

DATA SOCIETY:

Introduction to Tableau

Part 2

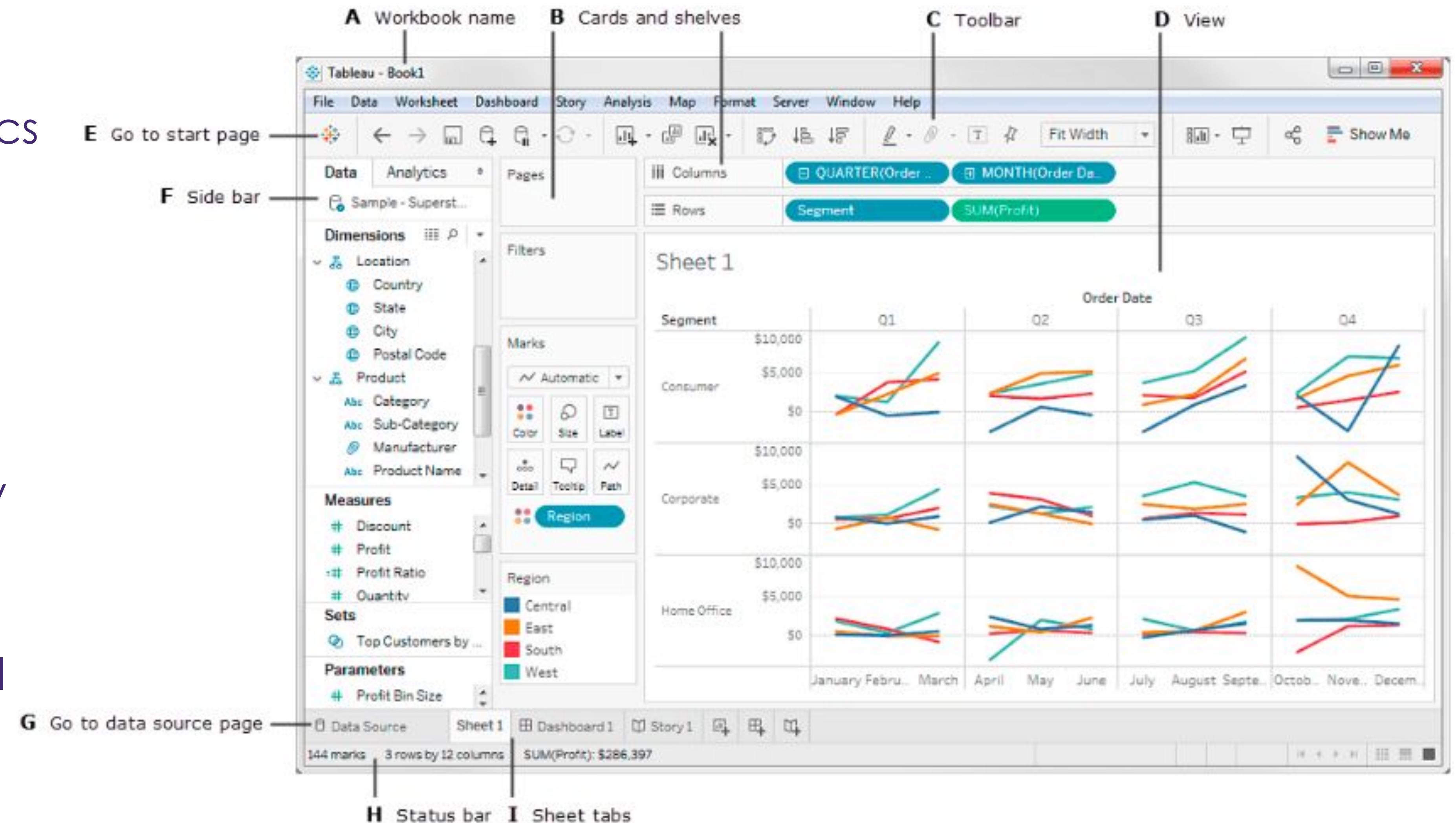


Module completion checklist

Objective	Complete
Explore the Tableau platform layout	
Create basic visuals using the World Data	

Overview: key parts of Tableau UI

- Start button
- Data and analytics views
- Sheets view
- Marks panel
- Story tab
- Dashboard tab
- Columns and row shelves
- Variable “pills”
- “Show Me” panel



Data tab

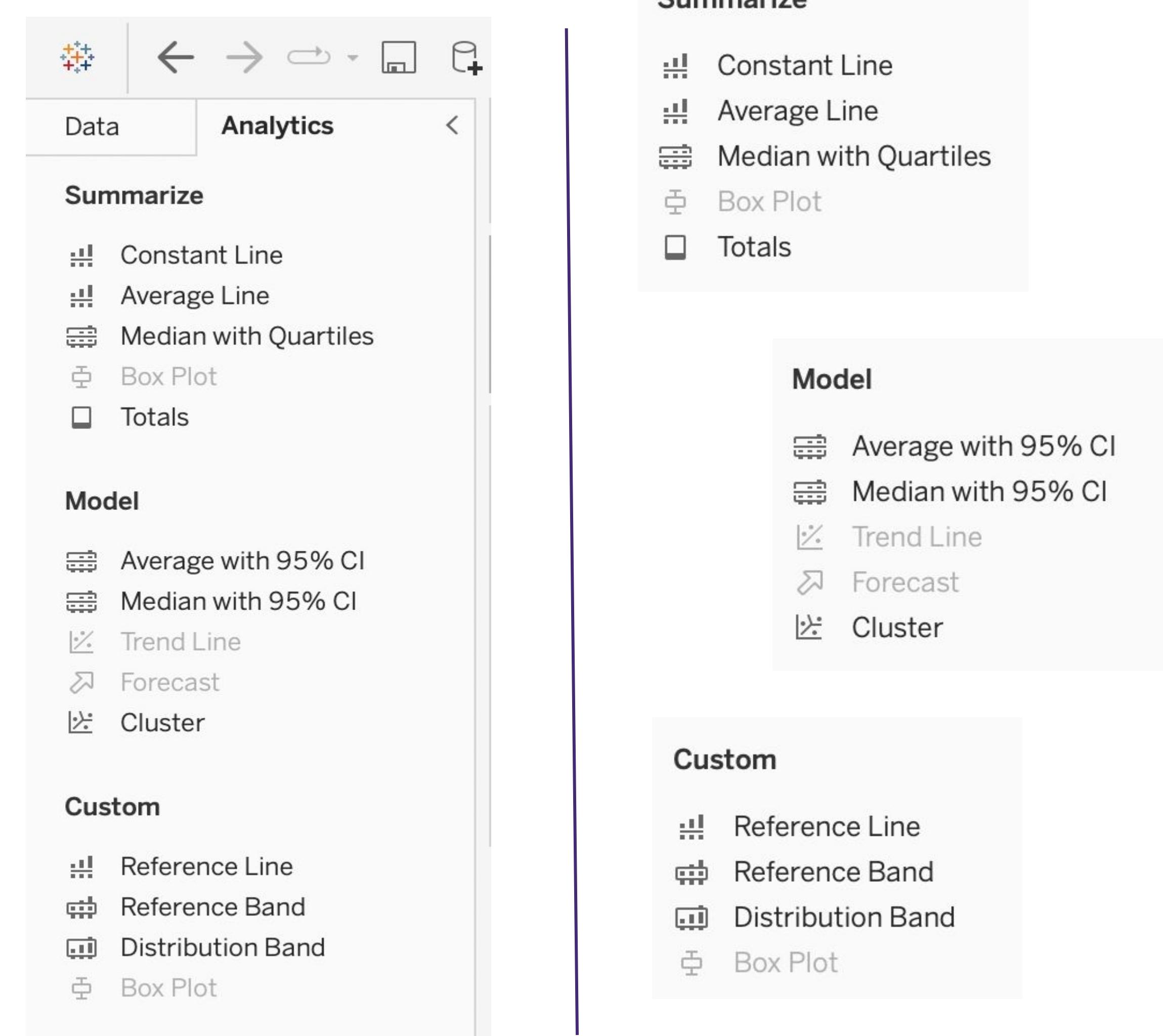
- The **data tab** shows several key pieces of information:
 - Dimensions and Measures variables
 - Loaded databases
 - Sets
 - Parameters
- Note that the type of variable is noted to the left of the variable name in the form of an **icon**.

The screenshot shows the Tableau Data tab interface. At the top, there are tabs for "Data" and "Analytics". Below the tabs, there are two rows of database connections. The first row has a connection to "city.csv (Multiple Connec...)" and a selected connection to "city.csv+ (Multiple Conn...)" which is highlighted in grey. The second row has a connection to "countrylanguage.csv (Multiple Connec...)" and a selected connection to "countrylanguage.csv+ (Multiple Conn...)" which is highlighted in grey. Below the connections is a search bar and a filter icon. The main area is titled "Tables" and lists three tables: "city.csv", "country.csv", and "countrylanguage.csv". Each table is expanded to show its columns. The "city.csv" table has columns: "Country Code" (id), "District" (dimension), "Name" (dimension). The "country.csv" table has columns: "Code" (id), "Code2" (id), "Continent" (dimension), "GovernmentForm" (dimension), "HeadOfState" (dimension), "IndepYear" (measure), "LocalName" (dimension), "Name (country.csv)" (dimension), "Region" (dimension). The "countrylanguage.csv" table has columns: "CountryCode (countrylanguage.csv)" (id), "IsOfficial" (measure), "Language" (dimension). At the bottom of the table list, it says "Measure Names". To the right of the table list, there is a legend mapping icons to variable types:

- city.csv: ID, Population
- country.csv: Capital, GNP, GNPOld, Life Expectancy, Population (country.csv), SurfaceArea
- countrylanguage.csv: Percentage, city.csv (Count), Latitude (generated), Longitude (generated), Measure Values

