Power BI Interview Questions

Question 1. Is Power BI a good career?

Five major reasons why Power BI will create a good career path for you:

- Gartner's framework for the Analytics and BI Magic Quadrant 2021.
- There is a big market for Microsoft Power BI Consultants in almost every industry.
- In perspective, Qlik and Tableau (both high in Gartner ranking) have a market cap close to 1% of Microsoft.
- Top companies offering lucrative Power BI career opportunities.

Variety of job roles available:

- Power BI Analyst/Developer
- Data Analyst
- Business Analyst
- Business Intelligence Analyst
- Business Intelligence Developer
- Business Intelligence Manager

Question 2. What do you understand by BI? Or what is BI?

BI stands for Business Intelligence. It is a technology-driven method that helps users analyze and visualize business data from thousands of data sources and share insights across their organization. It also provides important information that may help corporate executives, business managers, and other users make business decisions.

Question 3. Why do we need BI?

You can take data and create reports at the click of a button. You can take data and create reports with a button click. It helps in attracting new customers to service and monitor existing customers. You can keep track of information and set your goals accordingly. In general, building an ETL solution (Extraction, Transformation, and Loading) ultimately helps to make better decisions.

Question 4. What is self-service BI, anyway?

SSBI is an abbreviation for Self-Service Business Intelligence and is a breakthrough in business intelligence. SSBI has enabled many business professionals with no technical or coding background to use Power BI and generate reports and draw predictions successfully. Even non-technical users can create these dashboards to help their business make more informed decisions.

Question 5. What is Power BI?

Power BI is a business analytics tool developed by Microsoft that helps you turn multiple unrelated data sources into valuable and interactive insights. These data may be in the form of an Excel spreadsheet or cloud-based/on-premises hybrid data warehouses. You can easily connect to all your data sources and share the insights with anyone.

Question 6. Why is Power BI so popular?

On-premises or in the cloud, Power BI provides a scalable and unified platform for data collection, refinement, analysis, and presentation. Through interactive dashboards and data-rich, easy-to-understand reporting, it provides organizations with a 360-degree view of their operations. It is a part of Microsoft Business Intelligence (MSBI) suite, and it includes a variety of services, products, and applications.

Question 7. Do you know of other BI platforms? How does Power BI compare to them?

Another top-rated BI platform is Tableau, which is an excellent alternative to Power BI. However, one of the most significant advantages of using Power BI over Tableau is that there is usually a much lower learning curve for Power BI. This is especially true if the developer (or the user) is already familiar with Microsoft Excel since Power BI uses many of the same elements as in Excel.

Question 8. Difference between Power BI and Tableau?

The major differences between Power BI and Tableau are:
- While Power BI uses DAX for calculating columns of a table, Tableau uses MDX (Multidimensional Expressions).

- Tableau is more efficient as it can handle a large chunk of data while Power BI can handle only a limited amount.
- Tableau is more challenging to use than Power BI.

Question 9. Which professionals use Power BI the most?

Beginners and experts prefer Power BI in business intelligence. Power BI is used mainly by the following professionals.

- Business Analysts
- Business Owners
- Business Developers

Business Analysts

A business analyst is a professional who analyses the business data and represents the insights found using visually appealing graphs and dashboards

Business Owners

Business owners, decision-makers, or organizations use Power BI to view the insights and understand the prediction to make a business decision.

Business Developers

Business Developers are just software developers who get hired for business purposes to develop custom applications and dashboards to help the business process be smooth.

Question 10. Mention some advantages of Power BI.

Some of the advantages of using Power BI:

- It helps build an interactable data visualization in data centers
- It allows users to transform data into visuals and share them with anyone
- It establishes a connection for Excel queries and dashboards for fast analysis
- It provides quick and accurate solutions
- It enables users to perform queries on reports using simple English words

Question 11. List out some drawbacks/limitations of using Power BI.

Here are some limitations to using Power BI:

- Power BI does not accept file sizes larger than 1 GB and doesn't mix imported data accessed from real-time connections.

- There are very few data sources that allow real-time connections to Power BI reports and dashboards.
- It only shares dashboards and reports with users logged in with the same email address.
- Dashboard doesn't accept or pass user, account, or other entity parameters.

Question 12. How does Power BI work?

The primary purpose of Power BI is to scale business growth by putting information together in a more efficient way. It brings your company data forward in a seamless, comprehensive interface. Employees and team members come forward in a streamlined fashion with access to identical information that has been translated into simplified reports, charts, diagrams, and more. Power BI Works more efficiently by improving your operational efficiency.

Question 13. What are the various Power BI versions?

