POWERBI INTERVIEW QUESTIONS

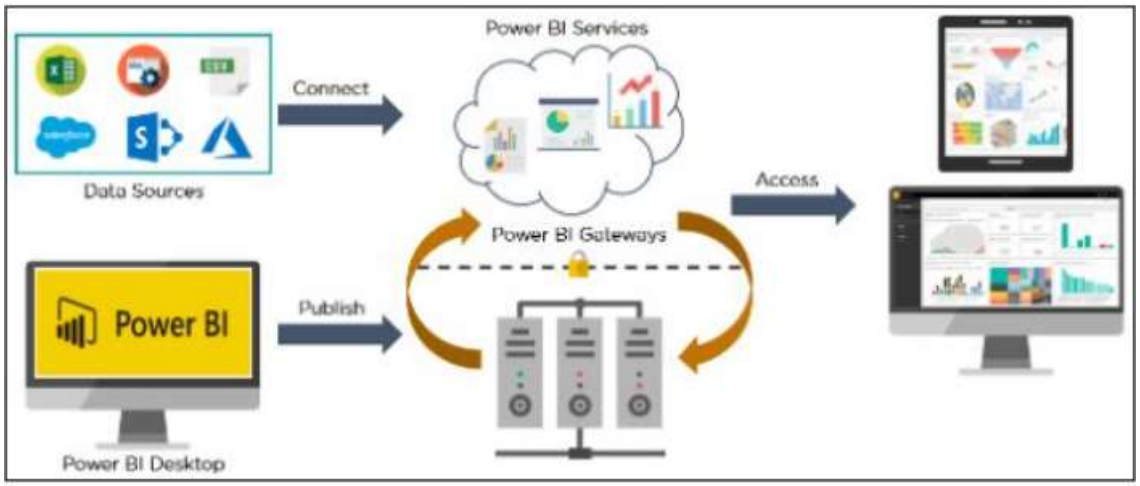
1. **What is Difference between PowerBI and Tableau?**
   Tableau is primarily a data visualization Tool, PowerBI is both ETL and Data Visualization Tool ,It also has lot of data modelling options
   Power BI is a tool use for easy visualisation and is freely available for desktop version and can be use standalone. It has ETL tools which are similar to Excel Power Query which make it easy and comfortable It also can add external visuals to make the report attractive and interactive,
   Tableau is a Similar Visualisation Tool but is paid version although no additional visual is needed to be added but to create the visual in tableau, it require good skill and understanding of charts and tableau tools.

2. **Which are the other Data Visualization Tools in Market ?**
   Google Data Studio, Excel Power Pivot, Power Map, SAP BusinessObjects BI Suite, TIBCO Spotfire, Looker, Tableau,QlickView,Plotly,IBM Whatson

3. **What is ETL ?**
   ETL Stands for Extract Transform Load, ETL tools are used to convert raw data into structured tabular format and which records the steps performed which can be applied automatically on future loaded files.

4. **Which is the ETL Component of POWERBI ?**
   PowerQuery is the ETL part of PowerBI additionally the same tool is available in excel as well.

5. **Draw the architecture of PowerBI Flow**



6. **Describe the different components of PowerBI ?**
   PowerBI Desktop - PowerQuery – PowerPivot – PowerView – PowerBI Service – PowerBI MobileApps, Power BI Data Flow, Power Map, Power Q&A.

7. **Which are the other ETL Tools in Market ?**
   Informatica PowerCenter, Abinitio, Alteryx, SSIS, Spotfire, IBM DataStage, Oracle Data

Integrator, SAS Data Management, Talend Open Studio, Pentaho Data Integration, Singer, Hadoop, etc.

8. **What are the different data sources connectivity available in PowerBI ?**
   PowerBI offers more than 300 different data sources support . Excel ,CSV,JSON,Folder,Web,PDF,SQL Server,MYSQL,Azure SQL Database,SAP HANA,Amazon RedShift,Teradata are some of the common data sources

9. **What is PowerBI, why is it used for ?**
   Power BI is a Business Intelligence Tool, It is collection of software services, apps, and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, and interactive insights

10. **What is the difference between Direct Query mode and Import Mode ?**
    In the Import method, Power BI captures a snapshot of your data and caches it in Power BI Desktop. A Direct Query connection will run queries directly to your source at run time/Realtime.

11. **What is the advantage of Import Mode over Direct Query Mode ?**
    As the data is cached in Import Mode,Refresh time is faster in Import Mode compared to Direct query mode ,Although many transformations in PowerQuery and some DAX functions wont work in Direct Query Mode

12. **What is the advantage of Direct Query Mode over Import Mode?**
    Since the Data is stored at the Source in Direct Query Mode not in POWERBI Cache, we can overcome the limitations of POWERBI Size limitations for data and we get Live data as we can set timer of refresh as low as 5 sec

13. **What is dual mode in Power BI?**
    The dual storage mode is between Import and Direct Query. it is a hybrid approach, Like importing data, the dual storage mode caches the data in the table

14. **What Language does Power Query use ?**
    M Language or Mash up Language

15. **What are the different formats in which PowerBI is available ?**
    PowerBI Desktop,PowerBI Service,PowerBI Mobile App

16. **Where is the data stored in PowerBI ?**
    Azure Blob Storage, Azure SQL Database and other cloud base storage depends on Microsoft Tieups.

17. **What are the available views ?**
    Report View,Data View,Modelling View

18. **What is PowerQuery ?**
    PowerQuery is the ETL Component of PowerBI Which is used to connect multiple data sources and do some transformations also referred as data cleaning or data massaging

19. **Describe Merge Query from Transform tab in PowerQuery ?**
    Merge Query is used to combine data from different tables based on common column,It is similar to joins in SQL and VLOOKUP from Excel.

