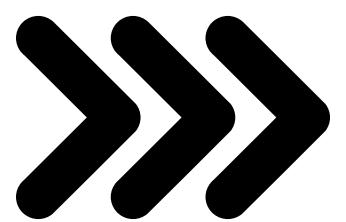




Tajamul Khan

Ace Power BI Interviews



Basic & Core Power BI Questions

- **What are the different storage modes in Power BI, and their impact on performance?**

Import Mode: Stores data in memory, fastest performance but requires RAM.

DirectQuery: Queries data in real-time, slower but no data storage.

Composite Mode: Mix of both, providing flexibility in data access.

- **Explain the difference between Power Query and DAX.**

Power Query: ETL tool for data transformation (M language).

DAX: Formula language for calculations in reports (similar to Excel formulas).

- **What is a star schema and why is it recommended in Power BI?**

A star schema has fact tables (numerical data) connected to dimension tables (categories). It improves query performance and simplifies DAX calculations.

- **How do relationships work in Power BI, and what is a many-to-many relationship?**

Power BI supports one-to-many and many-to-one relationships. A many-to-many relationship occurs when both tables have duplicate values, which can lead to ambiguity in aggregation. Use bridge tables to resolve them.

- **What is the difference between a calculated column and a measure?**

Calculated Column: Stored in the dataset, increases memory usage.

Measure: Calculated dynamically, improves performance.

Scenario-Based Questions I

- Your report is slow when switching between slicers. How would you optimize it?

Use cardinality reduction (reduce unique values in slicers).

Pre-aggregate data in Power Query before loading into Power BI.

Optimize DAX formulas by replacing **FILTER** with **KEEPFILTERS**.

Use composite models instead of full import mode.

- You need to show sales only for selected months and hide others dynamically. How would you do this?

Use DAX dynamic filtering like:

```
SalesFiltered = IF(SELECTEDVALUE('Date'[Month]) IN {"Jan", "Feb", "Mar"},  
SUM('Sales'[Amount]), BLANK())
```

Hide visuals when the filter is empty using conditional formatting.

- How do you handle a scenario where two tables do not have a direct relationship?

Use bridge tables or create a common key via calculated columns.

Implement **TREATAS** in DAX to mimic relationships.

- Your report needs to show year-over-year growth but some months are missing. How do you handle missing data?

Use **COALESCE** in DAX to replace blanks with 0. use date dimension tables with full calendar.

- How do you show only the top 3 sales representatives dynamically in a visual?

```
Top3Sales = IF(RANKX(ALL('Sales'[Salesperson]), SUM('Sales'[Amount]), DESC) <= 3,  
SUM('Sales'[Amount]), BLANK())
```

Scenario-Based Questions II

- Your client wants a report to automatically refresh when new data arrives. How do you set this up?

Use scheduled refresh in Power BI Service.

Implement dataflows for automatic data refresh.

- How do you show dynamic text based on a selected slicer value?

`SelectedCategory = "You selected: " & SELECTEDVALUE('Category'[CategoryName])`

- You need to display previous month's sales in a table. What DAX formula would you use?

`PreviousMonthSales = CALCULATE(SUM('Sales'[Amount]),`

`PREVIOUSMONTH('Date'[Date]))`

- How do you calculate a running total that resets every year?

`RunningTotal = CALCULATE(SUM('Sales'[Amount]),`

`FILTER(ALL('Sales'), 'Sales'[Year] = MAX('Sales'[Year]) &&`

`'Sales'[Date] <= MAX('Sales'[Date])))`

- Your Power BI dashboard is showing incorrect totals. How do you debug issue?

Check if a measure is aggregating incorrectly.

Verify relationships in the data model.

Use DAX debugging tools like Performance Analyzer.

Advanced DAX Power BI Questions

- **Explain the difference between SUMX and SUM.**

SUMX iterates row by row, useful for calculated columns.

SUM aggregates directly on a column.

- **What is the difference between EARLIER and VAR in DAX?**

EARLIER is used in row context (for nested row-level calculations).

VAR improves readability and performance by storing intermediate results.

- **Write a DAX formula to calculate cumulative sales until the selected date.**

CumulativeSales = CALCULATE(SUM('Sales'[Amount]),

FILTER(ALL('Sales'), 'Sales'[Date] <= MAX('Sales'[Date])))

- **What is the difference between ALL and REMOVEFILTERS ?**

ALL removes all filters from a table or column.

REMOVEFILTERS selectively removes filters only from specified columns/tables.

- **How do you dynamically switch between different measures in a single chart?**

Use a disconnected table and SWITCH in DAX:

SelectedMeasure = SWITCH(SELECTEDVALUE('Measure Table'[MeasureName]),
"Sales", SUM('Sales'[Amount]), "Profit", SUM('Sales'[Profit]), BLANK())

Optimization & Performance Questions

- **How do you improve the performance of a large dataset in Power BI?**

Reduce column cardinality.

Use aggregation tables for summarized data.

Prefer measures over calculated columns.

Optimize DAX using **SUMX** instead of **FILTER**.

- **What are materialized views, and how do they help in Power BI?**

Materialized views store query results, reducing processing time in DirectQuery mode.

- **How do you reduce the dataset size in Import Mode?**

Remove unnecessary columns.

