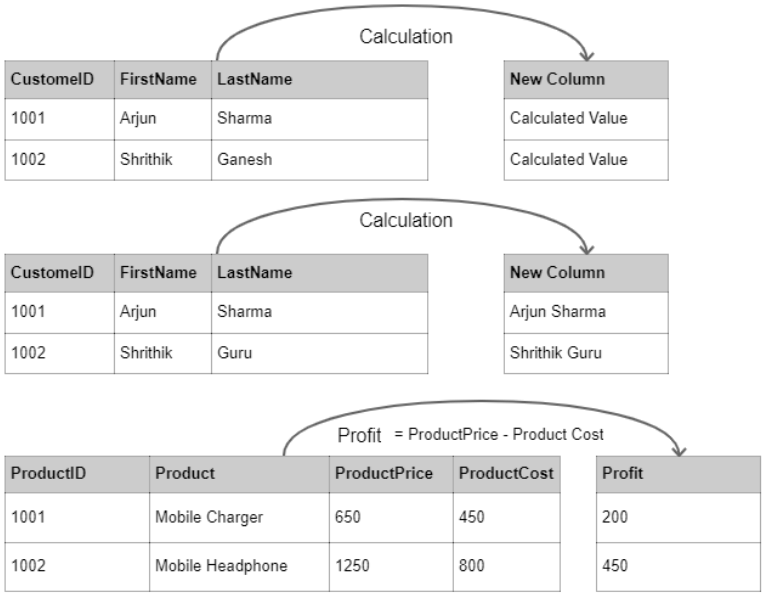
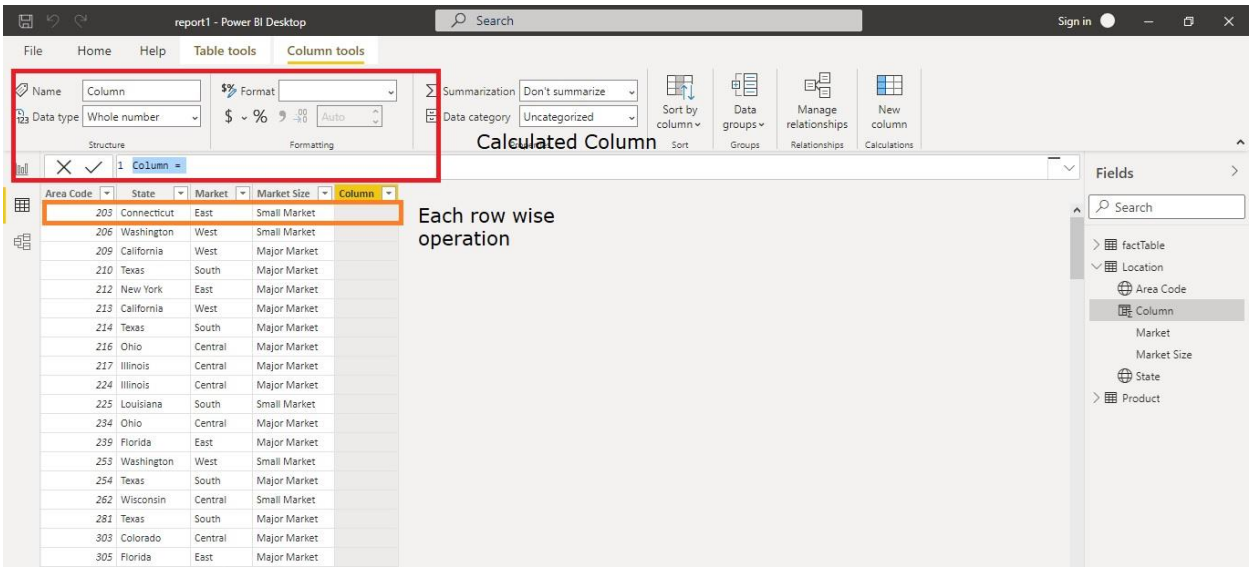
Question 1: What are Calculated columns?



Calculated column is a new column which we create by defining calculations and these calculations can be our concatenate calculation where we might be using it to combine two or more columns' data or some DAX functions like Date, format, Related and so on, so this DAX calculations is performed for each row data in the Table not for entire table data.



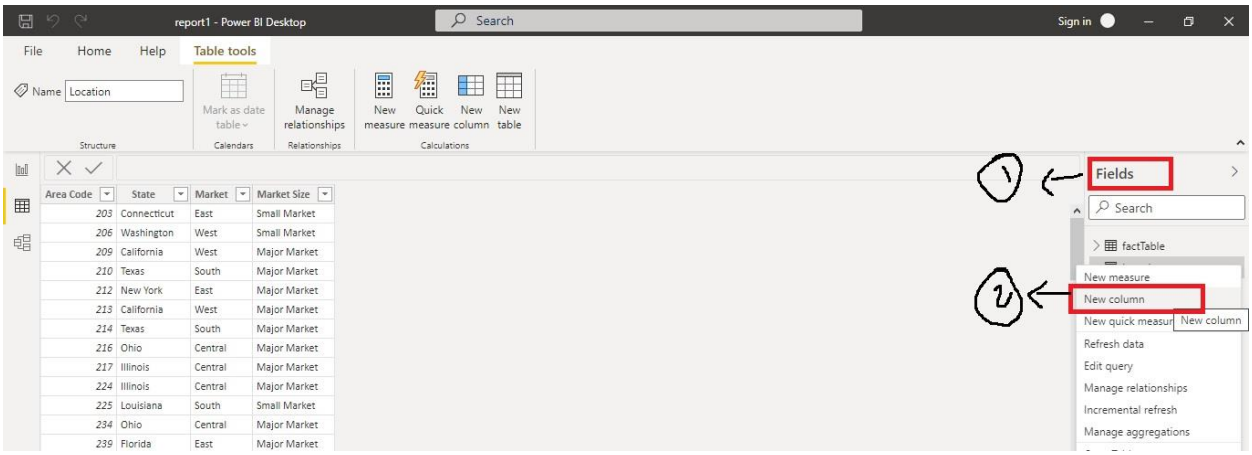
Now before you end your answer to create more impact on your answer you can also tell some benefits of creating new column. i.e. you can say that **in a data model one benefit of creating calculated column is to establish relationship between tables when no unique field exist**.

