INTRODUCTION TO TABLEAU

CSE412 Data Visualization Wi'25 | Lecture 5

Tal Wolman

AGENDA

- Final Project Questions & Clarifications
- Visualization Tools
- Introduction to Tableau (yahoo!)

FORTHCOMING DUE DATES

- FP1 due Thursday (1/30) to Gradescope
- A3 released later today. Due next Thursday (2/6) to Gradescope

EXPLORATORY ANALYSIS

Start off with a question or hypothesis
What's interesting?
What are the trends?
Anomalies?



EXPLANATORY ANALYSIS

Once you've identified that interesting thing.
How to best communicate it visually?
How to tell a visual story?

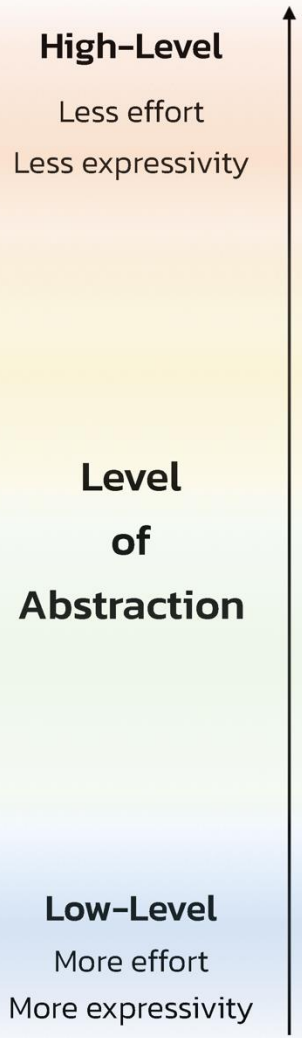
VISUALIZATION TOOLS

MANY DIFFERENT VIS TOOLS

ECharts
Vega-Lite
FusionCharts
Google Charts
Plotly
Tableau
Vega
@deck.gl/core
G2Plot
@deck.gl/json
Chart.js
Chartist.js
PowerBI
dc.js
Victory
nivo
Muze
Datawrapper
G2
vue-trend
dimple
Unfolded.ai
Semiotic
p5*js
Thoughtspot
D3
cola
HighCharts
Unfolded.ai
React-Vis
flubber
react-rough
labella
react-three-fiber
Qlik
Redash
Superset
Recharts
three.js
pixi.js
Chart-Parts
@deck.gl/react
Spotfire
Kibana
visx
d3-annotation
Rough.js
Excel
and many more...

Source: Kanit "Ham" Wongsuphasawat, CSE412 Lecture, 2022

Visualization Tool Landscape



Source: Kanit "Ham" Wongsuphasawat, CSE412 Lecture, 2022

Visualization Tool Landscape

Programming Interfaces **(APIs)**

Graphical User Interfaces **(GUIs)**

High-Level

Less effort

Less expressivity

Level of Abstraction

Low-Level

More effort

More expressivity

Source: Kanit "Ham" Wongsuphasawat, CSE412 Lecture, 2022

Visualization Tool Landscape

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Graphics Tools

Graphics API

p5.js, Processing, SVG, Web Canvas, WebGL, Core Graphics, OpenGL

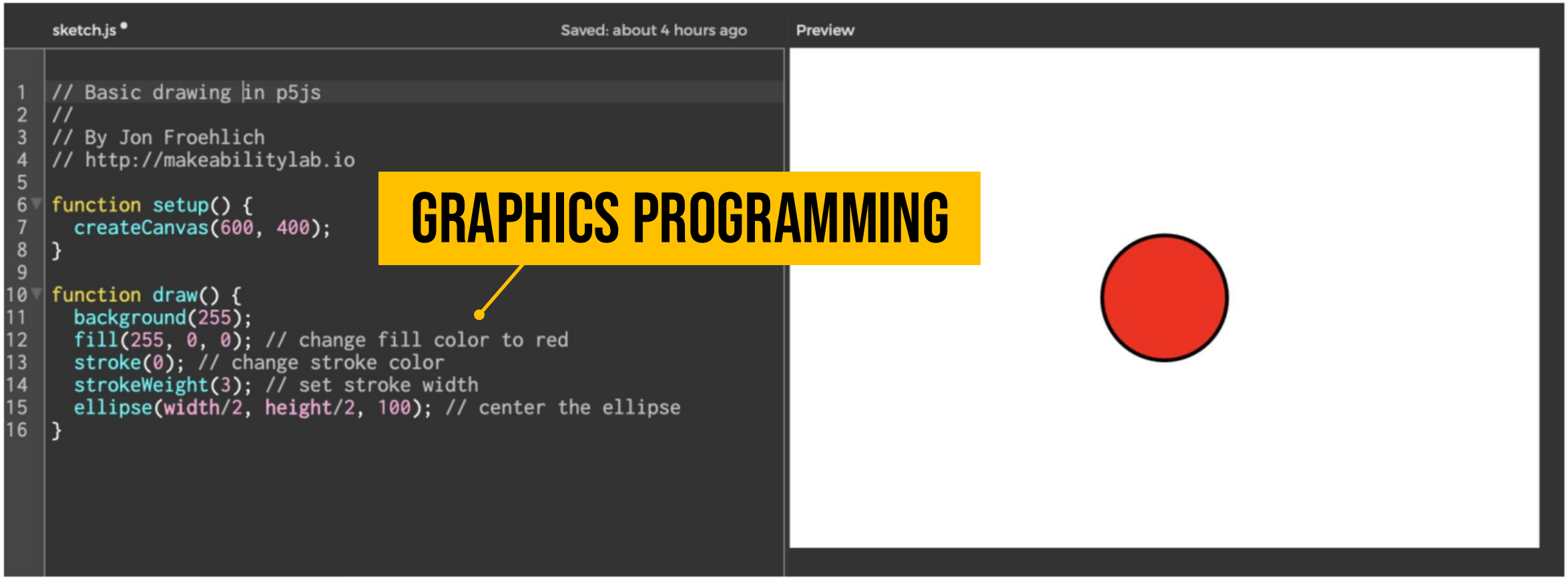
Graphics Design GUIs

Adobe Illustrator, Affinity Designer, Figma, Sketch, Inkscape

Source: Kanit "Ham" Wongsuphasawat, CSE412 Lecture, 2022

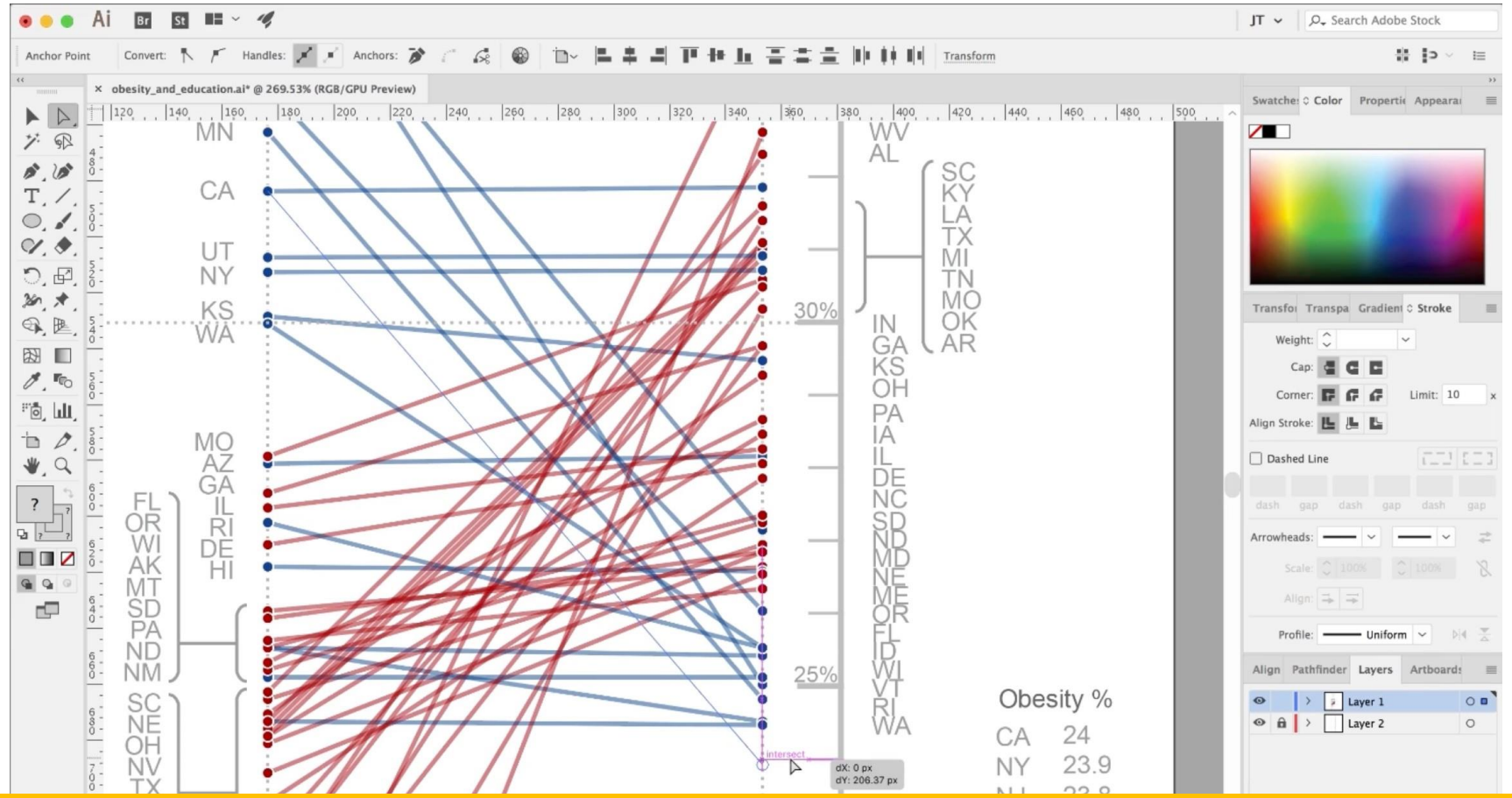
LOW-LEVEL VIS TOOLS

P5.JS GRAPHICS API



LOW-LEVEL VIS TOOLS

ADOBE ILLUSTRATOR



Industry practice: **Export charts** from high-level tools and do **final edits** in graphic design tools like **Illustrator**

Visualization Tool Landscape

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Graphical User Interfaces (GUIs)

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Source: Kanit "Ham" Wongsuphasawat, CSE412 Lecture, 2022

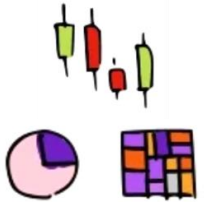
Visualization Tool Landscape

		Programming Interfaces (APIs)	Graphical User Interfaces (GUIs)
High-Level Less effort Less expressivity	 **Chart Templates**	**Chart Template APIs** charts.js, qplot, c3.js	**Chart Template GUIs** Charts in Spreadsheets PowerBI, Looker, Datawrapper
Level of Abstraction			
Low-Level More effort More expressivity	 **Graphics Tools**	**Graphics API** p5.js, Processing, SVG, Web Canvas, WebGL, Core Graphics, OpenGL	**Graphics Design GUIs** Adobe Illustrator, Affinity Designer, Figma, Sketch, Inkscape

Source: Kanit "Ham" Wongsuphasawat, CSE412 Lecture, 2022

HIGH-LEVEL VIS TOOLS

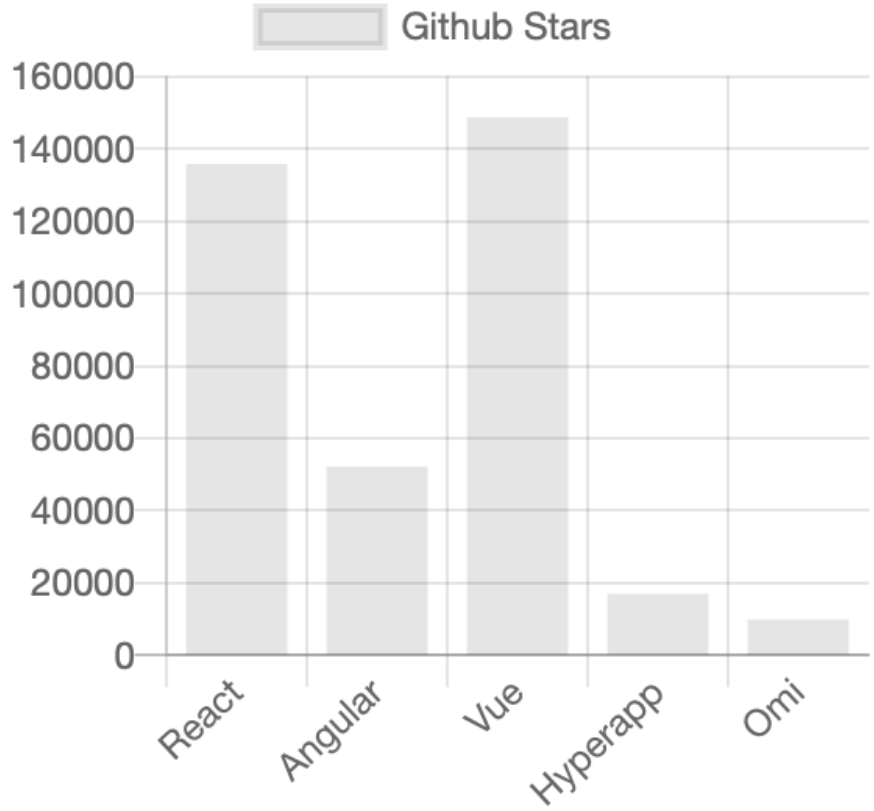
CHARTS.JS TEMPLATE API



```
var ctx = document.getElementById('myChart');

var stars = [135850, 52122, 148825, 16939, 9763];
var frameworks = ['React', 'Angular', 'Vue', 'Hyperapp', 'Omi'];

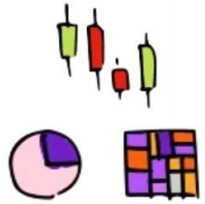
var myChart = new Chart(ctx, {
 type: 'bar',
 data: {
    labels: frameworks,
    datasets: [{
        label: 'Github Stars',
        data: stars
    }]
 },
})
```