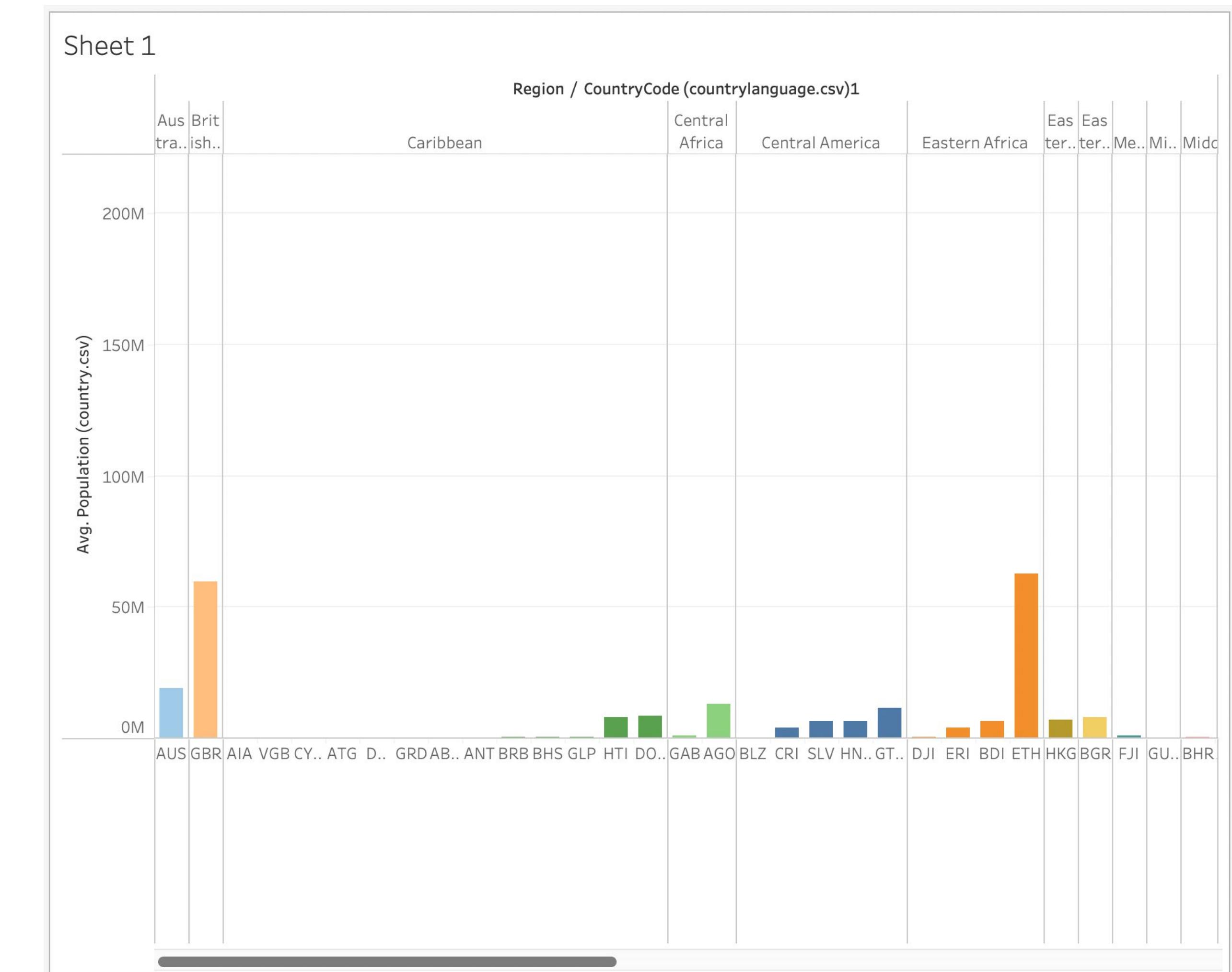
Analytics tab

- The **analytics tab** is divided into 3 groups based on functionality:
 - Summarize
 - Model
 - Custom
- It is used to apply advanced analytics to the view and provides drag-and-drop functionality for various options.
- You can add box plots, reference lines, and other elements to your view.



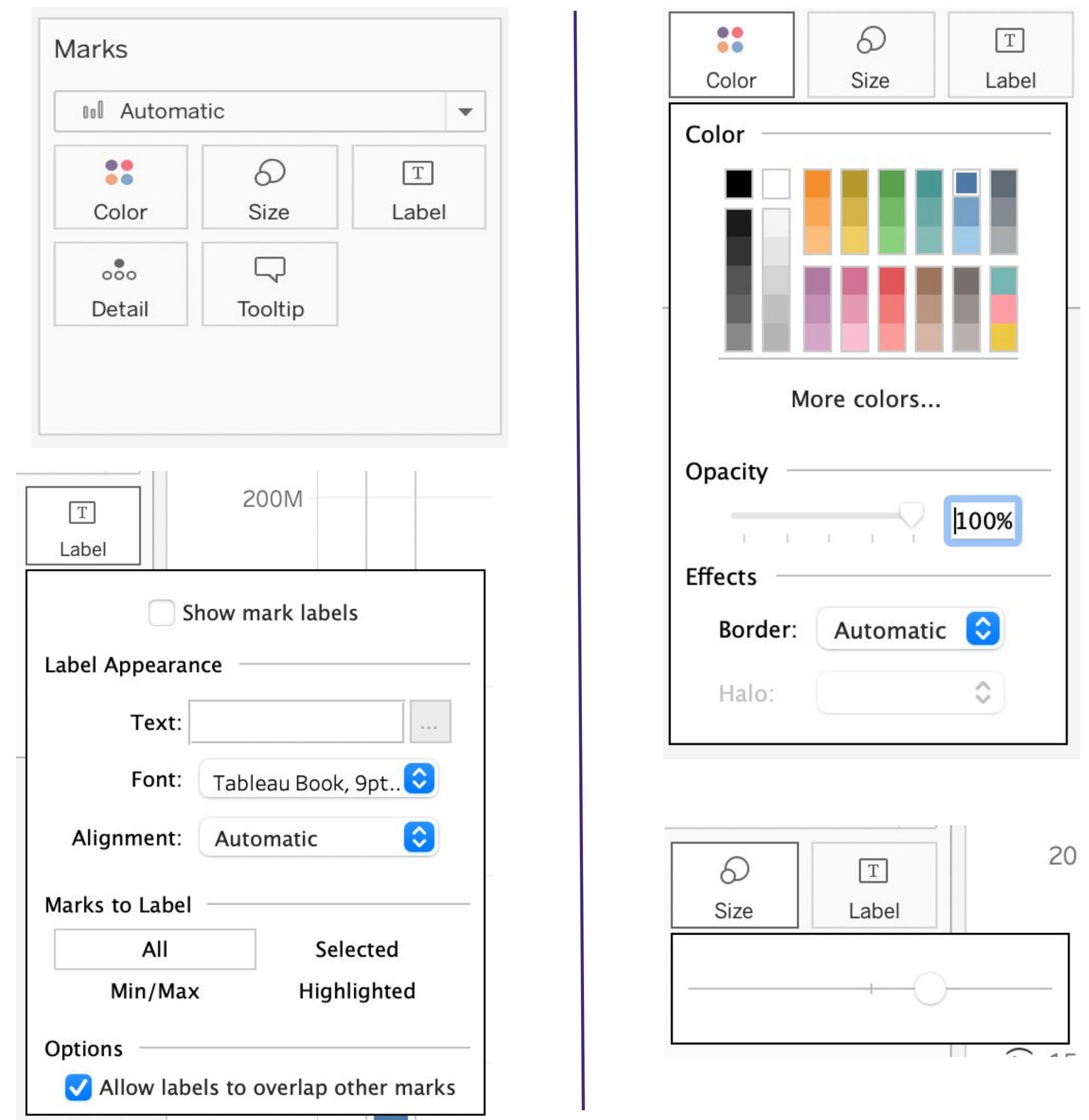
Workbooks vs. sheets view

- In Tableau, workbook and sheet file structures are used.
- A **workbook** contains a single view along with legends, cards, shelves, and a data and analytics tab in its sidebar.
- A **sheet** can be a story, workbook, or dashboard.



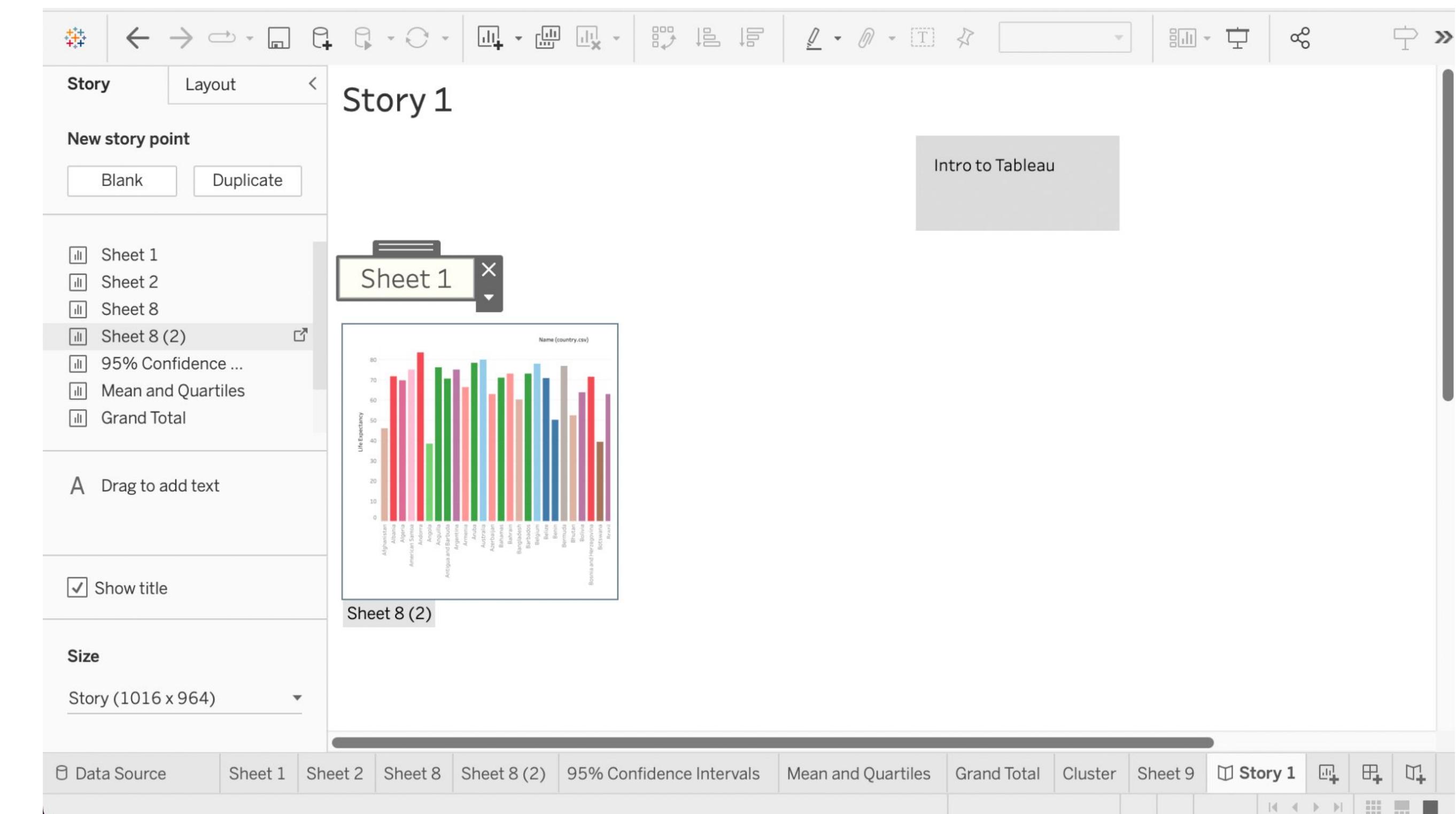
Marks panel

- To display data, Tableau uses **marks** where every mark corresponds to a single data point in the dataset.
- The default mark type depends on the values in the rows and columns shelves, but different types of marks can be selected using the marks panel.
- The Marks panel allows you to encode data with color, size, shape, text and details.