So, in simple words if u need a new column with some massaged data or transformed data rows then we can use Calculated column.

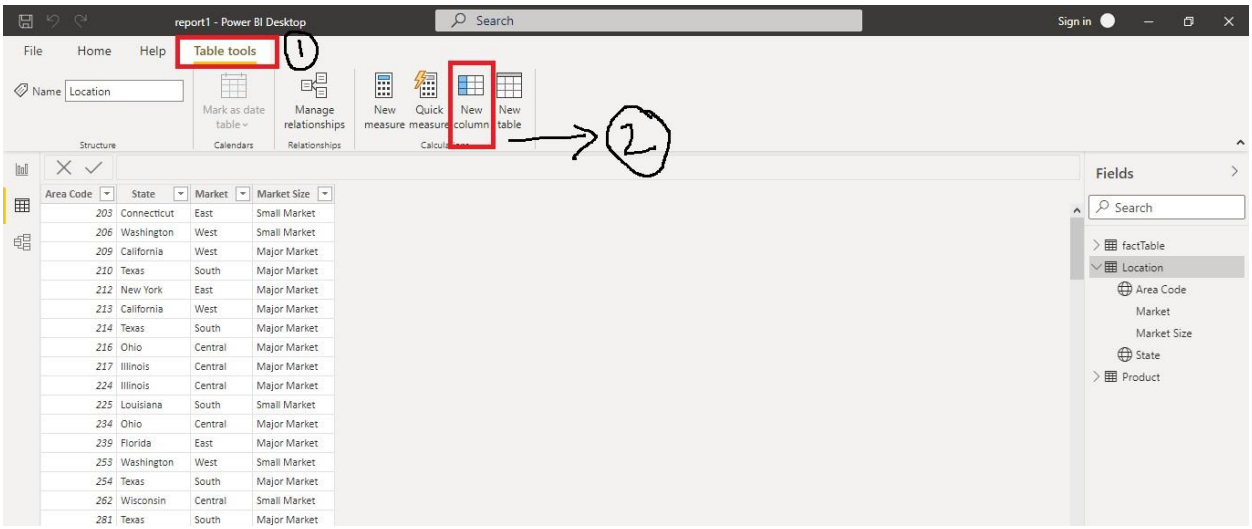
Now connected to this question or this topic Interviewer can also add one more question i.e.

Question 2. Where can calculated columns be created in power bi?

Now to answer this question you can tell that: There are multiple ways we can create calculated columns



Go to fields then choose any table where you want to create column and click on dotted lines and say new column as shwon in above image.



You can also go to table tools and say new column to create column (This option available in data model)

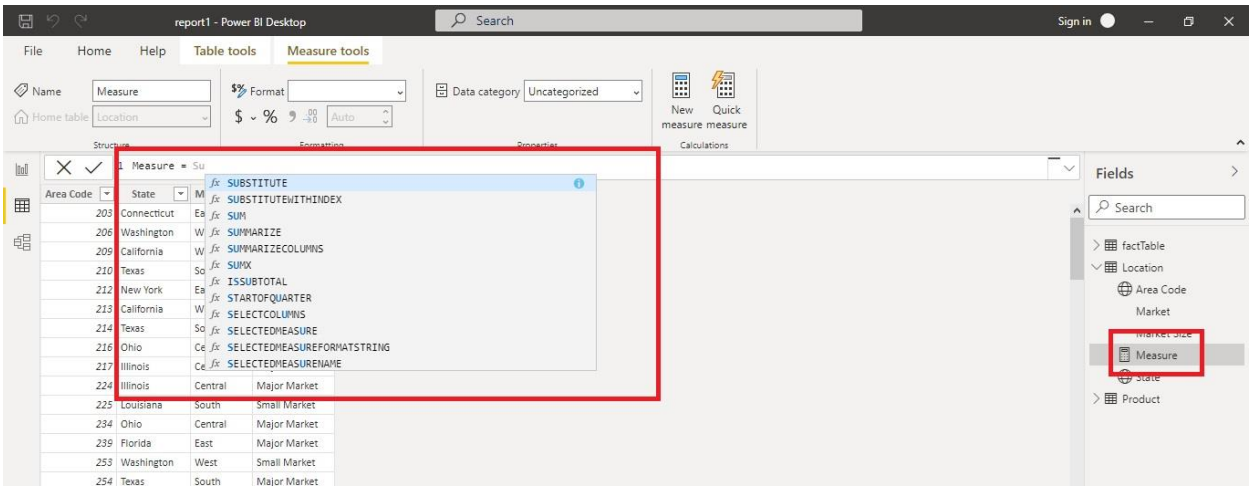
Question 3. What are calculated measures in power bi

ProductID	Product	Product Category	ProductPrice	ProductCost
1001	Mobile Charger	Accessories	650	450
1002	Mobile Headphone	Accessories	1250	800
1003	Iphone XS	Smart Phone	58000	50000
1003	Oneplus	Smart Phone	68000	50000

