Data Analytics for Management

Week 7: Tableau: Basics & Data Vizualization

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KSS survey

- Your feedback is important. Please fill out this survey:
  - https://forms.gle/6zSoykj76vz2gmE97

Midterm exam

- Take-home exam
- Individual-base assignment
- Due to time: I will give you a full assignment (instructions, questions and data)

Previous Group work presentations: Excel data communication

- It would be counted as your Assignment #1 (Week 4)

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Understanding Boxplots[1]

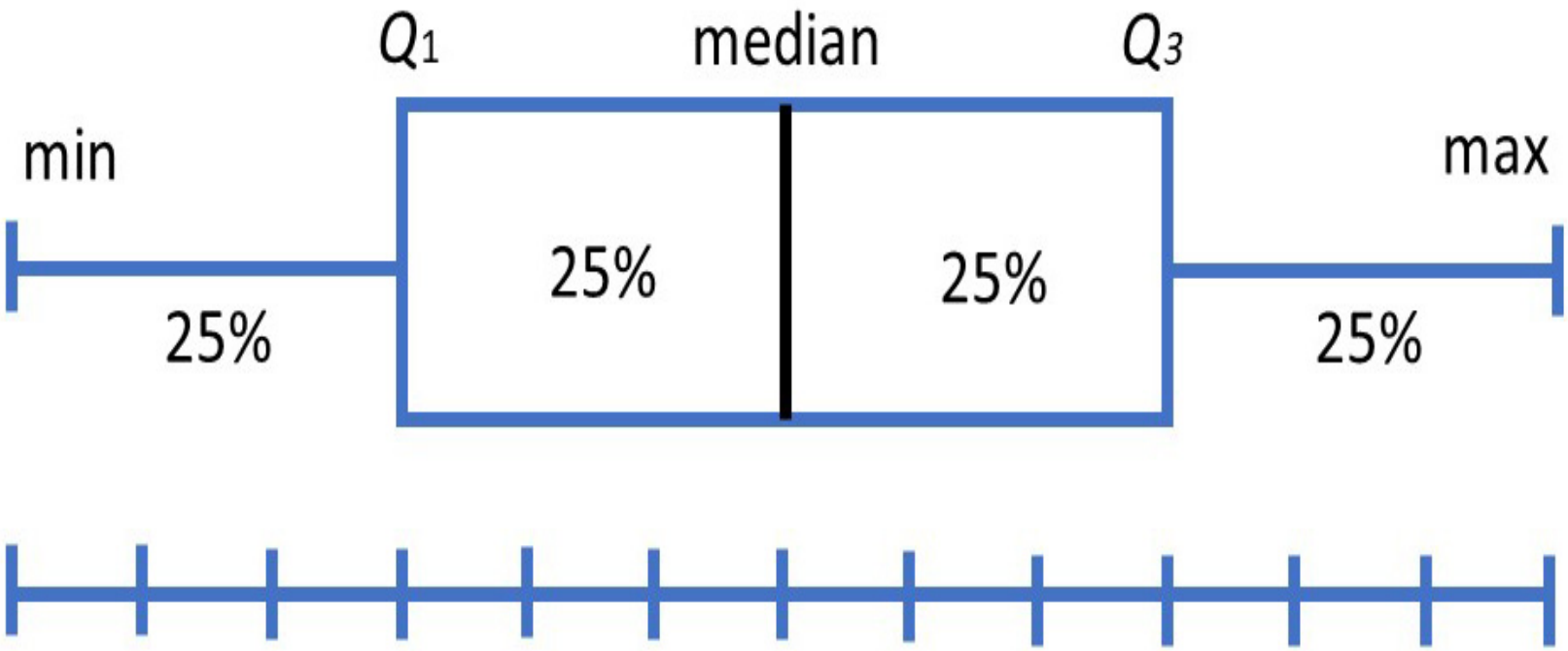

Figure 1: A boxplot is a standardized way of displaying the distribution of data based on a five number summary ("minimum", first quartile [Q1], median, third quartile [Q3] and "maximum").

[1] from https://builtin.com/data-science/boxplot and https://www.simplypsychology.org/boxplots.html

Understanding Scatter Plots[2]

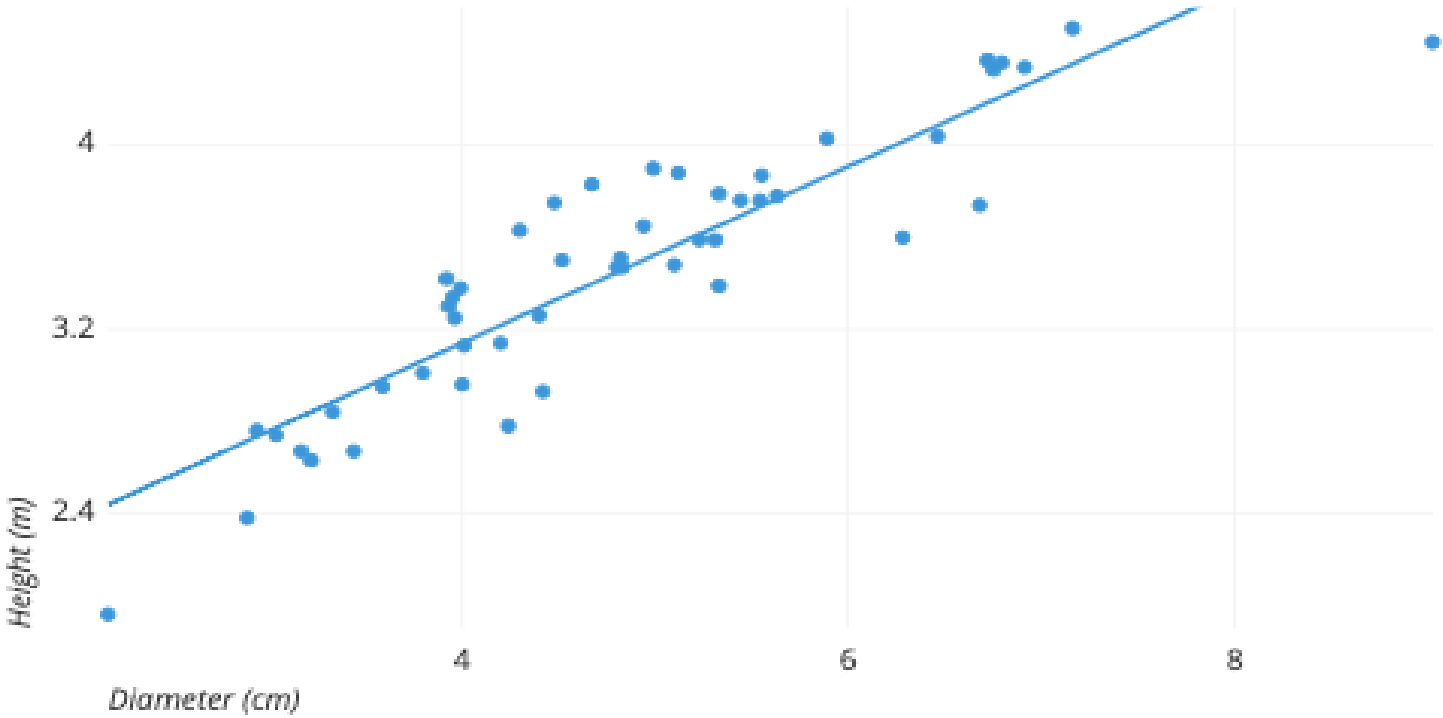

Figure 2: A scatter plot (aka scatter chart, scatter graph) uses dots to represent values for two different numeric variables. The position of each dot on the horizontal and vertical axis indicates values for an individual data point. Scatter plots are used to observe relationships between variables.It is common to add a trend line to the plot showing the mathematically best fit to the data

[2] from https://chartio.com/learn/charts/what-is-a-scatter-plot/

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Overview

- Check out the video (link)
- What is Tableau ? Explained in under 10 mins! (link)

Tableau Features[3]

Speed of Analysis - As it *does not require high level of programming expertise*, any user with access to data can start using it to derive value from the data.

