

Data Literacy, Data Analysis, and Data Visualization Skills Matter a Great Deal for Today's Undergraduate and Graduate Students: Let's explore a hands-on data visualization practice!

Given that data are being created and stored on an unprecedented scale, a strong data analytical skillset would be a notable plus for career-oriented students in the “Era of Data Ubiquity” (quotes Mitchell Stevens). Up-to-date skills in data literacy, data analysis, and data visualization can help undergraduate and graduate students (who will be tomorrow's business practitioners and business leaders) make informed decisions using data. These skills can give them the ability to make “data-based decisions.”

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What is Tableau?

Tableau is a data visualization software tool that allows users to create interactive charts, graphs, and dashboards from their data. It is meant to help people understand and analyze their data more effectively. Tableau is used by many types of organizations to make better decisions using their data. It can be connected to various data sources (e.g., Microsoft Excel, Microsoft Access, PDF files, Statistical files) and enables users to easily create visualizations by dragging and dropping elements. The insights generated by Tableau can be shared with others. Please [watch a 2:19 minute Tableau Introduction video](#) if you have little idea about the power of Tableau: https://www.tableau.com/why-tableau/what-is-tableau?creative=2&cg_cmp=1695532942&cg_net=g&cg_place=tv/video

[Watch this short Tableau video.](#)

Who can benefit from data literacy training? According to a Tableau blog, anyone can benefit from data literacy training, especially (1) business professionals, (2) organizations, (3) informed citizens, and (4) students. Feel free to check the details on a blog by Sue Kraemer (<https://tabsoft.co/3lmkLTV>).

The screenshot shows the Tableau website with the URL tableau.com/blog/build-your-data-skills-data-literacy-trail-trailhead. The page features a navigation bar with links for Why Tableau, Products, Solutions, Resources (highlighted), and Partners. Below the navigation is a search bar and a 'BUY NOW' button. The main content area has a heading 'Build Your Data Skills with the Data Literacy Trail on Trailhead' and a subtext: 'Get the data skills you need to ask the right questions, make better decisions, and grow your career with this free training, available in 8 languages.' A bio box for Sue Kraemer, Senior Data Skills Curriculum Strategy Manager at Tableau, is shown, along with social sharing icons for LinkedIn, Twitter, and Facebook.

Build Your Data Skills with the Data Literacy Trail on Trailhead

Get the data skills you need to ask the right questions, make better decisions, and grow your career with this free training, available in 8 languages.



SHARE:

The future speaks data—do you? Despite data skills being the most in-demand skill in today's (and tomorrow's) job market, there's still a data literacy gap.

Get the training you need to ask the right questions, make better decisions, and grow your career. Start building your data skills—for free—with the [Build Your Data Literacy Trail on Trailhead](#). In support of our ongoing mission to help people everywhere see and understand data, the Trail is now available in [Japanese](#), [German](#), [French](#), [Spanish \(Mexico\)](#), [Portuguese \(Brazil\)](#), [Simplified Chinese](#), and [Korean](#).

In this hands-on data visualization practice, let's **employ Tableau to visualize a dynamic (changing) relationship between income and life expectancy across over 150 nations in the past 200+ years** (from the year 1800 up to the year 2023).

1. We will download four relevant datasets from **data.world** (<https://data.world/missdataviz-wow2021-w11>). Pls click the underlined link to find the data sets online, and then save the files on your hard drive.

If you do not have a [data.world](#) account, you need to complete a free online registration first.
Otherwise, ask your instructor for his/her guidance.

2. Please visit Tableau's official website and then download a 14-day free trial version of the **Tableau Desktop** (<https://www.tableau.com/products/desktop/download>).

Almost there!

It only takes 15 seconds to fill out. If you're already registered, [sign in](#).

First Name
Last Name
Business E-mail
Organization
- Company Size -

3. We will enable **Tableau Desktop** and then “connect” the datasets to Tableau canvas. When we start Tableau Desktop, we will connect data sets via the **Connect** pane on the left side of the screen [FYI, under **Connect**, select the relevant file types (e.g., a Microsoft Excel file, a .csv text file, or a .sav SPSS data file). In the **Open** dialog box, navigate to and select a file. Select **Open...**]

I am using a trial version of the **Tableau Desktop** in this demo. Notably, I also created a heat map demo using a FREE **Tableau Public**, and I will be happy to share that demo upon request via my LinkedIn profile.

LinkedIn (<https://www.linkedin.com/in/maxwell-hsu-47b30397/>)

Google Scholar
<https://scholar.google.com/citations?user=fpEuLRkAAAAJ&hl=en>

Let's start with the income per person data set. As the "*income_per_person_gdppercapita_ppp_inflation_adjusted*" is a .csv file, we need to connect this file by clicking the "**Text file**" option (shown on P. 3). By default, the "Use Data Interpreter" option is not enabled. When we find that the 1st row data (e.g., **country**, 1800) correspond to the variable names, we will check the "Use Data Interpreter" box (see Step #4).

FYI: The **Undo** button is here!

income_per_person_gdppercapita_ppp_inflation_ad...

Connections

income_per_person_gdppercapita_ppp_inflation_adjusted

Files

Use Data Interpreter

Data Interpreter might be able to clean your Text file workbook.

income_per_person_gdppercapita_ppp_inflation_adjusted.csv

life_expectancy_years.csv

population_total.csv

New Union

New Table Extension

income_per_person_gdppercapita_ppp_inflation_adjusted

242 fields 194 rows

Name

income_per_person_gdppercapita_ppp_inflation_adjusted.csv

Fields

Type	Field Name	Physical Table	Rem...
Abc	F1	income_per_person_gdppercapita_ppp_inflation...	F1
#	F2	income_per_person_gdppercapita_ppp_inflation...	F2

Go to Worksheet

Sheet1

Rows: 100

Need more data?
 Drag tables here to relate them. [Learn more](#)

“country” should be recognized as a variable name! See Step #4.

Abc	income_per_person_gdppercapita_ppp_inflation...	#	income_per_person_gdppercapita_ppp_inflation...	#	income_per_person_gdppercapita_ppp_inflation...
F1	country	F2	1,800	F3	1,800
	Afghanistan		603		603
	Albania		667		667
	Algeria		715		715
	Andorra		1,200		1,200

4. Let's check mark the "Cleaned with Data Interpreter" option (see the circled red rectangle box and the red circle). Subsequently, we will find that the first-row data (i.e., **country**, **1800**, **1801**, etc.) are recognized as variable names. FYI, **1800** represents "year 1800" while **1801** represents "year 1801."

The screenshot shows the Tableau Data Interpreter interface. On the left, under 'Connections', there is a connection named 'income_per_per...adjusted'. Below it, under 'Files', there is a file named 'income_per_person_gdpperc.csv'. A red box highlights the 'Cleaned with Data Interpreter' checkbox, which is checked. A red circle highlights the '1800' value in the 'country' column of the preview table.

Name	Type	Field Name	Physical Table	Rem...
income_per_person_gdpperc.csv	country	income_per_person_gdpperc.csv	country	
1800	1800	income_per_person_gdpperc.csv	1800	

5. We will re-organize the data structure using the Pivot function (i.e., we will Pivot the income data).

The screenshot shows the Tableau Data Interpreter interface. A callout box contains the following text: "Hold both 'Shift' and 'Ctrl' keys to highlight all variables (all columns) but the **country** variable. In the highlighted area, click the drop-down arrow next to the column name to find this dropdown menu (see P. 5 for details)." A red box highlights the 'Pivot' option in the context menu, which is also circled in red.

country	income_per_perso...	country	00	84,800
1800	income_per_perso...	1800	80	7,020
			7,170	7,310

Hint: if you are not familiar with the power of the Pivot function, please check relevant information on this Tableau webpage: https://help.tableau.com/current/prep/en-us/prep_pivot.htm or this Microsoft webpage: <https://bit.ly/3vMzVkd>

help.tableau.com/current/pro/desktop/en-us/pivot.htm

← → C 🔒 help.tableau.com/current/pro/desktop/en-us/pivot.htm

Tableau Help > Tableau

As the Tableau site reveals, once we select multiple columns (FYI, a variable would typically occupy one column), we will “click the drop-down arrow next to the column name, and then select **Pivot**. New columns called Pivot field names and Pivot field values are created and added to the data source.”

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 - Connect to Your Data
 - Set Up Data Sources
 - Plan the Data Source
 - Relate Your Data
 - Join Your Data

After you have set up the data source, in the grid, select two or more columns. Click the drop-down arrow next to the column name, and then select **Pivot**. New columns called "Pivot field names" and "Pivot field values" are created and added to the data source. The new columns replace the original columns that you selected to create the pivot.

If you encounter any challenges when you attempt to select multiple columns/variables in Tableau, please consider resolving the issues with a Google search on your own or consulting your data analytics instructors.

6. Double click "Pivot Field Name" and change it to **Year**. Change "Pivot Field Values" to **Income**. FYI, we should also click the data type icon and change variable **Year**'s data type from ABC (string) to Number (whole) here, but I failed to do so in Step #6 → Check Step #24 to see the consequence & how to fix it.

Tableau - Book1

File Data Server Window Help

Connections Add

income_per_person_gdppercapita_ppp_inflation_adjusted

Cleaned with Data Interpreter
Review the results. (To undo changes, clear the check box.)

income_per_person_gdppercapita_ppp_inflation_adjusted.csv
life_expectancy_years.csv
population_total.csv

New Union
New Table Extension

income_per_person_gdpp... 3 fields 46513 rows

income_per_person_gdpp...

Need more data?
Drag tables here to relate them. [Learn more](#)

income_per_person_gdppercapita_ppp_inflation_adjusted.csv

Name
income_per_person_gdppercapita_ppp_inflation_adjusted.csv

Fields

Type	Field Name	Physical Table
country	income_per_person_gdppercapita_ppp_inflation_adjusted.csv	income_per_person_gdppercapita_ppp_inflation_adjusted.csv
Year	Pivot.	Pivot Field Names
Income	Pivot.	Pivot Field Values

Change the newly created Pivot Field Names to **Year** and rename the newly create Pivot Field values to **Income**.

7. We will connect the second data set (i.e., population total) to the Tableau canvas with the Drag and Drop trick.

Question: Why are we connecting the income table to the population table?