Expression Total Product Cost By Product Category

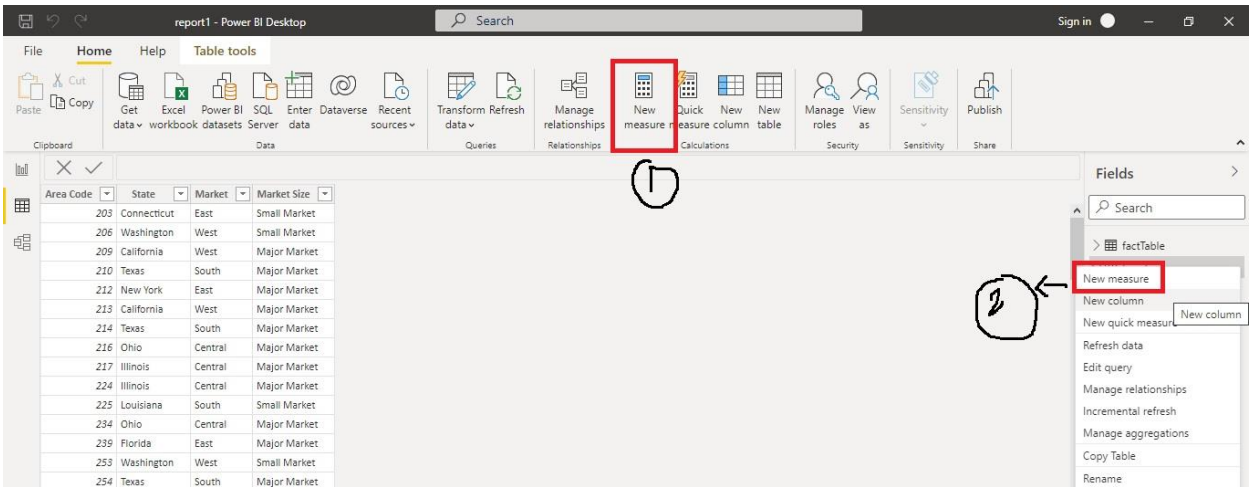
DAX Calculation → **SUM(ProductCost)**

Measures are just another way of defining calculations in data model, Measures are also known as Power BI DAX expression and we use these DAX functions for doing analysis, calculation, forecasting and many more. Measure works for entire table and depending on context it automatically changes it's value. So, popular DAX functions are like...Calculate, Filter, Sum, Average, Min, Max and many more these functions are divided as per logical, time, date, table, filter, iteration wise and so on. Whenever we create a measure in a table a special calculator symbol is represented as you can see in below image.



Question 4. Where can calculated measures be created in power bi?

We have to follow the same steps as we saw for calculated column



Question 5. Difference between Calculated Column and Measure in Power bi?

Calculated Column vs Calculated Measure

Calculated Column	Measure
A new column name added in Data model which is used in formula bar	A new measure is created but not added to data model
Here we can view data in added in new column	Here we cannot view data added in measure
Evaluated for each row in our table	Evaluated when we use it in any visualization and this evaluation happens on entire dataset of table
Columns are also called as static row-level attributes	Measures are also called as dynamic aggregations
Here New Column Occupies Space in PBIX file	Here Measure does not occupy any space but yes it occupies space in cache level
Columns are useful to create relationship between tables where unique field does not exits	Here measures are useful to do only aggregation

Question 6. What are M codes in power bi & where can you write Power Query M Code?

So, you can start something like this... In Power BI there are 3 important areas... Visualization to create reports, Transformation where we massage/transform data, DAX expressions which we apply on Data model for analysis or for doing some calculations... Out of these 3 ... Data Transformation or Power query zone.

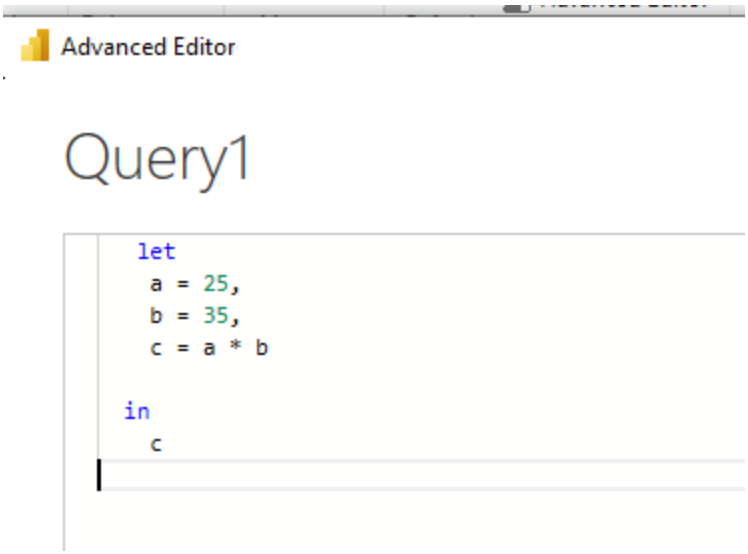
So, this Power query zone is a place where we write M-Codes. This is also called as M-Language.

So, M-code is categorized into Logical, Date, Number, Text, Table and so on...

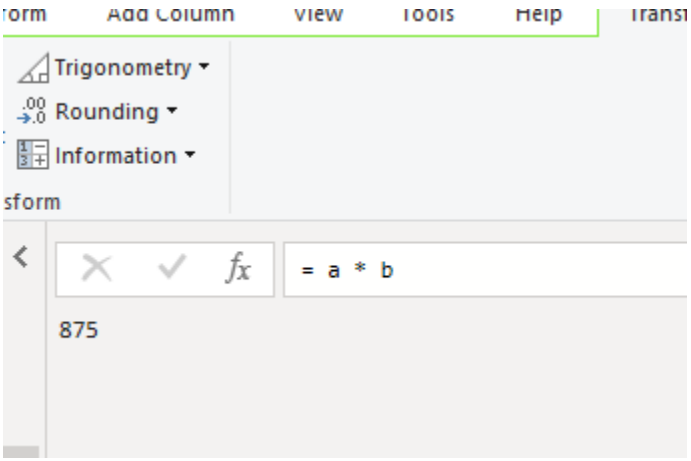
and we use this M-code to clean data like removing nulls, errors, bad data and we also use it to structure our data as per our needs like creating snowflake model or star schema model...it is totally depending on us how we have use M-codes... There are like 1000 of M-functions available in PBI which we can use according to our requirements.

We can generate M-code when click on any buttons in P-Query editor like replace values, remove columns, append queries, add column or anything we do as steps an automatic M-code is generated. In case if you still want to write M-code then you can either visit Advance editor option or go to custom column and can write custom M-functions.

