Power BI Assignment 3

1.List and explain different PowerBi products?

Ans-

1. **Power BI Desktop**: Power BI Desktop is a Windows application used to create interactive data visualizations and reports. It provides a powerful environment for data modeling, transformation, and designing rich dashboards. Users can connect to different data sources, create relationships between data, and apply various visualizations to present insights effectively.
2. **Power BI Service (Power BI Online)**: The Power BI Service is a cloud-based platform where users can publish and share reports and dashboards created in Power BI Desktop. It allows collaboration and sharing of insights with others within or outside an organization. With the Power BI Service, you can create dashboards, schedule data refresh, and set up data-driven alerts.
3. **Power BI Mobile Apps**: Power BI offers mobile apps for iOS and Android devices, allowing users to access their dashboards and reports on the go. The mobile apps provide a responsive and touch-friendly interface for exploring data and gaining insights from anywhere.
4. **Power BI Report Server**: Power BI Report Server is an on-premises solution that allows organizations to host Power BI reports and dashboards within their own network infrastructure. It's suitable for companies that have strict data compliance and security requirements and need to keep data on-premises.
5. **Power BI Embedded**: Power BI Embedded is designed for developers who want to integrate Power BI capabilities directly into their applications. It allows developers to embed interactive reports and dashboards seamlessly into custom applications, providing end-users with data visualization capabilities without leaving the application.
6. **Power BI Dataflows**: Power BI Dataflows allow users to ingest, transform, and load data from various sources into Power BI. It's a self-service ETL (Extract, Transform, Load) tool that simplifies data preparation and cleansing processes before creating reports and dashboards.
7. **Power BI Report Builder**: Power BI Report Builder is a standalone tool used to create paginated reports, which are more traditional and print-friendly reports. It is useful when precise formatting and layout are necessary, and interactive features are not required.

2.What limitations of Excel, Microsoft solved by PowerBi?

Ans-

1. **Scalability and Performance**: Excel can become slow and unwieldy when dealing with large datasets or complex calculations. Power BI is optimized for handling large volumes of data and can process and visualize data faster and more efficiently.
2. **Data Modeling Complexity**: In Excel, creating complex data models and managing relationships between data tables can be challenging. Power BI simplifies the process of data modeling and allows users to create relationships more intuitively, enabling better insights and analysis.
3. **Real-Time Data Refresh**: In Excel, refreshing data from external sources can be time-consuming, especially for large datasets. Power BI offers automatic and scheduled data refresh options, ensuring that reports and dashboards always display up-to-date information.
4. Collaboration and Sharing: Excel files are often shared via email or file-sharing platforms, making it difficult to manage different versions and collaborate effectively. Power BI provides a centralized cloud-based platform where users can publish and share reports, collaborate in real-time, and maintain a single source of truth.
5. Data Visualization: While Excel provides basic charting and graphing capabilities, Power BI offers a more extensive range of interactive and visually appealing data visualizations. Power BI's rich collection of visuals allows users to explore data in different ways, leading to more comprehensive insights.
6. Mobile Access: Excel files may not be optimized for mobile viewing and interaction. Power BI, on the other hand, offers dedicated mobile apps that allow users to access reports and dashboards from their smartphones and tablets, ensuring data accessibility on the go.
7. Advanced Analytics and Machine Learning: Excel has limited capabilities for advanced analytics and machine learning. Power BI integrates with Azure services, allowing users to perform complex data analysis, predictive modeling, and machine learning within the Power BI environment.
8. Embedding and Integration: Excel is primarily a standalone application, and embedding its features into other applications can be challenging. Power BI offers Power BI Embedded, enabling developers to integrate Power BI reports and dashboards directly into custom applications.
9. Data Refresh and Scheduling: Excel lacks robust automation features for data refresh and scheduling. Power BI allows users to set up automated data refreshes on a defined schedule, ensuring that reports and dashboards always reflect the latest data.
10. Data Exploration and Drill-Down: While Excel provides basic filtering and sorting options, Power BI allows users to drill down into data, apply dynamic filters, and perform ad-hoc exploration, enhancing the analytical capabilities of the platform.

3.Explain PowerQuery?

Ans-

1. **Data Source Connectivity**: Power Query supports a wide range of data sources, including databases (SQL Server, Oracle, MySQL, etc.), Excel files, CSV files, SharePoint lists, web pages, cloud-based services (Azure, SharePoint Online, etc.), and more. This extensive connectivity allows users to access data from diverse sources seamlessly.
2. **Data Transformation**: Power Query enables users to transform and clean the imported data before loading it into Excel or Power BI. It provides an intuitive, step-by-step interface for tasks like filtering, sorting, removing duplicates, splitting columns, merging tables, and more. Users can perform complex data transformations without writing any code, making it accessible to a broader range of users.
3. **Data Loading and Refreshing**: Once the data is transformed in Power Query, users can load it into Excel or Power BI. Power Query also allows users to set up data refresh schedules, ensuring that the data remains up-to-date with the latest changes from the source.
4. **Merging and Appending Data**: Power Query enables users to merge and append data from multiple sources, making it easy to combine data from different tables or files into a single dataset for analysis.
5. **Custom Columns and Formulas**: Users can create custom columns using Power Query's formula language called "M," which is similar to Excel formulas. This language allows for data manipulations, calculations, and the creation of new derived columns.
6. **Query Dependencies and Reuse**: Power Query supports creating queries that reference other queries. This feature enables query reuse and simplifies the data transformation process when multiple queries share similar steps.
7. **Data Profiling**: Power Query provides data profiling capabilities that allow users to gain insights into the structure and quality of the imported data. It helps identify potential issues or anomalies in the data, such as missing values or data type mismatches.
8. **Advanced Editor**: For more experienced users or those requiring more complex transformations, Power Query offers an Advanced Editor, where users can access and edit the underlying M code generated by the query steps.
9. **Query Parameters**: Power Query supports query parameters, which enable users to create dynamic queries that can be easily adjusted by changing parameter values. This feature is helpful when users want to change data sources or filter criteria without modifying the entire query.

