

## TABLEAU INTERVIEW QUESTIONS

### TECHNICAL



#### **Interview Tips:**

Be at least 20 to 30 minutes early to the interview place so you are comfortable, calm and relaxed. While waiting in the lobby, take this opportunity to find some interesting stuff around. It could be a company magazine on the coffee table, a beautiful wall art, great decor, a book shelf or something else which is worth talking about.

The point is, use that observation to spark a conversation when you meet and greet the interviewer. This trick not only helped me to start the pep talk but also made both of us comfortable to begin the interview on a positive note and keep the conversation going.

Before every interview, be prepared with the scenarios below.

- When you're asked a question, take a deep breath—think and recollect the situations you would have faced. It's ok to take a moment to think and answer the question.
- Have a thorough understanding of what you mentioned in your resume and projects. They might ask you some deeper questions related to what you mentioned.
- You might also be asked if you know anything about their company. And, you will definitely get brownie points for researching about the company. This shows that you're keen in the role.
- Research about the company, their growth, any recent news, products/services they offer, role advertised and any associated information.
- It is good to read up on the job requirements and responsibilities, so that you can align your answers based on what they are seeking.
- Check the interviewer LinkedIn profile, you get an idea of their work experience, their role and you could guess the type of questions you might expect.
- Show that you are confident the way you speak, listen and even sit.
- Draw on personal experiences and projects. Shows that you're experienced.
- Admit to not knowing something and politely ask for the answer.
- Focus on identifying the problem instead of getting straight to the solution.
- Share relevant information instead of talking too much in detail about everything.
- Express towards the end that you're very much interested in the role

## **Data Visualization:**

### **1. What is data visualization?**

Data Visualization is a form of visual communication. At its core, it's about encoding aggregations and representing data visually, in order to gain insight from the data. Data visualization allows for immediate insight by tapping into our mind's powerful visual processing system.

A primary goal of data visualization is to communicate information clearly and efficiently via graphs and charts. Effective visualization helps users analyze and reason about data and evidence. It makes complex data more accessible, understandable and usable.

Think of all the popular data visualization works out there—they all tell an interesting story. Maybe the story was to convince you of something. Maybe it was to compel you to action, enlighten you with new information, or force you to question your own preconceived notions of reality. Whatever it is, the best data visualization, big or small, helps you see what the data has to say.

### **2. How do you explain data visualization to a layman?**

Data visualization is the process of displaying data in graphical charts so that businesses can find insights quickly and easily to make better decisions for good outcomes.

### **3. Why did you choose data visualization?**

Data Visualization helps us solve business problems faster or better. They bring some new insights which often have monetary value associated with it. Visualization often enables problems with the data to become immediately apparent.

A visualization commonly reveals things not only about the data itself but also about the way it is collected. With an appropriate visualization, errors and artifacts in the data often jump out at you. For this reason, visualizations can be invaluable in quality control too.

By practicing data visualization, it gives me an opportunity to make a direct impact to the businesses bottom line.

### **4. Why Do We Visualize Data?**

Humans respond to and process visual data better than any other type of data. In fact, the human brain processes images 60,000 times faster than text, and 90 percent of information transmitted to the brain is visual. We visualize data to harness the incredible power of our visual system to spot relationships and trends. Seeing the numbers visually gives us a quick understanding of how business is performing so we can make data backed decisions.

### **5. How do you define a dashboard?**

A dashboard is a visual display of information that helps us visually display, track and analyze key performance indicators (KPI) and metrics to monitor the health of a business. Dashboard is also defined as a visual display of the most important information needed to achieve one or more objectives that has been consolidated on a single screen so it can be easily monitored and understood at a glance. Dashboard gives the ability is to spot the exception, highs and lows and then drilling in to the specifics all in one place.

## 6. Briefly explain the process you follow in a data visualization project from start to finish?

- First begin with understanding client business, technical and business requirements.
- Understand the context of the visualization and audience who we intend to build.
- Capture user stories/business problems they are trying to address.
- Understand the data model, data analysis and data preparation.
- Storyboard/sketch initial prototype to solve the above problems.
- Choose an appropriate visual that effectively brings the story live and answer the business questions.
- Remove unnecessary elements, keep it clean and simple.
- Showcase the visualization to stakeholders, seek feedback and iterate
- Data reconcile to make sure the numbers in the visualization are matching to the numbers in the source.
- Unit testing, System testing, UAT, approval and deploying to production.
- User training, support and maintenance.

## 7. How do you choose a visual to represent data?

First, we have to think about what it is that we want our audience to be able to do with the data (function) and then create a visualization (form) that will most efficiently and most accurately convey the data's meaning.

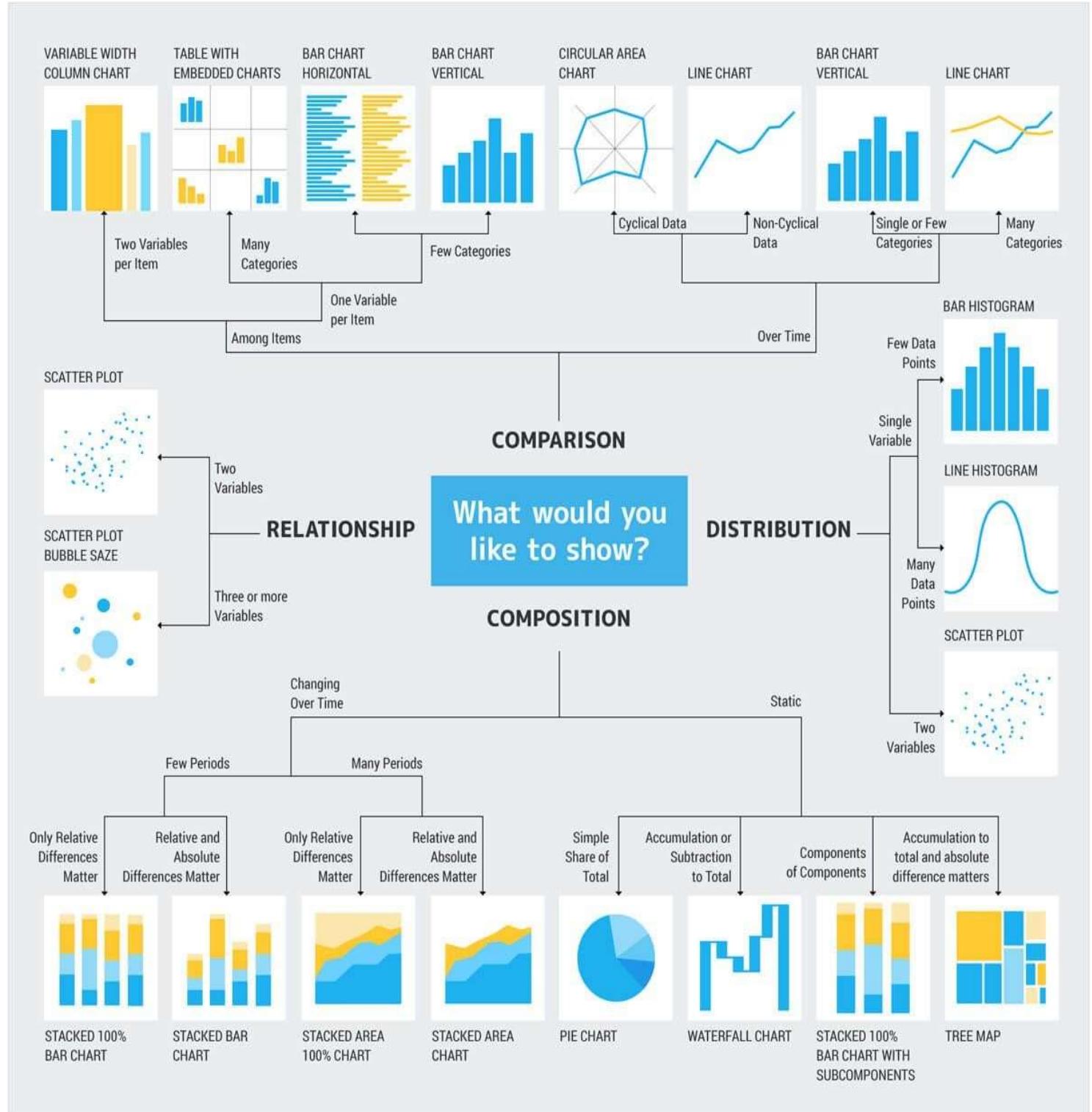
When you display the data visually using the right chart, you'll be able to easily uncover meaningful patterns, and correlations from a set of otherwise indecipherable numbers.

Below are the four data relationships that are used when visualizing the data:

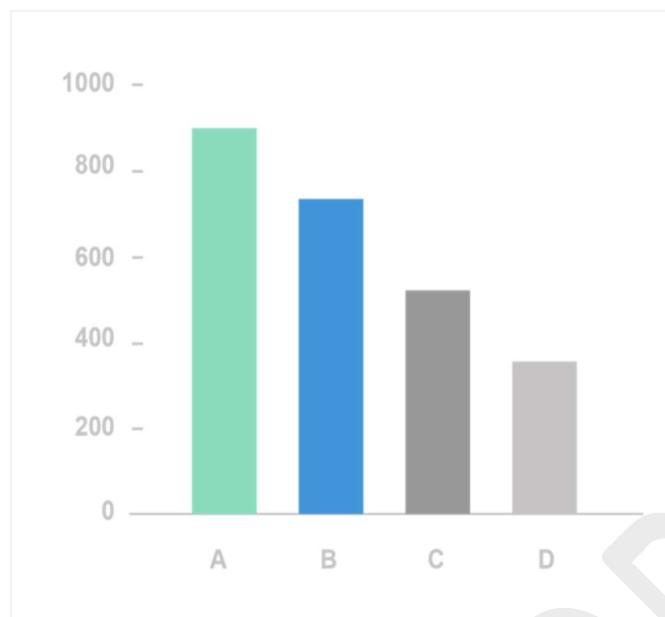
A **comparison** tries to set one set of variables apart from another and display how those two variables interact, like the number of visitors to five competing websites in a single month.

A **composition** tries to collect different types of information that make up a whole and display them together, like the search terms that those visitors used to land on your site, or how many of them came from links, search engines, or direct traffic.

A **distribution** tries to lay out a collection of related or unrelated information simply to see how it correlates, if at all, and to understand if there's any interaction between the variables, like the number of bugs reported during each month of a beta.

