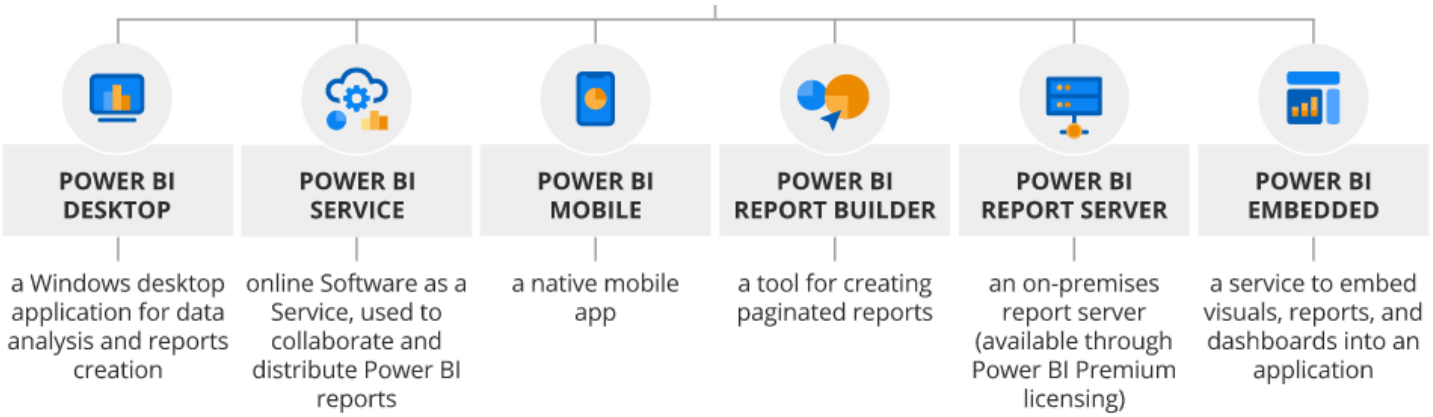
Power BI Assignment 3

1. List and explain different PowerBi products?



- **Power BI Desktop**

  Power BI Desktop is a free application you install on your local computer that lets you connect to, transform, and visualize your data. With Power BI Desktop, you can connect to multiple different sources of data, and combine them (often called modeling) into a data model. This data model lets you build visuals, and collections of visuals you can share as reports, with other people inside your organization. Most users who work on business intelligence projects use Power BI Desktop to create reports, and then use the Power BI service to share their reports with others.

  The most common uses for Power BI Desktop are as follows:

  - Connect to data.
  - Transform and clean data to create a data model.
  - Create visuals, such as charts or graphs that provide visual representations of the data.
  - Create reports that are collections of visuals on one or more report pages.
  - Share reports with others by using the Power BI service.

  People who are responsible for such tasks are often considered data analysts (sometimes referred to as analysts) or business intelligence professionals (often referred to as report creators). Many people who don't consider themselves an analyst or a report creator use Power BI Desktop to create compelling reports, or to pull data from various sources. They can build data models, and then share the reports with their coworkers and organizations.

  There are three views available in Power BI Desktop, which you select on the left side of the canvas. The views, shown in the order they appear, are as follows:

  - Report: You create reports and visuals, where most of your creation time is spent.

- Data: You see the tables, measures, and other data used in the data model associated with your report, and transform the data for best use in the report's model.
- Model: You see and manage the relationships among tables in your data model.

- **Power BI Service**

  Power BI is a collection of software services, apps, and connectors that work together to help you create, share, and consume business insights in the way that serves you and your business most effectively. The Microsoft Power BI service (https://app.powerbi.com), sometimes referred to as Power BI online, is the software as a service (SaaS) part of Power BI. In the Power BI service, dashboards help you keep a finger on the pulse of your business. Dashboards display tiles, which you can select to open reports for exploring further. Dashboards and reports connect to datasets that bring all of the relevant data together in one place.

  In a typical Power BI workflow, you begin by building a report in Power BI Desktop, then publishing it to the Power BI service.

