**1. Basics:**

1. What is the difference between Discrete and Continuous Data?

discrete data refers to the type of quantitative data that relies on counts. It contains only finite values, whose subdivision is not possible. It includes only those values that can only be counted in whole numbers or integers and are separate which means the data cannot be broken down into fraction or decimal. For Ex. Number of students in the school, the number of cars in the parking lot, the number of computers in a computer lab, the number of animals in a zoo, etc.

Continuous data is described as an unbroken set of observations; that can be measured on a scale. It can take any numeric value, within a finite or infinite range of possible value. Statistically, range refers to the difference between highest and lowest observation. The continuous data can be broken down into fractions and decimal, that is it can be meaningfully subdivided into smaller parts according to the measurement precision. For ex. Age, height or weight of a person, time taken to complete a task, temperature, time, money, etc.

1. What is the criteria for data to land into dimensions and measures?

Tableau will segregate data types into dimensions and measures

1)Values falling under dimensions are discrete values whereas values falling under measures are continues data that is numerical values.

2)We can not perform aggregation under dimensions like sum, product etc. whereas in case of measures we can perform aggregations.

1. What is Metadata, where is it present in the workbook?

The Tableau Metadata API discovers and indexes all of the content on your Tableau Online site or Tableau Server, including workbooks, data sources, flows, and metrics. Indexing is used to gather information about Tableau content, or metadata, about the schema and lineage of the content. Then from the metadata, Metadata API identifies all of the databases, files, and tables used by the content on your Tableau Online site or Tableau Server.

While there's no direct way to export data source metadata, it can be copied into Excel (or similar app) by following these steps: On the data source page of a workbook, click the "Manage Metadata" button to the left of the "Sort Fields" drop down. Drag to select all the fields. Right click and select Copy Values.

1. What happens when you aggregate or disaggregate the Data?

When we aggregate the data functions allow you to summarize or change the granularity of your data. For example, you might want to know exactly how many orders your store had for a particular year. You can use the COUNTD function to summarize the exact number of orders your company had, and then break the visualization down by year.

If you want to see all of the marks in the view at the most detailed level of the model, you can disaggregate the view. Disaggregating your data means that the Tableau will display a separate mark for every data value in every row of your data source.

1. You are working on a dataset, the client adds in more data to the dataset. What happens to the Visualization that you had created? Give the explanation for both Live and Extracted data.

If the underlying data changes—for example, if new fields or rows are added, data values or field names are changed, or data is deleted, Tableau will reflect those changes the next time you connect to the data source. However, because Tableau Desktop queries the data and does not import the data, you can immediately update Tableau to reflect the data modifications without disconnecting, provided the changes have been saved in the underlying data first.

A live connection sends queries to the database and updates the view depending on the results. However, the specific fields queried are defined when the connection is initially created. Refreshing the data source will update any new or changed fields.

Refreshing an extract will query the data source the extract was created from and rebuild the extract. This process might take some time, depending upon the size of the extract.

1. What are the file extensions in Tableau and how each one is different?

Following are some tableau file extensions:

(.twb)

Tableau workbook files have the .twb file extension. Workbooks hold one or more worksheets, plus zero or more dashboards and stories. It Saves the all the sheets and their connection information in a workbook file but the data is not included.

(.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

(.tde)

Tableau data extract files have the .tde file extension. 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.

(.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.

(.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.

(.tbm)

Files with the extension .tbm are Tableau Bookmark files. These Tableau file types are most commonly used to save worksheets and share them with others so that they can use it in their workbooks without having to create a new worksheet from scratch.

**2. Text Table, Highlight Tables, Heat Maps, Tree Map:**

1. Create a text table for the Avg (Sales) for each subcategory using Sample Superstore? List which Sub Category is got Avg (Sale) more than $1000? - **Sample Superstore**
2. Create a Heat Table for the order date and Region against the Sub Category based in Count of Sales with two colours diverging that is distinguished by Sum of Profit - **Sample Superstore**
3. Create a Highlight table for the States for the Order Date Year whose highlighting is done based on Sum of profits - **Sample Superstore**
4. Which customer is having maximum of sales in the year 2012? - **Global Superstore**
5. How much is profit share less in Pennsylvania when compared to New York? - **Sample Superstore**
6. Check for the pane wise percentages of sales with Category, Sub- Category and quarter wise order date, also check for the Row wise grand totals and Column wise grand totals. - **Sample Superstore**

