1. SQL

Basic Concepts

1. What is Tableau, and what are its primary uses?
2. What are dimensions and measures?
3. Explain different types of joins in Tableau.
4. How does data blending work?
5. What are live and extract data connections?
6. Describe the process of creating a calculated field.
7. How do filters work in Tableau?
8. What’s the purpose of a parameter in Tableau?
9. What is a dashboard in Tableau?
10. How can you create a data hierarchy?

Data Handling

1. How does Tableau handle large datasets?
2. What is the difference between data blending and joining?
3. Explain what a data source filter is.
4. How do you handle null values in Tableau?
5. What are groups in Tableau?
6. What are sets and how do they differ from groups?
7. How do you create bins in Tableau?
8. Explain the purpose of context filters.
9. How do you union tables in Tableau?
10. What is a pivot in Tableau?

Visualization

1. What types of charts can you create in Tableau?
2. How would you make a scatter plot in Tableau?
3. Explain how to create a dual-axis chart.
4. What is a heat map?
5. How do you create a bar chart?
6. Describe the steps for creating a histogram.
7. What are highlight tables?
8. How do you create a pie chart?
9. Explain the use of bullet graphs.
10. What are sparklines?

Advanced Features

1. What are Level of Detail (LOD) expressions?
2. Explain FIXED, INCLUDE, and EXCLUDE LOD expressions.
3. How does table calculation differ from a calculated field?
4. What are some commonly used table calculations?
5. How can you use parameters to make a report interactive?
6. Explain how blending data from two sources works.
7. What is a reference line?
8. How do you create a story in Tableau?
9. What are action filters?
10. How do you embed Tableau visualizations into web applications?

Dashboard and Performance

1. What are the steps to create a dashboard?
2. How do you publish a dashboard to Tableau Server?
3. What is a filter action in a dashboard?
4. How can you improve dashboard performance?
5. What are extracts, and how do they improve performance?
6. How can you optimize data extract size?
7. What are device-specific dashboards?
8. Explain the purpose of story points.
9. How do you make a dashboard responsive?
10. What are the limitations of Tableau
11. ======================================

**Basic Tableau Questions**

1. **What is Tableau?**
   * **Answer:** Tableau is a data visualization tool that allows you to create interactive and shareable dashboards. It helps users analyze, visualize, and share insights from data with ease, providing real-time analytics.
2. **What are the different Tableau products available?**
   * **Answer:** Tableau has several products:
     + **Tableau Desktop** (for creating reports and visualizations)
     + **Tableau Server** (for sharing and collaborating on reports)
     + **Tableau Online** (cloud-based version of Tableau Server)
     + **Tableau Public** (free, cloud-based platform for sharing visualizations)
     + **Tableau Prep** (for data preparation and cleaning)
3. **What is the difference between Tableau Desktop and Tableau Server?**
   * **Answer:**
     + **Tableau Desktop**: Used for creating reports and dashboards.
     + **Tableau Server**: Used to publish, share, and collaborate on Tableau workbooks in a centralized environment.
4. **Explain the difference between dimensions and measures in Tableau.**
   * **Answer:**
     + **Dimensions**: Qualitative fields (e.g., customer name, region, product) that describe data.
     + **Measures**: Quantitative fields (e.g., sales, profit, temperature) that can be aggregated (sum, average, etc.).
5. **What is the role of Tableau’s Data Pane?**
   * **Answer:** The Data Pane in Tableau displays all the fields available in the data source. It helps users drag and drop dimensions and measures to create visualizations.
6. **What are calculated fields in Tableau?**
   * **Answer:** Calculated fields are custom fields created by applying formulas or expressions to data, allowing users to create new metrics or data points.
7. **What is a Tableau Dashboard?**
   * **Answer:** A Tableau Dashboard is a collection of multiple visualizations (charts, maps, tables) that are presented on a single screen for better insight and decision-making.
8. **Explain the concept of filters in Tableau.**
   * **Answer:** Filters in Tableau are used to limit the data displayed in visualizations based on certain criteria. There are different types of filters, including dimension filters, measure filters, context filters, and top N filters.
9. **What are the different types of joins in Tableau?**
   * **Answer:** Tableau supports several types of joins when combining multiple tables:
     + **Inner Join**
     + **Left Join**
     + **Right Join**
     + **Full Outer Join**
10. **What is the use of "Show Me" in Tableau?**
    * **Answer:** "Show Me" is a feature in Tableau that suggests different types of visualizations based on the selected data fields. It helps users quickly choose the appropriate chart type.

