**Power BI Assignment 3**

**1- List and explain different Power Bi products?**

**Ans**-Microsoft Power BI is a collection of tools used to import, aggregate and present data in the form of immersive and easy-to-digest reports and visuals.

Power BI Products

**1.Power Query** - Power Query is the data transformation and mash up the engine. It enables you to discover, connect, combine, and refine data sources to meet your analysis need. It can be downloaded as an add-in for Excel or can be used as part of the Power BI Desktop.

**2.Power Pivot** - Power Pivot is a data modelling technique that lets you create data models, establish relationships, and create calculations. It uses Data Analysis Expression (DAX) language to model simple and complex data.

**3. Power View** - Power View is a technology that is available in Excel, SharePoint, SQL Server, and Power BI. It lets you create interactive charts, graphs, maps, and other visuals that bring your data to life. It can connect to data sources and filter data for each data visualization element or the entire report.

**4. Power Map**- Microsoft's Power Map for Excel and Power BI is a 3-D data visualization tool that lets you map your data and plot more than a million rows of data visually on Bing maps in 3-D format from an Excel table or Data Model in Excel. Power Map works with Bing maps to get the best visualization based on latitude, longitude, or country, state, city, and street address information.

**5.Power BI Desktop**- Power BI Desktop is a development tool for Power Query, Power Pivot, and Power View. With Power BI Desktop, you have everything under the same solution, and it is easier to develop BI and data analysis experience.

**6.Power Q&A**- The Q&A feature in Power BI lets you explore your data in your own words. It is the fastest way to get an answer from your data using natural language. An example could be what was the total sales last year? Once you've built your data model and deployed that into the Power BI website, then you can ask questions and get answers quickly.

**2- What limitations of Excel, Microsoft solved by Power Bi?**

**Ans**- Microsoft Power BI is a multi-functional business analytics solution that helps you visualize data, share insights across your organization, and even embed them in your app or website. With the ease of data access, visibility and sharing capabilities offered in this platform, various users are making the switch from more outdated tools like Microsoft Excel.

Most of us are familiar with Excel by now. From college students to business professionals, Excel has served as a traditional data source platform with enough functionality to get the job done. However, currently, businesses are becoming more reliant on intelligent analytics and data interaction.

Power BI offers users working within the Microsoft platform the opportunity to capitalize on a more high-functioning tool. It can even interact with Excel and other data-based tools to ensure a seamless workflow.

1. Row-Level

Row-Level Security you can specify each set of data for a user or group. This means less analysis time needed, as just one view would be built for Power BI to deliver based on the predefined rules.

2. Cloud Service

Save time involved in moving and sharing data. Data can be uploaded from multiple on-premises sources (Excel, DB, CSV, etc.) or reported directly from multiple cloud web services such as Azure, Mail Chimp, Zendesk, and Salesforce. Once uploaded, reports are accessible from any modern browser. Power BI also has dedicated apps for most popular devices, such as Windows, Android, and iOS.

3. Quick Insights

Quick Insights is a powerful algorithmic tool that automatically detects outliers, trends, correlations, majority, etc.

4. Data Manipulation

Power BI data model compression algorithm enhances the speed for data manipulation. Once the model is imported into the web service, Power BI brings the solutions of Azure Data Lake Gen 2,

5. Data – Driven Alerts

Power BI users can create rules on specific reports and subscribe to those rules to receive an alert once they are met.

6. Visualizations

Sometimes we want to get straight to the point with a bar, pie or line chart. However, what happens when we want to look a little fancier in Excel? Power BI comes with various out-of-the-box visualizations, plus a free Marketplace with even more options.

7. Mobile Accessibility

We know Excel is available on all devices, but is it really user friendly? With Power BI, data analysts can create custom views of their reports for mobile devices.

8. Report Bursting

With this feature a report can be delivered to a list of users based on their roles. Let’s imagine you have a sales group for Canada and another for the US. This feature automates a daily delivery based on a SQL table or an Excel file which contains their email address and role assignation.

**3- Explain Power Query?**

Ans- Power Query is a data transformation and data preparation engine. Power Query comes with a graphical interface for getting data from sources and a Power Query Editor for applying transformations. Because the engine is available in many products and services, the destination where the data will be stored depends on where Power Query was used. Using Power Query, you can perform the extract, transform, and load (ETL) processing of data.

Diagram

Description automatically generated

Business users spend up to 80 percent of their time on data preparation, which delays the work of analysis and decision-making. Several challenges contribute to this situation, and Power Query helps address many of them.

How does Power Query help:-

1- Power Query enables connectivity to a wide range of data sources, including data of all sizes and shapes.

2- Consistency of experience, and parity of query capabilities over all data sources.

3- Highly interactive and intuitive experience for rapidly and iteratively building queries over any data source, of any size.

4- Power Query offers the ability to work against a subset of the entire dataset to define the required data transformations, allowing you to easily filter down and transform your data to a manageable size.