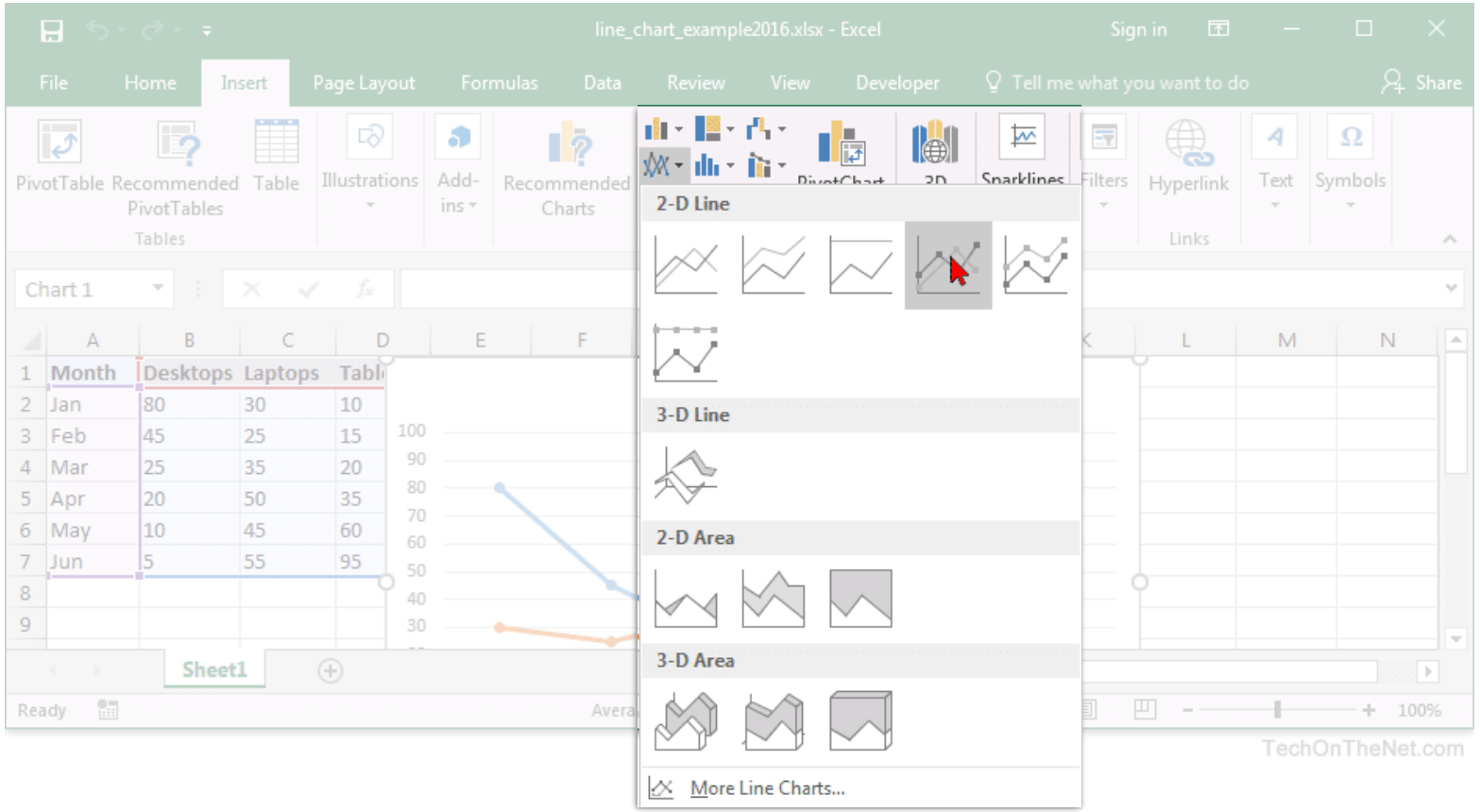


Source: Kanit "Ham" Wongsuphasawat, CSE412 Lecture, 2022

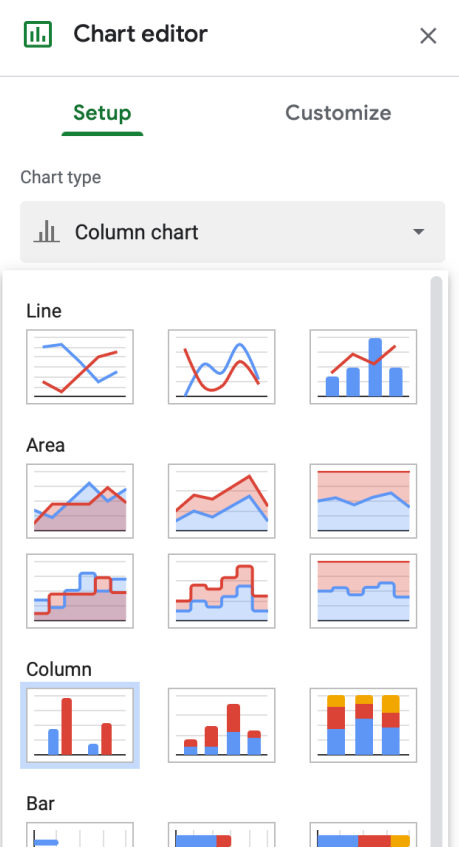
HIGH-LEVEL VIS TOOLS

SPREADSHEET CHARTS





Excel



Google Sheets

Source: Kanit "Ham" Wongsuphasawat, CSE412 Lecture, 2022

Visualization Tool Landscape

Level of Abstraction		Programming Interfaces (APIs)	Graphical User Interfaces (GUIs)
High-Level Less effort Less expressivity	 **Chart Templates**	Chart Template APIs charts.js, qplot, c3.js	Chart Template GUIs Charts in Spreadsheets PowerBI, Looker, Datawrapper
		?	
Low-Level More effort More expressivity	 **Graphics Tools**	Graphics API p5.js, Processing, SVG, Web Canvas, WebGL, Core Graphics, OpenGL	Graphics Design GUIs Adobe Illustrator, Affinity Designer, Figma, Sketch, Inkscape

Source: Kanit "Ham" Wongsuphasawat, CSE412 Lecture, 2022

Visualization Tool Landscape

Programming Interfaces (APIs)

Graphical User Interfaces (GUIs)

High-Level
Less effort
Less expressivity

Level of Abstraction

Low-Level
More effort
More expressivity

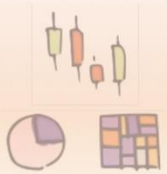
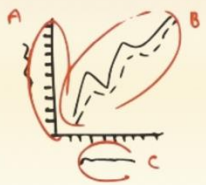


Chart Templates

Chart Template APIs
charts.js, qplot, c3.js

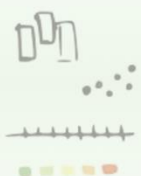
Chart Template GUIs
Charts in Spreadsheets
PowerBI, Looker, Datawrapper
Chart Templates in Illustrator



High-Level Building Blocks

High-level Grammar
Vega-Lite/Altair, ggplot2

Visual Analysis GUIs
Tableau's Sheet, Voyager
Chart Builder in Hex & Deepnote



Low-Level Building Blocks



Graphics Tools

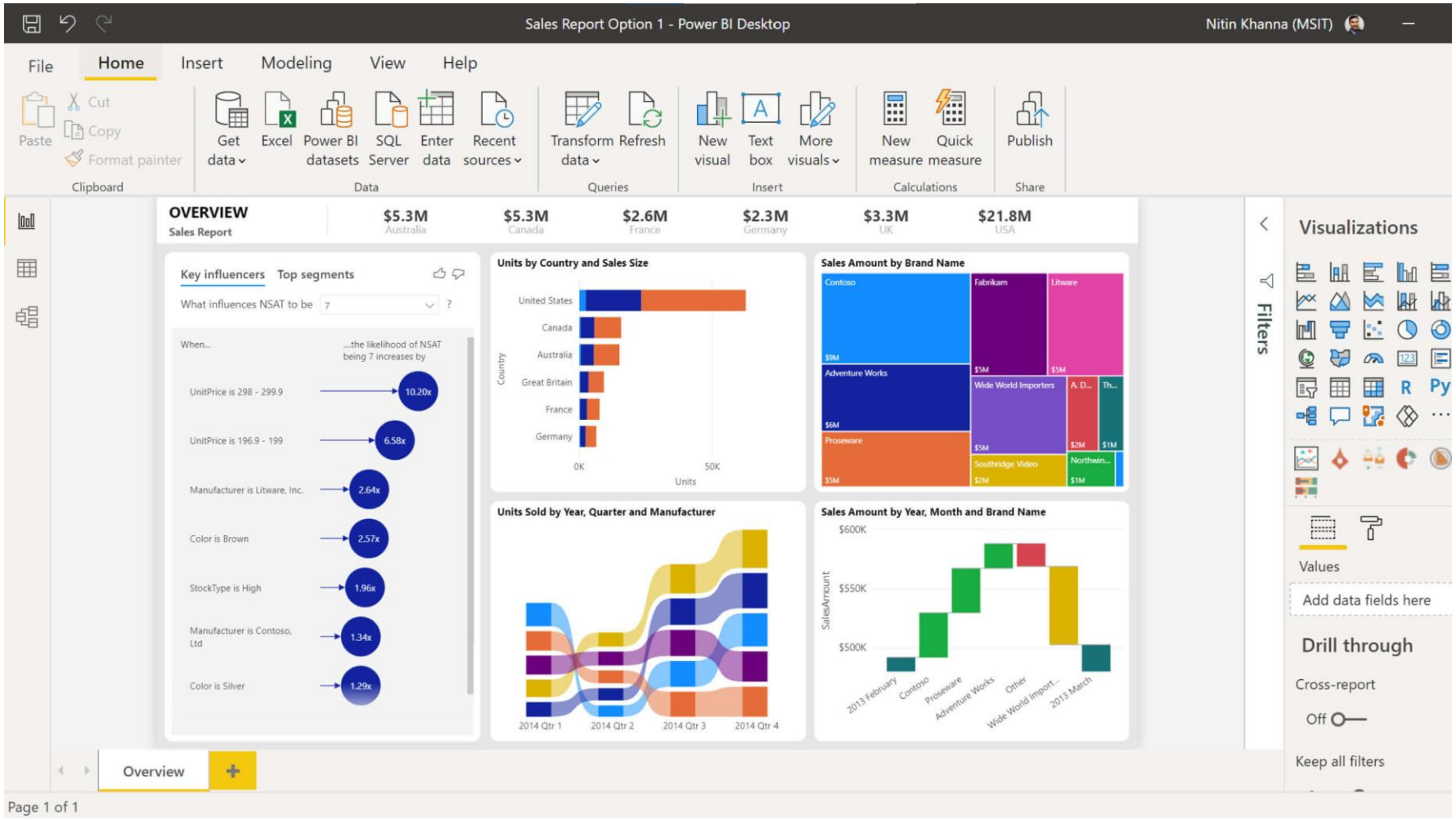
Graphics API
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Graphics Design GUIs
Adobe Illustrator, Affinity Designer, Figma, Sketch, Inkscape

Source: Kanit "Ham" Wongsuphasawat, CSE412 Lecture, 2022

HIGH-LEVEL BUILDING BLOCKS

MICROSOFT POWER BI DESKTOP



HIGH-LEVEL BUILDING BLOCKS

TABLEAU DESKTOP



Visualization Tool Landscape

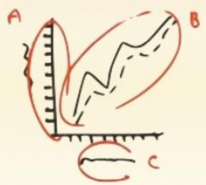
High-Level
Less effort
Less expressivity

Level of Abstraction

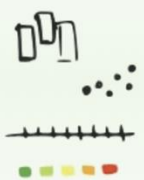
Low-Level
More effort
More expressivity



Chart Templates



High-Level Building Blocks



Low-Level Building Blocks



Graphics Tools

Programming Interfaces (APIs)

Chart Template APIs
charts.js, qplot, c3.js

Composable Templates APIs
eChart, Plotly, Highcharts, seaborn

High-level Grammar
Vega-Lite/Altair, ggplot2

Low-level Grammar
Vega, Protovis

Independent Building Blocks
D3.js, visx

Graphics API
p5.js, Processing, SVG, Web Canvas, WebGL, Core Graphics, OpenGL

Graphical User Interfaces (GUIs)

Chart Template GUIs
Charts in Spreadsheets
PowerBI, Looker, Datawrapper
Chart Templates in Illustrator

Visual Analysis GUIs
Tableau's Sheet, Voyager
Chart Builder in Hex & Deepnote

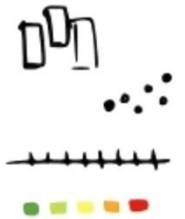
Visualization Design GUIs
Charticulator*, Data Illustrator*, Lyra*

Graphics Design GUIs
Adobe Illustrator, Affinity Designer, Figma, Sketch, Inkscape

Source: Kanit "Ham" Wongsuphasawat, CSE412 Lecture, 2022

LOW-LEVEL BUILDING BLOCKS

VISUALIZATION BUILDING BLOCKS



Data Input data source to visualize.