**Intermediate Tableau Questions**

1. **What is the difference between a live connection and an extract connection in Tableau?**
   * **Answer:**
     + **Live Connection**: Tableau queries the data source in real-time for every interaction.
     + **Extract Connection**: Tableau creates a snapshot (extract) of the data, which is stored locally for faster performance and offline access.
2. **What are Tableau data extracts, and when should you use them?**
   * **Answer:** Data extracts are static snapshots of data created from a live data source. Extracts are used when performance is important, and when the data is not frequently updated.
3. **How does Tableau handle null values in visualizations?**
   * **Answer:** Tableau handles null values by leaving them blank in visualizations. Users can choose to replace null values with a default value, filter them out, or treat them as zero.
4. **What are context filters in Tableau?**
   * **Answer:** Context filters create a context for other filters to work within. They are used when you need to apply multiple filters, and the results of one filter should be considered when applying others.
5. **What is a "dual-axis" chart in Tableau, and when should it be used?**
   * **Answer:** A dual-axis chart allows you to display two different measures with different scales on the same chart. It is useful when comparing two variables with different units of measurement (e.g., sales and profit).
6. **What is Tableau's "Data Blending" feature?**
   * **Answer:** Data blending allows you to combine data from multiple data sources that do not have direct relationships. It is useful when you want to create visualizations that pull data from different databases.
7. **What is the use of "LOD Expressions" in Tableau?**
   * **Answer:** LOD (Level of Detail) Expressions allow you to control the granularity at which calculations are performed, independent of the view’s level of detail. The main types of LOD expressions are:
     + **FIXED**: Returns a value for a specific level of detail.
     + **INCLUDE**: Includes more dimensions in the calculation.
     + **EXCLUDE**: Excludes dimensions from the calculation.
8. **Explain the difference between a dimension and a measure in a Tableau visualization.**
   * **Answer:**
     + **Dimension**: Describes qualitative attributes (e.g., country, region).
     + **Measure**: Quantitative data that is aggregated (e.g., sum of sales, average profit).
9. **What is a "tree map" in Tableau?**
   * **Answer:** A tree map is a visualization used to display hierarchical data as a set of nested rectangles. The size and color of each rectangle are based on the measure values.
10. **What is the difference between a bar chart and a column chart in Tableau?**
    * **Answer:** The difference is primarily in orientation:
      + **Bar Chart**: Horizontal representation.
      + **Column Chart**: Vertical representation.

**Advanced Tableau Questions**

1. **What is Tableau’s "Predictive Analytics" functionality?**
   * **Answer:** Tableau supports predictive analytics through integrations with R and Python. It allows users to incorporate advanced forecasting and machine learning models into their visualizations.
2. **Explain how you can schedule and automate data refreshes in Tableau Server.**
   * **Answer:** In Tableau Server, you can schedule data extracts to refresh at specific intervals (e.g., daily, weekly). This is done through the data source settings in the Server interface.
3. **How do you perform a trend analysis in Tableau?**
   * **Answer:** You can perform trend analysis by creating a line chart and using Tableau's built-in forecasting features to predict future values based on historical data.
4. **What is the difference between a Tableau "workbook" and a "worksheet"?**
   * **Answer:**
     + **Workbook**: A Tableau file that contains one or more worksheets, dashboards, or stories.
     + **Worksheet**: A single sheet in Tableau containing a visualization.
5. **What are "parameters" in Tableau and how do they work?**
   * **Answer:** Parameters are dynamic values that allow users to control various aspects of visualizations (e.g., choosing different measures or setting thresholds for filters).
6. **How would you optimize the performance of a Tableau dashboard?**
   * **Answer:** To optimize performance:
     + Reduce the complexity of calculations and filters.
     + Use extracts instead of live connections.
     + Limit the amount of data loaded.
     + Use summary-level data or aggregated views.
     + Minimize the number of quick filters and actions.
7. **Explain the concept of "Tableau Stories."**
   * **Answer:** A Tableau Story is a sequence of sheets and dashboards combined together to tell a data-driven narrative. It is used to guide users through a series of insights or findings.
8. **What is the use of a "scatter plot" in Tableau?**
   * **Answer:** A scatter plot is used to show the relationship between two continuous variables. It helps in identifying trends, correlations, or outliers in the data.
9. **How do you create a custom calculated field in Tableau?**
   * **Answer:** You create a custom calculated field by clicking on "Analysis" > "Create Calculated Field" and entering a formula to generate a new field based on existing data.
10. **How do you implement row-level security (RLS) in Tableau?**
    * **Answer:** RLS can be implemented by creating user filters based on the user’s role or group, or by using data filters that restrict access to certain data based on the user’s credentials.