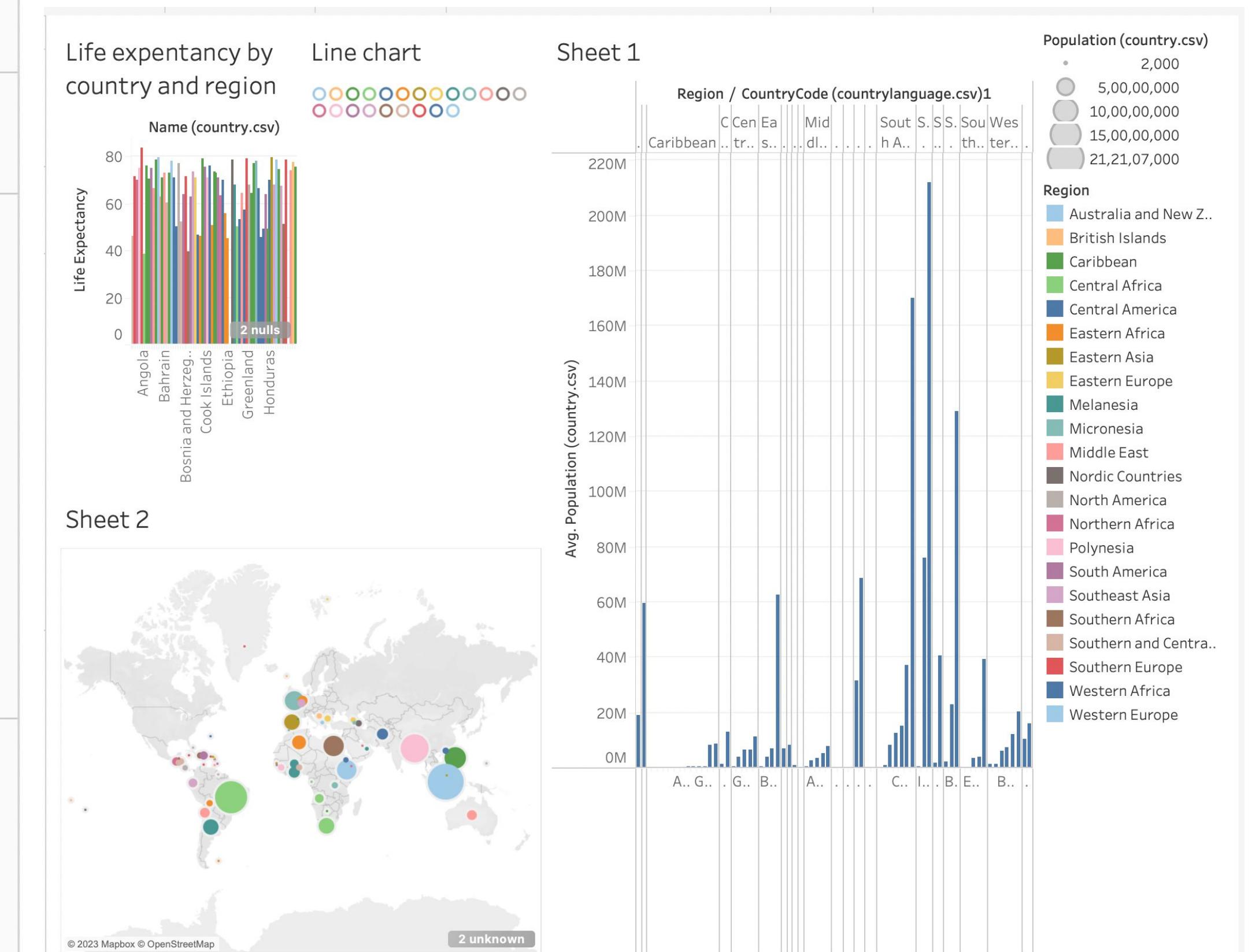
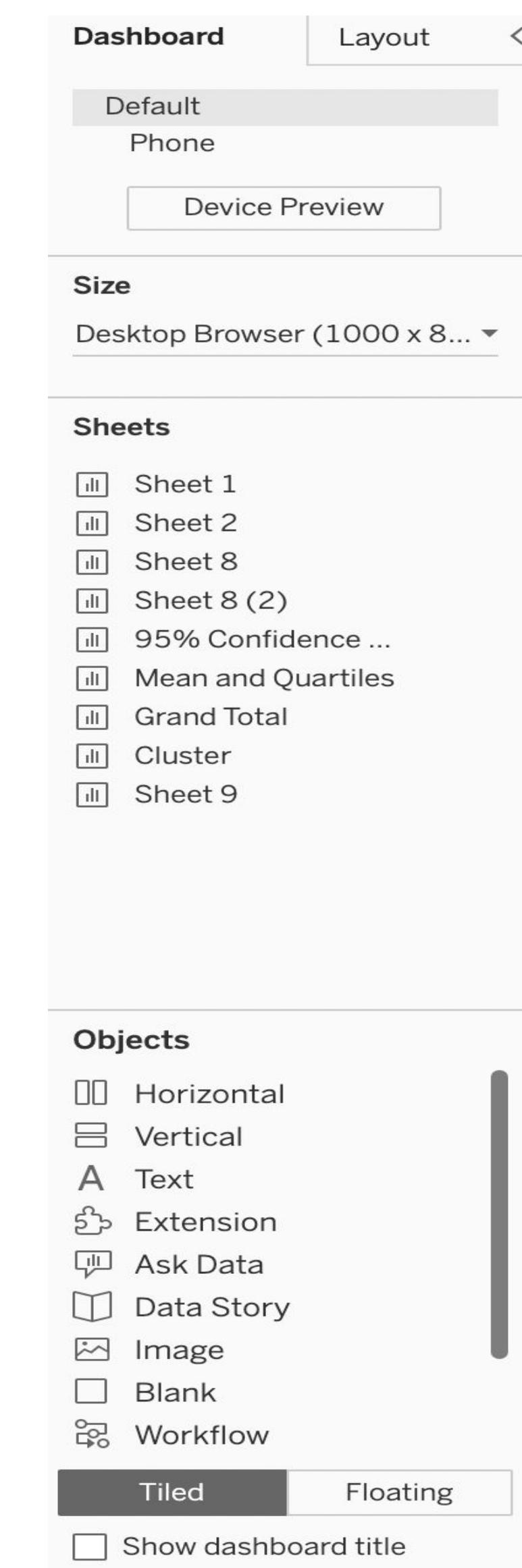
Story tab

- Tableau allows you to **create stories** by arranging a series of visualizations that work together to present information.
- You can add a title, text, and customize the size of a story using the story tab.
- The Story tab also lets you drag-and-drop the visualisation on a story sheet.



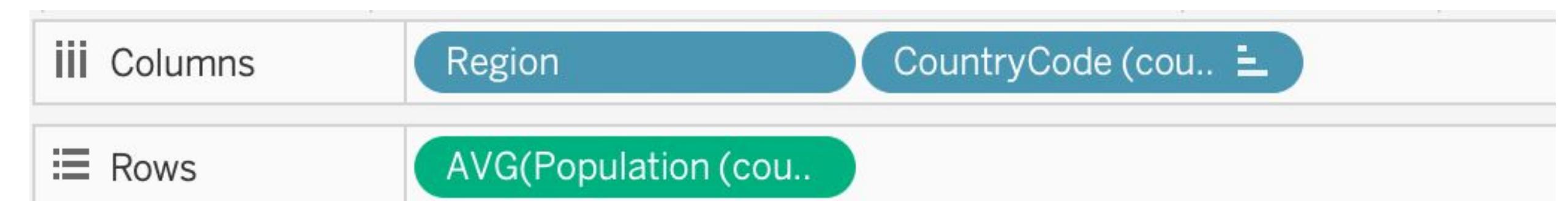
Dashboard tab

- The **dashboard tab** contains the list of all available sheets, and allow us to add multiple sheets on a dashboard.
- It contains variety of objects such as text, web page, button, extensions, etc.
- These objects makes dashboards more interactive and dynamic.



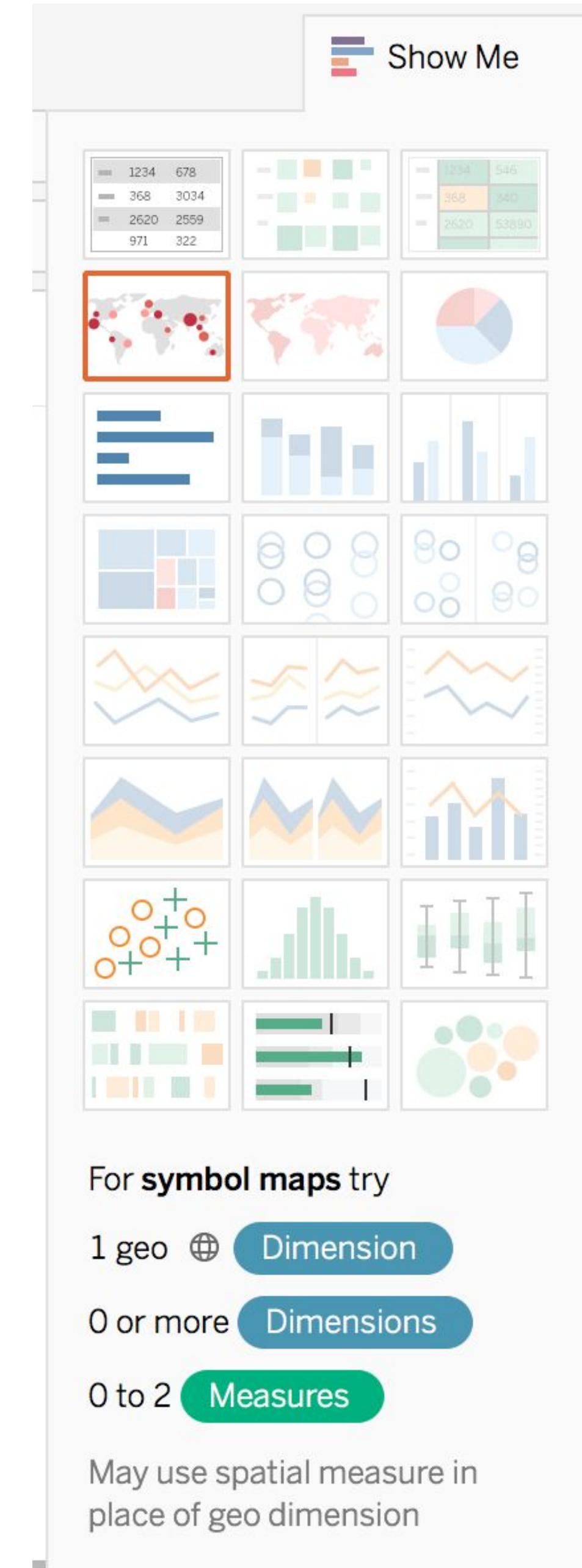
Column and row shelves

- Use the **column shelf** to create the columns in a table.
- Use the **row shelf** to create rows in a table.
- Any number of fields can be placed on these shelves.