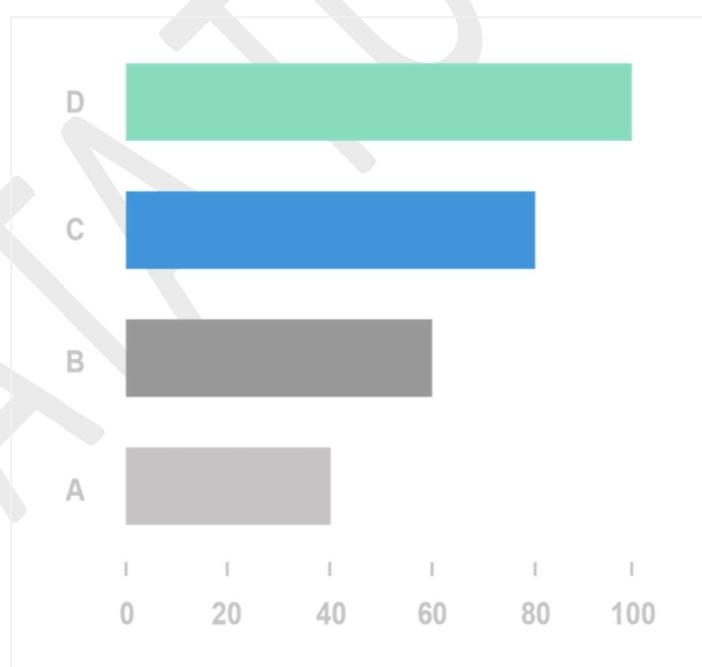


## 8. What is a Column chart?



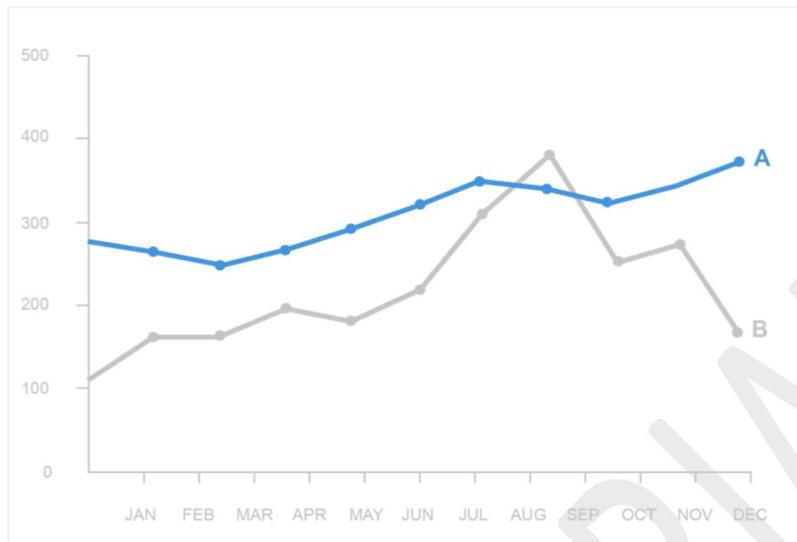
A column chart visualizes data as a set of rectangular columns, their lengths being proportional to the values they represent. The vertical axis shows the values, and the horizontal axis shows the categories they belong to. In multi-series column charts, values are grouped by categories.

## 9. What is a Bar chart?



A bar chart visualizes data as a set of rectangular bars, their lengths being proportional to the values they represent. The horizontal axis shows the values, and the vertical axis shows the categories they belong to.

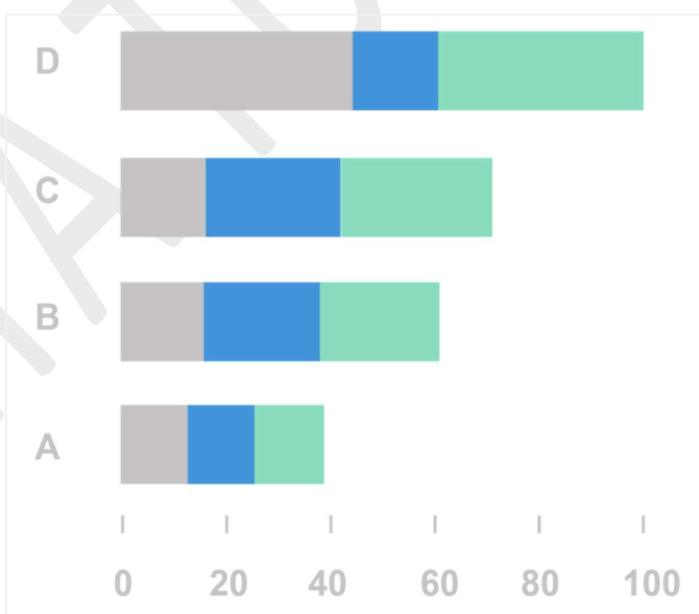
## 10.What is a Line chart?



A Line Chart is the most popular type of the data visualization. As a rule, it is used to emphasize trends in data over equal time intervals, such as months, quarters, fiscal years, and so on.

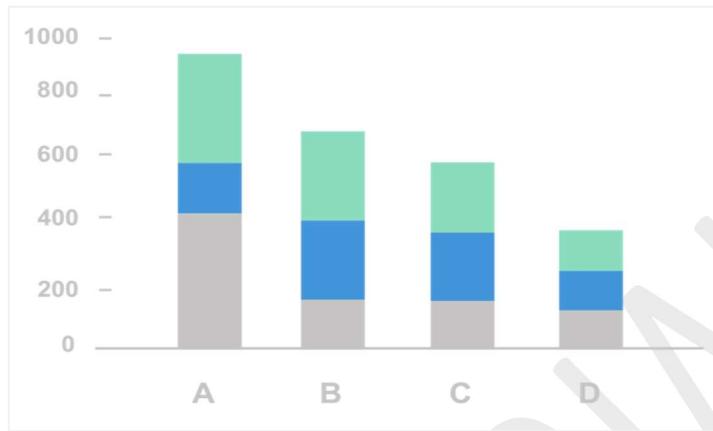
It displays information as a series of data points called 'markers' connected by straight line segments. The X axis holds the categories while the Y axis holds the values.

## 11.What is a Stacked Bar chart?



The Stacked Bar Chart is composed of multiple Bar series stacked horizontally one after another. The length of each series depends on the value in each data point. Stacked Bar Charts make it easier to follow the variation of all the variables presented, side by side, and watch the change in their total.

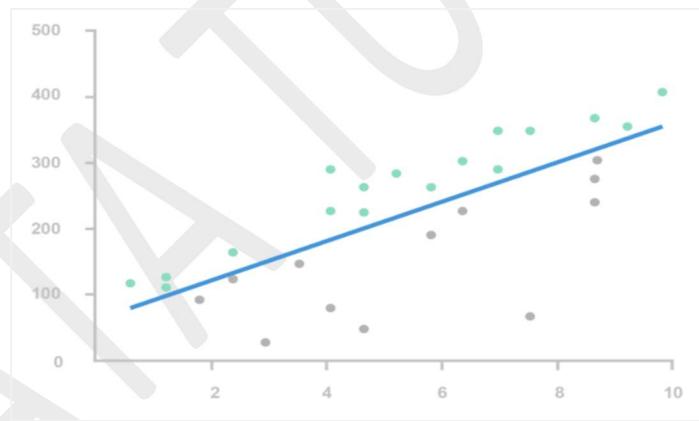
## 12.What is a Stacked Column Chart?



The Stacked Column Chart comprises several Column series stacked vertically, one on another. Each series' length is determined by the value in each data point. Stacked Column Charts are a great option if you need to observe the change in each of several variables simultaneously and in their sum.

You should pick this type of chart only in case the number of series is higher than two. With just one series, it would be the Column Chart.

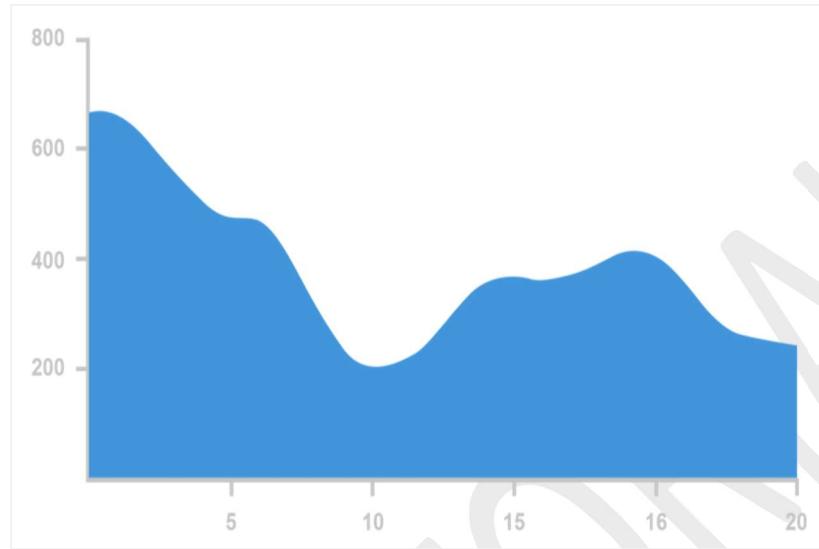
## 13.What is a Scatter Plot?



A scatter plot shows the relationship between two different values. This is particularly useful to identify outliers or to understand the correlation in the data. The data sets need to be in pairs with a dependent variable and an independent variable. The dependent becomes the y axis and the independent, the x.

When the data is distributed on the plot, the results show the correlation to be positive, negative or non-existent. Adding a trend line will help show the correlation and how statistically significant the correlation is. Example: With trend lines, you can answer such questions as whether profit is predicted by sales, or whether average delays at an airport are significantly correlated with the month of the year.

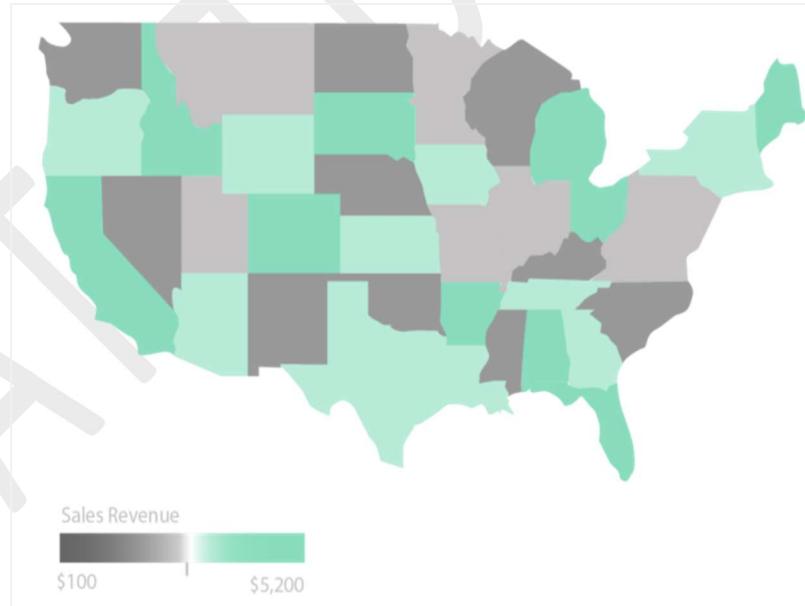
#### 14.What is an Area Chart?



