**Power BI Assignment 2**

1. Explain the advantages of Natural Queries in PowerBi with an example?
2. Explain Web Front End(WFE) cluster from Power BI Service Architecture?
3. Explain Back End cluster from Power BI Service Architecture?
4. What ASP.NET component does in Power BI Service Architecture?
5. Compare Microsoft Excel and PowerBi Desktop on the following features:

Data import

Data transformation

Modeling

Reporting

Server Deployment

Convert Models

Cost

1. List 20 data sources supported by Power Bi desktop.
2. Advantages of Natural Queries in Power BI: **Guided NLA acts as a Unique Self-service Option:** 
   1. It provides immediate assistance on the question you ask with no guesswork on technical knowledge. The add on elements in the drop-down help to frame your query, once the query is framed Guided NLQ gives you the data ideal level data which helps to uncover the answer, which is delivered as the best practice data visualization, can also be viewed in the tabular from. We can rearrange the question and can extract more number of answers using the data.
   2. The main feature for Guided NLQ is as the term are listed inbuilt, no need to worry on the right terms.
3. **Every Question is understood by Guided NLQ:** Traditional search-based NLQ solutions are harder to set up because they’re focused on fixing the wrong problem: semantics (language used in a question), rather than analytics.
   1. With Yellowfin Guided NLQ, there is no need to set up synonyms and word dictionaries, or continuously train the solution to understand your users’ intent, because using the Yellowfin metadata layer bypasses this problem altogether.
4. **Guided NLQ makes it simple ask the complex Questions:** Guided NLQ approaches question complexity differently by implementing thousands of comprehensively modelled question types and sequences, which effectively enables anyone to ask questions of their data, and to deliver answers as best practice visualizations or tabular reports for every possible question combination you can think.
5. **Guided NLQ is integrated throughout Yellowfin:** Guided NLQ is designed to combine with existing features of Yellowfin for a powerful analytics experience that accommodates all users and self-service BI preferences. It’s fully integrated with [Yellowfin Dashboards, Stories, and Presentations](https://www.yellowfinbi.com/suite/dashboards), which makes it easy to generate and add new content, and any questions and results generated using Guided NLQ can be shared using existing Yellowfin collaboration functionality. It also contains multi-language support, the same security model, and is multi-tenant enabled.
6. **It easy to Embed Guided NLQ into your applications:** As a stand-alone module not tied to a user interface (dashboard, workbook), or single data set, you can curate a view and drop in NLQ capability for quick and easy self-service deployment, and it's API-enabled to provide fine-grained control and a customized experience. You can even allow users to ask questions of any dataset, or limit the scope of what can be asked to ensure relevance to wherever you decide to embed Guided NLQ.

Example: This is very much useful for the developers to understand the data and what required fields to be taken in to consideration, as the Q&A itself with question asked gives the ideal and measure and visual based on the categories we require.

As suppose by given the sample Super store data if we are thinking of creating the Profit ratio based on the Categories the using the NLQ we get the approximate insight and measure. Thus NLQ is very useful component in Power BI

2. **WEB FRONT END (WFE) Cluster from Power BI Service architecture:** The web Front end Cluster manages the initial connection and authentication to the Power BI service.

All reports you build in Power BI Desktop are published on the Power BI Service cloud platform.

Users can use client platforms, including websites, mobile devices, etc., to view the reports and dashboards from the Power BI Service. As a result, each client wishing to access content generated by Power BI must engage with the Power BI Service. Therefore, we must examine the inner workings of Power BI Service to understand how it functions.

The architecture of Power BI Service is divided into two sections:

1. Front End cluster
2. Back End cluster

**Front end Cluster:** Clients and the back end are connected by the front end, commonly known as the web front-end cluster. The front-end services handle the initial connection and Azure Active Directory client authentication. User IDs are kept in the Azure Active Directory. After authentication, user requests are routed through Azure Traffic Manager to the closest data center. The Azure Content Delivery Network (CDN) makes static Power BI content and files available to users when a client or user has been authorized.

1. **Back End Cluster:** 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. These two parts are in charge of routing, load balancing, authentication, and authorization.
2. ASP.Net in Power BI Service Architecture:-
3. Compare Microsoft Excel and Power BI desktop on
   1. Data Import: power BI can connect to large number of data sources, while Excel connectivity capacity is limited. Excel as limitation in importing the data were as the power BI can handle large amounts of data to import
   2. Data Transformation: Excel is better option if we want to manipulate and transform data, do searches, calculations and apply mathematical formula or create complex tabular reports, Power BI is most suitable for working with Big data, creating Visualizations, integrating data from multiple sources & analysing data with the intention of getting indicators.
   3. Modelling: Excel gives an ability to work on simple and structured data models. Power BI is ideal for building complex data models easily
   4. Reporting: Excel is flexible to use and create summary reports in simple steps and formulas. Were as Power BI as many charts and Visuals and we can also import other from the marketplace besides the inbuilt charts.
   5. Server Deployment: Excel workbook after the configuration has to integrate with ADF or Oracle in order deploy it to the end user.

Power BI has a unique feature to publish online or to deploy it to the end user with static and dynamic features and deployment is very easy compare to Excel.

* 1. Convert Models: Power BI has faster processing than Excel. Power BI dashboards are more visually appealing, interactive and customizable than those in Excel. Power BI is a more powerful tool than Excel in terms of comparison between tables, reports or data files. Power BI is more user friendly and easy to use than Excel.
  2. Cost: Power BI Desktop is free to download and use for personal use, but it takes $10 per month per user to share reports with others. Since we already have Excel, we need to spend additional money to procure this and build dashboards. Power BI is not flexible, especially if it just shifted from Excel to Power BI.

1. List of 20 data-sources that are supported by Power BI Desktop:

* 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
* SAP Business Warehouse Message Server
* Amazon Redshift
* Impala
* Google Big Query
* Google Big Query (Azure AD)(Beta)
* Vertica
* Snowflake
* Sybase
* Action (Beta)
* Amazon Athena