Power BI Assignment 2

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

   Advantages of Natural Language Queries in Power BI:

   - Ease of Use: NLQ is designed to be easy to use and provides a simple and intuitive way to explore data without requiring any technical expertise. Users can ask questions in natural language and get immediate responses in the form of data visualizations.
   - Faster Insights: NLQ allows users to get insights quickly by asking questions in natural language instead of spending time building complex queries or reports.
   - Improved Data Exploration: NLQ allows users to explore data in a more natural way by asking questions and refining their queries based on the responses they receive.
   - Increased Collaboration: NLQ enables non-technical users to collaborate with technical users by allowing them to ask questions and get insights without requiring any technical expertise.

Example:

Suppose we have a sales dashboard in Power BI that shows the total revenue by product category, and we want to know the revenue generated by a specific product category. Instead of filtering the data or creating a new report, we can simply ask a natural language query such as "What is the revenue generated by the Electronics category?" Power BI will generate a data visualization that shows the revenue generated by the Electronics category.

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

In the Power BI Service Architecture, the Web Front End (WFE) cluster is a group of servers that handle the user interface and user interactions with the Power BI service. The WFE cluster is responsible for rendering dashboards and reports, and providing the user interface for interacting with the service.The WFE cluster is designed to handle a large number of requests from users and is typically configured as a load-balanced cluster to distribute the incoming traffic across multiple servers. The load balancing ensures that the requests are evenly distributed across the servers, which helps to improve the overall performance and availability of the service.The WFE cluster is also responsible for handling user authentication and authorization, and for managing the user sessions. When a user logs into the Power BI service, the WFE cluster creates a session for that user, which is used to track their activities and provide a personalized experience.

3. Explain Back End cluster from Power BI Service Architecture?

In the Power BI Service Architecture, the Back End cluster is a group of   servers that handle the data processing and management tasks of the   Power BI service. The Back End cluster is responsible for processing data queries, managing metadata, and performing other data-related tasks.

The Back End cluster consists of several different components, including the following:

- Data Engine: The Data Engine is responsible for processing queries and calculations on the data in the Power BI service. It includes features such as in-memory processing and columnar storage to improve query performance.

- Metadata Service: The Metadata Service manages the metadata for the data stored in the Power BI service, including information about data sources, tables, and columns.
- Security Service: The Security Service manages the authentication and authorization of users and controls access to data in the Power BI service.
- Gateway Service: The Gateway Service provides secure communication between the Back End cluster and external data sources, such as on-premises databases or cloud-based data services.
- Storage Service: The Storage Service provides the storage infrastructure for the data in the Power BI service, including features such as data compression and partitioning to improve performance.

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

   ASP.NET is a web development framework used in the Power BI Service Architecture to build and deploy web applications. ASP.NET provides the runtime environment for web applications and handles tasks such as request processing, session management, and authentication.In the Power BI Service Architecture, ASP.NET is used to build and deploy custom visuals, which are custom data visualizations that can be added to Power BI reports and dashboards. Custom visuals can be created using JavaScript frameworks such as D3.js, and are built using the Power BI Custom Visual SDK, which is an extension of the Visual Studio development environment.

5. Compare Microsoft Excel and PowerBi Desktop on the following features:
   Data import

Data transformation

Modeling

Reporting

Server Deployment

Convert Models

Cost

- Data import: Both Excel and Power BI Desktop allow users to import data from a wide range of sources, including databases, files, and cloud services. However, Power BI Desktop provides more advanced data connectors and options for data ingestion, including real-time streaming data.

- Data transformation: Power BI Desktop offers more advanced data transformation capabilities than Excel, including the ability to merge, append, and transform data using a powerful graphical interface. Excel also allows users to transform data using formulas and functions, but this can be more time-consuming and less intuitive than Power BI Desktop.

- Modeling: Power BI Desktop provides a robust data modeling engine that allows users to create complex data models and relationships between different data sources. Excel also offers basic data modeling capabilities, but these are not as powerful as Power BI Desktop.

- Reporting: Both Excel and Power BI Desktop offer powerful reporting capabilities, including the ability to create charts, tables, and pivot tables. However, Power BI Desktop provides more advanced visualization options and allows users to create interactive reports and dashboards.

- Server Deployment: Power BI Desktop is designed to be deployed to the Power BI service, which provides a cloud-based platform for sharing and collaborating on data and reports. Excel files can also be shared and

collaborated on using cloud-based storage platforms, but this requires additional setup and configuration.

- Convert Models: Power BI Desktop allows users to easily convert their data models into Power BI templates, which can be shared with others and used to quickly create new reports and dashboards. Excel does not offer this feature.
- Cost: Power BI Desktop is free to download and use, although some features, such as data refresh and sharing,require a paid Power BI Pro subscription. Excel is part of the Microsoft Office suite and requires a license to use.

6. List 20 data sources supported by Power Bi desktop.
Power BI Desktop supports a wide range of data sources, including:

1. Microsoft Excel
2. Microsoft Access
3. CSV files
4. Text files (e.g., TXT, CSV)
5. JSON files
6. XML files
7. SharePoint Lists
8. SQL Server
9. Oracle Database
10. MySQL
11. PostgreSQL
12. IBM DB2
13. Amazon Redshift
14. Google BigQuery
15. Salesforce
16. Dynamics 365
17. Azure Data Lake Storage
18. Hadoop File System (HDFS)

19.   SharePoint Online
20.   Web APIs (REST, OData)