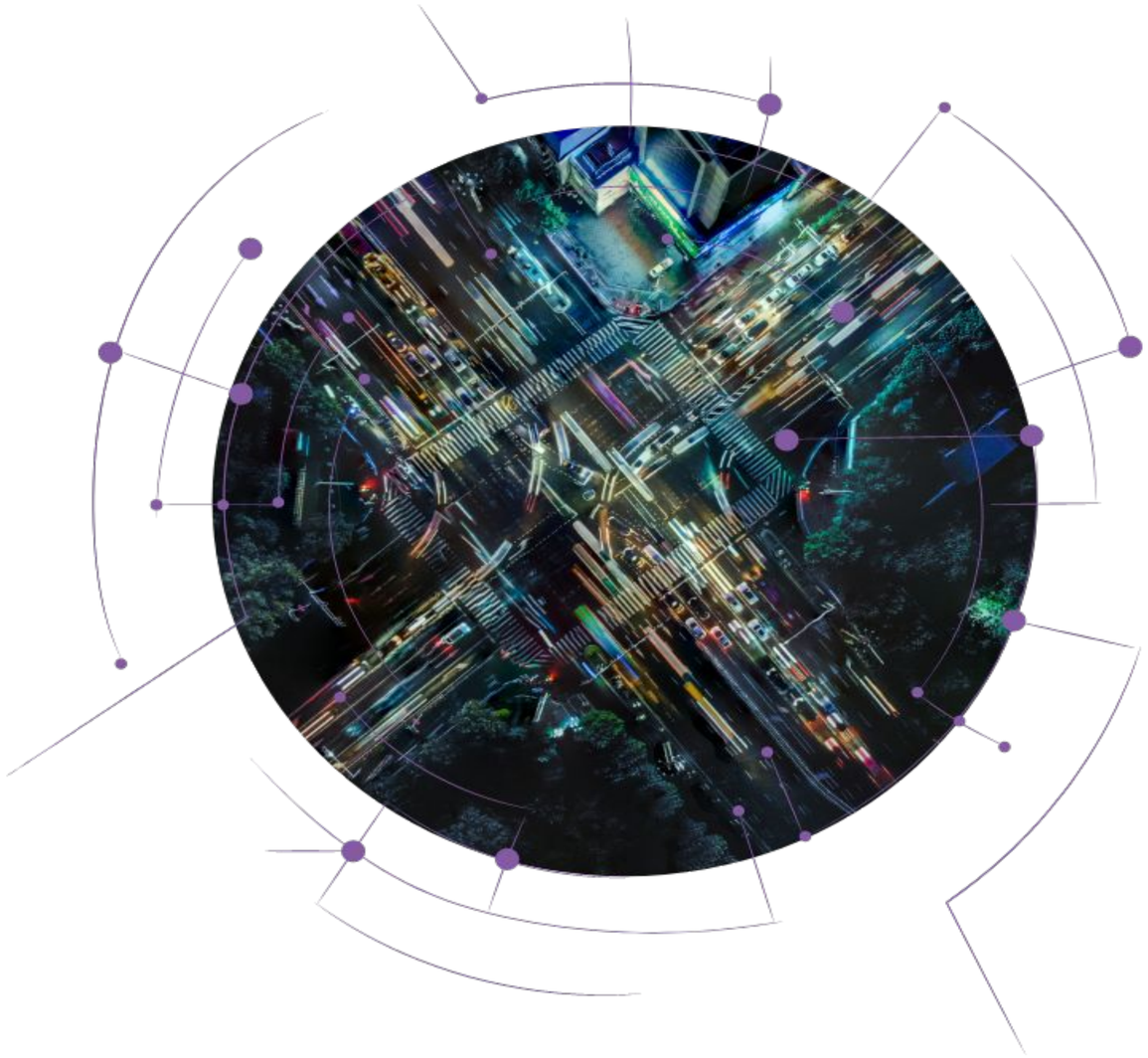
DATASOCIETY:

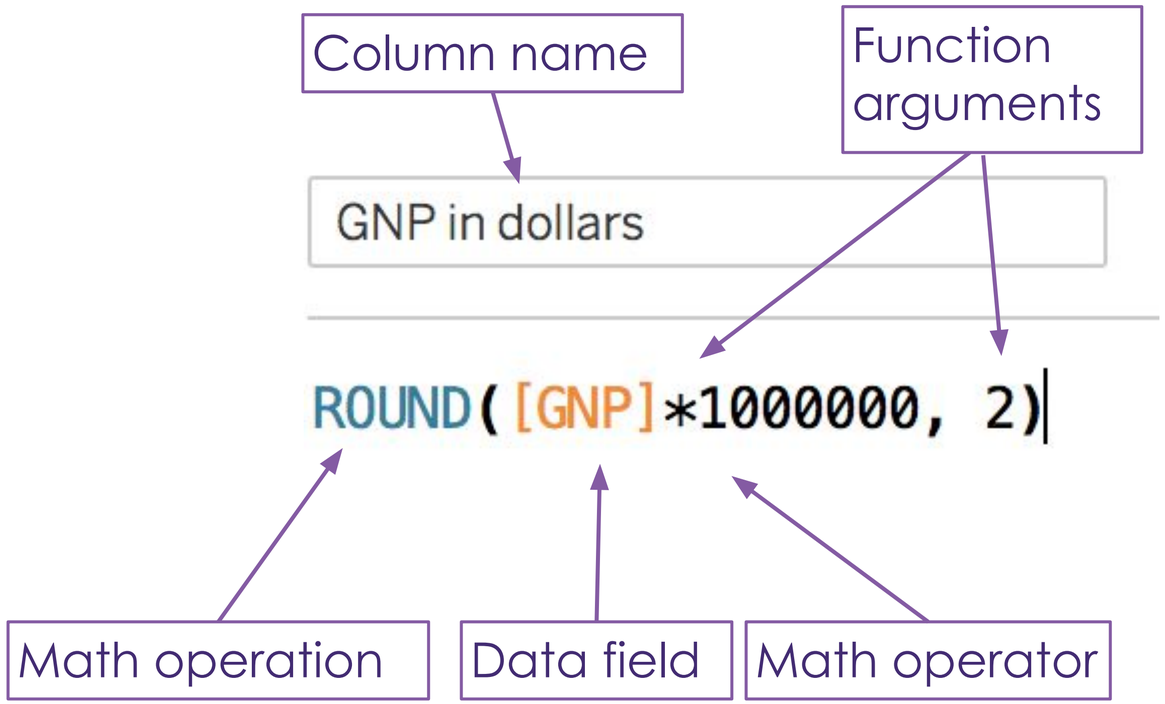
Introduction to Tableau

Part 7



Recap: basic function syntax

- **Function parts:**
  - Built in functions
    - control flow **(black)**
    - math operations **(=,-,/,*...)**
    - logical operators **(<, >, =)**
    - math functions **(blue)**
  - Fields from data pane **(orange)**
  - Strings (demarcated by “ ”)
  - Integers



