

Tableau TCC-C01

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Question: 1

A consultant creates a histogram that presents the distribution of profits across a client's customers. The labels on the bars show percent shares. The consultant used a quick table calculation to create the labels.

Now, the client wants to limit the view to the bins that have at least a 15% share. The consultant creates a profit filter but it changes the percent labels.

Which approach should the consultant use to produce the desired result?

- A. Use a calculation with TOTAL() function instead of a quick table calculation.
- B. Add the [Profit] filter to the context.
- C. Filter with a table calculation WINDOW_AVG(MIN([Profit]), first(), last())
- D. Filter with the table calculation used to create labels.

Answer: B

Explanation:

When a filter is applied directly to the view, it can affect the calculation of percentages in a histogram because it changes the underlying data that the quick table calculation is based on. To avoid this, adding the [Profit] filter to the context will maintain the original calculation of percent shares while filtering out bins with less than a 15% share. This is because context filters are applied before any other calculations, so the percent shares calculated will be based on the context-filtered data, thus preserving the integrity of the original percent labels.

Reference: The solution is based on the principles of context filters and their order of operations in Tableau, which are documented in Tableau's official resources and community discussions¹²³.

When a histogram is created showing the distribution of profits with labels indicating percent shares using a quick table calculation, and a need arises to limit the view to bins with at least a 15% share, applying a standard profit filter directly may undesirably alter how the percent labels calculate because they depend on the overall distribution of data. Placing the [Profit] filter into the context makes it a "context filter," which effectively changes how data is filtered in calculations:

Create a Context Filter: Right-click on the profit filter and select "Add to Context". This action changes the order of operations in filtering, meaning the context filter is applied first.

Adjust the Percent Calculation: With the profit filter set in the context, it first reduces the data set to only those profits that meet the filter criteria. Subsequently, any table calculations (like the percent share labels) are computed based on this reduced data set.

View Update: The view now updates to display only those bins where the profits are at least 15%, and the percent share labels recalculated to reflect the distribution of only the filtered (contextual) data.

Reference:

Context Filters in Tableau: Context filters are used to filter the data passed down to other filters, calculations, the marks card, and the view. By setting the profit filter as a context filter, it ensures that calculations such as the percentage shares are based only on the filtered subset of the data.

Question: 2

A client has many published data sources in Tableau Server. The data sources use the same databases and tables. The client notices different departments give different answers to the same business questions, and the departments cannot trust the data. The client wants to know what causes data sources to return different data.

Which tool should the client use to identify this issue?

- A. Tableau Prep Conductor
- B. Ask Data
- C. Tableau Catalog
- D. Tableau Resource Monitoring Tool

Answer: C

Explanation:

The Tableau Catalog is part of the Tableau Data Management Add-on and is designed to help users understand the data they are using within Tableau. It provides a comprehensive view of all the data assets in Tableau Server or Tableau Online, including databases, tables, and fields. It can help identify issues such as data quality, data lineage, and impact analysis. In this case, where different departments are getting different answers to the same business questions, the Tableau Catalog can be used to track down inconsistencies and ensure that everyone is working from the same, reliable data source.

Reference: The recommendation for using Tableau Catalog is based on its features that support data discovery, quality, and governance, which are essential for resolving data inconsistencies across different departments¹².

When different departments report different answers to the same business questions using the same databases and tables, the issue often lies in how data is being accessed and interpreted differently across departments. Tableau Catalog, a part of Tableau Data Management, can be used to solve this problem:

Visibility: Tableau Catalog gives visibility into the data used in Tableau, showing users where data comes from, where it's used, and who's using it.

Consistency and Trust: It helps ensure consistency and trust in data by providing detailed metadata management that can highlight discrepancies in data usage or interpretation.

Usage Metrics and Lineage: It offers tools for tracking usage metrics and understanding data lineage, which can help in identifying why different departments might see different results from the same underlying data.

Reference:

Tableau Catalog Usage: The Catalog is instrumental in providing a detailed view of the data environment, allowing organizations to audit, track, and understand data discrepancies across different users and departments.

Question: 3

A client collects information about a web browser customers use to access their website. They then visualize the breakdown of web traffic by browser version. The data is stored in the format shown below in the related table, with a NULL BrowserID stored in the Site Visitor Table if an unknown browser version accesses their website.

Site Visitor Table

| VisitorID | BrowserID |
|-----------|-----------|
| 1234 | 1 |
| 1235 | NULL |
| 1236 | 2 |
| 1237 | 3 |

Browser Table

| BrowserID | Browser Version |
|-----------|-----------------|
| 1 | Chrome 85 |
| 2 | Chrome 86 |
| 3 | Safari 15.5 |

The client uses "Some Records Match" for the Referential Integrity setting because a match is not guaranteed. The client wants to improve the performance of the dashboard while also getting an accurate count of site visitors. Which modifications to the data tables and join should the consultant recommend?