Use integer keys instead of text keys for relationships.

Use date ranges to limit the data volume.

- **What is query folding, and why is it important?**

Query folding is when Power Query pushes transformations back to the source.

It reduces memory usage and improves performance.

- **How do you optimize a complex DAX measure?**

Replace **FILTER** with **SUMMARIZE** or **VAR** to store intermediate calculations.

Use **OPTIMIZEDAX()** tool to check execution time.

Deployment & Governance Questions

- **How do you secure sensitive data in Power BI?**

Use row-level security (**RLS**) to restrict access.

Implement sensitivity labels in Power BI Service.

Encrypt datasets in Azure Synapse Analytics.

- **What are incremental refresh policies?**

Allows loading only new data instead of reloading everything.

Uses partitioning in Power BI Premium to reduce query load.

- **How do you automate Power BI report updates?**

Schedule refresh in Power BI Service.

Use Power Automate to trigger refreshes.

Implement dataflows for pre-processing data.

- **What are Power BI Dataflows?**

Reusable ETL pipelines stored in the cloud.

Helps in centralizing data transformation outside of datasets.

- **How do you monitor Power BI report usage?**

Use Power BI Admin Portal for user activity logs.

Integrate Azure Log Analytics to track queries.

Advanced BI Modeling & Relationships

- **What is the difference between bidirectional and single-direction relationships in Power BI?**

Single-direction: Filters flow in one direction (recommended for performance).

Bidirectional: Filters flow both ways but can cause performance issues.

- **How do you create a relationship between tables when there is no common column?**

Use a bridge table or create a concatenated key column in Power Query.

- **How do you dynamically change the relationship between tables in Power BI?**

Use **TREATAS** to mimic a relationship in DAX.

- **What happens when you have circular dependencies in Power BI relationships?**

Power BI blocks it, and you must resolve it by removing one relationship or using **USERELATIONSHIP** in DAX.

- **How do you create a dynamic hierarchy in Power BI?**

Use a parent-child hierarchy with **PATH** and **LOOKUPVALUE** in DAX.

Advanced DAX & Calculations

- Write a DAX measure to calculate the average sales per customer.

AvgSalesPerCustomer = DIVIDE(SUM('Sales'[Amount]),
DISTINCTCOUNT('Sales'[CustomerID]), 0)

- How do you calculate the percentage contribution of each category in total sales?

SalesPercentage = DIVIDE(SUM('Sales'[Amount]),
CALCULATE(SUM('Sales'[Amount]), ALL('Sales')),0)

- How do you write a DAX formula to get the last non-blank value in a column?

LastValue = LASTNONBLANK('Sales'[Amount],
SUM('Sales'[Amount]))

- What is the difference between **KEEPFILTERS** and **REMOVEFILTERS**?

KEEPFILTERS preserves existing filters in a calculation.

REMOVEFILTERS removes filters from a table or column.

- Write a DAX measure to count the number of customers who made purchases in the last 30 days.

RecentCustomers = CALCULATE(DISTINCTCOUNT('Sales'[CustomerID]),
'Sales'[Date] >= TODAY() - 30)

Performance Optimization

- **What are the best practices for optimizing DAX queries?**

Use variables (VAR) to avoid repeated calculations.

Prefer **SUMX** over **FILTER** for row-level calculations.

Avoid bidirectional relationships unless necessary.

- **How do you optimize a report that takes a long time to refresh?**

Reduce cardinality by minimizing unique values.

Use aggregated tables for summary data.

Implement incremental refresh for large datasets.

- **What is the difference between SUMX and CALCULATE(SUM())?**

SUMX iterates row by row, ideal for complex calculations.

CALCULATE(SUM()) is better for aggregations with filters.

- **How do you improve DirectQuery performance?**

Reduce complex joins in SQL.

Pre-aggregate data before loading into Power BI.

Use query folding to push transformations to the source.

- **Why should you avoid calculated columns in large datasets?**

They consume memory and increase dataset size.

Prefer measures for dynamic calculations.

Deployment & Security

- **What are the different ways to deploy Power BI reports?**

Power BI Service (Cloud)

Power BI Report Server (On-premises)

Embedded Reports in applications

- **How do you implement Row-Level Security (RLS) in Power BI?**

Define roles in Power BI Desktop.

Use DAX filters to restrict data.

- **What is Object-Level Security (OLS) in Power BI?**

Hides entire tables or columns from specific users.

- **How do you track report usage in Power BI Service?**

Use Power BI Audit Logs.

Monitor dashboard views and interactions in Admin Portal.

- **What is the difference between a dataset and a dataflow in Power BI?**

Dataset: Stores data for reporting.

Dataflow: Performs data transformation before storing in a dataset.

External Integration

- **How can you connect Power BI with Python?**

Use Python script in Power Query for data transformation.

- **Can Power BI connect to an API? How?**

Yes, use Web Connector and call REST APIs using JSON.

- **How do you export Power BI reports to Excel?**

Use Analyze in Excel feature in Power BI Service.

- **What are the benefits of using Power BI Premium?**

Larger dataset capacity (100GB+).

Paginated Reports and AI-driven insights.

- **How do you automate report distribution in Power BI?**

Use subscriptions and Power Automate for scheduled emails.

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