Self-Reliant - Tableau *does not need a complex software setup*. The desktop version which is used by most users is easily installed and contains all the features needed to start and complete data analysis.

Visual Discovery - The user explores and analyzes the data by using visual tools like colors, trend lines, and graphs. There is *very little script* to be written as nearly everything is done *by drag and drop*.

Architecture Agnostic - Tableau works in all kinds of devices where data flows. Hence, the user *need not worry about specific hardware* or software requirements to use Tableau.

[3] all Tableau-related materials and info taken from https://www.tutorialspoint.com/tableau/tableau_overview.htm

Tableau Features (cont)

Blend Diverse Data Sets - Tableau allows you to blend different relational, semistructured and raw data sources in real time, without expensive up-front integration costs. The users don't need to know the details of how data is stored.

Real-Time Collaboration - Tableau can filter, sort, and discuss data on the fly and embed a live dashboard in portals like SharePoint site or Salesforce. You can save your view of data and allow colleagues to subscribe to your interactive dashboards so they see the very latest data just by refreshing their web browser.

Centralized Data - Tableau server provides a centralized location to manage all of the organization's published data sources. You can delete, change permissions, add tags, and manage schedules in one convenient location. It's easy to schedule extract refreshes and manage them in the data server.

Prerequisites

- Although not much knowledge is required to use Tableau, it is still *ideal if you have a fundamental understanding* of the various types of *graphs*, including bar graphs, line charts, histograms, etc.
- However, having a *basic grasp of database management* (datatypes, joins, drill down, drill up, etc.) *will be helpful.* Even if you don't have any, there's no need to worry because there are many guidelines that address all of these concepts

Installation

- Option 1. Tableau Desktop (free trial for 14 days or free for 1 year for students/teachers).
- Option 2. Tableau Public (free but with limitations).
  - https://www.tableau.com/products/public/download
- Option 3. Tableau Online (accessible from everywhere)
  - https://sso.online.tableau.com/public/idp/SSO
- I use a public version.

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Getting Started

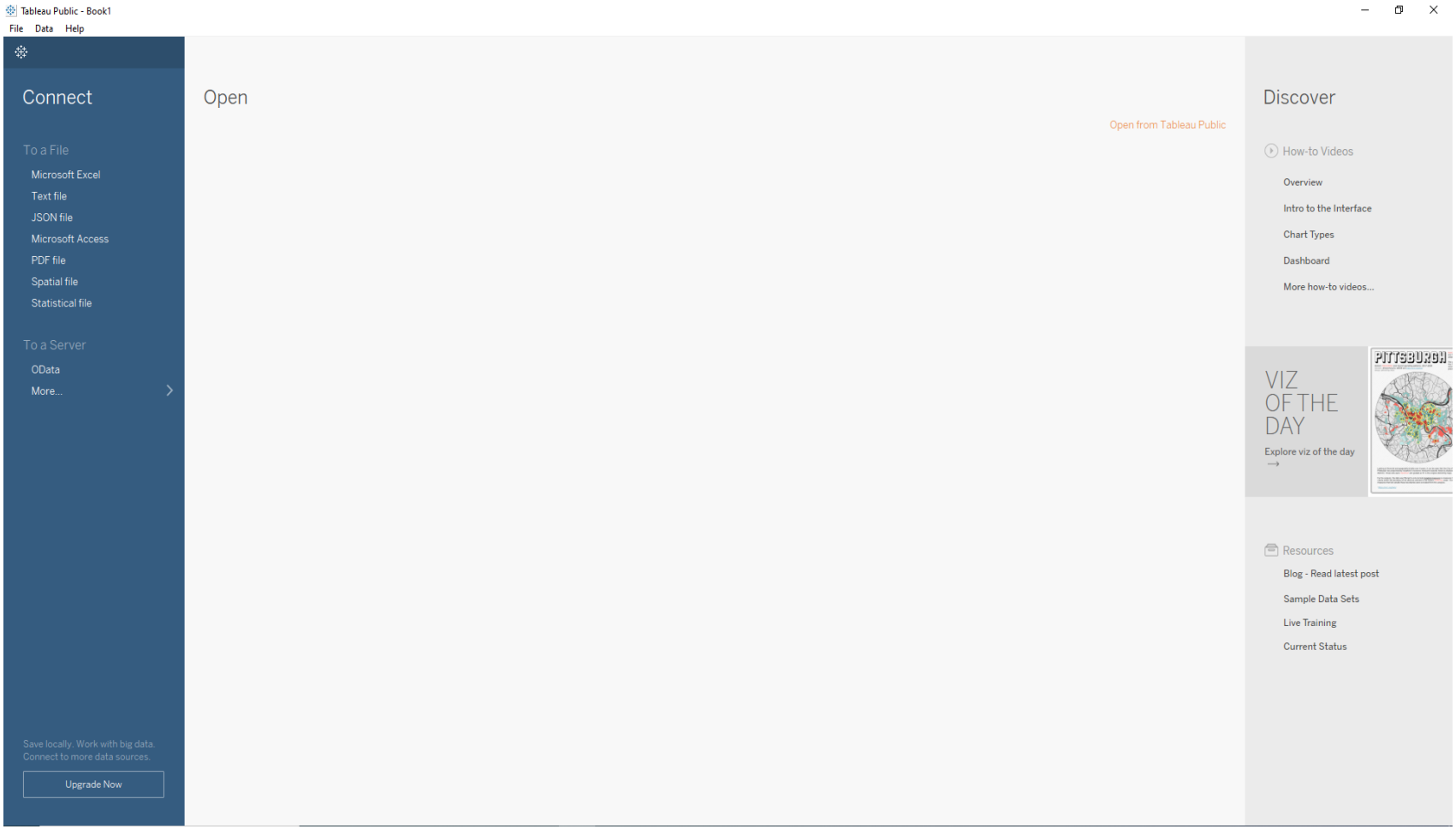

Figure 3: So we are here (a screen view of Tableau Public)

Uploading data: the Excel file of Gapminder data (1)

