Module 10: Get Industry Ready

Interview Questions

Here is a collection of the most frequently asked questions by interviewers. These questions are collected after consulting with top industry experts in the field of Data analytics and visualization.

This Tableau Interview questions is divided into three parts:

1. **Beginners Level**
2. **Intermediate Level**
3. **Expert Level**

Let us begin this Tableau Interview Questions with Beginners level questions first:

Beginners Level Interview Questions:

1. **What is the difference between Traditional BI Tools and Tableau?**

Ans:

Traditional BI	Tableau
1. Architecture has hardware limitations	**1.** Do not have dependencies
2. Based on a complex set of technologies	**2.** Based on Associative Search which makes it dynamic and fast
3. Do not support in-memory, multi-thread, multi-core computing	**3.** Supports in memory when used with advanced technologies
4. Has a predefined view of data	**4.** Uses predictive analysis for various business operations

2. **What is Tableau?**

Ans: Tableau is a business intelligence software:

- It allows anyone to connect to the respective data
- Visualizes and creates interactive, shareable dashboards

3. **What are the different Tableau Products?**

Ans: Different Tableau Products are:

1. Tableau Prep
2. Tableau Desktop
3. Tableau Public
4. Tableau Server
5. Tableau Online
6. Tableau Reader

Tableau Prep:

Tableau Prep is a data preparation tool that enables the user to cleanse, aggregate, merge or otherwise prepare their data for analysis in Tableau**.**

Tableau Desktop:

Tableau Desktop is a business intelligence and data visualization tool that can be used by anyone. It specializes in transforming boring tabulated data into attractive graphs and representations. With tableau desktop, you can enjoy real-time data analytics by directly connecting to data from your data warehouse. You can easily import your data into Tableau's data engine from multiple sources and integrate them by combining multiple views in an interactive dashboard.

Tableau Public:

Tableau Public is a free version of Tableau software which can be used to make visualizations. Here you need to save your workbook and visualizations in the Tableau Server which can be accessed by anyone.

Tableau Server:

Tableau server is more of an enterprise level Tableau Software which comes with all the features of Tableau Desktop along with networking capabilities. With Tableau Server you can share dashboards created in Tableau Desktop and this makes it an ideal choice for enterprise-level projects and reporting. When leveraged with real-time data processing this can become a very dynamic and powerful tool for ensuring instant communication of data and insights.

Tableau Online:

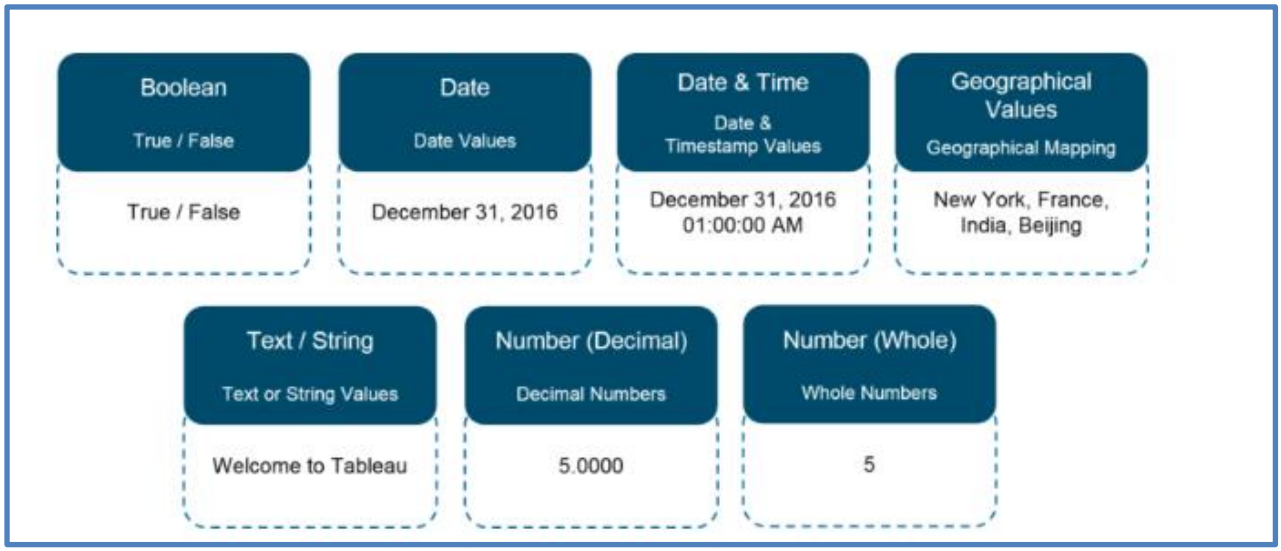
Tableau Online is a hosted version of Tableau server which is usually powered with the help of cloud computing to make the software available to everyone. It enables faster and easier access to business intelligence on the go. Using this you can publish dashboards created in Tableau Desktop and share them with colleagues.