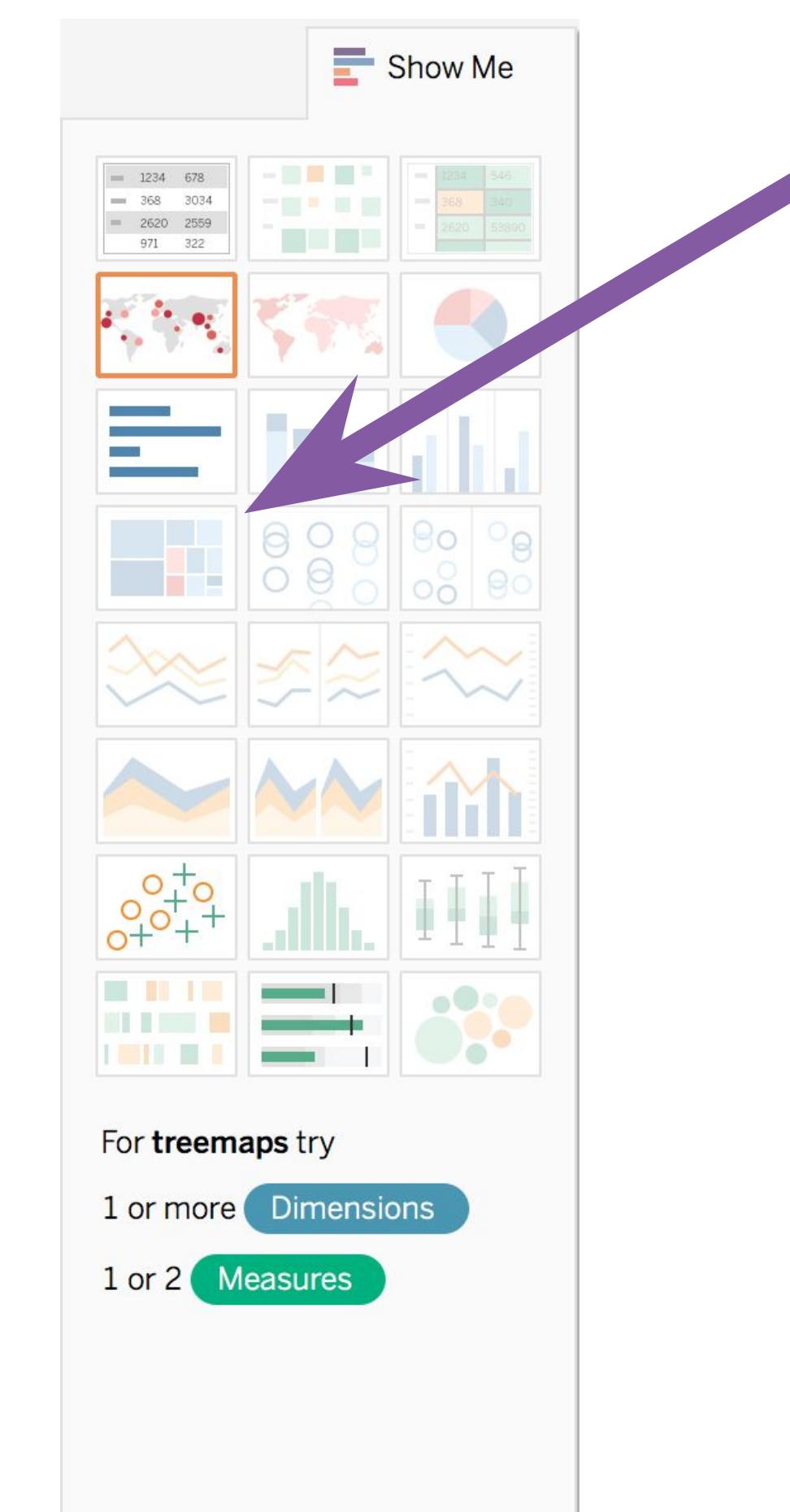
“Show Me” palette

- The “**Show Me**” palette makes it easy to choose the visualization that you want.
- Tableau automatically adjusts dimensions and measures to better fit your data to the map.
- It also suggests which visualizations might best suit the data you are working with.



Grayed-out “Show Me” options

- Grayed-out visualizations cannot be generated from the given data.
- When selecting a grayed-out visualization type, pay attention to the suggestions on the bottom.



For treemaps try

1 or more Dimensions

1 or 2 Measures

Module completion checklist

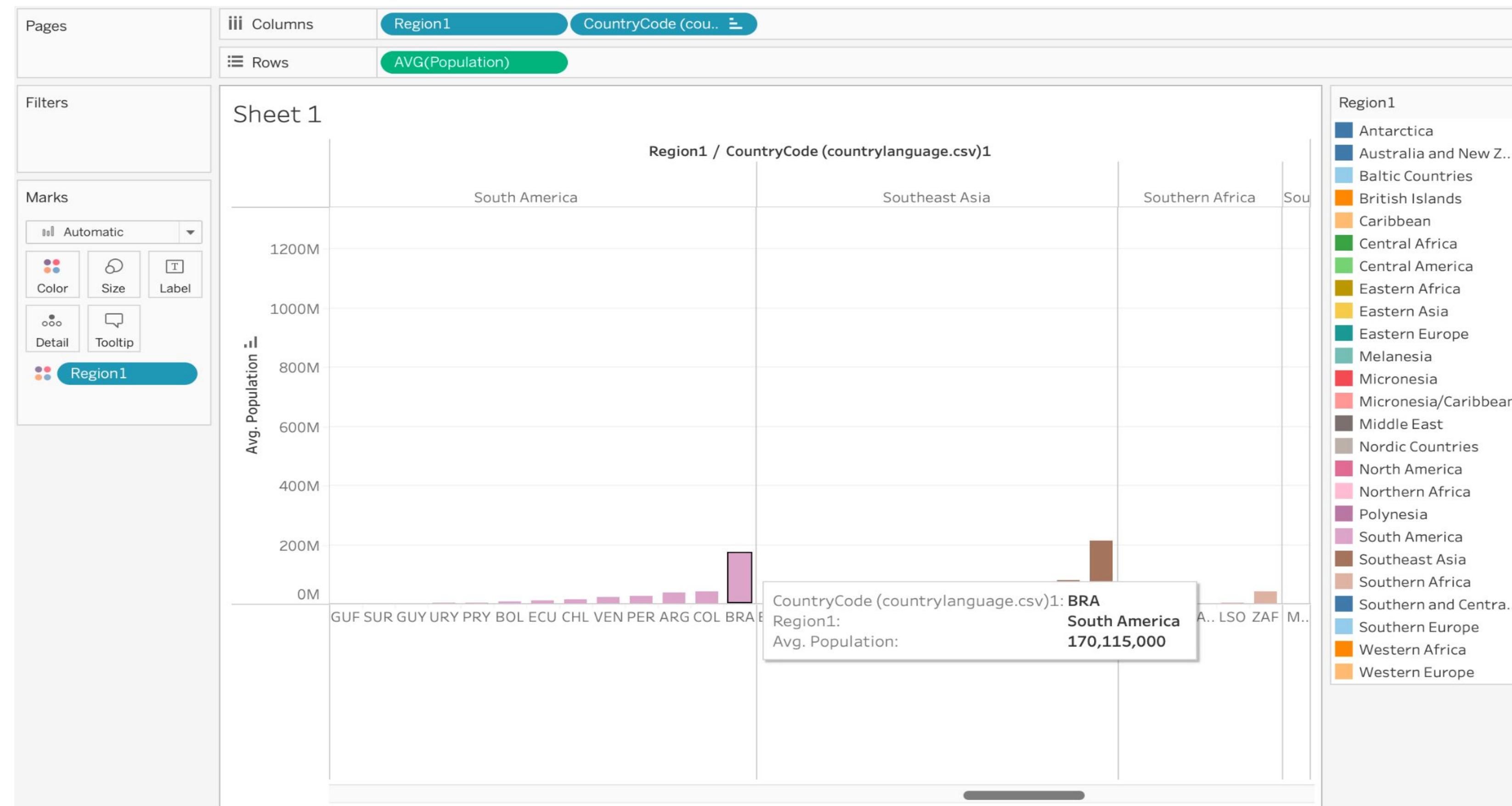
Objective	Complete
Explore the Tableau platform layout	✓
Create basic visuals using the World Data	

Save your work!

- We will now start creating visualizations in Tableau.
- We will see a lot of different insights from the data as we learn more about Tableau.
- **Make sure to save all your classwork (including exercises) on your local drive!**
- Over the coming classes, we will put these visualizations together into a story.

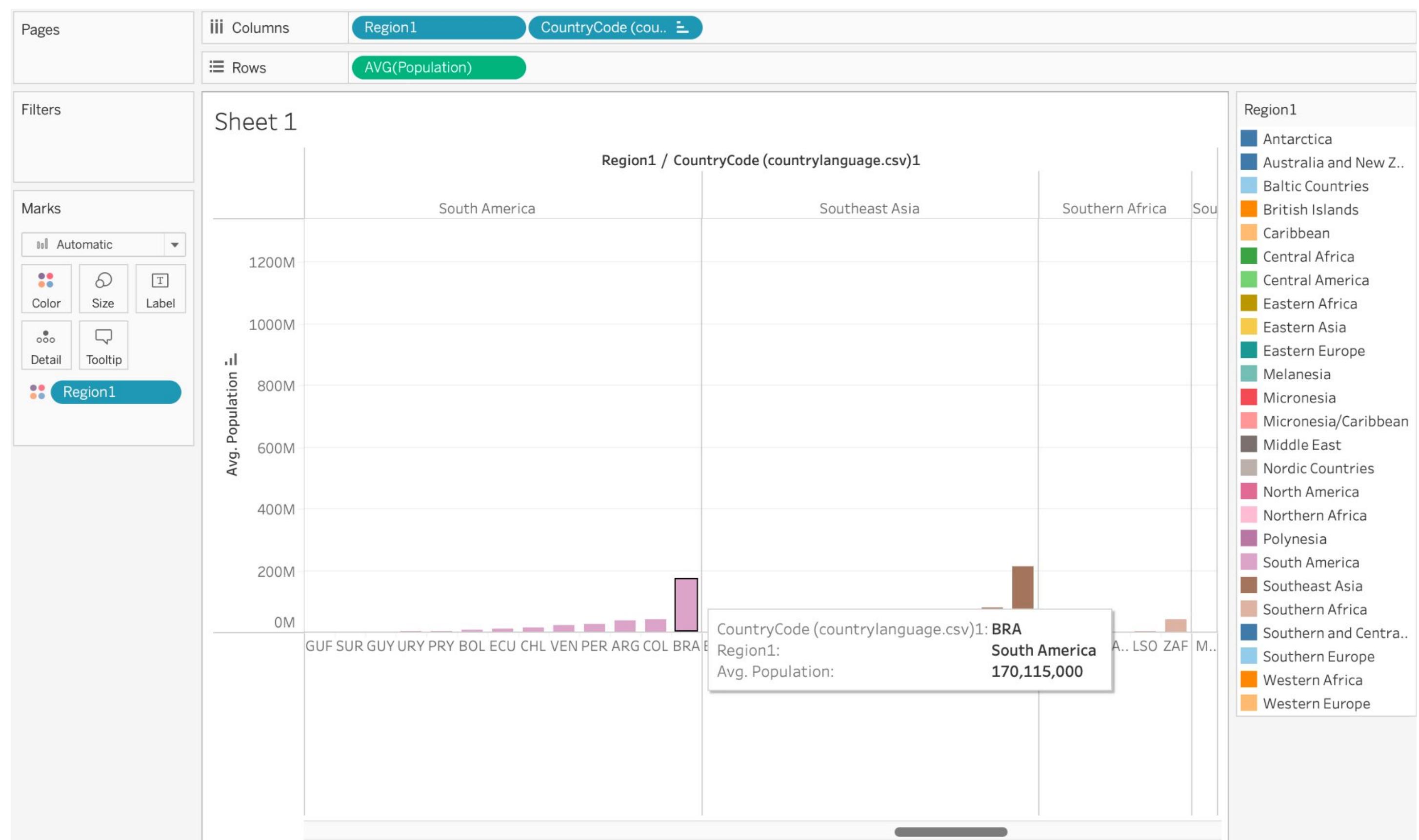
Data visualization: bar charts

- Let's plot **average population by country** and categorize the bar chart by **region**.