The three major versions of Power BI are as follows:

- Power BI Desktop: The free interactive tool that connects multiple data sources, transforms data, and creates visualized reports.
- Power BI Premium: The premium version is used for larger organizations with a dedicated storage capacity for each user. With premium, data sets up to 50GB storage capacity can be hosted along with 100TB storage on the cloud as a whole. It costs $4995 per month.
- Power BI Pro: With the pro version, you get full access to the Power BI dashboard, creation of reports, along with unlimited sharing and viewing of reports. You also have a storage limit of 10GB per user.

Question 14. What is the maximum data limit per client for the free version of Power BI?

With a Power BI Free license, a user can use 10 GB of storage in the cloud for hosting Power BI reports. The maximum size a Power BI report can be used in the cloud is 1GB**.**

Question 15. Name the variety of Power BI Formats.

Power BI is available mainly in three formats, as mentioned below.

1. Power BI Desktop: Open-Source version for Desktop users
2. Power BI Services: For Online Services
3. Power BI Mobile Application: Compatible with mobile devices

Question 16. Is Power BI free to use?

Power BI is available in two versions: Power BI Free and Power BI Pro.

Users can use Power BI for free. However, the Power BI Pro subscription avails more from Microsoft Store. The subscription offers an enhanced version of various features available with the free Power BI account. Most business users use the subscribed account as it provides more data refreshers per day and other features than the free version.

Question 17. What is the need for signing up with a work email?

Power BI does not have email addresses provided by telecommunications providers and consumer email services, thus there is a need of signing up with work email.

Question 18. Name the work email addresses that are currently supported?

Work email addresses that are finished with .org and .edu are currently supported.

Question 19. Is there any support by Power BI available for mobile devices?

Yes, Power BI supports mobile devices. It consists of apps for iOS devices, Windows 10 devices, and Android smartphones. You can install Power BI apps from the below app stores:

- Google Play
- Apple Store
- Windows Store

Question 20. Is Power BI a better option than Microsoft's Excel?

Yes. Power BI is a more powerful tool as compared to Microsoft Excel. Power BI is easy to use and is much more flexible, while Microsoft Excel is not so handy to use. Power BI is mostly used for data visualization and dashboard sharing too many users, while Microsoft Excel is mostly used for in-depth driver analysis.

Question 21. How would you define Power BI as an effective solution?

Power BI is a cloud-based Business Intelligence tool to analyze and visualize raw data that can be fetched from a wide range of data sources. It consolidates business analytics with data visualization and helps any organization to make business decisions based on data. It is easy to work with and the data is processed in such a way that it is easy to understand and reliable. It can be accessed from different platforms and can be shared across on-cloud participants. Thus, it is an effective solution.

Question 22. What is the comprehensive working system of Power BI?

Power BI's working system mainly comprises three steps:

- Data Integration: The first step is to extract and integrate the data from heterogeneous data sources. After integration, the data is converted into a standard format and stored in a common area called the staging area.
- Data Processing: Once the data is assembled and integrated, it requires some cleaning up. Raw data is not so useful therefore, a few transformation and cleaning operations are performed on the data to remove redundant values, etc. After the data is transformed, it is stored in data warehouses.
- Data Presentation: Now that the data is transformed and cleaned, it is visually presented on the Power BI desktop as reports, dashboards, or scorecards. These reports can be shared via mobile apps or web to various business users.

Question 23. Can we store data in Power BI? If so, where does it get stored?

Power BI stores data in a few different locations. All the data stays secure through measures such as encryption and password protection. It mainly depends on the channel that you used to import the data. Data is stored in a few places, but it all boils down to one of the main two locations: the cloud and your desktop.

Question 24. What is Power BI Desktop

Power BI Desktop is an open-source application designed and developed by Microsoft. Power BI Desktop will allow users to connect to, transform, and visualize your data with ease. Power BI Desktop lets users build visuals and collections of visuals that can be shared as reports with your colleagues or your clients in your organization.

