**Power BI Assignment 2**

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

Ans- Natural language query (NLQ) is a capability in BI software solutions that allows people to ask questions of data within their analytics platform, using everyday language as they would to another person, to find information they need to make business decisions.

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

Ans- The WFE cluster manages the initial connection and authentication process for Power BI, using AAD to authenticate clients and provide tokens for subsequent client connections to the Power BI service

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

Ans- The Back-End cluster manages visualizations, user dashboards, datasets, reports, data storage, data connections, data refresh, and other aspects of interacting with the Power BI service. The Gateway Role acts as a gateway between user requests and the Power BI service

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

Ans- In the Power BI Service architecture, ASP.NET components are used to build the web-based user interface and handle web requests. This includes rendering Power BI reports and dashboards, managing user interactions, and providing a web interface for users to access and work with their business intelligence content.

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

1. **Data Import**:
   * **Excel**: Excel allows you to import data from various sources, including files, databases, and web services. It provides a wide range of connectors. Data import in Excel is typically worksheet-based.
   * **Power BI Desktop**: Power BI Desktop also offers extensive data import capabilities with a focus on structured data. It includes Power Query for data transformation and supports connectors to various data sources.
2. **Data Transformation**:
   * **Excel**: Excel includes Power Query for data transformation and cleansing, enabling users to perform data shaping, merging, and cleaning.
   * **Power BI Desktop**: Power BI Desktop has a dedicated Power Query Editor, providing more advanced data transformation capabilities. It is designed for ETL (Extract, Transform, Load) tasks and data modeling.
3. **Modeling**:
   * **Excel**: Excel supports data modelling using PivotTables, PivotCharts, and Power Pivot, which enables users to create relationships between tables and use DAX (Data Analysis Expressions) for calculations.
   * **Power BI Desktop**: Power BI Desktop is specialized in data modeling, allowing users to create complex data models with relationships, measures, and calculations. It's designed for business intelligence data modeling.
4. **Reporting**:
   * **Excel**: Excel is primarily a spreadsheet application but can be used for creating basic reports and charts. Reporting in Excel is often static.
   * **Power BI Desktop**: Power BI Desktop is designed for creating interactive and dynamic reports and dashboards. It offers a wide range of customizable visualizations and interactive features.
5. **Server Deployment**:
   * **Excel**: Excel workbooks can be shared and stored on network drives or cloud storage services, but collaboration and version control can be challenging.
   * **Power BI Desktop**: Power BI reports and dashboards can be published to the Power BI Service, where they can be easily shared, accessed, and collaborated on by multiple users.
6. **Convert Models**:
   * **Excel**: Excel workbooks can be converted into Power BI Desktop files (.pbix) for more advanced data modeling and visualization.
   * **Power BI Desktop**: Power BI models can be imported into Power BI Premium or Power BI Report Server for on-premises deployment.
7. **Cost**:
   * **Excel**: Excel is part of the Microsoft Office suite and may require a one-time purchase or subscription. There are no additional costs for data import or modeling features.
   * **Power BI Desktop**: Power BI Desktop is a free tool for creating reports and dashboards. However, costs may be associated with the Power BI Service or Power BI Premium for sharing and publishing reports.

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

1. Excel Workbook: Import data from Excel files.
2. CSV Files: Load data from Comma-Separated Values (CSV) files.
3. SQL Server Database: Connect to on-premises or cloud-based SQL Server databases.
4. Azure SQL Database: Import data from Microsoft Azure SQL Database.
5. SQL Server Analysis Services (SSAS): Connect to SSAS models for multidimensional and tabular data.
6. MySQL: Import data from MySQL databases.
7. PostgreSQL: Connect to PostgreSQL databases.
8. Oracle Database: Import data from Oracle databases.
9. Web Data: Retrieve data from web services and APIs using web connectors.
10. SharePoint Online: Access data from SharePoint Online lists and libraries.
11. Azure Data Lake Storage: Import data from Azure Data Lake Storage Gen1 and Gen2.
12. Azure Blob Storage: Load data from Azure Blob Storage.
13. Hadoop HDFS: Connect to Hadoop Distributed File System (HDFS) for big data.
14. Salesforce: Import data from Salesforce CRM.
15. Dynamics 365: Access data from Microsoft Dynamics 365 applications.
16. Google Analytics: Connect to Google Analytics for website analytics data.
17. Facebook: Retrieve data from Facebook for social media analytics.
18. Exchange Online: Access data from Microsoft Exchange Online for email analytics.
19. JSON: Import data from JSON (JavaScript Object Notation) files and APIs.
20. Web Content: Extract data from HTML web pages using web scraping connectors