Tableau Reader:

It's a free desktop application that enables you to open and view visualizations that are built in Tableau Desktop. You can filter, drill down data but you cannot edit or perform any kind of interactions.

4. **What are the different datatypes in Tableau?**

Ans: Tableau supports the following datatypes:



5. **What are Measures and Dimensions?**

Ans: **Measures:** are the numeric metrics or measurable quantities of the data, which can be analysed by dimension table. Measures are stored in a table that contain foreign keys referring uniquely to the associated dimension tables. The table supports data storage at atomic level and thus, allows more number of records to be inserted at one time.

For instance, a Sales table can have product key, customer key, promotion key, items sold, referring to a specific event.

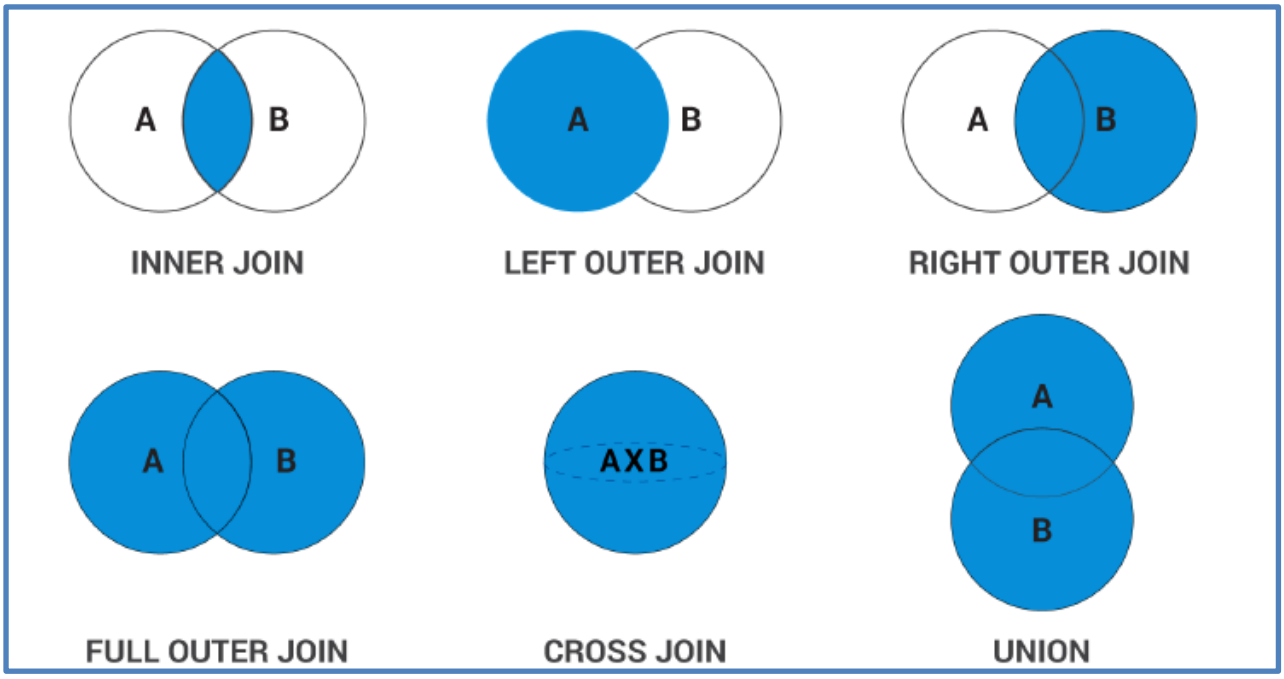
Dimensions are the descriptive attribute values for multiple dimensions of each attribute, defining multiple characteristics. A dimension table, having reference of a product key form the table, can consist of product name, product type, size, color, description, etc.

