1. What is Tableau?

Tableau is a powerful data visualization tool that allows users to connect to various data sources, create interactive dashboards, and generate insightful reports. Tableau is the Business Intelligence (BI) industry's most potent and fastest tool for visualising data. It turns the raw data into a format that is easy to understand. Tableau makes it faster to look at the data. Dashboards can be used to create visualisations. Data visualisations or diagrams make it easy for employees at all levels of an organisation to understand the information.

2. What are the different data connection options available in Tableau?

Tableau provides various data connection options, including Excel spreadsheets, text files, databases (such as SQL Server, Oracle, MySQL), and web data connectors.

3. How can you create a calculated field in Tableau?

To create a calculated field in Tableau, you can right-click in the data pane, select "Create Calculated Field," and then enter the desired formula or expression using Tableau's calculation syntax.

4.What is the difference between a dimension and a measure in Tableau?

In Tableau, a dimension is a categorical or qualitative variable that represents the characteristics or attributes of the data, while a measure is a quantitative or numerical variable that can be aggregated or summarized.

5. How can you create a dashboard in Tableau?

A tableau dashboard is a final step in creating the visualisation. First, make all of the charts in separate sheets. Then, click "add new dashboard" in the tab where you add new worksheets. You can also right-click on the "Add new sheet" button and choose "Add new dashboard" instead of "sheet." To create a new dashboard differently, click Dashboard in the toolbar. Once you've done one of those three things, you'll be brought to a new dashboard where you can begin piecing together your story by dragging the relevant sheets from the left panel onto the dashboard individually.

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7. What is data blending in Tableau?

Data blending is a technique in Tableau that allows you to combine data from multiple data sources based on a common field or key. It enables you to analyze and visualize data that resides in different databases or files. Data blending is a more advanced way of combining two different data sources. For example, one data source shows the annual sales of a product in other countries, and another shows the profit and loss for each country each month. Different levels of segregation mean that a simple join won't work in this case. The first step will be to add up all the values in the second data source based on the year. After that, a join will be done. Tableau makes it very easy to do all of these steps because Tableau can find the field of country and year that is shared by two data sources and do a post-aggregate join on its own.

8. What is the purpose of a parameter in Tableau?

Parameters in Tableau allow users to define dynamic values that can be used to control various aspects of the visualization, such as filtering data, changing calculations, or modifying colors.

9. How can you perform data aggregation in Tableau?

Tableau provides various aggregation functions, such as SUM, AVG, MAX, MIN, COUNT, etc., which can be applied to measure fields. To perform aggregation, you can drag a measure field to the visualization and choose the desired aggregation function.

10. What are the different types of charts available in Tableau?

Tableau offers a wide range of charts, including bar charts, line charts, pie charts, scatter plots, maps, treemaps, heat maps, and more. Each chart type is suitable for different types of data and analysis purposes.

11. How can you share your Tableau workbooks with others?

Tableau provides several options to share your workbooks, such as publishing them to Tableau Server or Tableau Public, exporting them as image files or PDFs, or creating interactive Tableau stories that can be shared as web links.

12. What Are the Filters? Name the Different Filters in Tableau.

This is one of the most frequently Tableau interview questions. And you must try giving a thorough answer to this one! Tableau filters are a way of restricting the content of the data that may enter a Tableau workbook, Tableau dashboard, or view.

The Different Types of Tableau Filters are:

- **Extract filters**
- **Context filters**
- **Data source filters**
- **Filters on measures**
- **Filters on dimensions**
- **Table calculation filter**

13. There Are Three Customer Segments in the Superstore Dataset. What Percent of the Total Profits Are Associated with the Corporate Segment?

Follow these steps:

1. **Drag segment field to the rows shelf. Here, segment consists of Consumer, Corporate, and Home Office**
2. **Double-click on the profit field under Measures.**
3. **Right-click on SUM (Profit) under marks card, select Quick Table Calculation and click on Percent of the total.**

14. Explain the Difference Between Tableau Worksheet, Dashboard, Story, and Workbook?

- **Tableau uses a workbook and sheet file structure, much like Microsoft Excel.**
- **A workbook contains sheets, which can be a worksheet, dashboard, or a story.**
- **A worksheet contains a single view along with shelves, legends, and the Data pane.**
- **A dashboard is a collection of views from multiple worksheets.**
- **A story contains a sequence of worksheets or dashboards that work together to convey information.**

Power BI

1. What is Power BI?

Power BI is a business analytics tool developed by Microsoft that helps you turn multiple unrelated data sources into valuable and interactive insights. These data may be in the form of an Excel spreadsheet or cloud-based/on-premises hybrid data warehouses. You can easily connect to all your data sources and share the insights with anyone.

