**Power BI Assignment 3**

**List and explain different PowerBi products.**

Power BI is a business analytics tool developed by Microsoft that allows users to visualize and analyze data from various sources. There are several products within the Power BI ecosystem that cater to different user needs. Here are some of the main Power BI products and their explanations:

Power BI Desktop:

Power BI Desktop is a Windows application used for creating powerful data visualizations and interactive reports. It provides a rich set of data transformation, modeling, and visualization capabilities. Users can connect to multiple data sources, transform and shape the data, and create visually appealing reports and dashboards using a drag-and-drop interface. Power BI Desktop is mainly used by analysts and data professionals for developing complex data models and creating advanced reports.

Power BI Service (Power BI online):

Power BI Service is a cloud-based platform for publishing, sharing, and collaborating on Power BI reports and dashboards. It allows users to publish reports created in Power BI Desktop to the cloud, share them with others, and access them from anywhere using a web browser or mobile app. Power BI Service also offers additional features such as data refresh, collaboration tools, and content management, making it ideal for sharing and distributing reports within an organization.

Power BI Mobile:

Power BI Mobile is a mobile app available for iOS and Android devices. It allows users to access and interact with Power BI reports and dashboards on their smartphones or tablets. With Power BI Mobile, users can stay connected to their data, view reports on the go, and receive notifications when data changes or certain conditions are met. It provides a seamless and responsive experience for mobile users, enabling them to make data-driven decisions anytime and anywhere.

Power BI Report Server:

Power BI Report Server is an on-premises solution that allows organizations to host Power BI reports and dashboards on their own servers. It provides a way to securely distribute Power BI content within the organization's network without relying on the cloud-based Power BI Service. Power BI Report Server is often used by enterprises that have strict data privacy and security requirements or limited connectivity to the internet.

Power BI Embedded:

Power BI Embedded is a development platform that enables developers to integrate Power BI reports and dashboards directly into their own applications. It provides a set of APIs and tools for embedding Power BI content, allowing users to view and interact with reports seamlessly within the context of their applications. Power BI Embedded is commonly used by software vendors and developers who want to add powerful data visualization capabilities to their own products or services.

These are some of the main Power BI products available, each serving a different purpose within the data analytics and visualization ecosystem. Organizations can choose the combination of products that best meets their needs based on their data requirements, deployment preferences, and collaboration scenarios.

**What limitations of Excel, and Microsoft are solved by PowerBi?**

Excel and Power BI are both powerful data analysis and visualization tools developed by Microsoft, but they have different strengths and limitations. Here are some limitations of Excel that Power BI aims to address:

1. Data size and performance: Excel has limitations when it comes to handling large datasets. It can become slow and cumbersome when working with millions of rows or complex calculations. Power BI is designed to handle large volumes of data efficiently and provides faster performance for data processing and visualization.
2. Data modeling and relationships: Excel allows users to create simple data models using formulas and functions, but managing complex relationships between multiple tables can be challenging. Power BI offers robust data modeling capabilities with a user-friendly interface for defining relationships, creating hierarchies, and implementing advanced calculations.
3. Data integration and connectivity: Excel provides basic connectivity options to various data sources, but it may require manual data extraction, transformation, and loading (ETL) processes. Power BI offers a wide range of connectors and built-in integration capabilities to connect to various data sources, including cloud services, databases, and online platforms. It simplifies the process of importing and refreshing data from multiple sources.
4. Interactive dashboards and visualizations: Excel offers basic charting and visualization features, but creating interactive dashboards and complex visualizations can be cumbersome. Power BI is specifically designed for creating interactive and visually appealing dashboards and reports. It provides a wide range of customizable visualizations, advanced filtering options, drill-through capabilities, and interactive features for data exploration.
5. Collaboration and sharing: Excel files are often shared via email or file sharing platforms, making it challenging to maintain a centralized and up-to-date version of the data. Power BI provides a cloud-based platform where users can collaborate, share, and publish reports and dashboards. It allows for real-time collaboration, version control, and scheduled data refreshes, ensuring that everyone has access to the latest information.
6. Scalability and extensibility: Excel is primarily a desktop application, and its scalability may be limited when multiple users need to work with the same data simultaneously or when the organization requires enterprise-level features. Power BI offers enterprise-grade scalability, extensibility, and security features. It can handle large-scale deployments, integrate with other Microsoft services like Azure and SharePoint, and provide more advanced analytics capabilities.