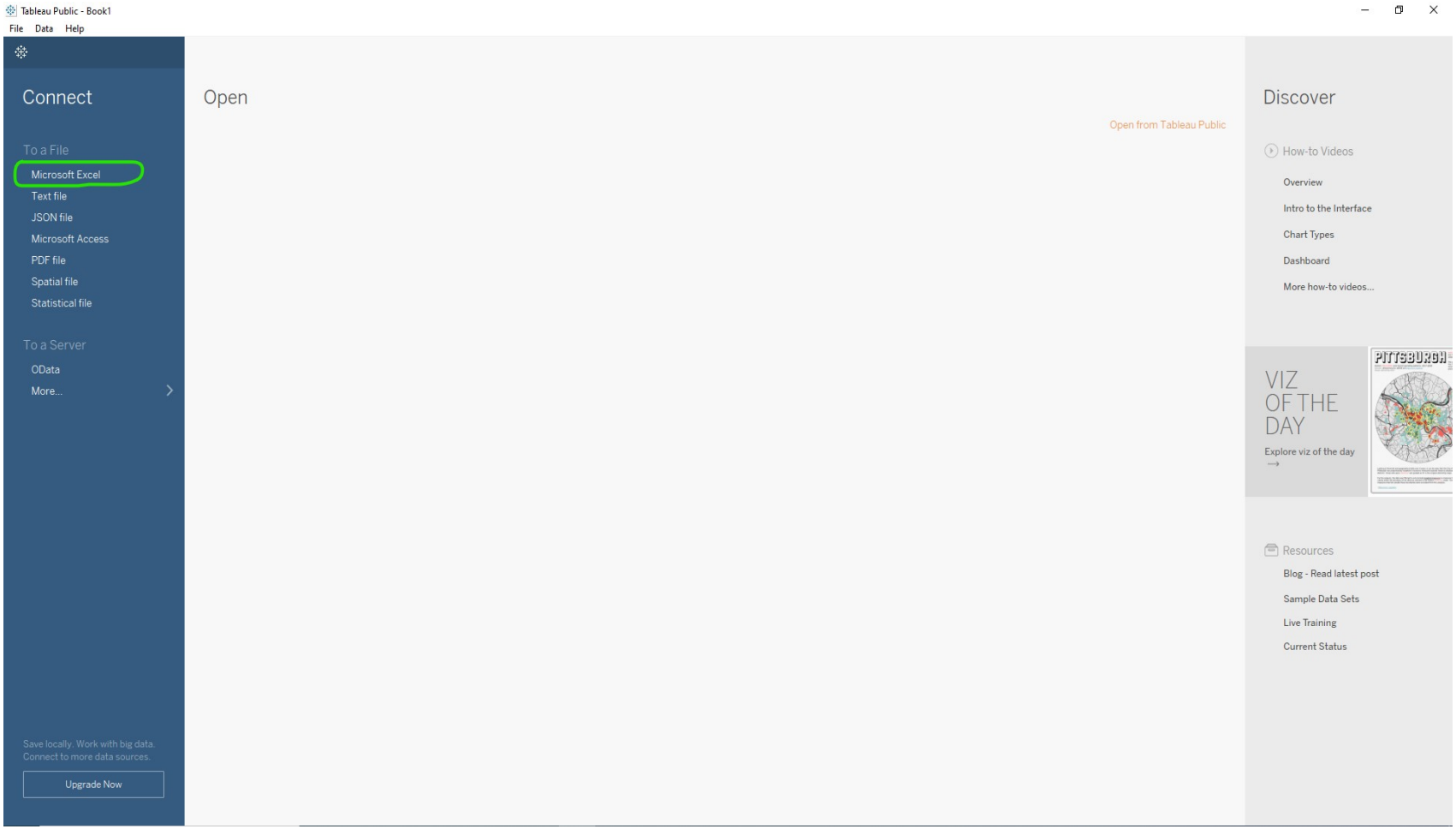

Figure 4: Choose Microsoft Excel (other menu if data file has different format)

Uploading data: the Excel file of Gapminder data (2)

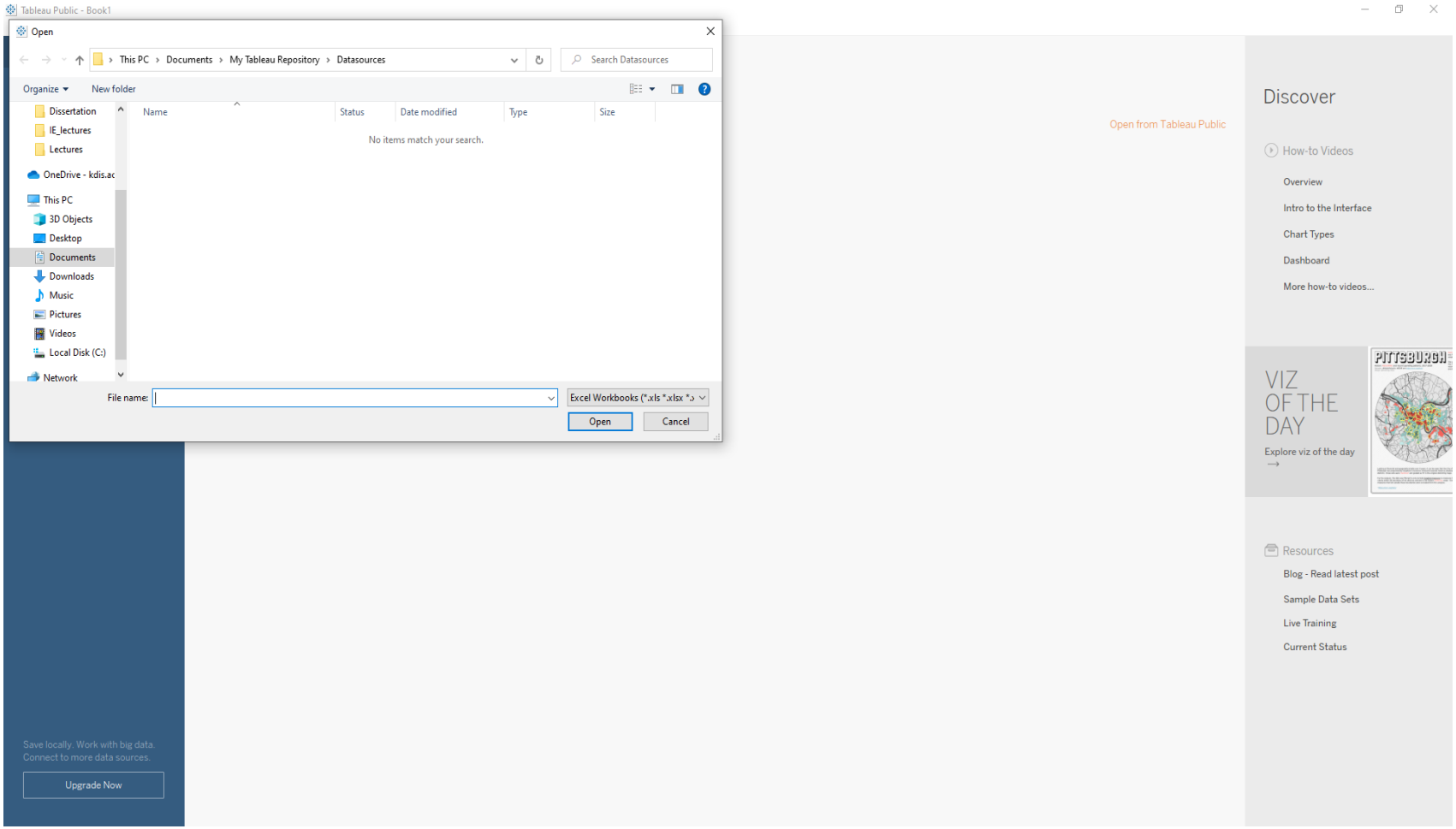

Figure 5: Upload the Excel file

Checking data: the Excel file of Gapminder data (1)