2. Why should we use Power BI?

Because Power BI provides an easy way for anyone, including non-technical people, to connect, change, and visualize their raw business data from many different sources and turn it into valuable data that makes it easy to make smart business decisions.

3. Difference between Power BI and Tableau

Both Tableau and Power BI are the current IT industry's data analytics and visualization giants. Yet, there are a few significant differences between them. You will now explore the important differences between Tableau and Power BI.

Tableau	Power BI
Tableau uses MDX for measures and dimensions	Power BI uses DAX for calculating measures
Tableau is capable of handling large volumes of data	Power BI is qualified only to handle a limited amount of data
Tableau is best suitable for experts	Power BI is suitable for both experts and beginners
Tableau User Interface is complicated	Power BI User Interface is comparatively simpler
Tableau is capable of supporting the	Power BI finds it difficult, as its capacity to handle

cloud with ease.	**large volumes of data is limited.**

. Difference between Power Query and Power Pivot

The differences between Power Query and Power Pivot are explained as follows:

Power Query	**Power Pivot**
Power Query is all about analyzing data.	**Power Pivot is all about getting and Transforming data.**
Power Query is an ETL service tool.	**Power Pivot is an in-memory data modeling component**

. What is Power BI Desktop

Power BI Desktop is an open-source application designed and developed by Microsoft. Power BI Desktop will allow users to connect to, transform, and visualize your data with ease. Power BI Desktop lets users build visuals and collections of visuals that can be shared as reports with your colleagues or your clients in your organization.

6. What is Power Pivot?

Power Pivot is an add-on provided by Microsoft for Excel since 2010. Power Pivot was designed to extend the analytical capabilities and services of Microsoft Excel.

7. What is Power Query?

Power Query is a business intelligence tool designed by Microsoft for Excel. Power Query allows you to import data from various data sources and will enable you to clean, transform and reshape your data as per the requirements. Power Query allows you to write your query once and then run it with a simple refresh.

8. Describe the components of Microsoft's self-service BI solution.

Self-service business intelligence (SSBI) is divided into the Excel BI Toolkit and Power BI.

9. What is self-service BI, anyway?

SSBI is an abbreviation for Self-Service Business Intelligence and is a breakthrough in business intelligence. SSBI has enabled many business professionals with no technical or coding background to use Power BI and generate reports and draw predictions successfully. Even non-technical users can create these dashboards to help their business make more informed decisions.

10. What is DAX?

DAX stands for Data Analysis Expressions. It's a collection of functions, operators, and constants used in formulas to calculate and return values. In other words, it helps you create new info from data you already have.

11. What are Filters in Power BI?

The term "Filter" is self-explanatory. Filters are mathematical and logical conditions applied to data to filter out essential information in rows and columns. The following are the variety of filters available in Power BI:

- **Manual filters**
- **Auto filters**
- **Include/Exclude filters**
- **Drill-down filters**
- **Cross Drill filters**
- **Drillthrough filters**
- **Drillthrough filters**
- **URL filters–transient**
- **Pass-Through filters**

12. What are Custom Visuals in Power BI?

Custom Visuals are like any other visualizations, generated using Power BI. The only difference is that it developes the custom visuals using a custom SDK. The languages like JQuery and JavaScript are used to create custom visuals in Power BI.

13. What is GetData in Power BI?

Get Data is a simple icon on Power BI used to import data from the source.