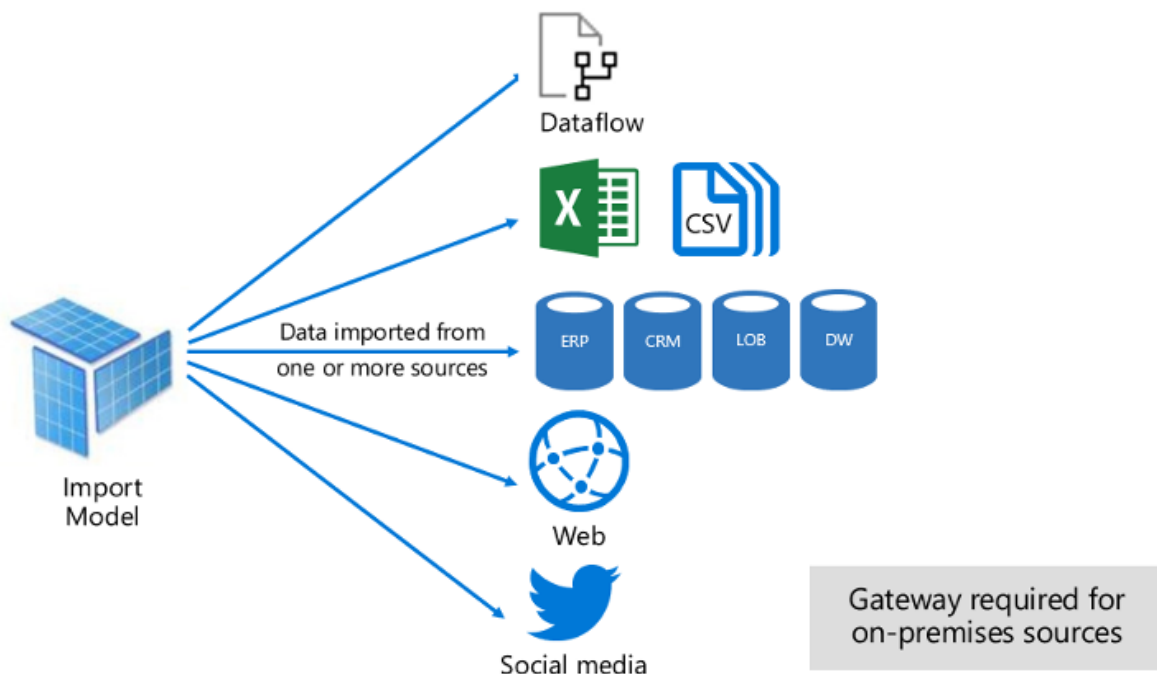**Question 25. What are the critical components of the Power BI toolkit?**

The critical components of Power BI are mentioned below.

- Power Query
- Power Pivot
- Power View
- Power Map
- Power Q&A

**Question 26. What are the different connectivity modes in Power BI?**

There are three different connectivity modes in Power BI which are:

Import Mode:

In Power BI, Import Mode is the default mode since it is most frequently used and delivers fast performance. It can integrate the data from a data source as shown. Imported data is stored in the disk and it is fully loaded while querying or refreshing.

Direct Query Mode
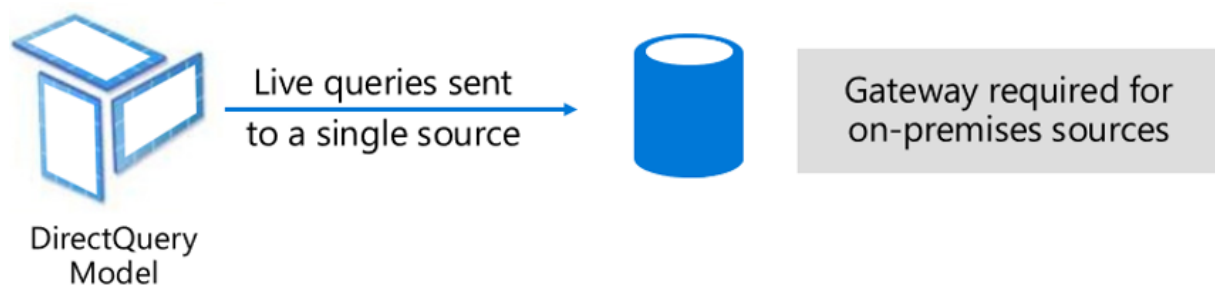
Direct Query Mode is another method of importing data with query to retrieve data from a pre-existing data source. When the data volume is too large, we use Direct Query to avoid refreshing data as it can take a long time.