Simple M-function which can write in Advance editor of Power query editor



output is shown in below image.



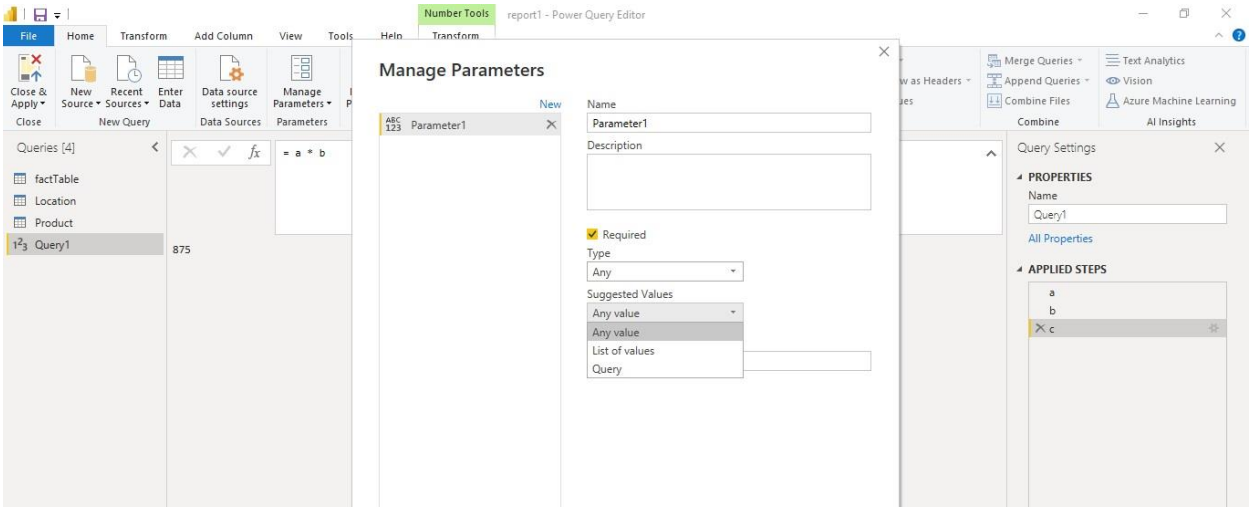
Question 7. What are Parameters in Power bi?

Parameters helps us to store values and parameters gives us flexibility to dynamically reuse, update, change ...and this change can be dynamically change output of queries or change output of reports.

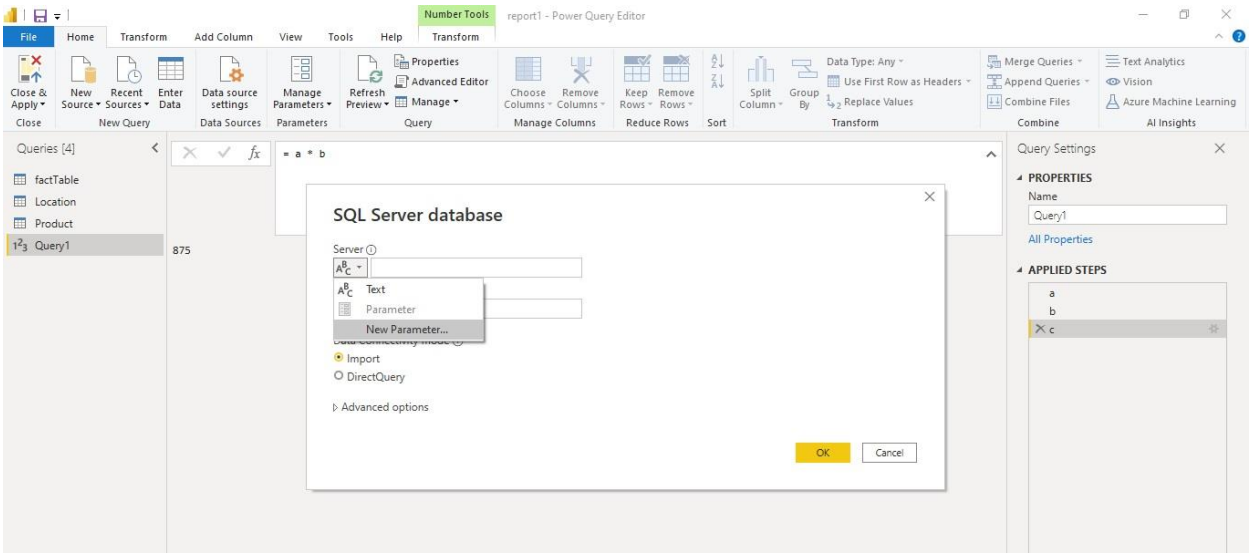
So, we have two types of parameters in Power BI i.e., Query Parameters which lies inside the Power Query Editor and second one is What-If parameter which is available in the main screen of power bi and this what-if parameters helps us to use inside DAX expression where value can be dynamically handled from slicers.

Here in this answer, we will only talk about for Query Parameter and What-if parameter answer we will cover in our part-2 video.

