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Power BI Concepts

1. What is Business Intelligence ?

BI transforms raw data into meaningful information through tools like dashboards, reports, and visualizations, helping organizations monitor performance, identify trends, reduce risks, and uncover opportunities to improve efficiency and achieve goals.

2. What is Data Warehouse ?

A data warehouse is a centralized, integrated repository that stores large volumes of structured and historical data from various sources to support business intelligence, reporting, and analytics.

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3. Import Data Vs Direct Query

Import Creates a Copy of the Datasets inside Power BI While Direct Query is Connected Directly to the Database.
Note: - Import Dataset has limitation upto 1GB space

4. Implicit Function Vs Explicit Function

In Power BI, "implicit" functions refer to measures automatically created by Power BI from numeric fields, while "explicit" functions are custom measures you define using DAX (Data Analysis Expressions) formulas for more complex, reusable, and flexible calculations.

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5. What is a Calculated Column ?

A calculated column is a new column that you create in a table using DAX (Data Analysis Expressions). The value for each row is calculated when the column is created, and it remains static unless the data is refreshed.

6. What is a Calculated Measure ?

A calculated measure in Power BI is a custom, dynamic calculation created using Data Analysis Expressions (DAX) that computes summarized data in real-time, rather than storing a result row-by-row like a calculated column.

7. What are key differences between Calculated Column and Calculated Measure ?

Key Difference Between Calculated Columns and Calculated Measures

Key Differences:

Feature	Calculated Column	Measure
Calculation Timing	Calculated when the data is loaded or refreshed	Calculated dynamically during reporting
Storage	Stored in the data model	Not stored; calculated on the fly
Context	Row context (calculation per row)	Filter/context-dependent (changes dynamically)
Use	Adding new fields for each row	Aggregating or summarizing data
Performance Impact	Can increase model size and memory usage	Impacts report performance, not model size

8. What is Cardinality ?

In Power BI, cardinality describes the nature of a relationship between two tables by specifying how many rows in one table can relate to rows in another table.

9. Types of Cardinality ?

Types of Cardinality are as follows:

One-to-Many (1:N): One row in the first table can have many related rows in the second table, but each row in the second table relates to only one row in the first.
Example: One Customer can have many Orders.

Many-to-One (N:1): The reverse of one-to-many; many rows in the first table can relate to a single row in the second table.
Example: Many Products can be in a single Order.

One-to-One (1:1): Each row in the first table has exactly one related row in the second table, and vice versa.
Example: A table for Employee Details linked to a table for Employee Contact Information.

Many-to-Many (N:M): Each row in the first table can have many related rows in the second, and each row in the second table can also have many related rows in the first.
Example: A Many-to-Many relationship between Customers and Products if you need to see which customers purchased which products, and which products were purchased by which customers.

10. All types of cardinality (Image Explanation)
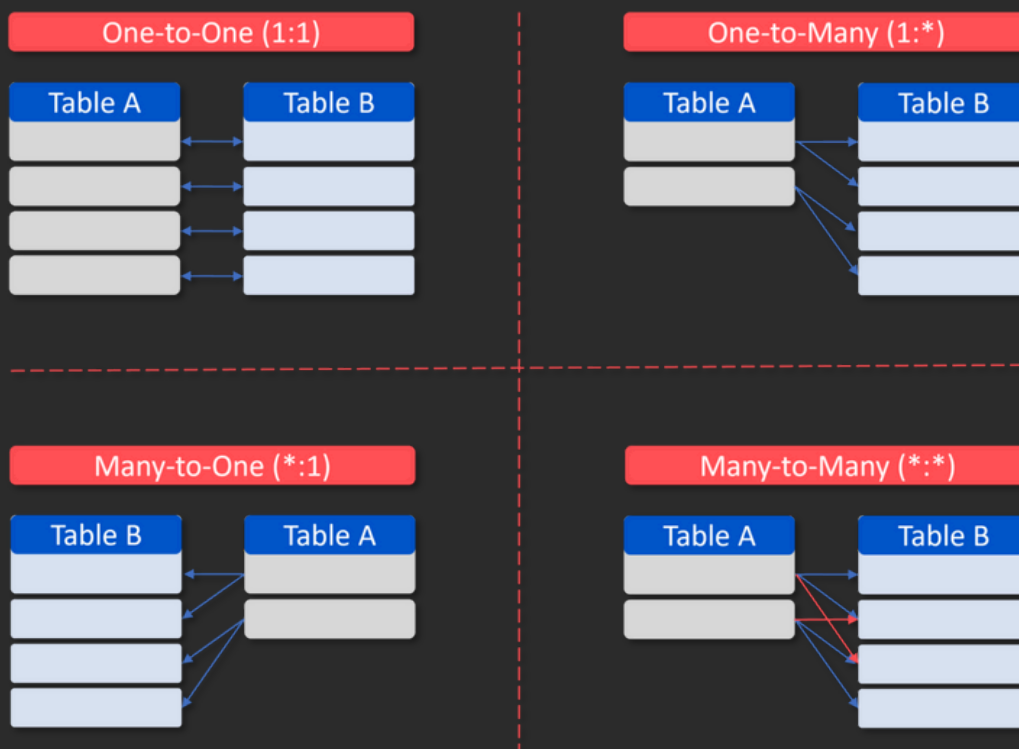
11. What are Fact Tables ?

Fact tables contain the data that we want to analyze. The data is usually transactional in nature. A fact table also needs to include the keys to the related dimensions.

12. What Dimension Tables ?

Dimension tables provide the information to help us describe, categorize, group, or filter the data in the fact tables. You would normally have a different dimension table for each way that you want to analyze or report on your fact data.

13. What is Data Transformation ?

Data transformation in Power BI is the process of cleaning, shaping, and enriching raw data to make it accurate, relevant, and ready for analysis and visualization. Using the Power Query Editor, you can perform a variety of operations, such as changing data types, merging or appending datasets, removing duplicates or missing values, adding new calculated columns, and standardizing data formats to prepare your data for effective reporting.

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14. Why is Data Transformation Necessary ?

It is necessary bevause of following reasons:

Accuracy: Raw data often contains errors or inconsistencies that can skew analysis results.

Relevance: You need to structure and combine data in a way that directly answers your business questions.

Efficiency: Preparing data upfront saves time and effort during the analysis and visualization phases.

15. Which formula do we use to convert Binary data into the Table format in Power BI Custom Column and get multiple Excel Files one below the other ?

Excel.Workbook([content])