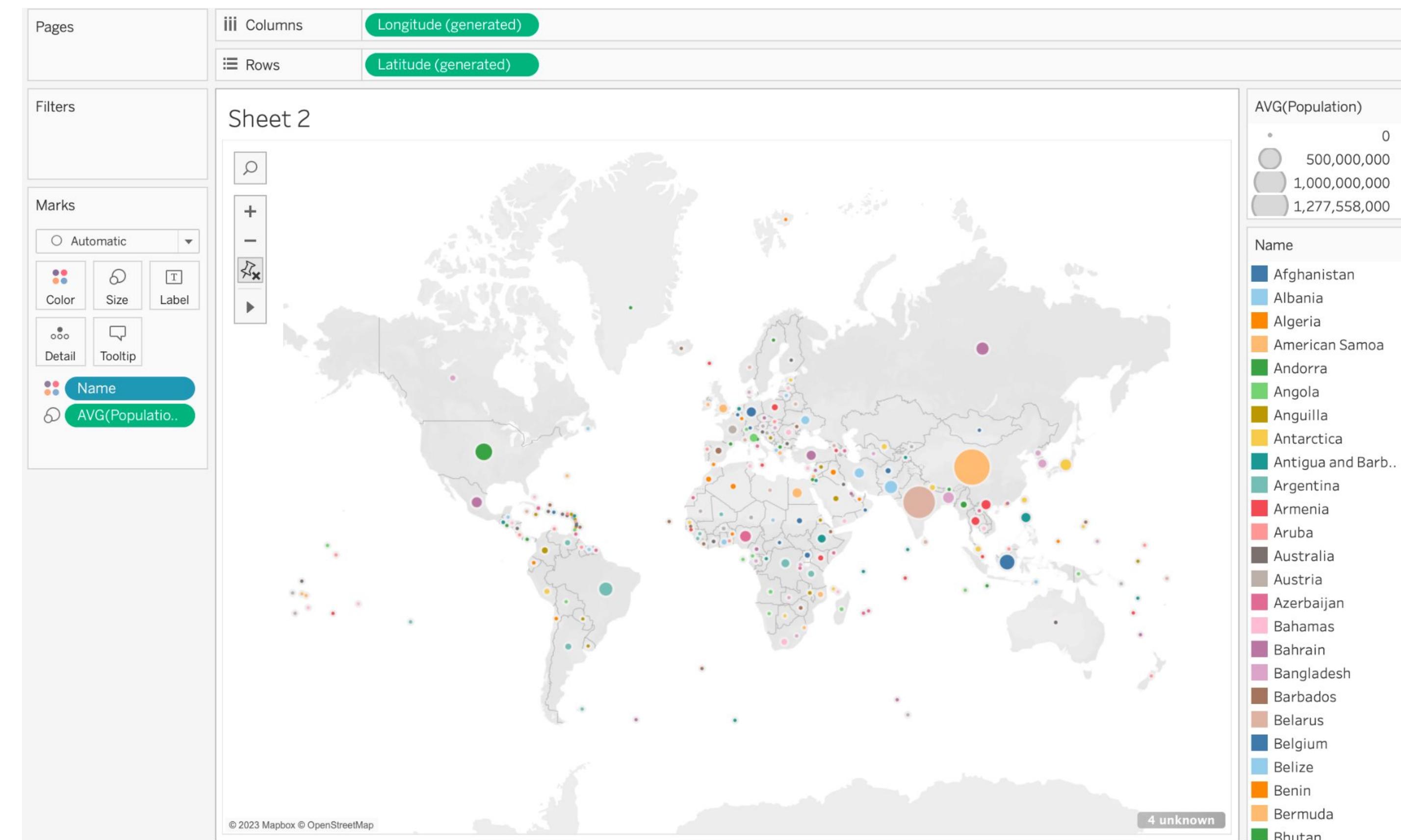
Evaluating our bar chart

- What do you see from the graph?
- Is there anything that you would change?
- What follow-on visualizations might you make? Why?



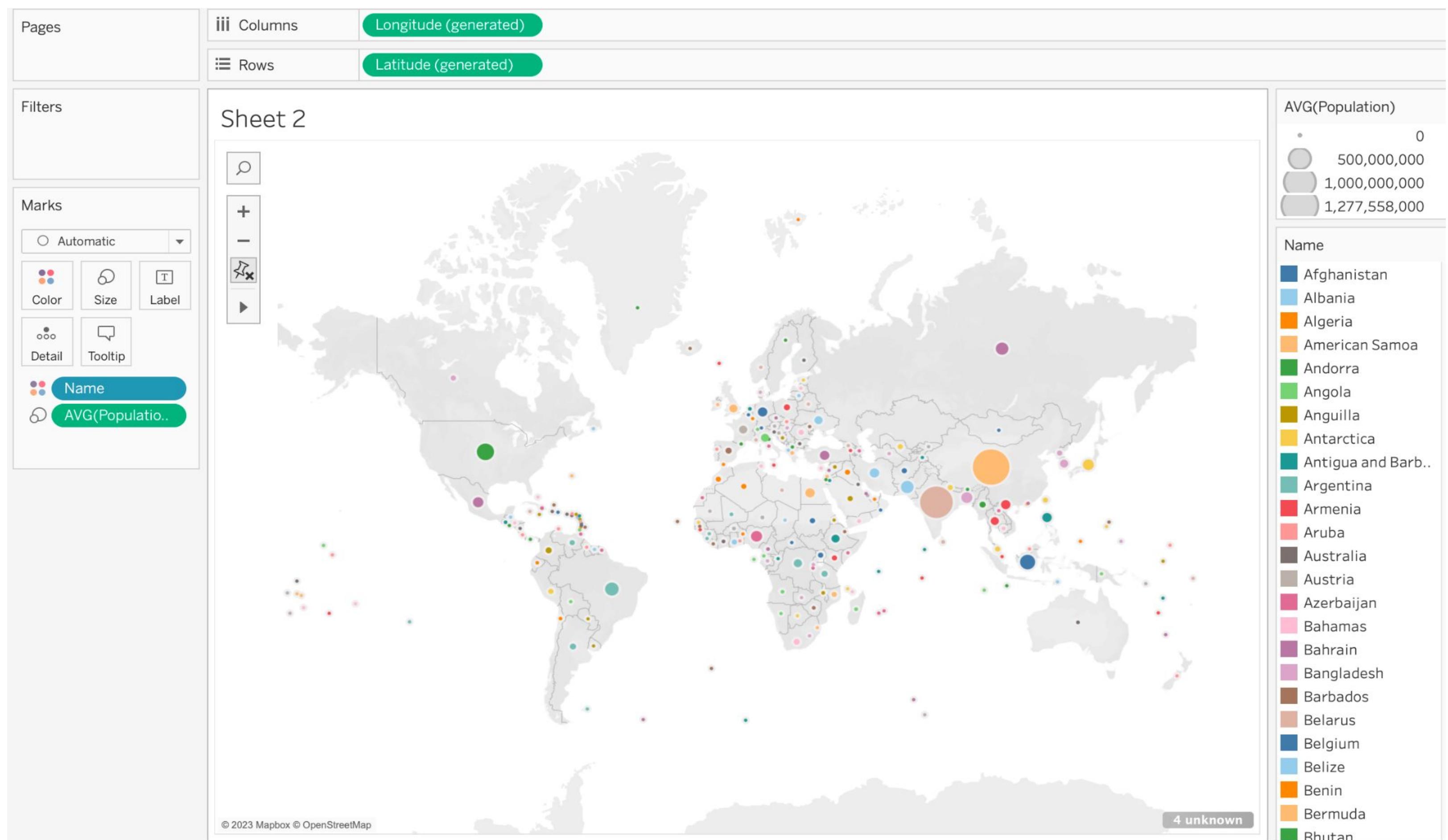
Data visualization: symbol map

- We will now plot the same information on a **map**.



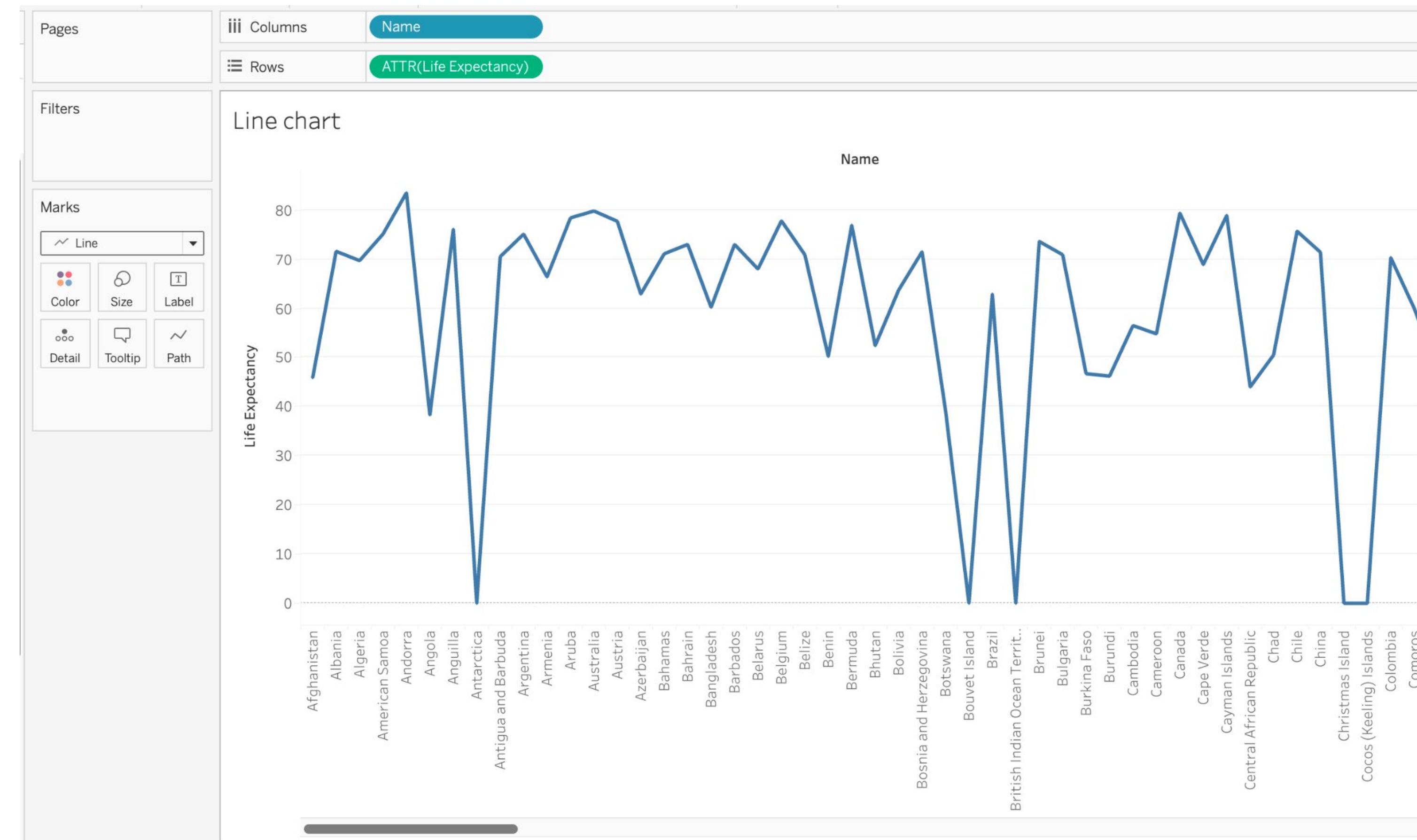
Evaluating our symbol map

- Is this view of the data better? Worse?
- Is there anything that is missing from the data?
- How might you make the map more usable?