Composite Mode
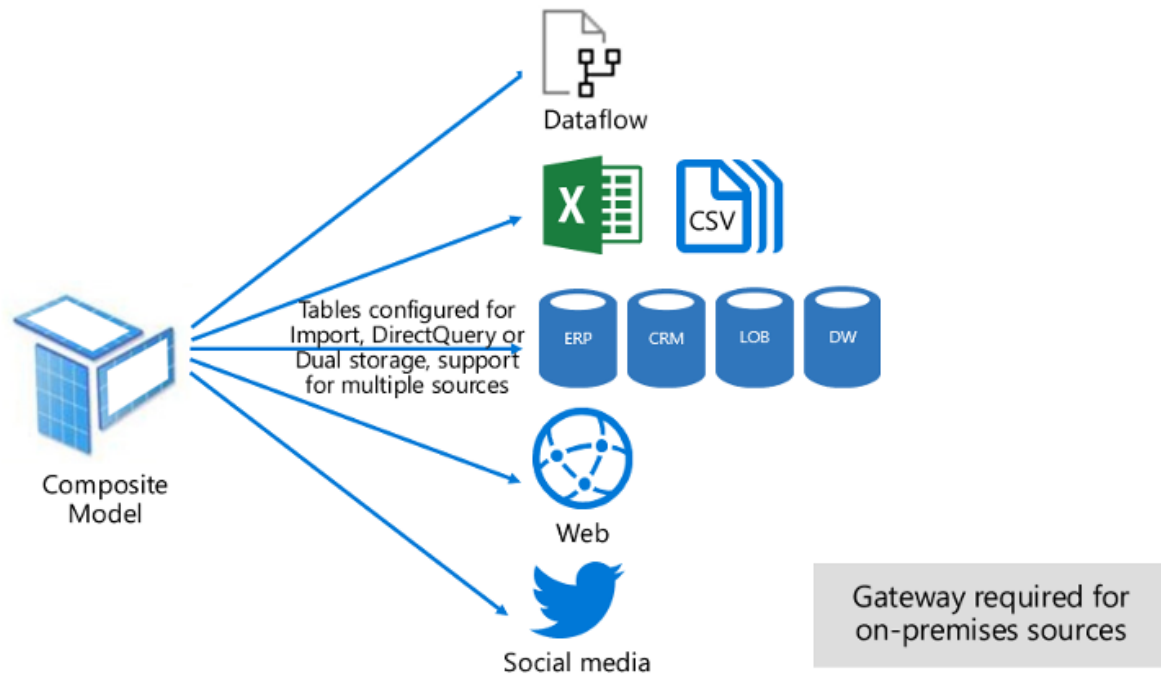
This mode is an amalgamation of both Import and Direct Query modes. This mode supports calculated tables which Direct Query doesn't. It delivers the best of Import Query and Direct Query modes.

Question 27. What is Get Data in Power BI?

Get Data offers data connectivity to various data sources. Connect data files on your local system. The supported data sources are:

- File: Excel, Text/CSV, XML, PDF, JSON, Folder, SharePoint.
- Database: SQL Server database, Access database, Oracle database, SAP HANA database, IBM, MySQL, Teradata, Impala, Amazon Redshift, Google BigQuery, etc.
- Power BI: Power BI datasets, Power BI dataflows.
- Azure: Azure SQL, Azure SQL Data Warehouse, Azure Analysis Services, Azure Data Lake, Azure Cosmos DB, etc.
- Online Services: Salesforce, Azure DevOps, Google Analytics, Adobe Analytics, Dynamics 365, Facebook, GitHub, etc.

- Others: Python script, R script, Web, Spark, Hadoop File (HDFS), ODBC, OLE DB, Active Directory, etc.

Question 28. What is the comprehensive working system of Power BI?

Power BI's working system mainly comprises four steps:

Data Importing: The first step is to import the data and convert it into a standard format and store it in a staging area.

Data Cleaning: After assembling the data, it requires transformation or cleaning to remove unimportant values.

Data Visualization: Now the data is visually represented on the Power BI desktop as reports and dashboards using powerful visualization tools.

Save and Publish: Finally when your report is ready you can save and publish these reports that can be shared across users via mobile apps or web.

Question 29. What are the different views available in Power BI Desktop?

There are three different views in Power BI, each of which serves another purpose:

Report View - In this view, users can add visualizations and additional report pages and publish the same on the portal.

Data View - In this view, data shaping can be performed using Query Editor tools.

Model View - In this view, users can manage relationships between complex datasets.

Question 30. Explain the building blocks of Microsoft Power BI.

The important building blocks of Power BI are as follows:

Visualizations

Visualization is the process of generating charts and graphs for the representation of insights on business data.

Datasets

A dataset is the collection of data used to create a visualization, such as a column of sales figures. Dataset can get combined and filtered from a variety of sources via built-in data plugins.

Reports

The final stage is the report stage. Here, there is a group of visualizations on one or more pages. For example, charts and maps are combined to make a final report.

Dashboards

A Power BI dashboard helps you to share a single visualization with colleagues and clients to view your final dashboard.

Tiles

A tile is an individual visualization on your final dashboard or one of your charts in your final report.

Question 31. What are the differences between a Power BI Dataset, a Report, and a Dashboard?

Dataset: The source used to create reports and visuals/tiles.

- A data model (local to PBIX or XLSX) or model in an Analysis Services Server
- Data could be inside of model (imported) or a Direct Query connection to a source.

Report: An individual Power BI Desktop file (PBIX) containing one or more report pages.

- Built for deep, interactive analysis experience for a given dataset (filters, formatting).
- Each Report is connected to at least one dataset.
- Each page containing one or more visuals or tiles.

Dashboard: a collection of visuals or tiles from different reports and, optionally, a pinned.

- Built to aggregate primary visuals and metrics from multiple datasets.

Question 32. What is Visualization?

Visualization is a process to represent data in pictorial form like tables, graphs, or charts based on the specific requirement.

Question 33. What is a Report?

