**Power BI Assignment 2**

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

## Ans – Advantages of natural queries in PowerBi are explained below-

## **1.Guided NLQ is a unique self-service BI experience -**

[Yellowfin Guided NLQ](https://www.yellowfinbi.com/campaign/guided-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 visualization](https://www.yellowfinbi.com/analytics-best-practice) (chart), which can also be viewed in tabular form. These answers highlight hidden patterns, trends and outliers or shifts in behavior 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.

**2.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](https://www.yellowfinbi.com/blog/2021/01/why-natural-language-query-nlq-didnt-take-off) - 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.

3.**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 visualizations or tabular reports for every possible question combination you can think. Some examples of the complexity supported with Yellowfin Guided 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

**4.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. 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.

## **5.It's easy to embed Guided NLQ into your applications -**

## Yellowfin Guided NLQ is designed from the ground up to be [easily embedded](https://www.yellowfinbi.com/solutions/embedded-analytics). 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 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. 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 to self-serve BI](https://www.yellowfinbi.com/suite/self-service-bi) without having to rely on scarce data experts or analysts every time they want to explore data.

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

Ans - Clients and the back end are connected by the front end, commonly known as the web front-end cluster. The **WFE**cluster uses 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. Web front end sees to the initial connection, client authentication and request routing to nearest data centers in Power BI. Power BI uses **Azure Traffic Manager (ATM)** to direct user traffic to the nearest data-center, determined by the **Domain Name System(DNS)** record of the clientele attempting to connect to Power BI for the authentication process and to download static content and files. Power BI also uses the **Azure Content Delivery Network (CDN)** to efficiently distribute the necessary static content and files to users based on geographical location.

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

Ans - The **Back-End** cluster determines how authenticated clients interact with the Power BI service. The **Back-End** cluster manages visualizations, user dashboards, datasets, reports, data storage, data connections, data refresh, and other aspects of interacting with the Power BI service. The **Gateway Role**acts as a gateway between user requests and the Power BI service. Users don't interact directly with any roles other than the **Gateway Role. Azure API Management** eventually handles the **Gateway Role**. At the backend cluster, the web client has only two direct points to interact with the data, i.e., Gateway Role and Azure API Management. These two components are responsible for authorizing, load balancing, routing, authentication, etc.

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

Ans - A WFE cluster consists of an ASP.NET website running in the [Azure App Service Environment](https://learn.microsoft.com/en-us/azure/app-service/environment/intro). 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.

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

Data import

Data transformation

Modeling

Reporting

Server Deployment

Convert Models

Cost

Ans -

|  |  |  |
| --- | --- | --- |
| Features | Microsoft Excel | PowerBi |
| Data transformation | Data transformation is done using power query. | The powerbi allows for about 350 data transformation types using power query. Data transformation is very easy as compared to excel. |
| Modelling | Excel is not made for complex data modelling. | Power BI can cope with very complex modelling if you’re looking to build a complex data model. [Power BI Desktop](about:blank) offers users the ability to perform modelling with ease using drag and drop features and advanced filters, which can’t be done in excel. |
| Reporting | Excel reports are normal and ordinary as compared to PowerBi. | PowerBi allows advanced features in cross filtering between charts. |
| Server Deployment | After you finish development of your integrated Excel workbook, you make the final integrated Excel workbook available to end users by deploying the resulting Fusion web application to an application server. | The reports are deployed on PowerBi report server. |
| Cost | Microsoft excel is a payment tool. | The desktop version is for free. The pro version (available in the cloud) costs 9.99 USD/month. |

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

Ans -

1. Excel
2. SQL server
3. Power BI datasets
4. PDF
5. Folder
6. Text/CSV
7. XML
8. JSON
9. Folder
10. PDF
11. SharePoint folder
12. SQL Server Database
13. Oracle Database
14. MySQL Database
15. PostgreSQL database
16. Snowflake
17. Salesforce Reports
18. Google Analytics
19. Adobe Analytics
20. GitHub (Beta)