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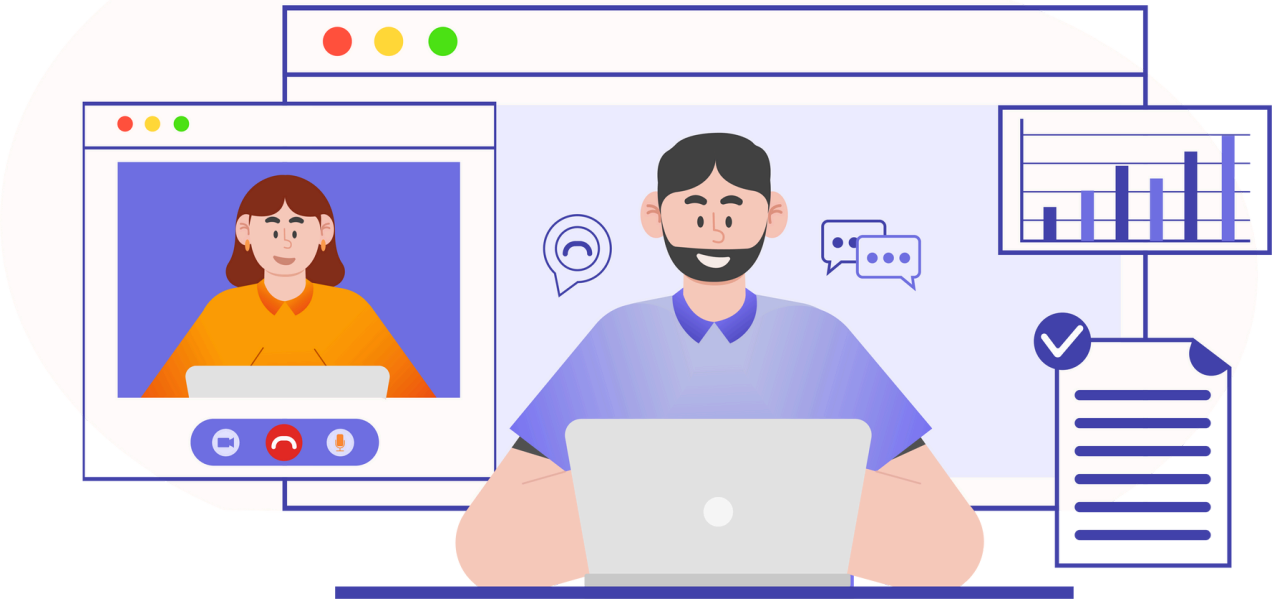
POWER BI INTERVIEW Q & A



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1. What is Power BI?

Ans:

Power BI is a business analytics tool developed by Microsoft that helps you turn multiple unrelated data sources into valuable and interactive insights. These data may be in the form of an Excel spreadsheet or cloud-based/on-premises hybrid data warehouses. You can easily connect to all your data sources and share the insights with anyone.

2. Why should we use Power BI?

Ans:

Because Power BI provides an easy way for anyone, including non-technical people, to connect, change, and visualize their raw business data from many different sources and turn it into valuable data that makes it easy to make smart business decisions.

3. What is the difference between star schema and snowflake schema in Power BI?

Ans:

- Star schema: Central fact table connected directly to dimension tables (preferred for Power BI → faster, simpler).
- Snowflake schema: Dimensions are normalized into multiple related tables (adds complexity, slower performance).

4. What is Power BI Desktop?

Ans:

Power BI Desktop is an open-source application designed and developed by Microsoft. It allows users to connect to, transform, and visualize your data with ease. Power BI Desktop lets users build visuals and collections of visuals that can be shared as reports with your colleagues or your clients in your organization.

5. What is Power Pivot?

Ans:

Power Pivot is an add-on provided by Microsoft for Excel since 2010. Power Pivot was designed to extend the analytical capabilities and services of Microsoft Excel.

6. What is Power Query?

Ans:

Power Query is a business intelligence tool designed by Microsoft for Excel. Power Query allows you to import data from various data sources and will enable you to clean, transform and reshape your data as per the requirements. Power Query allows you to write your query once and then run it with a simple refresh.

7. What is DAX?

Ans:

DAX stands for Data Analysis Expressions. It's a collection of functions, operators, and constants used in formulas to calculate and return values. In other words, it helps you create new info from data you already have.

8.What types of data sources can Power BI connect to?

Ans:

Power BI can connect to a wide range of data sources, including:

- Files: Excel, CSV, XML, JSON, PDF, SharePoint Folder
- Databases: SQL Server, MySQL, Oracle, PostgreSQL, IBM DB2, Amazon Redshift
- Power Platform: Power BI Datasets, Power BI Dataflows, Dataverse
- Azure Services: Azure SQL Database, Azure Synapse Analytics, Azure Blob Storage, Azure Data Lake
- Online Services: SharePoint Online, Dynamics 365, Salesforce, Google Analytics, Microsoft Exchange Online

9.What is a dashboard in Power BI?

Ans:

A dashboard is a single-layer presentation sheet of multiple visualizations reports. The main features of the Power BI dashboard are:

It allows you to drill through the page, bookmarks, and selection pane and also lets you create various tiles and integrate URLs

A dashboard can also help you set report layout to mobile view.