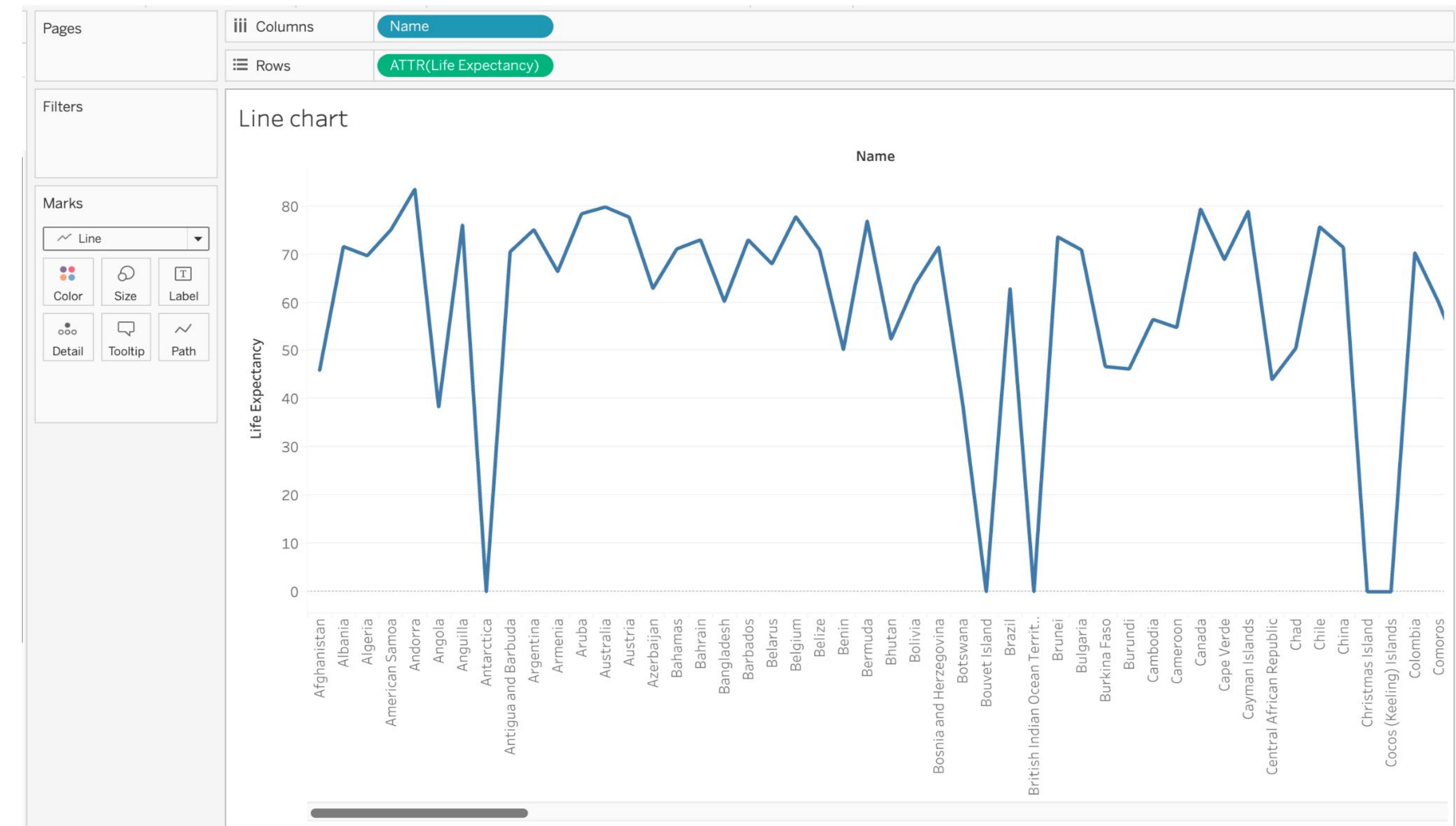
Data visualization: line chart

- We will now make a third graph, **life expectancy by country**.



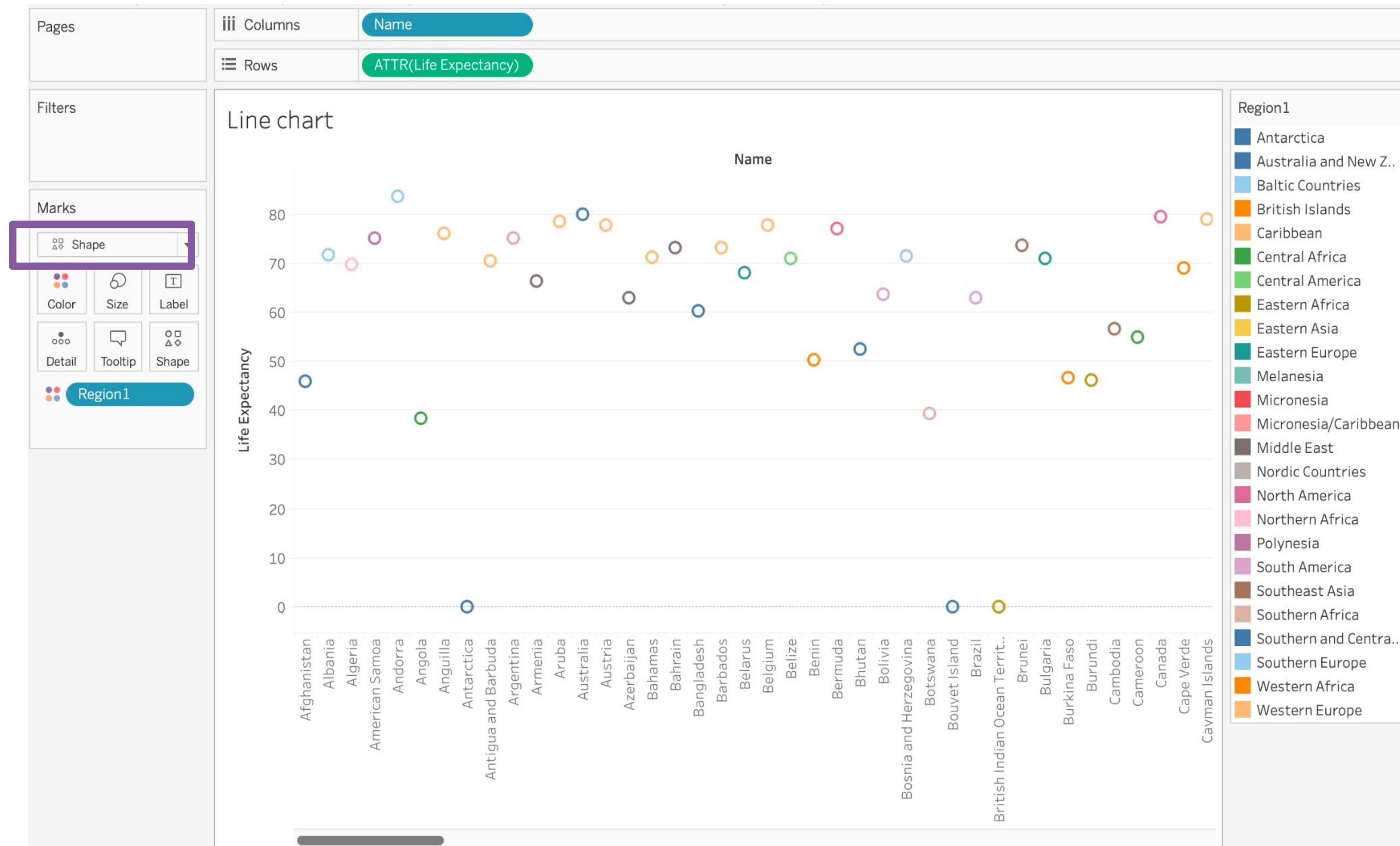
Data visualization: line chart

- What do you see from the graph?
- Is there anything that you would change?
- What follow-on visualizations might you make? Why?



Data visualization: shape plot

- Let's use **points** to visualize the **regions** that contributed to the graph.



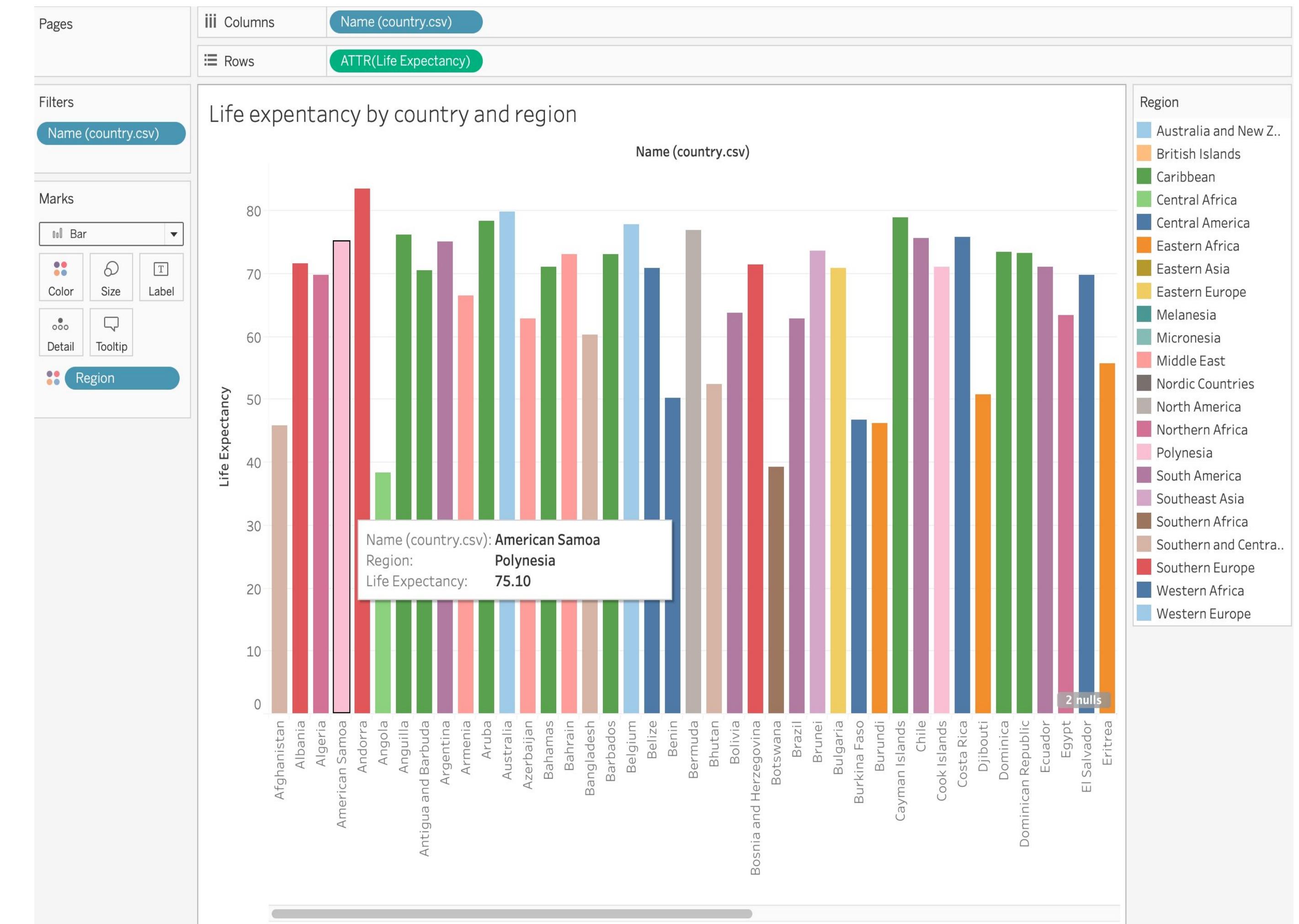
Color shape plot by region

- **Annotation** by region allows us to drill down.
- We can see regional clustering of countries and their life expectancy.