An area chart is a chart type based on the line chart: it also shows information as a series of data points connected by straight line segments, but the area between the X-axis and the line segments is filled with color or a pattern.

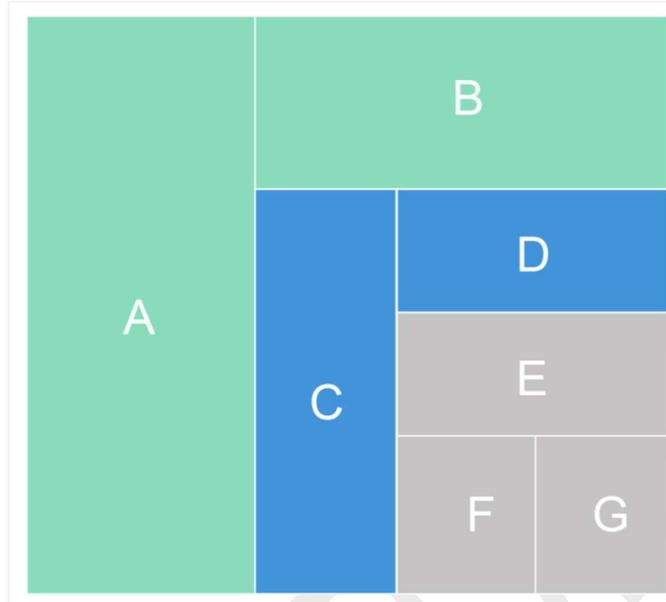
The area chart emphasizes the magnitude of change over time and can be used to highlight the total value across a trend. For example, an area chart displaying profit over time can emphasize the total profit.

#### 15.What is a Choropleth Map?



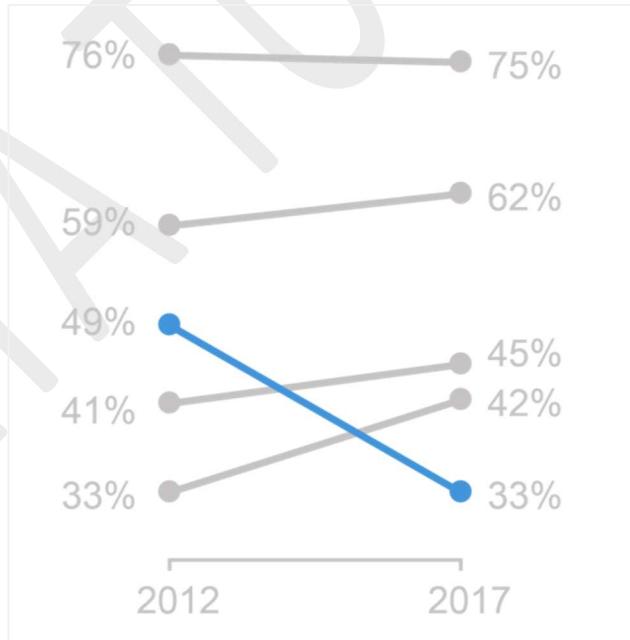
Choropleth Map displays divided geographical areas or regions that are colored, shaded or patterned in relation to a data variable. This provides a way to visualize values over a geographical area, which can show variation or patterns across the displayed location.

## 16.What is a Tree Map?



A tree map is a visualization that displays hierarchically organized data as a set of nested rectangles, parent elements being tiled with their child elements. The sizes and colors of rectangles are proportional to the values of the data points they represent.

## 17.What is a Slope Graph?

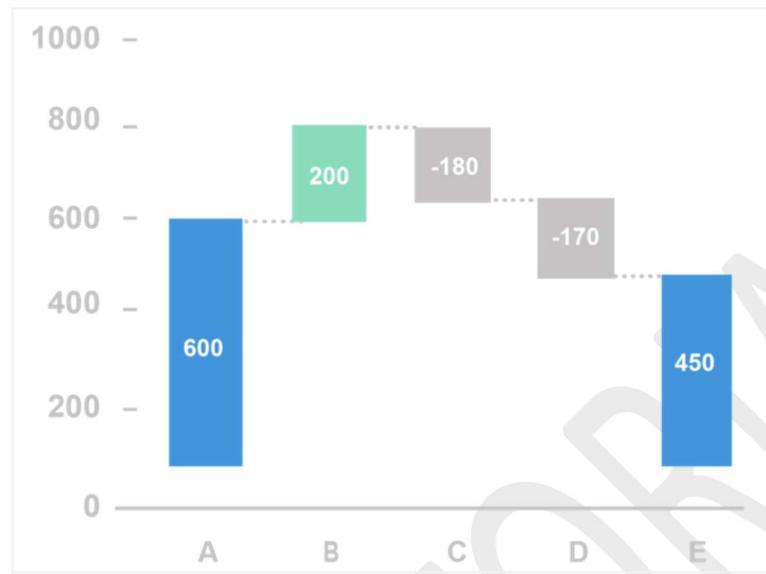


A slope graph is a lot like a line graph, in that it plots change between points. However, a slope graph plots the change between only two points, without any kind of regard for the points in between.

It is based on the idea that humans are fairly good at interpreting changes in direction. Decreases and quickly rising increases are easily

detected.

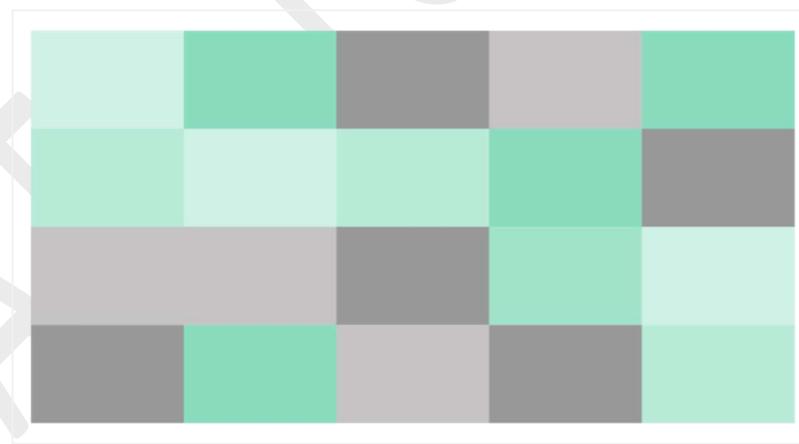
## 18.What is a Waterfall chart?



The Waterfall Chart type is generally used to understand the influence of several positive and negative factors on the initial value. Points are utilized to display the process of the initial value change and can be in one of the three states: increase, decrease, or total (subtotal).

The first and last columns in a Waterfall Chart usually represent totals. The intermediate ones stand for the changes

## 19.What is a Heat Map?



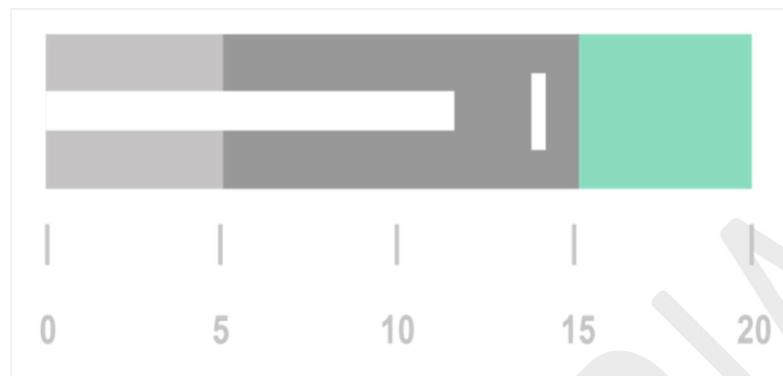
A heat map is a visual representation of data that uses color-coding to represent different values in a matrix.

Essentially, this type of chart is a data table with rows and lines denoted by different sets of categories. Each table cell can contain a numerical or logical value that determines the cell color based on a given color palette.

Heat maps are convenient data visualization for comparing categories, using color to emphasize relationships between data values that

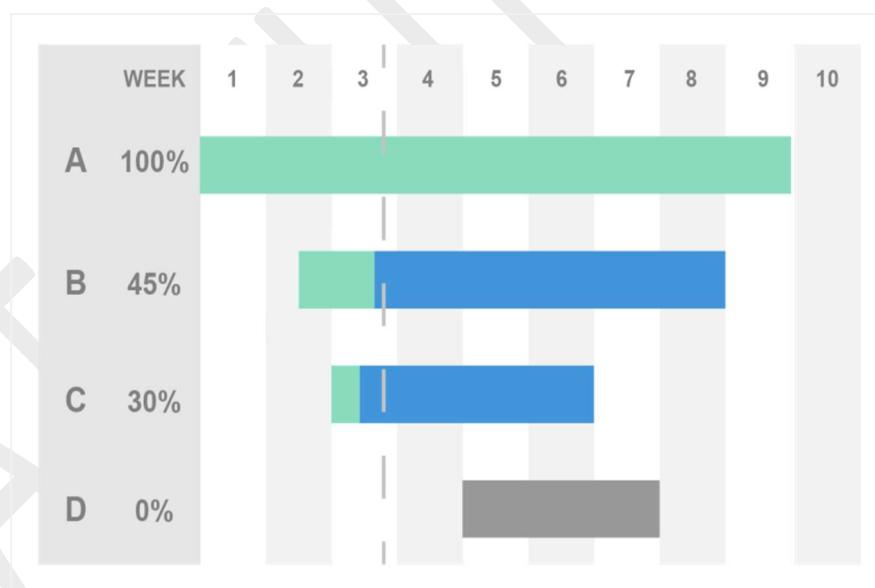
would be much harder to understand in a simple table with numbers.

## 20.What is a Bullet graph?



A bullet graph is a variation of a bar graph developed to replace dashboard gauges and meters. A bullet graph is useful for comparing the performance of a primary measure to one or more other measures. It shows a distribution showing progress towards a goal behind the bar.