20. **What are the different types of Joins there in Merge Query?**
    Inner Join,Left Join,Right Join,Full Join,Left Anti,Right Anti

21. **What is Inner Join in Merge Query ?**
    Inner join returns all Matching Rows from both Tables

22. **What is Left Join in Merge Query?**
    Left Join returns all rows from left table even if there is no corresponding match in right table, it prioritises the Left table for extracting data

23. **What is Right Join in Merge Query?**
    Right Join returns all rows from Right table even if there is no corresponding match in Left table, it prioritises the Right table for extracting data

24. **What is Full Join in Merge Query?**
    Full Join returns all rows from both tables

25. **What is Left Anti in Merge Query ?**
    Left Anti returns only unmatched rows from Left Table

26. **What is Right Anti in Merge Query ?**
    Right Anti returns only unmatched rows from Right Table

27. **What is Append Query from Transform tab in Power Query ?**
    Append Query Transform is used to stack data from multiple tables one below the other, similar to copying and pasting data in below rows in excel

28. **What is the difference between Merge Query and Append Query Transform ?**
    Merge Query is used to perform join with other tables into new columns and expands horizontally ,Append Query is used to consolidate data from multiple tables into new rews and expands vertically.

29. **What is Unpivot Transformation ?**
    Unpivot Transformation is used to convert data in cross tab format to tabular format, similar to converting a pivot table to Individual row record from excel.

30. **What is Transpose Transformation ?**
    Transpose Transformation is used to flip table from rows to columns and vice versa

31. **What is difference between Duplicate Query and Reference Query ?**
    Duplicate Query will give a copy of original query ,Once copied there wont be any link to original query it can also be considered as a standalone table/query . Reference Query will create a link to original Query ,Any changes in Original query will be cascaded to referenced query also, similar to Linking or mirroring the data to avoid repetition of action/task performed on one table which gets applied to other tables.

32. **Tell us some Transformations used in Power Query ?**
    Split by Column,Format,Extract,Remove Rows,Columns,Transpose,Pivot,Unpivot,Merge Query,Append Query,Group By, Fill Up and Down, Change Data Type, Add Dates and Times. etc

33. **What is custom function in Power Query ?**
    Custom Function is used in scenarios where you need to apply the same set of transformations to different queries or values, similar to Formulas for multiple cells in Excel

34. **What is List Query?**
    It is basically the ordered list of values and defined using comma separated values with any data type enclosed in braces

35. **What is Query Folding?**
    That ability of Power Query's Mashup engine to create a single SQL statement combining all M statements behind your transformations is what we call Query folding

36. **Which are the data sources that support Query Folding?**
    Relational database sources, such as SQL Server, Oracle, or MySQL. Also OData, SSAS, SharePoint lists, Exchange and AD

37. **Does all Data Transformations support Query Folding?**
    No

38. **Which are the Data Transformations that support Query Folding?**

    - Removing columns
    - Renaming columns
    - Filtering rows, with static values or Power Query parameters, as they are treated as WHERE clause predicates in SQL
    - Grouping and summarizing, which have equivalent in SQL'S Group by clause
    - Merging of foldable queries based on the same source — as this operation can be translated to JOIN in SQL.
    - Appending foldable queries based on the same source — this transformation relates to the UNION ALL operator in SQL
    - Adding custom columns with simple logic
    - Pivot and Unpivot transformations

39. **Which are the Data Transformations that does not support Query Folding ?**

- Merging queries based on different sources, as explained previously
- Appending (union-Ing) queries based on different sources
- Adding custom columns with complex logic or using some M functions that don't have a counterpart in SQL
- Adding index columns
- Changing a column data type (Depends)

40. **Does Query Folding Improve Performance ?**
    Yes, Loading query and processing is faster.

41. **What are the different ways of Adding column in PowerQuery ?**
    Custom Column,Column from Examples,Conditional Column and using Add Column tab.

42. **Column From Examples is used in which scenarios?**
    It is like flash fill in excel, it is used to fill the column based on a pattern

43. **Which Transform is used to remove extra spaces in a Column?**
    Transform Tab > under Text Column section > Format dropdown > Trim / Clean

44. **List some M Functions in Text Category**
    Text.Replace ,Text.Combine ,Text.Clean ,Text.StartsWith,Text.EndsWith,Text.Select,Text.Remove,Text.After Delimiter,Text.beforeDelimiter, Excel.Worknook etc
    Note: for more function, plz refer the link :
    https://docs.microsoft.com/en-us/powerquery-m/power-query-m-function-reference

45. **List some M Functions in Datetime Category**
    Date.Adddays,Date.AddMonths,Date.AddQuarters,Date.AddWeeks,Date.FromText,Date.Month Name etc
    Note: for more function, plz refer the link :
    https://docs.microsoft.com/en-us/powerquery-m/power-query-m-function-reference

46. **List some M Functions in List Category**
    List.FirstN,List.LastN,List.Remove,List.positionof,List.Generate,List.Combine,List.Count,List.Average,List.Sum etc
    Note: for more function, plz refer the link :
    https://docs.microsoft.com/en-us/powerquery-m/power-query-m-function-reference

47. **What are the different data types in M language ?**

    Primitive types, which classify primitive values (binary, date, datetime, dimetimezone, duration, list, logical, null, number, record, text, time, type) and also include a number of abstract types (function, table, any, and none)

48. **What are the different Table Functions in M language ?**
    Table.AddColumn ,Table.ColumnNames,Table.Contains,Table.ContainsAll,Table.Combine etc
    Note: for more function, plz refer the link :
    https://docs.microsoft.com/en-us/powerquery-m/power-query-m-function-reference

49. **What are the different types of filter in PowerBI ?**
    Slicers, Visualization Level Filter ,Page Level Filter, Report Level Filter, and RLS

50. **What are the building blocks of PowerBI ?**
    Datasets,Visualizations,Reports,Dashboards, RDBMA.