The report is a Power BI feature that is a result of visualized data from a single data set. A report can have multiple pages of visualization.

Question 34. What is the major difference between a Filter and a Slicer?

Using Normal filters users were not allowed to interact with dashboards or reports, but using slicers we can interact with dashboards and reports.

Question 35. What is a dashboard in Power BI?

A dashboard is a single-layer presentation sheet of multiple visualizations reports. The main features of the Power BI dashboard are:

- It allows you to drill through the page, bookmarks, and selection pane and also lets you create various tiles and integrate URLs.
- A dashboard can also help you set report layout to mobile view.

Question 36. What are the important features of the Power BI dashboard?

Following is the list of Power BI dashboard:

o Power BI dashboard facilitates you to go through the page, bookmarks, and selection pane.

o Power BI dashboard allows you to create various tiles like web content, images, textbox, and integrate URLs.

o You can also set the report layout to mobile view by using the Power BI dashboard.

Question 37. Question What is Bookmark in Power BI?

Bookmark is a capability provided by the POWER BI that saves the state of the page exactly as it is at the time of saving a bookmark. This states that you can later select the saved bookmark and see the page in the same state in which you had saved it. Hold on. Bookmark is not at all a screenshot. It is a fully interactive report page in Power BI, with the same state it saved.

When we create a bookmark, the below-mentioned elements will also be saved along with the bookmark:

It will have the added Filters, the current report page, and the Slicers which were added as is, which includes the slicer type a Dropdown or a list), Visual selection state, for an example-highlight, filters/Cross Filters, etc., Drill location, The Spotlight & focus modes of a visible object, Sort order, and the Visibility of any object (also using the selection pane).

If you want to create a bookmark, you must first configure a report page for appearing/saving in the bookmark. At last, Once you are ready with your report page and the visuals arranged the way you want them to be, just select Add from the Bookmarks pane to add a bookmark, and that's it, you have created your bookmark.

Have a look at the image below showing where the bookmarks option is found in Power BI Service & what are the two types of bookmarks.

Question 38. What do you mean by grouping?

Power BI Desktop helps you to group the data in your visuals into chunks. You can, however, define your groups and bins. For grouping, use Ctrl + click to select multiple elements in the visual. Right-click one of those elements and, from the menu that appears, choose Group. In the Groups window, you can create new groups or modify existing ones.

Question 39. What are the major differences between visual-level, page-level, and report-level filters in Power BI?

Visual-level filters are used to filter data within a single visualization. Page-level filters are used to work on an entire page in a report, and different pages can have various filters.

Report-level filters are used to filter all the visualizations and pages in the report.

Question 40. How can you depict a story in Power BI?

Every individual chart or visualization report generated is collected and represented on a single screen. Such an approach is called a Power BI Dashboard. A Dashboard in Power BI is used to depict a story.

Question 41. What are the types of visualizations in Power BI?

In Power BI, we can represent the data in graphs and visualizations. The visualization can be of any type, for example:

Bar and Column Charts: It is a standard visualization for looking at a specific value across various categories.

Area Charts (Basic and Stacked): It is based on the line chart and the area under the line. It depicts the magnitude of change over time.

Card: Card shows aggregate value of a certain datapoint, can be one or more but one per row.

Doughnut and Pie Charts: They show the relation in parts of a whole. Doughnut charts have a hollow in the centre while pie charts don't.

Maps: To show categorical and quantitative data with spatial locations.

Matrix: It's a type of table with easier display that shows aggregated data

Slicers: Slicer is used to filter other visuals on the page.

There are other visuals like Combo Charts, Decomposition Tree, Funnel charts, Gauge charts, KPIs, Line Charts, Ribbon Chart, Scatter, Q&A, Tables, Treemaps, etc.

Question 42. What is Power Map?

Power Map is an Excel add-in that provides you with a powerful set of tools to help you visualize and gain insight into large sets of data that have a geo-coded component. It can help you produce 3D visualizations by plotting upto a million data points in the form of column, heat, and bubble maps on top of a Bing map. If the data is time stamped, it can also produce interactive views that display, how the data changes over space and time.

Question 43. What information is needed to create a map in Power Map?

Power Map can display geographical visualizations. Therefore, some location data is needed—for example, city, state, country, or latitude and longitude.

Question 44. How to create and use Maps in Power BI?

There are 4 types of core or built-in map visuals:
- Map (Basic)
- Filled Map
- Shape Map
- ArcGIS Maps

Question 45. Explain the filled map in Power BI?

Power BI utilizes two built-in map charts map and a filled map. A filled map shows data points with geospatial areas rather than points on a map. Areas can be continent, country, state, city. Working with a filled map, however, is not as easy and convenient as the map chart is

Question 46. What are KPIs in Power BI?

