1. **List and explain different PowerBi products?**

**Power BI is a business analytics tool developed by Microsoft that provides a range of products and services to help organizations analyze data and share insights. Here are the main Power BI products:**

**1. Power BI Desktop: This is a Windows application used to create interactive reports and visualizations. It offers a powerful set of data modeling, transformation, and visualization tools, allowing users to connect to various data sources, shape data, create relationships, and design compelling reports.**

**2. Power BI Service: Also known as Power BI online, it is a cloud-based service where you can publish, share, collaborate on, and access Power BI reports and dashboards. It offers features such as data refresh, sharing and collaboration options, and content management capabilities.**

**3. Power BI Mobile: It is a mobile app available for iOS and Android devices, allowing users to access and interact with their Power BI reports and dashboards on the go. The mobile app provides a responsive and touch-friendly experience, enabling users to stay connected and make data-driven decisions anytime, anywhere.**

**4. Power BI Report Server: This product allows organizations to host and distribute Power BI reports on their own on-premises servers. It provides a secure and scalable solution for deploying Power BI reports within the organization's infrastructure, ensuring data privacy and compliance with regulatory requirements.**

**5. Power BI Embedded: It is a developer-oriented offering that enables developers to embed Power BI reports, dashboards, and visualizations into custom applications or websites. Power BI Embedded provides a set of APIs and tools to integrate Power BI capabilities seamlessly within other applications, extending analytics functionality to end-users.**

**6. Power BI Premium: This is a capacity-based licensing model that offers dedicated resources and enhanced performance for Power BI workloads. Power BI Premium allows organizations to scale their analytics solutions and provides additional features such as AI-powered dataflows, paginated reports, and advanced data refresh options.**

**7. Power BI Report Builder: It is a standalone Windows application used for creating pixel-perfect paginated reports. Power BI Report Builder offers advanced formatting options and layout capabilities, making it suitable for scenarios where precise control over report design and printing requirements are essential.**

**These Power BI products cater to different needs and use cases, providing a comprehensive suite of tools and services for data analysis, reporting, and sharing insights within organizations and with external stakeholders.**

1. **What limitations of Excel, Microsoft solved by PowerBi?**

**Power BI was developed by Microsoft to address certain limitations of Excel in the context of data analysis and reporting. Here are some of the limitations of Excel that Power BI helps to overcome:**

**1. Handling large and complex datasets: Excel has limitations in processing and analyzing large and complex datasets efficiently. Power BI, on the other hand, is designed to handle large volumes of data and perform advanced data modeling and calculations more effectively.**

**2. Data transformation and modeling: Excel provides basic data transformation capabilities, but it can become cumbersome and time-consuming to clean, shape, and model data, especially when dealing with multiple data sources. Power BI offers a more robust and user-friendly data modeling experience, allowing users to define relationships, create calculated columns and measures, and perform complex data transformations using Power Query.**

**3. Interactive visualizations: Excel has limited options for creating interactive and dynamic visualizations. Power BI provides a wide range of customizable visualizations and interactive features, allowing users to create engaging and insightful dashboards and reports. Power BI also supports cross-filtering and drill-through capabilities, enhancing the interactive data exploration experience.**

**4. Data refresh and real-time updates: Excel requires manual data refreshing, which can be time-consuming and prone to errors. Power BI offers automated data refresh capabilities, allowing users to schedule data refreshes or enable real-time data streaming for live updates. This ensures that reports and dashboards are always up to date with the latest data.**

**5. Collaboration and sharing: Excel files are typically shared through email or file sharing platforms, making collaboration and version control challenging. Power BI provides a cloud-based service (Power BI Service) where reports and dashboards can be published and shared securely. It allows multiple users to collaborate, make annotations, and provide comments on shared content, fostering better teamwork and data-driven decision-making.**

**6. Scalability and performance: Excel can face performance issues when dealing with large datasets or complex calculations. Power BI offers scalability and performance optimizations, particularly with Power BI Premium, which provides dedicated resources and improved performance for handling large workloads and supporting concurrent users.**

**By addressing these limitations, Power BI empowers organizations to effectively analyze, visualize, and share data, enabling better insights, collaboration, and decision-making.**

1. **Explain Power Query?**

**Power Query is a data connectivity and transformation tool in the Power BI suite. It is also available as a separate add-in for Excel. Power Query allows users to connect to various data sources, transform and shape the data, and load it into their analysis or reporting tools.**