Recap: function types

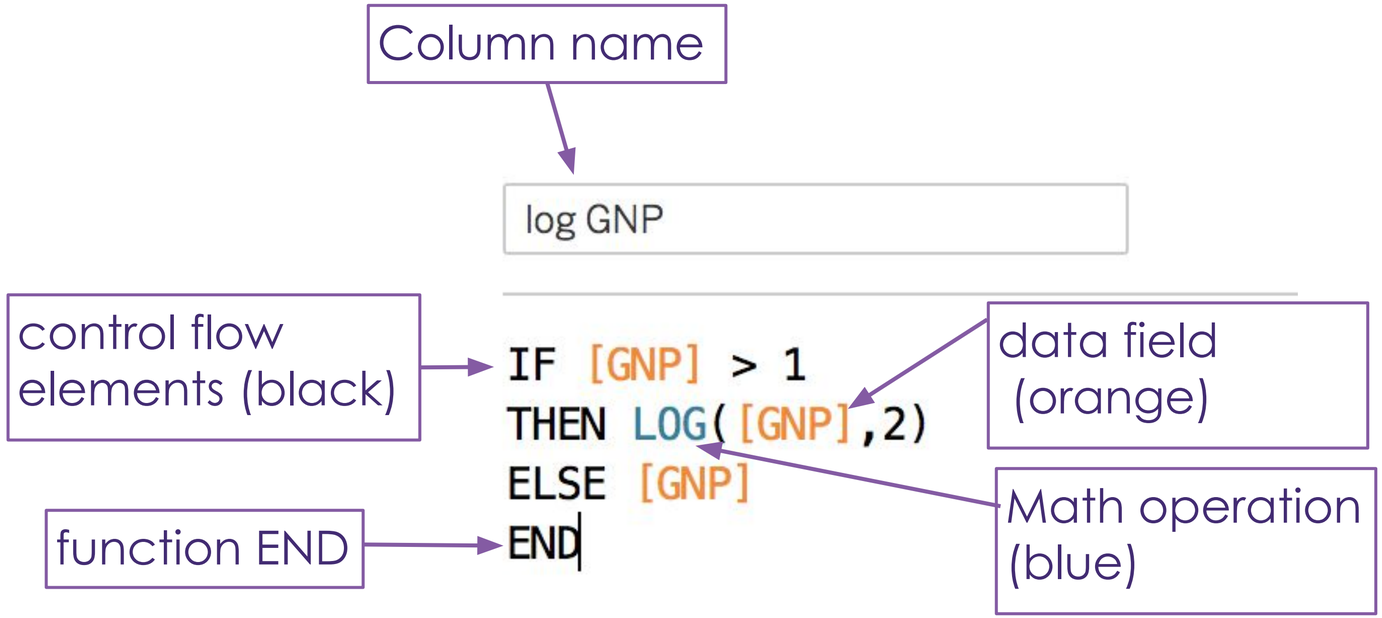
- Just like SQL functions, Tableau functions are classified into several types.

- These include:
  - Number Functions
  - String Functions
  - Date Functions
  - Type Conversion
  - Logical Functions
  - Aggregate Functions
  - Pass-Through Functions (RAWSQL)
  - User Functions
  - Table Calculation Functions
  - Spatial Functions
  - Additional Functions

- To see Tableau functions separated by type, visit **this page [link]**.

Recap: function control flow

- This is a simple function that gets the log of the GNP data column.
  - Base 2 log for values > 1.
  - Otherwise it takes the value.



Reminder: save your work!

- In the upcoming modules, we will be creating more elaborate visualizations.
- We will see a lot of different insights from the data as we learn more in Tableau.
- **Make sure to save all your classwork** (including Exercises), because we will be putting it all together at the end of the unit to create a story.

Video: table calculations

- Table calculations are an extremely useful way to perform basic operations on your dataset within Tableau.

- Before we practice using them together, click the link below and watch a short video from Tableau walking through using both **pre-built (Quick)** and **custom** table calculations.

Transform Values with Table Calculations - Tableau (link)

Module completion checklist

Objective	Complete
Implement table calculations with dataset	
Understand addressing and partitioning fields	
Explore level of detail (LOD) functions	
Implement number calculations on given dataset	
Implement aggregate calculations on given dataset	