Power Query queries can be refreshed manually or by taking advantage of scheduled refresh capabilities in specific products (such as Power BI) or even programmatically (by using the Excel object model).

Because Power Query provides connectivity to hundreds of data sources and over 350 different types of data transformations for each of these sources, you can work with data from any source and in any shape.

5- When using Power Query to access and transform data, you define a repeatable process (query) that can be easily refreshed in the future to get up-to-date data.

If you need to modify the process or query to account for underlying data or schema changes, you can use the same interactive and intuitive experience you used when you initially defined the query.

**4- Explain Power Map?**

**Ans**-Microsoft Power Map for Excel is a three-dimensional (3-D) data visualization tool that lets you look at information in new ways. A power map lets you discover insights you might not see in traditional two-dimensional (2-D) tables and charts.

With Power Map, you can plot geographic and temporal data on a 3-D globe or custom map, show it over time, and create visual tours you can share with other people. You’ll want to use Power Map to:

Map data Plot more than a million rows of data visually on Bing maps in 3-D format from an Excel table or Data Model in Excel.

Discover insights Gain new understandings by viewing your data in geographic space and seeing time-stamped data change over time.

Share stories Capture screenshots and build cinematic, guided video tours you can share broadly, engaging audiences like never before. Or export tours to video and share them that way as well.

Map

Description automatically generated

**5- How power Bi eliminated the need to host SharePoint Server on premises?**

**Ans**- A Power BI site in SharePoint Online is basically analogous to a Power Pivot Gallery in SharePoint, but there are some key differences that I will consider.

SharePoint BI is usually an on-premises solution (although you could create an Azure VM and run it up there). It requires SharePoint 2013 or 2010. To take advantage of all BI features, the Enterprise versions of SharePoint and SQL Server are required.

**Content Viewing-**

Power BI has a very cool feature which displays all document libraries which exist in the Power BI Site. Although I'd love for this to be a preference whether a document library is shown in the Power BI site, I really like this feature because it offers additional flexibility to organize and secure content.

In SharePoint BI, the Power Pivot Gallery is a single document library.

**Enterprise Search: -**

The Search functionality in Power Query is one of my favourite Power BI features, one that has no equivalent in SharePoint BI currently. Enterprise Search is the ability to use Power Query to search for corporate data (or public data) which has been exposed by other users sharing Power Queries, or by the administrator exposing an OData feed.

**Max Workbook Size:-**

In Power BI, the maximum workbook size currently is 250MB. Nearly all of the data needs to be in the Power Pivot model because only 10MB is permitted outside of the model. That's because within the model it can be compressed and take advantage of the velocity engine. (For this reason, make sure to import your data to Power Pivot and not to the worksheet!)

In SharePoint BI, the maximum workbook size is 2GB.

**Mobile Application**

Currently only Power BI offers the mobile app which is available for Windows 8.1 devices - iPad support due out by the fall. This is due to Microsoft's cloud-first strategy.

**6- Explain the updates done in Power Bi Service (power BI 2.0) as compared to older version?**

**Ans**- Power BI Pro and Power BI Free licenses are assigned on a per-user basis. Power BI Pro users can collaborate by consuming content from and sharing content with other users. A Power BI Pro license user can publish content to app workspaces, share dashboards, and subscribe to dashboards and reports. On the other hand, a Power BI Free license holder can access some of the features of Power BI only in their own workspace.

Power BI Premium is meant for larger corporations since it doesn't assign per-user licenses. Instead, it provides consistent performance and supports larger data volumes in Power BI. Users within this organization don't need to have an individual Power BI Pro license, and they can access all the data and features of Power BI.

The most important part of the app workspace version, in my opinion, n is the new roles. This feature by itself is the game-changing part of this version. With the old workspace, we had only two roles; Admin and Member. Admin has full rights on the workspace, and Member has either Edit or Read-Only access, depends on which option selected at the workspace level. You Could NOT have some users with read-only rights, and some with Edit rights in the same workspace, unless you mark those you wanted to have Edit rights as Admin, which is even higher-level access. The old version of workspace had some limitations and challenges with the access roles as you can see.

The new version of workspace comes with a new access role setup as below.

Contributor: Create, edit, publish, delete content in the workspace. cannot modify members, or cannot publish an app.

Member: Publish and update an App. Share or allow others to reshare items. Add members or others with lower permissions. plus, everything contributors can do.

Administrator: Delete and update the workspace. Add and Remove members (or even other admins). plus, everything members can do.

**Old workspace:**

There is a group of developers, and all of them has Edit access on the workspace. With the edit access in the old version of workspace, they can also publish and update the app. Now, while those developers are testing some new reports, and while users are using the app version of the workspace, if a developer suddenly by mistake click on update app, users will be impacted immediately! In the old version of workspace, a user who can publish and add content can also publish or update the app. There was no role for someone to take care of updating app only