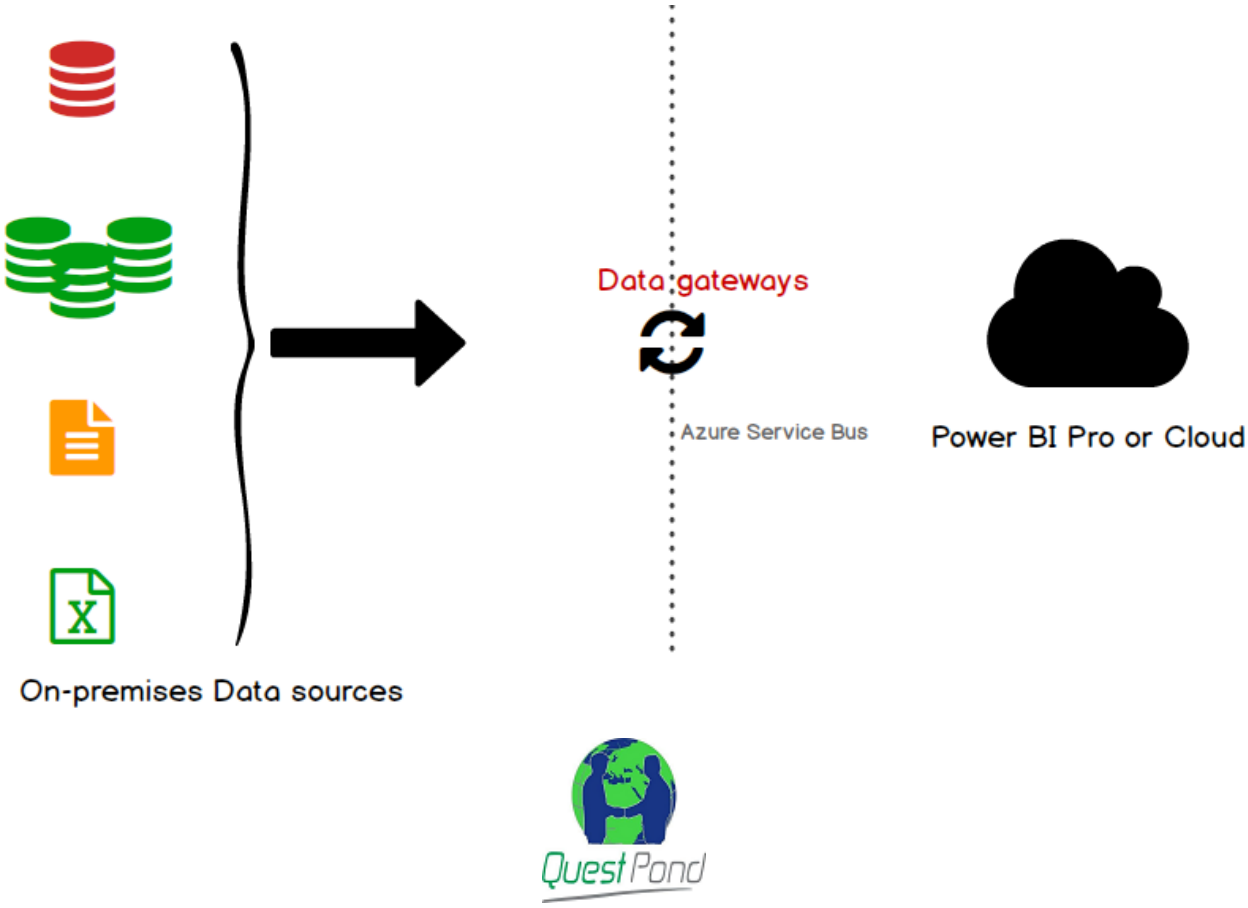
Query parameters help us to dynamically change output of queries and we have types in Query Parameters like value where we can add value here and list of values where we give list of values and Query where we can link a query as shown in below image.



At the end of your answer to create more impact you can tell one example i.e., best example for this can be using parameters for Data sources names and database names like SQL Server....and this gives flexibility to change data sources or database names any time dynamically and these change and update all list of associated tables easily without any problem.



Question 8. What is Power BI data gateway?



Date Gateways in power BI acts like a bridge or connector between your on-premises data sources and your power bi files hosted on Power BI cloud service

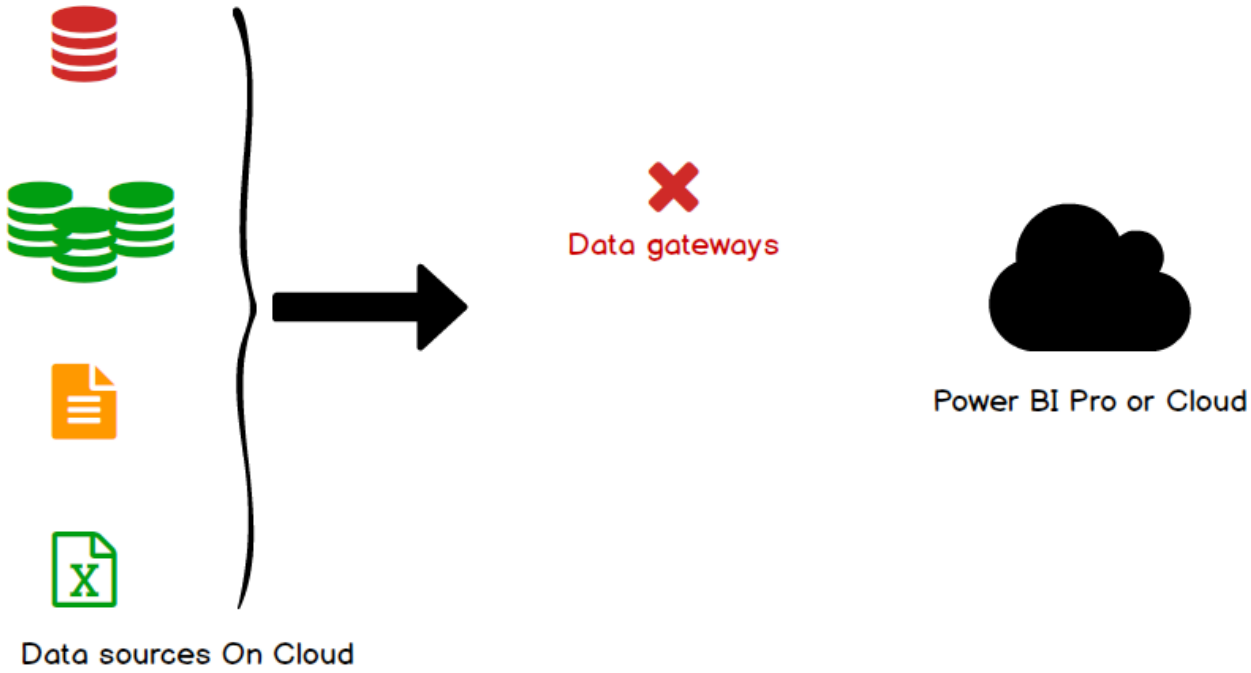
When your data sources like SQL server, Excel, CSV files or any other type of data lies on your computer or on your organization local server computer and you want to connect and sync to Azure cloud services, PBI cloud services, power apps, SharePoint then for this process you need a data gateway. Because these data gateways securely encrypt and decrypt your authentication and securely process/transfer your data sync to cloud services and for securely data transfer it takes help of Azure service bus.