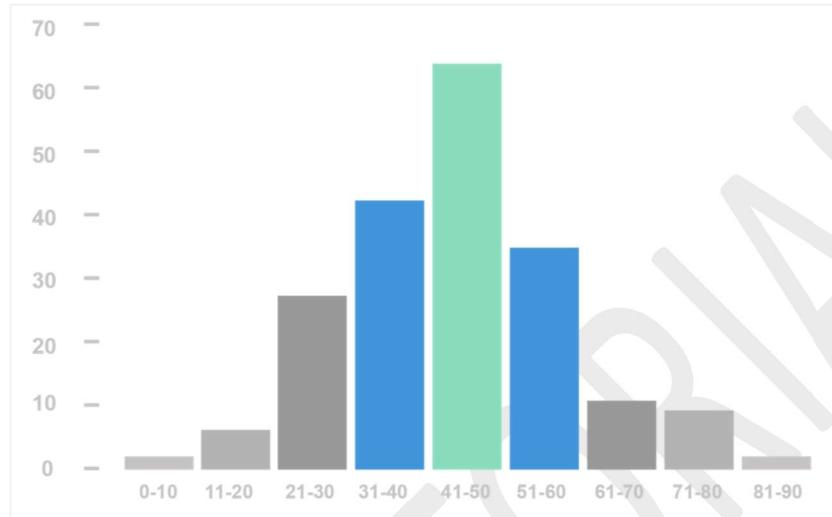
## 21.What is a Gantt Chart?



The Gantt Chart is a type of bar diagram used to illustrate plans and activity schedules of any project. It is a project management tool. Gantt Chart consist of bars stretched along the time axis.

In this type of diagram, each bar represents a certain task within the framework of the project in question. The ends of the bar stand for the task's start and finish time, and the length reflects duration. The Gantt Chart's vertical axis is a task list.

## 22.What is a Histogram chart?



A Histogram visualizes the distribution of data over a continuous interval or certain time period. Each bar in a histogram represents the tabulated frequency at each interval/bin. The total area of the Histogram is equal to the number of data.

Histograms help give an estimate as to where values are concentrated, what the extremes are and whether there are any gaps or unusual values. They are also useful for giving a rough view of the probability distribution.

## 23.What are some of the charts you avoid and why?

**3d charts-** They skew the visual perception of the numbers making them difficult or impossible to interpret or compare. It also introduces unnecessary chart elements like side and floor panels which is not only a cognitive load on the brain, but also inaccurate.

**Pie charts –** This is not being as accurate as bar charts or position-based visuals. With pie, we are judging areas and angles which is much more difficult than length in a bar chart. Our eyes cannot ascribe quantitative values to areas and angles properly.

**Donut charts-** This is similar to pie chart, but with a hole cut out in the middle so that it looks like a donut. Because there's a hole in the middle, we don't judge values by angle anymore. Instead we have to

compare one arc length with to another arc length. Our eyes cannot ascribe quantitative values to arc length properly.

## 24.Can you explain some Data Visualization design best practices?

From Storytelling with data book.

- Form follows function: First, we want to think about what it is we want our audience to be able to do with the data (function) and then create a visualization (form) that will allow for this with ease.

- Don't assume that two different people looking at the same data visualization will draw the same conclusion.
- Leverage pre-attentive attributes to make those important words stand out.
- Offer your audience visual affordances as cues for how to interact with your visualization.
- Highlight the important stuff and eliminate distractions.
- Make it legible and clean.
- Label and title as appropriate, so there's no work going back and forth between a legend and the data to decipher what is being graphed.
- Whatever data is required for context, but doesn't need to be highlighted, push it to the background.
- Employ attributes like color, thickness, size, position, labeling, text and annotation to emphasize and de-emphasize components throughout the visual.
- If there is a conclusion you want your audience to reach, state it in words.

DATA TUTORIALS

## **Tableau Desktop**

### **25.Why did you choose to work on Tableau or What makes it different from other tools?**

There are many reasons why Tableau is the best data visualization tool. Here are a few.

- Tableau helps us see and understand the data easily which enable us to take data driven decisions.
- It has the best implementation speed with simple drag and drop and enhanced analytic workflow experience for users.
- Powerful, intuitive yet Simple
- Fast turnaround time and variety of features.
- Makes discovering deep insights for management easy, which in turn drives Organizations.
- It brings the creative and logical side together to tell the story of the data.
- Clear visuals, user friendly and easy to understand.
- It enables pure self-service and reduces dependency on a central IT Team.
- It helps data paint meaningful pictures.
- Connecting to multiple data sources is such an ease.
- Creates stunning visualizations in seconds and helps to connect dots and create a fulfilling story.
- Great community around to support and learn from.

### **26.What are interactive dashboards?**

Dashboards which enable us to interact with various elements like filters, parameters, actions and slice and dice the data to get better insights or answer complex questions.

### **27.What is Show Me feature in Tableau?**

Show Me is a useful feature in Tableau which creates a visual based on the fields already used in the view and any fields you've selected in the Data pane.

### **28.What is a Tableau data pane?**

A pane on the left side of the workbook that displays the fields of the data sources to which Tableau is connected.

### **29.What are different ways of connecting data?**

You can connect Live or as an Extract. It depends on the project requirements.

In general, if the business needs up to minute/ live data updates to the dashboard, we use Live connections. But it comes with

performance impact due to constant expensive data refresh operations.

In all other cases, extracts are preferred. Extract files are a local copy of a subset or entire data source that you can use to share data, work offline, and improve database performance. They can be scheduled to run at off peak hours avoiding slow load times.

### **30. How do you prepare data for reporting?**

The first step towards exploring your data with Tableau is by looking at how the data is structured. The more granular the data is the easier it is for us to work with, visualize and answer business questions. If the data is already aggregated, we will be limited by the capability of visualization.

### **31. What is marks card in Tableau?**

A card to the left of the view where you can drag fields to control mark properties such as type, color, size, shape, label, tooltip, and detail.

### **32. What are shelves in Tableau?**

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. For example, the Shape shelf is available only when you select the Shape mark type.

### **33. What is a Published data source?**

It contains connection information that is independent of any workbook and can be used by multiple workbooks.

### **34. What is a data source page?**

A data source page is where you can set up your data source. The Data Source page generally consists of four main areas: left pane, join area, preview area, and metadata area.

### **35. What is a format pane in Tableau?**

A format pane contains formatting settings that control the entire worksheet, as well as individual fields in the view.

### **36. When do you use horizontal and vertical containers?**

Horizontal and vertical containers are used to organize different visual components in a dashboard. It's easy to format, and keep visuals consistent within containers. These containers create an area in the dashboard where objects automatically adjust their size and position based on the other objects in the container.

### **37. What is Page shelf?**

Tableau provides a distinct and powerful tool to control the output display known as Page shelf. As the name suggests, the page shelf fragments the view into a series of pages, presenting a different view on each page, making it more user-friendly and minimizing scrolling to analyze and view data and information. You can flip through the pages using the specified controls and compare them at a

common axle.

### **38.How many ways to use parameters in Tableau**

We can use parameters with filters, calculated fields, actions, measure-swap, changing views and auto updates.

### **39.What is a Hierarchy?**

When you connect to a data source, Tableau automatically separates date fields into hierarchies so you can easily break down the viz. You can also create your own custom hierarchies. For example, if you have a set of fields named Region, State, and County, you can create a hierarchy from these fields so that you can quickly drill down between levels in the viz.

### **40.What are Automatic Hierarchies?**

When you connect to a data source, Tableau automatically separates date fields into hierarchies so you can easily break down the view by year, quarter, month, etc. We can observe a plus symbol adjacent to the field those are part of the hierarchy.

### **41.What is an Analytics Pane?**

The Analytics pane provides quick and easy access to common analytic objects in Tableau. You can drag reference lines, forecasts, trend lines, and other objects into your view from the Analytics pane, which appears on the left side of the workspace.

### **42.What are groups?**

Group simplifies large numbers of dimension members by combining them into higher-level categories. You can create a group to combine related members in a field. For example, if you are working with a view that shows average test scores by major, you might want to group certain majors together to create major categories. English and History might be combined into a group called Liberal Arts Majors, while Biology and Physics might be grouped as Science Majors.

### **43.What are sets?**

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.

### **44.What are the differences between groups and sets?**

Groups simplify large numbers of dimension members by combining them into higher-level categories. Sets create a custom field based on existing dimensions that can be used to encode the view with multiple dimension members across varying dimension levels.

### **45.What is a bin?**

Sometimes it's useful to convert a continuous measure (or a numeric dimension) into bins.

Any discrete field in Tableau can be considered as a set of bins. For example, suppose you create a view with Profit on Rows and State on Columns.

You could consider the State field as a set of bins -each profit value is sorted into a bin corresponding to the state from which the value was recorded. But if you want to see values for Profit assigned to bins without reference to a dimension, you can create a numeric bin, with each individual bin corresponding to a range of values.

#### **46. How do you handle Null Values?**

Null values along an axis are indicated in the lower right corner of the view. Click the indicator to open a dialog box that will help you decide how to handle these values. The options available in the dialog box depend on the type of data in the view.

#### **47. What are Rank and Percentile?**

Use rank when you are interested in seeing the order of values in a list. For example, you could apply a rank table calculation to a table to

Percentile is available as an aggregation and as a table calculation. To use one of the built-in percentile aggregations, right-click a measure in the view and select **Measure > Percentile** and then choose one of the numeric options.

#### **48. What is Secondary Axes**

In addition to blending multiple measures on the same axis, you can add a secondary axis, or dual axis to a view to better compare measures of different scales.

#### **49. What are Aggregated Extracts**

You can optimize your extracts by only including the data you need. Specifically, you can exclude columns, create filters to limit the number of rows, aggregate data, and roll up dates.

#### **50. What are Incremental Extract Updates**

When you import all or some of your data into Tableau's data engine, you create a data extract. After you create the initial extract, you can set up an incremental refresh so that importing new data doesn't require you to rebuild the entire extract. An incremental refresh can be defined by the values in a specified column. For example, if you've created an extract that has date values, you can define the incremental refresh to only add new rows if there are additions in the date column.

#### **51. How to use Data Interpreter to Prepare the Data Source for Analysis?**

Sometimes, the format of your data makes it difficult to analyze in Tableau. For example, your data might include sub-tables, hierarchical headers, extraneous headers and footers, or blank rows and columns.

The Data Interpreter draws out sub-tables and removes some of that extraneous information to help prepare the data source for analysis. Note: You are prompted to use the Data Interpreter only if Tableau detects sub-tables or extraneous information and if your connector supports it.

## 52.What are the different products Tableau offers?

Tableau offers 5 products.

