**Power BI Assignment 3 SOLUTION**

1. List and explain different Power BI products.

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.

1. **POWER BI DESKTOP** – A Windows desktop application for data analysis and reports creation.
2. **POWER BI SERVICE** – Online software as a service, used to collaborate and distribute Power BI reports.
3. **POWER BI MOBILE** – A native mobile application used in mobile for report creation.
4. **POWER BI REPORT BUILDER** – A tool for creating paginated reports (all are required data in a table format).
5. **POWER BI REPORT SERVER** – An on-premises report server (available in Power BI premium license).
6. **POWER BI EMBEDDED** – A service to embed visuals, reports, and dashboards into an application.
7. What limitations of Excel, Microsoft solved by Power BI?
8. Excel has limitations in the amount of data it can work with. In contrast, Power BI can handle much larger amounts of data. Also, Unlike Excel, Power BI can be easily used from mobile devices.
9. Power BI is faster processing than Excel. Power BI dashboards are more visually appealing, interactive, and customizable than those in Excel.
10. Power BI is more users friendly and easy to use than Excel.
11. Excel doesn’t have advanced cross-filtering between graphics; on the other hand, Power BI supports cross-filtering filters between charts.
12. In Excel, data is not automatically updated but in Power BI, data is automatically updated.
13. Difficult to connect separate tables in Excel, but it is an easy process to connect separate tables in Power BI with the help of data modeling.
14. Explain Power Query.

Power Query is a data transformation and data preparation tool that is integrated into various Microsoft products, including Power BI, Excel, and Power Automate. It allows users to connect to multiple data sources, perform data extraction, transformation, and loading (ETL) operations, and shape the data into a desired format for analysis or reporting purposes.

Below are some features:

1. **Data Source Connectivity**: Power Query supports a wide range of data sources, including databases, files (such as Excel, CSV, XML), web services, online services (like SharePoint, Salesforce), and more. It provides built-in connectors and supports custom connectors for connecting to specialized data sources.
2. **Data Extraction**: Power Query enables users to extract data from various sources by specifying connection details, selecting tables or entities, and defining query parameters. It supports importing data from multiple files or folders simultaneously, making it convenient for working with large datasets.
3. **Data Transformation**: Power Query offers a rich set of transformation capabilities to clean, shape, and enrich the data. Users can perform tasks such as filtering rows, removing duplicates, merging or appending tables, splitting columns, applying calculations, pivoting data, and much more. Power Query provides a user-friendly interface with a set of intuitive menus and options for performing these transformations.
4. **Query Editor**: The Query Editor is a visual interface within Power Query that allows users to interactively apply transformations to their data. It provides a preview of the data at each transformation step, making it easy to see the effects of applied changes. Users can navigate and modify the steps in the applied transformations, reorder them, or add new steps to further refine the data.
5. **Formula Language**: Power Query uses a powerful formula language called "M" to express data transformation logic. Users can write custom formulas to perform advanced calculations, create conditional logic, perform string manipulations, and more. The formula language provides extensive functions and operators for manipulating data within Power Query.
6. Explain Power Map.
7. Microsoft Power Map is a 3-Dimensional data visualization tool. A power map lets us discover insights we might not see in traditional 2-Dimension tables.
8. In Power BI, Power BI Service and Power BI Desktop send Bing the geographical data; it needs to create the map visualization. This may include the data in the location, Latitude, and Longitude buckets of the visuals field well.
9. With Power Map, we can plot geographic and temporal data on a 3-Dimension globe or custom map, show it over time and create visuals. So, we can share it with other people.
10. How has Power BI eliminated the need to host SharePoint Server on-premises?

Power BI has eliminated the need to host SharePoint Server on-premises by providing a comprehensive cloud-based platform for data visualization, collaboration, and sharing. Power BI has eliminated the need for SharePoint Server hosting in the following ways:

1. **Cloud-Based Collaboration**: Power BI offers a cloud-based environment where users can create, collaborate on, and share reports and dashboards. This eliminates the need for hosting and maintaining SharePoint Server as a collaboration platform. Power BI provides a central hub for teams to work together on data analysis and reporting without the complexities of on-premises infrastructure.
2. **Seamless Integration**: Power BI seamlessly integrates with SharePoint Online, the cloud-based version of SharePoint. This integration allows users to embed Power BI reports and dashboards directly within SharePoint Online sites and pages. Users can leverage the Power BI web part in SharePoint Online to display Power BI content without the need for a SharePoint Server on-premises.
3. **Power BI Embedded**: Power BI Embedded is a feature that enables developers to integrate Power BI reports and dashboards directly into custom applications or websites. This eliminates the need for SharePoint Server as a platform for hosting and sharing reports. Developers can embed Power BI content within their applications, delivering data insights to users without relying on SharePoint Server infrastructure.
4. **Power BI Apps**: Power BI Apps provide a streamlined way to distribute and share collections of dashboards, reports, and datasets within an organization. Power BI Apps offer a dedicated and controlled environment for sharing and collaboration, eliminating the need for SharePoint Server as a platform for sharing reports and managing access permissions.
5. Explain the updates done in Power Bi Service(power BI 2.0) as compared to the older version.

The last update was done on May 2023. In this new release of the Power BI report server, they have done a lot of work to make sure they are empowering everyone.

The release includes the following:

* Azure Maps is now generally available.
* Measure driven data labels.
* Work seamlessly in Power BI Desktop with files in OneDrive and SharePoint.
* Matrix accessibility improvements
* On-Object Interaction (Preview) – Updates
* Set Query Limits in Power BI Desktop
* New Power BI Tab configuration experiences in Microsoft Teams.