**Here are key features and benefits of Power Query:**

**1. Data Source Connectivity: Power Query supports a wide range of data sources, including databases, files (such as Excel, CSV, XML), websites, cloud services (like Azure SQL Database, SharePoint Online), and more. It simplifies the process of accessing data from multiple sources and consolidating them into a unified view.**

**2. Data Transformation: Power Query provides a user-friendly interface for data transformation tasks. Users can apply various operations to clean, filter, aggregate, and manipulate the data. It offers a comprehensive set of data transformation functions, such as splitting columns, merging tables, appending data, pivoting, unpivoting, and advanced data type conversions.**

**3. Data Cleansing and Shaping: Power Query includes features to clean and shape data, ensuring it is in a suitable format for analysis. Users can remove duplicate rows, handle missing values, rename columns, change data types, and perform other data quality tasks. Power Query also allows users to create custom columns using formulas or perform calculations on existing columns.**

**4. Data Merging and Consolidation: Power Query facilitates data consolidation from multiple sources by allowing users to merge or append data tables. It offers options to match and combine data based on common columns or key values. This is particularly useful when working with data from different departments, systems, or external sources.**

**5. Query Dependencies and Reusability: Power Query supports creating a series of query steps that form a data transformation workflow. These steps can be easily applied to multiple datasets or refreshed as new data becomes available. Users can create reusable query templates, share them across reports or workbooks, and ensure consistent data transformation processes.**

**6. Query Folding: Power Query leverages query folding to optimize performance when connecting to supported data sources. Query folding pushes certain operations and calculations back to the data source, reducing the amount of data transferred and improving overall query performance.**

**7. Advanced Data Loading and Refresh: Power Query allows users to specify how and when to load data into their analysis or reporting tools. They can choose to load the entire dataset or apply filters and load a subset of data. Power Query also provides options for refreshing data, including manual refresh, scheduled refresh, and incremental data loading.**

**Power Query offers a powerful and intuitive interface for data preparation and transformation, empowering users to extract, clean, and shape data from diverse sources, ensuring it is ready for analysis and reporting in Power BI or Excel.**

**4.Explain PowerMap?**

**I apologize for the confusion, but as of my knowledge cutoff in September 2021, there is no official Microsoft product called "PowerMap" within the Power BI suite. However, I can provide information on a similar feature called "Power Map," which was available in earlier versions of Excel.**

**Power Map, also known as 3D Maps, was an Excel add-in that allowed users to visualize data on a 3D globe or custom map. It provided a way to explore geographic and temporal data in an interactive and visually engaging manner. With Power Map, users could plot data points on a map, create animated tours to tell a story with the data, and apply various visual effects to enhance the presentation.**

**Some key features of Power Map (3D Maps) included:**

**1. Geographic Mapping: Power Map supported plotting data points, such as cities, countries, or specific locations, on a 3D globe or custom map. Users could assign data attributes to different aspects of the map, such as latitude, longitude, region, or values, to create informative visualizations.**

**2. Time-based Analysis: Power Map allowed users to visualize data over time by animating the movement and changes of data points on the map. This feature was useful for analyzing trends, patterns, or temporal relationships in data across different geographical locations.**

**3. Customization and Visual Effects: Power Map offered various options to customize the appearance of the visualizations. Users could apply different colors, sizes, and shapes to data points, as well as add labels, tooltips, and other visual effects to enhance the presentation and convey information effectively.**

**4. Storytelling with Tours: Power Map allowed users to create interactive tours to guide viewers through the data visualization. Users could define specific scenes, viewpoints, and transitions to present a narrative or highlight important insights within the data.**

**It's worth noting that as of my knowledge cutoff in September 2021, Microsoft had shifted its focus to Power BI as the primary platform for data analysis and visualization. While the Power Map feature was available in earlier versions of Excel, it is no longer actively developed or included in recent versions of Excel or Power BI.**

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

**Power BI, as a cloud-based business analytics service, offers a range of features that eliminate the need for hosting SharePoint Server on-premises for certain scenarios. Here's how Power BI accomplishes this:**

**1. Data Storage and Management: Power BI provides cloud-based data storage and management capabilities, allowing users to upload, store, and manage their data directly in the Power BI service. This eliminates the need to host and maintain a separate SharePoint Server for data storage and management purposes.**