  This workflow is common, but you can also create Power BI reports right in the Power BI service. Do you have a subscription to a SaaS application like Salesforce? Power BI has apps that automatically create dashboards and reports from your online data. Get a head start by connecting to Salesforce or check out the other SaaS apps you can connect to. If you're part of an organization, someone in your organization might have published apps and distributed them to you.

  After you've created reports and dashboards, you can share them. End users in the Power BI service and mobile devices can view and interact with them. Being able to control how you share your work is one of the most important features of the Power BI service. You create workspaces where you and your colleagues can collaborate on reports and dashboards. Then you can bundle and distribute them as apps. You can also share the datasets themselves, so others can use them as a basis for their own reports. Read more about ways to collaborate and share your work in Power BI.

- **Power BI Mobile**

  Power BI Mobile is a native mobile app. You can securely access and view live Power BI dashboards and reports on any device, with native mobile BI apps for Windows, iOS, and Android.

  Monitor your business right from your phone. Access on-premises data stored in SQL Server, or data in the cloud. Keep on top of KPIs and reports—Power BI Mobile apps give you a 360-degree view of your data—on the go. And, keep your company’s data secure with mobile device and application management capabilities with Microsoft Intune.

  Author reports for mobile users with Power BI Desktop, and view live dashboards and reports on mobile devices with fast and fluid visuals that accelerate your time-to-insight. Use natural

language query to ask questions of your data, and geographic location to filter your data according to where you are.

Easily annotate reports with your touch-enabled screen, to draw your team's focus to new insights. Share live reports and dashboards directly from the app to keep your team on the same page.

Get push notifications for personal data alerts to your device, and use 3D touch on iOS to quickly access shortcuts directly from your home screen. See your data update in real time on phones, tablets, and Apple Watch.

Author for mobile users with Power BI Desktop and the Power BI service. Securely access Power BI reports and dashboards, SQL Server Reporting Services, and your on-premises Power BI Report Server content—all in one app. Keep your company's data secure with Microsoft Intune mobile device and application management capabilities.

- **Power BI Report Builder**

  Create pixel-perfect paginated reports for printing or electronic distribution with a familiar experience relied on by thousands of report authors.

  Power BI Report Builder is a tool for authoring paginated reports that you can publish to the Power BI service. Paginated reports are designed to be printed or shared. They're formatted to fit well on a page, and they display all the data in a table, even if the table spans multiple pages. When you design a paginated report, you're creating a report definition that specifies what data to retrieve, where to get it, and how to display it. When you run the report, the report processor takes the report definition you have specified, retrieves the data, and combines it with the report layout to generate the report. You preview your report in Report Builder. Then publish your report to the Power BI service.

- **Power BI Report Server**

  Power BI Report Server is the on-premises solution for reporting today, with the flexibility to move to the cloud tomorrow. It's included with Power BI Premium so you have the ability to move to the cloud on your terms.

  Report Server gives your users access to rich, interactive reports, and the enterprise reporting capabilities of SQL Server Reporting Services. Explore visual data and quickly discover patterns to make better, faster decisions. At the same time, generate pixel-perfect paginated reports your business needs. You also have the ability to confidently scale to thousands of users because Power BI Report Server is based on a proven, enterprise-grade platform.

  Apply governance on your own terms, with Power BI Report Server. Build your BI environment on-premises and distribute reports behind your organization's firewall.

  Build on your on-premises reporting infrastructure, knowing it's part of a comprehensive, cloud-ready solution. Use Power BI Report Server today—an investment that's compatible with Power BI in the cloud.

- **Power BI Embedded**

  Power BI Embedded is a service to embed visuals, reports, and dashboards into an application.

  Quickly and easily provide customer-facing reports, dashboards, and analytics in your own applications by using and branding Power BI as your own. Reduce developer resources by automating the monitoring, management, and deployment of analytics, while getting full control of Power BI features and intelligent analytics.