- A. Continue to use NULL as the BrowserID in the Site Visitor Table and leave the Referential Integrity set to "Some Records Match."
- B. Add an "Unknown" option to the Browser Table, reference its BrowserID in the Site Visitor Table, and change the Referential Integrity to "All Records Match."
- C. Add an "Unknown" option to the Browser Table, reference its BrowserID in the Site Visitor Table, and leave the Referential Integrity set to "Some Records Match."
- D. Continue to use NULL as the BrowserID in the Site Visitor Table and change the Referential Integrity to "All Records Match."

Answer: B

Explanation:

To improve the performance of a Tableau dashboard while maintaining accurate counts, particularly when dealing with unknown or NULL BrowserIDs in the data tables, the following steps are recommended:

Modify the Browser Table: Add a new row to the Browser Table labeled "Unknown," assigning it a unique BrowserID, e.g., 0 or 4.

Update the Site Visitor Table: Replace all NULL BrowserID entries with the BrowserID assigned to the "Unknown" entry. This ensures every record in the Site Visitor Table has a valid BrowserID that corresponds to an entry in the Browser Table.

Change Referential Integrity Setting: Change the Referential Integrity setting from "Some Records Match" to "All Records Match." This change assumes all records in the primary table have corresponding records in the secondary table, which improves query performance by allowing Tableau to make optimizations based on this assumption.

Reference:

Handling NULL Values: Replacing NULL values with a valid unknown option ensures that all data is included in the analysis, and integrity between tables is maintained, thereby optimizing the performance and accuracy of the dashboard.

Question: 4

A stakeholder has multiple files saved (CSV/Tables) in a single location. A few files from the location are required for analysis. Data transformation (calculations) is required for the files before designing the visuals. The files have the following attributes:

- . All files have the same schema.
- . Multiple files have something in common among their file names.
- . Each file has a unique key column.

Which data transformation strategy should the consultant use to deliver the best optimized result?

- A. Use join option to combine/merge all the files together before doing the data transformation (calculations).
- B. Use wildcard Union option to combine/merge all the files together before doing the data transformation (calculations).
- C. Apply the data transformation (calculations) in each require file and do the wildcard union to combine/merge before designing the visuals.
- D. Apply the data transformation (calculations) in each require file and do the join to combine/merge before designing the visuals.

Answer: B

Explanation:

Moving calculations to the data layer and materializing them in the extract can significantly improve the performance of reports in Tableau. The calculation $ZN([Sales]) * (1 - ZN([Discount]))$ is a basic calculation that can be easily computed in advance and stored in the extract, speeding up future queries. This type of calculation is less complex than table calculations or LOD expressions, which are better suited for dynamic analysis and may not benefit as much from materialization¹².

Reference: The answer is based on the best practices for creating efficient calculations in Tableau, as described in Tableau's official documentation, which suggests using basic and aggregate calculations to improve performance¹. Additionally, the process of materializing calculations in extracts is detailed in Tableau's resources².

Given that all files share the same schema and have a common element in their file names, the wildcard union is an optimal approach to combine these files before performing any transformations. This strategy offers the following advantages:

Efficient Data Combination: Wildcard union allows multiple files with a common naming scheme to be combined into a single dataset in Tableau, streamlining the data preparation process.

Uniform Schema Handling: Since all files share the same schema, wildcard union ensures that the

combined dataset maintains consistency in data structure, making further data manipulation more straightforward.

Pre-Transformation Combination: Combining the files before applying transformations is generally more efficient as it reduces redundancy in transformation logic across multiple files. This means transformations are written and processed once on the unified dataset, rather than repeatedly for each individual file.

Reference:

Wildcard Union in Tableau: This feature simplifies the process of combining multiple similar files into a single Tableau data source, ensuring a seamless and efficient approach to data integration and preparation.

Question: 5

A consultant wants to improve the performance of reports by moving calculations to the data layer and materializing them in the extract.

Which calculation should the consultant use?

- A. $ZN([Sales]) * (1 - ZN([Discount]))$
- B. `CASE [Sector Parameter]`
`WHEN 1 THEN "green"`
`WHEN 2 THEN "yellow"`
- C. $SUM([Profit])/SUM([Sales])$
- D. $POWER(ZN(SUM([Sales])),$
 $LOOKUP(ZN(SUM([Sales])), FIRST()), ZN(1/(INDEX()-1)))$
 $- 1$
`END`

Answer: C

Explanation:

To improve performance by moving calculations to the data layer and materializing them in the extract, the consultant should choose calculations that benefit from pre-computation and significantly reduce the load during query time:

Aggregation-Level Calculation: The formula $SUM([Profit])/SUM([Sales])$ calculates a ratio at an aggregate level, which is ideal for pre-computation. Materializing this calculation in the extract means that the complex division operation is done once and stored, rather than being recalculated every time the report is accessed.

Performance Improvement: By pre-computing this aggregate ratio, Tableau can utilize the pre-calculated fields directly in visualizations, which speeds up report loading and interaction times as the heavy lifting of data processing is done during the data preparation stage.

Reference:

Materialization in Extracts: This concept involves pre-calculating and storing complex aggregations or calculations within the Tableau data extract itself, improving performance by reducing the computational load during visualization rendering.

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