51. **What is a Dataset ?**
    Dataset is a collection of data gathered from various sources like SQL Server, Azure,text,Oracle,JSON, Excel, BI Server and many more

52. **What is a Dashboard ?**
    A dashboard is a single-page representation of reports made of various datasets which is connected to multiple sub level pages to build a story to interpret data. Each element is termed a tile. Tiles: Tiles are single-block containing visualizations of a report. Tiles help to differentiate each report

53. **What are Reports ?**
    Reports are a structured representation of datasets that consists of multiple pages. Reports help to extract important information and insights from datasets to take major business decisions and give detailed analysis to provide higher level incites with controls for dynamic results.

54. **What are the various Power BI versions ?**
    PowerBI Desktop, PowerBI Pro, PowerBI Premium (Single user and Server/organisation)

55. **What are the types of visualizations in Power BI?**
    The kinds of visualizations available in Power BI are Bar charts, Column charts, Line chart, Area chart, Stacked area chart, Ribbon chart, Waterfall chart, Scatter chart, Pie chart, Donut chart, Treemap chart, Map, Funnel chart, Gauge chart, Cards, KPI, Slicer, Table, Matrix, R script visual, Python visual, Custom visuals etc

56. **What is PowerBI Service Used for?**
    Power BI provides services for its cloud-based business analytics. With these services, you can view and share reports via the Power BI website. Power BI is a web-based service for sharing reports, It also allows control view functionality and app integration

57. **What is the Maximum Data Limit per Client for free version of PowerBI ?**
    1GB/Client

58. **Which is a single-page canvas that uses visualizations to depict a story?**
    PowerBI Service Dashboard or can also use Paginated report

59. **What is the difference between PowerBI Service Free and PowerBI Pro Version ?**
    In Pro Version you can share your data, reports, and dashboards with other users who also have

a Power BI Pro license. You can also create App workspaces ,Free Version wont let you do all these and also helps in adding new custom visuals easily.

60. **What is the Storage Limit offered in PowerBI Pro ?**
    10 GB Data Storage Limit ,Individual Files 1 GB

61. **What is the Storage Limit offered in PowerBI Premium ?**
    100 TB Storage

62. **What are the salient features of PowerBI Pro Version ?**

- Mobile app
- 10 GB storage per user
- Connect to more than 100 data sources
- 8 Data refreshes per day
- Power to embed the visuals in Power BI into apps like SharePoint, PowerApps, and Teams
- AI Visuals
- Embedded controls and APIs
- Create app work and peer to peer sharing
- Local integration with all the other Microsoft solutions
- Data security and encryption
- Share datasets, dashboards, and reports with other Power Bi licensed users
- Metrics with content creation and publishing

63. **What are the Salient Features of PowerBI Premium Version ?**

- 100 TB storage
- Data flow
- Application lifecycle management
- Geo distribution, read-only replicas, and pin to memory
- Analyze data stored in Azure Data Lake Storage
- 100 GB model size limit
- Access to one API surface
- Power to embed the visuals in Power BI into apps like Teams, SharePoint, and PowerApps
- XMLA endpoint read/write connectivity
- Larger storage size for extended deployment
- 48 daily data refreshes
- Advanced AI features
- On-premise reporting
- Multi-location deployment management
- 400 GB model size limit
- Azure Autoscale add on

64. **What are content packs in Power BI?**
    Content packs are packages comprising different Power BI objects such as reports, dashboards, datasets, Data Flow, RDBMS etc.

65. **What are the types of Content Packs?**
    Service provider content packs: Service providers such as Google Analytics, Salesforce, etc. provide pre-built content packages
    User-created content packs: Users can create their content packages and share them within the organization

66. **What are the various refresh options available in PowerBI?**
    Package/OneDrive refresh
    Data/Model refresh
    Tile refresh
    Visual container refresh
    Scheduled Refresh

67. **How can you Refresh Data in PowerBI ?**
    By connecting with Gateway

68. **What is PowerBI Incremental Refresh ?**
    Incremental Refresh is the process of loading changed or new data from a transactional database into the data warehouse, It only incorporate the change/added data and no the whole data which saves time overall.

69. **What are the Advantages of PowerBI Incremental Refresh ?**
    Lower Refresh Times
    More Reliable Queries
    Less Resource Consumption

70. What are the Pre-Requisites while setting up PowerBI Incremental Refresh ?
There are some prerequisites to implementing incremental refresh in Power BI.

Import Data Mode – The data should be imported into the Power BI data model in Import Data mode. Incremental refresh doesn't work with the Direct Query mode

Power BI Data Gateway – In order to access the on-premises data sources by the Power BI Service, we need to set up the Data Gateway. This is not mandatory if your source data is present in the cloud

71. What is self-service BI ?
Self-service business intelligence (BI) is an approach to data analytics that enables business users to access and explore data sets even if they don't have a background in BI or related functions like data mining and statistical analysis. Self-service BI tools allow users to filter, sort, analyse and visualize data without involving an organization's BI and IT teams. It is a self-stainable model.

72. What is row-level security (RLS)?
Row-level security limits the data a user can view and has access to, and it relies on filters. Users can define the rules and roles in Power BI Desktop and publish them to Power BI Service to configure row-level security, based on the rolls and rules assigned to the user who logs in, limited data view or custom view can be provided as per organisation needs.

73. What are the major differences between visual-level, page-level, and report-level filters in Power BI?
Visual-level filters are used to filter data within a single visualization.
Page-level filters are used to work on an entire page in a report, and different pages can have various filters.
Report-level filters are used to filter all the visualizations and pages in the report, it can also be said this filter controls the entire ecosystem of the file visuals.

74. What are KPIs in Power BI?
KPIs are Key Performance Indicators, which evaluate the organization's performance in distinct areas by evaluating measurable goals and values. A KPI has a measure or base value that is evaluated against target values, It helps in helping outliers stand out and give a clear vision on what is aiding the business growth.

75. How is the Schedule Refresh feature designed to work?
Users can set up for an automatic refresh over data based on daily or weekly requirements. Users can schedule only one refresh maximum daily unless they have Power BI Pro. The Schedule Refresh section uses the pull-down menu choices to select a frequency, time zone, and time of day.
The max refresh that can be schedule is 8 refreshes for pro and 48 for premium

76. What is DAX ?
DAX Stands for Data analysis for Expressions . It's a collection of functions, operators, and constants used in formulas to calculate and return values, it is similar to excel formulas and functions.