6. **What is the difference between .twb and .twbx extension?**

Ans: A .twb is an xml document which contains all the selections and layout made you have made in your Tableau workbook which does not contain any data. Whereas, a .twbx is a 'zipped' archive containing a .twb and any external files such as extracts and background images.

7. What are the different types of joins in Tableau?

Ans: **Joins** are used to link tables of data together on **Row By Row.** Different types of Joins in Tableau are:



8. What are different types of Tableau File Extensions?

Ans: The below ones are few extensions in Tableau:

1. Tableau Workbook (.twb)
2. Tableau Data extract (.tde)
3. Tableau Datasource (.tds)
4. Tableau Packaged Datasource (.tdsx)
5. Tableau Bookmark (.tbm)
6. Tableau Map Source (.tms)
7. Tableau Packaged Workbook (.twbx) – zip file containing .twb and external files.
8. Tableau Preferences (.tps)

9. How many maximum tables can you join in Tableau?

Ans: You can join a maximum of 32 tables in Tableau (limited to 255 coloumns)

10.What are the different connections you can make with your dataset?

Ans: We can either connect **live** to our data set or **extract** data onto Tableau:

Live - Connecting live to a data set leverages its computational processing and storage. New queries will go to the database and will be reflected as new or updated within the data.

Extract - An extract will make a static snapshot of the data to be used by Tableau's data engine. The snapshot of the data can be refreshed on a recurring schedule as a whole or incrementally append data. One way to set up these schedules is via the Tableau server.

The benefit of Tableau extract over live connection is that extract can be used anywhere without any connection and you can build your own visualization without connecting to database.

11.What is the latest version of Tableau Desktop?

Ans: Tableau Desktop latest version is 2019.3(as of Sep, 2019).

12. Define LOD Expression.

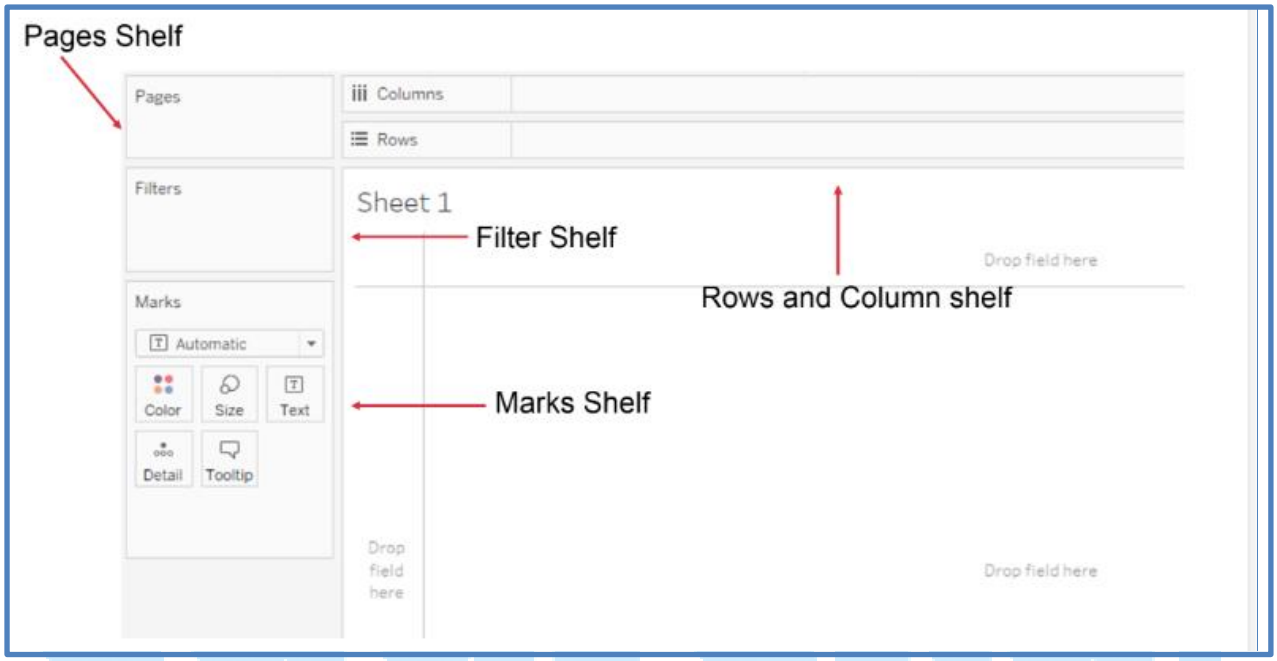
Ans: LOD Expression stands for Level of Detail Expression, and it is used to run the complex queries involving many dimensions at data sourcing level.