**2. Sharing and Collaboration: Power BI offers robust sharing and collaboration features, enabling users to share reports, dashboards, and datasets with colleagues and stakeholders. Power BI allows users to control access levels, collaborate in real-time, and provide interactive data exploration experiences without relying on SharePoint Server's collaboration features.**

**3. Web-Based Reporting and Dashboards: Power BI offers a web-based report authoring experience where users can create and publish reports and dashboards directly within the Power BI service. This eliminates the need for SharePoint Server's reporting capabilities and reduces the complexity associated with hosting and managing SharePoint reports.**

**4. Content Embedding: Power BI enables users to embed Power BI reports, dashboards, and visuals into SharePoint pages or other web applications without the need for SharePoint Server infrastructure. This allows users to seamlessly integrate Power BI content into their existing SharePoint sites or other platforms, enhancing data visualization and analysis capabilities.**

**5. Data Refresh and Security: Power BI provides automated data refresh capabilities, ensuring that reports and dashboards are always up to date with the latest data. Additionally, Power BI offers robust security measures, including role-based access control, data encryption, and compliance certifications, to ensure the security and privacy of data, reducing the reliance on SharePoint Server for these features.**

**By offering a comprehensive cloud-based analytics platform, Power BI simplifies data storage, sharing, collaboration, and reporting, reducing the need for hosting and maintaining SharePoint Server on-premises for these specific purposes. Organizations can leverage the Power BI service to centralize their data, enable self-service analytics, and enhance collaboration and insights without the infrastructure complexities associated with SharePoint Server.**

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

**As of my knowledge cutoff in September 2021, the term "Power BI 2.0" is not commonly used to refer to a specific update or version of Power BI Service. However, I can provide a general overview of updates and enhancements made to Power BI Service over time compared to older versions. Please note that new features and updates are regularly released by Microsoft, so it's always recommended to refer to the official Power BI documentation for the most up-to-date information. Here are some notable updates in Power BI Service:**

**1. Improved User Interface: Power BI Service has undergone several updates to its user interface, making it more intuitive, user-friendly, and consistent across different devices and platforms. The interface updates include improved navigation, simplified access to key functionalities, and responsive design for mobile devices.**

**2. Enhanced Collaboration and Sharing: Power BI Service has introduced enhancements to collaboration and sharing capabilities. Users can easily share reports, dashboards, and datasets with colleagues and stakeholders, controlling access permissions and enabling real-time collaboration. Features like commenting, annotation, and collaboration through shared workspaces have been added to improve teamwork and data-driven decision-making.**

**3. Advanced Analytics and AI Integration: Power BI Service has expanded its analytics capabilities, integrating with advanced analytics tools such as Azure Machine Learning and Azure Cognitive Services. This enables users to incorporate machine learning models, natural language processing, and other AI functionalities into their Power BI reports and dashboards for more sophisticated analysis and insights.**

**4. Paginated Reports: Power BI Service introduced paginated reports, which are pixel-perfect, printable, and shareable reports optimized for printing or generating PDFs. These reports are suited for scenarios where precise control over layout and formatting is required, such as financial statements, invoices, or operational reports.**

**5. Power Automate Integration: Power BI Service offers integration with Microsoft Power Automate (formerly known as Microsoft Flow). This integration allows users to automate workflows and trigger actions based on events or data changes in Power BI, enabling seamless data-driven processes and notifications.**

**6. Dataflows and Common Data Model: Power BI Service introduced dataflows, which allow users to create, manage, and share reusable data entities within their organization. Dataflows provide a way to define and automate data extraction, transformation, and loading (ETL) processes. Additionally, Power BI has integrated with the Common Data Model, facilitating data integration across various Microsoft and third-party applications.**

**7. Power BI Apps: Power BI Service introduced Power BI Apps as a way to package and distribute pre-built content, such as dashboards, reports, and datasets, to users within an organization or to external users. Power BI Apps streamline the deployment and consumption of analytics content, making it easier to share insights and promote self-service analytics.**

**These are just a few examples of the updates and enhancements made to Power BI Service over time. Microsoft continuously adds new features, improves performance, and enhances the overall user experience based on user feedback and industry trends. It's always recommended to refer to the official Power BI documentation and release notes for the most up-to-date information on new features and updates.**