4.Explain PowerMap?

Ans-

1. **Data Visualization in 3D**: Power Map provided a visually compelling way to represent data on a 3D map. Users could plot data points on a 3D globe or flat map, and they could see the data come to life as it animated and moved over time.
2. **Geospatial Data Support**: Power Map primarily focused on geographical data, such as latitude, longitude, and addresses. Users could map data points based on location, allowing them to visualize patterns, trends, and relationships geographically.
3. **Time-Series Data**: Power Map could also handle time-series data, allowing users to animate their data over time. This feature was especially useful for visualizing data that changed or evolved over different time intervals.
4. **Data Exploration**: Users could zoom, pan, and tilt the map in Power Map to explore the data from various angles. The interactivity of the 3D map allowed for a deeper understanding of spatial relationships within the data.
5. **Data Aggregation and Intensity Mapping**: Power Map offered options to aggregate data points to visualize patterns and trends in data density. Users could choose from various visualization options, such as heat maps, column charts, and bubble charts.
6. **Custom Visualizations**: Power Map allowed users to apply custom formatting and styling to the visualizations, making it easier to create impressive and engaging presentations.
7. **Data Integration**: Power Map integrated with other Excel features and data models. Users could combine Power Map with Power Pivot and Power Query to create more complex and insightful visualizations.

5. How powerBi eliminated the need to host SharePoint Server on premises?

Ans-

1. **Cloud-Based Solution**: Power BI is a cloud-based platform, meaning all the infrastructure and services required to host and maintain Power BI reports and dashboards are provided and managed by Microsoft in their data centers. This eliminates the need for organizations to set up and maintain their own on-premises infrastructure, which includes SharePoint Server.
2. **Report Publishing and Sharing**: Power BI allows users to publish reports and dashboards directly to the Power BI Service, a cloud-based platform where reports can be shared and accessed securely from anywhere with an internet connection. This removes the requirement to host and manage SharePoint sites or report libraries on-premises for sharing reports.
3. **Centralized Data Source**: Power BI allows users to connect to various data sources, including on-premises databases, cloud-based services, and other data sources. Users can set up data gateways to securely connect to on-premises data sources without exposing them to the internet. This centralized data access eliminates the need to host SharePoint on-premises solely for data source connections.
4. **Collaboration and Sharing**: Power BI Service offers collaboration features that allow multiple users to work together on the same report or dashboard in real-time. Users can share reports with specific individuals or groups and control their access rights easily. This collaborative environment removes the need for SharePoint-based document collaboration in many cases.
5. **Mobile Access**: Power BI provides dedicated mobile apps for iOS and Android devices, allowing users to access reports and dashboards on the go. This enables users to access their data without the need to set up SharePoint sites for mobile access.
6. **Integration with SharePoint Online**: While Power BI reduces the need for SharePoint Server on-premises, it can still integrate with SharePoint Online (part of Office 365) for those organizations that prefer to use a cloud-based SharePoint solution. Power BI reports and dashboards can be embedded directly into SharePoint Online pages, providing seamless access to data visualizations.

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

Ans-

1. **User Interface and Navigation**: Microsoft has regularly improved the user interface and navigation in Power BI Service to make it more intuitive and user-friendly. New features like the left-hand navigation pane, collapsible menus, and context menus have been introduced to enhance the overall user experience.
2. **Report and Dashboard Creation**: Updates have been made to the report and dashboard creation experience to provide more powerful visualization options and enhanced data exploration capabilities. New visuals, custom visualizations, and formatting options have been added to improve the presentation of data insights.
3. **Power Query and Data Transformation**: Power BI Service has seen improvements in the Power Query Editor, allowing users to perform more advanced data transformation and cleaning tasks directly in the cloud. The Power Query Online experience has been enhanced to make data preparation more efficient.
4. **Collaboration and Sharing**: Microsoft has continuously worked on improving collaboration and sharing features in Power BI Service. Users can now collaborate on reports and dashboards in real-time, leave comments, and share content securely with specific individuals or groups.
5. **Data Refresh and Connectivity**: Power BI Service has improved its data connectivity options, supporting more data sources and offering better integration with on-premises data through data gateways. Data refresh capabilities have been enhanced to ensure data is always up-to-date.
6. **AI and Advanced Analytics**: New AI-driven features, such as auto-generated insights and natural language querying (Q&A), have been introduced to help users gain insights from their data more effectively. The integration of Azure Cognitive Services has expanded the platform's capabilities further.
7. **Mobile Experience**: Power BI's mobile apps for iOS and Android have seen regular updates, providing better mobile access and interaction with reports and dashboards. Mobile users can benefit from responsive designs and touch-friendly navigation.
8. **Paginated Reports**: Microsoft has introduced support for paginated reports in Power BI Service, providing users with the ability to create and view pixel-perfect reports, suitable for printing and more traditional reporting needs.
9. **Embedded Analytics**: Power BI's Embedded Analytics capabilities have been expanded, allowing developers to seamlessly integrate Power BI reports and dashboards into custom applications for their end-users.