Transforms Filter, aggregation, binning, etc.

Marks Graphical elements for representing data.

Encodings Mappings between data and mark properties.

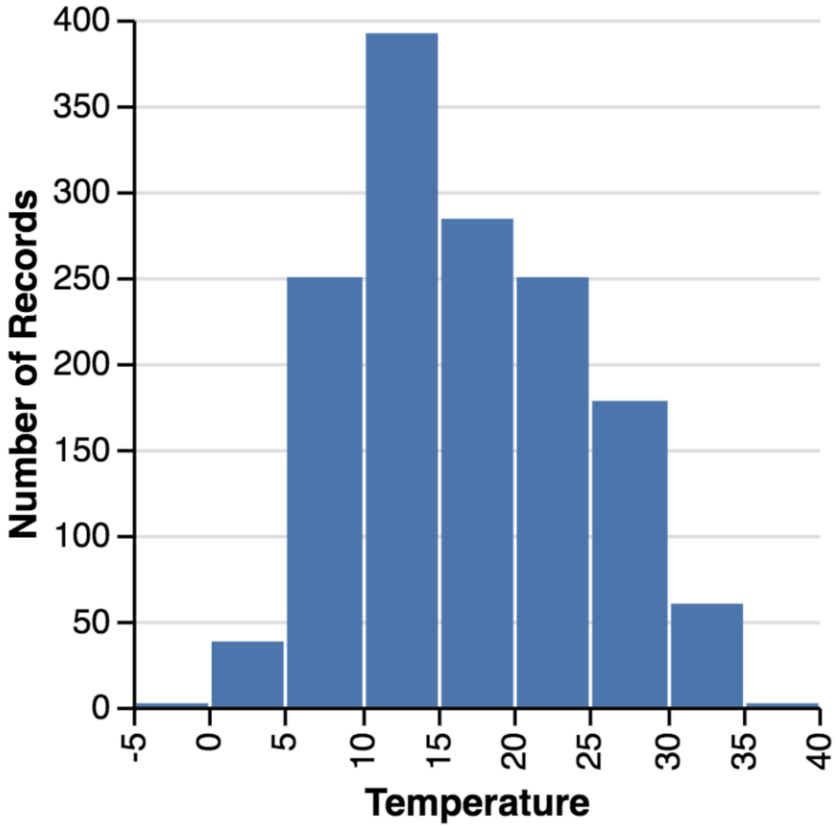
- **Scales** Functions that map data values to visual values.
- **Guides** Axes & legends that visualize scales.



Vega-Lite: Visualization Grammar

Providing default **scales** and **guides** as parts of encodings

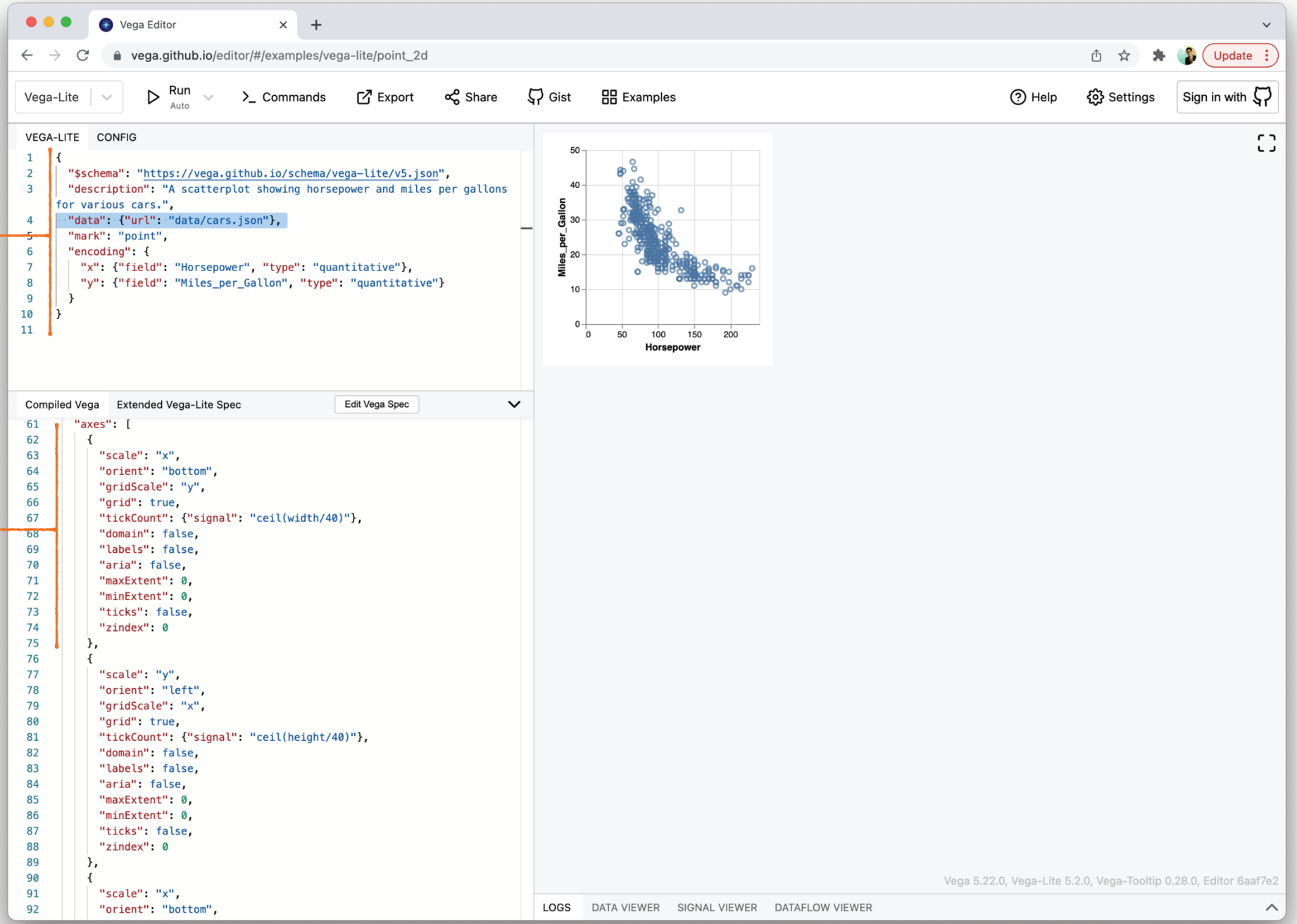
```
{
  data: {url: "weather-seattle.json"},
  mark: "bar",
  encoding: {
    x: {
      bin: true,
      field: "temperature",
      type: "quantitative",
      scale: {type: "linear", domain: [-5, 40]},
      axis: {…}
    },
   y: {
      aggregate: "count",
      type: "quantitative",
      scale: {type: "linear", domain: [0, 400]}
    }
  }
}
```



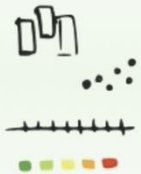
Vega-Lite vs Vega

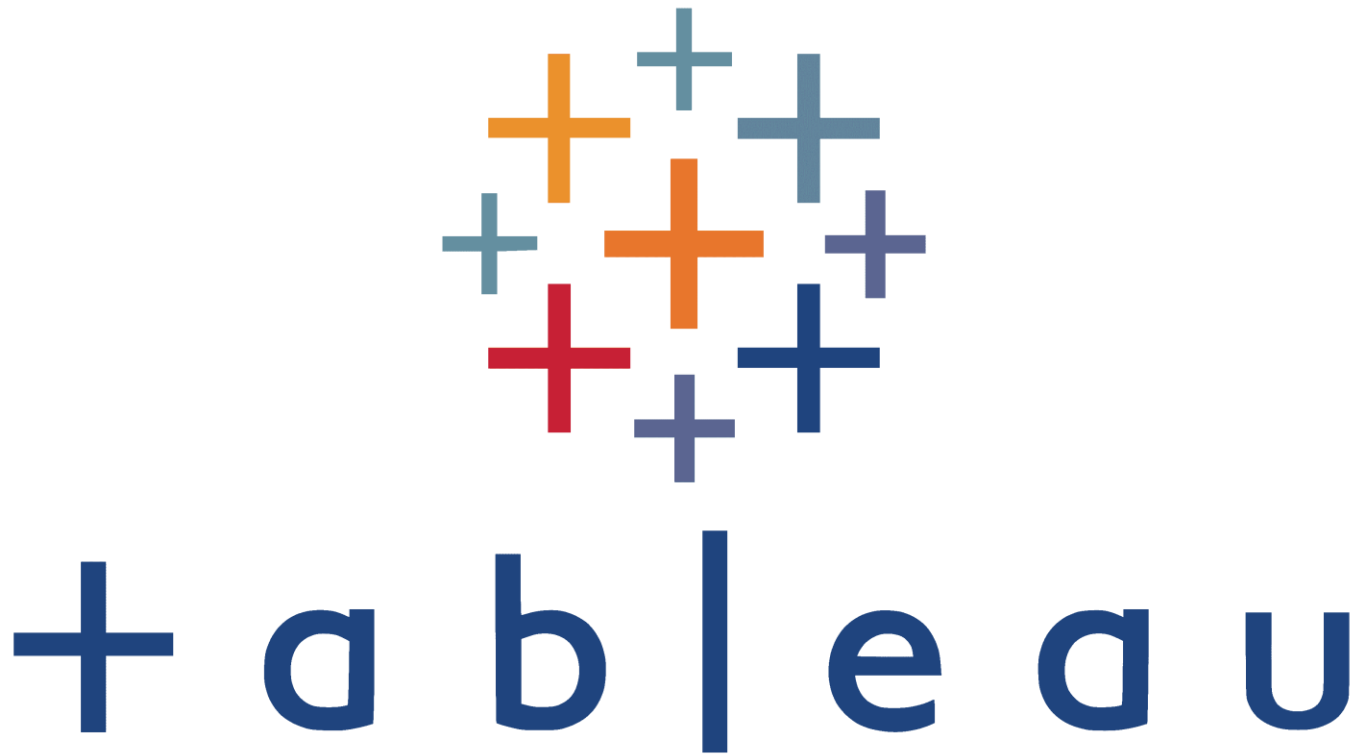
Vega-Lite (~10 lines)
only high-level details

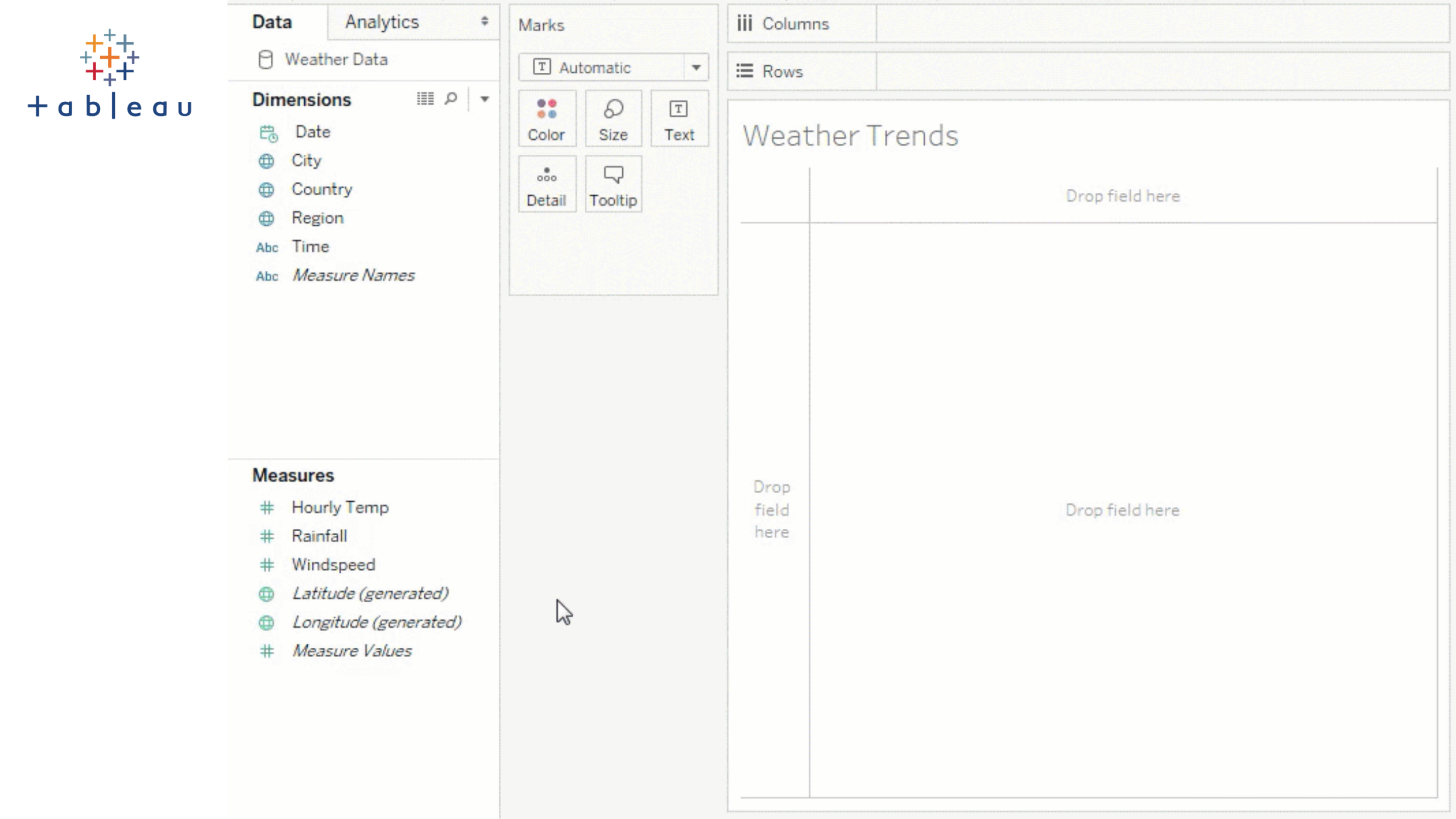
Vega (~100 lines)
includes specs
for low-level details
like for scales and axes