13.What is a parameter in Tableau? And how it works?

Ans: Parameters are dynamic values, we can replace the constant values in calculations.

14. What are shelves?

Ans: They are Named areas to the left and top of the view. You build views by placing fields onto the shelves. Some shelves are available only when you select certain mark types.



15. Define tableau dashboard.

Ans: Tableau Dashboard is a group of various views which allows you to compare different types of data simultaneously. Datasheets and dashboards are connected if any modification happens to the data that directly reflects in dashboards. It is the most efficient approach to visualize the data and analyze it.

16.What is story in Tableau?

Ans: Story can be defined as a sheet which is a collection of series of worksheets and dashboards used to convey the insights of data. Story can be used to show the connection between facts and outcomes that impacts the decision-making process. A story can be published to the web or can be presented to the audience.

17. What are sets?

Ans: **Sets** are custom fields that define a subset of data based on some conditions. A **set** can be based on a computed condition, for example, a **set** may contain customers with sales over a certain threshold. Computed **sets** update as your data changes. Alternatively, a **set** can be based on specific data point in your view.

18. What are groups?

Ans: A group is a combination of dimension members that make higher level categories. For example, if you are working with a view that shows average test scores by major, you may want to group certain majors together to create major categories.

19.What is a hierarchical field?

Ans: A hierarchical field in tableau is used for drilling down data. It means viewing your data in a more granular level.

20.What is Tableau Data Server?

Ans: Tableau server acts a middleman between Tableau users and the data. Tableau Data Server allows you to upload and share data extracts, preserve database connections, as well as reuse calculations and field metadata. This means any changes you make to the dataset, calculated fields, parameters, aliases, or definitions, can be saved and shared with others, allowing for a secure, centrally managed and standardized dataset.

21.What is dual axis?

Ans: Dual axis is used to show 2 measures in a single graph. It allows you to compare 2 measures at once. Many websites like indeed use this dual axis to show the comparisons and growth rate.

22.What is the Hierarchy in Tableau?

Ans: When we are working with the large volumes of data, incredibly data may be messed. With Tableau, you can easily create hierarchies to keep your data neat. Even if you don't need, it is built into your data, which you can easily manage or organize the data and you can track the data easily.

23. Define the following:

a) Bullet Graph:

Bullet graph is a variant of Bar graph. It is responsible for comparing performance of one measure with other measures.

b) Bar in Bar Chart

Similarly, as Bullet chart, a Bar in Bar chart is also used to show the progress towards a goal or to compare any two values. Typically, two bars will have different colors and widths

c) Histogram Chart:

A histogram chart shows the distribution of continuous information over a certain period. This chart helps us to find extreme points, gaps, unusual values, and more concentrated values.

d) Gannt Chart:

Gantt Chart displays the progress of a value over the period. It consists of bars along with time axis. It is a project management tool. Here, each bar is measure of a task in the project framework.

e) Bar Chart:

Bar chart visualize the data as set of rectangle bars, as their values are proportional to lengths when they represent the data. The vertical axis shows the category to which they belong to and horizontal axis shows the values.

f) Heat Map:

Heat map is a graphical representation of data which uses the colour-coding technique to represent different values of data. As the marks heat up due to its higher value, dark colour will be shown on the map.

g) Tree Map:

Tree map is a visualization which organizes data hierarchically and shows them as a set of nested rectangles. Size and colours of rectangles are respective to their values of the data points they project. Parent rectangles will be tiled with their child elements.

h) Line Chart:

Line chart is a popular type of diagrammatic way for visualizing the data, it connects the individual data points to view the data. We can easily visualize the series of values, we can see trends over time or predict future values. Horizontal axis holds the category to which it belongs and vertical axis hold the values.

i) Area Chart:

Area chart is nothing but line chat, the area between x-axis and lines will be color or patterns. These charts are typically used to represent accumulated totals over time and are the conventional way to display stacked lines.

24.State few charts which we should not use with valid reasons?

Ans: Below here are few charts which we should avoid.

- **3D Charts:** Visual representation of numbers in 3D charts will be skewed and it makes difficult to compare and analyze.
- **Pie Charts:** Pie charts are not that much accurate as bar charts. In Pie charts, we have areas and angles to compare instead of length in a bar chart. Areas and angles cannot be analyzed with ease.
- **Donut Charts:** This is same as Pie chart, but here, we have a hole in the middle to make it look like donut. Due to that hole, we need to compare arc length with other arcs to analyze the values. Comparing arcs length is also a difficult task for our eyes.

25.What is VIZQL?

Ans: **VIZQL** is Visual Inquiry Language. It is a combination of VIZ and SQL. It is similar to SQL language. But instead of SQL commands, VIZQL language converts data queries into visual images.

Intermediate Level Interview Questions:

26.What are filters? How many types of filters are available in Tableau?

Ans: Filters are used to provide the correct information to viewers after removing unnecessary data. There are various types of filters available in Tableau.

Extract Filters – Extract filters are used to apply filter on extracted data from data source. For this filter, data is extracted from data source and placed into Tableau data repository.

Datasource Filters – Datasource filters are same as extract filters, the only difference is it works with both live and extract connection.

Context Filters – Context Filters are applied on the data rows before any other filters. They are limited to views, but they can be applied on selected sheets. They define Aggregation and Disaggregation of data in Tableau.

Dimension Filters – Dimension filters are used to apply filters on dimensions in worksheets. Dimension filters are applied through the top or bottom conditions, formula and wildcard match.

Measure Filters – Measure filters are applied on the values present in the measures.

27.What is disaggregation and aggregation of data?

Ans: Aggregation: The process of viewing numeric values or measures at higher and more summarized levels of the data is called aggregation. When you place a measure on a shelf, Tableau automatically aggregates the data, usually by summing it. You can easily determine the aggregation applied to a field because the function always appears in front of the field's name when it is placed on a shelf. For example, Sales becomes SUM(Sales). You can aggregate measures using Tableau only for relational data sources. Multidimensional data sources contain aggregated data only. In Tableau, multidimensional data sources are supported only in Windows.

Disaggregating your data allows you to view every row of the data source which can be useful when you are analyzing measures that you may want to use both independently and dependently in the view. For example, you may be analyzing the results from a product satisfaction survey with the Age of participants along one axis. You can aggregate the Age field to determine the average age of participants or disaggregate the data to determine what age participants were most satisfied with the product.

28.What is the difference between joining and blending in Tableau?

Ans: Joining term is used when you are combining data from the same source, for example, worksheet in an Excel file or tables in Oracle database. While blending requires two completely defined data sources in your report.

29.What are Extracts and Schedules in Tableau server?

Ans: Data extracts are the first copies or subdivisions of the actual data from original data sources. The workbooks using data extracts instead of those using live DB connections are faster since the extracted data is imported in Tableau Engine. After this extraction of data, users can publish the workbook, which also publishes the extracts in Tableau Server. However, the workbook and extracts won't refresh unless users apply a scheduled refresh on the extract. Scheduled Refreshes are the scheduling tasks set for data extract refresh so that they get refreshed automatically while publishing a workbook with data extract. This also removes the burden of republishing the workbook every time the concerned data gets updated.

30.How to view underlying SQL Queries in Tableau?