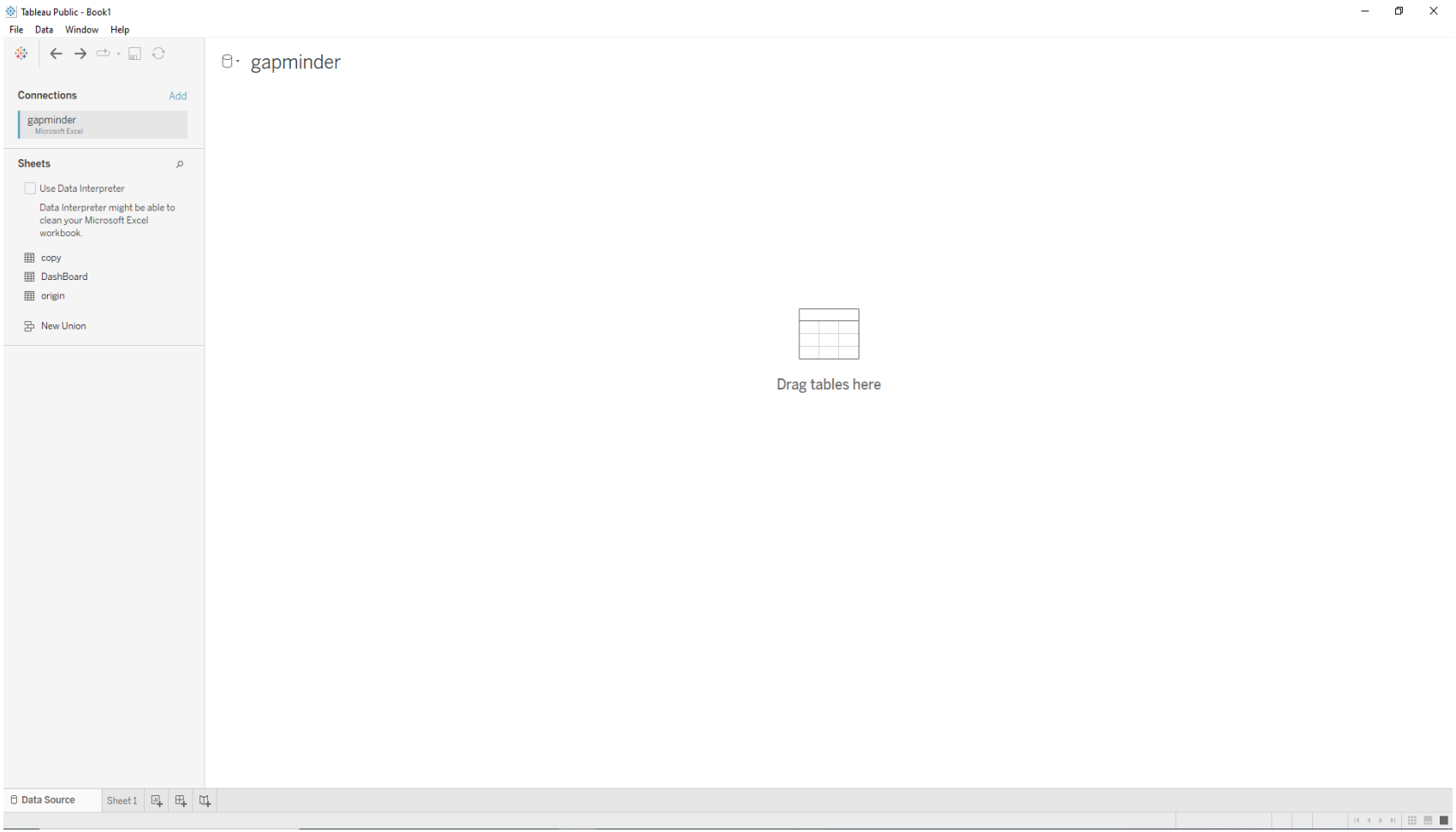

Figure 6: We have our data in. Now just drug an Origin (or any needed) sheet to the mid of the screen...

Checking data: the Excel file of Gapminder data (2)

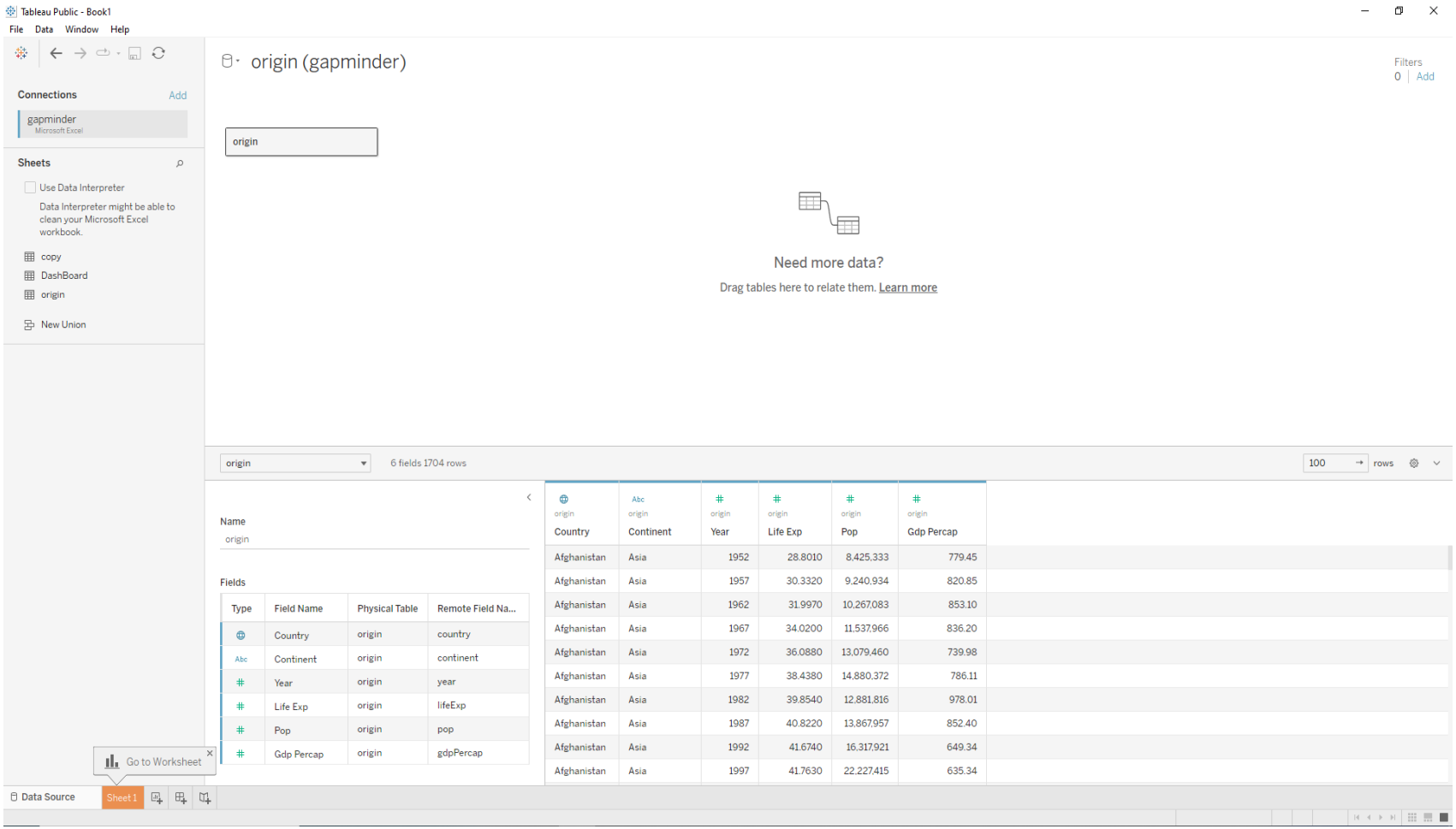

Figure 7: to see the structure of the Origin sheet like this

Checking data: the Excel file of Gapminder data (2)