77. What is DrillThrough Filter ?
Power BI Drillthrough filters are used to pass values from one report page to another as the selected values are used to filter the results on a second report page. Essentially, drillthrough filters function the same as a page level filter, but is controlled by a button or a visual through which the drill through is activated.

78. What is DrillDown Feature ?
Drill-down, by definition, requires the use of hierarchical data where values are grouped into levels, With these levels, Higher-level data is essentially expanded down into the next level, which is then expanded down into the next level above it, and so on. There's no new data being presented, but the data is instead just being unrolled as you drill-down

79. What gateways does Power BI have and why should you use them?
Gateways function as bridges between the in-house data sources and Azure Cloud Services.

Personal Gateway: Used only by one person, data can be imported, and is only valid on Power BI Service.
On-Premises Gateway: This is an advanced form of the Personal Gateway, supporting Direct Query and usable by multiple users to refresh data

80. What is Row Context in DAX ?
Row context can be thought of as "the current row." If you have created a calculated column, the row context consists of the values in each individual row and values in columns that are related to

the current row. It is similar to writing a formula in a cell and dragging it down across multiple rows in Excel.

81. What is Filter Context in DAX ?
The filter context is created by Power BI to reflect any filter that is active on the current cell. Filters can be activated by the current visual, or by using the filter pane, by cross-filtering visuals, slicers or by any other available means, It is similar to using Slicer, Filter or Row and Column values in Excel.

82.What is difference between Row Context and Filter Context ?
Row context is when your calculation is evaluated for each detail row from an input table (which can be also a calculated table). Filter context is when your calculation is evaluated for a specific value in a visual which is controlled by Visual filter, Filter pain or Cross filter.

83. What are the different contexts in PowerBI ?
Row context, query context, and filter context, Visual Filter context.

84. What is a Slicer ?
slicer is visual filter, A Slicer can display a visual representation of all values and users will be provided with the option to select from the available values in the slicer's drop-down menu

85. How to create and manage relationships in Power BI Desktop?
To create and manage relationships in Power BI Desktop:

On the Home tab, select Manage Relationships > New.
In the Create relationship dialog box, in the first table drop-down list, select a table. Select the column you want to use in the relationship which is also referred as primary key.
In the second table drop-down list, select the other table you want in the relationship. Select the other column you want to use which is also referred as foreign key, and then choose OK

86. What is the difference between Power BI personal Gateway and Data Management Gateway ?
Power BI Personal Gateway is used for reports that are deployed in Powerbi.com. On the other hand, data management is an app that installs the gateway on source data machines to deploy reports on Sharepoint and schedule to refresh automatically

87. How do you implement Row Level Security ?

There are many ways to implement Row Level Security in Power BI

- Define roles and rules in Power BI Desktop
- Validate the roles within Power BI Desktop
- Manage security on your model
- Validating the role within the Power BI service

88. How to control interactions between different visuals in Power BI?
Format Tab – Edit Interactions

89. List some Edit interactions options in Power BI ?
Filter: It thoroughly filters the visual/tile based on the filter selection of another variable.

Highlight: Highlights only the related elements on the visual
None: Ignores the filter selection from another tile/visual

90. Which datasets are used to create a dashboard with streaming data tiles?
Streaming datasets (we need to have data that is cached in memory before we use streaming data sets)
Hybrid Datasets

91. What is the parameter in power bi?
If you want to put a scenario and based on that if you want to see the visuals, the best is the What-if parameter. It helps you to forecast data and perform advanced analytics

92. How do you Hide and Unhide a Specific Report in Power BI?
In the menu bar, choose the Selection pane and hide/unhide the report and the action to pass to the bookmark, It is also use as button action to create smooth interactive visuals.

93. How do you compare Target and Actual Values from a Power BI report?
A gauge chart is used to compare two different measures where the Target and Actuals are inferred, Although from custom visual, we can import Tornato, Thermometer,Viskar plot etc. to perform the same action.

94.What is the difference between report and Dashboard in Power BI ?

Capability	Report	Dashboard
Pages	Can be of one or more pages.	Consists of one page only
Data sources	It has a single dataset per report.	Can have data tiles from one or more datasets or reports.
Filtering	Can perform slicing, filtering, and highlighting.	Cannot filter or slice reports.
Set alerts	No option for setting alerts.	Enable setting email alerts
Featured reports	No option for creating a featured dashboard.	Enables to set only one dashboard as a featured dashboard.
Accessing tables and fields in datasets	Provides options to view dataset tables, values, and fields.	Cannot view or access underlying datasets tables and fields

95. Can you export Power BI report data into any other format like SSRS?
Yes, you can export a Power BI report data to another file format, such as PowerPoint, PDF, Image, Microsoft Word, or Microsoft Excel, or export the report by generating an Atom service document, But most of the extracted report will be static and will not have the capability of click base interaction.

96. How do you improve the performance of your data models?
By limiting the calculated columns usage
Implementing Measures effectively for faster calculation.
Utilising Star schema to limit joins
Query Folding
Using Buffer Tables
Disabling unused Tables from Loading
Avoiding Importing same table rather using reference for faster load and import etc

97. What is Q&A in Power BI?
Q&A in Power BI allows you to explore data using natural language capabilities and obtain answers in the form of graphs and charts

98. What are error handling functions in M language ?
Try … Otherwise is similar to iferror function in Excel ,it is used to display alternate result when there is an error

99. Can we Refresh Data Reports that are uploaded to the Cloud?
Yes, you can refresh the data reports which are uploaded to the cloud. Power BI personal gateway and Data management gateway helps you acquire the same through live refresh or scheduled refresh.