By addressing these limitations, Power BI complements Excel and provides a dedicated platform for data analysis, visualization, and collaboration, especially for larger datasets and more complex analytical requirements.

**Explain PowerQuery.**

Power Query is a data transformation and data preparation tool developed by Microsoft. It is a feature available in various Microsoft products such as Excel, Power BI, and Power Automate. Power Query allows users to connect to different data sources, perform data cleansing and transformation tasks, and load the transformed data into a destination for analysis and reporting.

Here are some key features and concepts related to Power Query:

1. Data Connection: Power Query enables you to connect to a wide range of data sources, including databases, Excel files, CSV files, SharePoint lists, web pages, and more. It provides a user-friendly interface to specify the connection details and access the data.
2. Data Transformation: Power Query provides a set of powerful tools to clean, shape, and transform data. It allows you to perform operations such as filtering rows, removing duplicates, splitting or merging columns, transposing data, changing data types, and applying calculations or formulas to transform the data structure.
3. Query Editor: Power Query includes a Query Editor, which is a visual interface where you can define and manage your data transformation steps. It provides a preview of the data at each step, making it easy to see the effect of applied transformations. The Query Editor also offers a wide range of options to customize and fine-tune data transformation operations.
4. M Language: Power Query uses a formula language called M to define data transformation steps. The M language is a functional language that allows you to express complex data transformation logic. In the Query Editor, you can either use the graphical user interface (GUI) or switch to the Advanced Editor to write or modify M code directly.
5. Data Loading: Once you have transformed the data in Power Query, you can choose to load it into the destination of your choice. This could be an Excel worksheet, a Power BI dataset, a database table, or any other supported output. Power Query provides options to append data to an existing destination, replace the data, or create a new table.
6. Refreshable Queries: Power Query supports refreshable queries, which means you can establish a connection to the original data source and update the transformed data with the latest information. This is particularly useful when dealing with dynamic or frequently changing data.

Overall, Power Query simplifies the process of extracting, transforming, and loading data from various sources. It provides a user-friendly and flexible way to perform data preparation tasks, enabling users to efficiently clean and shape data for analysis and reporting purposes.

**Explain PowerMap.**

As of my knowledge cutoff in September 2021, there is no widely known technology or concept called "PowerMap." It is possible that you may be referring to a specific product, software, or feature that has been introduced after my knowledge cutoff.

However, I can provide you with a general explanation of what a power mapping or power analysis concept could entail. Power mapping is a term often used in political and advocacy contexts. It refers to a strategic tool used to identify and analyze individuals or groups of people who have power and influence within a particular system or issue.

The purpose of power mapping is to understand the relationships, connections, and influence dynamics among key stakeholders involved in a specific context. This mapping process involves identifying decision-makers, influential organizations, community leaders, media outlets, and other relevant actors who can affect the outcome of an issue or campaign.

By creating a visual representation or a database of the identified stakeholders and their relationships, power mapping helps advocates, activists, or organizations develop effective strategies to achieve their goals. It allows them to prioritize targets for engagement, understands potential allies or opponents, and tailor their messages and actions accordingly.

Power mapping can be a useful tool in various fields, including politics, social justice movements, corporate advocacy, and community organizing. It assists in understanding the power dynamics at play and enables individuals or groups to navigate and influence those dynamics to achieve their objectives effectively.

**How powerBi eliminated the need to host SharePoint Server on-premises?**

Power BI is a powerful business intelligence and data visualization tool developed by Microsoft. While Power BI and SharePoint Server are both Microsoft products, they serve different purposes and can complement each other in various ways.

Power BI allows users to create interactive reports and dashboards, connect to multiple data sources, and analyze data in real-time. It provides robust data visualization capabilities, data modeling tools, and a user-friendly interface for creating insightful reports.

SharePoint Server, on the other hand, is a collaboration platform that allows organizations to create websites, manage content, and facilitate team collaboration. It offers features such as document management, workflow automation, and enterprise search.

