

# **Power BI Interview Questions & Cheat Sheet**

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## **1. Introduction to Power BI**

### **What is Power BI?**

*Power BI is a business intelligence tool by Microsoft used for data visualization, reporting, and analytics. It enables users to connect to various data sources, transform data, and create interactive dashboards.*

### **Key Components of Power BI:**

- *Power BI Desktop – For creating reports and dashboards*
  - *Power BI Service – Cloud-based platform for sharing and collaboration*
  - *Power BI Mobile – Mobile app for viewing reports*
  - *Power Query – Data transformation tool*
  - *Power Pivot – Data modeling tool*
  - *Power BI Report Server – On-premises report hosting*
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## **2. Common Power BI Interview Questions & Answers**

### **Beginner Level**

#### **1. What are the key features of Power BI?**

- *Power BI provides a range of features such as interactive reports, real-time dashboards, AI-powered insights, data modeling, and DAX calculations. It supports multiple data*

*sources, cloud-based sharing, and easy integration with other Microsoft products.*

**2. Explain the difference between Power BI Desktop and Power BI Service.**

- *Power BI Desktop is a Windows application used for creating reports and dashboards. Power BI Service is a cloud-based platform where users can publish, share, and collaborate on reports.*

**3. What are the different data sources that Power BI can connect to?**

- *Power BI supports various data sources, including SQL Server, Azure, Excel, Google Analytics, SharePoint, and APIs, among others.*

**4. What is DAX in Power BI?**

- *DAX (Data Analysis Expressions) is a formula language used in Power BI for creating calculated columns, measures, and custom calculations in tables.*

**5. What are Filters and Slicers in Power BI?**

- *Filters refine the data displayed in reports, while slicers allow users to interactively filter data in visuals.*

**6. What is Power Query, and why is it important?**

- *Power Query is a data transformation and preparation tool in Power BI that enables users to clean, filter, and shape data before analysis.*

**7. How do you create relationships between tables in Power BI?**

- *Relationships are created in the Power BI Model view by connecting fields between tables using a drag-and-drop interface.*

**8. What is a Power BI workspace?**

- A workspace is a collaborative environment in Power BI Service where users can store, organize, and share reports and dashboards.

**9. Explain the different views in Power BI Desktop.**

- Power BI Desktop has three main views: Report view (for visualization), Data view (for exploring tables), and Model view (for relationships and schema design).

**10. How do you schedule data refresh in Power BI Service?**

- Users can configure automatic data refresh schedules in Power BI Service by setting up gateway connections and defining refresh frequency.

**Intermediate Level**

**11. What are different types of visualizations in Power BI?**

- Common visuals include bar charts, line charts, pie charts, scatter plots, maps, and KPI cards.

**12. Explain the concept of calculated columns and measures in DAX.**

- Calculated columns add new data fields to tables, while measures perform dynamic calculations on existing data.

**13. What is Row-Level Security (RLS) in Power BI?**

- RLS restricts data access based on user roles by applying security filters to datasets.

**14. What is the difference between Import Mode and DirectQuery?**

- *Import Mode loads data into Power BI, enabling fast queries, whereas DirectQuery connects to data sources in real time without importing.*

**15.      *How do you improve performance in Power BI reports?***

- *Performance can be optimized by reducing the number of visuals, using aggregations, implementing indexing, and optimizing DAX formulas.*

**16.      *What are Custom Visuals in Power BI?***

- *Custom visuals are additional visual elements available from the Power BI marketplace, allowing for enhanced reporting.*

**17.      *Explain the use of Bookmarks in Power BI.***

- *Bookmarks save the current report state and can be used for storytelling, navigation, and interactivity.*

**18.      *How do you share reports with users in Power BI?***

- *Reports can be shared via Power BI Service by publishing reports to workspaces, embedding in applications, or exporting as PDFs.*

**19.      *How does Incremental Refresh work in Power BI?***

- *Incremental Refresh loads only new or changed data instead of reloading the entire dataset, improving efficiency.*