**Real-World Tableau Scenario Questions**

1. **How would you create a sales performance dashboard in Tableau?**
   * **Answer:** First, you would connect to the sales data, then use visualizations like bar charts for sales by region, line charts for trends over time, and KPIs to track performance against targets. Filters and parameters would allow interactivity.
2. **How would you combine data from multiple sources in Tableau?**
   * **Answer:** You can combine data from multiple sources in Tableau using data blending or by creating relationships between tables within a single data source (using joins or unions).
3. **You need to create a report that shows how sales are performing in comparison to targets. How would you do this in Tableau?**
   * **Answer:** You would create calculated fields for actual sales and target sales. Then, use a bar chart to compare both values side by side and use color coding to show the variance.
4. **How do you handle missing data in Tableau visualizations?**
   * **Answer:** Missing data can be handled by replacing null values with zero, using data filters to exclude missing data, or using the "ZNull" function in calculated fields to handle missing values.
5. **How do you create a parameter for dynamic filtering in Tableau?**
   * **Answer:** You create a parameter by right-clicking in the Data pane and selecting "Create Parameter". You can then link this parameter to a filter or calculation to dynamically change the view based on user input.
6. **How do you compare the performance of different departments in a Tableau report?**
   * **Answer:** You can create a bar chart or heat map where each department is represented on the x-axis, and performance metrics (e.g., sales, revenue) are plotted on the y-axis. Using color coding or tooltips enhances understanding.
7. **How would you create a profit margin analysis report in Tableau?**
   * **Answer:** First, calculate the profit margin using a calculated field (Profit Margin = Profit / Revenue). Then, create a bar or line chart to visualize the profit margin over time or by category.
8. **How do you implement drill-down functionality in Tableau?**
   * **Answer:** Drill-down functionality can be implemented by creating hierarchies (e.g., Year > Quarter > Month > Day) in Tableau and allowing users to click on data points to explore lower levels of detail.
9. **How would you handle a situation where Tableau performance is slow due to a large dataset?**
   * **Answer:** You could use extracts instead of live connections, optimize the data model by reducing unnecessary fields, and limit the data in your queries using filters.
10. **How do you create a heatmap in Tableau?**
    * **Answer:** To create a heatmap, drag a dimension to Rows and another to Columns, then place a measure on the color shelf. Tableau will automatically color the cells based on the values of the measure.

**Advanced Tableau Questions**

1. **How do you integrate Tableau with R or Python for advanced analytics?**
   * **Answer:** You can integrate Tableau with R or Python by using the "R Integration" or "TabPy" (Tableau Python Integration) extensions. This allows you to call R or Python scripts within Tableau to perform advanced statistical or machine learning analysis.
2. **What are the best practices for designing Tableau dashboards?**
   * **Answer:** Best practices include keeping the design clean and simple, using appropriate visualizations for the data type, ensuring interactivity, and maintaining consistency in design elements like color and fonts.
3. **How do you handle large amounts of data in Tableau for real-time analysis?**
   * **Answer:** You can use aggregations, create summary tables, and implement extract filters to handle large datasets. Additionally, using DirectQuery can help in real-time data analysis while avoiding data overload.
4. **How do you create a KPI dashboard in Tableau?**
   * **Answer:** You would create calculated fields for each KPI (e.g., total sales, profit margin) and use Tableau’s KPI visualization feature or combine bullet graphs and gauge charts for visual representation.
5. **How do you set up automatic email subscriptions for Tableau reports?**
   * **Answer:** In Tableau Server or Tableau Online, you can set up automatic email subscriptions by selecting "Subscribe" from the dashboard or report options and specifying the frequency of the subscription.
6. **What is the "clustering" functionality in Tableau?**
   * **Answer:** Clustering in Tableau is an unsupervised machine learning algorithm that groups similar data points into clusters based on patterns. It is often used for segmenting customers or products.
7. **How would you create a waterfall chart in Tableau?**
   * **Answer:** A waterfall chart can be created in Tableau by creating a calculated field to show the cumulative effect of sequential positive or negative values. The chart can be built using bar charts and customized with calculated fields.
8. **What is Tableau’s "Data Prep" feature?**
   * **Answer:** Tableau Prep is a tool that allows users to clean, reshape, and transform data before analysis. It provides an easy-to-use, visual interface for data preparation tasks like joining, pivoting, and filtering.
9. **How would you combine data from two different databases in Tableau?**
   * **Answer:** You can use Tableau's data blending feature, where data from one database acts as the primary source, and data from the second database is blended based on common fields (e.g., customer ID).
10. **What is a Tableau "Trend Line," and how is it used?**
    * **Answer:** A trend line is a statistical line added to a visualization that shows the general direction or trend of the data. It helps in analyzing patterns in data over time.

**Tableau Scenario based interview questions with solution**

<https://youtu.be/AC7NQo-JBZY?si=_Ilz6zflb6SSrVMF>

<https://www.simplilearn.com/tableau-interview-questions-and-answers-article>

<https://www.testgorilla.com/blog/tableau-interview-questions/>

<https://github.com/OBenner/data-engineering-interview-questions/blob/master/content/tableau.md>