The screenshot shows the Tableau Data Source view. On the left, under 'Connections', there is a single entry: 'income_per_person_gdppercapita_ppp_inflation_adjusted'. Below it, under 'Files', there are four entries: 'Cleaned with Data Interpreter' (with a checked checkbox), 'income_per_person_gdpperc.csv', 'life_expectancy_years.csv', and 'population_total.csv' (which is highlighted with a red box). On the right, the 'population_total.csv' file is selected, and its preview table is shown. A red arrow points from the 'population_total.csv' box to a callout box containing the text 'Drag and drop the second data set to the Tableau canvas.'

Country (Population Total)	1800	1801	1802
Afghanistan	3,280,000	3,280,000	3,280,000
Albania	400,000	402,000	404,000
Algeria	2,500,000	2,510,000	2,520,000
Andorra	2,650	2,650	2,650
Angola	1,570,000	1,570,000	1,570,000
Antigua and Barbuda	37,000	37,000	37,000

7a. It's likely that some might run into a different user experience. After dragging and dropping the "population_total.csv" table, some might find a pop up window requesting an edit of relationship between the income and population tables (see below circled in blue). How to resolve this issue? Please revisit the variables in both .csv file and then associate the "country" variable in the income data set with the "Country" variable in the population data set.

The screenshot shows the 'Edit Relationship' dialog box. It displays two dropdown menus: 'Select a field' for 'income_per_person_gdppercapita_ppp_inflation_adjusted' and 'Select a field' for 'population_total.csv'. Both dropdowns have 'Country' selected. Between the dropdowns is a dashed line with a small triangle icon. The background shows the Tableau interface with the 'population_total.csv' file open, displaying a table with columns 'Country' and '1800'.

8. Please highlight all variables but the **country** variable. Likewise, we will re-organize the data structure using the Pivot table function. Change the variables names to "Year 1" and "Population" (like Step #6). Also, please change **Year 1**'s data type from ABC (a string) to Number(Whole). Revisit Step #6 again.

In the highlighted area, click the arrow to find this dropdown menu.

Hint: Do NOT highlight the **country** variable when we attempt to generate a Pivot variable... Also, please change the newly created variable name to **Year 1** (or any variable name but “**Year**” because this variable name has been used, and the **Year** variable could be found in the income per person data file).

9. We will recognize the relationship between variable **Year** (in the income per person data set) and variable **Year 1** (in the population data set). Remember to edit variable **Year 1**'s data type (to Number).

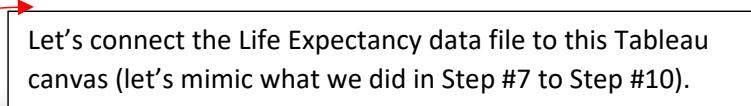
Number (decimal)
Number (whole)

Number (whole) is selected.

10. We will hide all variables but the **Population** variable (Hint: it's okay if you skip the hiding step, as not hiding other variables won't cause any issues when we create a bubble chart).

Note: The **Year** variable in the income per person data set corresponds to the **Year 1** variable in the population total data set.

11. Now, we will connect the third data set (i.e., life expectancy) to this Tableau project. Notably, Tableau reads in the data, but we won't be able to save the updated data set back to the original file(s).



Let's connect the Life Expectancy data file to this Tableau canvas (let's mimic what we did in Step #7 to Step #10).

12. Similarly, we will Pivot the life expectancy data (FYI, you may want to revisit Step #8).

Note that the income data set is now connected to both the population data set and the life expectancy data set.

#	life_expectancy_years.csv	#	life_expectancy_years.csv	#	life_expectancy_years.csv
097	77.3000	2098	77.4000	2099	77.4000
Abc country	=	Abc Country (Life Ex...	88.0000	88.1000	88.1000
			88.9000	89.0000	89.0000
			null	null	null
			79.5000	79.7000	79.8000
			86.7000	86.8000	86.9000
			87.3000	87.4000	87.5000

Hint: Leave the **country** variable intact (i.e., the **country** variable should not be included in the Pivoting task). As a reminder, hold both the **Ctrl** and **Shift** keys when you attempt to highlight multiple columns.

13. Change/update the Pivot variable names: name them **Year 2** and **Life Expectancy**.

	Abc Pivot2.	#	Pivot2.	#	Pivot2.
life_expectancy_years.csv	Year 2	Country (Life Expecta...	Year 2	Life Expectancy	Life Expectancy
Afghanistan	1800			28.2000	28.2000
Afghanistan	1801			28.2000	28.2000
Afghanistan	1802			28.2000	28.2000
Afghanistan	1803			28.2000	28.2000
Afghanistan	1804			28.2000	28.2000
Afghanistan	1805			28.2000	28.2000
Afghanistan	1806			28.1000	28.1000

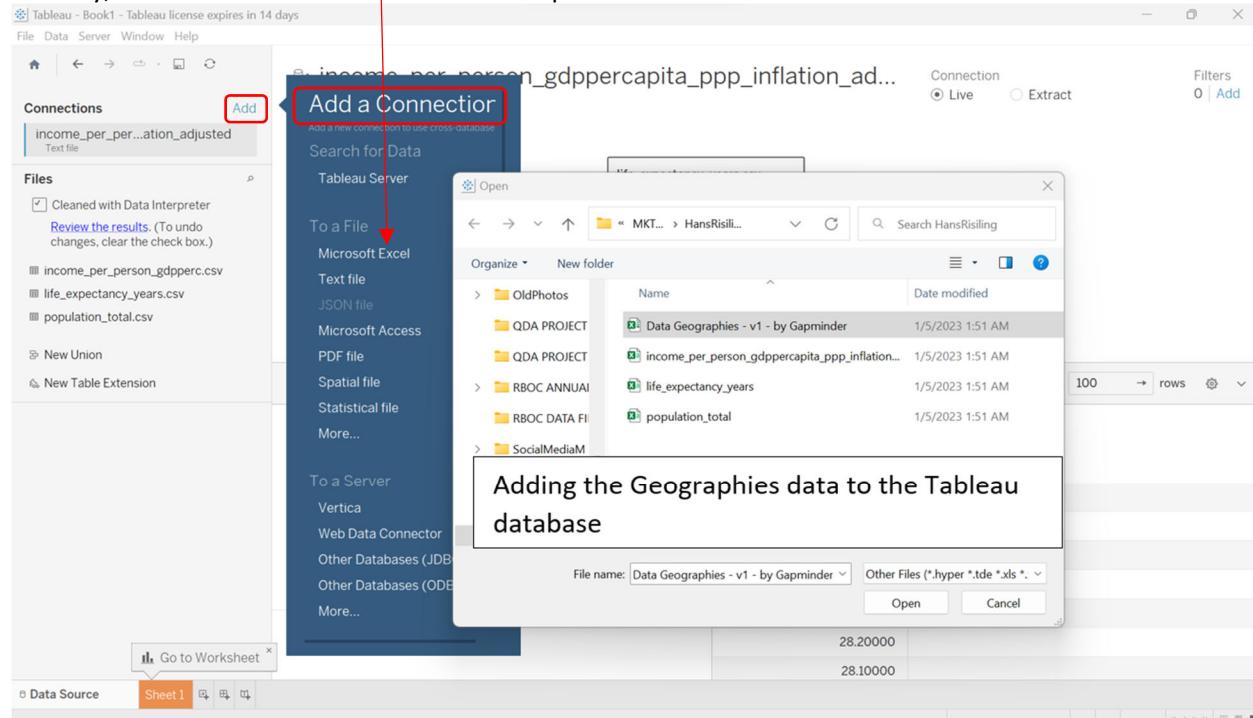
14. It's about time to instruct Tableau to recognize the additional relationships between the data sets.

The screenshot shows the Tableau Data Source interface. On the left, under 'Connections', there is a connection named 'income_per_person_gdppercapita_ppp_inflation_adjusted' (Text file). In the center, a relationship is being defined between 'income_per_person_gdpp...' and 'life_expectancy_years.csv'. A red box highlights the relationship configuration area, specifically the 'Year 2' dropdown which is set to 'Year 2'. The relationship type is 'Pivot2'. The data preview on the right shows a single column 'Life Expectancy' with values ranging from 28.0000 to 28.1000. The status bar at the bottom indicates 'Sheet 1'.

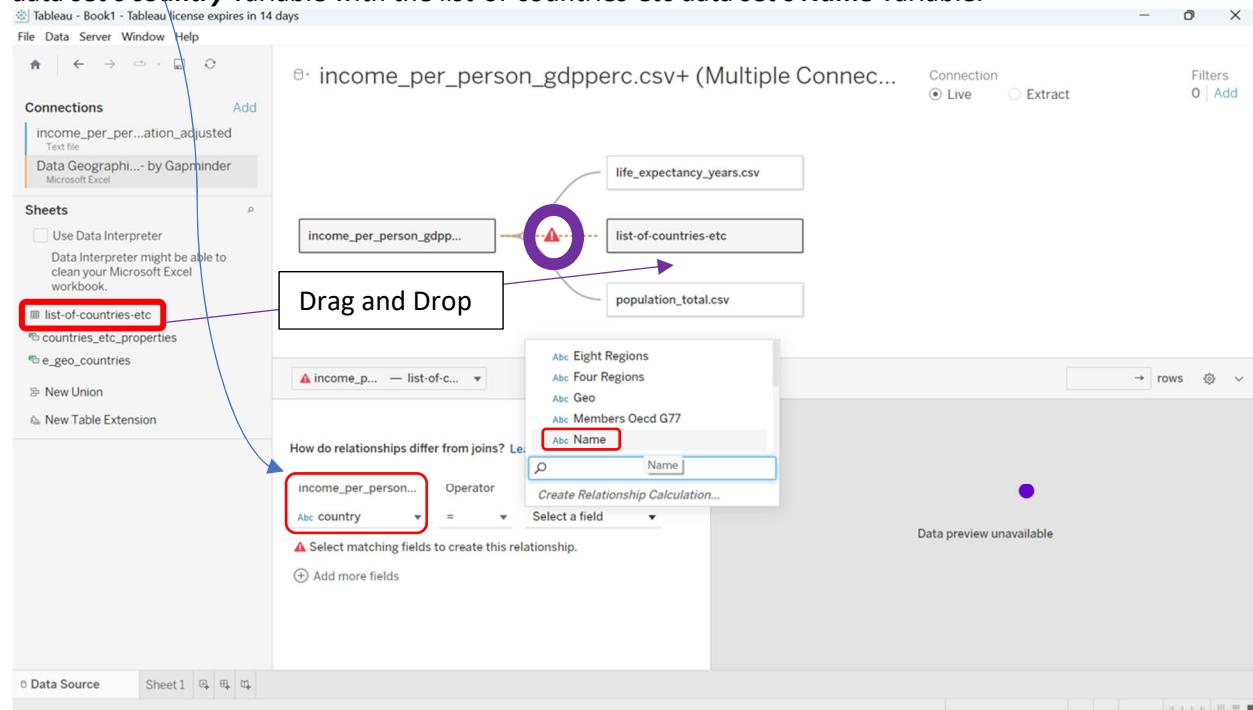
15. After we hide variables **country** and **Year 2**, the only “visible” variable in the life expectancy data set will be “Life Expectancy”. Check the red box between Step #14 and Step #15 (a relationship between **Year** in the income data set and **Year 2** in the life expectancy data set has been established).