If we summarize our answer then if your Power BI files lie on Power BI cloud service or Power BI.com and if we need real-time data visualization and if our data source is on-premise then definitely to sync data or to refresh data between Power BI.com to on-premises data sources we need data data-gateways without these gateways we cannot refresh our data.

There might one more question associated with data gateways.

Question 9. Do we need data gateway for schedule refresh in Power bi?

Answer is yes if your data lies on on-premises data sources.... if your data is somewhere in azure or azure sql server, one drive or SharePoint then we don't need data gateways.



Now most of the companies are already hosted their data on Cloud servers so there is less chance of using these gateways.

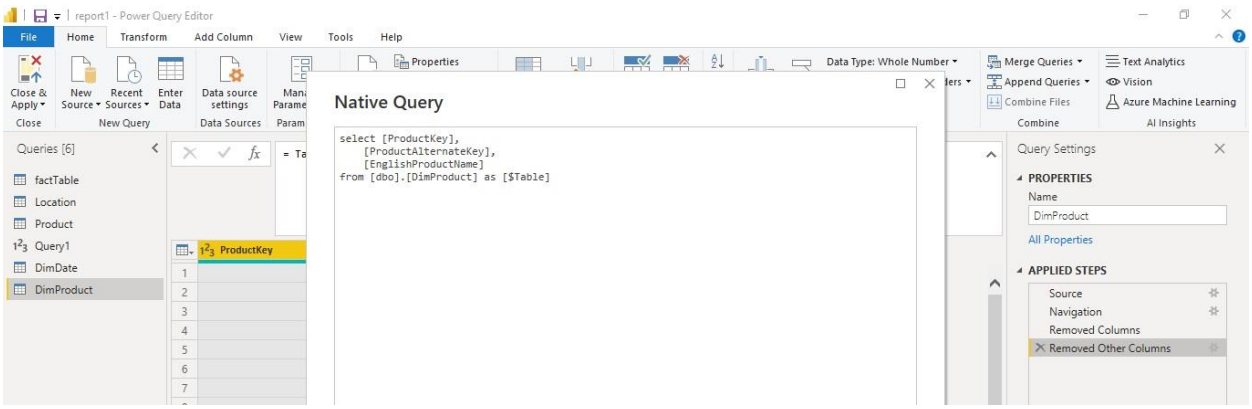
Question 10. What is Query Folding in Power bi?

The process of sending Transformed Native Query (Query Which is part of Power Q) back to data source to get only transformed column data are known as Query Folding. So, in simple words Query Folding gives you optimized columns data

depending on your transformation requirement by sending native Query back to source data.

Now this Query Folding only works with only Relational DBS, Active directories not with any other sources like Excel, CSV.

In order to take Query Folding optimization advantage, do the steps and check each step if it is generating native query or now. If not then alter steps accordingly.



For example, you can see that from above image a new step is created with new native query and now power bi will send this last or final native query back to data source (SQL server in my case). This return back optimization columns are known as Query Folding.

Question 11. What is the use of Split function in power bi?

Split Function is a part of Power Query editor and it is useful to split data into different columns based on delimiter, number of characters and by position. A nice example is shown below where one column data is split into multiple columns based on delimiter.

Split Function

CityStateCountry
Mumbai Maharashtra India
Dallas Texas USA
Newyork Texas USA
Bengaluru Karnataka India
Hyderabad Telangana India

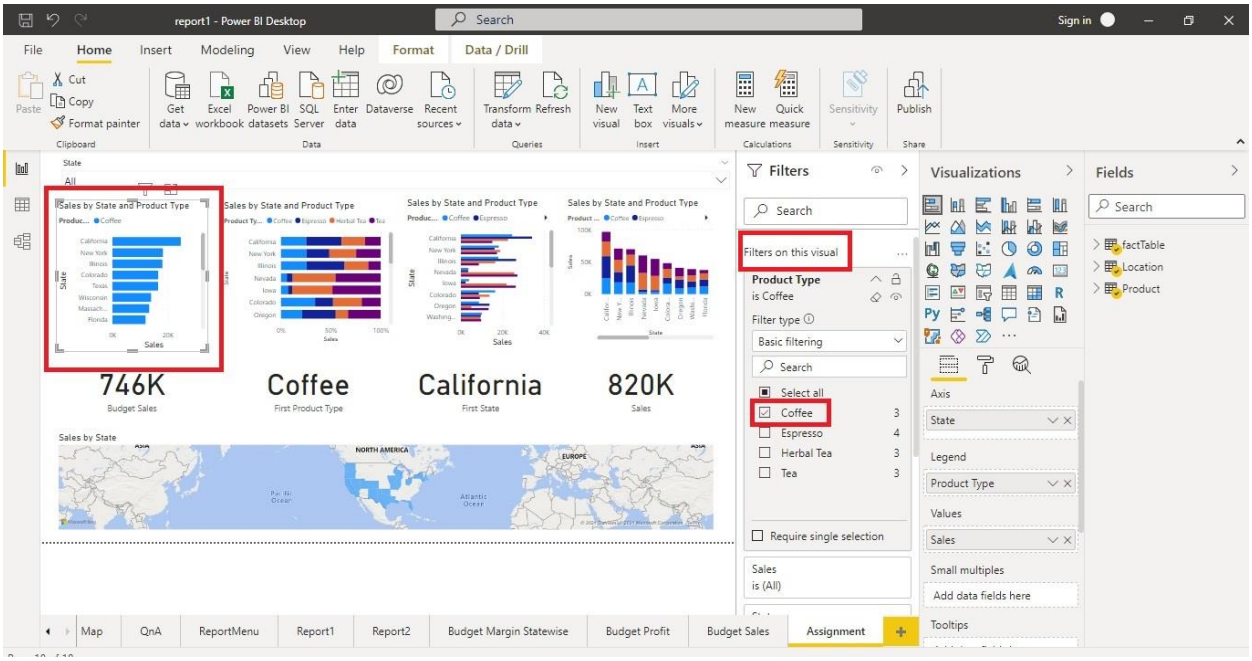
City	State	Country
Mumbai	Maharashtra	India
Dallas	Texas	USA
Newyork	Texas	USA
Bengaluru	Karnataka	India
Hyderabad	Telangana	India