  Power BI embedded analytics gives you additional benefits over secure embed. It offers a rich, fully integrated experience with full API support, automatic authentication, and the reports can be hosted in apps as well as web pages. Embedded analytics allows you to automate the monitoring, management, and deployment of analytics, while getting full control of Power BI features and intelligent analytics.

  Power BI Embedded has basically the same features as Power BI Premium.

  Power BI embedded analytics offers two solutions:

  - Embed for your customers
  - Embed for your organization

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

Main differences between Excel and Power BI:

- Excel is used to organize data, transform it and perform mathematical operations and calculations. On the other hand, Power BI was conceived as a business intelligence and data visualization tool for businesses.
- Excel has limitations in the amount of data it can work with. In contrast, Power BI can handle much larger amounts of data.
- Power BI can connect to a large number of data sources, while Excel's connectivity capacity is limited. Also, unlike Excel, Power BI can be easily used from mobile devices.
- Power BI has faster processing than Excel.
- Power BI dashboards are more visually appealing, interactive and customizable than those in Excel.
- Power BI is a more powerful tool than Excel in terms of comparison between tables, reports or data files.
- Power BI is more user friendly and easy to use than Excel.

Conclusion

After analyzing both tools in depth, we can conclude that both Excel and Power BI are very complete platforms to work, analyze and process data. However, they have different characteristics and functions.

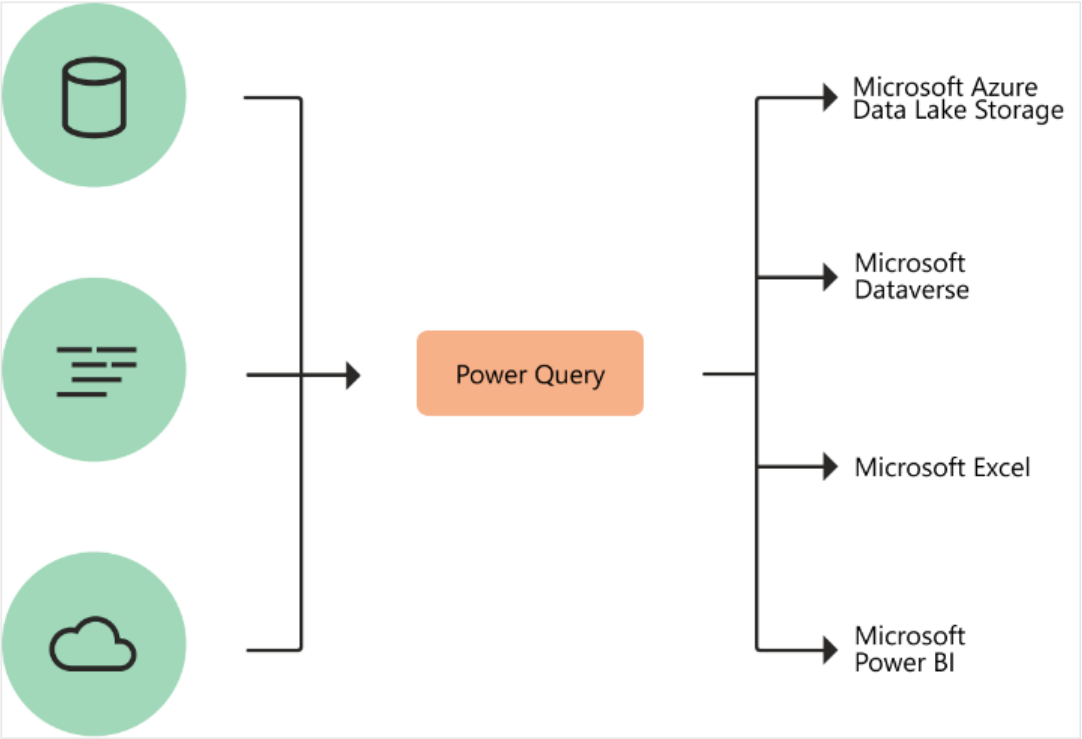
To claim that one tool is better than the other would be to venture a lot, since their potential will depend on what you need to do with your data. Excel is a better option if you want to manipulate and transform data, do searches, calculations and apply mathematical formulas or create complex tabular reports. Power BI is more suitable for working with Big Data, creating visualizations, working in teams, integrating data from multiple sources and, analyzing data with the intention of getting indicators, drawing conclusions and making data-driven decisions.