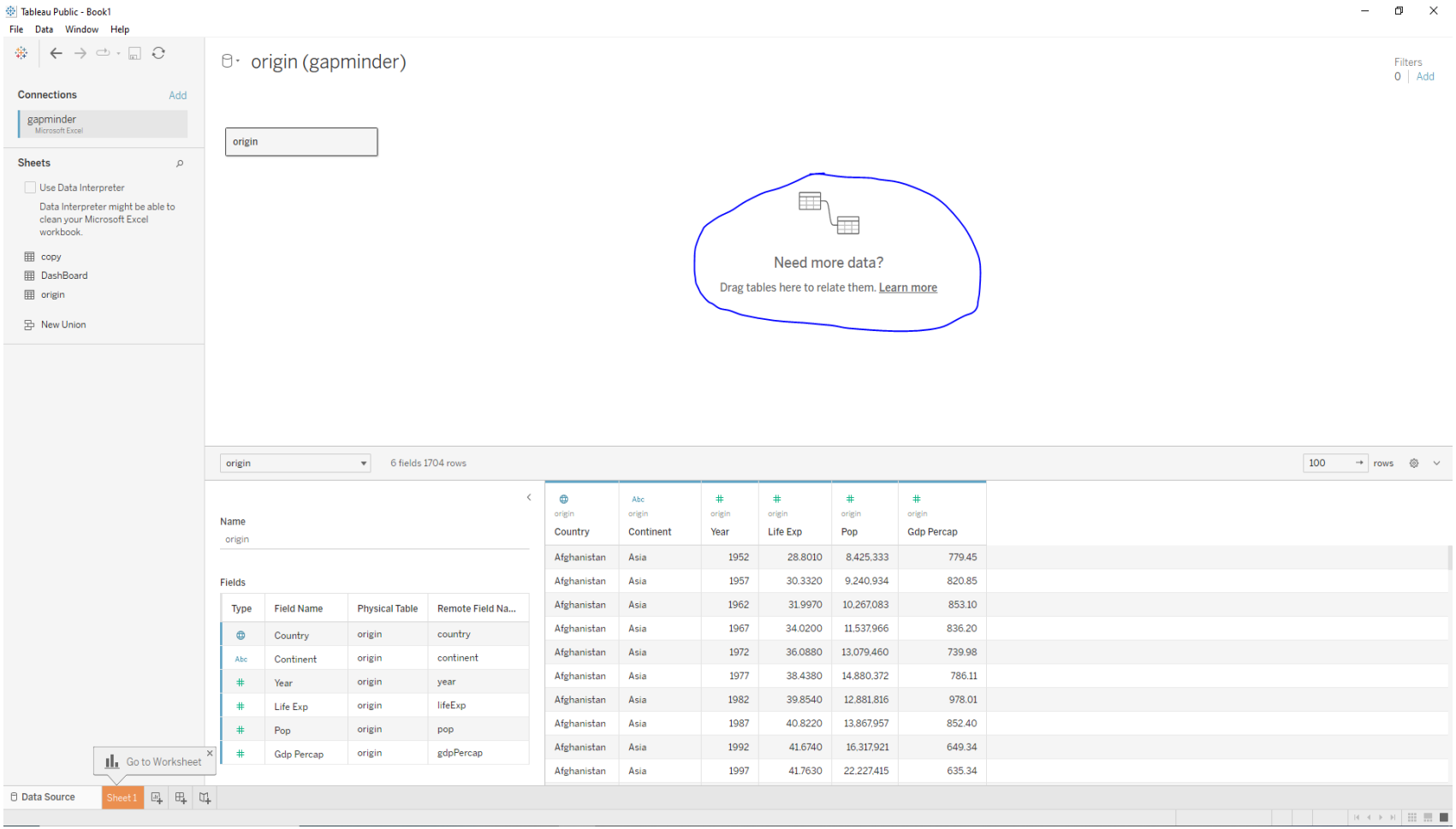

Figure 8: if we want to add more data, we use the highlighted option

Visualizing data: the Excel file of Gapminder data (1)

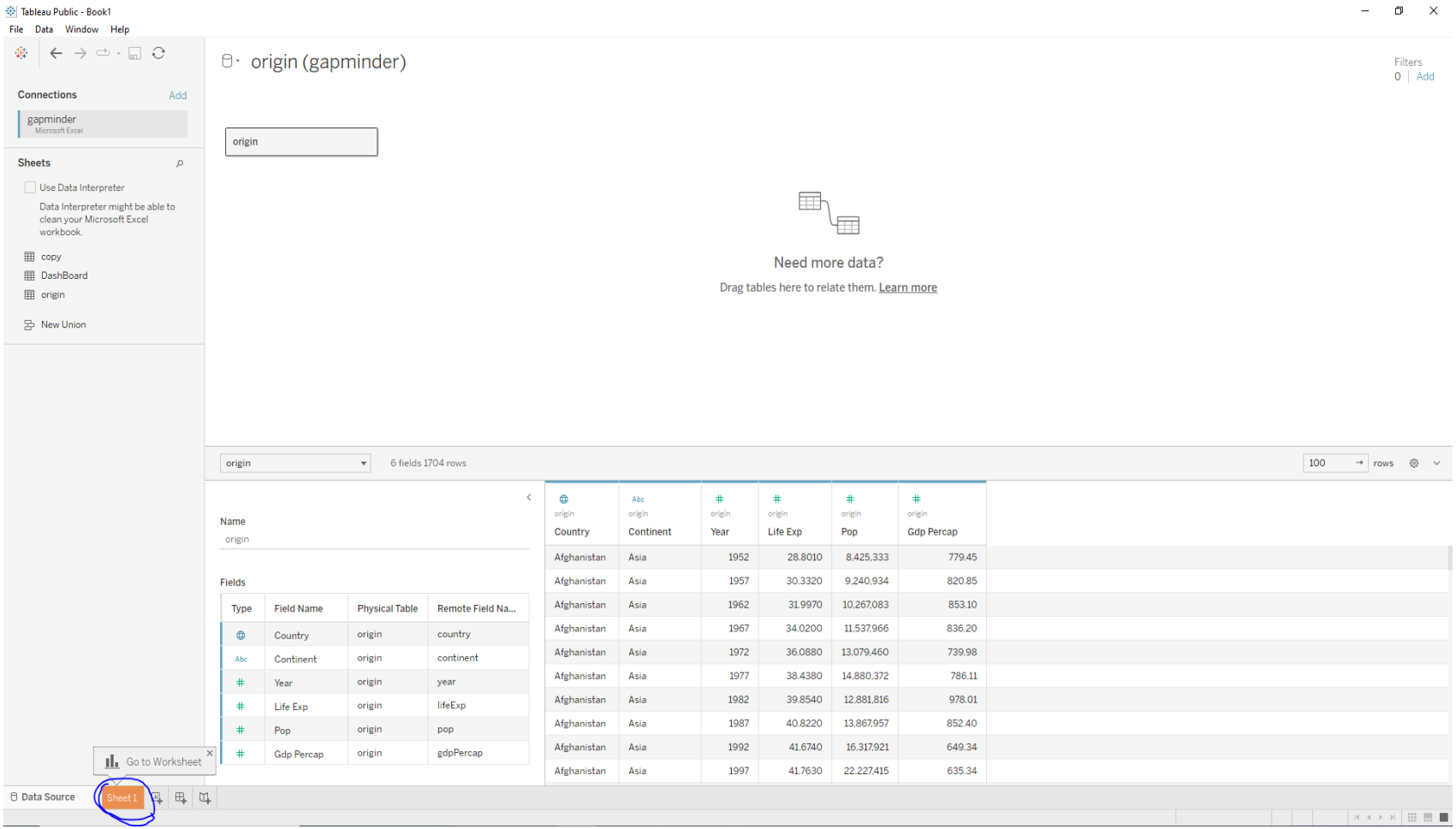

Figure 9: To start out work we click on the highlighted SHEET 1...

