Power BI Assignment 2

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

A- Guided NLQ is a unique self-service BI experience

NLQ provides immediate assistance on the question you want to ask, with no guesswork or technical knowledge required to get started with using the tool.

After selecting a dataset, you're presented with a search box you can type in, but it's not blank. Guided NLQ provides a list of options for possible questions, then guides you through each step in formulating the query. You can choose your own path through the question by typing what you want to ask, using your mouse to choose an option, or both.

These add-on elements can help build your query, and lead toward a more relevant result than traditional free text search. You're actively shown a list of options in simple drop-down menus, and prompted with suggestions that can help correctly state the question you mean to ask, such as 'compare', or 'list', using familiar terms, not technical jargon.

Once your query is built, Guided NLQ presents the ideal level of data you need to uncover the answer, delivered as a best practice data visualisation (chart), which can also be viewed in tabular form. These answers highlight hidden patterns, trends and outliers or shifts in behaviour that can reveal deep insights otherwise not seen in traditional analysis.

From here, you can do a number of things:

- You can go back at any time to rearrange the question
- Change your data view to find more answers from other datasets
- Save your question for later
- Add the answer to existing content in Yellowfin, such as Dashboards, Stories, or Presentations

This fully guided approach to natural language query means there's no more need to worry about the right terms to ask, or the correct synonyms to type to get a result, as the tool itself quickly generates the most popular search dimensions to help you get started.

You can also easily click 'show more' to see all available options in a category. Because the NLQ feature itself effectively guides you through each step, everyone in the business can use it for answers, not just the experts.

B - 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.

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.

How it does this is each piece of text in the query you build is known and understood, and by offering guided options to choose from, any ambiguity or misunderstanding in what you're asking - a problem that limited NLQ adoption in the past - is eliminated.

At no point can an invalid question be asked; there's no more "Search didn't understand what you meant" messages, because there's no such thing as a 'wrong' question.

C. - Guided NLQ makes it simple to ask complex questions

The questions you can ask search-based NLQ tools are often too basic because the vendor has spent all their effort in fixing the language problem, and their approach doesn't support question complexity in the best way.

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 visualisations or tabular reports for every possible question combination you can think of.

Some examples of the complexity supported with NLQ include:

- Tabular and cross-tab reports
- Automatic highlighting of items on charts, such as outliers, values, trends
- Complex filter construction
- Set analysis comparison, ranking, calculations
- SubQueries, including minus, intersect

Whether you have a complex question, such as finding accounts that had more sales this month vs. last month for specific product SKUs, or a basic question, such as a comparison of annual business performance from one year to the next, Yellowfin Guided NLQ has been specifically built to accommodate your query.

D. - 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 Dashboards,stories and presentations, 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.Most of the output from other NLQ vendors, in comparison, are siloed in their tools; you can't really do much with it after. Whereas in Yellowfin, you can because it's integrated with other content and functionality, and can form part of your analysis workflow.With Guided NLQ, you can ask an ad-hoc question and immediately drop that into other content that you're working on, or share it with other colleagues. If you were working on your own content already (such as Dashboards, Stories, etc), you can access Guided NLQ from those builders as well, and drop the answers into that with a seamless workflow.

E - It's easy to embed Guided NLQ into your applications

Yellowfin Guided NLQ is designed from the ground up to be easily embedded.What this all means is the feature can be used independently of the rest of the Yellowfin platform, plugged into any of your applications, and launched from anywhere you want, whether it's a customer relationship management (CRM), human resources (HR) payroll, or finance system. It can even co-exist within Tableau and Power BI environments.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 customised 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.For independent software vendors, this level of flexibility can be leveraged to white-label Guided NLQ as an attractive feature that can help customers quickly create their own analysis without being a support burden, while further enhancing the product's value.

In enterprises, data analysts are usually the ones engaging in self-service analytics because it has a big learning curve, and non-technical business users don't have the necessary skills to perform it themselves, nor the time to build those skills. Guided NLQ gives these business users through the enterprise the ability of self-serve BIwithout having to rely on scarce data experts or analysts every time they want to explore data.