100. What is the Embed Code?
There is an option in the Power BI service, which publishes to the web to generate a link address for the Power BI report and can be shared across clients, it is use to embed the BI report on to the existing web page into a frame/canvas and the code for the same is pre build by power BI.

101. What is disconnected slicer? where it is used?
Disconnected slicers are the one which will not have any relationship with other tables , it is used for the slicer to control slicers, as well as for my measure to control which measure to show

102. How are relationships defined in Power BI Desktop?
If there are no null values or duplicate rows, relationships between tables can be defined in two ways:

Manually: Users can manually define relationships between tables using primary and foreign keys.
With the autodetect feature: When enabled, this inherent feature of Power BI detects relationships between tables and creates them automatically

103. What is Advanced Editor in Power BI?
Advanced Editor can be used to see the query that Power BI runs against data sources to import data, it also help in viewing the M Language and to do simple editing/correction for a quick fix, it is also use to create Full anti join which is not possible using standard cardinality methods and similar other techniques.

104. Which In-memory Analytics Engine is used in Power Pivot?

The primary in-memory analytics engine behind Power Pivot is xVelocity. This engine handles large amounts of data as it stores data in columnar databases. In in-memory analytics, all data is loaded to RAM memory, and therefore, the processing speed is Comparatively fast

105. How can geographic data be mapped into Power BI Reports?
Through a map chart, ArcGIS, Shape Map and a filled map chart, Power BI makes it possible for users to visually map geographic data, both globally and regionally

106. What is z-order in Power BI?
Z-order is a design strategy that is used for arranging visuals over shapes

107. What happens when you click on a single data point in one of the multiple visuals in a report?
When we do that, data gets selected and copied to the clipboard. Further, the copied data can be pasted anywhere as per the requirement of the user

108. What is the data source filter?
A data source filter is a parameter of data filtering before loading into machines/Power Query

109. How many types of relationship are there in data modelling ?
One to Many, One to One ,Many to Many

110. Can we create more than one active relationship between two tables ?
No, Its not possible

111. How to create virtual relationship between two tables ?
UseRelationship or Treatas functions can be used to create virtual relationship

112. What is bidirectional cross-filtering in Power BI?
Bidirectional cross-filtering in Power BI Desktop allows data modelers to determine how they want filters to flow for data using relationships between tables. With bidirectional cross-filtering, the filter context is propagated to a second related table on the other side of a table relationship. This can help data modelers solve the many-to-many problem without writing complicated DAX formulas. It is similar to using VLOOKUP for both primary and secondary table to fetch result from both tables based on the filter/slicer selected.

113. What is a Measure in PowerBI ?
Power BI Measures are the way of defining calculations in a DAX model, which helps us to calculate values based on each row, but rather, it gives us aggregate values from multiple rows from a table

114. What is the difference between Calculated Column and Measure ?
A measure is evaluated in the context of the cell evaluated in a report or in a DAX query, whereas a calculated column is computed at the row level within the table it belongs to. Measure usually involves some aggregation but calculated column need not perform any aggregation

115. Describe some scenarios where Calculated columns are used ?

- Place the calculated results in a slicer, or see results in rows or columns in a pivot table (as opposed to the values area), or in the axes of a chart, or use the result as a filter condition in a DAX query.
- Define an expression that is strictly bound to the current row. For example, Price * Quantity cannot work on an average or on a sum of the two columns.
- Categorize text or numbers

116. Describe some scenarios where Measures are used ?

whenever you want to display resulting calculation values that reflect user selections and see them in the values area of a pivot table, or in the plot area of a chart

117. Why should you create Measure instead of Calculated column if both the options yield the same result ?

Measure is evaluated at query time so it does not consume memory and disk space Whereas calculated column takes up memory. This becomes more crucial with large datasets, Additionally, calculated column created additional Colum in the data view which intern takes up more space which is not the case for a measure.

118. What is Quick Measure in PowerBI ?

Quick measure contains a set of DAX queries that runs in the background and the result will show in your report. So, you don't need to write any DAX query in Power Bi

119. What are the benefits of using Variables in DAX ?

- Variables can be reused in DAX queries, thus avoiding additional queries of the source database.
- Variables make DAX expressions understandable
- It make the formula reusable without repeating the whole formula in DAX

120. What is VertiPaq Engine in PowerBI ?
VertiPaq is based on columns that are different from a basic SQL server.

A basic SQL server operates everything on rows which makes the overall performance slower.

It can compress data in multiple ways and store that data into memory. This makes the performance of your DAX code faster

121. What are the Different Characteristics of VertiPaq Engine ?
Scans And Retrieves Data
Uses Multiple Cores
Completes Simple Expressions
Expresses Queries In A SQL Language

122. List some Text Functions in DAX ?
Left,Right,Mid,Find,Search,CombineValues,Upper,Lower,Proper,Concatenate,CombineValues etc

123. List some logical Functions in DAX ?
If,Switch,And,Or,In

123. Why is Coalesce Function used ?
Coalesce Function returns the first expression that does not evaluate to BLANK

124. What are Iterator Functions ?
Iterators in DAX are functions that iterate through all rows of the given table, apply the expression, and then aggregate the result

125. List some Iterator Functions ?
SumX,AverageX,MinX,MaxX,RankX,ConcatenateX

126. What is the Difference between Sum and SumX ?
SUMX is the sum of an expression, but SUM is just summarizing values of one single column

127. Why Iterator functions are slow ?
Iterator Functions perform row by row calculation hence uses more resources so they execute slowly, It is similar to SUMIFS from Excel function which takes time if number of rows are great that 1 lack.