KPI is abbreviated as Key Performance Indicator. Any professional organization has teams and employees follow the KPI protocols. The organizations set up KPIs for all the employees. These KPIs act as their targets. These KPIs are compared to previous performance and analyze the progress.

Question 47. What is a Slicer?

Slicers are an integral part of a business report generated using Power BI. The functionality of a slicer can be considered similar to that of a filter, but, unlike a filter, a Slicer can display a visual representation of all values and users will be provided with the option to select from the available values in the slicer's drop-down menu.

Question 48. What is a legend in Power BI?

Legends are part of Power BI visuals. They represent categories in a visual and are usually color-coded. In some visuals, we can add a category dimension as legend explicitly. One example can be in stacked bar/column charts, where the stacks represent different categories, and these categories are color-coded. These categories are represented in the legend. And every visual where the legend is applicable has a separate formatting section where we can specify its font and font size, whether we need it to be visible or not, or even its position(top, bottom, left, right)

Question 49. What is Drill through in Power BI?

Drill through is one of the extremely powerful features provided in the Power BI Self-service business intelligence tool. It allows the user to see data and the information in a more detailed way, giving a clear picture. Drill through takes the user to a report which is relevant to the data which is being analyzed. For example, a tabular report that shows Profit by Country can allow the users to click on it and open a grid of the same data, or a Pie Chart, etc., for representing the data in visual form. It is called

"drill through" because it is a specific feature that allows the user to pass from one report to another while analyzing the same data. It helps users to analyze the data with different features and display it through different visualization methods. If you click on the Fields sections of visualization Pane & scroll it down, you will find a Drill through the option to select for Cross Reports or only for Page Level. You can select the column when the data should be Drilled through.

Question 50. What is drill down in Power BI?

Drill down, as the name suggests, is going downwards. And in Power BI, it is going down a hierarchical category or dimension. Basically, when we have data attributes like a date where we have a default hierarchy of year->quarter->month->day, then when using the same field in a visual, in Power BI, it takes the hierarchy form by default of the field. This gives the option of a drill-down feature denoted by up and down arrows. Also, we can right-click on the element in the visual and get the option of drill-down.

Question 51. How to create filters in Power BI?

Filters are an integral part of Power BI reports. They are used to slice and dice the data as per the dimensions we want. Filters are created in a couple of ways.

1. Using Slicers: A slicer is a visual under Visualization Pane. This can be added to the design view to filter our reports. When a slicer is added to the design view, it requires a field to be added to it. For example- A slicer can be added for Country fields. Then the data can be filtered based on countries.

2. Using Filter Pane: The Power BI team has added a filter pane to the reports, which is a single space where we can add different fields as filters. And these fields can be added depending on whether you want to filter only one visual(Visual level filter), or all the visuals in the report page(Page level filters), or applicable to all the pages of the report(report level filters)

Question 52. How to sort data in Power BI?

Sorting is available in multiple formats. In the data view, there is a common sorting option of alphabetical order. Apart from that, we have the option of Sorting by column, where one can sort a column based on another column. The sorting option is available in visuals as well. Sort by ascending and descending option by the fields and measure present in the visual is also available.

Question 53. How to Filter Top N in Power BI?

Power BI provides us with a great option, filter top N in visual data. You can go to the Filter Pane, then go to the filter on this visual & select option "Filter type" as top N & show items as top 3, 5, and 10. For example, the by value is the amount you would prefer to filter by, let's say, sales amount or profit amount. If we want to keep it dynamic, then we can create a parameter table named *Top N* with a measure as *Top N Value* that gives us the selected value. For that scenario, we can use the what-if parameter feature provided by Power BI. In the visual shown below, you can see how the Top N can be created. I have tried showing the top 5 sales figures by category.

Question 54. What are Custom Visuals in Power BI?

Custom Visuals are like any other visualizations, generated using Power BI. The only difference is that it develops the custom visuals using a custom SDK. The languages like JQuery and JavaScript are used to create custom visuals in Power BI.

Question 55. Why and how would you use a custom visual file?

You will use a custom visual file if the prepackaged files don't fit the needs of your business. Developers create custom visual files, and you can import them and use them in the same way as you would the prepackaged files.

Question 56. What is Power Query?

Power Query is a business intelligence tool designed by Microsoft for Excel. Power Query allows you to import data from various data sources and will enable you to clean, transform and reshape your data as per the requirements. Power Query allows you to write your query once and then run it with a simple refresh.

Question 57. Define Power Query?

Power Query is an ETL tool to clean, shape, and transform data without any code using intuitive interfaces. With this:

- You can import data from various sources like databases from files
- Append and join data from a wide range of sources
- You can shape data as needed by adding and removing it

Question 58. How to perform query tasks in Power BI Desktop?

Power Query is available in Power BI Desktop through the power query editor. To open the power query editor, select Edit Queries from the Power BI Desktop home tab.