The screenshot shows the Tableau Data Source interface after hiding variables. The 'income_per_person_gdppercapita_ppp_inflation_adjusted' connection now has 'country' and 'Year 2' hidden. The relationship configuration area still shows 'Year 2' selected in the dropdown. A red box highlights the 'Year' dropdown in the relationship setup. A callout box on the right states: 'We will hide two variables (see Step #10): **country & Year 2**'. The data preview on the right shows the 'Life Expectancy' column with values from 28.0000 to 28.1000. The status bar at the bottom indicates 'Sheet 1'.

16. We will connect the last data set (i.e., the Geographies) to the current Tableau project. Since this data file is an Excel type, click "Microsoft Excel" and Open "Data Geographies-v1-by Gapminder." Notably, I use Microsoft Windows 11's File Explorer function to reveal all four data sets' filenames.



17. Now, let's connect the "list-of-countries-etc" sheet to the income per person data set shown on the Tableau canvas. Establish the relationship between two data sets (i.e., income & list of countries), and the exclamation mark (see the purple circle) will disappear. Note that we need to connect the Income data set's **country** variable with the list-of-countries-etc data set's **Name** variable.



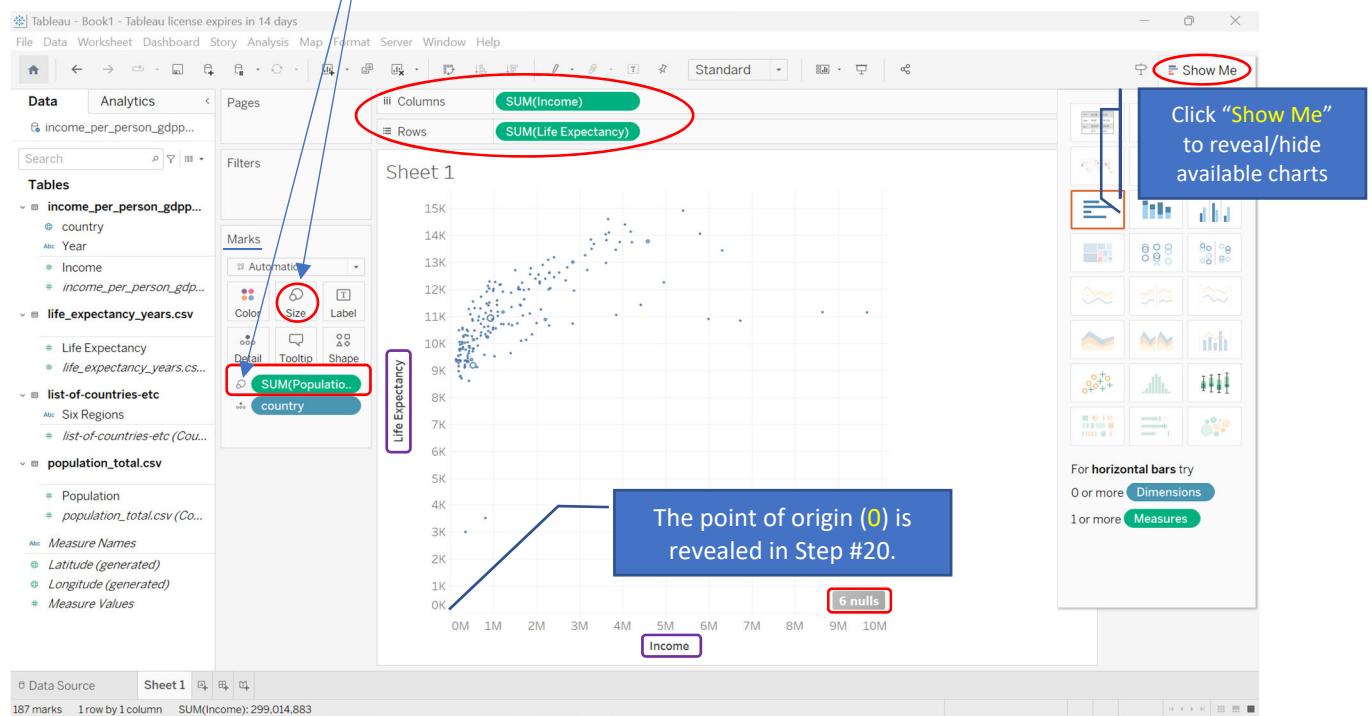
18. Again, we will hide all variables but the “**Six Regions**” variable in the list of countries data set.

The screenshot shows the Tableau Data Source interface. On the left, under 'Connections', there is one connection named 'income_per_person_gdpperc.csv+'. Under 'Sheets', there is a sheet named 'list-of-countries-etc'. In the center, a diagram shows four data sources: 'life_expectancy_years.csv', 'list-of-countries-etc', and 'population_total.csv' all connected to the main source 'income_per_person_gdpperc.csv+'. Below this, the 'list-of-countries-etc' sheet is selected, showing its details. The 'Name' field is 'list-of-countries-etc' and the 'Fields' section contains a single field 'Six Regions' of type 'list-of-...'. A red box highlights the 'Six Regions' field. At the bottom, the 'Sheet1' tab is selected.

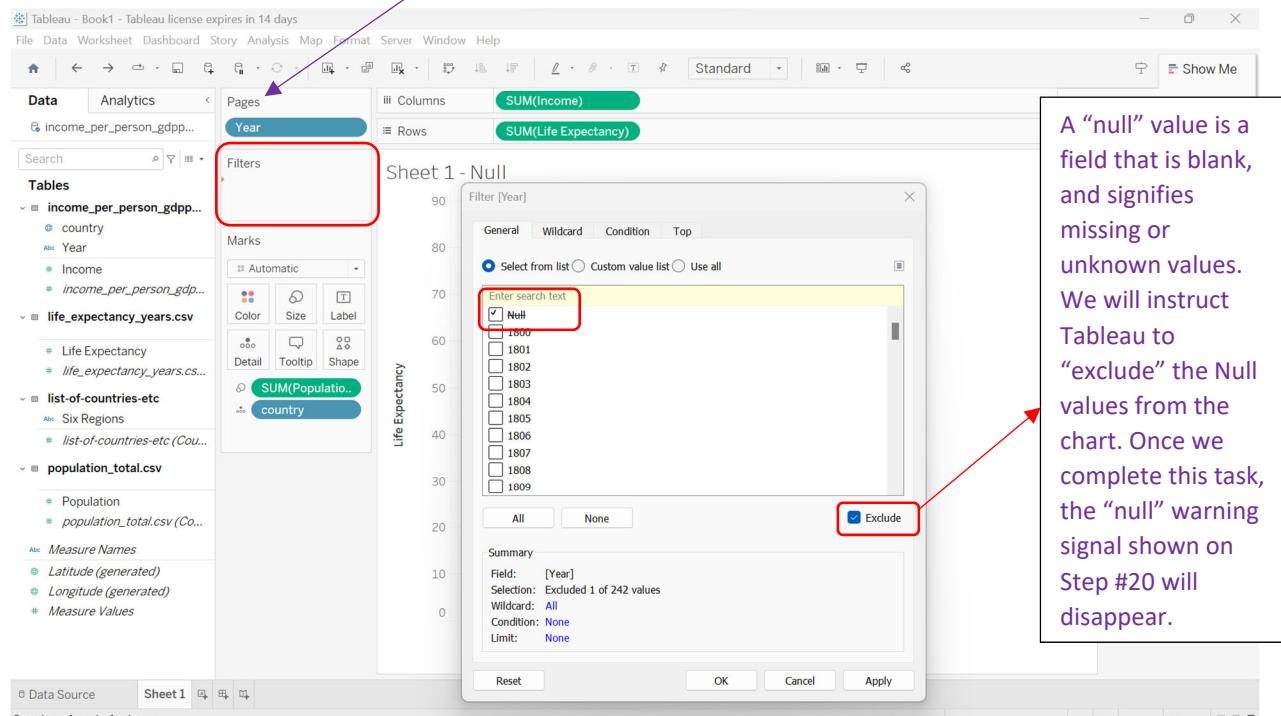
19. We are now ready to build a “static” bubble chart. Specifically, please click “Sheet1” at the bottom. After clicking “**Sheet 1**” (on the bottom of the Tableau window), we will need to drag the **country** variable to the **Marks** card (i.e., the Detail).

The screenshot shows a static bubble chart on 'Sheet 1'. The chart displays a world map with blue bubbles representing data points. The 'Marks' card in the top right corner is highlighted with a red box, showing the 'country' variable selected under 'Detail'. Above the Marks card, the 'Columns' and 'Rows' sections are also circled in red. The left sidebar shows the data sources used: 'income_per_person_gdpperc.csv+', 'life_expectancy_years.csv', and 'list-of-countries-etc'. The 'country' variable is listed under 'list-of-countries-etc'. A red arrow points from the 'country' variable in the data source list down to the 'country' variable in the Marks card. The status bar at the bottom indicates '193 marks 1 row by 1 column'.

20. Let's remove the Longitude and Latitude information from the chart. Next, let's associate the *income* variable with the X-axis (i.e., columns) and associate the *life expectancy* variable with the Y-axis (i.e., rows). Notably, the darkness of the dot's color on the charts corresponds to each country's population.



