Power BI

1. What is SSRS?

SSRS stands for SQL Server Reporting Services. It is a Microsoft tool used for creating and publishing reports from a variety of data sources.

2. IS SSRS an alternative for Tableau?

SSRS and Tableau are both tools used for reporting and data visualization, but they have different strengths and limitations. SSRS is more suited for traditional, tabular reports and is tightly integrated with SQL Server, while Tableau is known for its interactive and intuitive visualizations and can connect to a wide range of data sources.

3. Where is Data Stored in Power BI?

Data in Power BI can be stored in multiple places, depending on how it is loaded into the platform. It can be stored in the Power BI Service cloud, in an external data source, or in a data model within Power BI.

Power BI uses Azure Active Directory (AAD) to store and manage user identities, and manages the storage of data and metadata using Azure BLOB and Azure SQL Database, respectively.

4. Is there any limitation of data?

There are limitations to the amount of data that can be loaded and processed in Power BI, depending on the licensing level and hardware resources available.

5. Is there any performance Impact if you switched to direct query?

Switching to direct query can impact performance, as it can require more processing power and may result in slower query response times.

Here are the differences between using Import and DirectQuery connectivity modes:

- Import: A copy of the data from the selected tables and columns imports into Power BI Desktop. As you create or interact with visualizations, Power BI Desktop uses the imported data. To see underlying data changes after the initial import or the most recent refresh, you must import the full dataset again to refresh the data.
- DirectQuery: No data imports into Power BI Desktop. For relational sources, you can select tables and columns to appear in the Power BI Desktop Fields list. For multidimensional sources like SAP Business Warehouse (SAP BW), the dimensions and measures of the selected cube appear in the Fields list. As you create or interact with visualizations, Power BI Desktop queries the underlying data source, so you're always viewing current data.

6. Is there any way to improve performance in direct queries?

To improve performance in direct queries, users can optimize their data source, limit the amount of data being queried, and ensure that their query is properly indexed.
Yes, there are several ways to improve performance in direct queries in Power BI. Here are some suggestions:

1. Optimize the data source: The performance of direct queries depends on the performance of the data source. So, make sure to optimize the data source, including indexing, partitioning, and other performance tuning techniques.
2. Use selective filtering: Use selective filtering to reduce the amount of data returned by the query. This can be achieved by applying filters to the columns and rows in the query.
3. Use aggregations: Aggregations can help to reduce the amount of data returned by the query, by precomputing aggregations at the data source. This can be particularly helpful for large datasets.
4. Avoid complex queries: Avoid using complex queries, as they can slow down the performance of the report. Use simple queries whenever possible.
5. Use parameterization: Use parameterization to improve query performance. This involves using parameters in the query to avoid hard-coding values, which can improve query reuse and caching.
6. Use query tracing: Use query tracing to analyze the performance of the query and identify bottlenecks. Query tracing allows you to see the details of the query execution, including query plans and query statistics.

By implementing these techniques, you can significantly improve the performance of

direct queries in Power BI, resulting in faster and more responsive reports.

7. Can we Aggregate the data to improve the data?

Aggregating data can improve performance by reducing the amount of data being processed and making it easier to analyze.

Yes, aggregating the data can help improve performance in Power BI by reducing the

amount of data that needs to be processed and returned by the query.

Aggregating the data involves summarizing or grouping the data at a higher level of

granularity, such as by month or year, rather than returning every single row of data. This

can significantly reduce the amount of data that needs to be processed, leading to faster

query response times and improved report performance.

In Power BI, you can use the "Group By" and "Summarize" functions in the query editor to aggregate your data. Additionally, you can use the "Matrix" or "Table" visualizations to display aggregated data in your report.

However, it's important to note that aggregating the data may result in a loss of detail or granularity, which may not be suitable for all reports or analyses. It's important to consider the requirements of your report and the level of detail needed before deciding to aggregate the data.

8. What is Join & Merge? Difference between the two:

In Power BI, both join and merge operations are used to combine data from two or more tables. However, there are some key differences between them:

1. Join: A join operation in Power BI combines data from two or more tables based on a common column or key. The result of a join is a new table that includes columns from all the tables that were joined. The columns from each table are combined horizontally, and the rows are combined vertically based on the matching values in the join columns.

2. Merge: A merge operation in Power BI combines data from two or more tables based on a common column or key, similar to a join operation. However, the result of a merge is a new table that includes all the columns from both tables, and the matching rows are combined into a single row. In other words, the columns from each table are not combined horizontally, but rather each row from one table is matched with each row from the other table based on the matching values in the merge column.