### Tableau Desktop:

Tableau desktop is considered as “the gold standard” in visual analytics. It is a self-service data visualization tool that lets you analyze virtually any type of structured data and produce highly interactive, and stunning dashboards, and reports in just minutes. see which product category ranked highest in sales over a four-year period.

With tableau desktop, you can directly connect to data from multiple data sources: data warehouse, flat files, cloud application or web sources. Tableau desktop brings all your data together into one single view. It helps identify patterns, opportunities, and ask questions to drive business profitability. Tableau makes analyzing data and making better decisions faster.

### Tableau Server:

Tableau Server lets you centrally manage, collaborate and securely host the dashboards published from Tableau desktop. It empowers the business with the freedom to explore data in a trusted environment— without limiting them to pre-defined questions, or chart types.

Users can edit and update the workbooks and dashboards online or Server but cannot create new ones. However, there are limited editing options when compared to desktop.

Tableau server connects to any data source securely - whether on premise or in the cloud. Publish and share your data sources as live connections or extracts for everyone to use. The Tableau platform is easy to deploy, scale, and monitor. Easily track and manage content, users, licenses, and performance. Quickly manage permissions for data sources and content and monitor usage visually.

### Tableau Online:

Tableau Online is an analytics platform fully hosted in the cloud. It enables you to publish dashboards and share your discoveries with anyone. Invite colleagues or customers to explore hidden opportunities with interactive visualizations and accurate data. All easily accessible from a browser or on the go with Tableau mobile apps.

### Tableau Reader:

Tableau Reader is a free desktop application that you can use to open and interact with data visualizations built in Tableau Desktop. Filter, drill down and discover<sup>ISE</sup> But this needs the packaged workbook file to be shared across the users which not only is a security issue but also loses track of the correct version.

### Tableau Public:

Tableau Public is a free service that lets anyone publish interactive data visualizations to the web. Visualizations that have been published to Tableau Public can be embedded into webpages and blogs, they can be shared via social media or email, and they can be made available for download to other users.

### **53. What type of data limitations does Tableau Public have?**

Tableau Public can only connect to few data sources like Microsoft Excel, Microsoft Access, and multiple text file formats. It has a limit of 1,000,000 rows of data that is allowed in any single file.

### **54. Explain the difference between Tableau Workbook, Story, Dashboard and Worksheets?**

Workbooks and sheets: Tableau uses a workbook and sheet file structure, much like Microsoft Excel.

A **Workbook** contains your views, dashboards, and stories, and data connection. You can include local resources, such as background images and custom geocoding, if they reside in a location that the server or other Tableau users cannot access.

A **worksheet** contains a single view along with shelves, legends, and the Data pane. A worksheet is where you build views of your data by dragging and dropping fields onto shelves.

A **dashboard** is a collection of several worksheets and supporting information shown in a single place so you can compare and monitor a variety of data simultaneously. For example, you may have a set of views that you review every day. Rather than flipping through each worksheet, you can create a dashboard that displays all the views at once.

A **story** is a sheet that contains a sequence of worksheets and dashboards that work together to convey information. Use stories to make your case more compelling by showing how facts are connected, and how decisions relate to outcomes. You can then publish your story to the web, or present it to an audience.

Within a workbook, you can create new sheets, clear an entire worksheet, duplicate sheets, hide or show a worksheet, and delete a sheet. Tableau has several ways to view and organize the sheets in your workbook.

#### **Note:**

From Worksheet, we can access Source Data Dimensions, Measures, and Custom Fields.

From Dashboard, we can access Worksheet but we cannot access dimensions measures directly.

From Story, we can access Dashboard and Worksheets but we cannot access dimensions measures directly.

### **55. Difference between Tiled and Floating in Tableau Dashboards**

A dashboard is a collection of worksheets and objects on a single sheet so you can compare and monitor a variety of data simultaneously. Dashboard objects can be tiled or floating. Tiled objects are arranged in a grid while floating objects can be layered on top of other objects.

### **56. What is an embedded data source and when it is used?**

When you publish a workbook to Tableau Online or Tableau Server, you can publish the data it connects to in 2 ways.

As an integrated part of the workbook which is embedding data source connection information within the workbook. This is used when we know a data source is not shared with other dashboards.

For more Tableau Tutorial videos and Dashboard Building in Tableau follow my YouTube channel- Data Tutorials - <https://www.youtube.com/@datatutorials1>

As separate, standalone data source which is used when we have to share the same data source with multiple dashboards.

DATA TUTORIALS

## **57. How to automate reports using Tableau software?**

When you publish workbooks that connect to extracts, you can set up a schedule for updates (refreshes) for those extracts, so the views in those workbooks stay current.

The ways you can set up and manage extract refresh schedules depends on where you publish and on the original data type.

When you publish to **Tableau Server**, the schedule runs and is managed on the server.

When you publish to **Tableau Online**: If extracts are from cloud data (for example, Google Analytics or Salesforce), schedules run and are managed on Tableau Online.

If extracts are from on-premises or web data connector (WDC) data, you set up and manage refresh schedules using Tableau Bridge.

## **58. When do we use Join vs Blend?**

Use JOIN when you have multiple tables/views from the same data source to be used in the dashboard. This happens at the source level.

Use BLEND when you have multiple tables/views from different data sources to be used in the dashboard. This happens locally.

## **59. What is a Dimension?**

Tableau treats any field containing qualitative, categorical information as a dimension. This includes any field with text or dates values.

## **60. What is a Measure?**

A measure is a field that is dependent on value of one or more dimensions. Tableau treats any field containing numeric (quantitative) information as a measure.

## **61. What are the differences between the blue pills and the green pills in Tableau? or What is the difference between discrete and continuous in Tableau?**

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

Discrete data roles are values that are counted as distinct and separate and can only take individual values within a range. Examples: names of customers. 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, revenue 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.

## 62. What are Filter Actions?

Use the Filter Actions filter to show related information between a source sheet and one or more target sheets. This type of action works well when you are building guided analytical paths through a workbook or in dashboards that filter from a master sheet to show more details.

## 63. What are some of the new features of Tableau 10.5 version?

Here are some of the new features in Tableau 10.5

### Hyper

Hyper is Tableau's new in-memory data engine technology, designed for fast data ingest and analytical query processing on large or complex data sets. With up to 3X\* faster extract creation, you always have the latest data. Up to 5X\* increase in query performance keeps you in the flow.

### Viz in Tooltip

Engage with your data at a deeper level and maximize dashboard real estate with Viz in Tooltip. Hover over a mark to display details-on-demand while staying in context of the original view.

### Nested projects

You can now nest projects within projects, and customize permissions at each level, or choose to use a top down permission structure. Now it's easier to organize your workbooks, so everyone in your organization can find what they are looking for.

### Power trend lines

Better understand power relationships between variables with drag and drop power trend lines, bringing light to your physics, biology, astronomy, economics data, and more.

### Improved workbook version compatibility

Now you can revert your workbooks to an older version with improved workbook version compatibility. Other users in your organization can open and edit a workbook even when they aren't using the latest version.

## 64. What formats can we download Views or Workbooks from the server?

The download formats available to you depend on permissions granted by Tableau content owners and site administrators.

**Image:** Downloads an image of the view in a .png format.

**Data:** Opens a new tab in the browser window and displays the view's data in summary and detail. You can then download the data as a comma-separated value (.csv) file.

**Crosstab:** Downloads the view, or the selected sheet in a dashboard, as a .csv file you can open in Microsoft Excel.

**PDF:** Downloads a PDF of selected sheets. If you're downloading a dashboard to PDF format, web page objects aren't included.

**Tableau Workbook:** Downloads a workbook you can open with Tableau Desktop.

**Note:** Downloading extremely large amounts of data can affect server performance and might not complete successfully. If you encounter these issues, try exporting the data directly from the underlying data source.

## 65. What are the different file extensions in Tableau?

Below are some of the file type's extensions in Tableau.

### Workbooks (.twb)

The .twb is the most common file extension used in Tableau, which presents an XML format file and comprises all the information present in each dashboard and sheet like the fields are used in the views, styles and formatting applied to a sheet and dashboard. But this workbook in itself does not contain any data. Workbooks hold one or more worksheets, plus zero or more dashboards and stories.

### Packaged Workbooks (.twbx)

Tableau packaged workbooks have the .twbx file extension. A packaged workbook is a single zip file that contains a workbook along with any supporting local file data sources and background images. This format is the best way to package your work for sharing with others who don't have access to the data. Save all the sheets, their connection information and any local resources (e.g., local file data sources, background images, custom geocoding, etc.)

The primary advantage to using .twbx files is that analysis can be performed without network/internet connections to your data because your data is already present on your computer in the packaged file.

### Data Source (.tds)

Tableau data source files have the .tds file extension. Data source files are shortcuts for quickly connecting to data sources that you use often. Data source files do not contain the actual data but rather the information necessary to connect to the data source as well as modifications you've made in the Data pane such as default properties, calculated fields, groups, and so on.

### Packaged Data Source (.tdsx)

Tableau packaged data source files have the .tdsx file extension. A packaged data source is a zip file that contains the data source file (.tds) described above as well as any local file data sources such as Extract files (.tde), text files, Excel files, Access files, and local cube files. Use this format to create a single file that you can then share with others who may not have access to the original data stored locally on your computer.

### Extract (.hyper or .tde)

Depending on the version the extract was created in, Tableau extract files can have either the .hyper (10.5+) or .tde file extension. Extract files are a local copy of a subset or entire data set that you can use to share data with others, when you need to work offline, and improve performance.

### Bookmarks (.tbm)

Tableau bookmark files have the .tbm file extension. Bookmarks contain a single worksheet and are an easy way to quickly share your work.

### **Tableau Map Source (.tms)**

You can import a Tableau Map Source (.tms) that someone has shared with you into a workbook, and then use it to create custom map views.

### **Tableau Preferences (.tps)**

Whenever you have to create custom palettes to match your company branding (besides the default Tableau color palettes), you can also create and use your own custom color palettes by modifying the Preferences.tps file that comes with Tableau Desktop.

When you save the workbook and restart Tableau Desktop, the color palette names you added to Preferences.tps appear in the Select Color Palette drop-down list which you can use a new palette like you would any other.

### **Tableau Datasource Customization (.tdc)**

When you use a connector for a database that supports SQL, Tableau generates SQL statements that are tuned for that database. Because Tableau has no representation of the SQL dialect used by an ODBC data source, it must infer the supported syntax through a variety of tests.

You can use Tableau customizations to fine tune this connection information in order to significantly improve performance during the execution of Tableau's complex SQL statements.

For example, customers can define the SQL statements in which a schema identifier can be used, or the level at which their data source conforms to the SQL standard, changing how Tableau queries for metadata, whether it can use temporary tables, how many concurrent queries the data source can support etc. These customizations are made using Tableau's Datasource Connection (TCD) files.