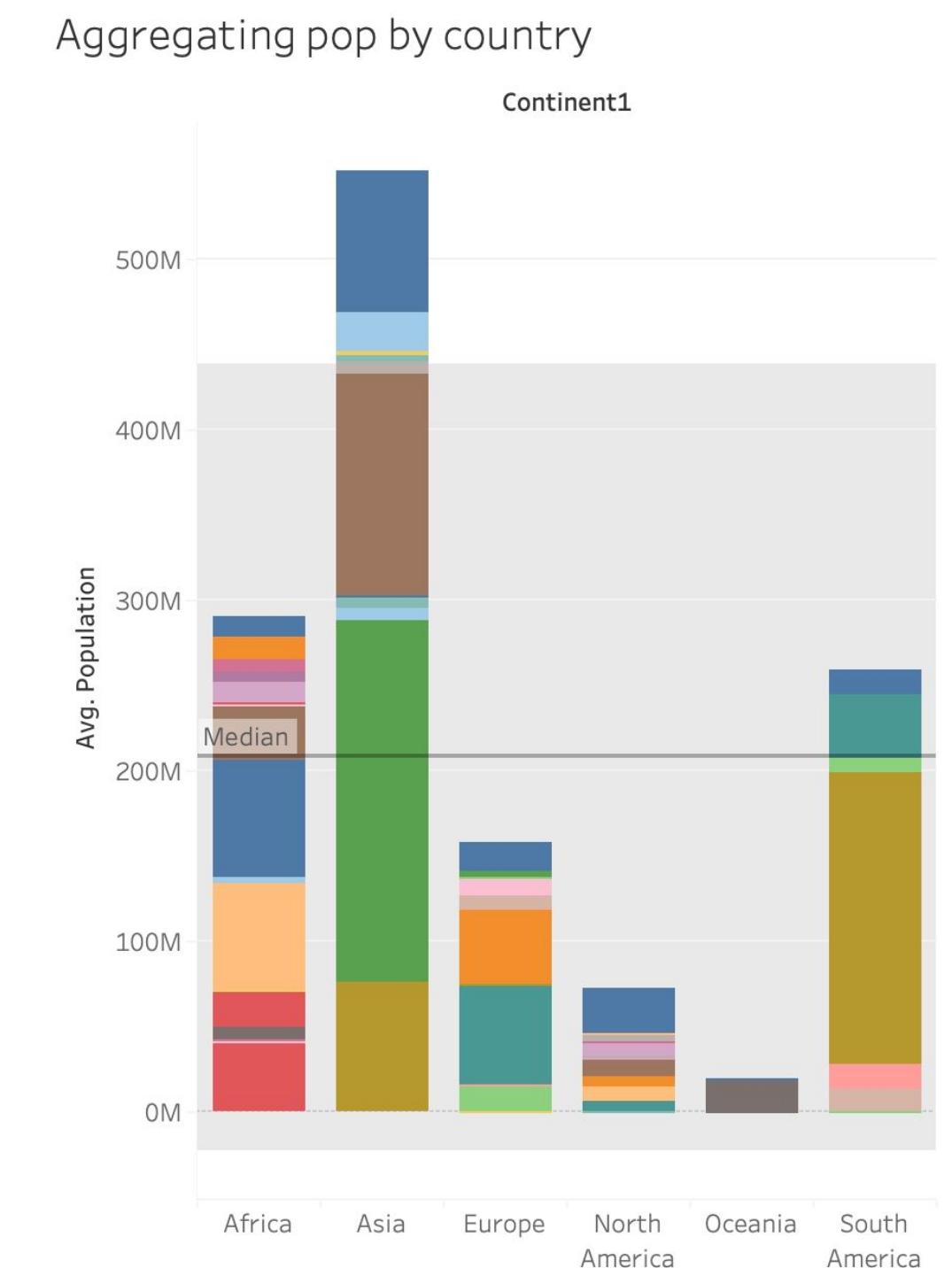
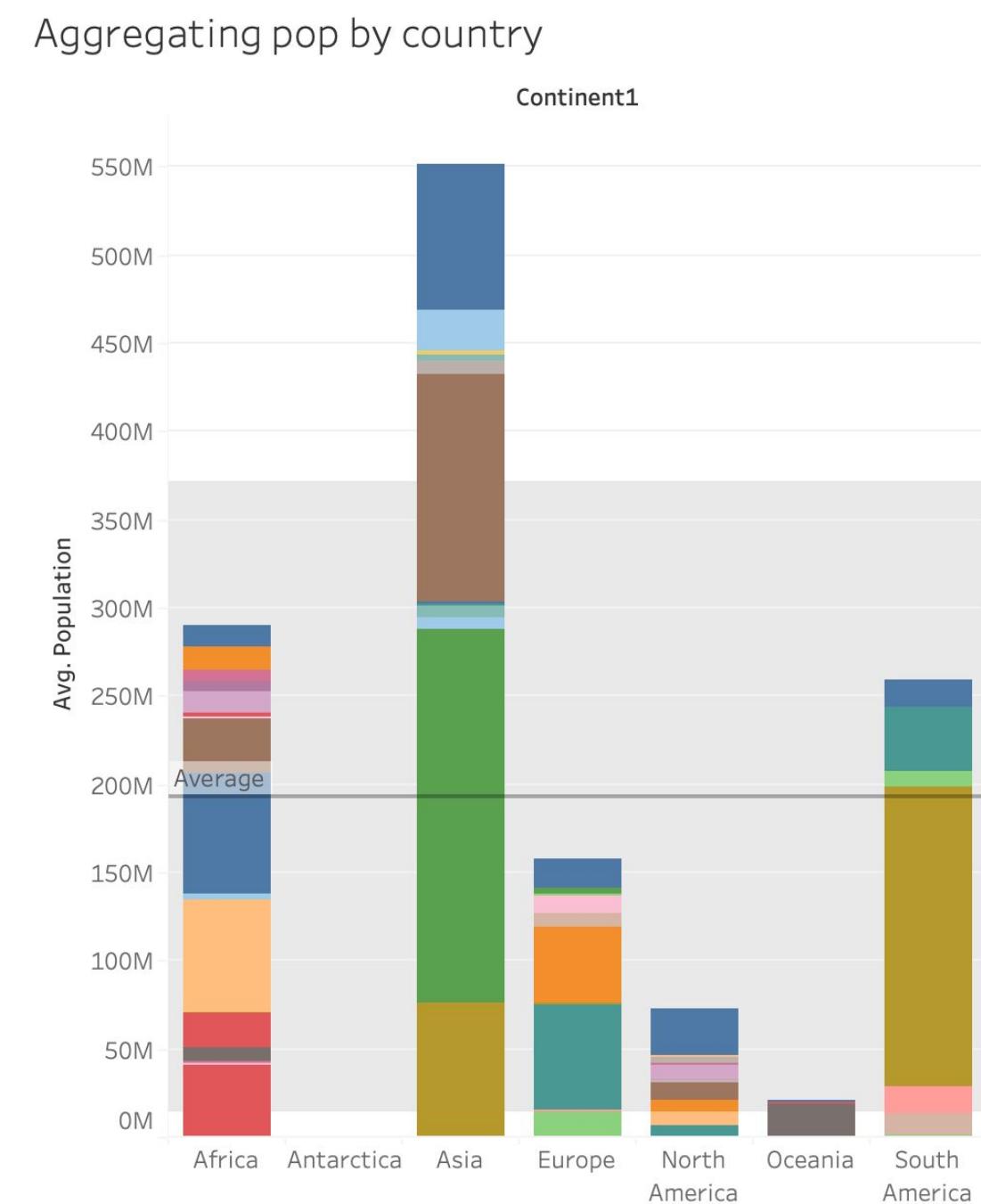
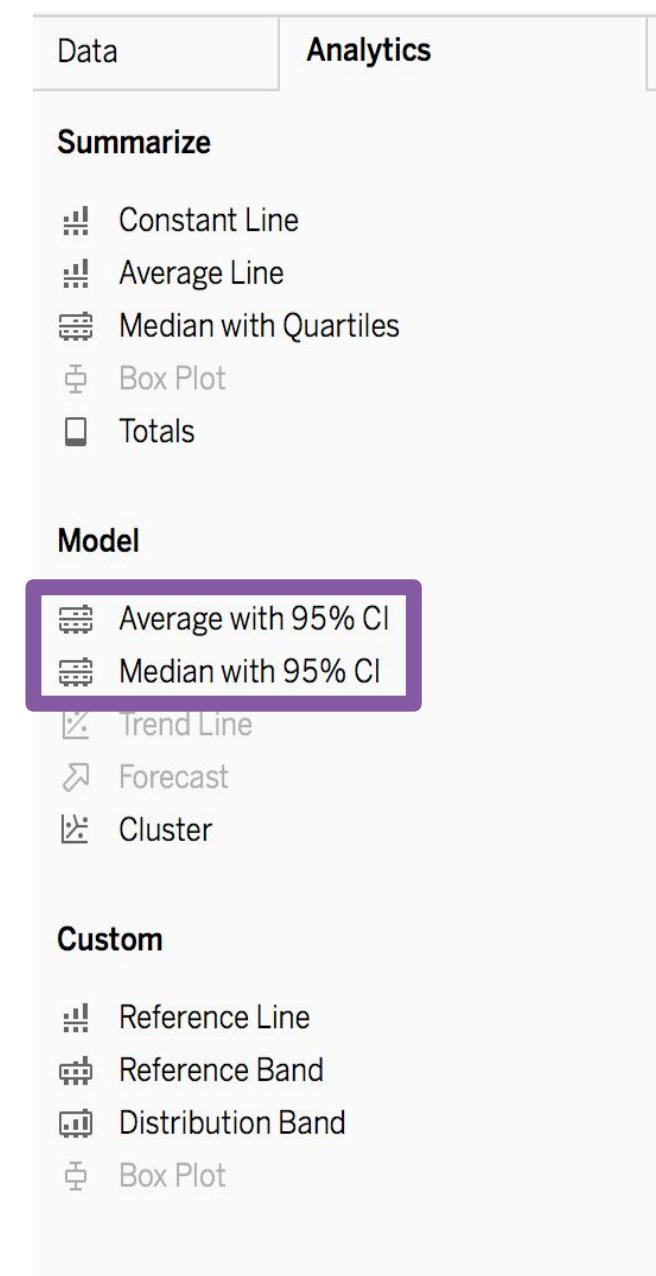
Data visualization: bar chart, revisited

- We previously used bar charts to plot the average population.
- Let's revisit bar charts to plot the life expectancy information categorized by region.
- As we can see, there are many different ways to plot the same information.
- The trick is to find the visual that best suits the use case.