Ans: Viewing underlying SQL Queries in Tableau provides two options:

Create a Performance Recording to record performance information about the main events you interact with workbook. Users can view the performance metrics in a workbook created by Tableau.

Help → Settings and Performance → Start Performance Recording

Help → Setting and Performance → Stop Performance Recording

Reviewing the Tableau Desktop Logs located at C: → Users → My Documents → My Tableau Repository. For live connection to data source, you can check log.txt and tabprotosrv.txt files. For an extract, check tdeserver.txt file.

31.How to do Performance Testing in Tableau?

Ans: Performance testing is again an important part of implementing tableau. This can be done by loading Testing Tableau Server with TabJolt, which is a "Point and Run" load generator created to perform QA. While TabJolt is not supported by tableau directly, it has to be installed using other open source products.

32. Name the components of a Dashboard.

Ans: Components of Dashboard are:

- **Horizontal –** Horizontal layout containers allow the designer to group worksheets and dashboard components left to right across your page and edit the height of all elements at once.
- **Vertical –** Vertical containers allow the user to group worksheets and dashboard components top to bottom down your page and edit the width of all elements at once.
- **Text –** All textual fields.
- **Image Extract –** A Tableau workbook is in XML format. In order to extracts images, Tableau applies some codes to extract an image which can be stored in XML.
- **Web [URL ACTION] –** A URL action is a hyperlink that points to a Web page, file, or other web-based resource outside of Tableau. You can use URL actions to link to more information about your data that may be hosted outside of your data source. To make the link relevant to your data, you can substitute field values of a selection into the URL as parameters.

33. How to remove 'All' options from a Tableau auto-filter?

Ans: The auto-filter provides a feature of removing 'All' options by simply clicking the down arrow in the auto-filter heading. You can scroll down to 'Customize' in the dropdown and then uncheck the 'Show "All" Value' attribute. It can be activated by checking the field again.

34. How to add Custom Color to Tableau?

Ans: Adding a Custom Color refers to a power tool in Tableau. Restart you Tableau desktop once you save .tps file. From the Measures pane, drag the one you want to add color to **Color**. From the color legend menu arrow, select **Edit Colors**. When a dialog box opens, select the palette drop-down list and customize as per requirement.

35. What is TDE file?

Ans: TDE is a Tableau desktop file that contains a .tde extension. It refers to the file that contains data extracted from external sources like MS Excel, MS Access or CSV file.

There are two aspects of TDE design that make them ideal for supporting analytics and data discovery.

- Firstly, TDE is a columnar store.
- The second is how they are structured which impacts how they are loaded into memory and used by Tableau. This is an important aspect of how TDEs are "architecture aware". Architecture-awareness means that TDEs use all parts of your computer memory, from RAM to hard disk, and put each part to work what best fits its characteristics.

36. Mention whether you can create relational joins in Tableau without creating a new table?

Ans: Yes, one can create relational joins in tableau without creating a new table.

37. How to automate reports?

Ans: You need to publish report to tableau server, while publishing you will find one option to schedule reports. You just need to select the time when you want to refresh data.

38. What is Assume referential integrity?

Ans: In some cases, you can improve query performance by selecting the option to Assume Referential Integrity from the Data menu. When you use this option, Tableau will include the joined table in the query only if it is specifically referenced by fields in the view.

39. Explain when would you use Joins vs. Blending in Tableau?

Ans: If data resides in a single source, it is always desirable to use Joins. When your data is not in one place blending is the most viable way to create a left join like the connection between your primary and secondary data sources.

40. What is default Data Blending Join?

Ans: Data blending is the ability to bring data from multiple data sources into one Tableau view, without the need for any special coding. A default blend is equivalent to a left outer join. However, by switching which data source is primary, or by filtering nulls, it is possible to emulate left, right and inner joins.

41. What do you understand by blended axis?

Ans: In Tableau, measures can share a single axis so that all the marks are shown in a single pane. Instead of adding rows and columns to the view, when you blend measures there is a single row or column and all of the values for each measure is

shown along one continuous axis. We can blend multiple measures by simply dragging one measure or axis and dropping it onto an existing axis.