21. We will drag the *Year* variable to the “Pages” box (as a dimension). In addition, we will drag the same *Year* variable to the “Filter” box and then exclude the missing data (i.e., Null) from the data visualization task. More details about Tableau’s filtering function can be found online (see P. 14).



Filter Data from Your Views - Tab ↗ + help.tableau.com/current/pro/desktop/en-us/filtering.htm

← → C 🔍 a b | e a u ⌂

← Tableau Help > Tableau Desktop and Web Authoring Help > ... > Filter and Sort Data > Filter Data

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Filter Data from Your Views

Applies to: Tableau Cloud, Tableau Desktop, Tableau Server

Filtering is an essential part of analyzing data. This article describes the many ways you can filter data from your view. It also describes how you can display interactive filters in the view, and format filters in the view.

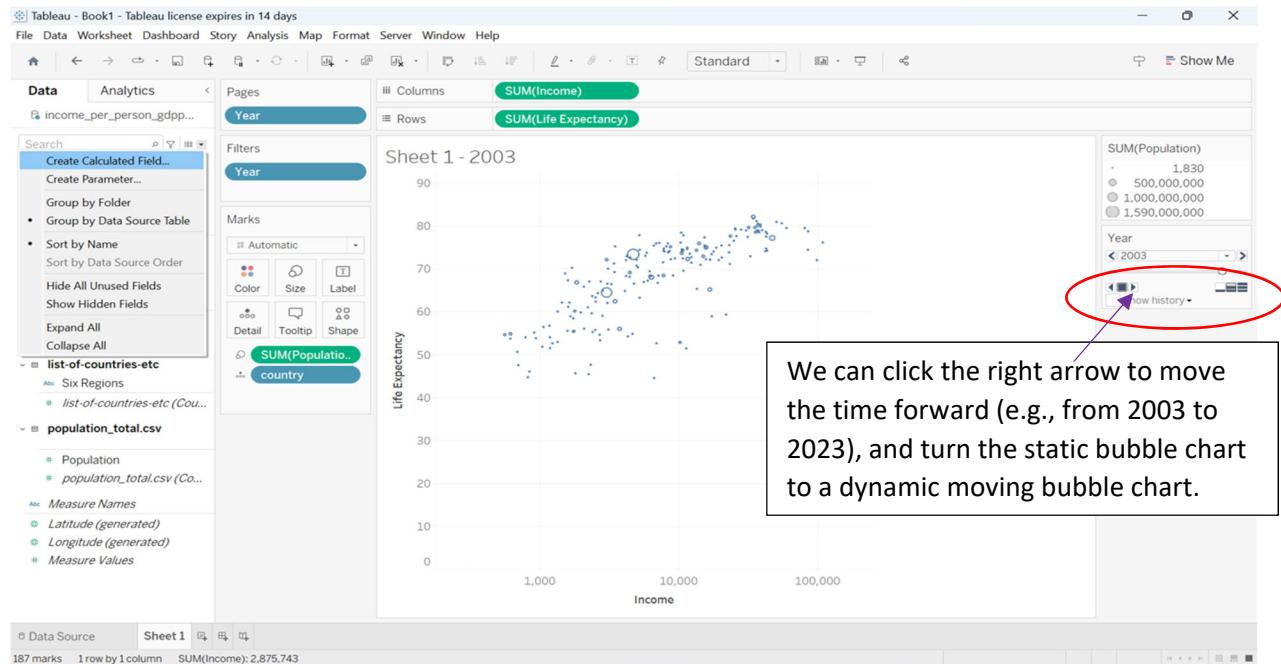
Watch a Video: To see related concepts demonstrated in Tableau, watch these free training videos: [Ways to Filter](#) (2 minutes), [Where Tableau Filters](#) (4 minutes), [Using the Filter Shelf](#) (7 minutes), [Interactive Filters](#) (4 minutes), and [Additional filtering topics](#) (7 minutes). Use your [tableau.com](#) account to sign in.

22. We will modify the scale. The way to show the "Edit Axis [income]" is to double click **income** at the bottom of the chart. Once we are in the Edit Axis [Income] pop-up window, check mark "Logarithmic" and uncheck "Include zero."

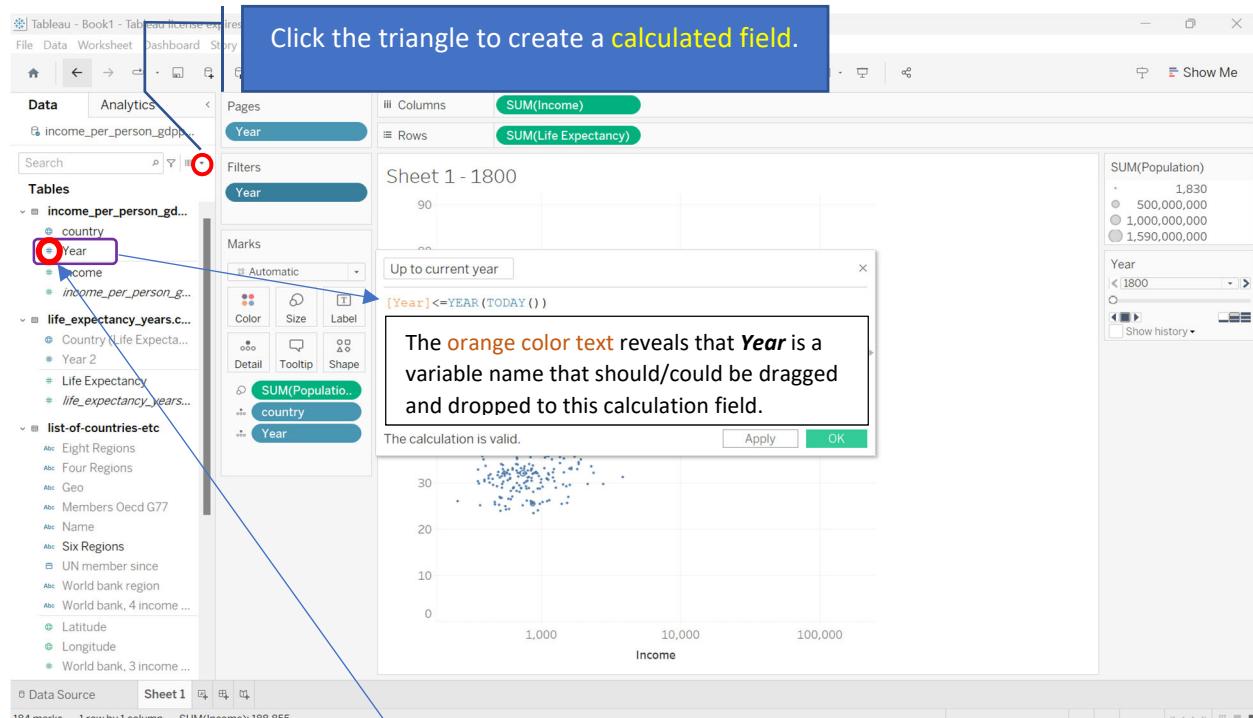
The screenshot shows the Tableau interface with a data source named 'Book1'. A chart is displayed with 'Year' on the X-axis and 'Income' on the Y-axis. The Y-axis is currently set to a logarithmic scale. A callout box with the text 'Do NOT include zero in this data visualization practice.' has an arrow pointing to the 'Include zero' checkbox in the 'Edit Axis [Income]' dialog. Another callout box with the text 'Don't be confused by the various chart types. In this project, we will focus on creating a bubble chart.' has an arrow pointing to the chart area.

Hint: The variable “**year**” could be an issue (as it appears the data type is still a string, with an ABC icon)... and we will deal with this issue in Step #24.

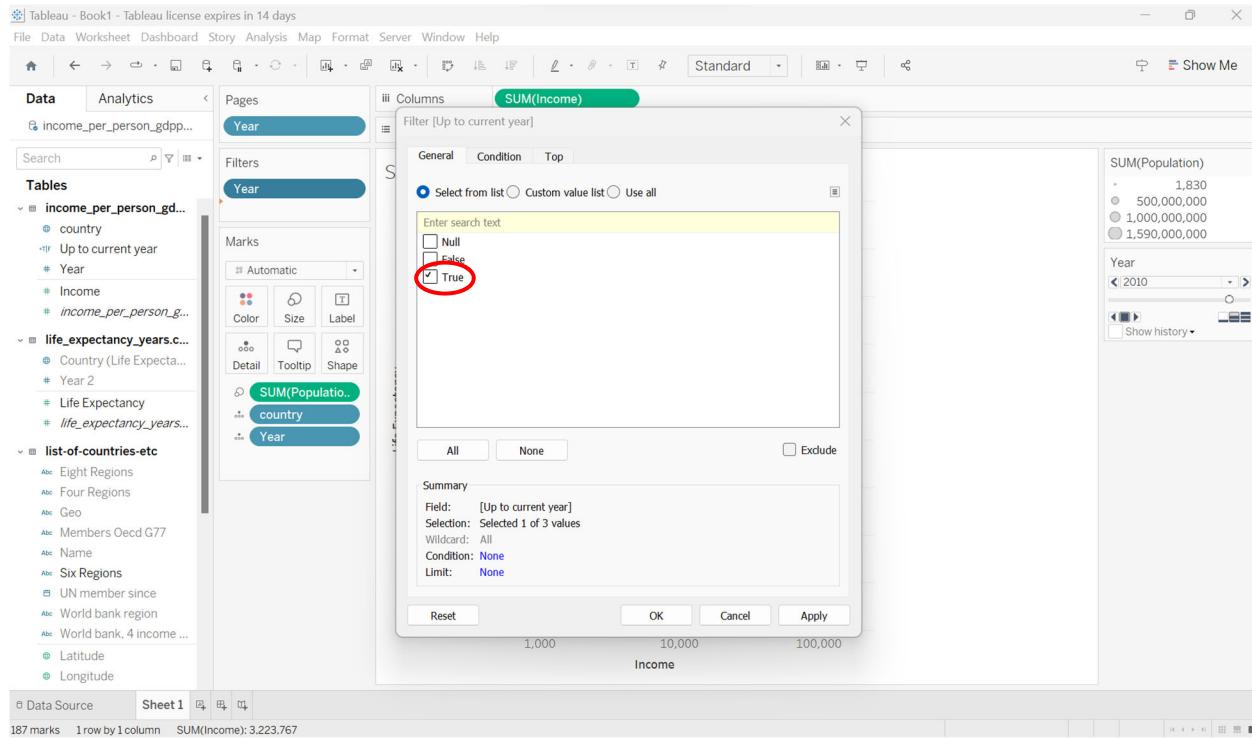
23. The data sets include income and life expectancy information all the way to year 2040.