## **66. What are some of the Tableau limitations you are aware of?**

Here are some limitations in Tableau.

- Parameters doesn't accept multiple selection.
- Parameters doesn't update dynamically when it is connected to a database field.
- Cannot reference Measure Names/Measure Values in calculations.
- Cannot define the width of columns individually.
- Cannot control the display, selection, order, sorting of columns in view data option for a worksheet view.

## **67. How is a workbook version controlled in Tableau?**

Version control of a workbook can be done in 2 ways.

One at desktop level where you keep copies of changes on a file system or a 3<sup>rd</sup> party version control system like Microsoft TFS.

Second is at server level, when you publish a workbook or a data source, a version is saved in the revision history for Tableau Server and Tableau Online. You can revert to a previous version at any time.

## **68. What is the difference between filter and parameter?**

A filter acts directly on a dimension or measure and restricts the domain of the field. For example, to only show California or New York in a State dimension or only show Sales between \$100 and \$200. There are a lot of options for filters.

You can include or exclude members of a dimension, use a wildcard for the member name, choose the top N, given another measure, or use a condition (true/false) to choose what is in and what is out.

A parameter, like is a variable. You can then use that variable inside calculations to change the calculation. If you filter by a calculated field, you essentially have a parameter controlling a filter. Parameters have almost the same UI options as filters, but they are single valued, so you have options for radio buttons, but not check boxes. There are also sliders and drop downs. Parameters are global, so can affect calculations for all data sources and connections in a workbook.

## 69. What are Table Calculations

Table Calculations are computations that are applied to the values in the entire table and are often dependent on the table structure itself. For example, in a sales environment, you can use table calculations to compute the running total of sales across a specified date range or to compute each product's contribution to the total sales in a quarter.

## 70. What is a LOD expression?

Level of detail expressions support aggregation at dimensionalities other than the view level. With level of detail expressions, you can attach one or more dimensions to any aggregate expression.

Unlike table calculations, totals, or reference lines, level of detail expressions are computed in the data source. On the plus side, this lets you avoid the overhead of bringing all the data from the database to your computer over the network. With large data sources, this can be a huge performance gain. On the minus side, this can cause Tableau to run more complicated queries (for example, containing many joins), and if the underlying data source is slow, performance can suffer.

## 71. Explain Types of Filters in Tableau - Quick, Global, Context, At Source, On Dimensions and Measures?

**Quick Filter:** Quick Filter Creates an interactive selection panel on the right top corner of the data view. We can implement Quick Filter on Dimensions or Measures. The interactive selection panel provides the options based on the source data.

**Example:** Quick Filter on Order Date with Yearly Consolidation provides list of YEARS available from SOURCE DATA for user selection.

**Global Filter:** Global Filter helps to share the same filter using the same source data across multiple (or) all worksheets within a workbook. We can apply global filter for all the work sheets using the same data (or) It can be applied to only selected worksheets.

**Example:** Filter with Complex calculation in one worksheet can be applied to some other worksheet which uses the same source data to avoid repetitive work.

**Context Filter:** Context Filter helps to pass the criteria of the filter from one level to other related level. **Example:** Top 10 Customers in country by their purchases; here the context is 'Top 10'. We can pass this context to know 'Top 10' Customers by Purchases in a State within the same country.

**Filter at Source:** After connecting with the data source, filtering the data before getting it to worksheet is called filtering at source. This helps in improved performance because the unwanted data is eliminated.

**Example:** Selecting only one year worth of data from few years of historic data after connecting with the source

**Filter on Measure:** This filter provides options - range of values, at least, at most and special. We can select any option that helps to select the right data or eliminate the unwanted data. Special option is to deal with Null values.

**Example:** Filter on Sum of Sales.

**Filter on Dimension:** This filter provides options - General, Wildcard, Condition and Top/Bottom. We can select any option that helps

to select the right data or eliminate the unwanted data. We can also create own formula then use it in this filter options - Condition and Top/Bottom for the data selection needs. Condition and Top/Bottom provides channel from dimension to measure to get the required data.

**Example:** Filter on Order Date then selecting sales through dimension.

## 72. How do we do performance testing in Tableau?

**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.

## 73. How can we do load testing in Tableau?

You can do performance testing on Tableau with Tableau Server load-testing solution called TabJolt. You can use TabJolt to push a heavy workload onto Tableau Server to give it a jolt and study how the server

bends or breaks under load. While TabJolt is not supported by tableau directly, it has to be installed using other open source products.

## 74. How do you improve dashboard performance?

- **Use an extract** Extracts are a quick and easy way to make most workbooks run faster.

There is nothing else that comes close to the efficiency gained using an extract. If you don't absolutely need live data, extracting is the best bet.

- **Reduce the scope** whether you're creating a view, dashboard, or story, it's tempting to pack a lot of information into your visualization because it's so easy to add more fields and calculations to the view and more sheets to the workbook. But the result can be that the visualization becomes slower and slower to render.

Remember that each worksheet runs one or more queries against the data, so the more sheets, the longer it takes to render the visualization.

- **Reduce the number of marks on the view** While there is no hard and fast rule on what defines "too many marks," be aware that more marks means that more processing power and memory is required to render them. You can find the number of marks by looking at the lower left of the Tableau Desktop window in the status bar.

Watch out for large crosstabs and for maps with complex custom polygons. Keep in mind that too many data points on a view can also reduce the visual analytics value by causing information overload.

To avoid this problem, compile related views and connect them with action filters so that you can go from an overview to a more granular view as you explore the data.

- **Use Booleans and integers output in calculations** when you create calculated fields; the data type you use has a significant impact on the calculation speed. Integers and Booleans are generally much faster than strings. If your calculation produces a

binary result (for example, yes/no, pass/fail, over/under), be sure to return a Boolean result rather than a string.

- **Limit the data being introduced to each worksheet** if you are not planning on using a set of rows, you should filter them out of the data set as early as possible. If your table contains all sales, and you only want to look at US sales, use a data source filter to restrict data to US alone. Less data is quicker execution.

- **Use Context filter** creating one or more context filters improves performance as users do not have to create extra filters on large data source, reducing the query-execution time.

You can create by dragging a field into ‘Filters’ tab and then, Right-Click that field and select “Add to Context”.

- **Hide unused fields** Even though we bring all fields from the tables; we end up only using few of them. So, it’s better to remove them from the extract by selecting "Hide All Unused Fields" in worksheets. Bringing less data should always improve performance.

- **Eliminate any non-essential components from the visualization.**

This refers to values that would appear on the Pages, Filters, and Level of Detail Shelves. If they are purely there for the user to see if they scroll over a point, then they aren't not only not adding any value but also impacting the performance.

- **Reduce filters usage** Take it easy on parameters and quick filters. Despite the name, too many quick filters will actually slow you down. Particularly if you set them to use ‘Only Relevant Values’ and you’ve got lots of discrete lists. For every Quick filter which is added, Tableau has to execute query in database to find out which values to display.

Alternatively, you can use Action filters which do not create any additional database query.

Avoid quick filters with Dropdown or Multi-select on high-cardinality columns (columns which has more number of unique values; example: e-mail ids) as it takes too much amount of time to return the result. Alternatively, you can use wildcard match option.

- **Assuming Referential Integrity** 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.

Using this setting is appropriate when you know that your data has referential integrity but your database is not enforcing or cannot enforce referential integrity. If you have the option of configuring referential integrity in your database that is a better option than using this setting because it can improve performance both in the database and in Tableau. The Assume Referential Integrity option in Tableau can only affect performance on Tableau's end. If your data does not have referential integrity and you turn on this setting, query results may not be reliable.

- **Avoid using custom SQL** When you connect to multiple tables in your database, Tableau writes a query that has been optimized for that data source. Unless you are very experienced with join operation optimization, writing custom SQL may cause Tableau’s connection to slow down.

- Remove unnecessary calculations, parameters and sheets.

- Use indexes in database and use those fields for filtering

- Push heavy lifting (calculations) to database

- Keep report simple and answering specific questions, it not only puts cognitive load on the reader but also load on tableau engine.

## **75. How does version compatibility work in Tableau?**

From [Tableau 10.5](#), now you can revert your workbooks to an older version with improved workbook version compatibility. Other users in your organization can open and edit a workbook even when they aren't using the latest version of Tableau Desktop (down to Tableau 10.2).

## **76. How does Compatibility between Tableau Desktop and Tableau Server work?**

A workbook created with any version of Tableau Desktop can connect to any supported version of Tableau Server. But once you are connected, compatibility can be an issue depending on the version you are using and the action you're performing.

## **77. How can you restrict access at row level?**

When you share workbooks with others by publishing them to Tableau Server or Online, by default, all users who have access to the workbooks can see all of the data shown in the views. You can override this behavior by applying a type of filter that allows you to specify which data "rows" any given person signed in to the server can see in the view.

## **78. What is Aggregation & Disaggregation?**

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.

According to Tableau, 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 at what age participants were most satisfied with the product.

## **79. What is Assume referential integrity?**

Referential integrity is a concept which ensures that relationships between databases/tables remain consistent, i.e. it ensures that the references to data are valid. You can improve query performance by selecting this option 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.

## **80. Where can you use global filters?**

Global filters can be used in sheets, dashboards and in stories.

## **81. What is Context Filter?**

Context filter establishes a filtering hierarchy where all other filters present refer to the context filter for their subsequent operations. The other filters now process data that has been passed through the context filter.

Creating one or more context filters improves performance as users do not have to create extra filters on large data source, reducing the query-execution time.

You can create by dragging a filed into 'Filters' tab and then, Right-Click that field and select "Add to Context"

## 82. What are the Limitations of context filters?

The context filter is not frequently changed by the user – if the filter is changed the database must re-compute and rewrite the temporary table, slowing performance.

When you set a dimension to context, Tableau creates a temporary table that will require a reload each time the view is initiated.

## 83. How many maximum tables can you join in Tableau?

The maximum number of 32 tables can be joined in Tableau. A table size must also be limited to 255 columns (fields).

## 84. Explain about Actions in Tableau?

Using Actions, we can create navigation between high level details to low level details to support analysis. This navigation can take place between worksheets (or) within dashboard between worksheets (or) between two difference workbooks.

### 85. What are the types of Tableau Actions? and how are they different?

There are three options to implement Actions in Tableau: Filter, Highlight and url

#### Filter

The filter option helps to navigate from source worksheet to target worksheet. One worksheet can carry high level details and the target worksheet can have detail level information in relation to the source worksheet.