In summary, the main difference between join and merge operations in Power BI is that a join combines data horizontally by adding columns from one table to another, while a merge combines data vertically by adding rows from one table to another. The choice between using a join or a merge operation will depend on the specific data requirements and analysis needs of the report or dashboard.

9. Is there any prerequisite for appending rows?
There may be prerequisites for appending rows, such as ensuring that the data types and column names match between the tables being appended.
Yes, there are some prerequisites for appending rows in Power BI. They include:

1. The tables being appended must have the same structure or schema, i.e., they should have the same number of columns with matching data types.
2. The column names should match between the tables being appended. If they do not match, Power BI will prompt you to map the columns to ensure they align correctly.
3. The data types of the columns being appended must be compatible. For example, if one table has a column with the data type of "text" and the other table has the same column with the data type of "numeric", you will need to transform one of the columns to make them compatible before appending the tables.
4. The tables being appended should not have duplicate rows. If there are duplicates, you can remove them using the Remove Duplicates transformation before appending the tables.

By ensuring that these prerequisites are met, you can append rows from multiple tables into a single table in Power BI.

10.If you have a table of 3 columns and another table of 8 columns. Can you append both of them?

Yes, you can append tables with different numbers of columns, but you will need to ensure that the columns match in terms of data type and name.

11.What are the different types of joins?

There are several types of joins, including inner join, left join, right join, and full outer join.(There are four types of joins commonly used in Power BI and SQL databases:

1. Inner Join: This type of join returns only the matching rows from both tables. It excludes non-matching rows from the results.

2. Left Join: This type of join returns all the rows from the left table and the matching rows from the right table. If there are non-matching rows in the right table, the result will contain NULL values for those rows.

3. Right Join: This type of join returns all the rows from the right table and the matching rows from the left table. If there are non-matching rows in the left table, the result will contain NULL values for those rows.

4. Full Outer Join: This type of join returns all the rows from both tables, including the matching rows and the non-matching rows. If there are non-matching rows in either table, the result will contain NULL values for those rows.

The type of join to use depends on the data and the query you are trying to create. Inner join is typically used when you only want to return matching records from both tables, while left join and right join are used when you want to include all the records from one

table and only matching records from the other table. Full outer join is used when you want to return all records from both tables, including non-matching records.

12.. Do you know about Self join?

A self join is a type of join where a table is joined to itself based on a common column or key.

This is done by creating two or more aliases (copies) of the same table within a single SQL statement, and then joining these aliases based on a common key or condition. Self joins are often used to compare rows within the same table or to find hierarchical relationships within a table. For example, if we have a table that stores information about employees, including their manager's ID, we can use a self join to create a list of all employees and their managers.

13.What is T-SQL Merge?

1. T-SQL Merge is a SQL operation used to combine two or more tables based on a set of matching criteria, similar to the Merge operation in Power BI.
   MERGE is a T-SQL statement that combines insert, update, and delete operations into a single operation on a target table based on a specified join condition with a source table. It provides a powerful way to synchronize data between two tables and can simplify ETL (Extract, Transform, Load) processes.
   The MERGE statement takes two tables as input: the target table (where the data is being merged into) and the source table (where the data is coming from). It then compares the data in the two tables based on the join condition, and performs the appropriate action (insert, update, or delete) based on whether the data matches or not.

14.. What is a View?

A view is a virtual table that is based on the result of a SQL query, and can be used for reporting or analysis purposes.

In Power BI, a view is a virtual table that is created by combining data from one or more tables in a database. It is a saved query that you can treat as if it were a table. Views can be used to simplify complex queries or to hide sensitive data from certain users.

In Power BI, you can create a view in a database and then connect to that database as a data source in your report. From there, you can select the view and use it as a source for your visualizations. When you use a view as a source, you can filter, group, and aggregate the data just like you would with a regular table.

Views are useful in Power BI because they allow you to separate the data modeling and visualization components of your report. By creating views in your database, you can simplify the query logic that is required to retrieve the data you need. This can help to improve the performance of your report and make it easier to maintain over time.

15.If you update a View, will it affect the table?

Updating a view will affect the underlying data in the table, depending on the type of update being performed.

In Power BI, updating a view does not directly affect the underlying table(s) in the database. When you update a view, you are only changing the way the data is presented or manipulated within Power BI, not the data itself.

For example, if you create a view that selects a subset of columns from a table and applies a filter, and then use that view as the source for a visualization in Power BI, any changes you make to the view will only affect the data displayed in that visualization. The underlying table in the database will remain unchanged.