**3. Filled Maps, Symbol Maps:**

1. Use Global Superstore. Check Which Western Country in EMEA region has least profit percentage.
2. Use **“Sample Superstore. Xls”,** which state shares boarders only profit for tables
3. Use **“Sample Superstore. Xls”,** which state has no data for Profits for Office Supplies

**4. Bar Charts, Stacked, Side by Side:**

1. Which Customer name & Year is having all the Product Categories sum of profit less than over-all Average profit? - **Sample Superstore**
2. What is the Maximum of Life Expectancy Female for the region Africa & year 2012? - **World Indicators**
3. What is the share of the top 20 customers based on the sales amount compared to the customers based on profit amounts - **Sample Superstore**

**5. Line Graphs, Dual Line, dual axis:**

1. How can you show two different graphs in one view? - **Global Superstore**
2. Which Region is having Sum of Energy Usage>1000000 and sum of Population 65+>10? - **World Indicators**

**6. Trendlines, Cluster, scatter Plot, boxplot, Word Cloud (Packed Bubbles), Histogram:**

1. Draw a trend line for profit as a linear function of sales only for product technology? - **Sample Superstore**
2. Create a histogram showing the number of Sales using Sales Bins of $1000. Which bins have profit ratios of more than 25%? - **Global Superstore**
3. Using “**Sample Superstore”**, use order sheet create a histogram showing the number of orders using sales bins of $1000.
4. Using **“Global Superstore**”, use the orders sheet, build a scatter plot showing the sum of sales on the x-axis and sum of profits on the y axis for all products (Product name). What is the equation for linear regression for products in Technology?
5. Use **“World Indicators”.**  Take Health Exp% GDP, Health Exp/Capita, Life Expectancy Male, Female. What are the variables that are considered to create the clusters by default?

**7. Calculate Fields, Quick table calculations, LOD:**

1. How do you create a profit ratio using the Calculated fields?

By creating calculated field like (sum of profit)/ (sum of sales) and then converting created calculated field to discrete. This will give us the profit ratio.

1. Global Superstore data set; Region wise year wise sales are ranked. What is the rank of some country when compared to last year?
2. What percent of total profits do the top 10 customers by Sales represent? - **Sample Superstore**
3. Find the customer with the lowest overall profit. What is his/her profit ratio? - **Sample Superstore**
4. Ranking States based on Sales what is the rank of state which has sales crossed $20000. - **Sample Superstore**
5. What is the percent of orders which took more than 7 days on an average to deliver.

**8. Filters:**

1. What are the different types of filters and give their working order?

1)Extract filter:

As understood by its name, the extract filters are used to extract data from the various sources, by saving a screengrab of the way it gets added on your file. Such methods can help in lowering the [tableau](https://www.upgrad.com/blog/tableau-architecture/) queries to the data source.

2)data source filter:

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3)Context filter:

A context filter is a discrete filter on its own, creating datasets based on the original datasheet and the presets chosen for compiling the data. Since all the types of filters in tableau get applied to all rows in the datasheet, irrespective of any other filters, the context filter would ensure that it is first to get processed.

4)Dimension Filter:

Now that you’ve chosen the data, you can access the values highlighted or remove them from the selected dimension, represented as strikethrough values. You can click All or None to select or deselect based on your operation in case of multiple dimensions.

5)Measure Filter:

In this filter, you can apply the various operations like Sum, Avg, Median, Standard Deviation, and other aggregate functions. In the next stage, you would be presented with four choices: Range, At least, At most, and Special for your values. Every time you drag the data you want to filter, you can do that in a specific setting.

6)Table filter   
The last filter to process is the table calculation that gets executed once the data view has been rendered. With this filter, you can quickly look into the data without any filtering of the hidden data.