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

The WFE cluster provides the user's browser with the initial HTML page contents on site load, as well as pointers to CDN content used to render the site in the browser.
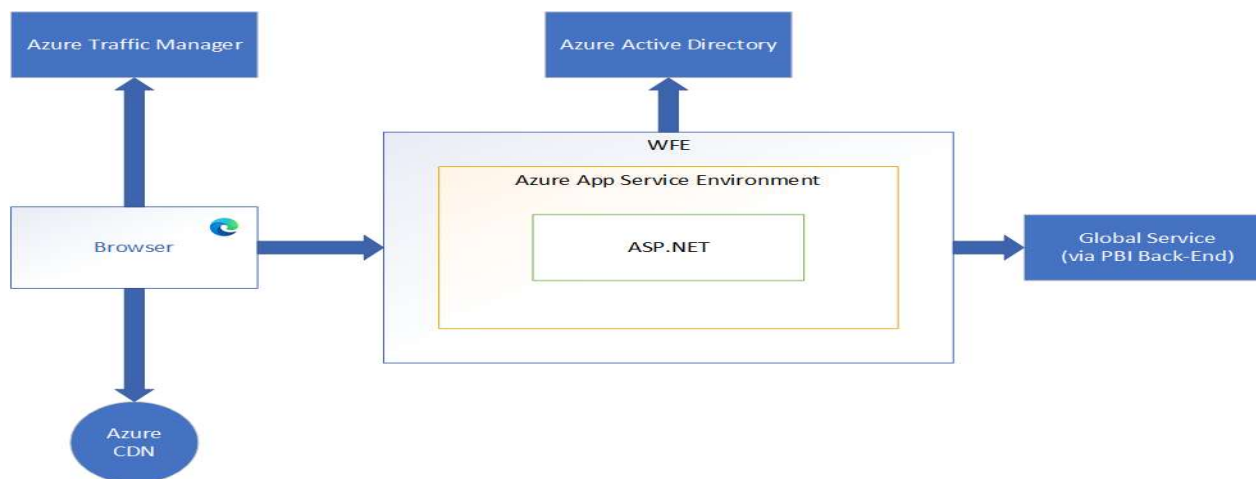
A WFE cluster consists of an ASP.NET website running in the Azure App Service Envirnment. When users attempt to connect to the Power BI service, the client's DNS service may communicate with the Azure Traffic Manager to find the most appropriate (usually nearest) datacenter with a Power BI deployment. For more information about this process, see Performance traffic-routing method for Azure Traffic Manager.

Static resources such as *.js, *.css, and image files are mostly stored on Azure Content Delivery Network (CDN) and retrieved directly by the browser. Note that Sovereign Government cluster deployments are an exception to this rule, and for compliance reasons will omit the CDN and instead use a WFE cluster from a compliant region for hosting static content.

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

The back-end cluster is the backbone of all the functionality available in Power BI. It consists of several service endpoints consumed by Web Front End and API clients as well as background working services, databases, caches, and various other components.

The back end is available in most Azure regions, and is being deployed in new regions as they become available. A single Azure region hosts one or more back-end clusters that allow unlimited horizontal scaling of the Power BI service once the vertical and horizontal scaling limits of a single cluster are exhausted.

Each back-end cluster is stateful and hosts all the data of all the tenants assigned to that cluster. A cluster that contains the data of a specific tenant is referred to as the tenant's home cluster. An authenticated user's home cluster information is provided by Global Service and used by the Web Front End to route requests to the tenant's home cluster.

Each back-end cluster consists of multiple virtual machines combined into multiple resizable-scale sets tuned for performing specific tasks, stateful resources such as SQL databases, storage accounts, service buses, caches, and other necessary cloud components.

Tenant metadata and data are stored within cluster limits except for data replication to a secondary back-end cluster in a paired Azure region in the same Azure geography. The secondary back-end cluster serves as a failover cluster in case of regional outage, and is passive at any other time.

Back-end functionality is served by micro-services running on different machines within the cluster's virtual network that are not accessible from the outside, except for two components that can be accessed from the public internet:

- Gateway Service
- Azure API Management

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

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

Data import

Excel has limitations in the amount of data it can work with. In contrast, Power BI can handle much larger amounts of data. Power BI can connect to a large number of data sources, while Excel's connectivity capacity is limited.

Data transformation

Excel is used to organise data, transform it and perform mathematical operations and calculations. On the other hand, Power BI was conceived as a business intelligence and data visualisation tool for businesses.

Modelling

Excel is totally focused of structured and simple data models with wide range of features
Powerbi is really focused on data ingest and building potentially complex data models easily

Reporting

Excel reports are normal and ordinary comparing power bi
Power bi offers beautiful branded reports comparing excel

Server Deployment

Excel is used for deep driver analysis
powerbi used for visualisations and dashboard sharing

Convert Models

 In Power BI, the only option for data modelling and calculations is to use data analysis expressions (DAX). This is a library encompassing functions and operations that can be used for building expressions and formulas. In Microsoft Excel reports you can operate

both DAX and standard Excel formulas, which is easier for people not acquainted with DAX.

Cost

Power BI Desktop is free to download and use for personal use, but it takes $10 per

Since we already have Excel, we need to spend additional money

List 20 data sources supported by Power Bi desktop.

a.Excel Workbook

b.Text/CSV

c.XML

d.JSON

e.Folder

f.PDF

g.Parquet

h.SharePoint folder

i.Excel Workbook

j.Text/CSV

k.XML

l.JSON

m.Folder

n.PDF

o.Parquet

p.SharePoint folder

q.Dremio Software

r.Dremio Cloud (Beta)

s.Exasol

t.Indexima