The ribbon in Power Query Editor consists of five tabs - home, transform, add column, view, and help.

Question 59. What is some common Power Query/Editor Transforms?

Changing Data Types, Filtering Rows, Choosing/Removing Columns, Grouping, Splitting a column into multiple columns, Adding new Columns ,etc.

Question 60. Name some commonly used tasks in the Query Editor.

Some commonly used tasks in the Query Editor are:

Connect to Data: Get Data from various sources and Transform data.

Shape Data: Transform your data according to requirement to clean and shape it

Group Rows: You can group the values of many rows into one single value by summarizing

Pivot Columns: Pivot columns and create a table with aggregated values

Create Custom Columns: You can use custom formulas to create new columns in your   table

Advanced Editor: You can make modifications to the data using Advanced Query Editor with query.

Question 61. List the most common techniques for data shaping.

- Adding indexes
- Applying a sort order
- Removing columns and rows

Question 62. What is the use of the split function?

The split function is used for splitting the string database on the given delimiter.

Question 63. Difference Between New Measure and New column?

A new column is an area in Power Bi where the physical data is stored when logic is applied, whereas the measure is where the calculations are performed on the fly based on dimensions. Measure, unlike Column, won't store any physical data.

Question 64. What language does Power BI use?

- DAX and M are the two languages supported by Power BI to filter, handle and visualize data.

Question 65. What is "M language."

M is a programming language used in Power Query as a functional, case-sensitive language similar to other programming languages and easy to use.

Question 66. Explain what M language is in Power BI?

M is a query formula language used in Power BI Query Editor to prepare data before loading in the Power BI model. Power Query works with Excel, Analysis Services, and Power BI workbooks. Its core functionality is to filter and combine, i.e., to mash up data from one or more rich collections of supported data sources. Any such data mashup is expressed using Power Query M Formula Language.

Question 67. What is the advanced editor?

Advanced editor is used to view queries that Power BI is running against the data sources importing data. The query is rendered in M-code. Users wanting to view the query code select "Edit Queries" from the Home tab, then click on "Advanced Editor" to perform work on the query. Any changes get saved to Applied Steps in the Query Settings.

Question 68. What is DAX?

DAX stands for Data Analysis Expressions. It's a collection of functions, operators, and constants used in formulas to calculate and return values. In other words, it helps you create new info from data you already have.

Question 69. What are the three fundamental concepts of DAX?

1. Syntax: This is how the formula is written—the elements that comprise it. The syntax includes functions such as SUM (used when you want to add figures). If the syntax isn't correct, you'll get an error message.

2. Functions: These are formulas that use specific values (also known as arguments) in a certain order to perform a calculation, similar to the functions in Excel. The categories of functions are date/time, time intelligence, information, logical, mathematical, statistical, text, parent/child, and others.

3. Context: There are two types: row context and filter context. Row context comes into play whenever a formula has a function that applies filters to identify a single row in a table. When one or more filters are applied in a calculation that determines a result or value, the filter context comes into play.

Question 70. What are the purpose and benefits of using the DAX function?

DAX is much more than Power BI. If you learn DAX as a functional language, you become better as a data professional. DAX is based on different nested filters which magnificently improves the performance of data merging, modeling, and filtering tables.

Question 71. Why is DAX so important?

Importing data into Power BI Desktop is an easy task. You can even create reports that share valuable insights without using DAX formulas in it. But if you want to analyze the growth percentage of different date ranges and across product categories or calculate year growth compared to market trends? DAX formulas support this capability. DAX stands for Data Analysis Expression language. Knowing how to use DAX formulas helps you to get the most out of your data. DAX works on operators, functions, and constants to further extend your model.

Question 72. How does Power BI DAX work?

The three fundamental concepts of Power BI DAX are Syntax, Context, and Functions.

Syntax:

It comprises various components that make up the formula. To understand the DAX formula, let's break down each of the elements into a language.

Total Sales = SUM(Sales[SalesAmount])

- Total Sales is the Measure name.
- The equals sign (=) indicates the start of the DAX formula.
- SUM is used to add the values of a given field.

- The parenthesis () is used to enclose and define arguments in an expression.
- Sales are the table referenced.
- The referenced column [SalesAmount] is an argument with which the SUM function identifies the column on which it has to aggregate a SUM.

  Context:
- It is one of the essential concepts of DAX. There are two types of Contexts - Row Context and Filter Context.
- The Row-Context is applied whenever a formula has a function that filters to identify a single row in a table.
- Filter-Context is used when one or more filters are applied in a calculation.

  Functions:

  Functions are structured, predefined, and ordered formulae. They complete calculations using arguments passed on to them.

Question 73. How are M language and DAX different?