However, it's important to note that views can have a performance impact on the database. Views execute the underlying queries every time they are accessed, so if the underlying table(s) are large or complex, creating or modifying views can impact the overall performance of the database.

16. Can we update a view?

Yes, you can update a view, but it may be more complex than updating a table directly.

17. Syntax for update table?

The syntax for updating a table in SQL is:

```
UPDATE table_name
SET column1 = value1, column2 = value2, ...
WHERE condition;
```

18. What is Trigger?

A trigger is a special type of stored procedure in SQL that is automatically executed in response to certain events or changes in the database.

In Power BI, a trigger is a feature that enables you to run certain actions or events based on a specific set of conditions or criteria. Triggers can be used to automate certain tasks or to respond to changes in data or other events.

For example, you can set up a trigger that refreshes your Power BI report automatically whenever new data is added to your data source. Or you can set up a trigger that sends an email or a notification to specific users when certain conditions are met, such as when a sales target is reached or exceeded.

Triggers can be set up using Power Automate (formerly known as Microsoft Flow), which is a cloud-based service that allows you to create automated workflows across multiple applications and services, including Power BI. With Power Automate, you can create custom triggers and actions that can be triggered by a variety of events, such as new data being added to a data source, a certain time of day being reached, or a user taking a specific action.

19. Deployment Pipelines?

Deployment pipelines are a set of automated processes used for deploying software updates, including Power BI reports and dashboards.

Deployment pipelines are a way to automate the deployment of Power BI content, such as reports, dashboards, and datasets, across different environments. This helps to

streamline the deployment process and ensure that your content is consistent and up-to-date across all environments.

A deployment pipeline typically consists of multiple stages, such as development, testing, staging, and production. Each stage represents a different environment, with its own set of rules, configurations, and security settings.

Using deployment pipelines in Power BI, you can automate the process of deploying content from one stage to another, ensuring that all necessary changes are made and that the content is fully tested and validated before being released to production. This helps to reduce the risk of errors or issues during the deployment process and ensures that your content is consistent and reliable across all environments.

To set up a deployment pipeline in Power BI, you can use tools such as Azure DevOps or other third-party tools that integrate with Power BI. These tools allow you to create custom workflows and processes for deploying your content, including testing, validation, and approval processes, as well as automated notifications and alerts.

20. Can you briefly tell me the process of creating a Report?

The process of creating a report in Power BI typically involves connecting to a data source, selecting relevant data, creating visuals and tables, and then designing and formatting the report to meet specific requirements.

here is a brief overview of the process of creating a report in Power BI:

1. <u>Connect to data sources</u>: Start by connecting to your data sources, such as Excel files, SQL databases, or cloud-based services like Salesforce or Google Analytics. Power BI supports a wide range of data sources.

2. <u>Transform and clean data</u>: Once you have connected to your data sources, you may need to transform or clean the data to make it suitable for analysis. Power BI has a powerful set of data transformation and cleansing tools that allow you to shape and refine your data.

3. <u>Create a data model</u>: With your data transformed and cleaned, you can create a data model that will be the foundation of your report. A data model is a set of relationships between tables that enables you to create meaningful visualizations.

4. <u>Design your report</u>: Now it's time to design your report. Power BI offers a wide range of visualization types, including charts, tables, matrices, and more. You can customize each visualization to match your requirements, including formatting, colors, and labels.

5. <u>Add interactions</u>: Interactions allow you to create a more immersive and interactive experience for your users. You can add interactions between different visualizations to enable cross-filtering and highlighting.

6. <u>Publish your report</u>: Once you have designed your report, you can publish it to the Power BI service. This enables you to share your report with others, collaborate on it, and embed it into other applications.

7. <u>Refresh your data</u>: Finally, you may need to schedule your report to refresh the data automatically. This ensures that your report always shows the latest data from your data sources.

21. What are Content Packs?

Content packs are pre-built templates or packages of reports, dashboards, and datasets that can be used as starting points for building customized reports.

Content packs are a pre-built set of dashboards, reports, and datasets in Power BI that provide specific insights and analytics for a particular type of data or industry. They are designed to help users get started quickly with Power BI by providing pre-built templates that they can customize and use for their own data.

Content packs can be created by anyone with a Power BI Pro or Power BI Premium subscription and can be shared with other users in the organization or made public for anyone to use. They are typically used to share best practices, common data models, and insights across teams and organizations. Once a content pack is installed, users can modify it to suit their needs, and the changes made will be saved to a separate report that is only visible to the user who made the changes.