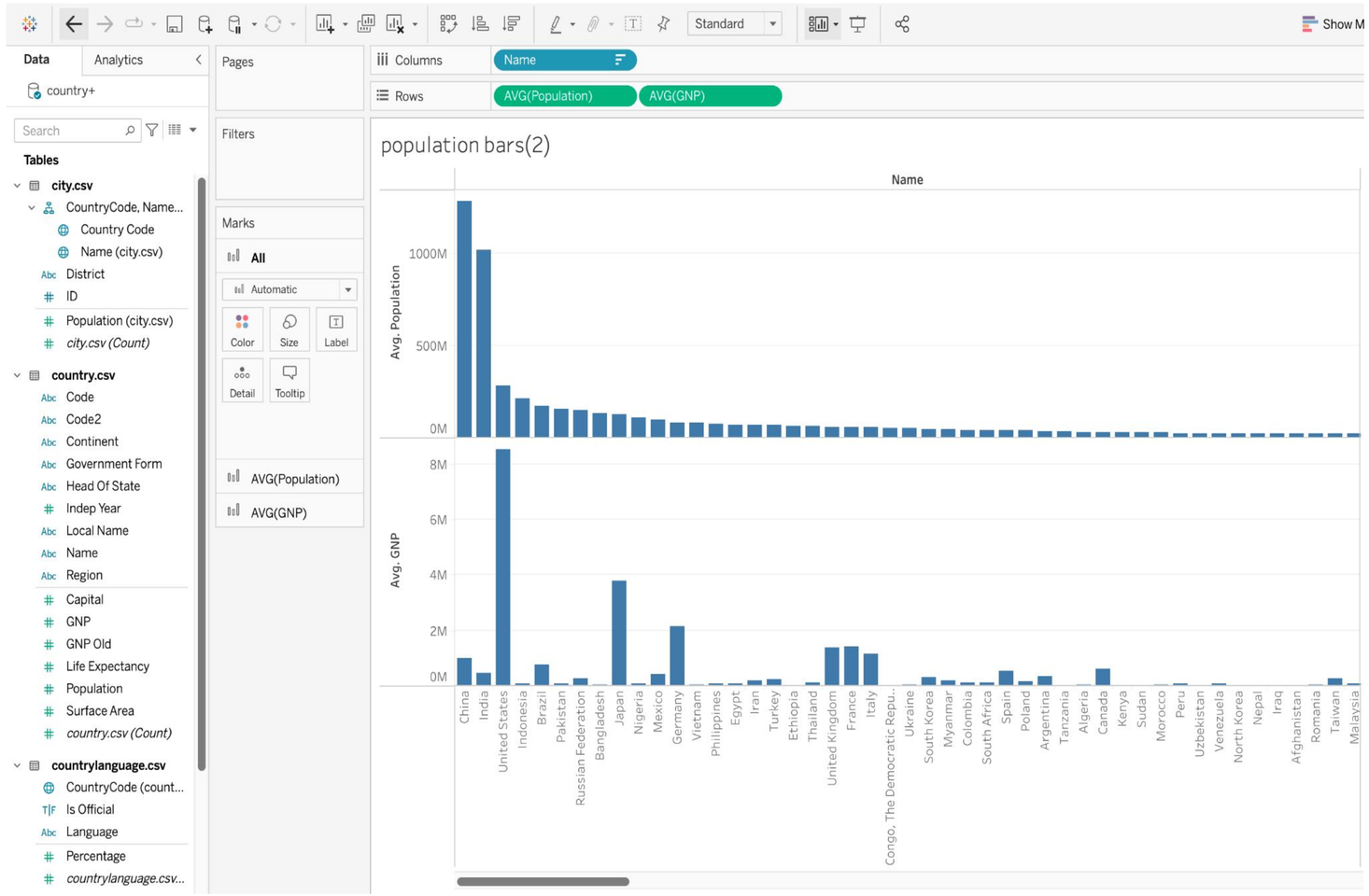
Table calculations

- **Table calculations** give you calculations derived from the **view**, such as:
    - Rank
    - Percentile
    - Moving average
    - Difference
    - Running total
- These calculations do not consider any measures or dimensions that are filtered out of the visualization.
- Today, we'll learn how to implement table calculations on our dataset.

Create population chart by country

- Drag the "**Name**" field from the country table and drop it in the "**Columns**" shelf.

- Drag and drop the **average population and average GNP** fields into the "**Rows**" shelf.



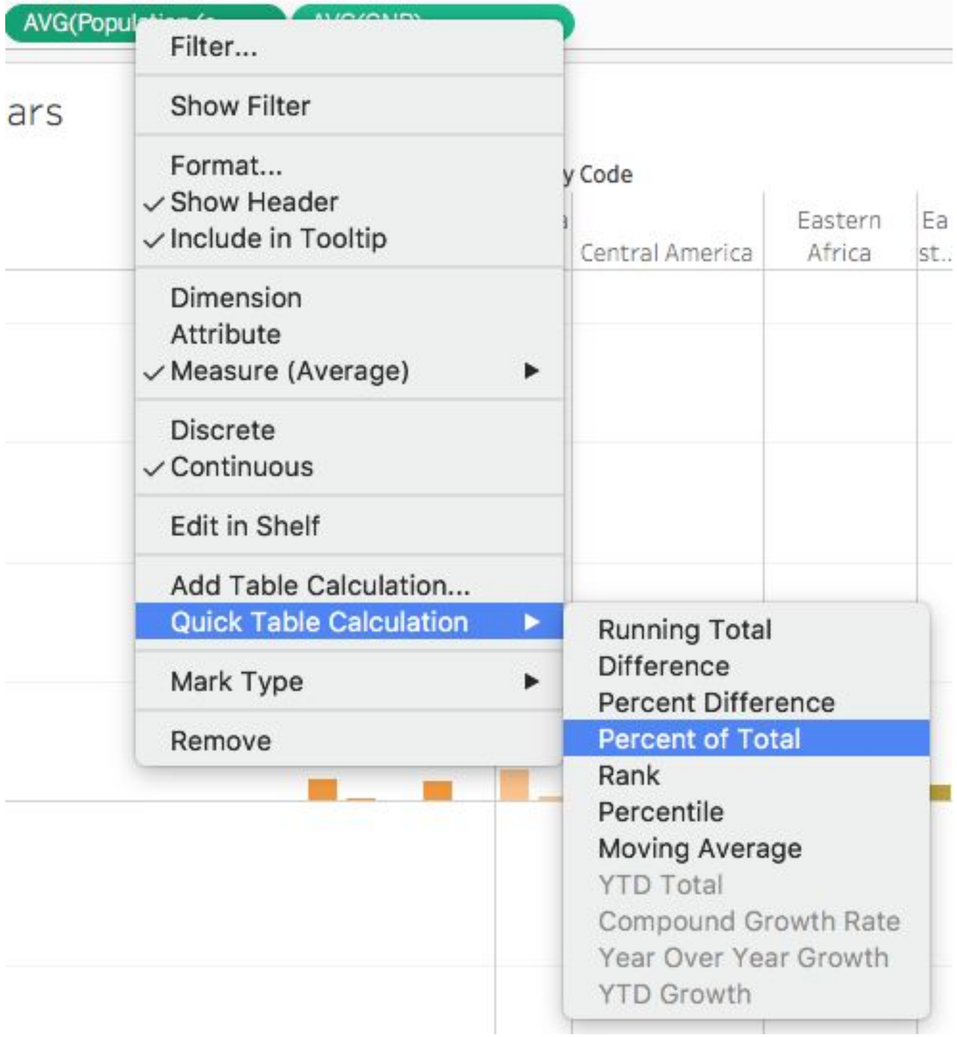
Create a table function (Option 1)

- There are two ways to implement table calculations in Tableau.