Visualizing data: the Excel file of Gapminder data (2)

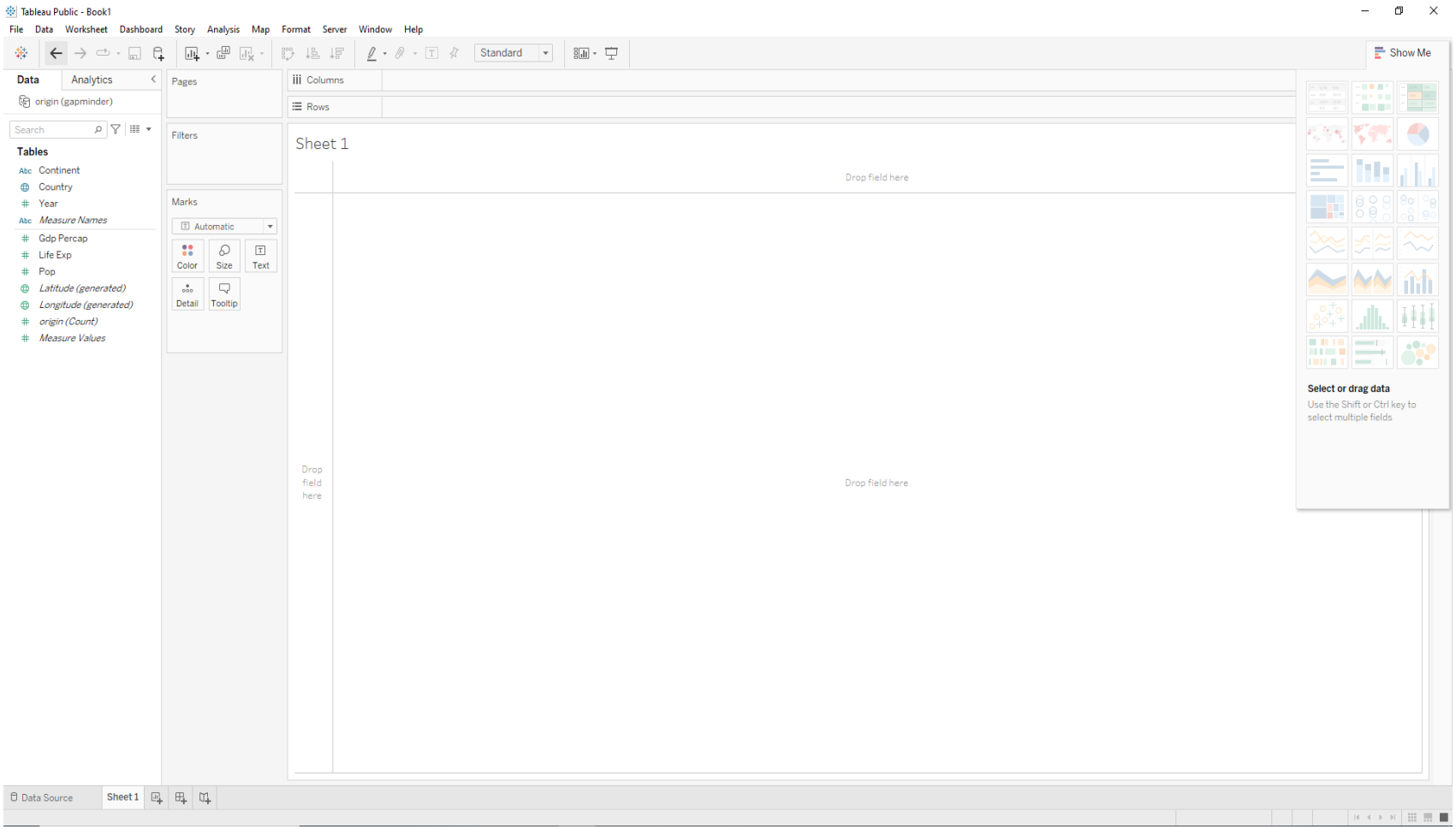

Figure 10: to finally end up here -> the main working window

Visualizing data: the Excel file of Gapminder data (3)