**20.      *What is the purpose of Power BI Gateway?***

- *Power BI Gateway enables on-premises data sources to connect securely with Power BI Service.*

**Advanced Level**

**21. What are the performance tuning techniques in Power BI?**

- *Using fewer visuals, aggregating large datasets, optimizing relationships, and reducing the number of calculations improve performance.*

**22. How do you implement Aggregations in Power BI?**

- *Aggregations improve query performance by summarizing data at different levels and using optimized storage techniques.*

**23. Explain the difference between SUM(), SUMX(), and CALCULATE() in DAX.**

- *SUM() adds values in a column, SUMX() iterates through rows for complex calculations, and CALCULATE() modifies context in DAX expressions.*

**24. What is the difference between Star Schema and Snowflake Schema?**

- *Star Schema has denormalized data for faster querying, while Snowflake Schema normalizes data into multiple related tables to reduce redundancy.*

**25. How do you optimize DAX calculations?**

- *Using variables, reducing row iterations, leveraging aggregations, and avoiding unnecessary filters improve DAX performance.*

**26. What is Composite Model in Power BI?**

- *Composite Models allow a combination of Import Mode and DirectQuery for flexible data modeling.*

**27.      *How do you handle errors in Power BI?***

- *Power BI provides error handling through Power Query's error-checking tools and conditional transformations.*

**28.      *Explain the use of Parameters in Power BI.***

- *Parameters help create dynamic reports where users can input values to filter and customize data views.*

**29.      *What are the best practices for data modeling in Power BI?***

- *Best practices include using Star Schema, minimizing calculated columns, defining explicit measures, and optimizing relationships.*

**30.      *How do you implement real-time data updates in Power BI?***

- *Real-time updates can be enabled using streaming datasets, DirectQuery connections, and push datasets in Power BI Service.*

**31. *What is the difference between Live Connection and DirectQuery in Power BI?***

*Answer:*

- *Live Connection connects directly to SQL Server Analysis Services (SSAS) and retrieves real-time data without storing a copy in Power BI.*

- *DirectQuery enables querying large databases without importing data but has performance limitations due to query execution on the source.*
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### **32. What are Aggregations in Power BI, and how do they improve performance?**

*Answer:*

- *Aggregations store pre-summarized data at a higher level to speed up queries.*
  - *Instead of scanning millions of rows, Power BI references aggregated tables for performance improvement.*
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### **33. How does Power BI handle missing data?**

*Answer:*

- *Power Query provides methods like Replace Values, Fill Down, Fill Up, Remove Nulls, and Interpolation to handle missing data.*
  - *DAX functions like IF(ISBLANK([Column]), Value, [Column]) can also replace missing values.*
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### **34. How do you implement Role-Based Security (Row-Level Security - RLS) in Power BI?**

*Answer:*

- *Define roles and filters within Power BI Desktop (Manage Roles).*
  - *Use DAX expressions like USERPRINCIPALNAME() to restrict data dynamically based on user login.*
  - *Publish to Power BI Service, then assign roles to specific users.*
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### **35. What is Power BI Deployment Pipeline, and how does it work?**

*Answer:*

- *Deployment Pipelines streamline report updates across Development → Test → Production environments.*
  - *This ensures changes are tested before release, reducing data inconsistencies.*
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### **36. What is a Calculated Table, and when would you use it?**

*Answer:*

- *A Calculated Table is created using DAX expressions when you need static tables derived from existing data.*
- *Example:*

*SalesSummary = SUMMARIZE('Sales', 'Sales'[Category],  
"TotalSales", SUM('Sales'[Amount]))*

- *Useful for aggregations, data transformations, and lookup tables.*
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### **37. How do you optimize DAX measures for large datasets?**

Answer:

- Use variables to store intermediate calculations:

```
VAR TotalSales = SUM(Sales[Amount])  
RETURN TotalSales
```

- Avoid iterating functions (SUMX(), FILTER()) when simple aggregations (SUM(), COUNT()) suffice.
  - Prefer SUMMARIZECOLUMNS() over SUMMARIZE() for faster execution.
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### **38. What is the use of CALCULATE() in DAX?**

Answer:

- CALCULATE() modifies the filter context of a calculation.
- Example:

```
SalesLastYear = CALCULATE(SUM(Sales[Amount]),  
SAMEPERIODLASTYEAR(Sales[Date]))
```

- Used for dynamic calculations, filtering, and custom aggregations.
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### **39. What are the different join types in Power Query?**

Answer:

- Inner Join → Returns matching rows from both tables.