- **Option 1:** Quick table calculations

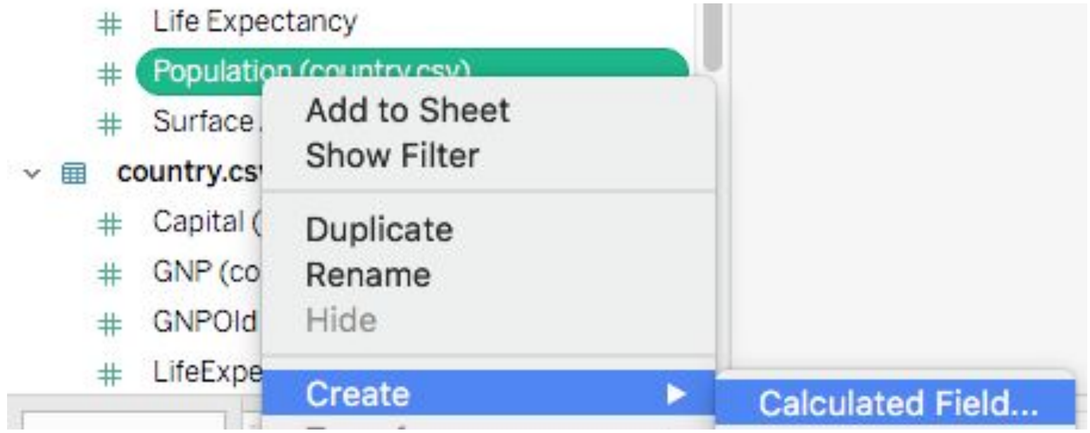
  - Right click on the appropriate pill and get a menu of quick calculations.

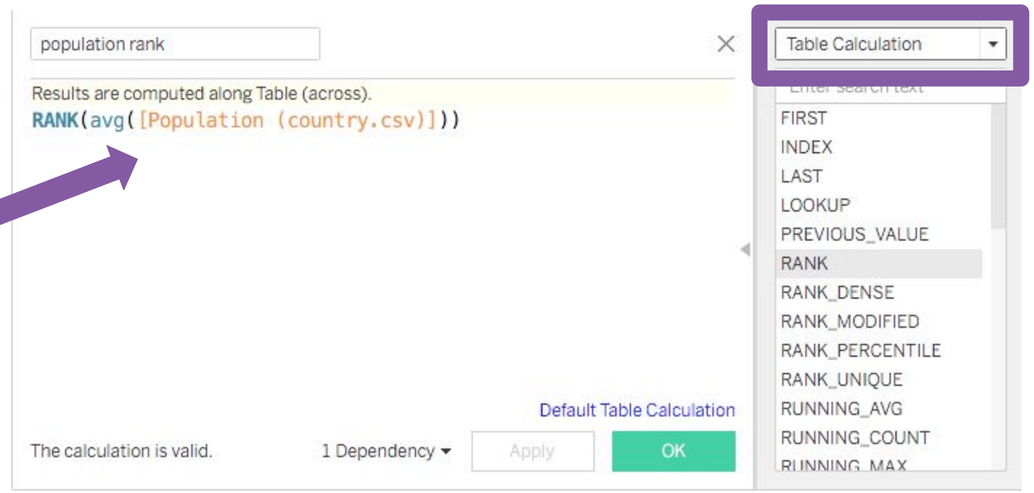
  - Note that the options change based on the selected element.



Create a table function (Option 2)

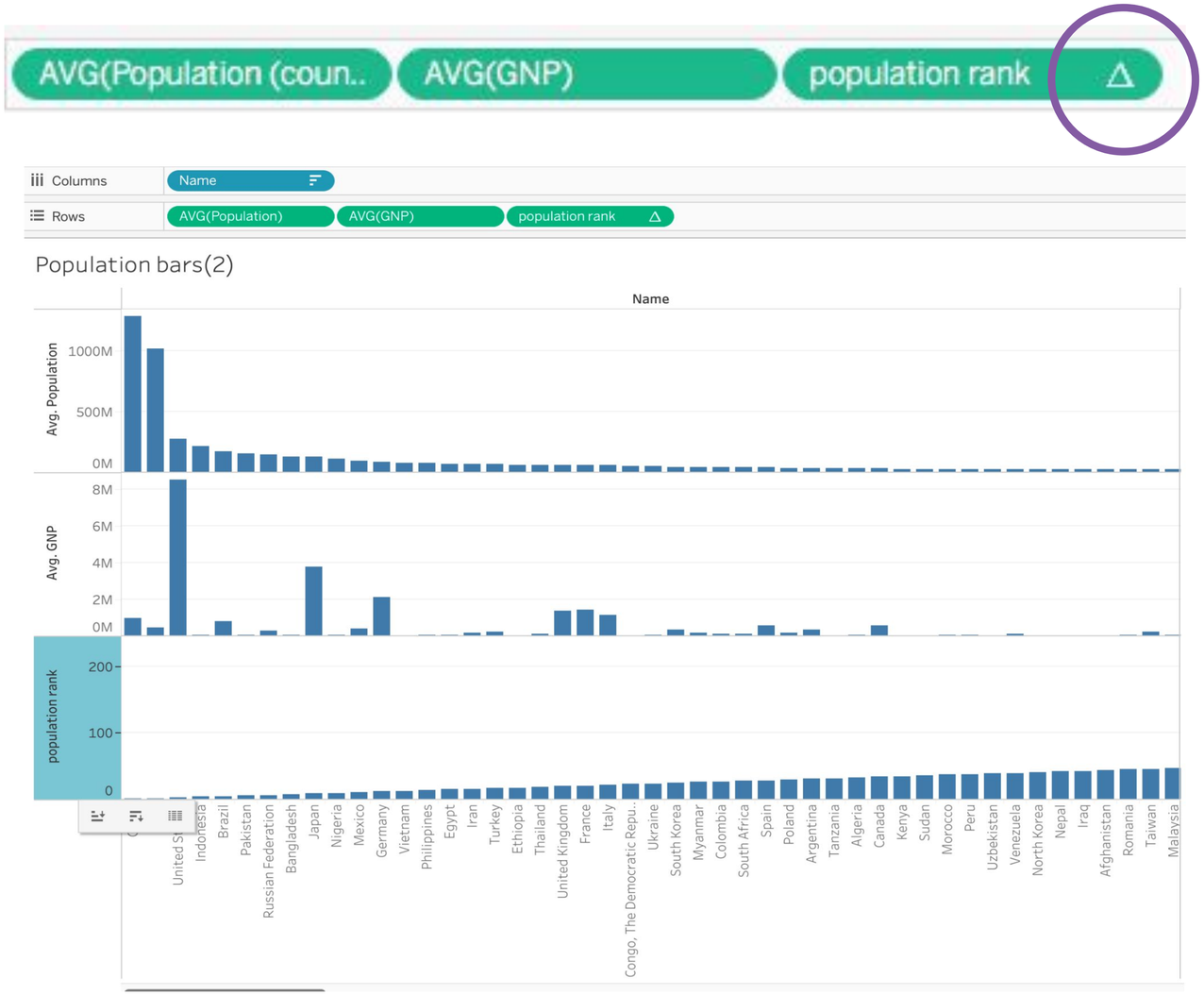
- **Option 2:** Manual calculations
  - Right click a **Measure > Create > Calculated Field.**
  - From calculations dropdown menu at top right, select **"Table Calculation."**
  - Write formula for required calculation.
- Let's calculate a ranked order list of **average population by country.**