In the past, organizations often used SharePoint Server as a platform for hosting and sharing Power BI reports. This required maintaining an on-premises SharePoint Server infrastructure, including server hardware, software installation, updates, and ongoing maintenance.

However, with the evolution of Power BI and the availability of cloud-based services, organizations now have the option to host their Power BI reports and dashboards directly in the Power BI service, which is part of the Microsoft Power Platform. The Power BI service is a cloud-based platform that allows users to publish, share, and collaborate on Power BI content.

By leveraging the Power BI service, organizations can eliminate the need for hosting SharePoint Server on-premises specifically for Power BI purposes. Here are a few reasons why this shift has been beneficial:

1. Simplified infrastructure: Hosting Power BI reports in the cloud removes the need to maintain and manage an on-premises SharePoint Server infrastructure solely for Power BI. It reduces the hardware, software, and maintenance costs associated with hosting and managing SharePoint on-premises.
2. Enhanced scalability: The Power BI service provides scalability to handle large amounts of data and concurrent user access. It allows organizations to scale their Power BI deployments based on their needs, without worrying about infrastructure limitations.
3. Improved collaboration: The Power BI service offers robust collaboration features, including sharing dashboards, reports, and datasets with colleagues, setting up data-driven alerts, and facilitating real-time collaboration on shared content. These features enable teams to collaborate more effectively and share insights across the organization.
4. Seamless integration: Power BI integrates seamlessly with SharePoint Online, the cloud-based version of SharePoint. Organizations can embed Power BI reports and dashboards directly within SharePoint Online sites, providing users with a unified experience and easy access to data-driven insights.

While hosting SharePoint Server on-premises may still be necessary for certain SharePoint-specific functionalities or organizational requirements, leveraging the Power BI service can significantly reduce the infrastructure complexities and costs associated with hosting SharePoint specifically for Power BI purposes.

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

Power BI is a cloud-based business analytics service provided by Microsoft. It allows users to create interactive reports and dashboards, and share them with others in their organization. Here are some of the key updates and features introduced in Power BI Service:

1. Power BI Desktop Integration: Power BI Desktop is a Windows application that allows users to create and publish reports and visualizations. The Power BI Service integrates with Power BI Desktop, enabling users to publish their reports and dashboards directly from the desktop to the cloud-based service.
2. Power BI Mobile App: Power BI offers mobile apps for iOS and Android devices, allowing users to access their reports and dashboards on the go. The mobile app provides an optimized viewing experience and supports touch gestures for interacting with visualizations.
3. Collaboration and Sharing: Power BI Service enables users to collaborate and share their reports and dashboards with others in their organization. Users can share reports with specific individuals or groups, control access permissions, and collaborate in real-time on shared content.
4. Content Packs: Content Packs allow users to package and share their dashboards, reports, and datasets with others. These packs include pre-built dashboards, reports, and data connections, making it easier to share and consume specific sets of information.
5. Natural Language Query: Power BI incorporates a natural language query feature that allows users to ask questions about their data using plain language. Users can type or speak queries, and Power BI will generate visualizations based on the requested data.
6. Custom Visuals: Power BI supports a wide range of custom visuals created by the community and partners. These visuals extend the built-in visualizations and provide additional ways to represent data. Users can import custom visuals directly into their reports and dashboards.
7. Power BI Embedded: Power BI Embedded allows developers to integrate Power BI reports and dashboards into custom applications. This enables organizations to embed analytics capabilities directly within their own software products or websites.
8. Data Gateway: Power BI offers a data gateway that allows users to securely connect and refresh their on-premises data sources with the cloud-based service. The gateway facilitates scheduled data refreshes, ensuring that reports and dashboards always reflect the latest data.
9. Power Automate Integration: Power Automate (formerly known as Microsoft Flow) provides workflow automation capabilities. Power BI integrates with Power Automate, enabling users to trigger actions based on data changes or specific conditions in their reports and dashboards.

These are just some of the updates and features available in Power BI Service as of September 2021. Microsoft regularly introduces new features and enhancements, so it's advisable to refer to official documentation or the Power BI website for the latest information on updates.