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?*
   o *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.

o *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?

o *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?

o *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?

o *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?

o *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?

o *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?

o *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.

o *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.*

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.*

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.*

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.*

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

Answer:

Feature	Report	Dashboard
Definition	*Multi-page data visualization*	*Single-page interactive summary*
Data Sources	*Single dataset*	*Can combine multiple datasets*

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

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.*

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.*

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