**Example:** Source worksheet can have category level information and target worksheet can have category, subcategory details. Upon selection of a category we can navigate to target worksheet to see sub-category level details.

#### Highlight

The highlight option helps to navigate within dashboard between source worksheet and target worksheet. One worksheet can carry high level details and the target worksheet can have detail level information in relation to the source worksheet.

**Example:** Dashboard with Sales by Category, Sub-category. Assume there are two worksheets in the dashboard. One worksheet can have category level information and target worksheet can have category, subcategory details. Upon hover of a category we can highlight the sub-category level details in the target worksheet.

#### URL

The URL option helps to navigate from one published workbook to another published workbook. When report gets published in the Tableau Server it gets a unique URL. One Workbook can have high level details and the other workbook can have low level details.

**Example:** Workbook with Sales by Category. Another workbook with Sales by Category, Sub-category. Upon selection of a category in one workbook the other workbook URL opens.

Some newly added as per new version, please look for that as well.

## 86. How to view SQL which is generated by Tableau Desktop?

Tableau Desktop Log files are located in C: Users\My Documents\My Tableau Repository. If you have alive connection to the data

source, check the log.txt and tabprotosrv.txt files. If you are using an extract, check the tdeserver.txt file [1]. The tabprotosrv.txt file often shows detailed information about queries.

## 87. Explain Tableau Trend Analysis? Explain Tableau Forecasting?

**Trend Analysis:** It is about finding the behavior of historic activity based on detailed historic information. The more detailed and accurate information we provide in Trend models the results will be that much accurate. The following are available models in Tableau for Trend Analysis.

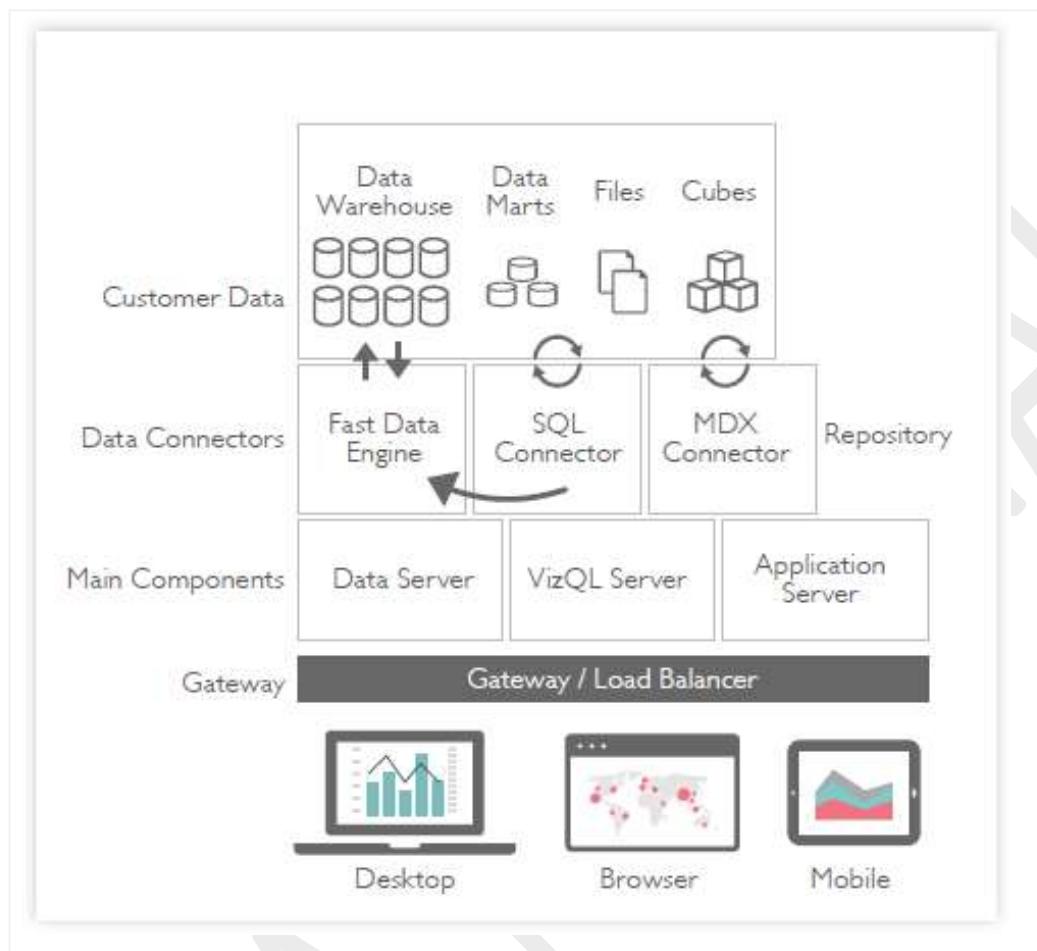
- Linear • Logarithmic • Exponential • Polynomial

**Forecasting:** It is about predicting future trends based on historic trend. Indirectly Forecast uses Trend Analysis. The more detailed and accurate historic information we provide in Forecast models the results will be that much accurate. The following are available models in Tableau for Forecast.

- Additive • Multiplicative

## Tableau Server

### 88. Describe the Tableau Architecture?



[Source](#)

Tableau Server has a highly scalable, n-tier client-server architecture that serves mobile clients, web clients, and desktop-installed software. Each of the components is explained below.

### 89. Data Layer:

One of the fundamental characteristics of Tableau is that it supports your choice of data architecture. Tableau does not require your data to be stored in any single system, proprietary or otherwise. Most organizations have a heterogeneous data environment: data warehouses live alongside databases, whether on-premise or in the cloud. Cubes and flat files like Excel are still very much in use. Tableau can work with all of these simultaneously.

## **90. Data Connectors:**

Tableau includes over 40 optimized data connectors for data sources such as Microsoft Excel, SQL Server, Google BigQuery, Amazon Redshift, Oracle, SAP HANA, Salesforce.com, Teradata, Vertica, Cloudera and Hadoop. There is also a generic ODBC connector for any systems without a native connector.

Tableau provides two modes for interacting with data: live connection or in-memory. Users can switch between a live and in-memory connection as they choose.

## **91. Live connection:**

Tableau's data connectors leverage your existing data infrastructure by sending dynamic SQL or MDX statements directly to the source database rather than importing all the data. This means that if you've invested in a fast, analytics-optimized database like Vertica, you can gain the benefits of that investment by connecting live to your data. This leaves the detail data in the source system and sends the aggregate results of queries to Tableau.

## **92. In-memory:**

Tableau offers a fast, 64-bit ready, columnar in-memory Data Engine that is optimized for analytics. You can connect to your data and then, with one click, extract your data to bring it in-memory to perform queries in Tableau up to 100x faster. Tableau's Data Engine fully utilizes your entire system to achieve fast query response on hundreds of millions of rows of data on commodity hardware.

## **Tableau Server Main Components:**

The work of Tableau Server is handled with the following four server processes:

### **93. Application Server:**

Application Server processes (wgserver.exe) handle content browsing, server administration and permissions for the Tableau Server web and mobile interfaces. When a user opens a view in a client device, that user starts a session (workgroup\_session\_id) on Tableau Server. The default timeout for this session is easily configuration by an administrator.

### **94. VizQL Server:**

Once the user is authenticated via the application server, the user can open a view. The client sends a request to the VizQL process (vizqlserver.exe). The VizQL process then sends queries directly to the data source, returning a result set that is rendered as images and presented to the user. In many cases, Tableau Server leverages client-side rendering and caching to reduce the load on the server.

### **95. Data Server:**

Unlike traditional approaches to meta data management, the Tableau Data Server is a key component that allows IT administrators to enable monitoring, meta data management and control for IT, while enabling self-service analytics for business users. It lets you centrally manage and store Tableau data sources and provides end users with secure access to trusted data in a self-service analytics deployment.

## **96. Backgrounder:**

The backgrounder refreshes scheduled extracts, delivers notifications and manages other background tasks. The backgrounder is designed to consume as much CPU as is available so as to finish the background activity as quickly as possible.

## **97. Gateway/ Load Balancer:**

The Gateway routes requests to other components. Requests that come in from the client first hit an external load balancer, if one is configured, or the gateway and are routed to the appropriate process. In the absence of an external load balancer, if multiple processes are configured for any component, the Gateway will act as a load balancer and distribute the requests to the processes.

## **98. Clients: Web Browsers and Mobile Apps**

Tableau Server provides interactive dashboards to users via zero-footprint HTML5 in a web or mobile browser, or natively via a mobile app.

## **99. Tableau Desktop**

Tableau Desktop is the rapid-fire business analytics authoring environment used to create and publish views, reports and dashboards to Tableau Server. Using Tableau Desktop, a report author can connect to multiple data sources, explore relationships, create dashboards, modify metadata, and finally publish a completed workbook or data source to Tableau Server

## **100. What are the different data security levels?**

Tableau provides several ways for you to control which users can see which data. For data sources that connect to live databases, you can also control whether users are prompted to provide database credentials when they click a published view. The following three options work together to achieve different results:

**Database login account:** When you create a data source that connects to a live database, you choose between authenticating to the database through Windows NT or through the database's built-in security mechanism.

**Authentication mode:** When you publish a data source or a workbook with a live database connection, you can choose an Authentication mode. Which modes are available depends on what you choose above.

**User filters:** You can set filters in a workbook or data source that control which data a person sees in a published view, based on their Tableau Server login account.

Read more [here](#)

## **101. What is Authentication on Server?**

Authorization refers to how and what users are allowed to do with content hosted on Tableau Server (including projects, sites, workbooks, data sources) after authentication has been verified.

These actions are determined by a combination of the user's site role and permissions associated with content.

## 102. What are different site roles we can assign to a user?

Site roles are permission sets that are assigned to a user, such as System Administrator, Publisher, or Viewer. The site roles define collections of capabilities (delete, save, view, and others) that can be granted to users or groups on Tableau Server.

General capabilities allowed with each site role

- **Server Administrator:** The server administrator has full access to all servers and site functionality, all content on the server, and all users.
- **Site Administrator:** Site administrators can manage groups, projects, workbooks, and data sources for the site.
- **Publisher:** Publishers can sign in, interact with published views and publish dashboards to Tableau server from the desktop.
- **Interactor:** Interactors can sign in, browse the server, and interact with the published views, but are not allowed to publish to the server.
- **Viewer:** Viewers can sign in and see published views on the server but cannot use any interaction features like filtering and sorting.
- **Unlicensed:** Unlicensed users cannot sign in to the server. Users are assigned this role when licenses are not available.

## 103. What are permissions and how can we set them on various resources?

Permissions determine whether a given user is allowed or denied to perform a specific action on a specific resource.

