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**SUB: POWER BI ASSIGNMENT**

**COURSE:DATA ANALYST**

**QUESTIONS**

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

2) Explain the concept of data modeling in Power BI.

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

4)How do you handle data transformation in Power Bl?

5) What is DAX (Data Analysis Expressions) and why is it important in

Power Bl?

6) Can you explain the difference between calculated columns and

measures in Power BI?

7) How do you handle relationships between tables in Power Bl?

8) What is the purpose of a Power Bl Gateway?

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

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

11)What is the Power Bl Desktop and how does it differ from Power

BI Service?

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

13)What are Power Bl templates and how are they useful?

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

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

16)Explain the difference between calculated columns and

calculated tables in Power Bl.

17)How do you create custom visuals in Power Bl?

18)What are the best practices for optimizing performance in

Power BI?

19)How can you integrate Power Bl with other Microsoft

products like Azure and Office 365?

20)Explain the concept of aggregations in Power Bl

21)How do you handle error handling and data quality in Power

BI?

22)What is the purpose of Power Bl Embedded and when would

you use it?

ANSWERS

1)Both Power BI and Microsoft Excel are data visualization tools that execute similar functions, yet differ in features and applications. Excel is an excellent tool for small to medium-sized data sets with a lower budget. Whereas, Power bi caters to large data sets, real-time action, and cloud capabilities

2) By using text, symbols, and diagrams, data modeling concepts create visual representations of data as it's captured, stored, and used at your business. As your business determines how data is used and when, the data modeling process becomes an exercise in understanding and clarifying your data requirement.

3) These Power BI data connection types — Live Connection, Direct Query, and Import - each have unique features and capacities that cater to different operational requirements and preferences

4) To execute this Power BI Transform Data step in the Power BI Query Editor, you need to navigate to Choose Columns, Remove Columns, Keep Rows, and Remove Rows options as mentioned under the Home tab. By leveraging these Power BI Transform Data options, you can easily look to remove some of the unwanted data.

5) Data Analysis Expressions (DAX) is a formula expression language used in Analysis Services, Power BI, and Power Pivot in Excel. DAX formulas include functions, operators, and values to perform advanced calculations and queries on data in related tables and columns in tabular data models.

6) Calculated Columns: Computed once during the process refresh, stored in the model, and occupy space. Measures: Computed at query time, exist as source code in the model, and do not consume additional space.

7) On the Modeling tab, select Manage relationships > New. In the Create relationship dialog box, in the first table drop-down list, select a table. Select the column you want to use in the relationship.

8) The Power BI Gateway is a tool that allows users to access data on an on-premises network from a cloud-based or web-based application. It acts as a bridge between the on-premises data and Microsoft cloud services, such as Power BI, Power Apps, and Azure Analysis Service.

9) Go to the workspace and select a semantic model from the workspace content list. On the semantic model details page, select Refresh > Schedule refresh.

10)Row-level security (RLS) with Power BI can be used to restrict data access for given users. Filters restrict data access at the row level, and you can define filters within roles.

11) The desktop allows you to connect to different types of data sources and then transform it in a data model. The final part of the report creation process is to add visuals based on the data model. The Power BI Service is the cloud-based service where users view and interact with the reports.

12) You can stream data directly into Power BI, although there are limits on the data volumes supported for this case. Using Direct Query means that opening or refreshing a report or dashboard always shows the latest data in the source. The dashboard tiles can also be updated more frequently, as often as every 15 minutes.

13) ‍Power BI templates are pre-designed report layouts that include the report pages, visuals, data model schema, and queries. They ensure consistency and save time by allowing users to recreate reports without including the actual data.

14) To handle incremental data refresh in Power BI, you can:

1. Define a policy: In Data view, right-click a table and select Incremental refresh.
2. Specify settings: In Set import and refresh ranges, move the slider to On for Incrementally refresh this table.
3. Specify optional settings: Select Get the latest data in real time with Direct Query to include the latest data changes. You can also select Only refresh complete days to refresh only whole days.
4. Review and apply: Review your settings and select Apply to complete the refresh policy.

15) Power Query is the data connectivity and data preparation technology that enables end users to seamlessly import and reshape data from within a wide range of Microsoft products, including Excel, Power BI, Analysis Services, Data verse, and more.

16) In Power BI, calculated columns, calculated tables, and measures are all used to perform calculations, but they serve different purposes and are applied at different levels within the data model: Calculated Columns: Purpose: Calculated columns are additional columns that you create within a table in your data model.

17) To create a custom visual in Power BI, you can:

1. Set up your environment: Install Node.js, npm, the Power BI CLI, and Developer Visuals tools.
2. Create a visual project: Use the Power BI CLI to create a new visual project.
3. Design your visual: Use HTML, CSS, and TypeScript to develop your visual. You can also use libraries like D3.js for advanced data visualization.
4. Test and debug: Use the Power BI Visuals Playground and the Visual Debugging Tool to test and debug your visual.
5. Package your visual: Package your visual as a privy file, which is a zip file that contains all the necessary files and metadata.
6. Import your visual: Import the privy file into a Power BI report.

When designing your custom visual, it's important to consider how it will resize, auto-scale, and how to change its background based on data. You can also think about whether the user should be able to choose formatting options.

18) Here are some best practices for optimizing performance in Power BI:

* Data volume

Large datasets can slow down report performance. Use aggregations to summarize data into tables, which can help Power BI answer queries faster.

* Data modeling

Ensure your data model is well-designed, as this can improve performance and make it easier to write DAX measures.

* Direct Query mode

This mode is best for large datasets or real-time data, but it can be slower than Import mode. To optimize Direct Query models, use table-level storage.

* DAX calculations

Create optimized DAX calculations to improve query performance. Use DAX Formatter to transform raw DAX into readable code.

19)Use the "Manage Relationships" dialog to configure relationships and set cardinality correctly.

* Report layout

Optimize report layout for mobile devices.

* Other best practices

Use white or light background colors, shorten displayed numbers, use tooltips, and use meaningful names for report objects.

20) Power BI integration involves connecting and incorporating data from various sources and systems into Microsoft Power BI. However, it is crucial to present these insights in a way that resonates with a diverse audience. This is where data visualization becomes significant.

21) Handling errors ensures that you can catch and fix these without breaking the whole report. Power BI has some functions that already take this into account. For instance, the divide function where you have a third parameter that allows you to set the value in case the division returns an error.

22) Power BI Embedded is a Microsoft service that allows users to embed Power BI content into their own applications, websites, or web apps. It helps users to:

* Provide customer-facing reports: Create and embed interactive dashboards and reports in applications to help customers make informed decisions
* Reduce developer resources: Automate the management, deployment, and monitoring of analytics
* Control the user experience: Choose from a variety of visuals, basic reporting, and advanced analytics
* Brand Power BI as your own: Use Power BI as your own to provide analytics, dashboards, and reports in your own app

Power BI Embedded can be used by independent software vendors (ISVs) and developers. The embedded content can present data that the app owns or data that the user owns.