

1. List and explain different Power BI products?

Ans :

Sure, Power BI is a suite of business analytics tools developed by Microsoft that aims to provide interactive visualizations and business intelligence capabilities. Here are some of the main products and components within the Power BI ecosystem:

Power BI Desktop: This is a free application that you can install on your computer to create reports and visualizations. It offers a rich set of data connectivity options, data transformation capabilities, and a powerful query editor for shaping your data. Power BI Desktop is primarily used by report authors and data analysts to build reports and dashboards before sharing them with others.

Power BI Service (Power BI online): This is the cloud-based service provided by Microsoft where you can publish, share, and collaborate on Power BI reports and dashboards. It allows you to access your reports from anywhere using a

web browser or mobile device. Power BI Service also offers features like automatic data refresh, scheduled report subscriptions, and app workspaces for team collaboration.

Power BI Mobile Apps: Microsoft provides Power BI mobile apps for iOS, Android, and Windows devices. These apps allow users to view and interact with their Power BI reports and dashboards on the go. You can access your data from anywhere, receive notifications about important changes, and even annotate and share insights directly from your mobile device.

Power BI Report Server: This is an on-premises report server solution that allows organizations to host and manage their Power BI reports and dashboards within their own infrastructure. It provides similar functionality to the Power BI Service but is deployed within the organization's firewall, offering greater control over data security and compliance.

Power BI Embedded: Power BI Embedded is a platform-as-a-service (PaaS) offering that allows developers to integrate Power BI capabilities directly into their custom

applications. It provides APIs and SDKs for embedding Power BI reports, dashboards, and visuals seamlessly into web and mobile applications, enabling organizations to create data-driven experiences for their users without requiring them to have a separate Power BI license.

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

Ans:

Power BI addresses several limitations of Excel, particularly in the realm of data analysis, visualization, and collaboration. Here are some key limitations of Excel that Power BI helps to overcome:

Scalability: Excel has limitations on the amount of data it can handle efficiently. Power BI can handle much larger datasets and is optimized for working with big data scenarios. It can connect to a wide range of data sources, including cloud-based databases and big data

platforms, allowing for analysis of large and diverse datasets.

Performance: Excel can become slow and sluggish when working with large datasets or complex calculations. Power BI is designed for performance, with optimizations for data processing and visualization rendering. It can handle complex calculations and visualizations with greater speed and efficiency compared to Excel.

Data Modeling: Excel has limited capabilities for data modeling and shaping. Power BI includes a robust data modeling engine that allows users to create relationships between tables, define calculations using DAX (Data Analysis Expressions), and perform advanced data transformations using Power Query. This enables more sophisticated analysis and reporting compared to Excel.

Interactive Visualizations: While Excel offers basic charting and graphing capabilities, Power BI provides a wide range of interactive visualization options, including custom visuals created by the community and Microsoft

partners. Power BI visualizations are highly customizable and can be used to create compelling interactive reports and dashboards that encourage exploration and discovery of insights.

Collaboration and Sharing: Excel workbooks are typically shared as files, which can lead to version control issues and difficulties in collaboration. Power BI offers centralized sharing and collaboration through the Power BI Service, where reports and dashboards can be published to a secure cloud-based environment and accessed by authorized users from anywhere. It also provides features like automatic data refresh and scheduled report subscriptions for streamlined distribution of insights.

Real-time Data Analysis: Excel lacks native support for real-time data analysis. Power BI can connect to real-time data streams and continuously update visualizations as new data becomes available. This enables users to monitor key metrics and trends in real-time, making timely decisions based on the most

up-to-date information.

3.Explain Power Query?

Ans:

Power Query is a data connectivity and data transformation tool that is integrated into several Microsoft products, including Excel, Power BI, and more recently, SQL Server Analysis Services (SSAS) and Azure Data Studio. It enables users to easily discover, connect to, and import data from a wide variety of sources, and then transform that data to meet their specific requirements.

Here are some key features and functionalities of Power Query:

Data Connectivity: Power Query provides a wide range of data connectors that allow users to connect to various data sources, including databases, files, online services, and even custom data sources via APIs. This includes popular sources like SQL Server, Azure SQL

Database, Excel files, CSV files, SharePoint lists, Salesforce, Google Analytics, and many more.

Data Transformation: Once connected to a data source, Power Query allows users to perform a series of data transformation steps to clean, shape, and prepare the data for analysis. This includes tasks such as removing duplicates, filtering rows, splitting columns, merging tables, unpivoting data, and applying transformations using a graphical user interface without the need for complex coding.

Query Editor: The Query Editor is the main interface within Power Query where users can define and edit their data transformation steps. It provides a user-friendly environment with a series of ribbon tabs and contextual menus for performing common data manipulation tasks. Users can preview their data at each step of the transformation process and easily undo or redo changes as needed.

M Language: Behind the scenes, Power Query uses a functional programming language called M for defining data transformation logic. While

users primarily interact with Power Query through the graphical user interface, they also have the option to view and edit the underlying M code. This provides greater flexibility and control for advanced users who want to customize their data transformation process beyond what is available in the graphical interface.

Query Folding: Power Query is designed to optimize data retrieval and transformation operations whenever possible. Query Folding is a performance optimization technique where Power Query pushes certain data transformation steps back to the data source, allowing the source system to perform the transformations directly. This can significantly improve query performance, especially when working with large datasets.