Question 12. Difference between visual level, page level and report level filters in power bi?

We have three types filters in Power BI visualization i.e visual level filter, page level filter and report level filter.

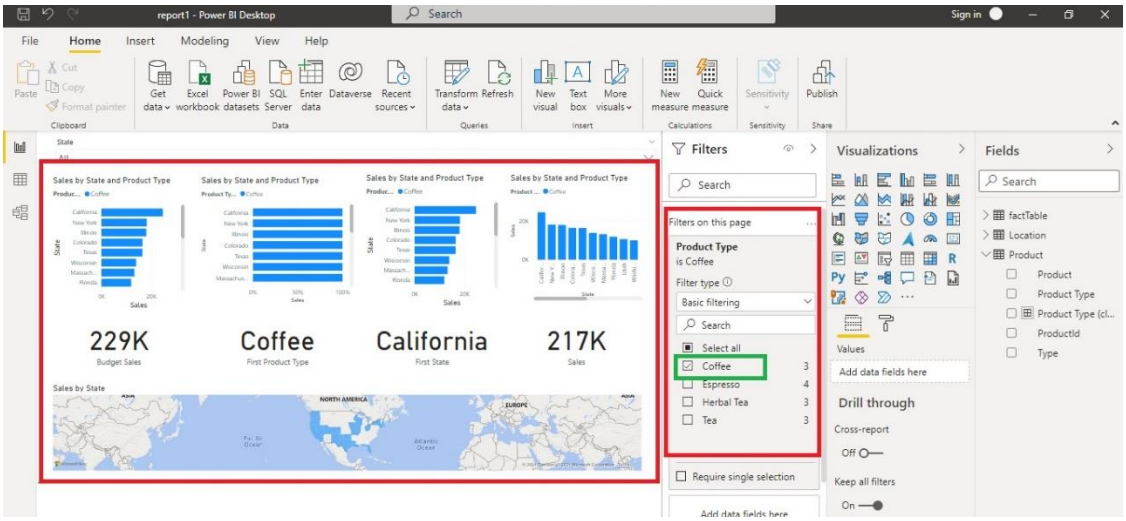
Visual level filter will able to filter selected visualization only

Example of Visual Level Filter Image:



Page level filter will able to filter all visuals present in a single page

Example of Page Level Filter Image:



Report level filter will able to filter all visuals present current page and also present all current pbix report.

These filters can filter can visuals based on selected data fields.

Question 13: Difference between ALL and ALL EXCEPT functions?

ALL	AllExcept
Definition: All function. All function helps us to remove any filters from the context that might have been applied and then returns the necessary value.	**Definition**: This function also works similarly like All function. It also helps us to remove filter not just filter but all filters except column which is specified in that Allexcept function and then returns the necessary value.
Syntax:	**Syntax**:
It removes filter on table name or column name which is applied in the function	Except column name which is applied in the function, it removes all other filters.
Here we can specify either particular table name or column name	Here we can specify only column name along with dataset name
All is also a comes under table functions	Allexcept is also a comes under table function
Example: In video demonstrated	**Example: In video demonstrated**

Question 14: What is "What if" parameter in power bi?

In power bi if we want to perform what-if type analysis then we can achieve it only by using what-if parameter feature, so this feature allows us to dynamically perform what-if type analysis by using slicer bar.

This parameter easily allows us to dynamically change calculation value of DAX expression as we use value of slicer in DAX expression and this value dynamically changes as we slide using slicer bar and thus will allow us to demonstrates how our data changes under various visualization.

For example: If we have current year sales data and we want to analyze like a to get 30%, 50, 60 or 90% growth for upcoming year how much targeted sales is required then yes, we can easily analyze by what-if parameter so this is an ideal example to tell in interviews.

Question 15: How to keep or remove specific rows in power bi?

This feature is present in Power Query Editor and this feature allows us to keep or remove specific rows in a table. We can keep or remove top, bottom, range of rows not only row data but also, we can remove errors and duplicates, very important feature with respect to data transformation.

Question 16: What is grouping in power bi and how to use it?

In power bi whenever a data is presented in visual is more or like in an aggregated way but there are some times when we need to do group data as per our requirement for example let's say customers as per badges (Gold, Silver & Platinum) now power bi cannot able to group it this data using its own intelligence we have to do it manually so always automated data-grouping will not happen in that case data grouping can help us to do that.

Question 17: Difference between Distinct and Values in power bi?

Distinct	Values
Definition: A Dax function which help us to retrieve distinct unique values of a column	**Definition**: A Dax function which help us to retrieve unique values and also blank values if present.

Syntax:	**Syntax**:
It does not count or return blank values	It counts and returns blank values if present
It returns table a distinct unique table	It returns unique table with blank rows if present
Example: In Video Demonstrated	**Example: In Video Demonstrated**

Question 18. What is DAX and most common DAX Functions used?

DAX stands for Data Analysis Expressions and it a formula expression language developed by Microsoft that can be used in different Microsoft products like in MSBI SSAS cube model, Power BI and Popular Power Pivot in Excel.