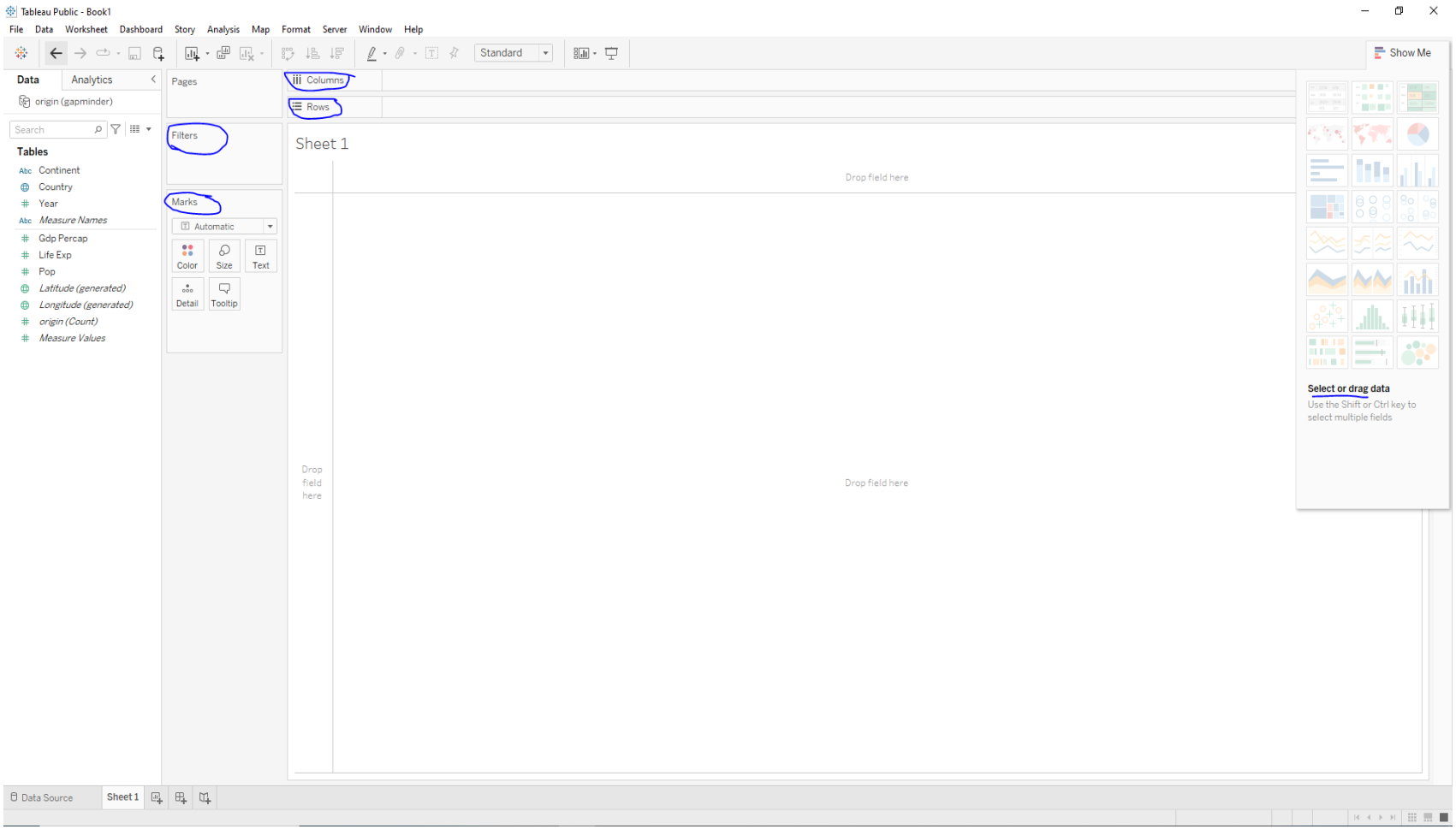

Figure 11: Main working fields and options highlighted. Remember - drag, drop and choose

Visualizing data: the Excel file of Gapminder data (4)

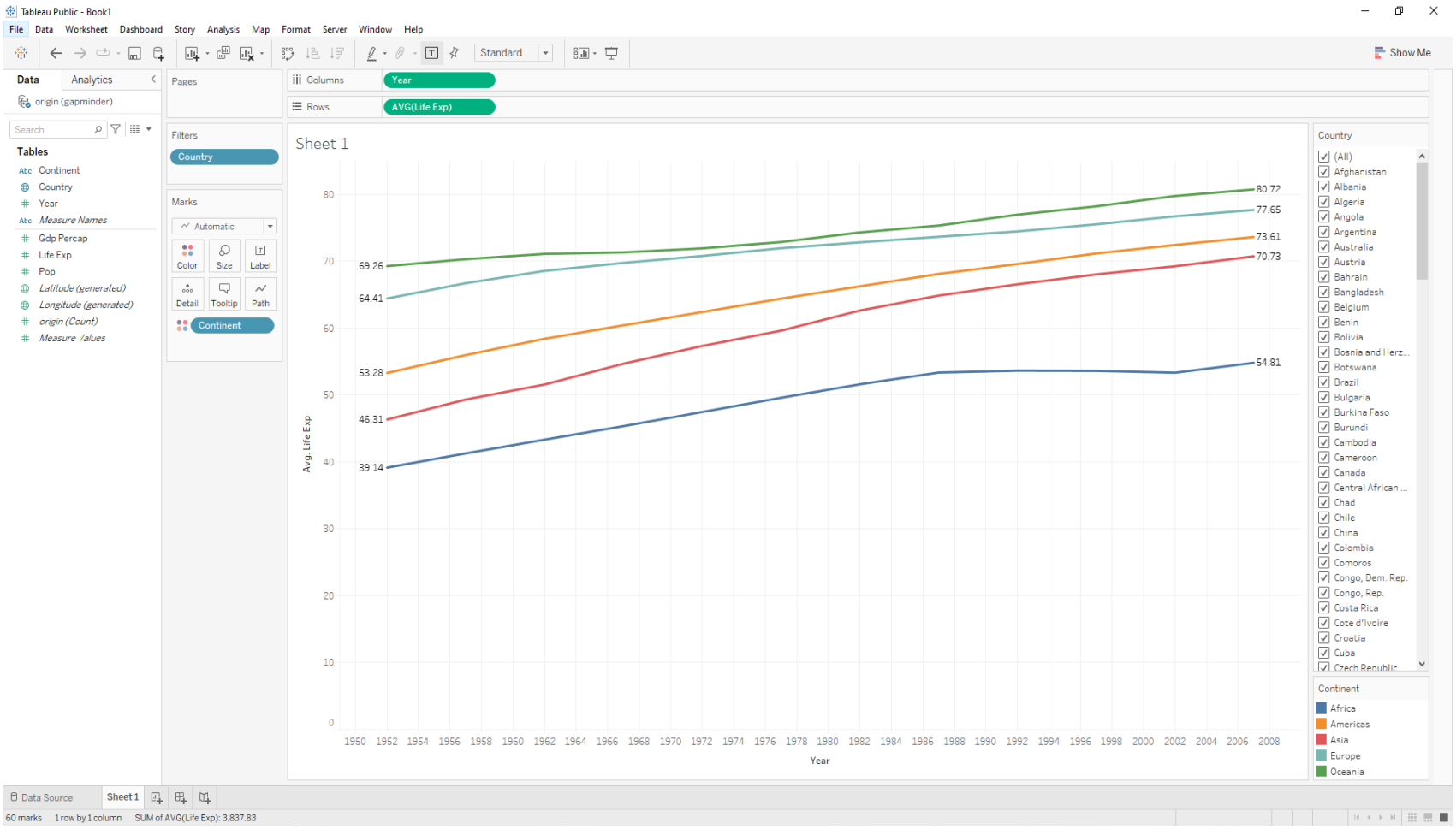

Figure 12: ...to get this kind of basic illustration...

Visualizing data: the Excel file of Gapminder data (5)

