POWER BI ASSIGNMENT - 2

Q1 Explain the advantages of Natural Queries in Power BI with an example?

Natural queries in power BI allows users to use natural language to ask Questions & retrieve data from a dataset, making it easier to acces insights without having to know complex query languages or programming.

Advantages :-

1.) **Accessibility:** Natural queries allow users with little to no technical background to retrieve data from a dataset, making it easier to acces insights & drive decision-making.

2.) **Faster Insights:** Natural queries can provide faster acces to data & insights since users can quickly & easily ask quations & retrieve information without having to navigate complex UI.

3.) **Greater flexibility:** Natural queries allow users to ask questions in a way that makes sense to them, rather than having to conform to syntax & language of a query language.

For Example, If we have a Sala-data dataset & we want to retrieve the total Sala for a specific product Instead of writing a SQL query, you we can use a natural query to ask the quation in plan language. "what were the total Sales for product X last quarter?"

Q2 Explain Web front End (WFE) cluster from power BI Service Architecture!

The web front - end cluster is a collection of Servers that handle incoming user requests & provide access to the power - BI Service.

When a user accesses the power - BI Service through a web-browser or app, then the request is first routed to the web front - end cluster.

The web front - end cluster communicates with other components in the power - BI Service architecture, including data backend & the metadata backend, to retrieve data & generate reports.

The web front - end cluster also includes features that enable users to interact with the power BI Services, such as report authoring, Sharing & collaboration.

Example, Users can create new reports on dashboards, Share them with others, & collaborate with team members in real-time.

Q3 Explain Back - End cluster from power-BI Service Archi.!

The Backend cluster consists of multiple Servers that are responsible for different tasks, such as storing & processing data. These Servers work together to provide a scalable & reliable environment for managing data in power BI.

Two main components of backend cluster are data backend, which is responsible for storing & managing data used in Power BI reports & visualization. The data backend supports wide range of data sources, including cloud-based data sources such as Azure SQL database, & 800 on-premises data sources such as SQL server.

Another main component is metadata backend, which stores information about the power-BI data model, such as relationship b/w tables & columns.
It also manages other aspect of power BI services, such as security & access control.

Q4 What ASP. Net Component does in power BI Service Architecture?

The power BI Service uses ASP. NET to develop & deploy the web applications that users interact with when accessing the service.
Key Components of ASP. NET:-

1) MVC pattern (Model-View Controller) is a design pattern used in web applications that separates the application logic into 3 components: the model, which represents the data & business logic; the view, which represents the UI; & the controller, which handles user input & updates the model & view accordingly.

2) .NET framework, which provides a set of tools & libraries for developing & deploying web apps;

3) the Web API, which provides framework for building RESTful APIs that can be used to query & manipulate data in power-BI services;

4) Azure App Service, which provides a pattern for hosting & scaling web apps in cloud.

Q5 Compare Microsoft Excel & power BI desktop on the following features?

(a) Data import:

Excel: Excel can import data from a wide variety of sources such as text files, spreadsheets, & databases. & from online sources like Microsoft Azure & web.

PBI Desktop: Additionally, It has native connectors for many popular cloud services, such as Salesforce & Google Analytics.

(b) Data Transformation:

Excel: Excel has a range of data transformation capabilities such as filtering, sorting & grouping.
However, Excel doesn't have advanced data transformation features such as data profiling, merging or cleaning.

PBI: It has a powerful data transformation engine that includes advanced data transformation features such as data profiling, data cleaning, merging & splitting.

3.) Modelling :

Excel: Excel has limited modelling capabilities & is primarily designed for small datasets. It doesn't support complex data modelling.

PBI Desktop: PBI has a robust modelling engine that allows users to create complex data models using advanced data modelling techniques like calculated columns, measures and hierarchies.

4) Reporting:

Excel: It has basic reporting capabilities, including charts, pivot tables, & conditional formatting. However, creating more advanced reports can be time-consuming & requires significant efforts.

PBI Desktop: It is designed for creating interactive reports with a range of advanced visualizations, including charts, tables, & maps.
It also have extensive features for customizing & formatting reports.

5.) Server Deployment:

Excel: Excel files can be shared via email, cloud storage, or on-premises file servers. It doesn't have an integrated deployment option.

PBI Desktop: PBI desktop reports can be deployed to the Power BI servers service, which provides a cloud-based hosting solution for sharing & collaborating on reports.

6) Convert Models :

Excel: Excel models can't be converted directly to power-BI models.

Power BI Desktop: It has an option to import excel files & convert the data & models to PBI desktop models.

7) Cost:

Excel: Excel is included in the Microsoft office suite & is available for a one-time purchase or through a subscription plan.

PBI Desktop: PBI desktop is free to download & use, & reports can be shared with others through PBI service, which is available through a subscription plan.

Q6 List 20 data sources supported by PBI Desktop.

1.) Excel workbooks   11.) Salesforce data
2.) CSV files   12.) Dynamics 365 data
3.) SQL Server databases   13) Google Analytics data
4. Oracle databases   14.) Adobe Analytics data
5. IBM DB2 databases   15) Azure SQL Database
6. MYSQL databases   16) Azure Datalake Storage
7. postgreSQL databases   17.) Azure blob Storage
8. Microsoft Access databases   18.) JSON files
9. SharePoint Online lists   19.) XML files
10. SharePoint Server lists   20.) Web Services via APIs.