22. What is the difference between content packs and publish to the app?

Content packs are typically designed for a specific audience or purpose, while publishing to an app is a way to share customized reports and dashboards with a wider audience.

Content Packs and Publish to the Web are two different features in Power BI.

Content Packs are a way to package up a set of dashboards, reports, and datasets in Power BI and share them with others in your organization. When you create a content pack, you define the content that will be shared and specify which users or groups in your organization will have access to it. Content Packs are managed and shared within your organization's Power BI environment.

On the other hand, Publish to the Web is a feature that allows you to share a Power BI report or visualization with anyone on the internet. When you publish a report to the web, a unique URL is created that can be shared with others who can then view the report in their web browser. However, it's important to note that when you publish a report to the web, you are essentially making it public and anyone with the URL can view the report, so you should be careful about the data that you include in the report.

In summary, Content Packs are for sharing within your organization's Power BI environment, while Publish to the Web is for sharing with anyone on the internet.

23. What is the programming language used in Power BI?

The programming language used in Power BI is a combination of SQL, M, and DAX. Power BI supports two main languages for creating custom calculations and data transformations:

1. DAX (Data Analysis Expressions): A formula language that is used to define custom calculations and aggregations in Power BI. It is similar to Excel formulas but includes additional functions for working with tables, columns, and relationships.

2. M: A functional programming language that is used to define data transformations in Power Query Editor. It is used to import, clean, and transform data from various sources before it is loaded into Power BI.

In addition to these two languages, <u>Power BI</u> also supports <u>R</u> and <u>Python</u> for advanced analytics and custom visualizations.

24. What M Functions have you used?

Some examples of M functions used in Power BI include Table.AddColumn, Table.Group, and Table.TransformColumns.

As an AI language model, I have not used any M functions directly. However, M is the formula language used in Power Query, which is used to transform and shape data in Power BI. Some commonly used M functions include:

1. <u>Table.SelectRows</u>: selects a subset of rows from a table based on a condition
2. <u>Table.AddColumn</u>: adds a new column to a table based on a formula
3. <u>Table.TransformColumnTypes</u>: changes the data type of a column in a table
4. <u>Table.Group</u>: groups rows in a table based on one or more columns
5. <u>List.Sum</u>: returns the sum of all values in a list
6. <u>Text.StartsWith</u>: returns true if a text value starts with a specific string
7. <u>Date.AddDays</u>: adds a specified number of days to a date value
8. <u>DateTime.LocalNow</u>: returns the current date and time in the local time zone
9. <u>Binary.Buffer</u>: loads binary data into memory to improve performance
10. <u>Json.Document</u>: converts a JSON string to a table.

These functions can be combined to create complex data transformation workflows in Power BI.

25. Do you know DAX?

Yes, DAX stands for Data Analysis Expressions and is a formula language used in Power BI, Excel, and SQL Server Analysis Services (SSAS) for creating custom calculations on data. DAX functions are used to create measures and calculated columns in Power BI to perform calculations on data based on various conditions and criteria. It includes a wide range of functions for statistical, mathematical, and aggregation calculations.

26. Can you create a dynamic column using Dax?

Yes, it is possible to create a dynamic column using DAX in Power BI. A dynamic columnrefers to a calculated column that changes its values based on a specific condition. For example, we can create a column that calculates the total sales for each product based on the current year, and this column will change every year as new data is added.

Here's an example of how to create a dynamic column using DAX:

Suppose we have a sales table with columns like Product, Sales Amount, and Date. We want to create a dynamic column that calculates the total sales for each product based on the current year. We can do this using the following steps:

1. Go to the "Modeling" tab in Power BI and select "New Column" from the "Calculations" group.
2. Enter a name for the new column, for example, "Sales Current Year".
3. Use the DAX function FILTER to filter the sales table based on the current year. We can do this by comparing the year of each sales transaction to the current year using the YEAR and TODAY functions. The DAX formula would look like this:
   FILTER('Sales', YEAR('Sales'[Date]) = YEAR(TODAY()))
4. Next, we use the SUMX function to sum the sales amount for each product in the filtered sales table. The DAX formula would look like this:
   SUMX(FILTER('Sales', YEAR('Sales'[Date]) = YEAR(TODAY())), 'Sales'[Sales Amount])
5. Click "OK" to create the new column.

Now, we have a dynamic column that calculates the total sales for each product based on the current year. This column will change every year as new data is added.