Visualization Tool Landscape

Level of Abstraction		Programming Interfaces (APIs)	Graphical User Interfaces (GUIs)
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	 **High-Level Building Blocks**	**High-level Grammar** Vega-Lite, Altair, ggplot2	**Visual Analysis GUIs** Tableau's Sheet, Voyager Chart Builder in Hex & Deepnote
	 **Low-Level Building Blocks**	**Low-level Grammar** Vega, Protovis **Independent Building Blocks** D3.js, visx	**Visualization Design GUIs** Charticulator*, Data Illustrator*, Lyra*
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+ableau


Data
Analytics
Weather Data
Dimensions
Date
City
Country
Region
Time
Measure Names
Measures
Hourly Temp
Rainfall
Windspeed
Latitude (generated)
Longitude (generated)
Measure Values
Marks
Automatic
Color
Size
Text
Detail
Tooltip
Columns
Rows
Weather Trends
Drop field here
Drop field here
Drop field here
Drop field here



tableau

Fast
Expressive
Popular

Global COVID-19 Tracker

Global | United States

Cumulative or New: New

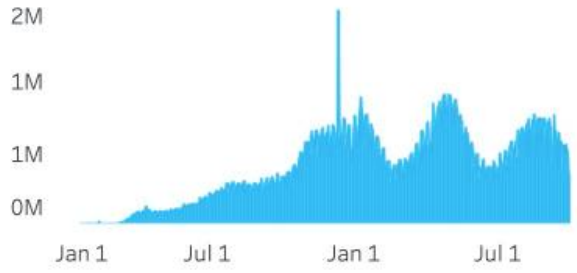
Positive Cases or Deaths: Positive Cases

New Positive Cases

334,208

▼ -9.1% vs previous day

367,527



New Deaths

5,134

▼ -2.4% vs previous day

5,259



New Positive Cases

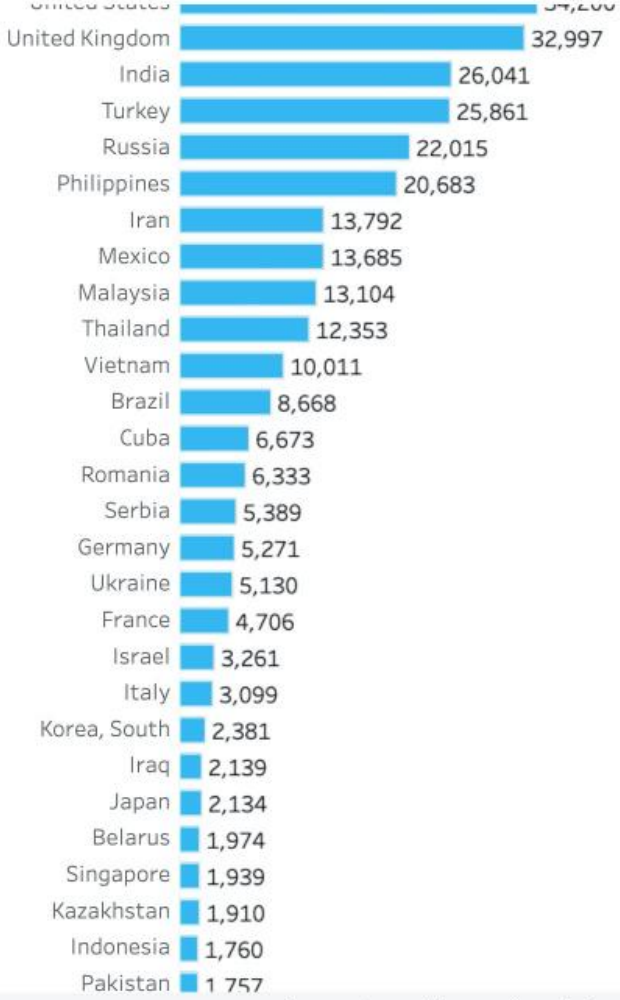
Select a Country to see more details



© 2021 Mapbox © OpenStreetMap

New Positive Cases

Select a Country to see more details



Great Resignation or Great Awakening?

DataSource : Quit Rates (by Industry) released for Feb 2022
Quit Rates (by State) released for Jan 2022

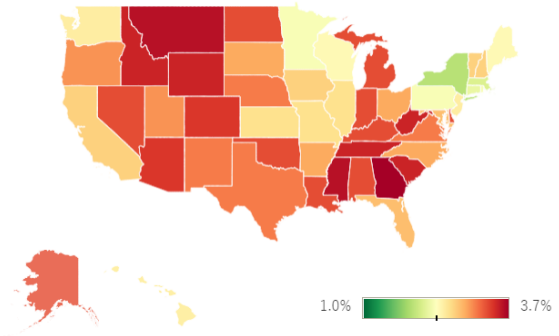
Employees are quitting their jobs at a very higher rate of **2.9%** (▲ 0.1% increase since Jan 2022) in Feb 2022 at the national level, contributing to the **Great Resignation**, also known as the **Big Quit** where employees are voluntarily leaving their jobs since spring 2021 in the United States. This high quit rate is attributed to the COVID-19 pandemic, wage stagnation despite increasing cost of living, no employee-friendly benefits like remote work, flexibility in work hours, and other dissatisfaction reasons.

The COVID-19 pandemic has made many people rethink what the most important thing is for them- their careers, work conditions, long-term goals, or work-life balance. Many employees now want to work remotely when they realized things were working fine during COVID-19 when no physical presence was needed at work. So when most employers tried to bring back their employees, many employees chose to work from home, leading to clashes in opinions in the work-life balance among executives and workers.

Industries like restaurants and hotels, that require in-person interactions, have been hit the hardest by the Great Resignation. During COVID-19, people who got stimulus packages and unemployment benefits when realized it was more than their average income, did not go back to work due to this huge variance.

Jan 2022 Quit Rates by US States

Month Year: January 2...

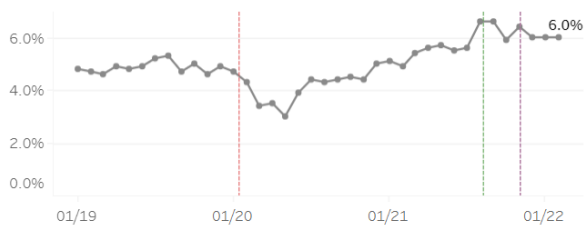


COVID-19 Start | 50% Fully Vaccinated in US | Omicron Start

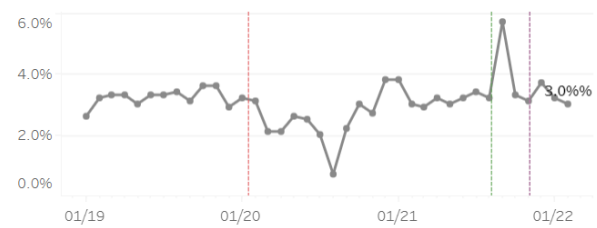
Restaurants, bars, and hotel industries have been hit hard by the wave of resignation with a quit rate of **6.0%** as compared to an overall national quit rate of **2.9%**. Nearly **4.3 million** Americans quit their jobs in Feb 2022 as many people sought out higher wages amid the recovery from the pandemic, opted for lifestyle changes, or lacked affordable childcare

6.0%
= 0.0% from prev month

Restaurants, Bars and Hotels



Arts, Entertainment & Recreation



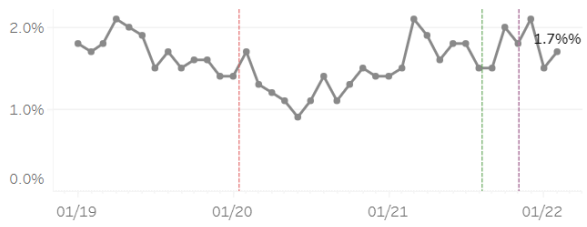
The arts, entertainment & recreation industry have seen a **3.0%** quit rate in Feb 2022. The casino industry, for example, has seen the highest turnover rate and have the largest number of unfilled jobs. However, Hollywood remains largely immune from this trend of quits.

3.0%
▼ -0.2% from prev month

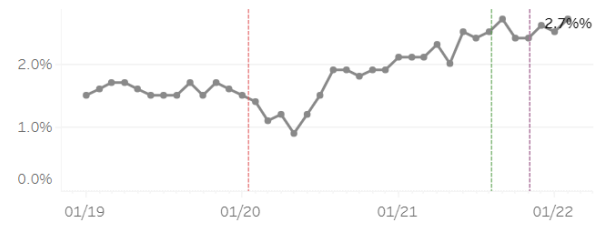
Though **Information Technology and Services** is not significantly affected (**1.7%**) but workers at major tech employers are considering a jump to smaller companies because of pandemic burnout that has forced many to re-evaluate their jobs and seek more control; resistance to being forced to go to the office; and frustrations at working within vast bureaucracies where change is glacial and outside criticism is fierce.

1.7%
▲ 0.2% from prev month

Information Technology and Services



Manufacturing



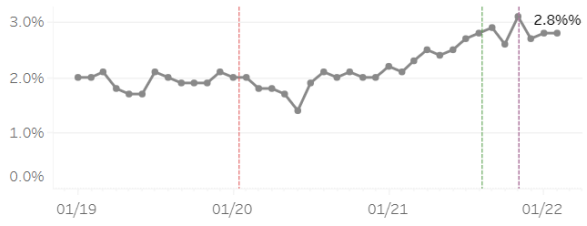
Manufacturing is a salary-sensitive industry that is prone to movement in labor. There is a shortage of hourly workers for industrial manufacturers and people are going where the money is. In Feb 2022, the quit rate in the manufacturing industry rose to **2.7%**

2.7%
▲ 0.2% from prev month

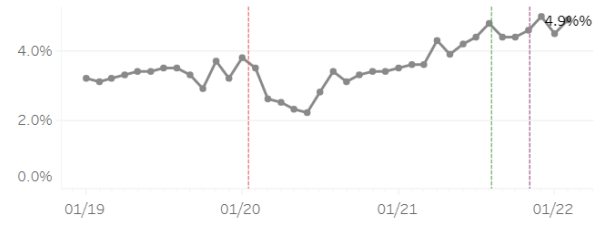
Healthcare appears to be one of the sectors most impacted by the "Great Resignation" of 2021, but COVID-19 isn't the only driver—physician burnout from healthcare system issues persists. Among those reasons was a lack of communication or collaboration with management and administration. Currently, the quit rate is **2.8%** in Feb 2022 in the healthcare and social assistance sector.