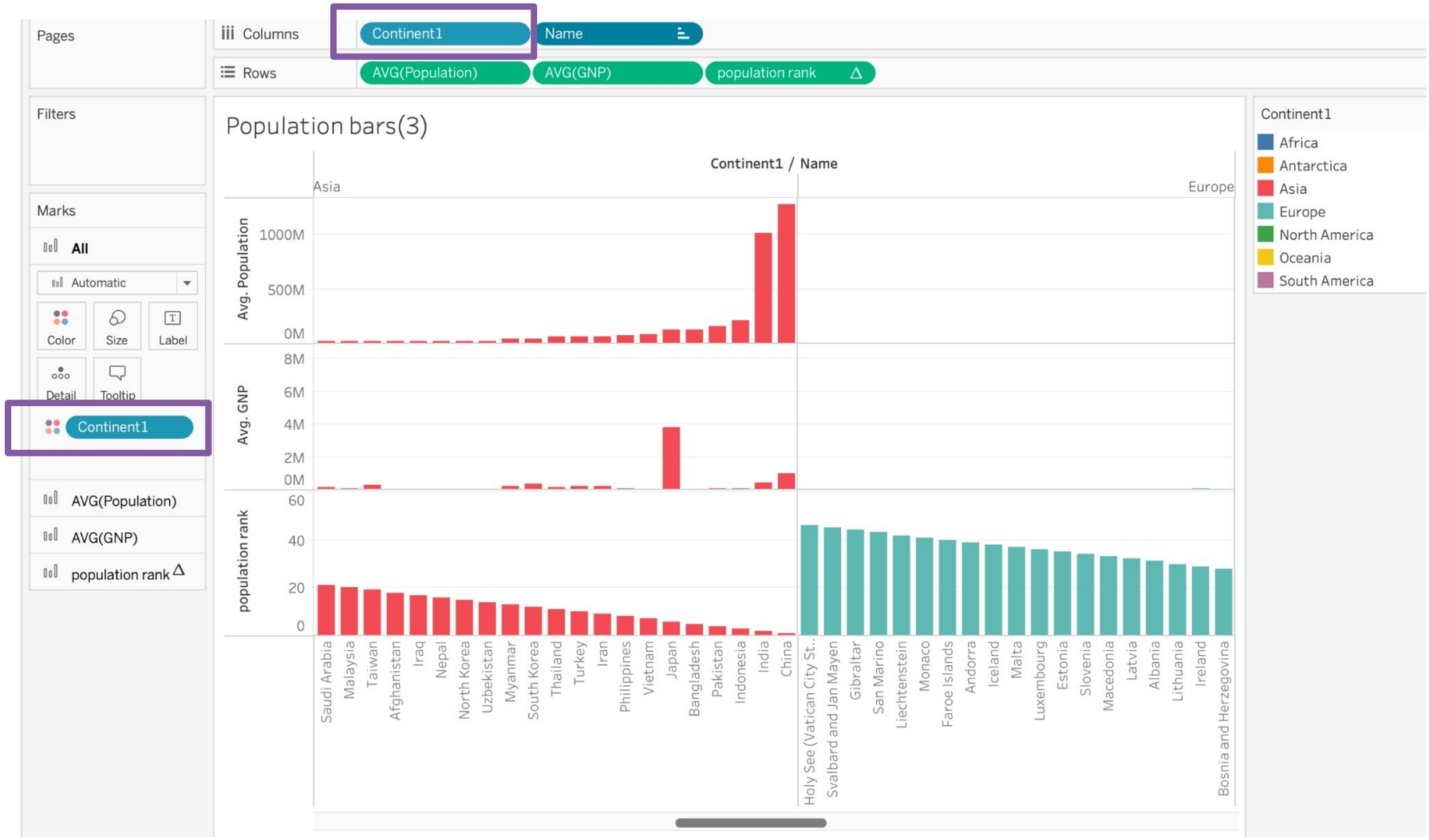
Add a table function to the plot

- Let's use the ranked population formula that we just made.
- When we drag it to the data shelf, a **triangle** indicates that this is a **calculated field** derived from a table.
- We can add population rank to our population visualization and sort it.
- What can we infer from this visualization?