There are six areas where permissions can be set:

**Site:** Sites are at the top of the content hierarchy and provide a way to partition your server into separate environments for users. Each site is administered separately and has its own Groups, Users, Projects, Workbooks and Data Sources.

**Project:** Projects exist within Sites, and are also used to separate content in the server *and* typically used to split content into logical groupings, for example around department or function etc.

**Group:** Groups are collections of Users within a site. They help to organize and manage sets of users for administration purposes.

**User:** Users are the individual named users accessing a Site. Every user added to Tableau Server must have an associated site role. The site role determines the levels of permissions allowed for a user, including whether a user can publish, interact with, or only view content published to the server.

**Workbook:** Workbooks use the default permissions from their project. Unless permissions are locked, the publisher of the dashboard has final control over who sees their data when it is published.

**Data Source:** Similar to Workbooks, Data Source permissions can be determined by either the Publisher, if publishing to an unlocked project, or by the project permissions, if publishing a data source to a locked project.

#### **104. Why do you publish a data sources and workbooks?**

Suppose you create a view that exposes a new range of questions in the data you're using, and you want to share this analysis with other people using this data. Or maybe you are your team's Data Steward, in charge of building the data models approved for use by analysts, and meeting your organization's requirements for security, compliance, performance, and so on.

You can share your work with the rest of your team by publishing it to Tableau Server or Tableau Online. After it's published, you and your team can access it through your web browser or the Tableau mobile app. Publishing data sources can also help you to centralize data management.

#### **105. What are the Best Practices for Published Data Sources**

Publishing data sources to Tableau Online or Tableau Server is integral to maintaining a single source for your data. Publishing also enables sharing data among colleagues; including those who don't use Tableau Desktop but have permission to edit workbooks in the web editing environment.

Updates to a published data source flow to all connected workbooks, whether the workbooks themselves are published or not.

Read more [here](#)

#### **106. What makes up a published data source**

The **data connection information** that describes what data you want to bring in to Tableau for analysis. When you connect to the data in Tableau Desktop, you can create joins, including joins between tables from different data types. You can rename fields on the Data Source page to be more descriptive for the people who work with your published data source.

An **extract**, if you decide to create one. Guidelines for when to create an extract are included below, as well as in the additional resources.

**Information about how to access or refresh the data.** The connection also includes access information.

#### **107. How can you schedule the Reports in tableau?**

When you publish workbooks that connect to extracts you can schedule the extracts to be refreshed automatically. That way you don't have to republish the workbook every time the underlying data is updated and you can still get the performance of a data extract.

This increases performance and avoids queries to the live database. Then you can add that workbook to a schedule so that the extract is refreshed at regular intervals with updated data from the data warehouse.

Schedules are created and managed on the server by an administrator. However, an administrator can allow you to add a workbook to a schedule when you are publishing from Tableau Desktop.

1. As you are publishing a workbook, in the Publish Workbook to Tableau Server dialog box, click Scheduling & Authentication.

2. In the Scheduling & Authentication dialog box, select a schedule for the workbook:

All data sources that require authentication must have an embedded password so that the extract can be refreshed. This includes data sources that are not extracts

## 108.What is Hyper?

Hyper is a high-performance in-memory data engine technology that helps customers analyze large or complex data sets faster, by efficiently evaluating analytical queries directly in the transactional database. A core Tableau platform technology, Hyper uses proprietary dynamic code generation and cutting-edge parallelism techniques to achieve fast performance for extract creation and query execution.

With Hyper, transactions and analytical queries are processed on the same column store, with no post-processing needed after data ingestion. This reduces stale data and minimizes the connection gap between specialized systems. Hyper's unique approach allows a true combination of read-and write-heavy workloads in a single system. This means you can have fast extract creation without sacrificing fast query performance.

## 109.What are the performance benefits of Hyper?

Starting in 10.5, Hyper technology is integrated with Tableau Data Engine to give you the following key benefits:

**Faster extract creation:** With Hyper technology, extracts are generated almost as fast as the source system can deliver data, no sorting needed.

**Support for larger extracts:** Prior to this release, you might have not been able to get all your data into a single extract. With the new Hyper technology, much larger amounts of data can be included in a single extract.

**Faster analysis of extracts:** In many cases you will see faster querying of data for larger extracts, or workbooks with complex calculations.

**Hyper technology is memory-optimized.** This means that when needed, all data lives in memory. This results in fast data access times.

**Hyper is a compiling query engine.** Queries are either interpreted or compiled to the machine code for maximum performance and allowing the Data Engine to get most performance out of modern hardware (CPU, large main-memory capacities).

## 110.What is VizQL?

At the heart of Tableau is a proprietary technology that makes interactive data visualization an integral part of understanding data. A traditional analysis tool forces you to analyze data in rows and columns, choose a subset of your data to present, organize that data into a table, then create a chart from that table.

VizQL skips those steps and creates a visual representation of your data right away, giving you visual feedback as you analyze. As a result, you get a much deeper understanding of your data and can work much faster than conventional methods—up to 100 times faster.

### **111. Where can we find Tableau Repository?**

Tableau Repository will be found under the “Documents” It contains number of folders.

It will be automatically created while we install Tableau in our system. Those folders contain logs, where every hit of Tableau will be recorded in the form of logs in the notepad files also it contains some of the information like map sources, Bookmarks, etc.

### **112. What is an increment refresh and full refresh?**

Incremental refresh and Full refresh are the classification of scheduling. Incremental refresh will refresh only the incremental records of data during refresh in scheduling whereas the full refresh will refresh the full data during refresh in scheduling.

### **Thought process /Client Communication questions:**

These questions will be asked to understand how to communicate with clients, how you build and maintain relations with them.

### **113. Given a scenario where we have multiple stakeholders for a dashboard, how to you interact?**

If a dashboard has consumers at different levels, example CEO, regional manager, and field staff, I try to meet and get requirements from them individually given that every individual role will have specific business questions to answers.

Every role has some specific KPI's to look at, specific business questions to answer, specific data to analyze, display and granularity of data detail. There is no one size fits all. It's a good practice to tailor dashboards as per client requirements.

### **114. Do you tend to create multiple variations of the same visualization for different stakeholders, if yes why and no why, what's the rationale behind that?**

I believe that if we are speaking to everyone, we are not speaking to anyone. There is no solution that fits everyone's needs. If you create one dashboard for all the consumers in the company, no one person will benefit from it.

The solution has to be customized to fit the needs of the consumer. The more we can understand their needs, the better we can build a solution to solve their problems.

### **115. How do you enable reports access for both internal and external customers?**

We design and use a combination of row level security, custom tables, roles and permissions to enforce the required security for customers. That will be an architecture and server level discussion we would have with our internal team, internal and external customers and design a best solution that fits the need.

### **116. How do you design architecture to be both secure, scalable and robust?**

It depends on various factors like the number of users who are going to interact with dashboards, user roles, user types (both external and internal), the server model (term or perpetual), licensing model (core based or user based) etc.

## **117. How do you communicate with stakeholders and how do you form relations?**

The key thing here is to understand client's requirement and make sure we design and build dashboards to solve the problems. It's always recommended to keep client's in the loop of what's going on in the project and be up-front if there is any change in the project delivery. Client doesn't like any last-minute surprises.

## **118. How do you set and manage their expectations?**

- a) Be Honest from the get-go.
- b) Set goals, and point to these goals during every single conversation.
- c) Under-Promise and Over-Deliver.
- d) Constant Communication
- e) Weekly/ fortnightly status reporting.
- f) Be transparent about what you can accomplish
- g) Be upfront about what happens if plans change

## **119. How do you capture requirements?**

We capture dashboard/report requirements in a business specifications document, technical specifications document (high level and low level), wireframe, storyboard, user stories etc.

## **120. How do you capture business questions, what to be solved?**

Those can be captured as user stories. Each business question that needs to be answered is captured here which forms as a foundation for dashboard design and building.

## **121. How do you communicate with clients when there is delay or issue that impacts delivery?**

It is highly recommended and I follow swift communication with the clients as soon as I have visibility of the change or slip in the schedule. This ensures both of us are on the same page and client can make changes/ inform their customers in case of any business impact.

## **122. How do you convince and make clients understand about technical stuff or benefits of a particular design choice?**

I always show them visually by creating a quick proof of concept and explaining the benefits of a new approach if that is the way to go.

## **123. How do you roll out delivery across the whole organization?**

We identify a few power users who understand the business well and showcase and train them first to make sure they understand the benefit. Once they are comfortable with the solution, they can help the people in the field in their respective regions to adopt the solution. We also identify and release the solution phase wise so it is easy for us to support new requests and user questions if any.

## **124. Is documentation process important in the project?**

Yes, it is absolutely necessary to have proper documentation for a few reasons below.

- A. It will be easy for other/new team members to pick up the report and make changes if needed.
- B. This serves as a document for auditing and change control purpose.
- C. This can be used to refer when impact analysis of a new change (adding a new field, removing, changing etc.) is raised.

It's wise to use tools that document the workbooks saving a lot of resource time and more efficient in capturing all the details.

#### **125. How do you make sure the branding is consistent throughout the delivery?**

We follow the company specifications including logo, colors, formatting, font and any other branding materials to make sure the dashboards are all consistent across the board. We try to specify everything in a document for everyone to follow.

#### **126. How do you communicate with stakeholders during the design and building of dashboards?**

We usually have a weekly showcase with the stakeholders and the team to present the report, brainstorm, seek feedback and iterate the changes to make sure we are on the right path.

#### **127. What is the difference between showing data and storytelling data?**

Showing data is all about presenting data as a self-serve analytics dashboard for users to explore and find answers. Here we are not presenting any key takeaways for action, but giving them the power to analyze data.

Storytelling the data is about we, analysts doing exploratory analysis to find story in the data and presenting the facts to the stakeholders to understand quickly and easily that prompts an action for them to make a better decision.

#### **128. Did you maintain server administration, users?**

Yes, I did maintain tasks server administration to perform tasks such as but not limited to adding new users, maintaining users, Active directory configuration, SSO, licensing, creating and modifying schedules, installation of new server instances.

#### **129. Did you ever lost your hold on best practices and compromised to follow what client says?**

Sometimes we have to follow what client insist regardless of they are standard data visualizations or not. It's common. We try to explain them the pros and cons of the process, but it is up to their decision to tell us what to follow.

#### **130. Did you ever receive any out of the report requests and how did you prioritize?**

We do receive ad hoc reporting requests from various teams time to time. We do receive, we will politely ask them to route them through our manager so he/she can assign the work based on priorities.

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