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Assignment:

1.What is Power BI and how does it differ from Excel?

Power BI is a data visualization tool where we can use the raw data for cleaning and creating dashboard. In Excel there is limited number of charts available where as in Power BI there are more visualization charts.

2. Explain the concept of data modelling in Power BI.

Data modelling in Power BI is the process of creating a logical representation of your data by defining tables, establishing relationships between them, and using DAX (Data Analysis Expressions) to create calculations for insights.

3. What are the different types of connections available in Power BI?

Power BI has four main connection type such as: Import, DirectQuery, Live Connection, and Composite Model

4. How do you handle data transformation in Power BI?

To transform data in Power BI, load your data into Power BI Desktop, then click Transform Data on the Home tab to open the Power Query Editor. In the Power Query Editor, you can clean data by removing duplicates and handling missing values, reshape data by merging or splitting columns, enrich data by adding calculations, and convert data types.

5. What is DAX (Data Analysis Expressions) and why is it important in Power BI?

DAX (Data Analysis Expressions) is a formula language used in Power BI to perform advanced data calculations, create custom metrics, and derive deeper insights from data.

6. Can you explain the difference between calculated columns and measures in Power BI?

Calculated columns perform row-by-row computations stored in the model, increasing its size, while measures are dynamic calculations performed on the fly based on report context, consuming no extra model space.

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

To handle the relationships between the tables in Power BI, generally we use the data modelling. In data modelling all the imported tables are automatically connected according to the column heading and there is also an option of manually connecting with tables.

8. What is the purpose of a Power BI Gateway?

The purpose of a Power BI Gateway is to act as a secure bridge, enabling the Power BI service to connect to and transfer data from on-premises (local) data sources to the cloud.

9. How can you schedule data refresh in Power BI Service?

To schedule data refresh in Power BI Service, go to the workspace, find the semantic model, and select the Schedule refresh option.

10. Explain the concept of row-level security in Power BI.

Row-Level Security (RLS) in Power BI restricts access to specific rows of data within a report or dataset based on user roles, ensuring that users only see the data relevant to their job function.

11. What is the Power BI Desktop and how does it differ from Power BI Service?

Power BI Desktop is a free, downloadable Windows-based application for creating and modelling data, where users can connect to data, perform transformations, and build reports. Whereas the Power BI Service is a cloud-based platform used for sharing, collaborating, and consuming reports by publishing them from the Desktop application and only paid version is there.

12. Explain the concept of Direct Query in Power BI.

DirectQuery in Power BI is a data connectivity mode that allows Power BI to connect directly to the source database and retrieve data in real-time, rather than importing and storing a copy of the data within the Power BI mode.

13. What are Power BI templates and how are they useful?

Power BI templates are pre-built report structures saved as .pbit files, containing a report's layout, data model, queries, and visuals but not the actual data itself. They are useful for quickly creating new reports by providing a starting point, standardizing design and formatting across reports, and facilitating the sharing of best practices and consistent branding within an organization.

14. How do you handle incremental data refresh in Power BI?

To handle incremental data refresh in Power BI, set up two parameters, RangeStart and RangeEnd, in Power Query, then filter your table using these parameters. Next, define the incremental refresh policy in the Power BI desktop by selecting the table and specifying the archive and refresh ranges for historical and recently updated data, respectively. Finally, publish your report and schedule the refresh in the Power BI Service.

15. What is the role of Power Query in Power BI?

Power Query is used to transform the data and clean and reshape data.

16. Explain the difference between calculated columns and calculated tables in Power BI.

Calculated columns add row-by-row results to an existing table during data refresh, storing the values and consuming memory, while calculated tables create new, independent tables from existing data in the model.

17. How do you create custom visuals in Power BI?

To create visuals in Power BI, you first select a visualization type from the Visualizations pane and then drag and drop fields from the Fields pane to populate the visual.

18. What are the best practices for optimizing performance in Power BI?

To optimize Power BI performance, focus on streamlining the data model by limiting columns/rows and using measures over calculated columns, enabling Query Folding to push transformations to the source, optimizing DAX with variables and efficient logic, minimizing visuals on report pages, and regularly monitoring and diagnosing issues using the Performance Analyzer.

19. How can you integrate Power BI with other Microsoft products like Azure and Office 365?

We can integrate Power BI with other Microsoft products by connecting to Azure data sources like Azure SQL Database and Azure Blob Storage directly from Power BI Desktop

20. Explain the concept of aggregations in Power BI.

Aggregations in Power BI can improve query performance over large DirectQuery semantic models. By using aggregations, you cache data at the aggregated level in-memory.

21. How do you handle error handling and data quality in Power BI?

By using Power Query for data cleaning and transformations, applying DAX error-handling functions (like IFERROR/COALESCE), and setting data validation rules to ensure accuracy and reliability.

22. What is the purpose of Power BI Embedded and when would you use it?

Power BI Embedded allows application developers to integrate interactive Power BI reports and dashboards directly into their own web applications or custom portals, providing tailored data analytics. We'll use Power BI Embedded when you want to deliver branded, interactive data insights to your end-users within their daily tools, such as customer portals, partner-facing applications, or internal business applications, allowing them to make data-driven decisions without the overhead of managing Power BI licenses for everyone