Basically, Excel allows more operations with data than Power BI. In other words, it has more diversified functionality and is an ideal program for expert data analysts.

In contrast, Power BI is a more complete application in other ways and is ideal for businesses and companies that need to analyze large amounts of data in a simple way, work collaboratively, transform data into insights, update data regularly and present information visually.

3. Explain PowerQuery?

Power Query is a data transformation and data preparation engine. Power Query comes with a graphical interface for getting data from sources and a Power Query Editor for applying transformations. Because the engine is available in many products and services, the destination where the data will be stored depends on where Power Query was used. Using Power Query, you can perform the extract, transform, and load (ETL) processing of data.



Business users spend up to 80 percent of their time on data preparation, which delays the work of analysis and decision-making. Several challenges contribute to this situation, and Power Query helps address many of them.

- Power Query enables connectivity to a wide range of data sources, including data of all sizes and shapes.
- Consistency of experience, and parity of query capabilities over all data sources.

- Highly interactive and intuitive experience for rapidly and iteratively building queries over any data source, of any size.
- When using Power Query to access and transform data, you define a repeatable process (query) that can be easily refreshed in the future to get up-to-date data.In the event that you need to modify the process or query to account for underlying data or schema changes, you can use the same interactive and intuitive experience you used when you initially defined the query.
- Power Query offers the ability to work against a subset of the entire dataset to define the required data transformations, allowing you to easily filter down and transform your data to a manageable size.
  Power Query queries can be refreshed manually or by taking advantage of scheduled refresh capabilities in specific products (such as Power BI) or even programmatically (by using the Excel object model).
  Because Power Query provides connectivity to hundreds of data sources and over 350 different types of data transformations for each of these sources, you can work with data from any source and in any shape.

The Power Query user experience is provided through the Power Query Editor user interface. The goal of this interface is to help you apply the transformations you need simply by interacting with a user-friendly set of ribbons, menus, buttons, and other interactive components.

The Power Query Editor is the primary data preparation experience, where you can connect to a wide range of data sources and apply hundreds of different data transformations by previewing data and selecting transformations from the UI. These data transformation capabilities are common across all data sources, whatever the underlying data source limitations.

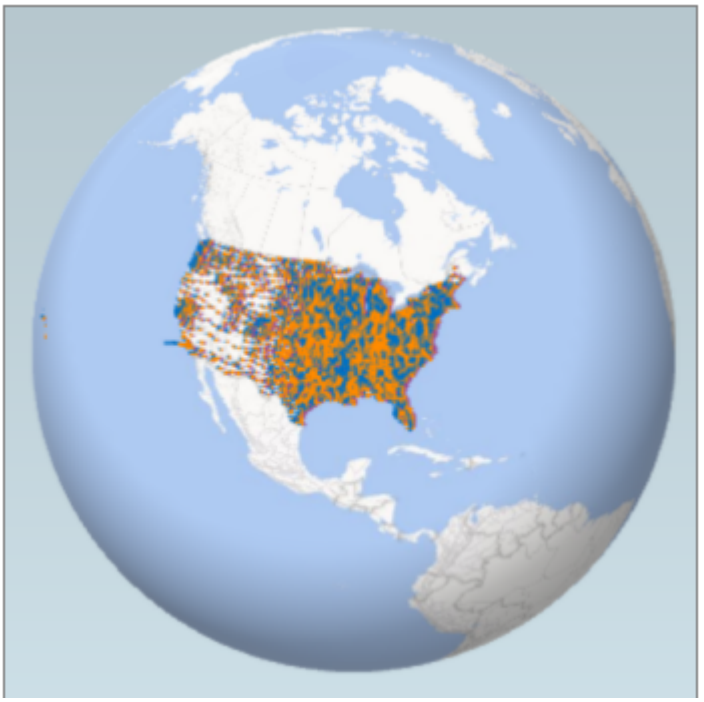
When you create a new transformation step by interacting with the components of the Power Query interface, Power Query automatically creates the M code required to do the transformation so you don't need to write any code.