2.8%
= 0.0% from prev month

Health care and social assistance



Retail Trade

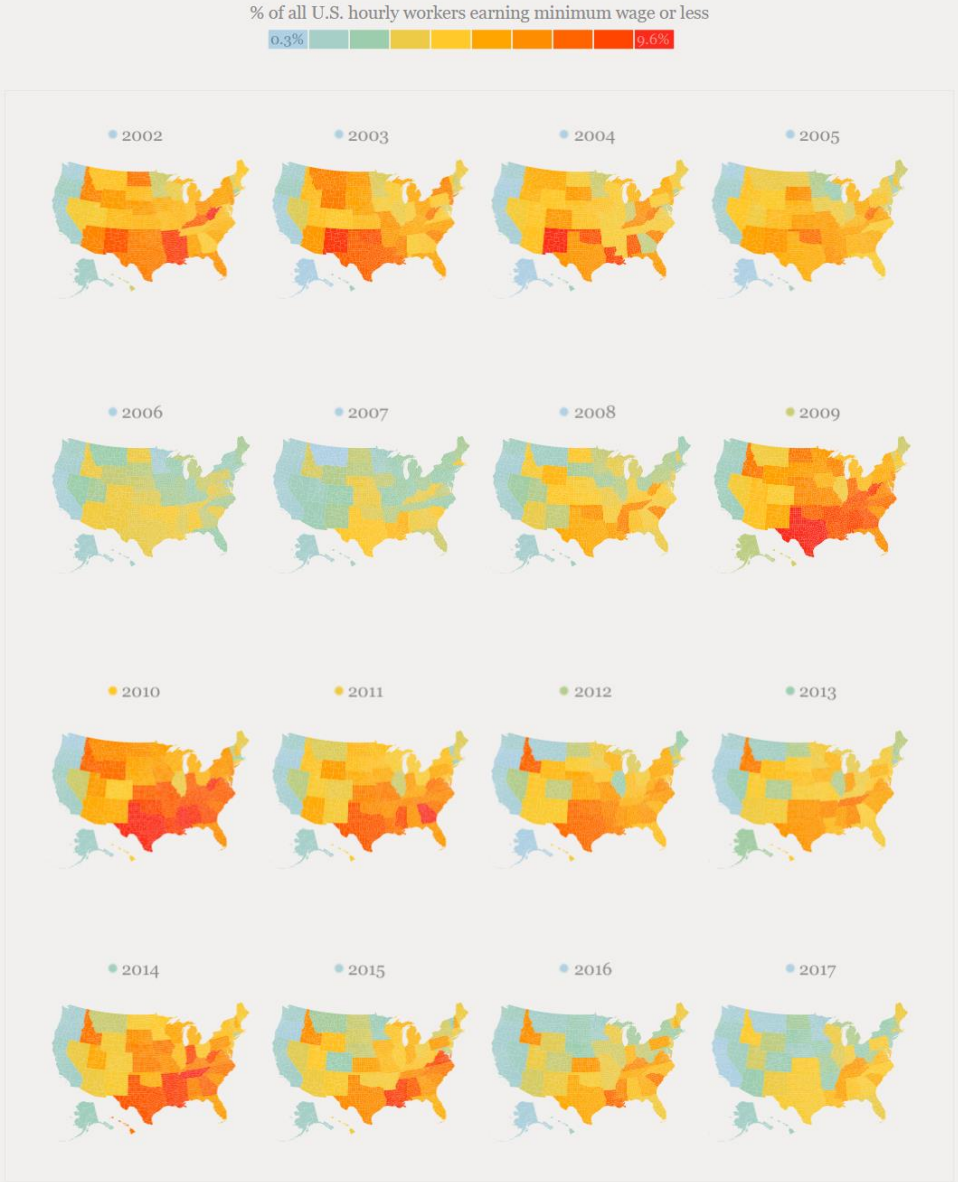


Retail is also severely affected by the wave of resignation (**4.9%**) in Feb 2022. The pandemic not only exacerbated existing challenges in their line of work, from low wages and paltry benefits to inconsistent hours and chronic understaffing but also made them rethink their work conditions and work-life balance

4.9%
▲ 0.4% from prev month

Source: Tableau Public, Nitin Paighowal, 2022

At Minimum.



Source: U.S. Bureau of Labor Statistics
Inspired by FiveThirtyEight's Ella Koeze

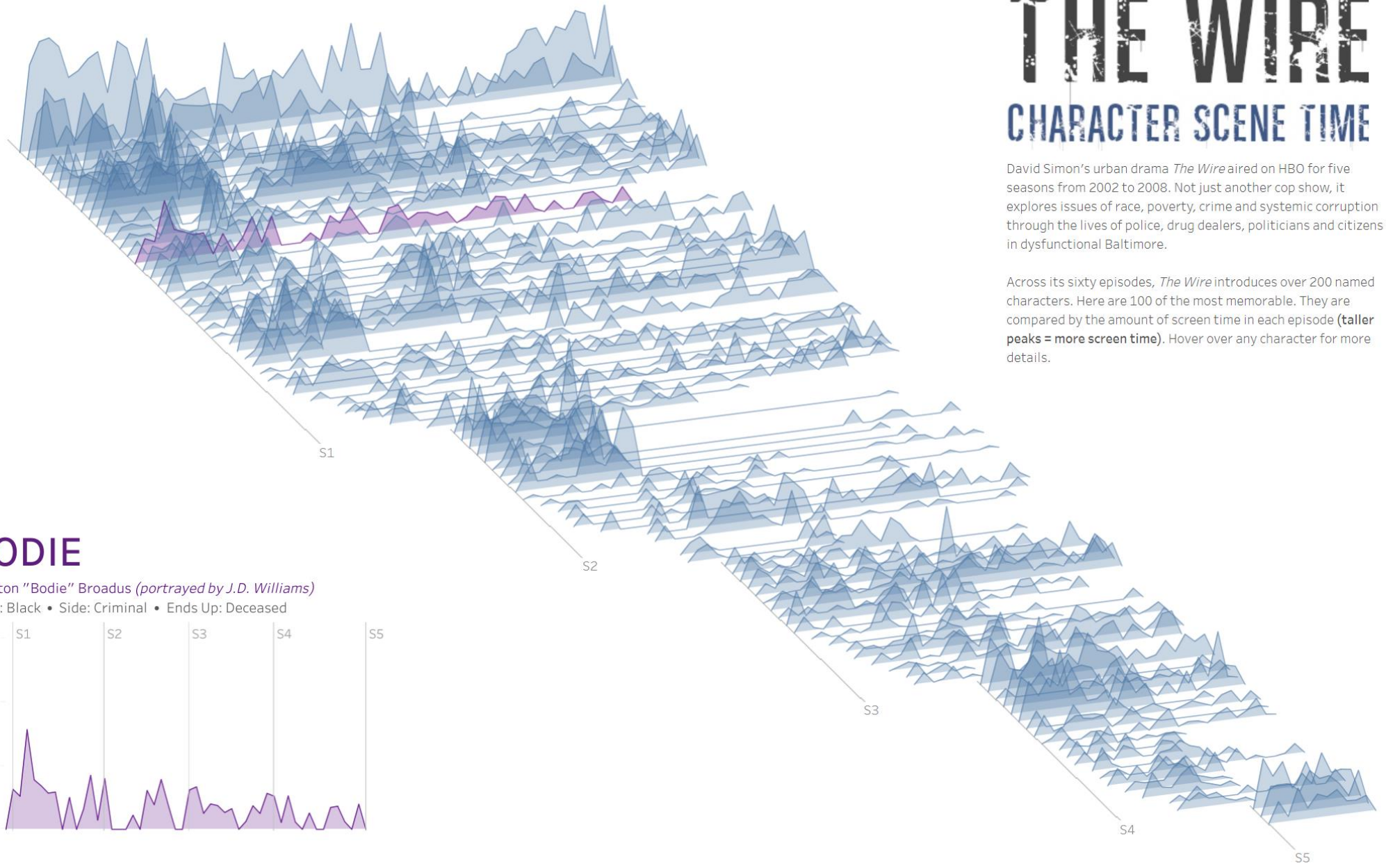
Source: Tableau Public, Justin Davis, 2019

THE WIRE

CHARACTER SCENE TIME

David Simon's urban drama *The Wire* aired on HBO for five seasons from 2002 to 2008. Not just another cop show, it explores issues of race, poverty, crime and systemic corruption through the lives of police, drug dealers, politicians and citizens in dysfunctional Baltimore.

Across its sixty episodes, *The Wire* introduces over 200 named characters. Here are 100 of the most memorable. They are compared by the amount of screen time in each episode **(taller peaks = more screen time)**. Hover over any character for more details.



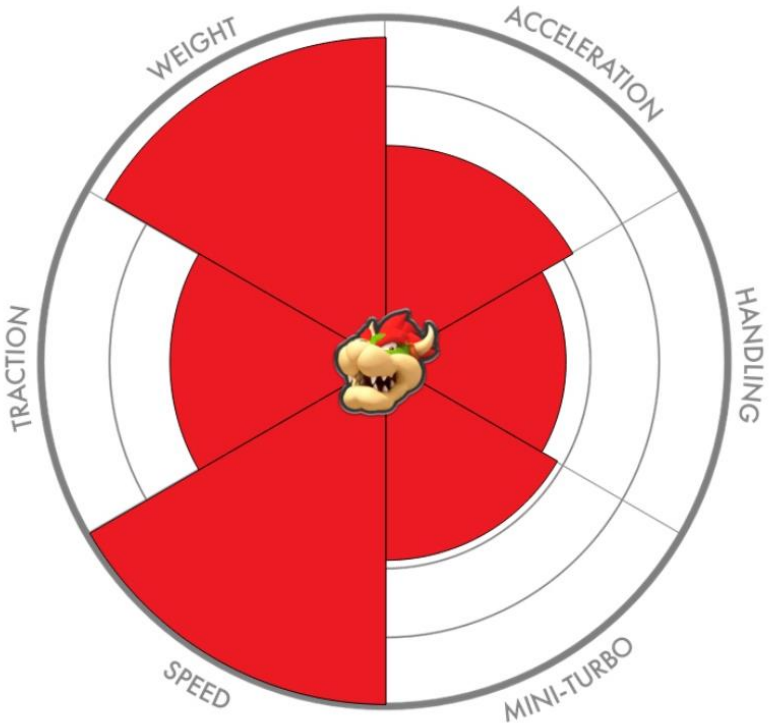
BODIE

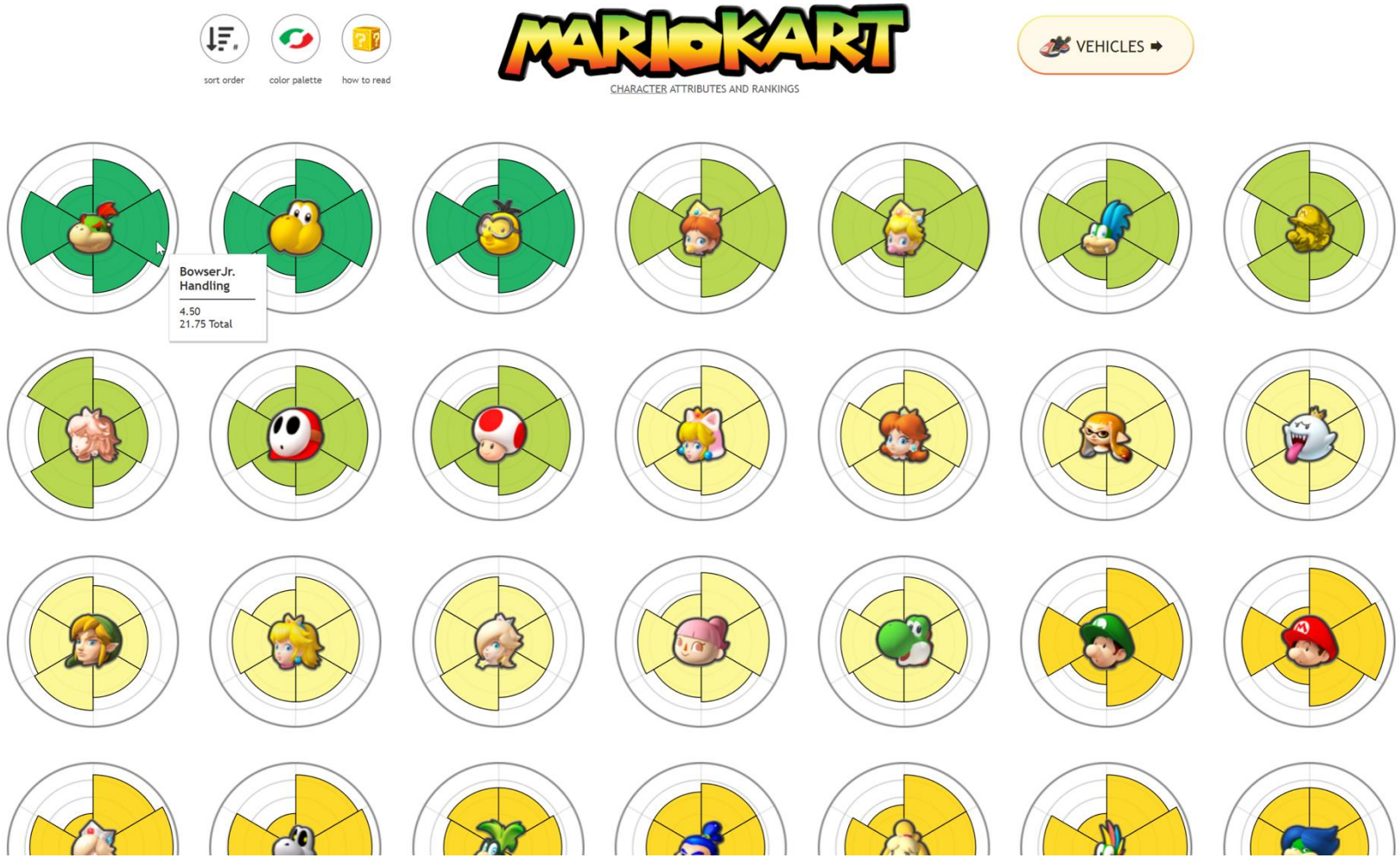
Preston "Bodie" Broadus *(portrayed by J.D. Williams)*