42.What is story in Tableau?

Ans: A story is a sheet that contains a sequence of worksheets or dashboards that work together to convey information. You can create stories to show how facts are connected, provide context, demonstrate how decisions relate to outcomes, or simply make a compelling case. Each individual sheet in a story is called a story point.

43.What is the difference between discrete and continuous in Tableau?

Ans: There are two types of data roles in Tableau – discrete and continuous dimension.

- Discrete data roles are values that are counted as distinct and separate and can only take individual values within a range. Examples: number of threads in a sheet, customer name or row ID or State. Discrete values are shown as blue pills on the shelves and blue icons in the data window.
- Continuous data roles are used to measure continuous data and can take on any value within a finite or infinite interval. Examples: unit price, time and profit or order quantity. Continuous variables behave in a similar way in that they can take on any value. Continuous values are shown as green pills.

44.How to create stories in Tableau?

Ans: There are many ways to create story in Tableau. Each story point can be based on a different view or dashboard, or the entire story can be based on the same visualization, just seen at different stages, with different marks filtered and annotations added. You can use stories to make a business case or to simply narrate a sequence of events.

- Click the New Story tab.
- In the lower-left corner of the screen, choose a size for your story. Choose from one of the predefined sizes, or set a custom size, in pixels.
- By default, your story gets its title from its sheet name. To edit it, double-click the title. You can also change your title's font, color, and alignment. Click Apply to view your changes.
- To start building your story, drag a sheet from the Story tab on the left and drop it into the center of the view
- Click Add a caption to summarize the story point.

- To highlight a key takeaway for your viewers, drag a text object over to the story worksheet and type your comment.
- To further highlight the main idea of this story point, you can change a filter or sort on a field in the view, then save your changes by clicking Update above the navigator box.

45. What is the DRIVE Program Methodology?

Ans: Tableau Drive is a methodology for scaling out self-service analytics. Drive is based on best practices from successful enterprise deployments. The methodology relies on iterative, agile methods that are faster and more effective than traditional long-cycle deployment.

A cornerstone of this approach is a new model of partnership between business and IT.

46. How to use group in calculated field?

Ans: By adding the same calculation to 'Group By' clause in SQL query or creating a Calculated Field in the Data Window and using that field whenever you want to group the fields.

- **Using groups in a calculation.** You cannot reference ad-hoc groups in a calculation.
- **Blend data using groups created in the secondary data source:** Only calculated groups can be used in data blending if the group was created in the secondary data source.
- **Use a group in another workbook.** You can easily replicate a group in another workbook by copy and pasting a calculation.

47. Mention what is the difference between published data sources and embedded data sources in Tableau?

Ans: The difference between published data source and embedded data source is that,

- **Published data source**: It contains connection information that is independent of any workbook and can be used by multiple workbooks.
- **Embedded data source**: It contains connection information and is associated with a workbook.

48. Mention what are different Tableau files?

Ans: Different Tableau files include:

- **Workbooks:** Workbooks hold one or more worksheets and dashboards
- **Bookmarks**: It contains a single worksheet and its an easy way to quickly share your work
- **Packaged Workbooks:** It contains a workbook along with any supporting local file data and background images
- **Data Extraction Files:** Extract files are a local copy of a subset or entire data source
- **Data Connection Files:** It's a small XML file with various connection information

Expert Level Interview Questions

49. How to embed views onto Webpages?

Ans: You can embed interactive Tableau views and dashboards into web pages, blogs, wiki pages, web applications, and intranet portals. Embedded views update as the underlying data changes, or as their workbooks are updated on Tableau Server. Embedded views follow the same licensing and permission restrictions used on Tableau Server. That is, to see a Tableau view that's embedded in a web page, the person accessing the view must also have an account on Tableau Server.

Alternatively, if your organization uses a core-based license on Tableau Server, a Guest account is available. This allows people in your organization to view and interact with Tableau views embedded in web pages without having to sign in to the server. Contact your server or site administrator to find out if the Guest user is enabled for the site you publish to.