M language is used to filter data in query editor using queries. You can access the editor through the "edit queries" tab.

Question 74. What are the different data types used in Dax?

Following are the Data types used in Dax:
- Numeric
- Boolean
- DateTime
- String
- Decimal

Question 75. What is a calculated column in Power BI and why would you use them?

Calculated Columns are DAX expressions that are computed during the model's processing/refresh process for each row of the given column and can be used like any other column in the model.

Calculated columns are not compressed and thus consume more memory and result in reduced query performance. They can also reduce processing/refresh performance if applied on large fact tables and can make a model more difficult to

maintain/support   given
that the calculated column is not present in the source system.

Question 76. What's the difference between a measure and a calculated column in Power BI?

Measures and calculated columns both use DAX expressions. However, measures perform an aggregation on the data and will return a value based on the filters in the report. Calculated columns return the result of a DAX expression for each row of a table. The result of a calculated column can be viewed just like any other column in the Data and Model views.

Question 77. Explain how relationships are defined in Power BI Desktop?

Relationships between tables are defined in two ways:

- Manually - Relationships between tables are manually defined using primary and foreign keys.
- Automatic - When enabled, this automated feature of Power BI detects relationships between tables and creates them automatically.

Question 78. How to create and manage relationships in Power BI Desktop?

As the name suggests, relationships in Power BI are used to define connections or the relation between two or more tables. To perform analysis on multiple tables, relationships are used.
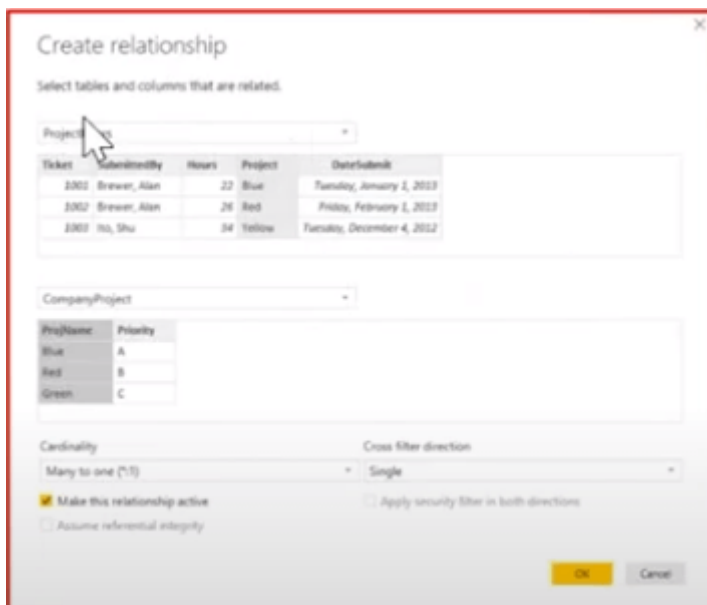
To create and manage relationships in Power BI Desktop:

- On the Home tab, select Manage Relationships > New.
- In the Create relationship dialog box, in the first table drop-down list, select a table. Select the column you want to use in the relationship.
- In the second table drop-down list, select the other table you want in the relationship. Select the other column you want to use, and then choose OK.

Question 79. Describe what a star schema is and how it works.

A star schema is made up of a central fact table and multiple dimension tables branching off this fact table, giving the appearance of a star. A fact table is made up of values that can be aggregated, as well as one or more keys that link to the dimension tables.

Question 80. What is cardinality?

Four cardinality choices exist: many-to-one, one-to-one, one-to-many, or many-to-many. When creating relationships, it is recommended that the joining field contains unique values in at least one of the tables. This allows you to use the one-to-many or many-to-one options in your data model.

Question 81. Explain the difference between single and bi-directional relationships.

The directionality of relationships is defined using the cross-filter direction option. Relationships flow from the table with unique values to the table with many values, affecting filtering. The single direction is recommended for most cases.

Question 82. What do we understand by Power BI services?

Power BI provides services for its cloud-based business analytics. With these services, you can view and share reports via the Power BI website. Power BI is a web-based service for sharing reports. Power BI service can be best referred to as PowerBI.com, PowerBI workspace, PowerBI site, or PowerBI portal.

Question 83. How can we refresh Power BI Reports once they are published on the cloud?

The Power BI Reports can be refreshed through Data Gateway once they are published on the cloud. If the reports are on the Power BI Site/Web, then we can use

Power BI Personal Gateway & if the reports are published on share-point, etc., we can use data management gateway.

Question 84. What are Tiles in Power BI?

Tile is an important feature of power BI services and can be said as a picture of the data which can be pinned to the dashboard.

Question 85. What is Bookmark?

Bookmark in Power BI helps you to capture the configured view of a report page in a specific time. This includes filter and state of visual which can use a short cut to come back to the report that you can add as a bookmark.