**Power BI Assignment 2**

1. **Explain the advantages of Natural Queries in PowerBi with an example?**

Natural language queries in Power BI offer the advantage of making data analysis and reporting more accessible to non-technical users. Instead of writing complex SQL or learning query languages, users can simply ask questions in plain language, and Power BI translates these into data queries. For example, a user can ask, "What were our sales in Q3 2022?" without needing to understand the database structure. Power BI retrieves and displays the relevant data, enabling users to quickly access insights. This intuitive approach enhances user engagement and reduces the learning curve, making data-driven decision-making more inclusive across an organization.

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

In Power BI Service Architecture, the Web Front End (WFE) cluster is a crucial component responsible for handling user interactions and requests. It serves as the gateway for users accessing Power BI reports and dashboards through web browsers or mobile apps. The WFE cluster manages tasks like authentication, authorization, and load balancing to ensure a smooth and secure user experience. It distributes requests to other components like the backend data engine for report rendering and dataset retrieval. This architecture ensures scalability, high availability, and efficient performance, allowing multiple users to access and interact with Power BI content seamlessly while maintaining security and reliability.

1. **Explain Back End cluster from Power BI Service Architecture?**

In the Power BI Service Architecture, the Back End cluster is a critical component responsible for managing and processing the underlying data and datasets. It handles tasks like data refresh, storage, and data model optimization. The Back End cluster is in charge of maintaining and updating the datasets, ensuring data accuracy and freshness. It also provides the necessary resources for report rendering and query processing, enabling users to access up-to-date information in their reports and dashboards. This cluster plays a vital role in ensuring the reliability and performance of the Power BI Service by efficiently managing the data infrastructure that supports the user-facing features and content.

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

In the Power BI Service Architecture, ASP.NET plays a significant role as the underlying web framework. It's responsible for handling web-related tasks and user interactions. ASP.NET manages user authentication, authorization, and session management, ensuring secure access to Power BI content. It also helps in rendering the Power BI web portal and provides the framework for building custom applications and integrations. This component allows for the creation of custom visuals, extensions, and customizations within Power BI. ASP.NET facilitates the web-based interface and user experience, making it a fundamental part of the Power BI Service's architecture, ensuring a robust and interactive user environment.

1. **Compare Microsoft Excel and PowerBi Desktop on the following features:**

**Data import**

**Data transformation**

**Modeling**

**Reporting**

**Server Deployment**

**Convert Models**

**Cost**

* Data Import: Excel offers data import from various sources, but Power BI Desktop is specialized for robust data connectivity, supporting a broader range of data sources and providing better integration with databases.
* Data Transformation: Power BI Desktop provides more advanced data transformation capabilities, with features like Power Query, making it easier to clean and shape data compared to Excel.
* Modeling: Power BI Desktop excels in data modeling, allowing for the creation of complex relationships, hierarchies, and DAX calculations, which can be challenging in Excel.
* Reporting: Power BI Desktop is designed for interactive and visually appealing reports, while Excel is more tabular and static in its reporting capabilities.
* Server Deployment: Power BI allows for seamless server deployment and collaboration, which is not a native feature in Excel.
* Convert Models: Power BI models can be imported into Excel, providing a pathway to utilize Power BI models within Excel for further analysis.
* Cost: Excel is typically a one-time purchase or part of Microsoft 365 subscription, while Power BI Desktop is free, but Power BI Pro or Premium licenses are needed for server deployment and sharing.

1. **List 20 data sources supported by Power Bi desktop.**

* Microsoft Excel
* CSV files
* SQL Server
* Azure SQL Database
* Azure Data Lake Storage
* SharePoint
* Oracle Database
* MySQL
* PostgreSQL
* IBM Db2
* Web data (HTML, JSON)
* Hadoop HDFS
* Salesforce
* Google Analytics
* SharePoint Online
* Dynamics 365
* SAP HANA
* OData feed
* Web services via API
* PDF files (with Power Query)