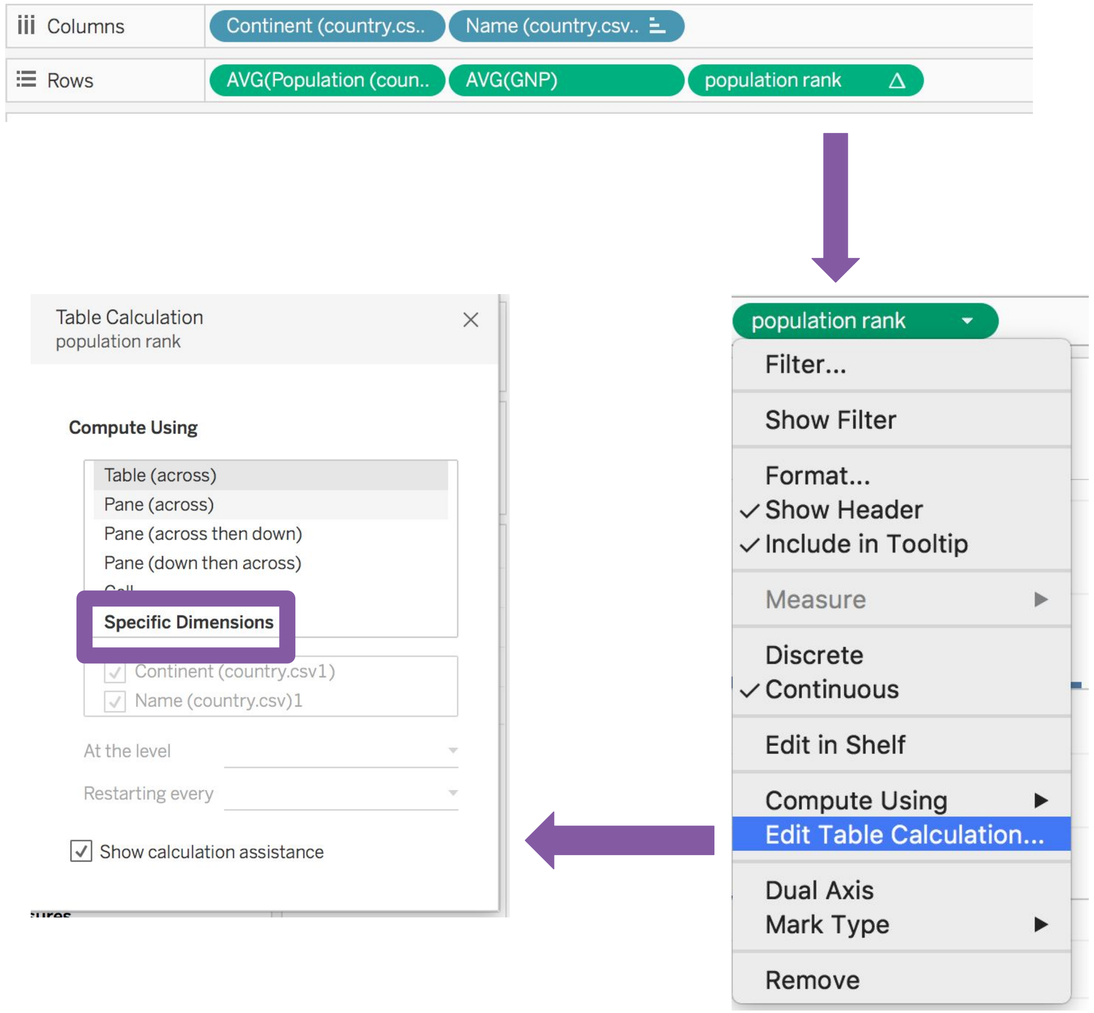
Split by continent

- Drag the Continent dimension to the "**Columns**" shelf.
- Add continent to the colors **"Marks"** table.
- This will allow us to see how table calculations work.



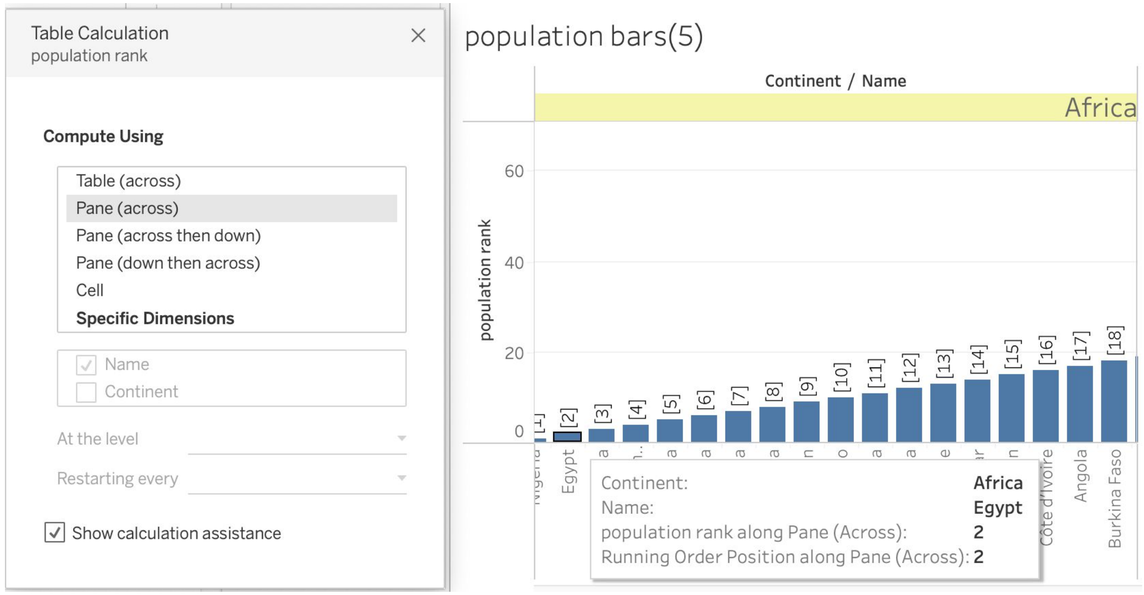
Modify the table calculation

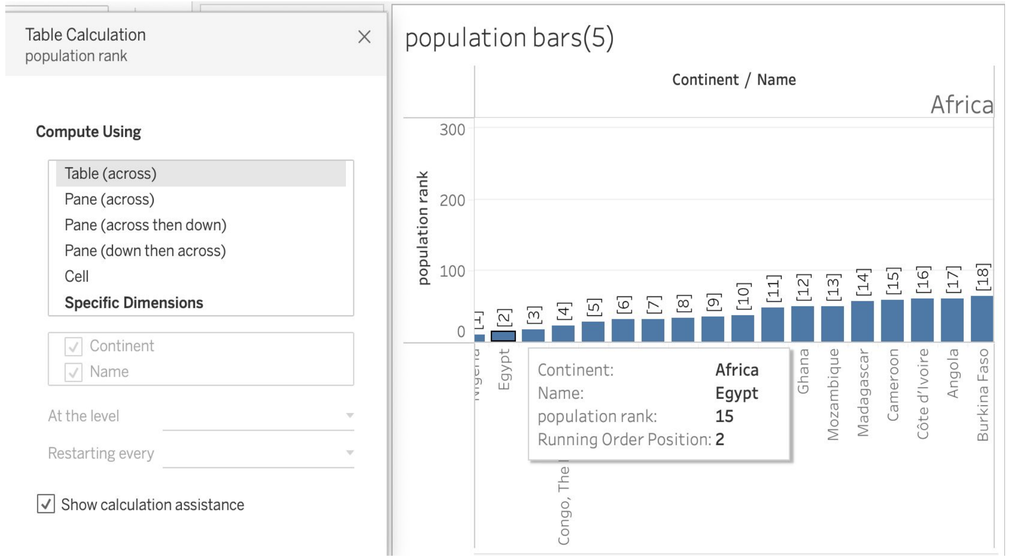
- Our view now uses color to separate the dataset by continent.
- Click the "**population rank pill**" with the triangle.
- Look at **"Compute Using"**, then go to **"Edit Table Calculation"** to see a live demo.
- Toggle between two **"Specific Dimensions"** options: **checking** and **unchecking "Continent."**



How table functions affect data

- The difference in this case is subtle, but you can see it if you focus on **Egypt.**
  - Within Africa (pane), Egypt's population is ranked **#2.**
  - Across the whole dataset (table), Egypt's population is ranked **#15.**
  - The **table function** computes across the length of the entire table.