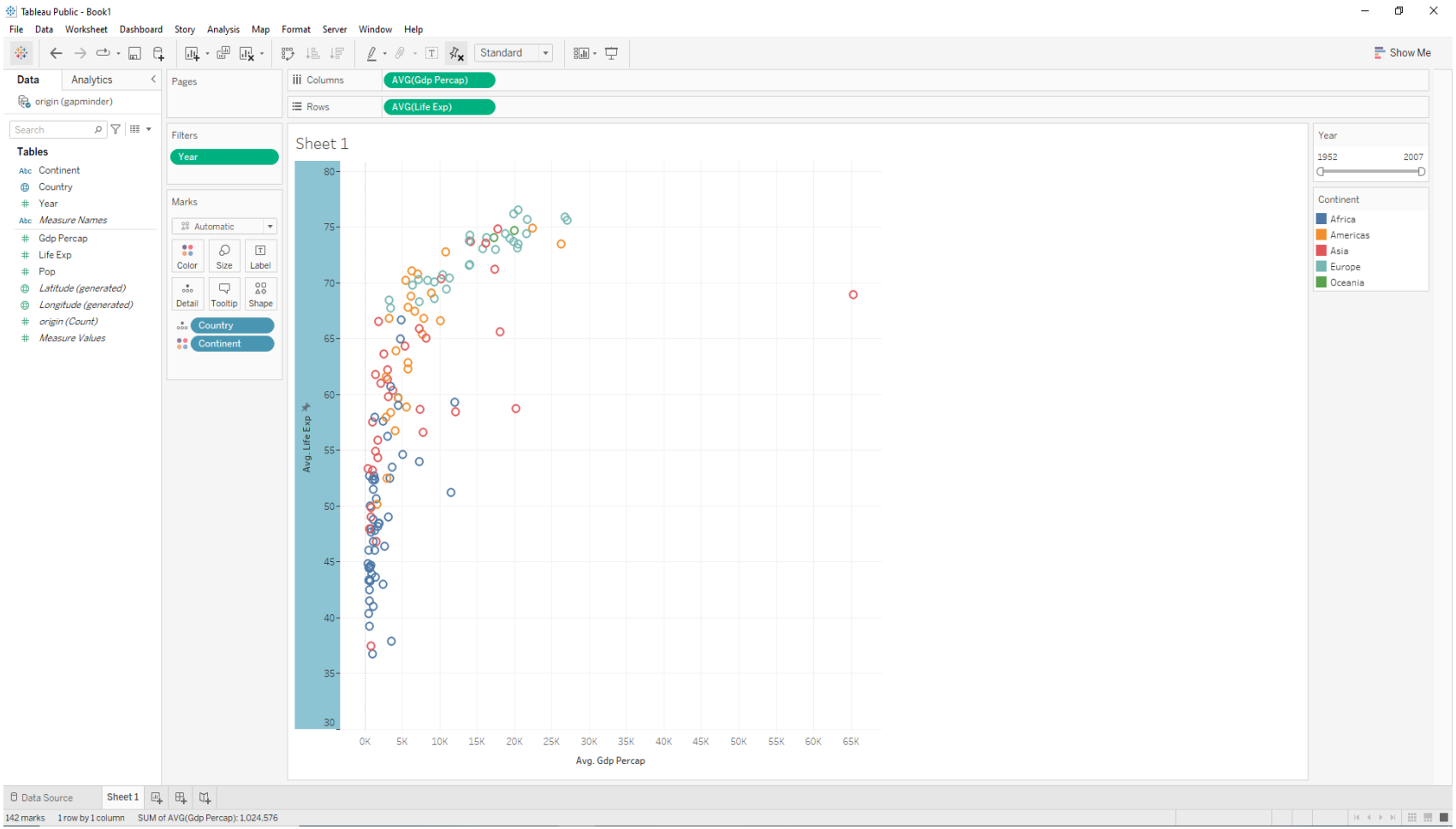

Figure 13: ...or something like this if we play more

Visualizing data: the Excel file of Gapminder data (6)

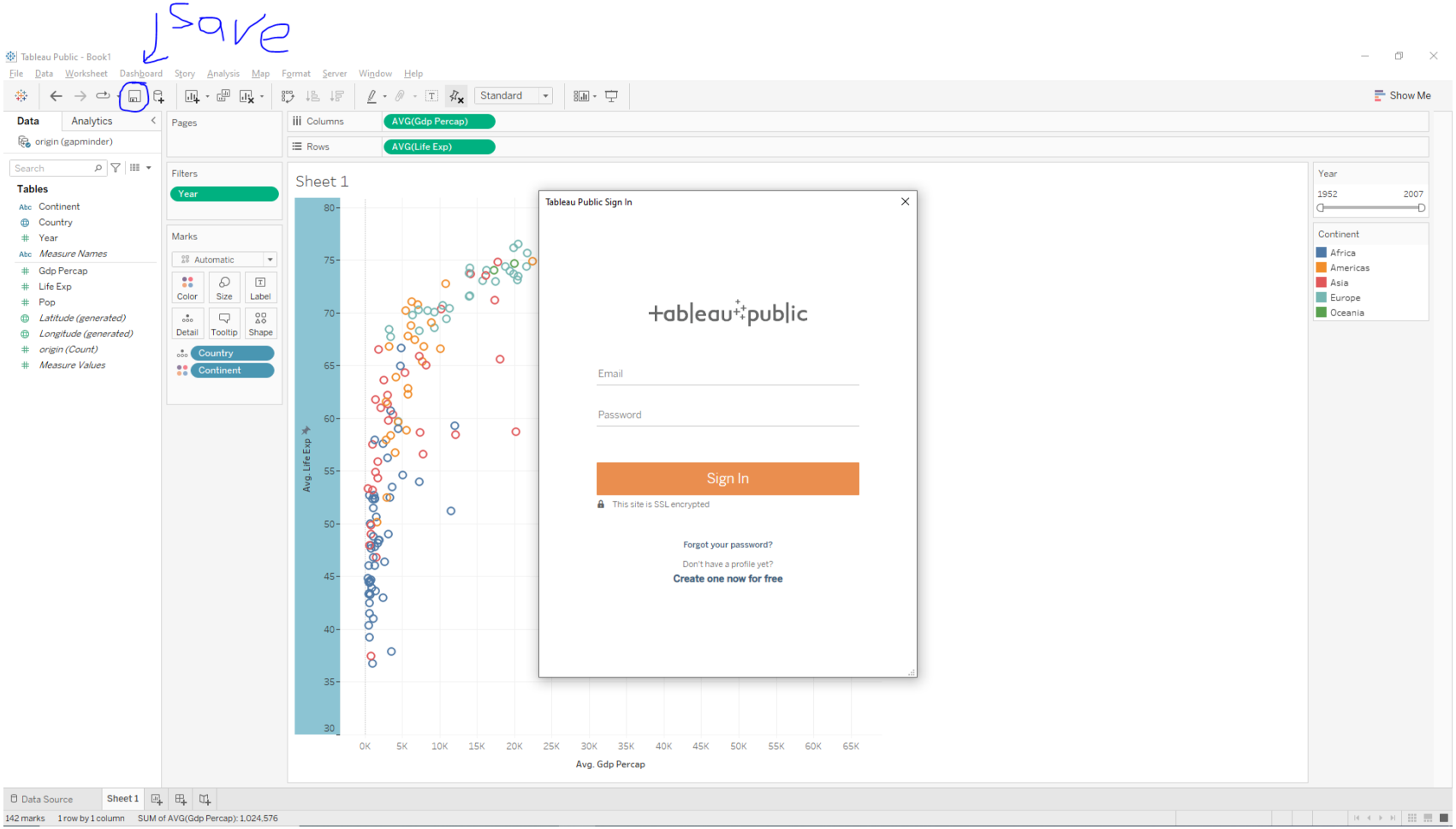

Figure 14: ...click the Save button. You may be asked to register.

Visualizing data: the Excel file of Gapminder data (7)

Group activity (1)

- Now please use the Gapminder file to do your own illustration.

Supplement materials

- Tableau for Beginners – Data Visualisation made easy (link)
- A Step by Step Guide for Data Visualization using Tableau (link)
- How to Install Tableau and Create First Visualization | Tableau Tutorials for Beginners (link)

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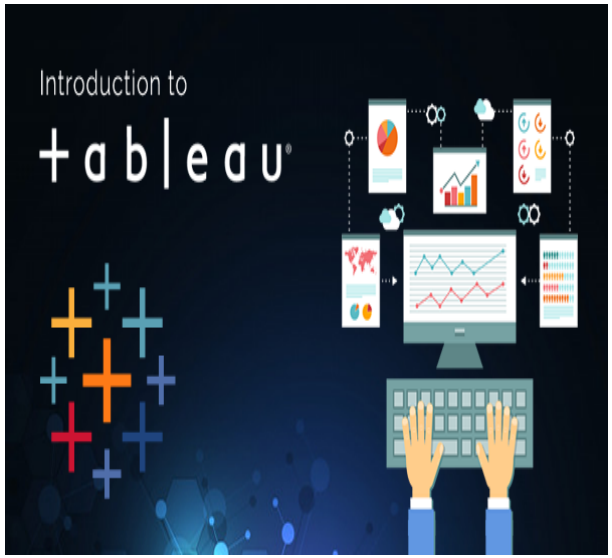
Group activity (2)



Please do the flowing:

- Upload the file “Most Profitable Hollywood Stories.csv” to Tableau.
- Explore the data. What do you have there?
- Do the visualization to illustrate most profitable films by genre, year, score, etc.
  - use grouping, averaging, etc.
- Save and upload your work to the System.
- Please remember to indicate all your teammates full names and IDs.

Thank you!

- Have a nice day!