- *Left Outer Join → Returns all rows from the left table, matching data from the right.*
  - *Right Outer Join → Returns all rows from the right table, matching data from the left.*
  - *Full Outer Join → Returns all records from both tables.*
  - *Anti Joins (Left Anti, Right Anti) → Returns unmatched rows from one table.*
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#### **40. How do you handle many-to-many relationships in Power BI?**

*Answer:*

- *Use bridge tables to break direct many-to-many relationships.*
  - *Enable bi-directional filtering, but use cautiously as it impacts performance.*
  - *Use TREATAS() in DAX to apply cross-table filtering.*
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#### **41. What is a Parameter in Power BI, and why is it useful?**

*Answer:*

- *Parameters allow dynamic user inputs for filtering, scaling reports, and improving flexibility.*
  - *Example: Changing a date range, region, or product category dynamically in a report.*
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#### **42. How does Power BI handle incremental data loading?**

*Answer:*

- *Incremental Refresh updates only new or changed data instead of refreshing the entire dataset.*
  - *It improves load times and performance, reducing strain on databases.*
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#### **43. What is the function of the Power BI Admin Portal?**

*Answer:*

- *Used for managing licenses, usage monitoring, data governance, and security settings.*
  - *Controls data sharing, access levels, and compliance settings.*
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#### **44. What is a Common Data Model (CDM) in Power BI?**

*Answer:*

- *CDM standardizes data structures across applications (Power BI, Dynamics, Azure).*
  - *Helps with data consistency, integration, and reusable business models.*
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#### **45. How do you enable drill-through in Power BI reports?**

*Answer:*

- *Create Drill-Through Pages with summary visuals.*
- *Add a drill-through field, allowing users to right-click and navigate to detailed views.*

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**46. How does Power BI integrate with Python and R?**

Answer:

- *Power BI supports Python and R scripts for advanced analytics and custom visualizations.*
- *Install dependencies, write scripts in the Power BI script editor, and integrate machine learning models.*

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**47. How do you optimize Power BI reports for mobile view?**

Answer:

- *Use Power BI Mobile Layout to design mobile-friendly dashboards.*
- *Reduce the number of visuals and adjust layouts for smaller screens.*

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**48. What is the difference between a Report and a Dashboard in Power BI?**

Answer:

<i>Feature</i>	<i>Report</i>	<i>Dashboard</i>
<i>Definition</i>	<i>Multi-page data visualization</i>	<i>Single-page interactive summary</i>
<i>Data Sources</i>	<i>Single dataset</i>	<i>Can combine multiple datasets</i>

<i>Feature</i>	<i>Report</i>	<i>Dashboard</i>
<i>Interactivity</i>	<i>Fully interactive</i>	<i>Limited interactivity</i>
<i>Customization</i>	<i>Users can edit visuals</i>	<i>Fixed layout</i>
<i>Usage</i>	<i>Deep dive into insights</i>	<i>Quick business overview</i>

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#### **49. How do you embed a Power BI report into a website?**

*Answer:*

- *Use Power BI Embedded API to integrate reports into apps.*
  - *Publish to Web Option (for public reports).*
  - *Use Secure Embed Codes to control access.*
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#### **50. What are best practices for Power BI development?**

*Answer:*

- ✓ *Use Star Schema for better query performance.*
- ✓ *Keep data models simple – avoid too many relationships.*
- ✓ *Optimize DAX queries and limit calculated columns.*
- ✓ *Use Power BI Performance Analyzer to debug slow reports.*
- ✓ *Implement Row-Level Security (RLS) for sensitive data.*
- ✓ *Keep reports mobile-responsive for accessibility.*