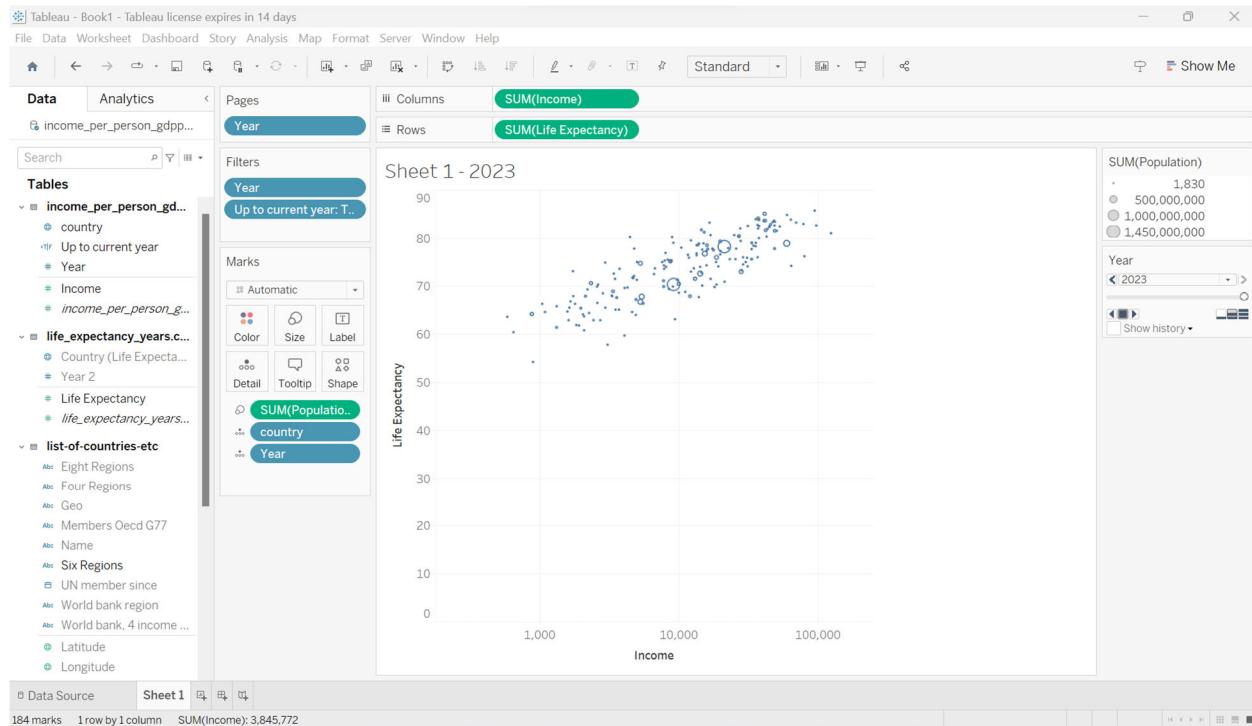
24. We will create a functional filter to reveal the moving bubble charts to the current year (i.e., 2023). Specifically, we will create a calculated field to set the time ceiling to be the current year (e.g., 2023). FYI, the to-be-typed formula in the calculated field box is **[Year] <= YEAR(TODAY())**



Hint: Check the variable **Year**'s data type. If we do not update variable **Year**'s data type (from ABC to Whole #), we won't be able to adequately create a "calculated field." Thus, we should double click the **Year** variable and then change its data type from ABC (string) to Number (whole).

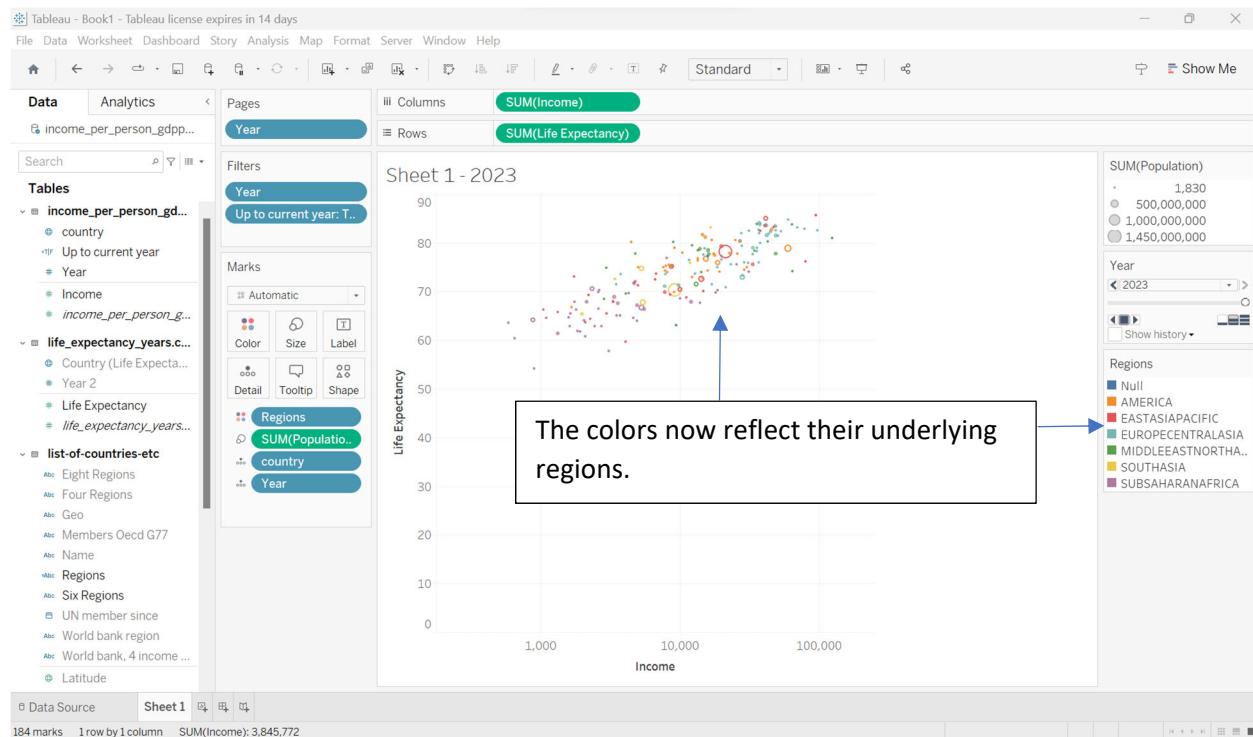


25. The current year shown on this revised bubble chart is year 2023.

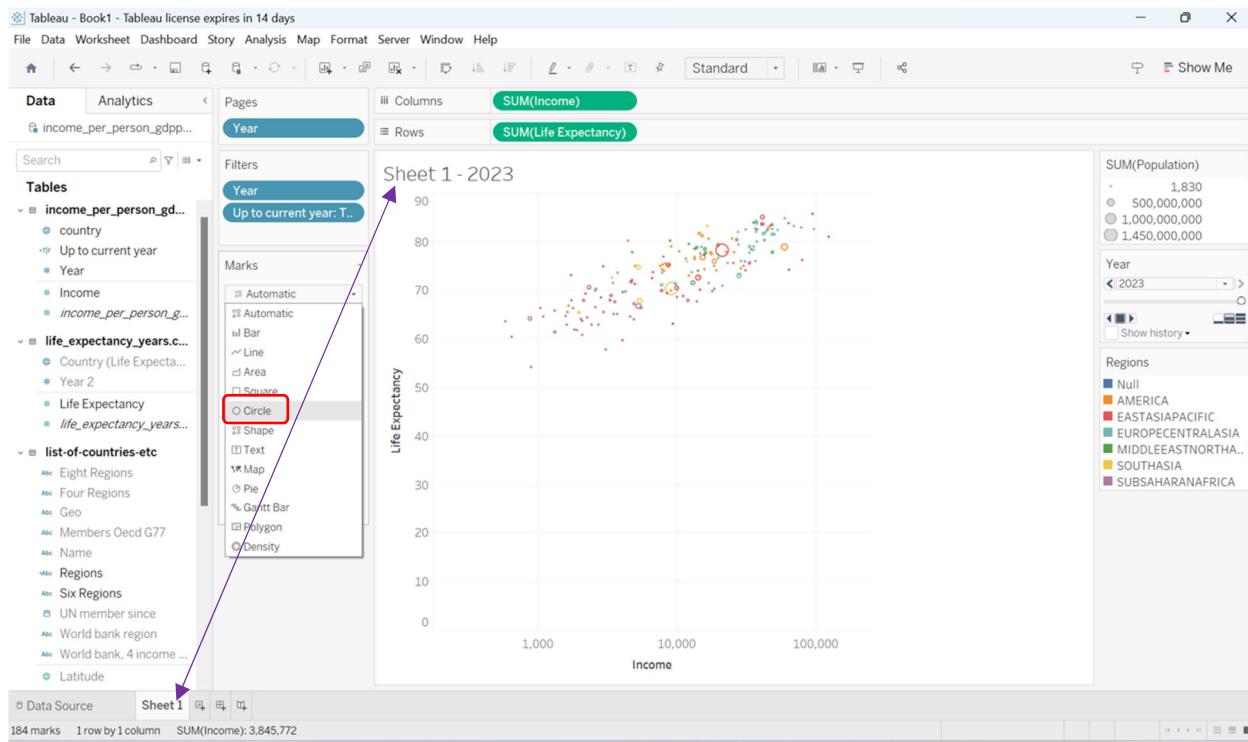


26. We will bring the “region” information to the chart. FYI, check the Appendix (p. 20) for Tableau’s Replacement function; the **to-be-typed** formula is **UPPER(REPLACE([Six Regions], ‘_’, ‘’))** → It’s not recommended to copy and paste the formula onto the following box... or you might encounter errors.