128. List some Table manipulation Functions in Dax ?
TopN ,Filter,CalculateTable,Union,datatable,AddColumns etc

129. What does SelectedValue Function return ?
Returns the value when the context for columnName has been filtered down to one distinct value only. Otherwise returns alternateResult

130. What does Value Function return ?
Values function when used with column name in input parameter returns a one-column table that contains the distinct/unique values from the specified column, When the input parameter is a table name, returns the rows from the specified table. Duplicate rows are preserved

131. What is the Difference between Distinct and Values Function ?
The DISTINCT function allows a column name or any valid table expression to be its argument but the VALUES function only accepts a column name or a table name as the argument,Values function also returns one blank value but distinct wont return blank value

132. What is Virtual Table ?
Virtual Tables are used to perform some advanced calculations on subset of table without creating physical table in your model

133. Which Functions can be used to return Virtual Table ?
Filter,Values,Union etc

134. Why Filter Function is used ?
It is used to return a table that represents a subset of another table or expression in the memory which can be later used in DAX if needed.

135. What are DAX Aggregation functions?
They are group of functions which aggregate any expression across the rows of a table, Examples are AVERAGE, AVERAGEA, AVERAGEX, COUNT, COUNTA, COUNTAX, COUNTBLANK, COUNTROWS, COUNTX etc

136. What is the Difference between Count and CountA ?
The COUNT function counts rows that contain numbers,dates and text but not logical Values COUNTA Function counts even the logical Values

137. What is the Difference between Count and CountRows ?
Count Function Counts the Column Values, CountRows counts the Table Rows, Both functions will achieve the same result, providing that the counted column contains no BLANKs

138. What is DistinctCount Function in DAX?
Counts the number of distinct values in a column

139. What are the most commonly used DAX Functions ?
SumX,AverageX,RankX,Filter,Calculate,All,Related, CALENDARAUTO, DATEADD, Dateinaperiod, Select, SelectALL etc

140. What are paginated reports?
A paginated report is an organized, document style page to page report. Paginated reports are saved as paged documents where we can expand the document vertically and horizontally to view the complete data. These reports are pixel-perfect with a fixed layout. They can be the best options when we want to print a report from a PDF or Word file

141. Which table functions will you use to group data in Power BI?
Summarize() and SummarizeColumns

142. What is the difference between Summarize() and SummarizeColumns ?
The SUMMARIZE function is used to group data by columns.

The SUMMARIZECOLUMNS function is generally used in Power BI to group data by columns, expressions, and tables

143. What are Query Parameters?
Query parameters are the parameters which we can use as/in queries in Power BI query editor. We can create new parameters in Power BI Desktop and later use them in queries, data models and reports. Query parameters contain a selected set of data values from the entire dataset

144. What are PowerBI Templates?
Power BI Templates are data-less PBIX files, that is, empty Power BI templates in which we can use our data. Such PBIX files are exported as template files (PBIT) via share options or emails so that others can import their data into them without having to create a template, the only condition being the data should be in a standard format with exact heading sequences.

145. Can we use Power BI on mobile devices?
Yes, we can use Power BI on mobile devices. Power BI has mobile compatible apps for Android devices, iOS devices, and Windows 10 devices

146. What are some prerequisites for doing time intelligence?
The main prerequisite is you need a date table, more specifically, a continuous date table with a whole range of dates (no breaks in the dates) , The second element you need is to define the relationship with the date table and the other appropriate tables, it can also be referred as Parent and Child relationship for dates.

147. List some Filter Functions in DAX ?
All ,Allexcept,AllSelected,KeepFilters,RemoveFilters,Filter,SelectedValue etc

148. List some Relationship Functions in DAX ?
CrossFilter,Related,RelatedTable,UseRelationship

149. List some Date and Time Intelligence Functions in DAX ?
Datesbetween,datesinperiod,dateadd,totalytd,totalmtd,totalqtd,Sameperiodlastyear

150. What do you mean by Implicit Measure ?
An automatically generated calculation achieved by configuring a Power BI visual to summarize column values, similar to Value field from Pivot segment.

151. What is MeasureGroup ?
A model table that contains at least one measure, and has no hierarchies or visible columns

152. What is What-If parameters ?
A Power BI Desktop feature that provides the ability to accept user input through slicers. Each parameter creates a single-column calculated table and a measure that returns a single-selected value. The measure can be used in model calculations to respond to the user's input

153. What are field parameters ?
Fields parameters is a feature that allows users to choose which column to use to slice and dice values in a Power BI visual

154. What does ALL function return ,when it is used ?

Returns all the rows in a table, or all the values in a column, ignoring any filters that might have been applied. This function is useful for clearing filters and creating calculations on all the rows in a table, Extensively use for Percent contribution calculation.

155. Is ALL Function supported in Direct Query Mode ?

No, This function is not supported for use in DirectQuery mode when used in calculated columns or row-level security (RLS) rules

156. Can you use Table Expression or Column Expression in ALL function ?

No

157. Explain the syntax of ALL Function ?

```
ALL( [<table> | <column>[, <column>[, <column>[,…]]]] )
```

Term	Definition
table	The table that you want to clear filters on.
column	The column that you want to clear filters on.

158. What is ALLEXCEPT Function ? Why it is Used ?

ALLEXCEPT Function removes all context filters in the table except filters that have been applied to the specified columns, This is a convenient shortcut for situations in which you want to remove the filters on many, but not all, columns in a table

159. Explain the syntax of ALLEXCEPT Function ?

```
ALLEXCEPT(<table>,<column>[,<column>[,…]])
```

Term	Definition
table	The table over which all context filters are removed, except filters on those columns that are specified in subsequent arguments.
column	The column for which context filters must be preserved.

160. What is ALLSELECTED Function ? Why it is Used ?

ALLSELECTED Function removes context filters from columns and rows in the current query, while retaining all other context filters or explicit filters . This function can be used to obtain visual totals in queries

161. Explain the syntax of ALLSELECTED Function ?

```
ALLSELECTED([<tableName> | <columnName>[, <columnName>[, <columnName>[,…]]]] )
```

Term	Definition
tableName	The name of an existing table, using standard DAX syntax. This parameter cannot be an expression. This parameter is optional.
columnName	The name of an existing column using standard DAX syntax, usually fully qualified. It cannot be an expression. This parameter is optional.