Currently, two Power Query experiences are available:

- Power Query Online—Found in integrations such as Power BI dataflows, Microsoft Power Platform dataflows, Azure Data Factory wrangling dataflows, and many more that provide the experience through an online webpage.
- Power Query for Desktop—Found in integrations such as Power Query for Excel and Power BI Desktop.

4. Explain PowerMap?

Microsoft Power Map for Excel is a three-dimensional (3-D) data visualization tool that lets you look at information in new ways. A power map lets you discover insights you might not see in traditional two-dimensional (2-D) tables and charts.



With Power Map, you can plot geographic and temporal data on a 3-D globe or custom map, show it over time, and create visual tours you can share with other people. You'll want to use Power Map to:

■ Map data: Plot more than a million rows of data visually on Bing maps in 3-D format from an Excel table or Data Model in Excel.

■ Discover insights: Gain new understandings by viewing your data in geographic space and seeing time-stamped data change over time.

■ Share stories: Capture screenshots and build cinematic, guided video tours you can share broadly, engaging audiences like never before. Or export tours to video and share them that way as well.

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

SharePoint is an important part of how many organizations organize and distribute BI content to users. In recognition of how important this approach is, we've invested in modernizing and creating deeper integrations with SharePoint. Over the last year, we have introduced the Power BI webpart for SharePoint Online and an updated Reporting Services Report Viewer webpart for SharePoint on-premises. Customers like the flexibility this gives them to build highly-customized SharePoint experiences using their BI content.

SharePoint 2019 continues to deliver on the vision by simplifying deployment modes for Reporting Services by removing SharePoint integrated mode, while still allowing integration with SharePoint using the updated web part. This decision was based on the consistent feedback from our users, and by making these changes, we'll be able to innovate and release integration capabilities faster and more often that best meet the needs of customers now and in the future.

Now, customers can use Power BI and optionally integrate their Power BI content into SharePoint 2019 and SharePoint Online, using either Power BI or Power BI Report Server, making this experience in Power BI better than ever by:

- **Adding support for all major report types across both platforms.** Paginated (RDL) reports in Power BI Premium, giving customers full support for Paginated Reports, Power BI Reports and Excel Workbooks in Power BI.
- **Providing easier ways to report on your data in SharePoint.** The new functionality makes it easier than ever to start visualizing your Excel tables and CSV files stored in SharePoint Online in Power BI.

Additionally, for Power BI Report Server, some new features are added that already exist in Power BI, but were previously available only through SharePoint integration for on-premises deployments. These include –

- **Power Pivot Scheduled Data Refresh.** We first added support for Excel Workbooks in Power BI Report Server in October 2017, including the hosting and viewing of Excel Workbooks containing data models. We'll be expanding this support to include scheduled data refresh of these workbooks.
- **Modern Authentication support.** Security considerations are a key part of any BI deployment strategy, and many customers used SharePoint to handle claims-based authentication scenarios for their users. Native support is added for ADFS/AAD authentication to Power BI Report Server in an upcoming release.

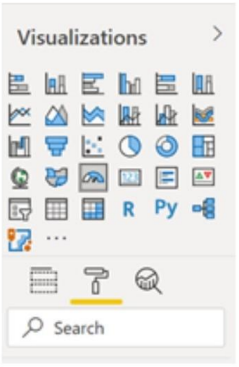
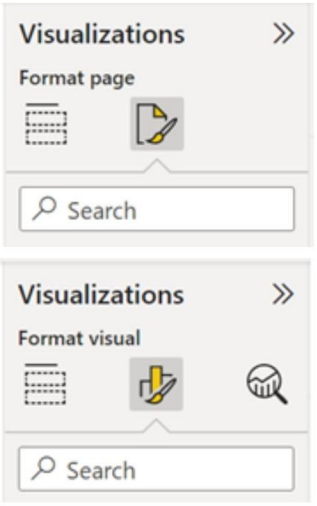
6. Explain the updates done in Power Bi Service(power BI 2.0) as compared to older version ?