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Addressing vs. partitioning fields

- The **Specific Dimension** options that we just explored relate to the scope of the data on which the table function is performed and the direction in which the calculation moves through the table.

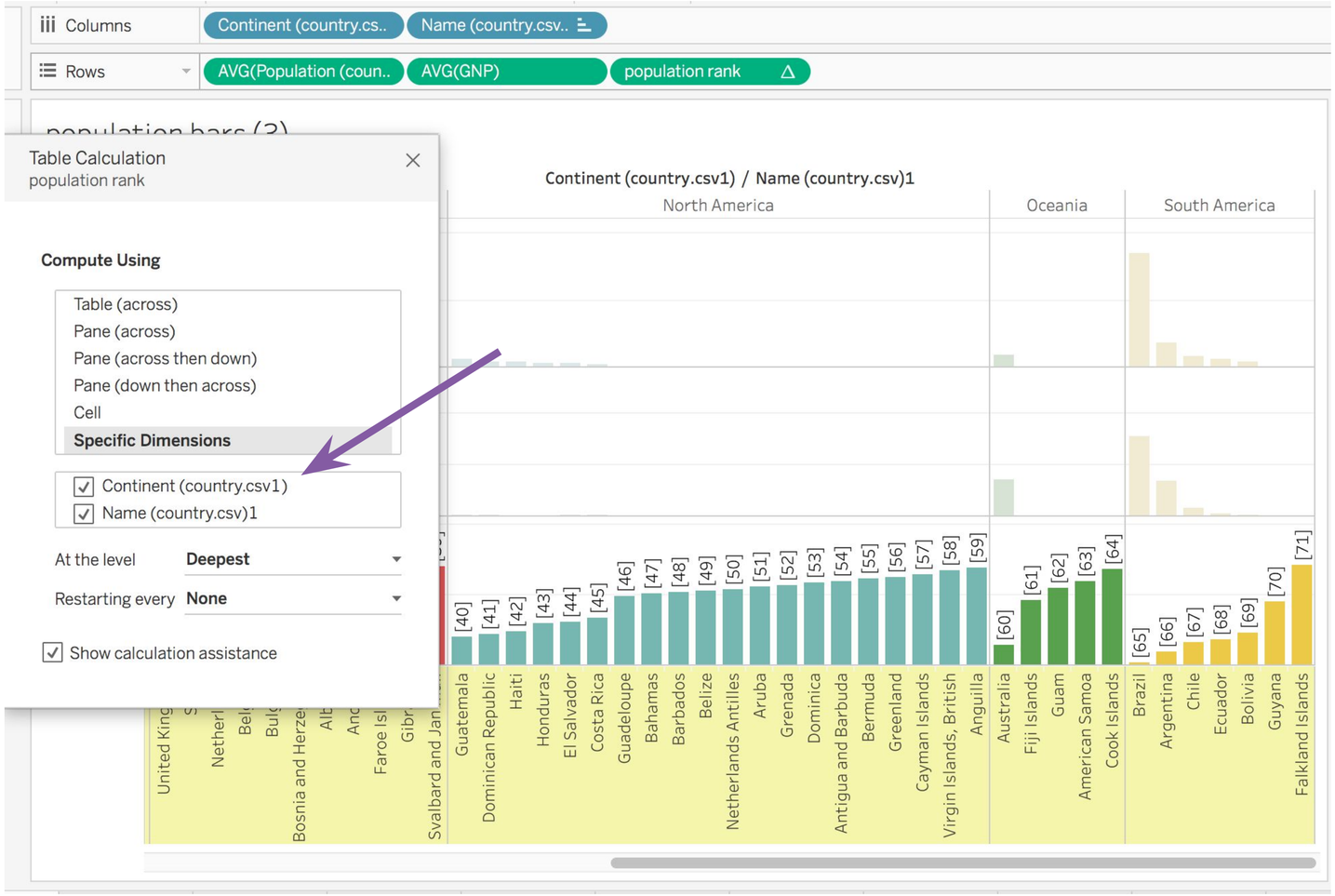
- **Addressing fields** are those fields that define how you are computing through the table
  - in other words, the ***direction*** of the function.

- **Partitioning fields** are how you are dividing the table up – in other words, the ***scope*** of the data the function will address.