They look alike Excel formulas but hold on they are very different. Excel formulas work on cells where else these DAX formulas works on rows and columns of table. It is very powerful expression language where we can write an entire formula like a function and we can keep entire code inside a function.

Main job of DAX is to define custom calculations (also called as Measures), create calculated columns or tables.

Power bi is a powerful data analysis tool if u know DAX, then we can truly unleash the capabilities of power BI.

Now let's talk about what are the most common DAX Functions?

We have categorized this common function according to different types as shown in below table.

Maths & Stats	Logical	Text	Filter	Date / Time Intelligence
SUM	IF	TRIM	ALL	DATEADD
MIN / MAX	AND / &&	UPPER / LOWER	ALLEXCEPT	DATESQTD
DIVIDE	OR / ||	LEN	ALLSELECTED	DATESYTD
COUNT/COUNTA	TRUE	PROPER	VALUES	DATESMTD
DISTINCT	FALSE	FORMAT	CALCULATE	DATEDIFF
AVERAGE	SWITCH	REPLACE	FILTER	SAMEPERIODLASTYEAR
SUMX	NOT	LEFT / MID / RIGHT	RELATED	

MAXX	ISTEXT			
AVERAGEX	ISERROR			

Question 19: What is Power Query?

Power Query is a Data Automation Tool, where data preparation or data transformation happens according to requirement. Here is place where we load the raw data different types data connectivity mode...like excel, sql, csv and many more...So it is a kind of ETL tool where first data is extracted then transformed and finally loaded to data model...

So, data transformation like cleaning, removing error, removing duplicates, creating tables, adding columns, combining datasets using append or merge, removing unwanted rows or columns, grouping data and many more transformation we can do in power query

M language is a heart of power query which helps us to use functions in support of data transformation process... there are like 1000 M-functions available which can be categorized into Logical, Date, numbers, Text, Table and so on. Once we are done with all data transformations we click on close and apply button to load all our tables into data model.

Question 20. What are the different types of filters in Power BI Reports?

Visual level Filters - If you apply visual level filter then it will filter data only in that particular visualization only. Visual-level filters provide the most powerful filter conditions in Power BI exclusive of custom filter conditions specified in DAX expressions.

Page Level Filters - If you apply page level filter it will filter the data in all visuals present in that particular page.

Report level Filters - If you want to apply filter in all pages of the report you will apply report level filter.

Question 21: Difference between sum and sumx in power bi?

SUM	SUMX

Definition: This is an aggregator function which helps to aggregate entire column value and it summarizes a value based on a filter context	**Definition**: SUMX is the sum of an expression, the X at the end of this function stands for an expression. This is an iterator function which helps to iterate row by row values and then return sum of an expression.
Syntax:	**Syntax**:
SUM only accepts a column name as input	SUMX accepts table name and an expression. Now this table can be virtual table or table present in data model and here in expression we can use column or any existing Dax expression.
It just summarizes the entire column	Here we not only just summarize but also, we can do lot more things like removing filter, adding filter, using virtual table, addition, multiplication and many more etc.

Question 22: Import Query vs Direct Query in power bi?

Import	Direct
Definition: Import Query mode allows to import data and table structure both into its cache memory.	**Definition**: Direct Query mode allows to get only table structure and data will remain at database source end only.
It is more like offline mode with data source where data is already been sync and cached into its own memory and only required Power BI Gateway to get latest data from On-premise data sources.	It is more like an online mode with data source where to display or to fetch data it needs live connectivity mode. Must require Power BI Gateway frequently to get data from On-premise data sources
Import mode is very fast compare to Direct Query mode because all data comes from Power BI memory Cache.	Direct mode is slow because all data comes from data source and this source can be on-premises, azure data source, sql data etc.

Here we can add multiple data sources	Here we have to use single data source only.
Supports All DAX and all Data Transformation functions	Comes with limited DAX functionality and limited Transformation support

Question 23: Append Query vs. Merge Query in Power BI?

Append Query	Merge Query
Definition: The append query is used to append the data of two or more queries/tables with the same structure or a different structure into a single query/single table.	**Definition**: Merge query is used to merge only two queries/tables into a single query/table with a common column condition. Both sides of tables must have common column so that using this common column (Like a join) we merge data.
Example: In Video only	**Example**: **In Video only**
Require 90% same column structure to append data between two tables.	Requires one common column to create merge data join between two tables.
In append query from second table there is no option to choose selected column options to be added in as a new query. By default, all columns are added and if extra column is available, it will have null values.	In merge query from second table, we can choose how many selected columns to have in as a new merge query.

Question 24: Types of Join or Types of Join Kind in Power BI?

Types of Join Kind: Left outer join, right outer join, Full outer join, Inner join, Left anti join, right anti join.

We use these join types during data transformation in power query editor and these join types are part of Merge query option.

Output of Join types are explained below: -

LEFT Table

ID	Property	CountryID
1001	A-property	1
1002	B-property	2
1003	C-property	3

RIGHT Table

CountryID	CountryName
1	India
2	USA
4	AUS

OUTER

LEFT OUTER

ID	Property	CountryID	CountryName
1001	A-property	1	India
1002	B-property	2	USA
1003	C-property	3	Null

RIGHT OUTER

CountryID	CountryName	ID	Property
1	India	1001	A-property
2	USA	1002	B-property
4	AUS	NULL	NULL

FULL OUTER

ID	Property	CountryID	CountryName
1001	A-property	1	India
1002	B-property	2	USA
1003	C-property	3	Null
NULL	Null	4	AUS

INNER

ID	Property	CountryID	CountryName
1001	A-property	1	India
1002	B-property	2	USA

ANTI

LEFT ANTI

ID	Property	CountryID	CountryName
1003	C-property	3	Null

RIGHT ANTI

CountryID	CountryName	ID	Property
4	AUS	NULL	NULL

Happy Learning!!! Happy Job Hunting!!!