Top 6 new features in the latest Power BI update - November 2021

1. The format pane gets a makeover

Power BI has changed the design of its format pane. The Power BI team has listened to their users feedback and redesigned the look and feel of the format pane to optimise the user experience and make creation easier.

The new design does not only replace the format tab icon, but also includes a descriptive caption to make it easier for users to find. The new Power BI format pane looks like this:

Old format pane	New format pane
	

As we can see in the picture, the visualization types gallery has been moved to the "Build" tab in response to the limited space in the format pane. Also, the formatting cards are now divided into two categories: visual specific and general settings. Visual specific settings include those cards that apply to the type of visual you are currently working with.

Undoubtedly, one of the great improvements of the new formatting panel is that it gets rid of the two scrollbars. From now on, when we expand cards and subcategories, we will have a single scrollbar.

On the other hand, default settings can now be automatically reverted in the new format pane button "...".

Finally, the new pane allows you to view hidden dynamic cards and to easily switch between updating the settings for all series or for a particular series without having to scroll.

Ready to see all the new changes for yourself? Activate the preview of the new pane: File > Options and settings > Options > Preview Features > New format pane.

2. Two new navigators: Page and bookmark navigators

Prior to the new update, users who wanted to set a customer page or bookmark navigation experience had to set up each individual button for every page or bookmark. Power BI solves this

problem with two new navigators: the page navigator and the bookmark navigator which make it easier to create personalised navigation experiences.

You can activate the new feature in: Insert > Buttons > Navigator.

3. New dashboard visual and new visuals available in the AppSource

Power BI has designed a new dashboard visual that can be added to Power BI reports to help companies integrate business goals, performance indicators, KPI and dashboards into Power BI reports.

This new visual allows users to easily integrate a dashboard into a report as well as update their business goals. In addition, goals can be created in Power BI Desktop and dashboards can be customised to fit the design of the report.

- Take a look at the Top 10 Power BI Dashboards of 2021

Power BI has also introduced 2 new visuals that can now be downloaded in the AppSource:

- Dual axis Scatter plot
- Process Mining with Power BI

In addition, Charticulator has also released a new version that incorporates new features such as support for the images table and symbol rotation or the introduction of a new categorical legend scale editor, among many other things.

- Don't miss the top 10 Power BI visuals according to the official visual vocabulary criteria

4. New data connectors

Power BI extends its connectivity with new data connectors and by updating some of the existing connectors.

The new Power BI data connectors are:

- Azure Synapse Analytics: The Azure Synapse Analytics Workspace Connector (Beta) is now available in preview mode.
- Google Sheets: This connector received the most votes in the Power BI user forum. Microsoft has not kept its users waiting and the new connector with Google Sheets is now available.

- Delta Sharing: Finally, Power BI has launched a new connector that allows users to connect to any Delta Sharing server.

Updated connectors:

- Google BigQuery: The performance of the Google BigQuery connector is improved by reducing the metadata calls required to load the browser experience. This reduces the loading time of the browser experience.
- Cognite Data Fusion: Previous issues related to customised queries, login to the organisation's account and aggregation of time series when using tags containing special characters have been fixed.
- Dremio Cloud: The connector has been updated to allow users to connect to regions in Dremio Cloud.

5. Chose your workspace

With the new version, once users have created a report's visuals they can choose the workspace where they want to save the report. This increases the capabilities of shared datasets, as users now have the ability to save reports created online in a different workspace from the workspace where the original dataset is located.

6. Goal-level Permissions

Data governance is a fundamental aspect for organisations when working with Power BI. The platform's data governance options are limited, but have now been extended by the new possibility to set goal level user permissions.