162. What is KEEPFILTERS Function ? Why it is Used ?

KEEPFILTERS Function Modifies how filters are applied while evaluating a CALCULATE or CALCULATETABLE function

163. Explain FILTER Function ? Why it is Used ?

Filter Function Returns a table in the memory of DAX that represents a subset of another table or expression.

```
FILTER(<table>,<filter>)
```

Term	Definition
table	The table to be filtered. The table can also be an expression that results in a table.
filter	A Boolean expression that is to be evaluated for each row of the table. For example, `[Amount] > 0` or `[Region] = "France"`

164. What is RemoveFilters Function ? Why it is Used ?

RemoveFilters Clear filters from the specified tables or columns

```
REMOVEFILTERS([<table> | <column>[, <column>[, <column>[,…]]]])
```

Term	Definition
table	The table that you want to clear filters on.
column	The column that you want to clear filters on.

165. Explain SelectedValue Function ?

Returns the value when the context for columnName has been filtered down to one distinct value only. Otherwise returns alternateResult.

```
SELECTEDVALUE(<columnName>[, <alternateResult>])
```

Term	Definition
columnName	The name of an existing column, using standard DAX syntax. It cannot be an expression.
alternateResult	(Optional) The value returned when the context for columnName has been filtered down to zero or more than one distinct value. When not provided, the default value is BLANK().

166. What is CALCULATE Function ?

Evaluates an expression in a modified filter context

```
CALCULATE(<expression>[, <filter1> [, <filter2> [, …]]])
```

Term	Definition
expression	The expression to be evaluated.
filter1, filter2,…	(Optional) Boolean expressions or table expressions that defines filters, or filter modifier functions.

167. What does LookupValue Function return ?

Returns the value for the row that meets all criteria specified by one or more search conditions

```
LOOKUPVALUE(
    <result_columnName>,
    <search_columnName>,
    <search_value>
    [, <search2_columnName>, <search2_value>]…
    [, <alternateResult>]
)
```

Term	Definition
result_columnName	The name of an existing column that contains the value you want to return. It cannot be an expression.
search_columnName	The name of an existing column. It can be in the same table as result_columnName or in a related table. It cannot be an expression.
search_value	The value to search for in search_columnName.
alternateResult	(Optional) The value returned when the context for result_columnName has been filtered down to zero or more than one distinct value. When not provided, the function returns BLANK when result_columnName is filtered down to zero value or an error when more than one distinct value.

168. Explain SUMX Function in DAX ?

Returns the sum of an expression evaluated for each row in a table.

```
SUMX(<table>, <expression>)
```

Term	Definition
table	The table containing the rows for which the expression will be evaluated.
expression	The expression to be evaluated for each row of the table.

169. Why is Related Function Used ?

Related Function is similar to Lookups in Excel ,It returns a related value from another Table

```
RELATED(<column>)
```

Term	Definition
column	The column that contains the values you want to retrieve.

170. What does RelatedTable Function return ?

Evaluates a table expression in a context modified by the given filters., It returns the Table with all the record matching to the Primary key table match. Its exact opposite of RELATED DAX

171. What is the Difference between Related and RelatedTable Function ?

Related Function goes from Many side of the Relationship to One side and it returns scalar Value,RelatedTable Function goes from One Side of the Relationship to Many side and it returns a Table

172. What is the Difference between Calculate and CalculateTable Function ?

CALCULATE function takes as input an expression that evaluates to scalar and returns a scalar value.
CALCULATETABLE function takes as input an expression that evaluates to table and returns a table.

Therefore, if you need to change the context where a scalar expression is evaluated,we use CALCULATE. If you need to change the context where a table expression is evaluated, we use CALCULATETABLE

173. What is UseRelationship Function ? Why it is Used ?

It Specifies the relationship to be used in a specific calculation as the one that exists between columnName1 and columnName2.

```
USERELATIONSHIP(<columnName1>,<columnName2>)
```

Term	Definition
columnName1	The name of an existing column, using standard DAX syntax and fully qualified, that usually represents the many side of the relationship to be used, if the arguments are given in reverse order the function will swap them before using them. This argument cannot be an expression.
columnName2	The name of an existing column, using standard DAX syntax and fully qualified, that usually represents the one side or lookup side of the relationship to be used; if the arguments are given in reverse order the function will swap them before using them. This argument cannot be an expression.

174. Explain DatesBetween Function in DAX ?

Returns a table that contains a column of dates that begins with a specified start date and continues until a specified end date, This function is suited to pass as a filter to the CALCULATE function. Use it to filter an expression by a custom date range

```
DATESBETWEEN(<Dates>, <StartDate>, <EndDate>)
```

Term	Definition
Dates	A date column.
StartDate	A date expression.
EndDate	A date expression.

175. Explain DatesinPeriod Function in DAX ?

Returns a table that contains a column of dates that begins with a specified start date and continues for the specified number and type of date intervals.

This function is suited to pass as a filter to the CALCULATE function. Use it to filter an expression by standard date intervals such as days, months, quarters, or years.

```
DATESINPERIOD(<dates>, <start_date>, <number_of_intervals>, <interval>)
```

Term	Definition
dates	A date column.
start_date	A date expression.
number_of_intervals	An integer that specifies the number of intervals to add to, or subtract from, the dates.
interval	The interval by which to shift the dates. The value for interval can be one of the following: DAY, MONTH, QUARTER, and YEAR

176. Which function can be used to calculate year to date total in PowerBI ?

TotalYTD

177. Explain TOTALYTD Function ?

Evaluates the year-to-date value of the expression in the current context

```
TOTALYTD(<expression>,<dates>[,<filter>][,<year_end_date>])
```

Parameter	Definition
expression	An expression that returns a scalar value.
dates	A column that contains dates.
filter	(optional) An expression that specifies a filter to apply to the current context.
year_end_date	(optional) A literal string with a date that defines the year-end date. The default is December 31

178. Explain TOTALMTD Function ?

Evaluates the value of the expression for the month to date, in the current context

```
TOTALMTD(<expression>,<dates>[,<filter>])
```

Parameter	Definition
expression	An expression that returns a scalar value.