Race: Black • Side: Criminal • Ends Up: Deceased

DATA: the wire | DESIGN: @matthewAntoline | FONT: vtks ink by douglas vitkouskas

Source: Tableau Public, Matthew Antoline, 2021





Source: Tableau Public, Kevin Flerlage, 2022

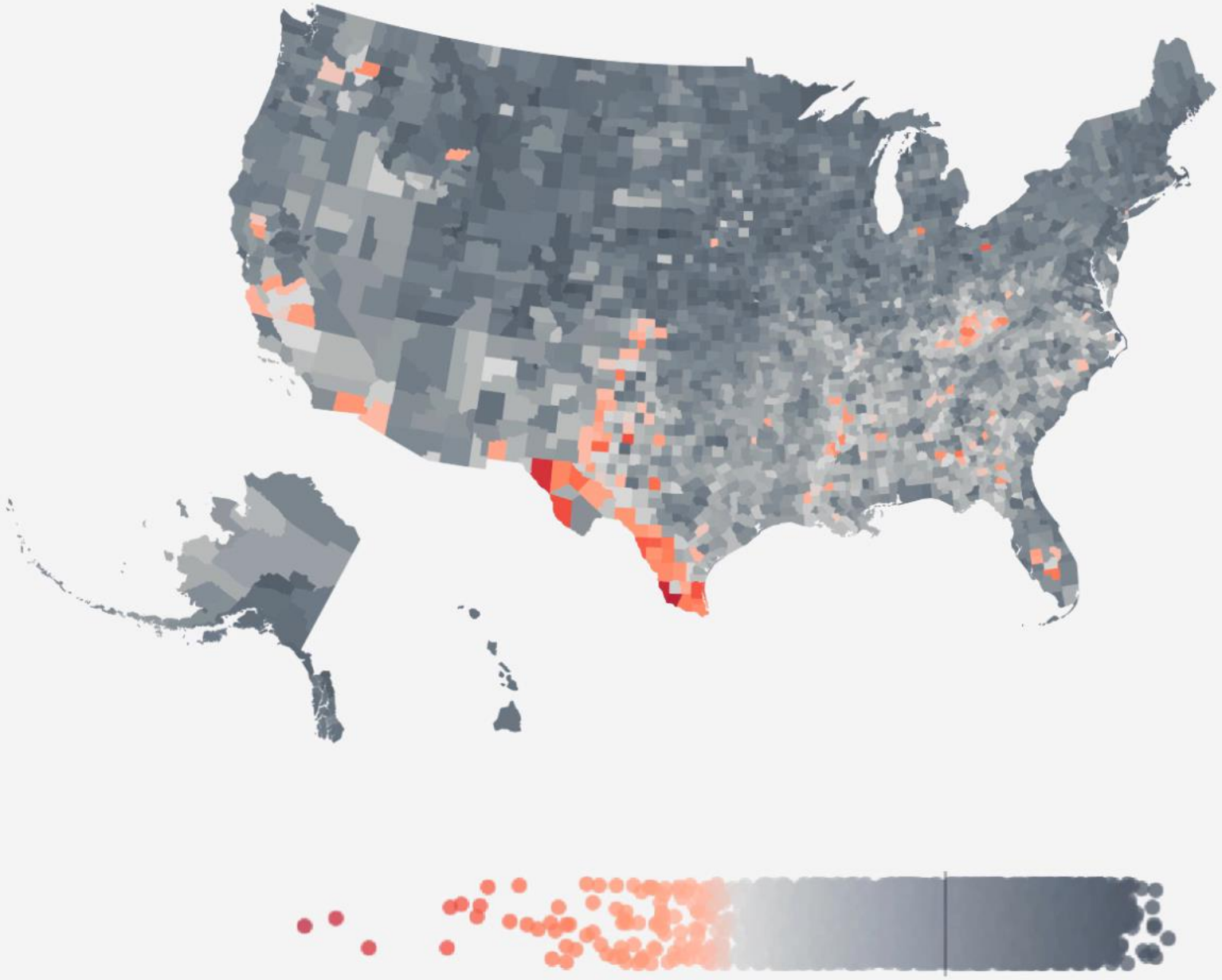
ALL INTERACTIVE

COUNTY LEVEL BENCHMARKS

The Social Capital Index is consistently - and strongly - related to a range of economic, social, demographic indicators. With this map, you can explore 25 indicators relating to employment, income and poverty, education, health, age, and race and ethnicity.

% adults graduated high school

48.5 — 98.7



Source: Tableau Public, Agata Ketterick, 2021

"Which J's are you feeling today" - Nike Jordan Dataviz by Gianmarco Fretti

WHICH J's ARE YOU FEELING TODAY?

Jordans are, in a word, **iconic** and synonymous with sneakers.

Until today more than **1848 models**, of 1 to 7 silhouttes, were designed and out of these **1138 were Jordans 1**, *the most famous sneaker ever.*

Every dot in the viz is a release, do you wanna know more about your beloved ones, click the right dot to open a box and find out .

Wondering how it happened ? Read more

Pointillism Dataviz





Air Jordan 1 Retro High 'Gym Red'

Silhouette: Air Jordan 1

Colorway: gym red/sail

Date: 06/28/2014

Designer: Peter Moore

Retail px: 140$

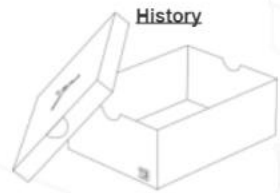
 # Sales: 38

Top Bid: 800 $

Lowest ask: 420 $

Premium Px: 104%

History

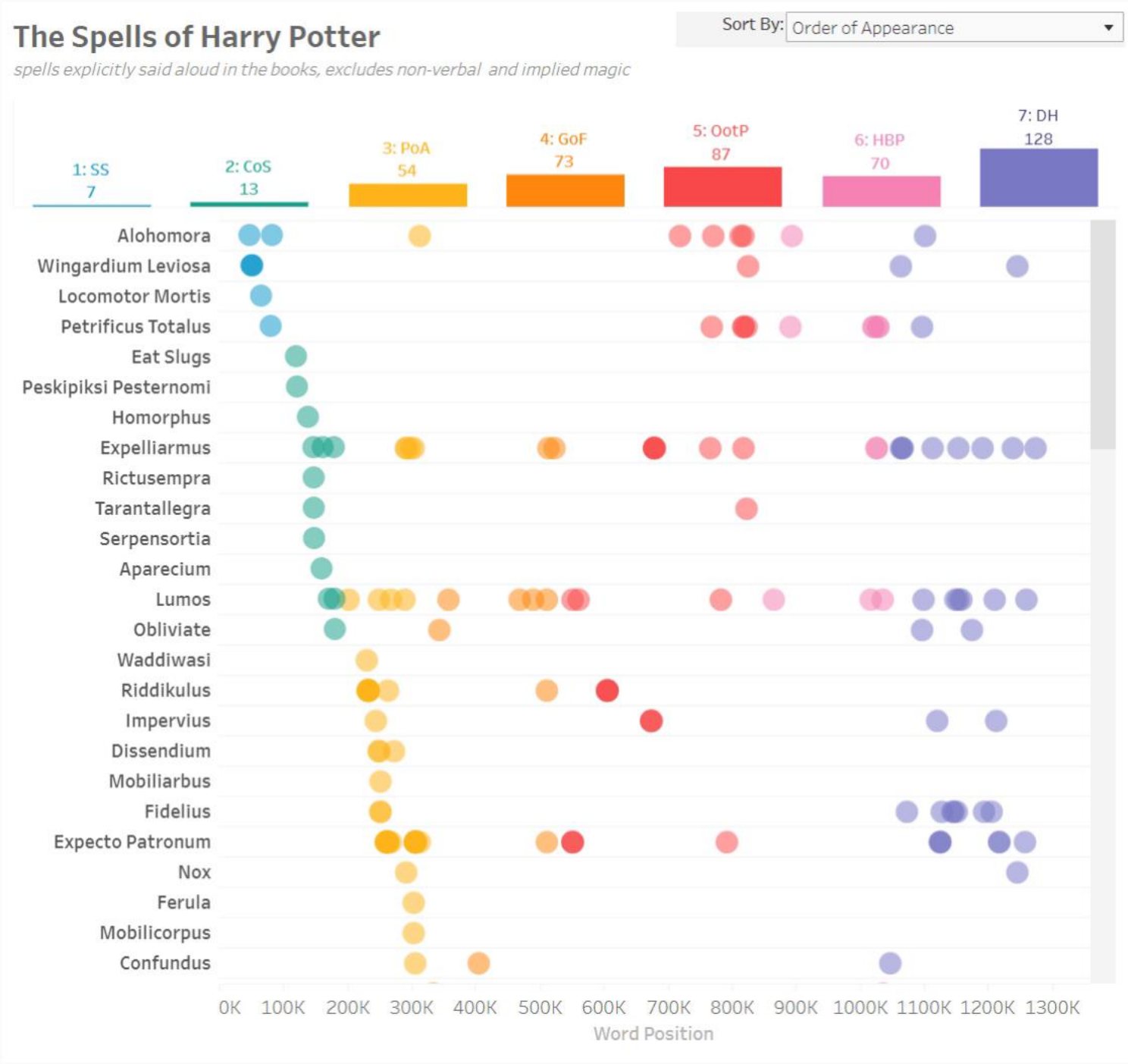


Data from: StockX - GOAT - Sneakernews - COMPLEX // up till Feb '21

How To ? Filter it

Viz Design: Gianmarco Fretti visualitics

+ableau



Source: Tableau Public, Skyler Johnson, 2016

Snowfall Extremes

A snowstorm that began in the afternoon of April 14, 1921 dumped 76 inches of snow - well over six feet - on Silver Lake (Boulder County), Colorado within 24-hours and set the record for most snow in one day. Another seven locations in the United States have recorded snowfalls over 60 inches within one day. NOAA tracks record snowfalls throughout the country dating back to December 1872 - a 27 inch blizzard in Kings County, New York. Explore the map further for one-day snowfall records by county.

TOP 8 COUNTIES WITH HIGHEST ONE-DAY SNOWFALL

76 in | Boulder County, CO 4/15/1921

75 in | Yuba County, CA 1/14/1952

70 in | Pierce County, WA 11/26/1955

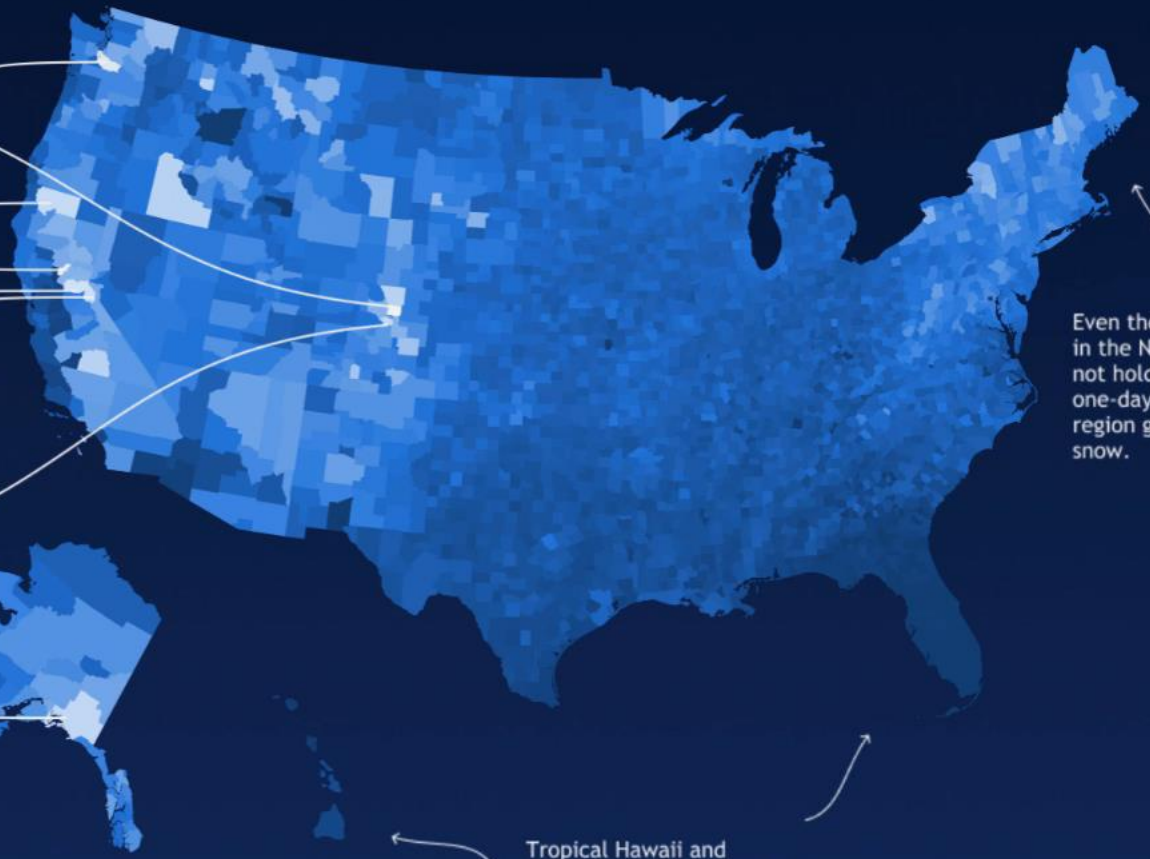
67 in | El Dorado County, CA 1/5/1982

65 in | Alpine County, CA 3/31/1982

63 in | Siskiyou County, CA 1/2/1901

63 in | Clear Creek County, CO 12/4/1913

62 in | Valdez-Cordova Census Area, AK 12/29/1955

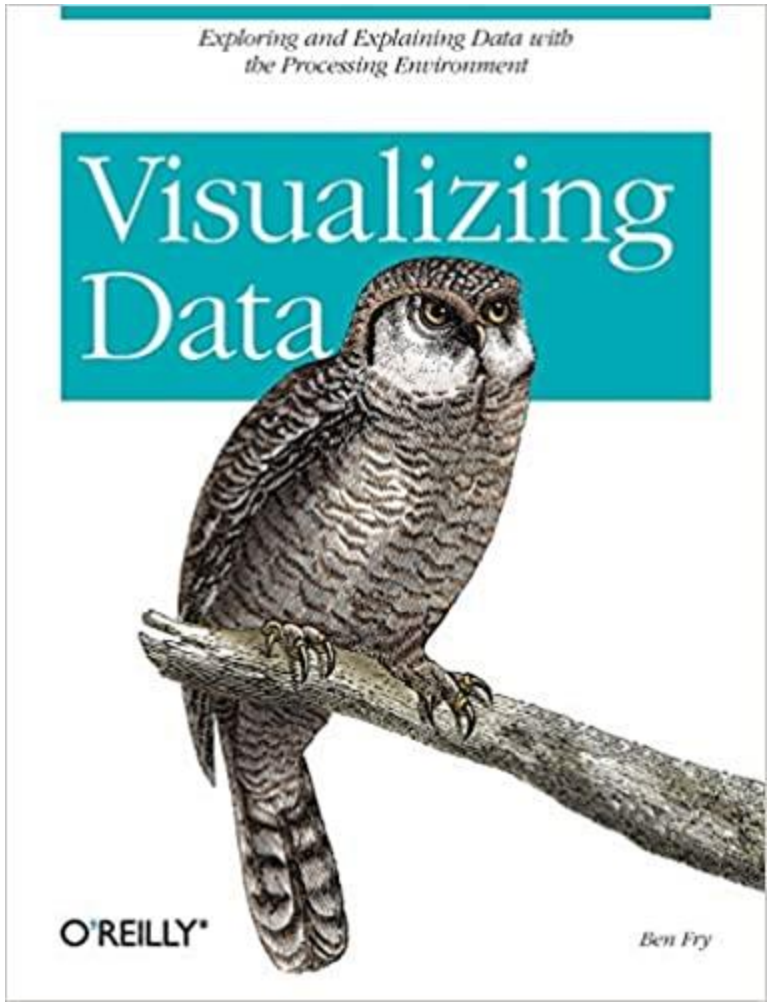


Even though counties in the Northeast do not hold records for one-day blizzards, the region gets plenty of snow.