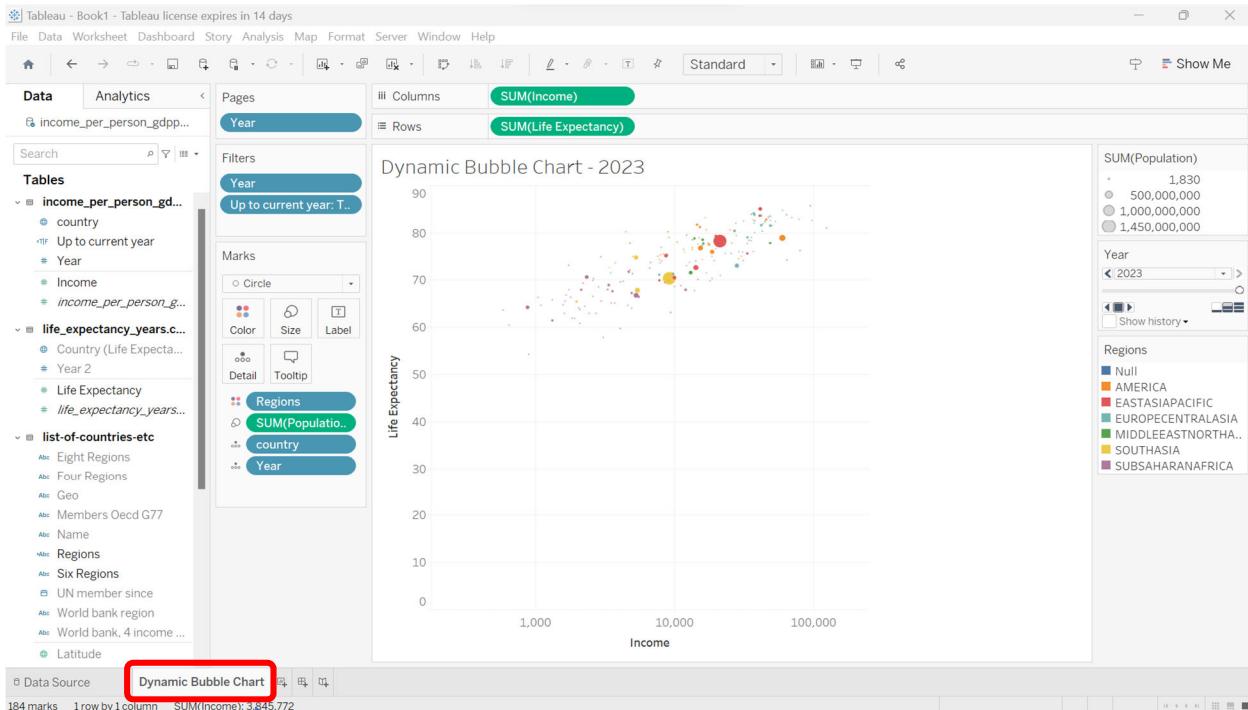
The screenshot shows the Tableau desktop interface with a calculated field dialog open. The formula entered is `upper(Replace([Six Regions], '_', ''))`. A blue callout box with the text "Click the triangle to call out a calculated field again." points to the top right corner of the dialog. A red arrow points from the bottom right of the dialog to a screenshot of a community post on [community.tableau.com](https://community.tableau.com/s/question/0D54T000016hs1hSA/trouble-with-basic-copy-pasting-on-tableau-desktop-for-mac), which discusses issues with basic copy/pasting on Mac. The calculated field is applied to the chart, which is a scatter plot of Income vs. Life Expectancy.



27. We can replace the dots with circles.

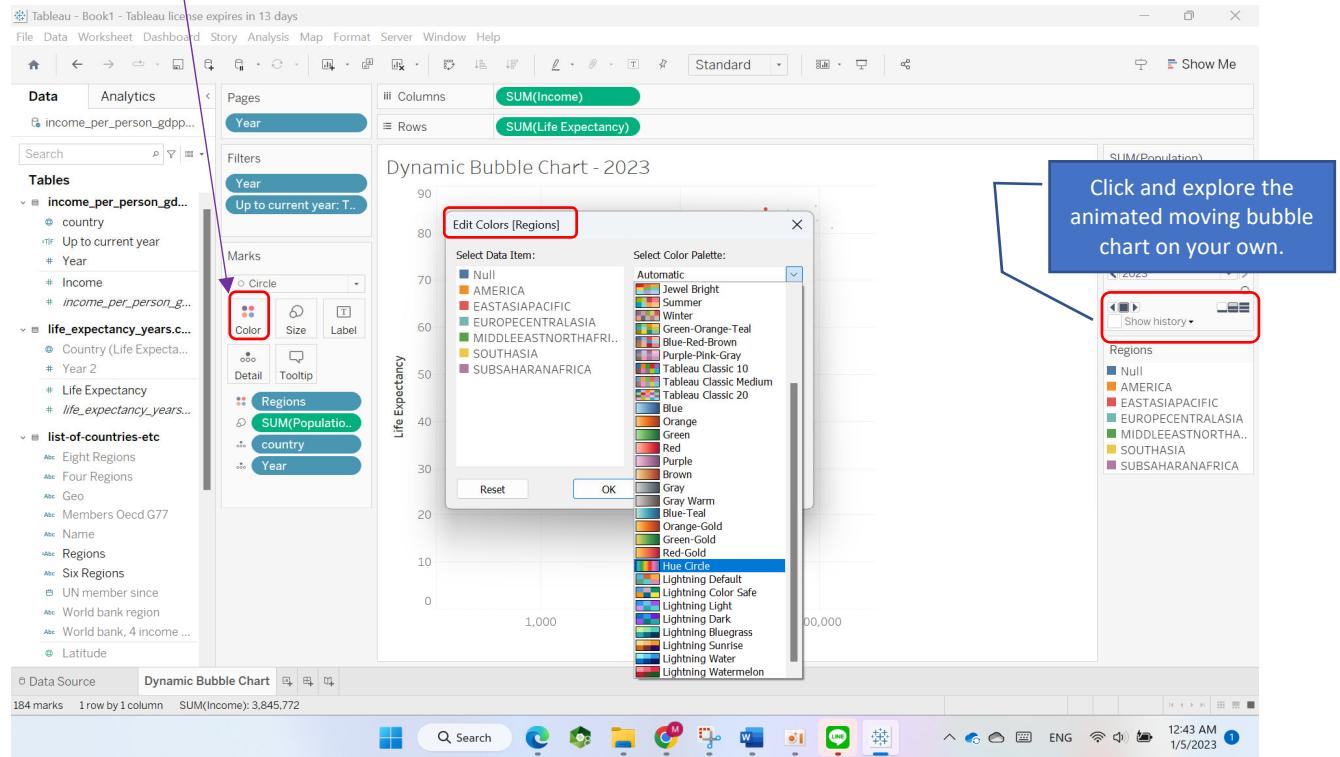


28. We will update the chart name (from "Sheet 1" to "Dynamic Bubble Chart").

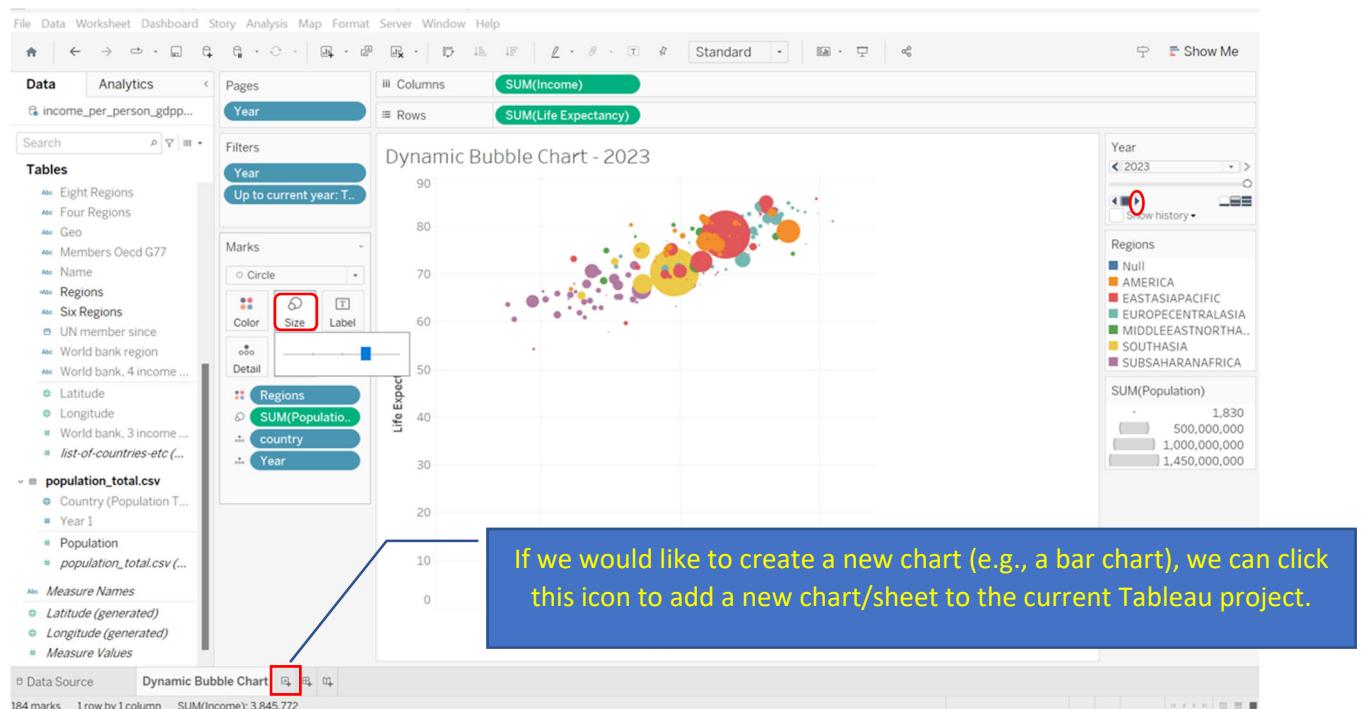


Hint: just click the name of the sheet and we can change its name.