14. Mention some advantages of Power BI.

Some of the advantages of using Power BI:

- **It helps build an interactable data visualization in data centers**
- **It allows users to transform data into visuals and share them with anyone**
- **It establishes a connection for Excel queries and dashboards for fast analysis**
- **It provides quick and accurate solutions**
- **It enables users to perform queries on reports using simple English words**

5. List out some drawbacks/limitations of using Power BI.

Here are some limitations to using Power BI:

- **Power BI does not accept file sizes larger than 1 GB and doesn't mix imported data accessed from real-time connections.**
- **There are very few data sources that allow real-time connections to Power BI reports and dashboards.**
- **It only shares dashboards and reports with users logged in with the same email address.**
- **Dashboard doesn't accept or pass user, account, or other entity parameters.**

16. What are some differences in data modeling between Power BI Desktop and Power Pivot for Excel?

Power Pivot for Excel supports only single directional relationships (one to many), calculated columns, and one import mode. Power BI Desktop supports bi-directional cross-filtering connections, security, calculated tables, and multiple import options.

17. Name the different connectivity modes available in Power BI?

There are three main connectivity modes used in Power BI.

SQL Server Import

An SQL Server Import is the default and most common connectivity type used in Power BI. It allows you to use the full capabilities of the Power BI Desktop.

Direct Query

The Direct Query connection type is only available when you connect to specific data sources. In this connectivity type, Power BI will only store the metadata of the underlying data and not the actual data.

Live Connection

With this connectivity type, it does not store data in the Power BI model. All interaction with a report using a Live Connection will directly query the existing Analysis Services model. There are only 3 data sources that support the live connection method - SQL Server Analysis Services (Tabular models and Multidimensional Cubes), Azure Analysis Services (Tabular Models), and Power BI Datasets hosted in the Power BI Service.

18. What are the various types of refresh options provided in Power BI?

Four important types of refresh options provided in Microsoft Power BI are as follows:

- **Package refresh - This synchronizes your Power BI Desktop or Excel file between the Power BI service and OneDrive, or SharePoint Online.**
- **Model or data refresh - This refreshes the dataset within the Power BI service with data from the original data source.**
- **Tile refresh - This updates the cache for tile visuals every 15 minutes on the dashboard once data changes.**
- **Visual container refresh - This refreshes the visible container and updates the cached report visuals within a report once the data changes.**

19. Name the data sources can Power BI can connect to?

Several data sources can be connected to Power BI, which is grouped into three main types:

- ***Files***

It can import data from Excel (.xlsx, .xlxm), Power BI Desktop files (.pbix) and Comma-Separated Values (.csv).

- **Content Packs**

These are a collection of related documents or files stored as a group. There are two types of content packs in Power BI:

- **Content packs from services providers like Google Analytics, Marketo, or Salesforce and Content packs are created and shared by other users in your organization.**
- ***Connectors***

Connectors help you connect your databases and datasets with apps, services, and data in the cloud.

0. What is a dashboard in Power BI?

A dashboard is a single-layer presentation sheet of multiple visualizations reports. The main features of the Power BI dashboard are:

- **It allows you to drill through the page, bookmarks, and selection pane and also lets you create various tiles and integrate URLs**
- **A dashboard can also help you set report layout to mobile view.**

21. Explain how relationships are defined in Power BI Desktop?

Relationships between tables are defined in two ways:

- **Manually - Relationships between tables are manually defined using primary and foreign keys.**
- **Automatic - When enabled, this automated feature of Power BI detects relationships between tables and creates them automatically.**

22. Can you have more than one functional relationship between two tables in a Power Pivot data model?

No. There can be multiple inactive relationships, but only one active relationship between two tables in a Power Pivot data model. Dotted lines represent inactive relationships, and continuous lines represent active relationships.

23. Can you have a table in the model which does not have any relationship with other tables?

Yes. There are two main reasons why you can have disconnected tables:

- **The table is used to present the user with parameter values to be exposed and selected in slicers**
- **It uses the table as a placeholder for metrics in the user interface**

24. What is the CALCULATE function in DAX?

The CALCULATE function evaluates the sum of the Sales table Sales Amount column in a modified filter context. It is also the only function that allows users to modify the filter context of measures or tables.

Moving ahead, you will step up to the following Power BI Interview Questions from the Intermediate Level.

Power BI Interview Questions For Intermediate Level

25. Where is data stored in Power BI?

Most of the time, power BI gets assisted by the cloud to store the data. Power BI can use a desktop service. Microsoft Azure is used as the primary cloud service to store the data.

1. **Azure SQL Database**
2. **Azure Blob Storage**

26. What is row-level security?

Row-level security limits the data a user can view and has access to, and it relies on filters. Users can define the rules and roles in Power BI Desktop and also publish them to Power BI Service to configure row-level security.