The counties with the highest one-day snowfalls are home to mountainous terrain.

Tropical Hawaii and Florida receive the least amount of snow in the country.

Source: Tableau Public, Agata Ketterick, 2020



Source: Fry, Visualizing Data, O'Reilly, 2008, p5

acquire

parse

filter

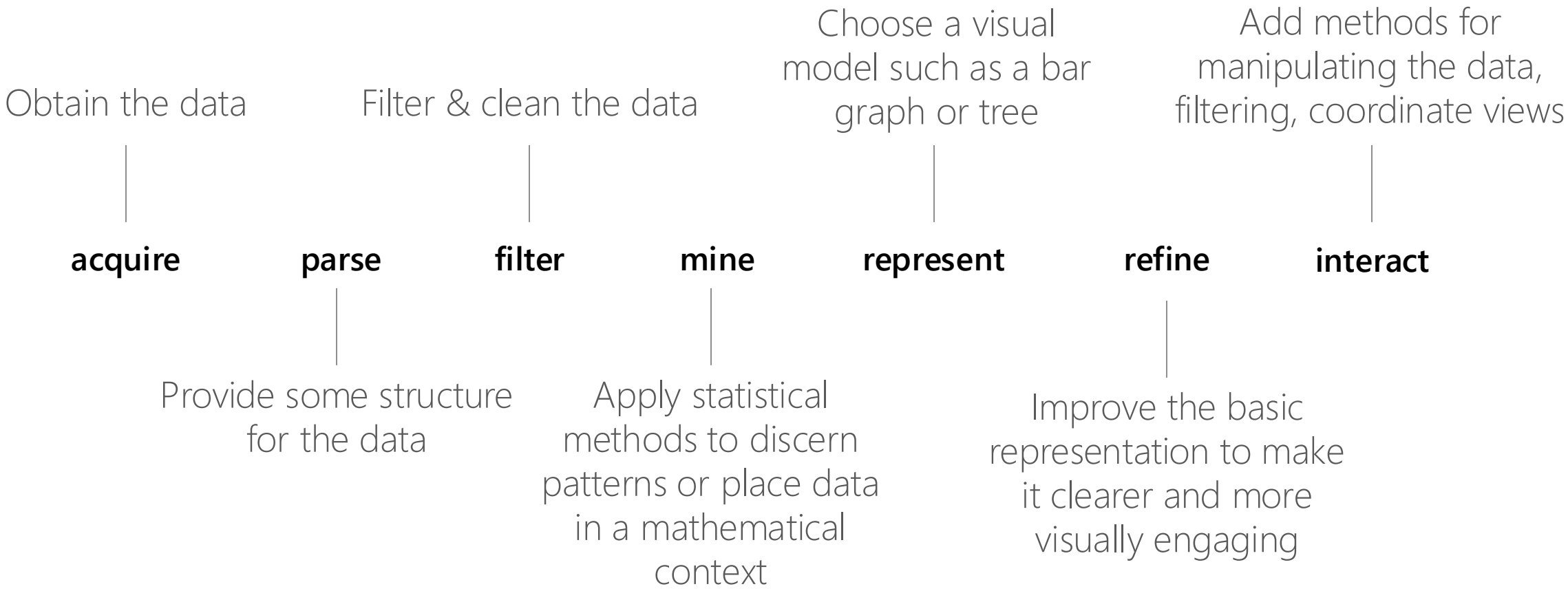
mine

represent

refine

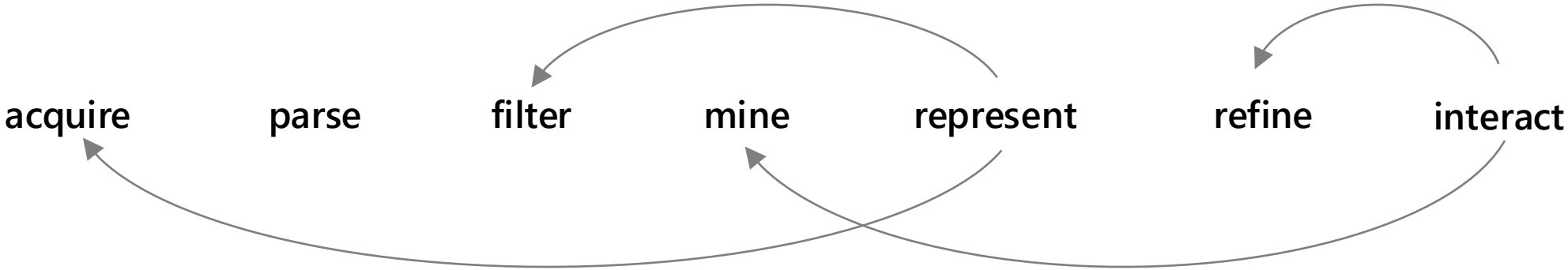
interact

FRY'S VISUALIZATION DESIGN PROCESS



Source: Fry, Visualizing Data, O'Reilly, 2008, p5

FRY'S VISUALIZATION DESIGN PROCESS



Source: Fry, Visualizing Data, O'Reilly, 2008, p5

runkeeper


Carrier
11:57 AM
Just Go!
Log
Free Run
Source
Slower
Faster
Edit
Start Free Run
Me
My Plan
Start
Friends
Settings
Sam T.
Active since Feb 2013
Kilometers
35.9
August
Activities
119
Tracked
Insights
Challenges
Join a Challenge!
Push yourself to earn rewards
Workouts Per Week
6:29
Avg min/mi
372
Calories
CURRENT PACE
6:23
min/mi
Pause
Training



Jon Froehlich
Active since Dec, 2011

DASHBOARD REPORTS ACTIVITIES COMMUNITY ROUTES

REPORTS

- All Cardio
- Running
- Walking
- Cycling
- Hiking
- Cross-Country Skiing
- Rowing
- Other
- Weight
- Strength Training
- Sleep
- Advanced Fitness Reports

Suggested Apps for Activity Tracking

- Withings
- UP
- TomTom MySports
- Running with Red Rock Apps
- Misfit

All Cardio

Dec 2011 - Apr 2023

Last 30 Days | Last 3 Months | Current Year | Lifetime | Custom

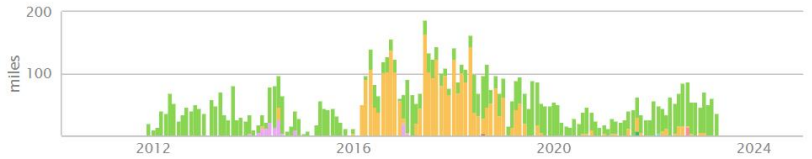
DISTANCE 7,732.3

DURATION Join Runkeeper Go

CALORIES Join Runkeeper Go

Day | Week | Month

Distance



Duration



Calories Burned



powered by Health Graph

SETTINGS

- Profile
- Apps
- Sharing
- Preferences
- Notifications
- Promotions & Privacy
- Manage Cookie Preferences
- Purchase History
- Export Data

Export Data

Export activity data

Download a copy of your activity and health data in one easy .zip file

From: To: Export Data

Download Now! *All set! Your data export from 9/1/09 to 4/12/23 will be available until 4/19/23.*

Download your data

Download a copy of your Runkeeper data

Start Export

Your data download request has been queued for processing. Data requests are processed in batches on a daily basis and usually available within 2 business days, but may take longer, depending on our backlog.

EXPLORATORY ANALYSIS

Start off with a question or hypothesis
What's interesting?
What are the trends?
Anomalies?

EXPLANATORY ANALYSIS

Once you've identified that interesting thing.
How to best communicate it visually?
How to tell a visual story?



QUESTIONS

What year was I most active?

Measures: longitudinal time, activity count

Am I running more or less over time?

Measures: longitudinal time, total runs, distance.

Am I getting faster or slower over time?

Measures: longitudinal time, average pace.

What day of the week do I run the most?

Measures: day of week, total runs, distance.

How does elevation change affect my pace?

Measures: elevation, average pace.



QUESTIONS

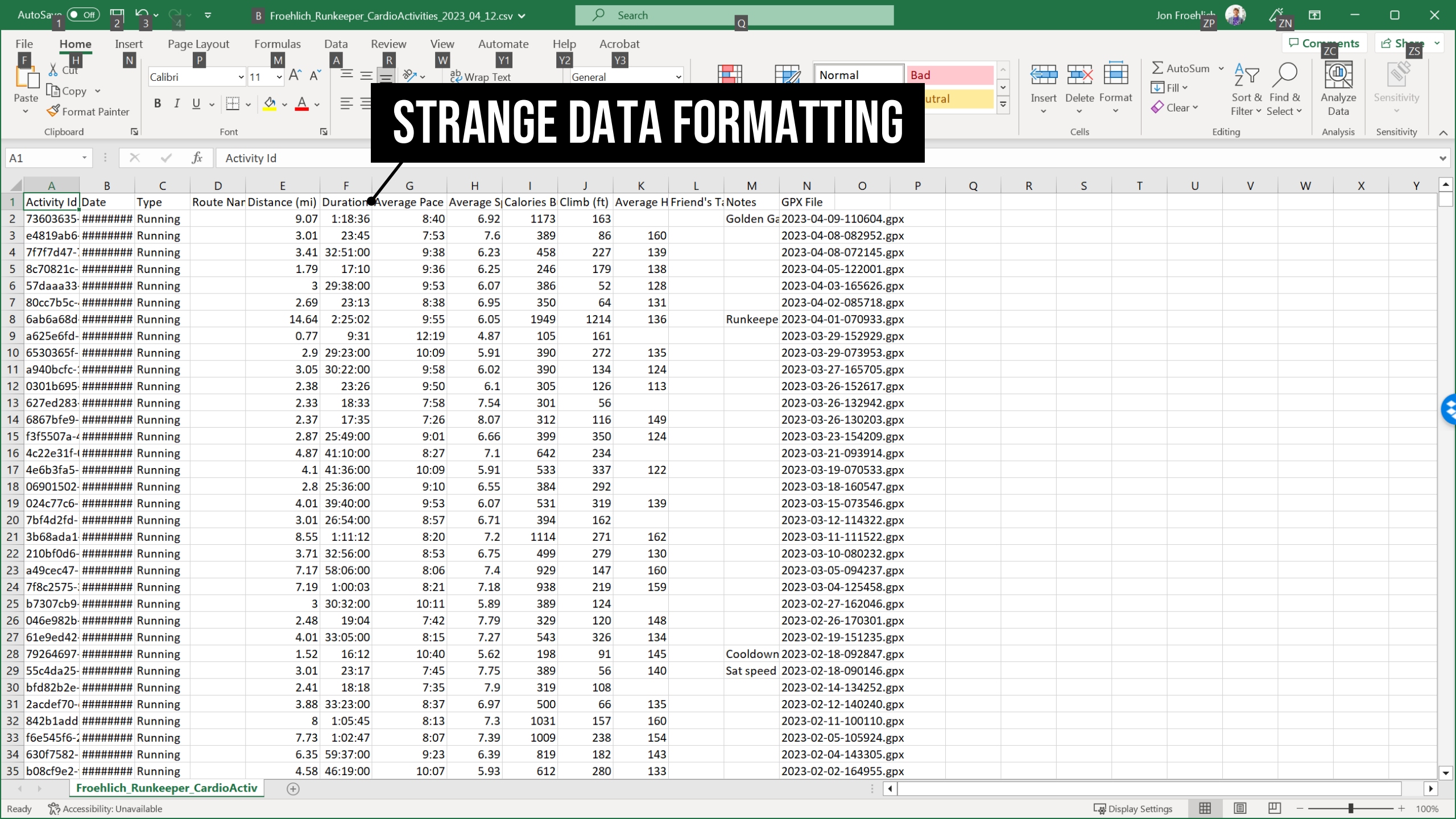
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Measures: longitudinal time, total runs, distance.