Annotating with the Analytics tab

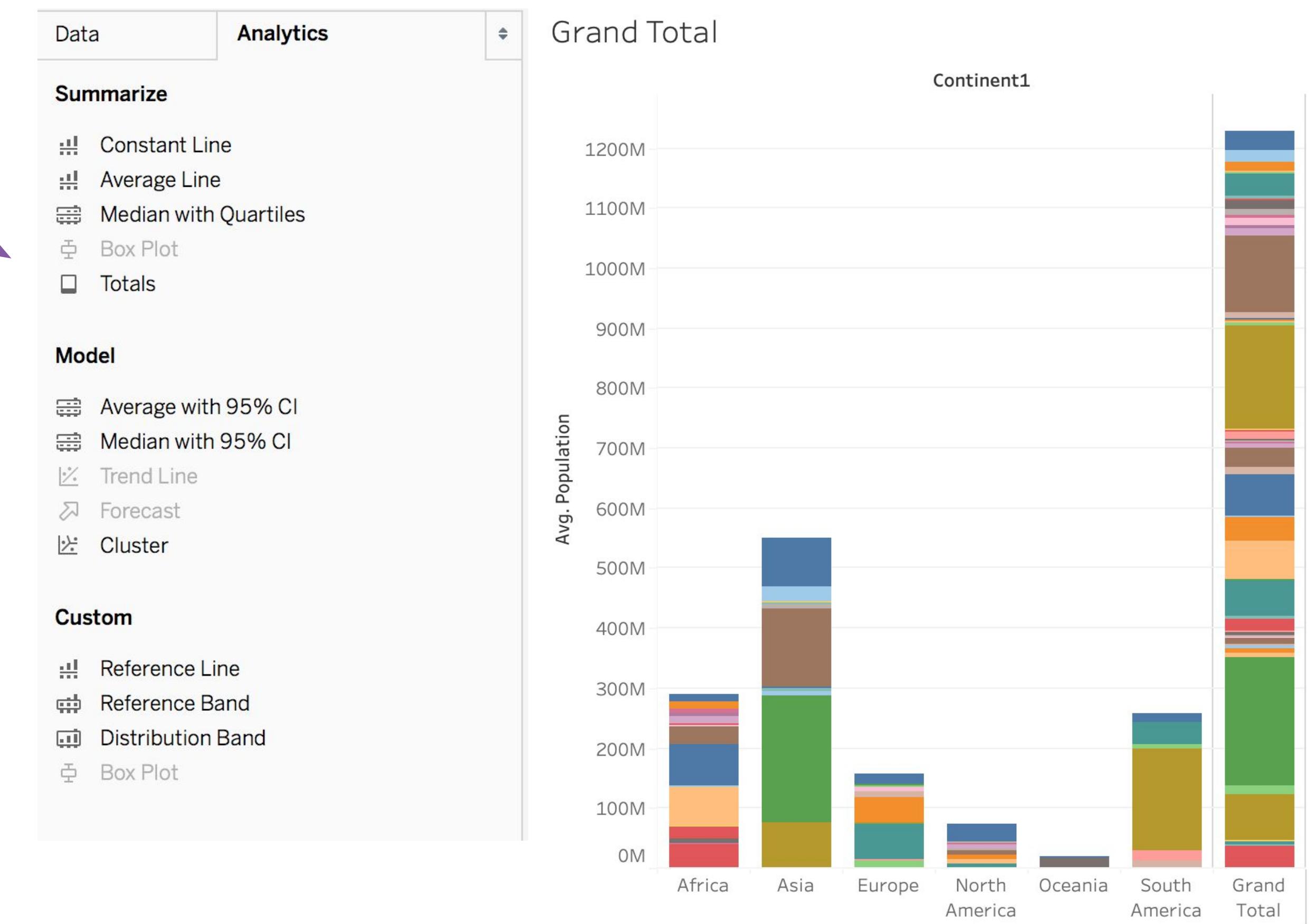
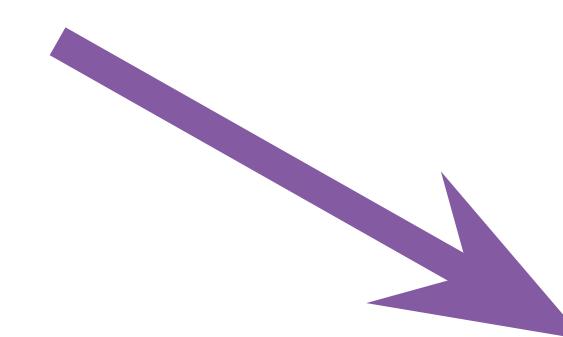
- From the **Analytics** tab, you can annotate features like central tendency and distribution.
- Mean line with 95% confidence interval
- Median with quartiles with 95% CI



- You can even manually add lines.

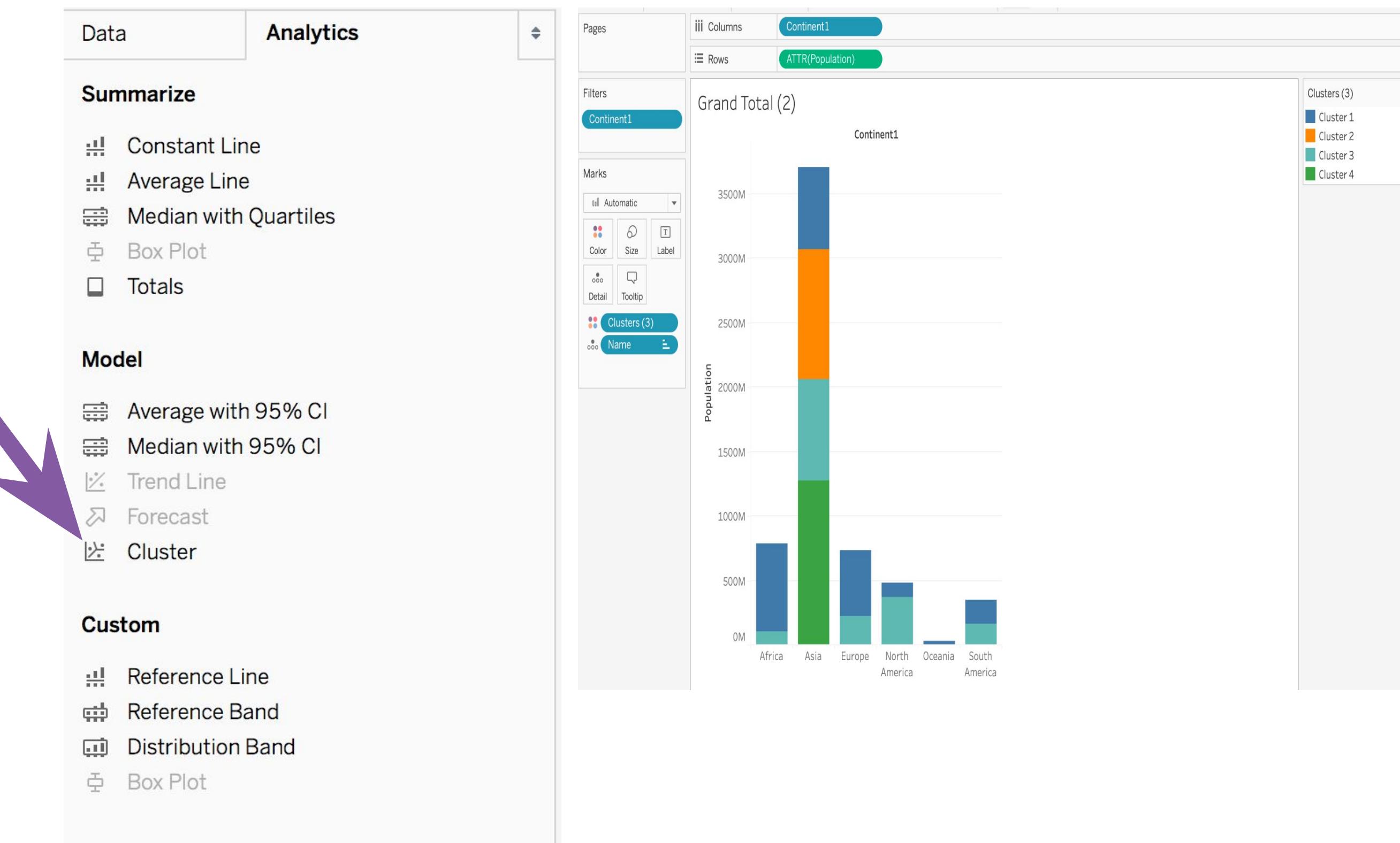
Totals in the Analytics tab

- We can also get a grand total column appended to the end of our visualization.
- Can anyone spot a **red flag** to look out for after the totals are graphed?



Clustering in the Analytics tab

- We can use clustering to automatically cluster by any attribute.
- Here we automatically clustered by attribute: population size.
- Cluster the data on your analysis.



Summing up the world data

- Let's go through our **critical insights** from this analysis.
 - Bar chart of populations
 - Map of populations
 - Line chart - life expectancy
- What are some **next steps** in this analysis?
 - What analysis would you do next?
 - What data would you like to have that you do not have?

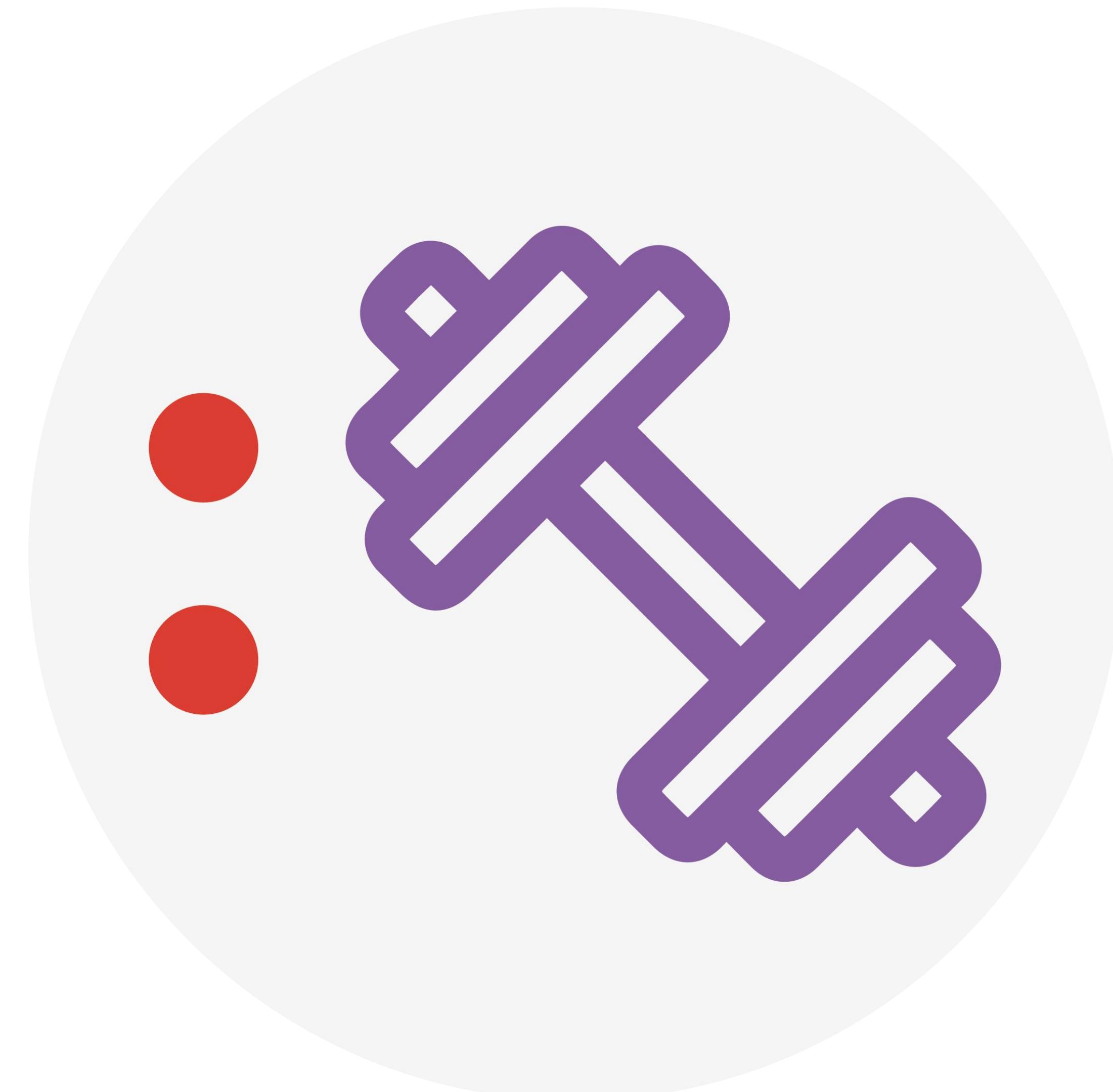
Data integrity

- **Data integrity** refers to the completeness, representativeness, and cleanliness of a given dataset.
- Can you identify any likely gaps, anomalies, or untidiness in the data?
- How would you deal with these?
- What did you check?
- Is there anything that you should check but did not have time to?

Knowledge check 2



Exercise 2



Module completion checklist

Objective	Complete
Explore the Tableau platform layout	✓
Create basic visuals using the World Data	✓

Congratulations!

In the past few modules, we covered:

- Importing data
 - CSV
 - SQL server
- Tableau parts
- Data integrity
- Dimensions and Measures
- “Show Me” palette
- Charts and Figures
 - bar chart
 - symbol map
 - shape plot
 - line plot
- Analytics tab
 - annotations
 - clusters
 - total

Next steps

In the next few modules, we will cover:

- Grouping and Aggregation in Tableau
- Filtering options

: End of Part 2