You can do the following to embed views and adjust their default appearance:

- Get the embed code provided with a view: The Share button at the top of each view includes embed code that you can copy and paste into your webpage. (The Share button doesn't appear in embedded views if you change the showShareOptions parameter to false in the code.)
- Customize the embed code: You can customize the embed code using parameters that control the toolbar, tabs, and more. For more information, see Parameters for Embed Code.

- Use the Tableau JavaScript API: Web developers can use Tableau JavaScript objects in web applications. To get access to the API, documentation, code examples, and the Tableau developer community, see the Tableau Developer Portal.

50. Design a view in a map such that if user selects any state, the cities under that state has to show profit and sales.

Ans: According to your question you must have state, city, profit and sales fields in your dataset.

Step 1: Double click on the state field

Step 2: Drag the city and drop it into Marks card.

Step 3: Drag the sales and drop it into size.

Step 4: Drag profit and drop it into color.

Step 5: Click on size legend and increase the size.

Step 6: Right click on state field and select show quick filter.

Step 7: Select any state now and check the view.

51. Think that I am using Tableau Desktop & have a live connection to Cloudera Hadoop data. I need to press F5 to refresh the visualization. Is there anyway to automatically refresh visualization every 'x' seconds instead of pressing F5?

Ans: Here is an example of refreshing the dashboard for every 5 seconds.

All you need to do is replace the api src and server url with yours.

```
<!DOCTYPE html>

<html lang="en">

<head>

<title>Tableau JavaScript API </title>

<script type="text/javascript" src="http://servername/javascripts/api/tableau_v8.js"></script>

</head>

<div id="tableau Viz"></div>

<script type='text/javascript'>

var placeholderDiv = document.getElementById("tableau Viz");

var url = "http://servername/t/311/views/Mayorscreenv5/Mayorscreenv2";

var options={

hideTabs:True,

width:"100%",

height:"1000px"

};

var viz= new tableauSoftware.Viz(placeholderDiv,url,options);

setInterval (function() {viz.refreshDataAsync()},5000);

</script>

</body>

</html>
```

52. Suppose my license expires today, will users be able to view dashboards or workbooks which I published in the server earlier?

Ans: If your server license expires today, your username on the server will have the role 'unlicensed' which means you cannot access but others can. The site admin can change the ownership to another person so that the extracts do not fail.

53. Is Tableau software good for strategic acquisition?

Ans: Yes! For sure. It gives you data insight to the extent that other tools can't. Moreover, it also helps you to plan and point the anomalies and improvise your process for betterment of your company.

54. Can we place an excel file in a shared location and and use it to develop a report and refresh it in regular intervals?

Ans: Yes, we can do it. But for better performance we should use Extract.

55. Can Tableau be installed on MacOS?

Ans: Yes, Tableau Desktop can be installed on both on Mac and Windows Operating System.

56. What is the maximum no. of rows Tableau can utilize at one time?

Ans: Tableau is not restricted by the no. of rows in the table. Customers use Tableau to access petabytes of data because it only retrieves the rows and columns needed to answer your questions.

57. When publishing workbooks on Tableau online, sometimes a error about needing to extract appears. Why does it happen occasionally?

Ans: This happens when a user is trying to publish a workbook that is connected to an internal server or a file stored on a local drive, such as a SQL server that is within a company's network

58. How can u set permissions or protect the data in tableau public?

Ans: Tableau does not have any security permissions or to protect the data in Tableau public. Whatever we shared in Tableau public those files, workbooks can be view by all users. There is no security option in Tableau public.

59. How to automate reports in Tableau?

Ans: When we are publishing the reports to Tableau Server, there we will find an option to schedule report, just select the time when you want to refresh the data.

60. How to handle null values in Tableau?

Ans: Tableau cannot plot null values on axis. So, it will display an indicator at lower right corner of view. Once you click on that indicator, you have options to handle null values. Below are the options available to handle null values.

- **Filter Data** – If you choose this option, null values will be filtered out from the view.
- **Show Data at Default Position** – It replaces the null value with default value and shows the data at default position on axis. These default values depend on the data type of field. Below here are the defaults of specific data type.
  - Numbers →0
  - Dates → 12-31-1899
  - Geographic Location → (0,0)
  - Negative Values → 1