Parameter	Definition
dates	A column that contains dates.
filter	(optional) An expression that specifies a filter to apply to the current context

179. Explain TOTALQTD Function ?

Evaluates the value of the **expression** for the dates in the quarter to date, in the current context

```
TOTALQTD(<expression>,<dates>[,<filter>])
```

Parameter	Definition
expression	An expression that returns a scalar value.
dates	A column that contains dates.
filter	(optional) An expression that specifies a filter to apply to the current context

180. What function is used in creating your date table in DAX?

CALENDAR and CALENDARAUTO

181. What is the difference between CALENDAR and CALENDARAUTO function ?

CALENDAR requires the boundaries of the set of dates, whereas CALENDARAUTO searches among all the dates in the data model and automatically finds the first and last year referenced within the model

182. What is automatic Date Table in POWERBI ?

Power BI offers the Auto Date/Time feature, which enables easy browsing of data by year, quarter, month and date, The Auto Date/Time feature can be turned on or off using the File|Options and Settings|Options dialog, under Data Load. It is turned on by default. It gives a Date Hirarchy pre build in the model loaded in Power BI.

183. What are the Limitations of Auto Date/Time Feature in POWERBI ?

1.It is not possible to customize the automatic date tables. By default, they contain Year, Quarter, Month and Date. If the user needs additional attributes, it is not possible to add them to the model

2. There is a separate automatic date table for each Date column in the model, making it very hard to build reports that slice multiple tables or that compute values based on different dates in a single table

184. How can you sort Months in Fiscal Calendar ?

By Creating custom column based on Month Number and sorting by that instead of MonthName

185. What is Context Transition in DAX ?

Context transition is used to transform any existing row context into an equivalent filter context

186. What is a Calculation Group ?

A calculation group is a collection of calculation items, grouped together based on a user-defined criterion, It helps to organise and insert multiple DAX in one go and Calculations for future reference.

187. Why Calculation Group is Used ,Give some Example and Explain ?

For example ,if I wanted to analyse sales in different time periods, and so I had to calculate three measures. But If I wanted to see the same result for Total Cost, I need to create three additional measures. For Total Margin, I also have to create three measures. So that's a total of six more measures that I need to create, But with calculation groups, we can simplify this process

188. What is the use of SAMEPERIODLASTYEAR function ?

Returns a table that contains a column of dates shifted one year back in time from the dates in the specified **dates** column, in the current context. When used along with Calculate function it gives Previous year sales or quantity, It is similar to time travel within data tables

189. What is the use of PREVIOUSYEAR function ?

Returns a table that contains a column of all dates from the previous year, given the last date in the **dates** column, in the current context. Helps in getting Year on Year comparison or percentage growth.

190. Explain PARALLELPERIOD function in DAX ?

Returns a table that contains a column of dates that represents a period parallel to the dates in the specified dates column, in the current context, with the dates shifted a number of intervals either forward in time or back in time.

```
PARALLELPERIOD(<dates>,<number_of_intervals>,<interval>)
```

Term	Definition
dates	A column that contains dates.
number_of_intervals	An integer that specifies the number of intervals to add to or subtract from the dates.
interval	The interval by which to shift the dates. The value for interval can be one of the following: `year`, `quarter`, `month`.

191. What is the difference between DateAdd and SamePeriodLastYear function ?

SamePeriodLastYear only goes one year back, DateAdd can go two years back or even more. DateAdd is a customized version of SamePeriodLastYear

192. What is the difference between DateADD and PARALLELPERIOD function ?

The PARALLELPERIOD function is similar to the DATEADD function except that PARALLELPERIOD always returns full periods at the given granularity level instead of the partial periods that DATEADD returns

193. What is the difference between SAMEPERIODLASTYEAR and PARALLELPERIOD function ?
SAMEPERIODLASTYEAR is specific to a year interval where a syntax for the DATEADD and PARALLELPERIOD include other intervals such as quarter, month day .Also PARALLELPERIOD always returns full periods at the given granularity whereas SAMEPERIODLASTYEAR returns only specific period one year back

194. What are the perks of using Tabular Editor in POWERBI ?

- Quick and friendly User Interface
- Calculation Groups
- Scripting
- Best Practices Analyzer
- Create Custom KPI
- Faster Query editing facility
- Integration of XML language

195. What is the difference between AND function and && operator in DAX ?
AND Function only lets you check two conditions whereas we can test multiple conditions using &&

196. What is the difference between OR function and || operator in DAX ?
OR Function only lets you check two conditions whereas we can test multiple conditions using ||

197. Which function is used to check whether particular word is there or not in a string ?
ContainsString

198. Explain HASONEVALUE function in DAX ?
Returns TRUE when the context for columnName has been filtered down to one distinct value only. Otherwise is FALSE.

```
HASONEVALUE(<columnName>)
```

Term	Definition
columnName	The name of an existing column, using standard DAX syntax. It cannot be an expression

199. What is difference between ISFILTERED and ISCROSSFILTERED ?
A column or table is said to be filtered directly when a filter is applied to *ColumnName* or any column of *TableName*
A column or table is said to be cross-filtered when a filter is applied to ColumnName, any column of TableName, or to any column of a related table. Therefore, the ISCROSSFILTERED function also returns TRUE when ColumnName, any column of TableName, or a column of a related table is filtered

200. What is the difference between SELECTEDVALUE and VALUES function in DAX ?

SelectedValue Returns the value when there's only one value in the specified column, otherwise returns the alternate result

Values function returns a one-column table that contains the distinct values from the specified column. Duplicate values are removed and only unique values are returned. A BLANK value can be added. When the input parameter is a table name, returns the rows from the specified table. Duplicate rows are preserved . Both the expressions below yield same result

```
SELECTEDVALUE( <columnName>, <alternateResult>)
IF(HASONEVALUE(<columnName>), VALUES(<columnName>), <alternateResult>)
```