29. We can modify the colors for the aesthetic purposes. Just click Color to Edit colors.

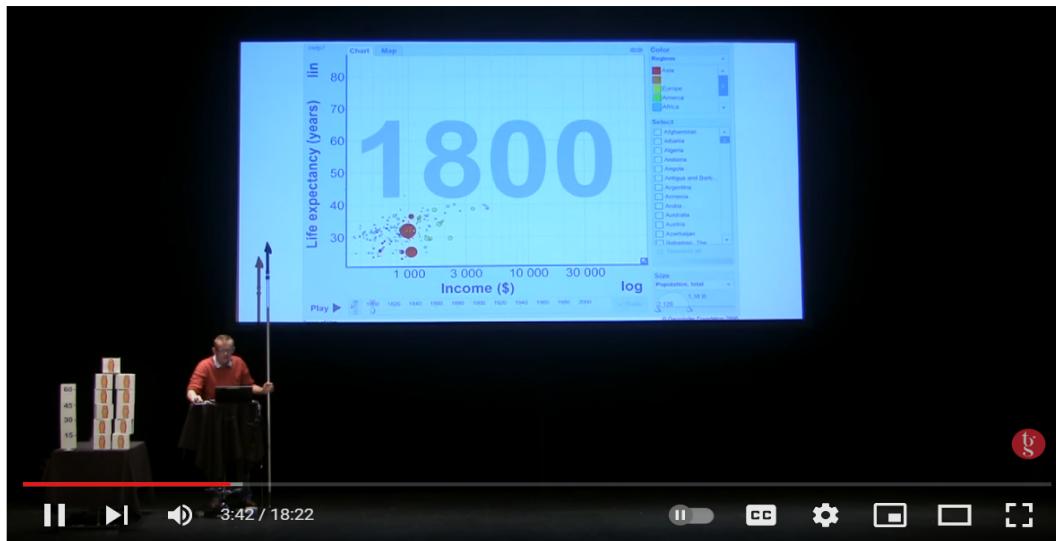


30. We can also click the Size icon to further modify the size of the circles in this bubble chart.



Finally, we are ready to demonstrate an animated moving bubble chart and tell our story by clicking a forward triangle button (see a red circle  shown on the above).

If you wonder how to give an impressive live presentation using the dynamic charts, you might find **Prof. Hans Rosling's** presentation of relevance. Please click the underlined link for a MUST SEE presentation: Please do watch the first four-minute video, and then feel free to briefly scan through the rest of this YouTube video. https://www.ted.com/talks/hans_rosling_new_insights_on_poverty?referrer=playlist-the_best_hans_rosling_talks_yo&autoplay=true



Correlating income and life expectancy throughout history | Hans Rosling | TGS.ORG

Appendix:

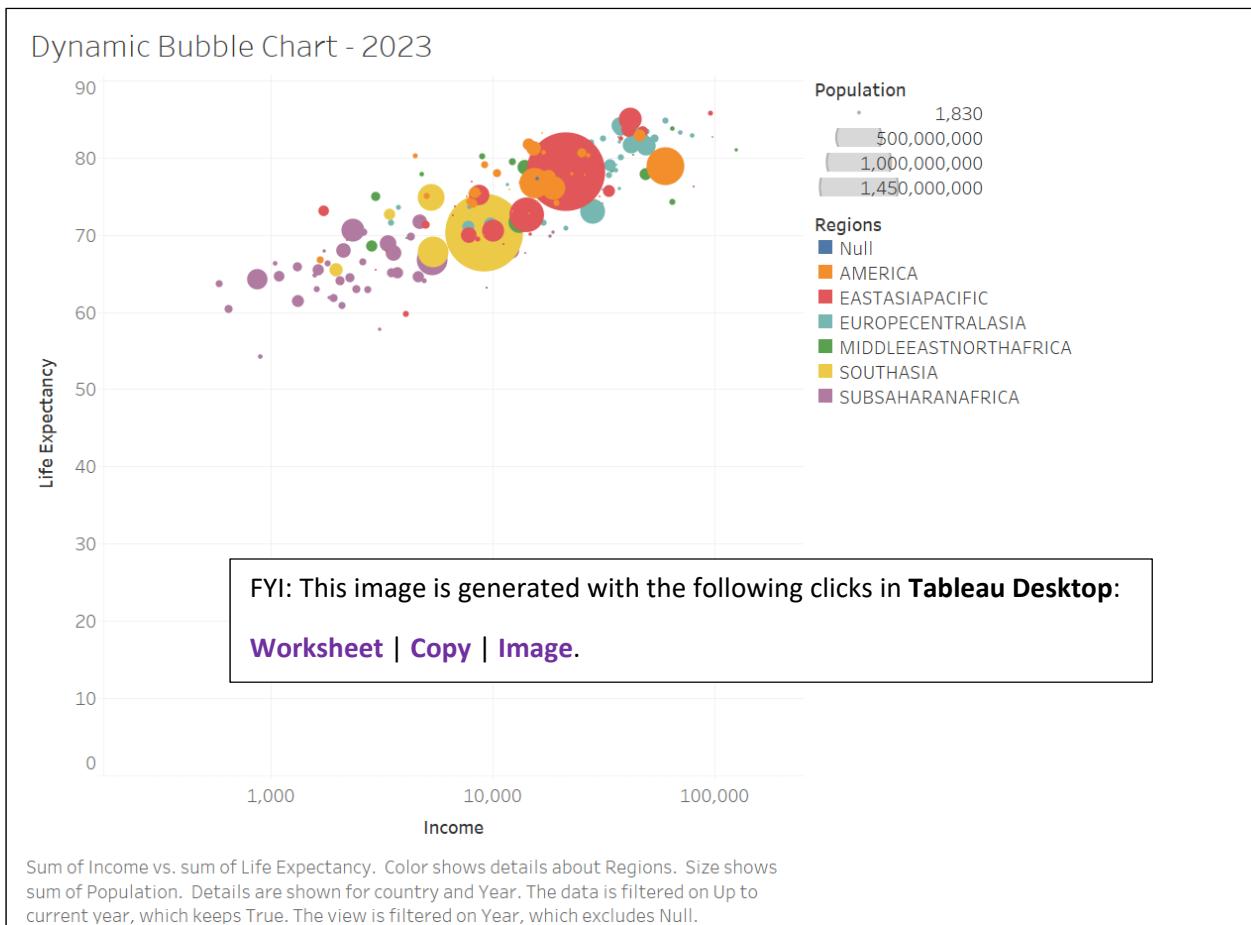
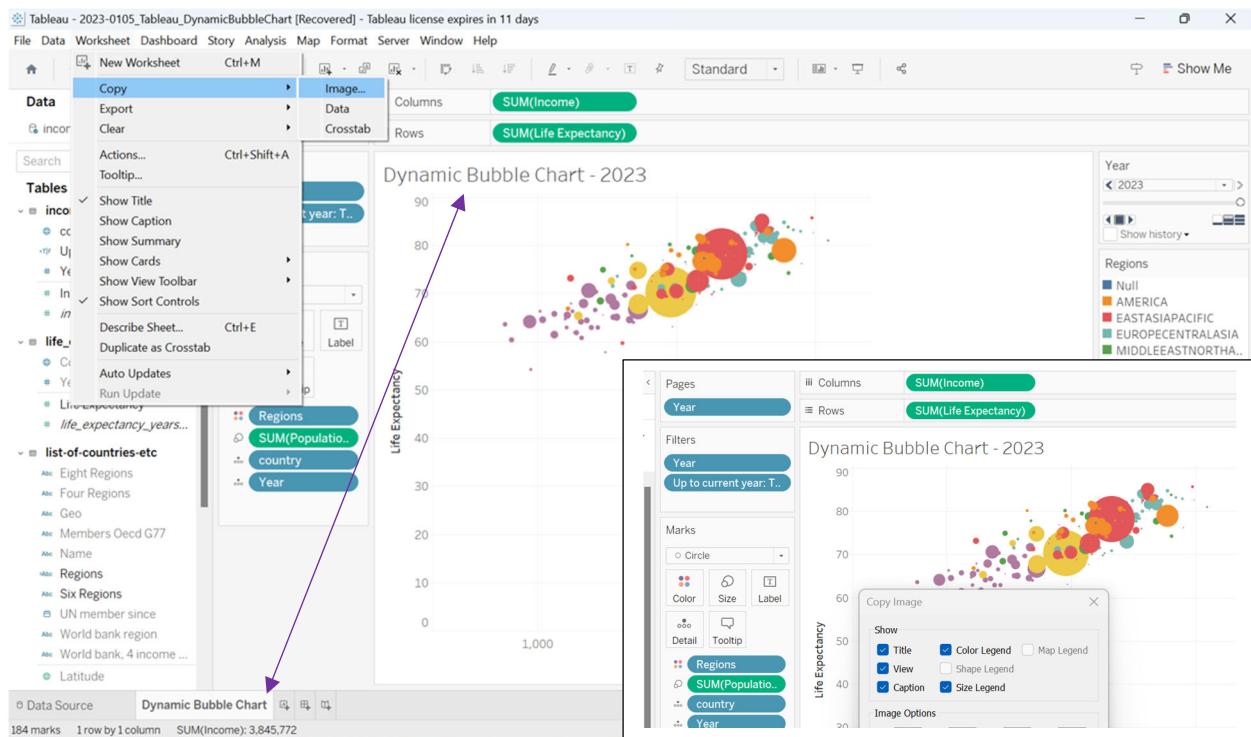
1. Tableau's main functions (e.g., Replacement) could be found online:

<https://help.tableau.com/current/pro/desktop/en-us/functions.htm>

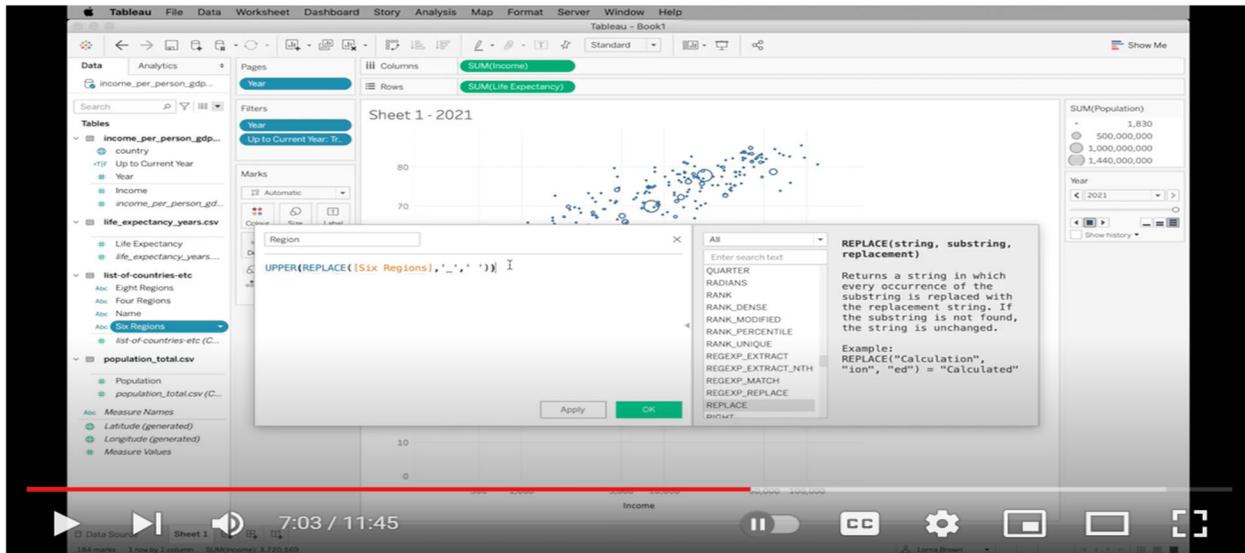
The screenshot shows a browser window with the URL https://help.tableau.com/current/pro/desktop/en-us/functions_string.htm. The page title is "String Functions". On the left, there is a navigation sidebar with "CONTENTS" and a list of topics under "Tableau Desktop and Web Authoring Help". The main content area displays the "REPLACE" function, which takes three parameters: string, substring, and replacement. It describes how it searches for the substring and replaces it with the replacement. An example code snippet shows: `REPLACE("Version8.5", "8.5", "9.0") = "Version9.0"`.

2. Feel free to Google search for additional Tableau tips (e.g., how to export data from Tableau View onto Excel or a relational database).

The screenshot shows a blog post titled "5 Quick Ways to Export Data from Tableau View onto Excel" by BI Connector. The post is dated December 10th, 2021, and has a reading time of 10 Mins Read. It includes a "FYI only" note and a "Bi-Connector-Team" author profile. The content discusses various ways to export data from Tableau into Excel, such as using crosstabs, data, or images. A callout box at the bottom right suggests "[Tableau Hacks] Saving Dashboard Space With Hidden Containers >>".



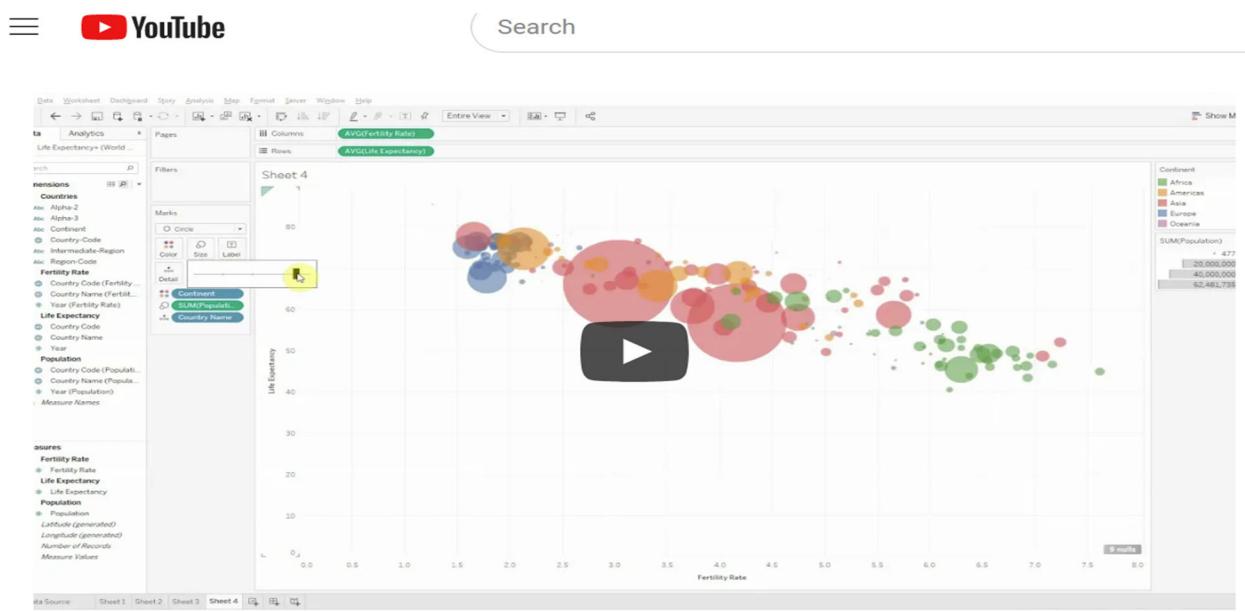
3. If you (the audience) prefer to watch a Tableau bubble chart creation video, you may find the following two YouTube videos of help.



#WOW2021 Week 11 | Tableau : Can you recreate the work of Hans Rosling?


Workout Wednesday
[Subscribe](#)
1.93K subscribers
11
Share
...

<https://www.youtube.com/watch?v=LaCprFuwmHk>



How to track data evolution over time with Tableau Desktop – Animated Bubble Chart – Skill Pill

btProvider
[Subscribe](#)
1.6M subscribers
1.6M subscribers
1.6M subscribers
1.6M subscribers

<https://www.youtube.com/watch?v=IK6AE3u6LGs>

4. Tableau also offers quite a few training videos (<https://tabsoft.co/3QuMLGp>). Happy learning!

The screenshot shows the Tableau Learning page for 2022.2. At the top, there's a navigation bar with links for Why Tableau, Products, Solutions, Resources, Partners, and Pricing. On the right, there are 'BUY NOW' and 'TRY NOW' buttons. Below the navigation, a search bar is present. The main title is 'Free Training Videos' with the subtitle '2022.2'. A 'LEARNING' category is indicated above the video list. The video categories shown are:

- Creator**: Described as being responsible for creating content for others. It includes:
 - Getting Started**: 9 videos, 20 min
 - Tableau Prep**: 2 videos, 10 min
 - 1 video
- More ways to learn and connect**: Includes 'What's New in Tableau 2022.4' (watch now)

The screenshot shows a specific training video titled 'Getting Started: Web Authoring in Tableau Online' by James Pollard, a Learning Experience Designer. The video player interface includes a play button, volume control, and progress bar showing 0.01 / 0.22. To the right of the video, a sidebar titled 'CURRENT TOPIC' shows the 'Getting Started' section with a list of related topics and their durations:

- Getting Started (1 MIN)
- Tableau Cloud (1 MIN)
- Connecting to Data (2 MIN)
- The Workspace Area (2 MIN)
- Map: Profit Ratio by Geography (2 MIN)
- Area Charts: Sales by Category; Sales by Segment (5 MIN)
- Text Table: Key Performance Indicators (2 MIN)

5. To learn more about available Tableau programs, check out its Academic Community page:

<https://fabsoft.co/3vOkg4m>

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Tableau for Students Tableau for Teaching Tableau Data Kids

6. A student license is FREE. Check here for details: <https://www.tableau.com/academic/students>

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We offer free one-year Tableau licenses to students at accredited academic institutions through our Tableau for Students program. Receive access to our entire eLearning suite once verified.



FEATURED CONTENT

Student Stories

This summer, we reached out to our student community and asked them to tell us about their journey with data, and to see what advice they have for students interested in learning data analytics. And as we head into

7. Explore the Tableau Community (<https://community.tableau.com/s/>). For example, click the Forums and then check the **Tableau Public!**

The screenshot shows the Tableau Community website at <https://community.tableau.com/s/>. The top navigation bar includes links for Why Tableau, Products, Solutions, Resources, and Partners. On the right, there are buttons for PRICING, TRY NOW, LOGIN, and a search icon. Below the navigation, a menu bar has items like Home, My Activity, Forums (which is highlighted with a yellow box), Ideas, Groups, Resources, Get Started, and Blogs. A large banner at the top says "Welcome to the Community!" and describes the forums as a place to get questions answered and collaborate. It features a search bar, a "ASK A QUESTION" button, and a callout for the "Tableau Blueprint Assessment". The URL in the address bar is <https://community.tableau.com/s/explore-forums>.

The screenshot shows the "Explore Topics" page at <https://community.tableau.com/s/explore-forums>. The main heading is "Have a Question? Click on a Topic below" with a sub-instruction: "Choose a topic relevant to your question and select "Ask a Question" within the chosen topic." A red box highlights a note: "New to the Forums? Check out our [First Time Here](#) page for help on how to search for answers and how to best ask questions." Below this, a section titled "Have a Question about a Tableau Product? Choose below" lists various topics. The "Tableau Public" topic is circled in red and has a blue box with the text "See a text box on page 3." Another blue box next to it says "I recommend this one too." Other topics listed include Tableau Desktop, Tableau Server, Tableau Prep (which is also circled in red), Tableau Cloud, Actions & Filters, Server Admin, Licensing, Calculations, Data Connectivity, Dates & Times, Developers & APIs, Installations & Upgrades, Exports & Subscriptions, Maps & Geocoding, and a "View all Topics" link. At the bottom, there's a "Browse All Topics" button.

Begin a free trial today at [tableau.com/trial](https://www.tableau.com/trial)

Tableau Software helps people see and understand data, no matter how big or where it is stored. Quickly connect, combine, clean, visualize, and share your dashboards with a seamless experience from the PC to the Tablet. Create and publish dashboards with automatic data updates, and share them with colleagues, partners, or customers—no programming skills required.

Additional resources

Training & Tutorials	https://www.tableau.com/learn/training/20224
Tableau Community	https://www.tableau.com/community/welcome
Customer Stories	https://www.tableau.com/solutions/customers
Solutions	https://www.tableau.com/solutions
Buy Tableau	



<https://www.youtube.com/watch?v=xwI2p4LSD1k>



Acknowledgement: Special thanks to Prof. Gary H.T. Chao for his constructive comments toward a draft version of this 30-step Tableau Bubble chart learning tutorial.