10.Explain how relationships are defined in Power BI Desktop?

Ans:

Relationships between tables are defined in two ways:

- Manually - Relationships between tables are manually defined using primary and foreign keys.
- Automatic - When enabled, this automated feature of Power BI detects relationships between tables and creates them automatically.

11.What is the CALCULATE function in DAX?

Ans:

The CALCULATE function evaluates the sum of the Sales table Sales Amount column in a modified filter context. It is also the only function that allows users to modify the filter context of measures or tables.

12. What is the difference between SUMX and SUM in DAX?

Ans:

- SUM(Table[Column]) → Simple aggregation of a single column.
- SUMX(Table, Expression) → Row-by-row evaluation of an expression, then sums results (more flexible but slower).

13.What are the different views available in Power BI Desktop?

Ans:

There are three different views in Power BI, each of which serves another purpose:

- Report View - In this view, users can add visualizations and additional report pages and publish the same on the portal.
- Data View - In this view, data shaping can be performed using Query Editor tools.
- Model View - In this view, users can manage relationships between complex datasets.

14.What are the various versions of Power BI?

Ans:

Here are the main versions of Power BI:

- Power BI Desktop
- Power BI service
- Mobile Power BI apps for iOS and Android devices

15.What are the major differences between visual-level, page-level, and report-level filters in Power BI?

Ans:

- 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.

16. What is the difference between calculated columns and measures in Power BI?

Ans:

- Calculated Columns are computed at row-level during data refresh and stored in the model → increase memory usage.
- Measures are calculated on the fly (query time), based on filters and context → more efficient and preferred for large datasets.

17. What are DAX context types (row context vs filter context)?

Ans:

- Row Context: Evaluation happens for each row in a table (e.g., calculated columns).
- Filter Context: Filters applied from slicers, visuals, or DAX functions (e.g., measures).
- Advanced modeling often requires understanding context transition (when row context becomes filter context, usually via CALCULATE).

18. When do you use CALCULATE in DAX?

Ans:

CALCULATE modifies the filter context of a calculation.

Example:

Sales LY = Calculate(Sum(Sales[Amount]),Sameperiodlastyear(Date[Date]))

This computes last year's sales by shifting the filter context.

19. What is the difference between ALL, ALLEXCEPT, and REMOVEFILTERS in DAX?

Ans:

- ALL(Table) → Removes all filters from a table/column.
- ALLEXCEPT(Table, Column) → Removes all filters except specified columns.
- REMOVEFILTERS() → Similar to ALL, but only removes filters, doesn't expose hidden members (better in some scenarios).

20. How do you handle many-to-many relationships in Power BI?

Ans:

Options:

- Bridge tables (factless tables) for resolving relationships.
- Use composite models with relationship cardinality set to many-to-many.
- Leverage DAX (TREATAS, CROSSFILTER) for custom filter propagation.

21. What are some ways to optimize Power BI reports?

Ans:

- Reduce cardinality of columns (e.g., avoid high distinct values).
- Use star schema instead of snowflake.
- Replace calculated columns with Power Query transformations.
- Use aggregations tables for big data.
- Avoid bi-directional relationships unless required.
- Optimize DAX (e.g., use SUMX carefully, prefer SUM where possible).

22. How does VertiPaq engine store and compress data?

Ans:

- VertiPaq compresses data in columns, not rows.
- Uses dictionary encoding + run-length encoding for compression.
- Performance depends on column cardinality (low cardinality = better compression).

23. When would you use DirectQuery vs Import mode?

Ans:

- Import → Better performance, data is cached, limited by dataset size (up to 1 GB/Pro, larger with Premium).
- DirectQuery → Queries data live from the source (good for real-time but slower, limited DAX).
- Often a hybrid (Composite model) is used to balance performance and freshness.

24. What is row-level security (RLS) and how is it implemented?

Ans:

- RLS restricts data access at user level.
- Define security roles in Power BI Desktop using DAX filters → e.g. [Region] = USERPRINCIPALNAME().
- Assign users/groups in Power BI Service to roles.

25. What is the difference between RLS and OLS (Object-level Security)?

Ans:

- RLS → Controls which rows of data a user can see.
- OLS → Controls which tables/columns a user can see.

26. What are composite models?

Ans:

- Models that combine multiple storage modes (Import + DirectQuery).
- Allow mixing data from different sources while maintaining performance.

27. What's the difference between M and DAX?

Ans:

- M (Power Query language) → ETL step, used to clean/transform/load data before modeling.
- DAX → Data Analysis Expressions, used after loading to calculate, aggregate, and analyze data.

28. What are parameters in Power Query and how are they used?

Ans:

- Parameters allow dynamic control of queries (e.g., date range, file path, API URL).
- They make queries reusable and adaptable without changing code.

29. What are deployment pipelines in Power BI Service?

Ans:

- A structured way to manage Dev → Test → Prod environments.
- Helps version control and promotes changes safely.

30. How does Power BI Premium differ from Pro?

Ans:

- Pro: Individual license, limited dataset size (1 GB), shared capacity.
- Premium: Dedicated capacity, larger datasets (400 GB), advanced AI, Paginated reports, deployment pipelines.

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