

**Q1. Explain the advantages of Natural Queries in PowerBI with an example?**

Natural Language Queries in Power BI is a feature that allows users to interact with their data and create visualizations using everyday language. Instead of writing complex queries or using specific Power BI terms, users can simply type or speak natural language questions to retrieve the desired insights from their data. This feature makes data exploration more accessible and user-friendly, enabling even non-technical users to interact with data and generate meaningful visualizations easily.

**Q2. Explain Web Front End(WFE) cluster from Power BI Service Architecture?**

In the Power BI Service architecture, the Web Front End (WFE) cluster plays a crucial role in delivering the web-based user interface for interacting with Power BI reports, dashboards, and datasets. The WFE cluster serves as the entry point for users accessing the Power BI Service through their web browsers.

It's important to note that the Web Front End (WFE) cluster is just one part of the overall Power BI Service architecture. It works in conjunction with other components, such as the Power BI Backend Services, Azure Datacenters, and Data Storage, to provide a seamless and robust data analytics and reporting experience to users.

**Q3. Explain Back End cluster from Power BI Service Architecture.**

In the Power BI Service architecture, the Back End cluster is a crucial component responsible for handling data processing, data storage, and data management tasks. It works in conjunction with the Web Front End (WFE) cluster to deliver a comprehensive and scalable data analytics platform to Power BI users.

**Q4. What ASP.NET component does in Power BI Service Architecture?**

In the Power BI Service architecture, the ASP.NET component plays a vital role in handling web server functionality for the Web Front End (WFE) cluster. ASP.NET is a web development framework developed by Microsoft that enables the creation of dynamic and interactive web applications. Within the Power BI Service, ASP.NET is used to build the web-based user interface and facilitate user interactions with reports, dashboards, and other Power BI content.

Key roles and functionalities of ASP.NET in the Power BI Service Architecture include:

**Web Page Generation:** ASP.NET is responsible for dynamically generating web pages in response to user requests. When a user accesses the Power BI Service through their web browser, ASP.NET processes the request and generates the appropriate web pages containing Power BI content.

**Rendering and Visualization:** ASP.NET handles the rendering of Power BI reports, dashboards, and visualizations, ensuring that the content is displayed correctly and in an interactive manner on the user's web browser.

**User Authentication and Authorization:** ASP.NET manages user authentication and authorization processes, ensuring that users can only access content they are authorized to view based on their assigned permissions.

**Handling User Interactions:** ASP.NET processes user interactions with Power BI content, such as filtering data, selecting data points on charts, and interacting with slicers and other interactive elements.

Data Visualization APIs: ASP.NET provides APIs (Application Programming Interfaces) that allow developers to integrate Power BI visualizations into custom web applications or embed Power BI reports and dashboards into other web pages.

URL Routing: ASP.NET handles URL routing, ensuring that user requests for specific Power BI content are correctly mapped to the appropriate resources and actions within the Power BI Service.

Session Management: ASP.NET manages user sessions, allowing users to maintain their state and continue interacting with the Power BI Service seamlessly as they navigate between pages and reports.

Error Handling and Logging: ASP.NET is responsible for handling errors and exceptions that may occur during user interactions or backend processing. It also logs events and errors for monitoring and debugging purposes.

#### **Q5. Compare Microsoft Excel and PowerBI Desktop on the following features:**

Let's compare Microsoft Excel and Power BI Desktop on the following features:

Data Import:

- Microsoft Excel: Excel allows data import from various sources like CSV, text files, databases, and online services. It provides Data Connection Wizard and Power Query for importing data.
- Power BI Desktop: Power BI Desktop also supports importing data from a wide range of sources, including Excel files, databases, cloud services, and web-based APIs. Power Query Editor is used for data import and transformation.

Data Transformation:

- Microsoft Excel: Excel offers basic data transformation capabilities using formulas, pivot tables, and filters. Advanced data transformation often requires manual work and multiple steps.
- Power BI Desktop: Power BI Desktop provides robust data transformation capabilities using Power Query Editor. It allows users to perform complex data shaping, cleaning, and merging tasks in a more user-friendly and intuitive way.

Modeling:

- Microsoft Excel: Excel provides basic data modeling features, including creating relationships between tables and building PivotTables and PivotCharts. However, it may not be as powerful as Power BI for large datasets.
- Power BI Desktop: Power BI Desktop excels in data modeling with support for creating relationships, measures, calculated columns, and DAX (Data Analysis Expressions) for advanced calculations. It is designed for handling large datasets efficiently.

Reporting:

- Microsoft Excel: Excel offers traditional spreadsheet-based reporting with the ability to create charts, tables, and dashboards. It is suitable for static reporting.

- Power BI Desktop: Power BI Desktop is designed for interactive and dynamic reporting. It provides a wide range of visualizations, custom visuals, and interactive features for creating compelling and interactive reports and dashboards.

#### Server Deployment:

- Microsoft Excel: Excel files are typically shared via email or shared drives. Collaborative features are limited, and real-time data sharing is more challenging.
- Power BI Desktop: Power BI Desktop reports can be published to the Power BI Service, allowing for easy sharing and collaboration. Reports can be accessed by authorized users from any device.

#### Convert Models:

- Microsoft Excel: Excel models are generally not directly convertible to Power BI models. Data and models need to be restructured to fit the Power BI data model.
- Power BI Desktop: Power BI Desktop models can be published to the Power BI Service, where they become part of the Power BI data model. Power BI models are optimized for interactive reporting and data exploration.

#### Cost:

- Microsoft Excel: Excel is part of the Microsoft Office suite and may already be available to users within their Office 365 subscription or as a standalone purchase.
- Power BI Desktop: Power BI Desktop is a free standalone tool that can be downloaded and used without additional cost. However, using Power BI Service for sharing and collaboration may require a paid Power BI Pro or Premium subscription.

### **Q6. List 20 data sources supported by Power Bi desktop.**

Excel workbook (.xlsx)  
 CSV (Comma-separated values) files  
 Text files (CSV, TXT, etc.)  
 SQL Server Database  
 SQL Server Analysis Services (SSAS) Database  
 Azure SQL Database  
 Azure Data Lake Storage Gen1 and Gen2  
 SharePoint List  
 Web data sources (HTML, XML, JSON, etc.)  
 Web APIs (REST API, OData feeds, etc.)  
 Google Analytics  
 Dynamics 365 (CRM) Online and On-Premises  
 Salesforce  
 SharePoint Online and On-Premises  
 Azure Data Warehouse

MySQL

PostgreSQL

Oracle Database

IBM DB2 Database

Hadoop (HDFS) data sources