27. Why should you apply general formatting to Power BI data?

Users can use general formatting to make it easier for Power BI to categorize and identify data, making it considerably easier to work with.

28. What are the different views available in Power BI Desktop?

There are three different views in Power BI, each of which serves another purpose:

Report View - In this view, users can add visualizations and additional report pages and publish the same on the portal.

Data View - In this view, data shaping can be performed using Query Editor tools.

Model View - In this view, users can manage relationships between complex datasets.

. What are the various versions of Power BI?

- **Power BI Desktop**
- **Power BI service**
- **Mobile Power BI apps for iOS and Android devices**

30. Explain the building blocks of Microsoft Power BI.

The important building blocks of Power BI are as follows:

Visualizations

Visualization is the process of generating charts and graphs for the representation of insights on business data.

Datasets

A dataset is the collection of data used to create a visualization, such as a column of sales figures. Dataset can get combined and filtered from a variety of sources via built-in data plugins.

Reports

The final stage is the report stage. Here, there is a group of visualizations on one or more pages. For example, charts and maps are combined to make a final report.

Dashboards

A Power BI dashboard helps you to share a single visualization with colleagues and clients to view your final dashboard.

Tiles

A tile is an individual visualization on your final dashboard or one of your charts in your final report.

31. What are the critical components of the Power BI toolkit?

The critical components of Power BI are mentioned below.

- **Power Query**
- **Power Pivot**
- **Power View**
- **Power Map**
- **Power Q&A**

32. What do you mean by the content pack?

A content pack is defined as a ready-made collection of visualizations and Power BI reports using your chosen service. You'd use a content pack when you want to get up and running quickly instead of creating a report from scratch.

33. Define bi-directional cross filtering.

Bidirectional cross-filtering lets data modelers to decide how they want their Power BI Desktop filters to flow for data, using the relationships between tables. The filter context is transmitted to a second related table that exists on the other side of any given table relationship. This procedure helps data modelers solve the many-to-many issue without having to complicated DAX formulas. So, to sum it up, bidirectional cross-filtering makes the job for data modelers easier.

34. What are the three fundamental concepts of DAX?

Syntax

This is how the formula is written—that is, the elements that comprise it. The Syntax includes functions such as SUM (used when you want to add figures). If the Syntax isn't correct, you'll get an error message.

Functions

These are formulas that use specific values (also known as arguments) in a particular order to perform a calculation, similar to the functions in Excel. The categories of functions are date/time, time intelligence, information, logical, mathematical, statistical, text, parent/child, and others.

Context

There are two types: row context and filter context. Row context comes into play whenever a formula has a function that applies filters to identify a single row in a table. When one or more filters are applied in a calculation that determines a result or value, the filter context comes into play.

35. Why and how would you use a custom visual file?

You will use a custom visual file if the prepackaged files don't fit the needs of your business. Developers create custom visual files, and you can import them and use them in the same way as you would the prepackaged files.

36. What are some familiar sources for data in the Get Data menu in Power BI?

A few familiar data sources are Excel, Power BI datasets, web, text, SQL server, and analysis services.

37. What are the categories of data types?

- **All**
- **File**
- **Database**
- **Power BI**
- **Azure**
- **Online Services**
- **Other**

38. Name some commonly used tasks in the Query Editor.

- **Connect to data**
- **Shape and combine data**
- **Group rows**
- **Pivot columns**
- **Create custom columns**
- **Query formulas**

39. What do you mean by grouping?

Power BI Desktop helps you to group the data in your visuals into chunks. You can, however, define your groups and bins. For grouping, use Ctrl + click to select multiple elements in the visual. Right-click one of those elements and, from the menu that appears, choose Group. In the Groups window, you can create new groups or modify existing ones.

40. Explain responsive slicers in Power BI.

On a Power BI final report page, a developer can resize a responsive slicer to various sizes and shapes, and the data collected in the container will be rearranged to find a match. If a visual report becomes too small to be useful, an icon representing the visual takes its place, saving space on the report page.

41. What is query folding in Power BI?

Query folding is used when steps defined in the Query Editor are translated into SQL and executed by the source database instead of your device. It helps with scalability and efficient processing.

42. What is "M language."

M is a programming language used in Power Query as a functional, case-sensitive language similar to other programming languages and easy to use.