Addressing fields

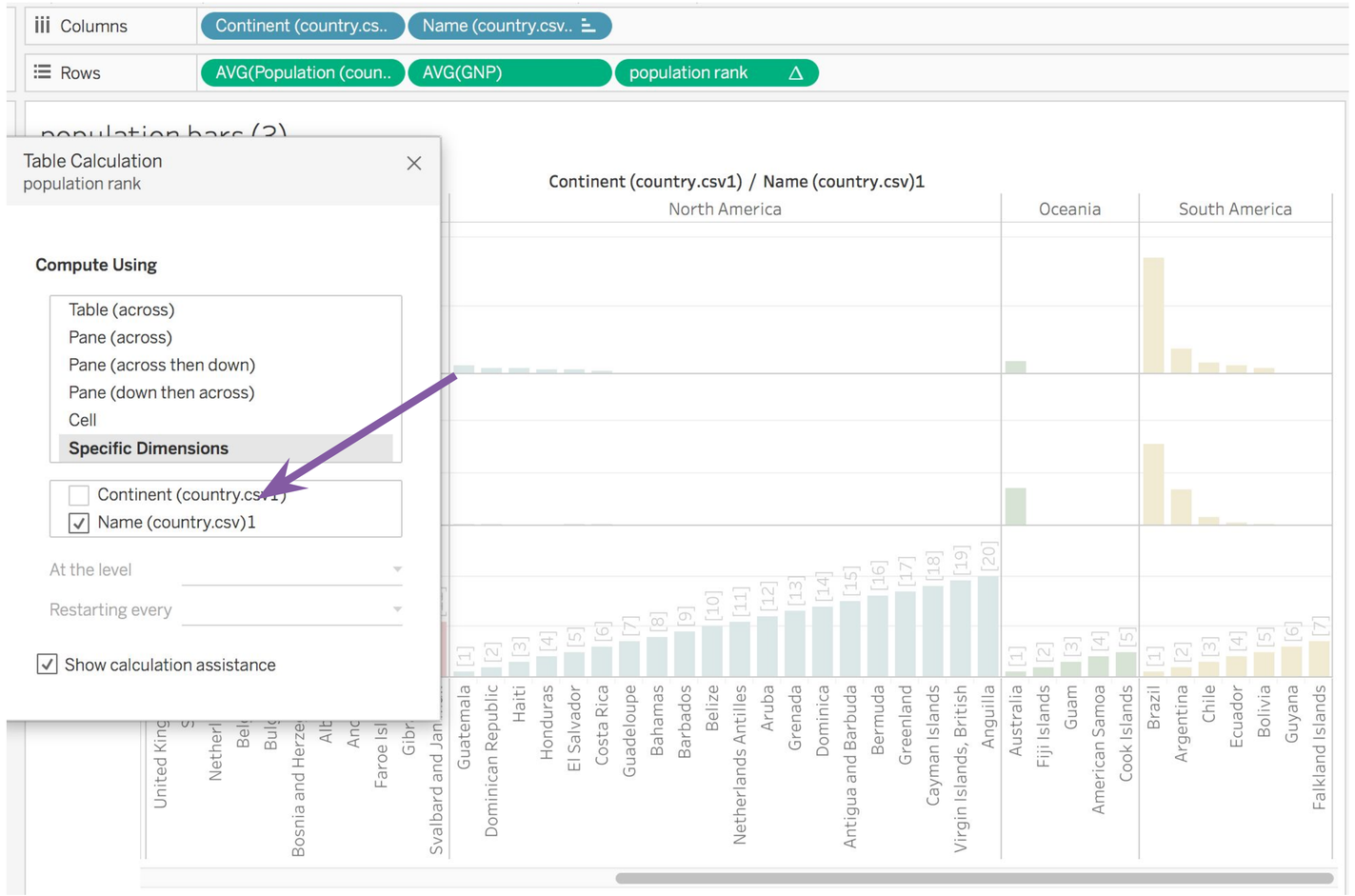
- We can change addressing and partitioning fields in the Edit Table Calculation menu, by selecting "**Specific Dimensions.**"

- **Continent** is used for **addressing.**
  - We see that the rank calculation is table-wide, and that it runs the length of the entire table.



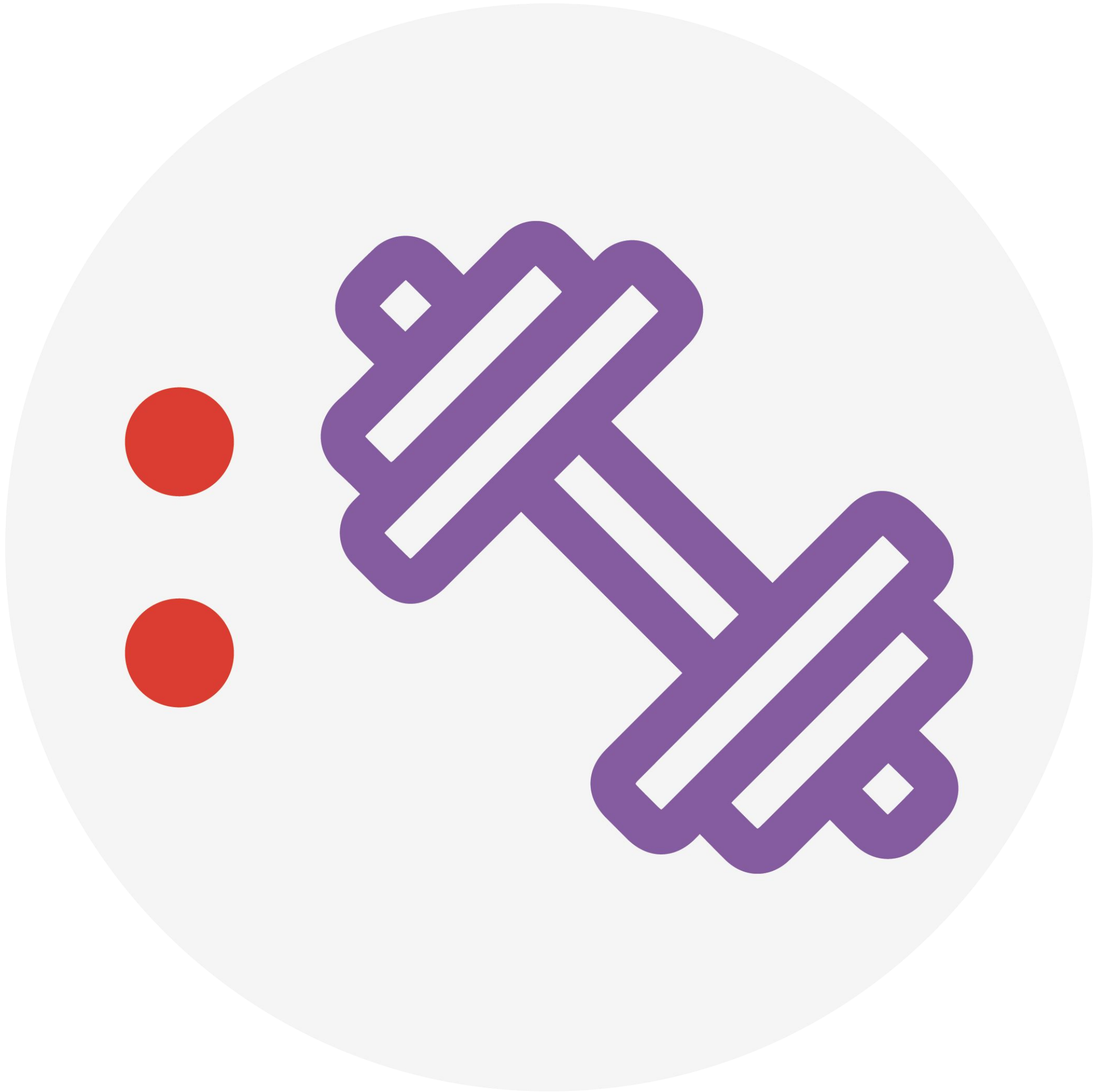
Partitioning fields

- **Continent** is used for **partitioning.**
  - We also see that each continent ranks relative to itself, separating the data into subsets.



Knowledge check 7

Exercise 7



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End of Part 7