

Power BI Assignment 2

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

Natural Queries in Power BI have several advantages. Firstly, they require no prior knowledge of any querying language like SQL or Excel, making it accessible to a wide range of users. Once a dashboard is created and submitted to business stakeholders, these stakeholders find it easy to query on their own in the report submitted by the Analyst Team. This feature is interactive and even fun, often leading to further questions as the visualizations reveal interesting paths to pursue.

Power BI also shows predictions as the user types the query, which helps the user to query faster and confidently. This reduces confusion for layman users. For example, a user may query "show total sales country wise". Power BI understands the query as the user types. When the user types "show", it lists all the features available. This immediate feedback and results make the experience similar to typing in a search engine.

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

The Web Front End (WFE) cluster is a crucial part of the Power BI service architecture. It manages the initial connection and authentication to the Power BI service. The WFE cluster uses Azure Active Directory (Azure AD) to authenticate clients, and provide tokens for subsequent client connections to the Power BI service. Power BI uses the Azure Traffic Manager (Traffic Manager) to direct user traffic to the nearest datacenter. Traffic Manager directs requests using the DNS record of the client attempting to connect, authenticate, and to download static content and files. Power BI uses the Azure Content Delivery Network (CDN) to efficiently distribute the necessary static content and files to users based on geographical locale. Once the user is authenticated, all subsequent interactions are handled by the Back-End cluster.

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

The Back End Cluster is the second component of the Power BI Service architecture. It plays a crucial role in maintaining several reports, storage, data sets, and various other tools that are part of Power BI. In this cluster, the client has only two mediums for direct interaction with the data: Gateway Role and Azure API Management. The Back End Cluster manages datasets, storage, reports, visualizations, data connections, data refreshing, and other services in Power BI. At the cluster, web clients have only two points to interact with the information, i.e., Azure API Management and Gateway Role. Visualizations, datasets, storage, reports, data connections, data updating, and other Power BI interactions are handled by the Power BI services on the back end. A web client can only directly interface with Azure API Management and Gateway Role on the backend.

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

ASP.NET plays a significant role in the Power BI Service Architecture. It is primarily used to publish reports and dashboards to a workspace where stakeholders can interact with it on the front end provided by the Power BI service. This allows for seamless integration of Power BI dashboards into other applications like Microsoft Teams, which embeds the BI Application through the ASP.NET framework.

In addition, the ASP.NET component is used in Power BI Embedded, a feature that allows developers to surface report content easily in their applications. This is achieved through the use of APIs that bring both interactive and paginated reports to modern applications, surpassing the capabilities ever offered to date.

Furthermore, ASP.NET is used in the Web Front End (WFE) cluster of the Power BI architecture. The WFE cluster provides the user's browser with the initial HTML page contents on site load, and pointers to Content Delivery Network (CDN) content used to render the site in the browser. The WFE cluster consists of an ASP.NET website running in the Azure App Service Environment.

Overall, the ASP.NET component is a crucial part of the Power BI Service Architecture, enabling the integration, embedding, and rendering of Power BI reports and dashboards in various applications and platforms.

5. Compare Microsoft Excel and PowerBI Desktop on the following features:

- Data import
- Data transformation
- Modeling
- Reporting
- Server Deployment
- Convert Models
- Cost

Microsoft Excel and Power BI Desktop have different strengths when it comes to data import, transformation, modeling, reporting, server deployment, model conversion, and cost.

Power BI can handle much larger amounts of data than Excel and can connect to a large number of data sources, while Excel's connectivity capacity is limited. For data transformation, both tools use Power Query, but Power BI has faster processing. In terms of modeling, both Excel and Power BI use Power Pivot, but Power BI is more robust for business analytics.

When it comes to reporting, Power BI dashboards are more interactive and customizable than those in Excel. Power BI is also more user-friendly and easy to use than Excel. For server deployment, Power BI reports can be published to the Power BI service for viewing and sharing, while Excel reports need to be shared via email or online sharing tools.

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

- Excel
- XML
- Text/CSV
- JSON
- PDF
- Folder
- SharePoint folder
- SQL Server database
- Access database
- SQL Server Analysis Services database
- Oracle database
- IBM Db2 database
- IBM Informix database (Beta)
- IBM Netezza
- MySQL database
- PostgreSQL database
- Sybase database
- Teradata database
- SAP HANA database
- SAP Business Warehouse Application Server