Integration with Power BI and Excel: In Power BI, Power Query is integrated into the Power BI Desktop authoring tool, allowing users to connect to data, perform data transformations, and load data into Power BI datasets and reports. In Excel, Power Query is

available as a separate add-in and is known as Get & Transform Data. It provides similar functionality for importing and transforming data directly within Excel worksheets.

4. Explain Power Map?

Ans:

Power Map is a 3D data visualization tool that is part of the Microsoft Power BI suite. It allows users to plot geographic and temporal data on a 3D globe or custom map, creating interactive and visually engaging visualizations to explore spatial patterns and trends in their data.

Here are some key features and functionalities of Power Map:

Geospatial Mapping: Power Map enables users to visualize data points on a map based on geographic coordinates such as latitude and longitude. Users can plot locations, regions, or custom boundaries on a map to represent

their data geographically.

Time Series Analysis: In addition to spatial mapping, Power Map supports temporal analysis by allowing users to visualize data changes over time. Users can animate their data to see how it evolves over different time intervals, providing insights into trends and patterns that may vary over time.

Customization Options: Power Map offers various customization options to enhance the appearance and interactivity of visualizations. Users can adjust the visual style of their maps, including color schemes, shading, and lighting effects, to highlight different aspects of their data. They can also add annotations, labels, and tooltips to provide additional context and information to viewers.

Data Exploration: Power Map provides interactive tools for exploring and analyzing data within the visualization. Users can zoom, pan, and rotate the 3D globe to view their data from different perspectives. They can also filter and slice their data to focus on specific regions, time periods, or categories of interest, enabling

deeper insights and exploration of spatial relationships within the data.

Integration with Power BI: Power Map is tightly integrated with the Power BI ecosystem, allowing users to create Power Map visualizations directly within Power BI reports and dashboards. This enables seamless integration with other Power BI features and data sources, providing a unified platform for data analysis and visualization.

Sharing and collaboration: Power Map visualizations created in Power BI can be shared and collaborated on with others within the organization. Users can publish their Power BI reports containing Power Map visualizations to the Power BI Service, where they can be accessed by authorized users via web browsers or mobile devices. This enables teams to collaborate on data analysis and share insights more effectively.

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

Ans:

Power BI has significantly reduced the need for organizations to host SharePoint Server on-premises for certain business intelligence and collaboration needs. Here's how:

Cloud-Based Solution: Power BI is a cloud-based business intelligence platform provided by Microsoft as part of the Office 365 suite. With Power BI, organizations can store and access their data, reports, and dashboards securely in the cloud, eliminating the need for on-premises infrastructure such as SharePoint Server.

Self-Service Analytics: Power BI empowers users to create their own reports and dashboards using self-service analytics capabilities. Users can connect to various data sources, import data, and create interactive visualizations without relying on IT or SharePoint administrators to set up and manage server infrastructure.

Integration with Office 365: Power BI integrates seamlessly with other Office 365 services, including SharePoint Online. Users can embed

Power BI reports and dashboards directly into SharePoint Online sites and pages, providing a unified and familiar experience for accessing and sharing insights within the organization.

Collaboration and Sharing: Power BI offers robust collaboration and sharing features that enable teams to work together on data analysis and reporting. Users can share Power BI content, such as reports and dashboards, with colleagues and stakeholders via SharePoint Online, ensuring secure and centralized access to insights without the need for on-premises SharePoint Server.

Data Refresh and Scheduled Refresh: Power BI allows users to schedule automatic data refreshes for their reports and datasets, ensuring that insights are always up-to-date. This functionality is available in Power BI without the need for SharePoint Server, enabling organizations to maintain timely and accurate reporting without on-premises infrastructure.

Mobile Access: Power BI provides mobile apps for iOS, Android, and Windows devices, allowing users

to access their reports and dashboards on the go. Users can view, interact with, and share Power BI content from their mobile devices, enhancing productivity and decision-making without relying on SharePoint Server for mobile access.

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

Ans : Enhanced User Interface: Microsoft periodically updates the user interface of Power BI Service to improve usability and accessibility. This includes redesigns of navigation menus, workspace layouts, and report interactions to make it easier for users to find and interact with their data.

New Visualizations: Microsoft regularly adds new visualizations and chart types to Power BI Service, providing users with more options for representing their data visually. These new visualizations may include custom visuals developed by Microsoft partners or the Power BI

community.

Improved Performance: Microsoft continuously works on optimizing the performance of Power BI Service, including faster data loading, rendering, and interactivity. Updates may include enhancements to backend infrastructure, query processing, and caching mechanisms to improve overall performance for users.

Enhanced Data Connectivity: Power BI Service offers connectivity to a wide range of data sources, and Microsoft frequently adds support for new data connectors to enable users to access data from additional sources. Updates may also include improvements to existing connectors for better performance and reliability.

Advanced Analytics Features: Microsoft adds new advanced analytics features to Power BI Service to help users gain deeper insights from their data. This may include integrations with Azure Machine Learning for predictive analytics, support for R and Python scripts within reports, and built-in AI capabilities for data

visualization and analysis.

Collaboration and Sharing: Microsoft continuously enhances collaboration and sharing features in Power BI Service to facilitate teamwork and knowledge sharing within organizations. Updates may include improvements to sharing permissions, commenting features, and integration with Microsoft Teams and other collaboration tools.

Mobile Experience: Microsoft updates the Power BI mobile apps for iOS, Android, and Windows devices regularly to improve the mobile experience for users. Updates may include new features, performance improvements, and enhancements to mobile report rendering and interactivity.