1. Create a list of Top 10 Products based on Profits whose sale value is more than $5000? - **Global Superstore**
2. Create a Chart with Customer Name and Profit and check for the Sale Value for top 15 Customers? - **Global Superstore**
3. Apply filter to all the worksheet, filter by year 2011, then find the sum(sales) for the highest subcategory.- **Global Superstore**
4. What is the name of 375th top most customer by sum of profits - **Sample Superstor**

=Patrick Ryan

**9. Dashboards & story:**

1. What are the different device type preview that Dashboards can use?

### Phone layouts and the Default dashboard

### To save time with a unique Phone layout option that automatically reflects changes to the Default dashboard, either click the open lock icon, or choose Auto-Generate Layout from the pop-up menu.

### Desktop and Tablet layouts

### Unlike Phone layouts, you need to manually add Desktop and Tablet layouts to a dashboard. Desktop and Tablet layouts are always fully independent from the Default dashboard, so each device layout can contain a unique arrangement of objects

1. Create a dashboard using World Indicators showing the all the Actions that can be performed in Tableau.

**10. Time Series:**

1. Use Order date and drill down the information for Quarter and Month level separately and show the line Chart in a Continuous Form- **Global Superstore**

**11. Sets, Parameters, Groups:**

1. Parameters can be used in?

A parameter is a workbook variable such as a number, date, or string that can replace a constant value in a calculation, filter, or reference line.

For example, you may create a calculated field that returns True if Sales is greater than $500,000 and otherwise returns False. You can replace the constant value of “500000” in the formula with a parameter. Then, using the parameter control, you can dynamically change the threshold in your calculation.

You can even create a *dynamic* parameter that’s set to automatically refresh its current value (to the result of a single-value, view-independent calculation), list of values (based on a data source column), or range of values. This will happen each time the workbook is opened and Tableau connects to the data source referenced by the parameter, or whenever you select Refresh from the data source’s context menu.

Parameters give you a way to dynamically modify a reference line, band, or box. For example, instead of showing a reference line at a fixed location on the axis, you can reference a parameter. Then you can use the parameter control to move the reference line.

Parameters give you a way to dynamically modify values in a Top N filter. Rather than manually setting the number of values you want to show in the filter, you can use a parameter.

1. What are the different ways to create a Parameter?

1)To create a parameter, click on the drop-down arrow present on the top right corner of the Data pane. Select Create Parameter option from the drop-down menu.

A Create Parameter window will open. From this window, you can give a name to the parameter, select its data type, set current value, allowable values, etc.

ou can also select a display format for the parameter that you are creating. The formats available are Number, Currency, Scientific, Percentage, Automatic, Custom, etc.

From the next option of Allowable values, you will find three options; **All, List**and **Range.** This means that we can either select all the values within a field and create a parameter. Or we can have a list of values of our choice from the field or we can set a range within which we would like to have values in the parameter.

Once a Tableau parameter gets created, we can add it to a sheet by right-clicking on the parameter’s name and selecting **Add to Sheet** option.

2) Go to Analysis Menu and select Create Calculated Field

 You can also right click within the Measures pane and select Create Calculated Field from there as well

Before we create the calculated field that will use our parameter, we have to create our parameter. So on the lower half of the dialog window there is a section titled Parameter and a link next to it that says Create. Click Create.

**12. Forecast:**

1. You are provided with the dataset for the past 10yrs. How can you forecast the data for next 4 years, Quarter wise.
2. Load the data source into Tableau. Click on “New Data Source” under the “Data” tab.
3. Once the data source is loaded, drag the Year dimension into the Columns region and measure into Rows region. The line chart gets generated.
4. We want the chart to be displayed quarter-wise. So we will select the quarter function from the dimension drop-down menu.
5. Once we select quarter, we get a proper line chart that correctly displays the time series.
6. to generate the forecast, go to the “Analysis” menu. In the “Forecast” option, click on “Show Forecast”.
7. In the Forecast option, click on “Forecast Options…”. It will pop-up the Forecast Option dialogue box as below.
8. n the “Forecast Length” section, “Automatic” is by default selected. It generates a forecast for the next 12 months. “Exactly” allows us to extend the forecast for the specified number of time units, if we want for next 4 years then we should select for 4 years.
9. se **“Sample Superstore”.** What is the Sales Forecast Estimate for the month of September 2018?- 10,1817

**13. Pie Chart:**

1. Create a Pie Chart using regions and sum of sales, sort the pie in ascending order, increase the size in the view and label them with Count of Quantity and Sum of Profits- **Sample superstore**