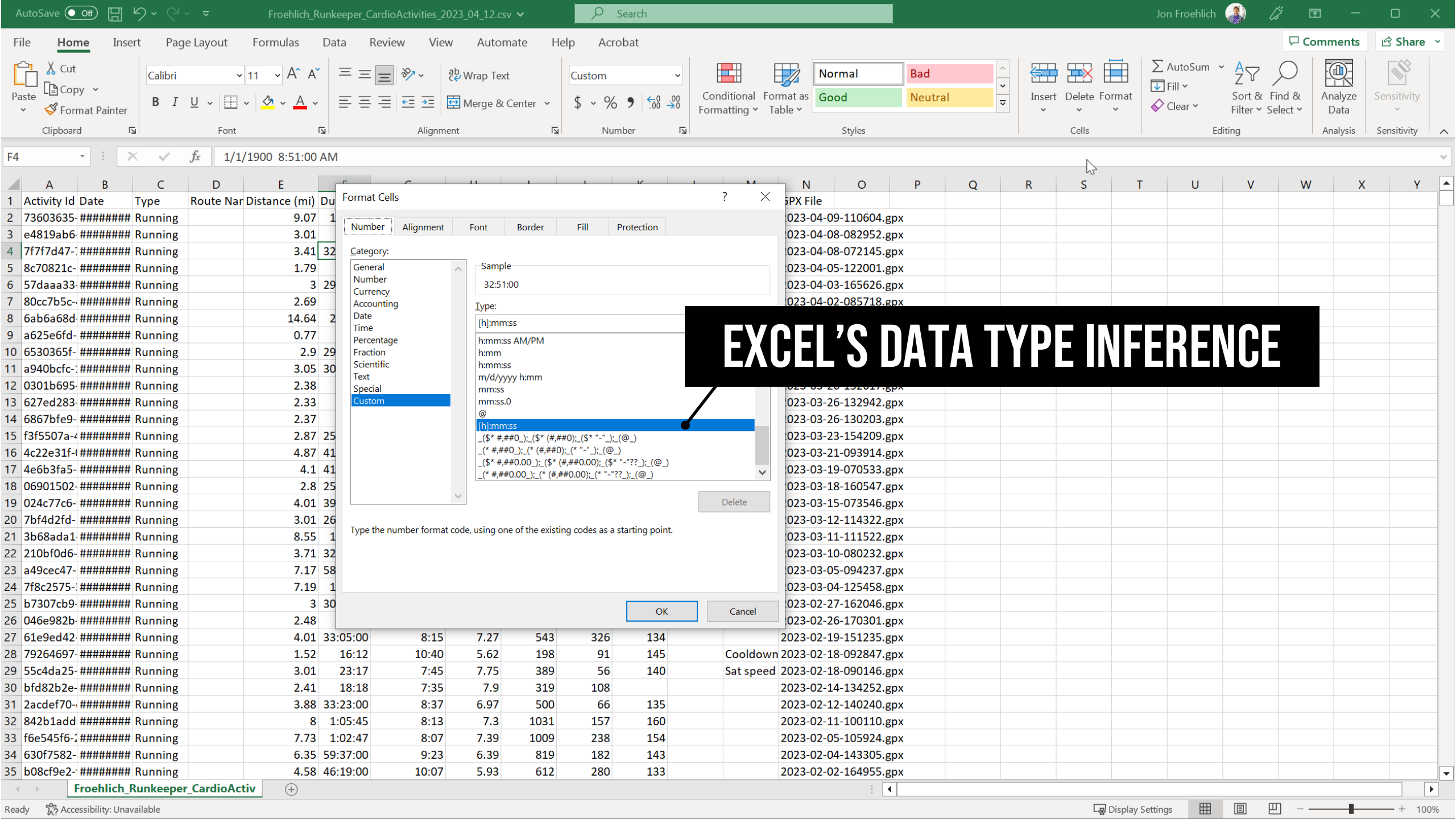
Am I getting faster or slower over time?
Measures: longitudinal time, average pace.

What day of the week do I run the most?
Measures: day of week, total runs, distance.

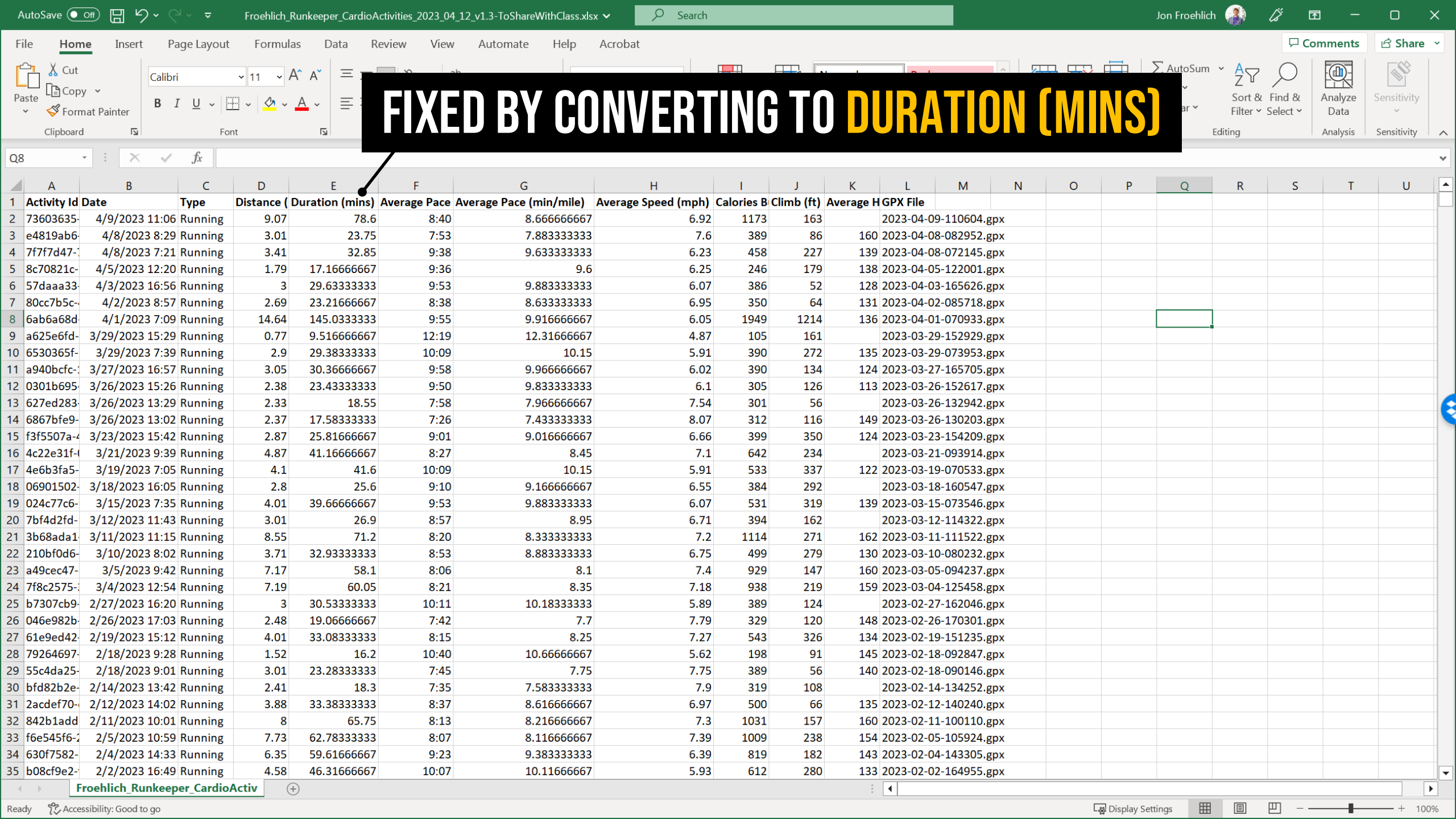
How does elevation change affect my pace?
Measures: elevation, average pace.



Activity Id	Date	Type	Route Nar	Distance (mi)	Duration	Average Pace	Average S	Calories B	Climb (ft)	Average H	Friend's T	Notes	GPX File
73603635-	########	Running		9.07	1:18:36	8:40	6.92	1173	163			Golden Ga	2023-04-09-110604.gpx
e4819ab6-	########	Running		3.01	23:45	7:53	7.6	389	86	160			2023-04-08-082952.gpx
7f7f7d47-	########	Running		3.41	32:51:00	9:38	6.23	458	227	139			2023-04-08-072145.gpx
8c70821c-	########	Running		1.79	17:10	9:36	6.25	246	179	138			2023-04-05-122001.gpx
57daaa33-	########	Running		3	29:38:00	9:53	6.07	386	52	128			2023-04-03-165626.gpx
80cc7b5c-	########	Running		2.69	23:13	8:38	6.95	350	64	131			2023-04-02-085718.gpx
6ab6a68d	########	Running		14.64	2:25:02	9:55	6.05	1949	1214	136		Runkeepe	2023-04-01-070933.gpx
a625e6fd-	########	Running		0.77	9:31	12:19	4.87	105	161				2023-03-29-152929.gpx
6530365f-	########	Running		2.9	29:23:00	10:09	5.91	390	272	135			2023-03-29-073953.gpx
a940bcfc-	########	Running		3.05	30:22:00	9:58	6.02	390	134	124			2023-03-27-165705.gpx
0301b695-	########	Running		2.38	23:26	9:50	6.1	305	126	113			2023-03-26-152617.gpx
627ed283-	########	Running		2.33	18:33	7:58	7.54	301	56				2023-03-26-132942.gpx
6867bfe9-	########	Running		2.37	17:35	7:26	8.07	312	116	149			2023-03-26-130203.gpx
f3f5507a-	########	Running		2.87	25:49:00	9:01	6.66	399	350	124			2023-03-23-154209.gpx
4c22e31f-	########	Running		4.87	41:10:00	8:27	7.1	642	234				2023-03-21-093914.gpx
4e6b3fa5-	########	Running		4.1	41:36:00	10:09	5.91	533	337	122			2023-03-19-070533.gpx
06901502-	########	Running		2.8	25:36:00	9:10	6.55	384	292				2023-03-18-160547.gpx
024c77c6-	########	Running		4.01	39:40:00	9:53	6.07	531	319	139			2023-03-15-073546.gpx
7bf4d2fd-	########	Running		3.01	26:54:00	8:57	6.71	394	162				2023-03-12-114322.gpx
3b68ada1-	########	Running		8.55	1:11:12	8:20	7.2	1114	271	162			2023-03-11-111522.gpx
210bf0d6-	########	Running		3.71	32:56:00	8:53	6.75	499	279	130			2023-03-10-080232.gpx
a49cec47-	########	Running		7.17	58:06:00	8:06	7.4	929	147	160			2023-03-05-094237.gpx
7f8c2575-	########	Running		7.19	1:00:03	8:21	7.18	938	219	159			2023-03-04-125458.gpx
b7307cb9-	########	Running		3	30:32:00	10:11	5.89	389	124				2023-02-27-162046.gpx
046e982b-	########	Running		2.48	19:04	7:42	7.79	329	120	148			2023-02-26-170301.gpx
61e9ed42-	########	Running		4.01	33:05:00	8:15	7.27	543	326	134			2023-02-19-151235.gpx
79264697-	########	Running		1.52	16:12	10:40	5.62	198	91	145		Cooldown	2023-02-18-092847.gpx
55c4da25-	########	Running		3.01	23:17	7:45	7.75	389	56	140		Sat speed	2023-02-18-090146.gpx
bfd82b2e-	########	Running		2.41	18:18	7:35	7.9	319	108				2023-02-14-134252.gpx
2acdef70-	########	Running		3.88	33:23:00	8:37	6.97	500	66	135			2023-02-12-140240.gpx
842b1add	########	Running		8	1:05:45	8:13	7.3	1031	157	160			2023-02-11-100110.gpx
f6e545f6-	########	Running		7.73	1:02:47	8:07	7.39	1009	238	154			2023-02-05-105924.gpx
630f7582-	########	Running		6.35	59:37:00	9:23	6.39	819	182	143			2023-02-04-143305.gpx
b08cf9e2-	########	Running		4.58	46:19:00	10:07	5.93	612	280	133			2023-02-02-164955.gpx



Activity Id	Date	Type	Route Nar	Distance (mi)	Du							GPX File
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e4819ab6-	########	Running		3.01								2023-04-08-082952.gpx
7f7f7d47-	########	Running		3.41	32							2023-04-08-072145.gpx
8c70821c-	########	Running		1.79								2023-04-05-122001.gpx
57daaa33-	########	Running		3	29							2023-04-03-165626.gpx
80cc7b5c-	########	Running		2.69								2023-04-02-085718.gpx
6ab6a68d-	########	Running		14.64	2							
a625e6fd-	########	Running		0.77								
6530365f-	########	Running		2.9	29							
a940bcfc-	########	Running		3.05	30							
0301b695-	########	Running		2.38								
627ed283-	########	Running		2.33								2023-03-26-132942.gpx
6867bfe9-	########	Running		2.37								2023-03-26-130203.gpx
f3f5507a-	########	Running		2.87	25							2023-03-23-154209.gpx
4c22e31f-	########	Running		4.87	41							2023-03-21-093914.gpx
4e6b3fa5-	########	Running		4.1	41							2023-03-19-070533.gpx
06901502-	########	Running		2.8	25							2023-03-18-160547.gpx
024c77c6-	########	Running		4.01	39							2023-03-15-073546.gpx
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210bf0d6-	########	Running		3.71	32							2023-03-10-080232.gpx
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79264697-	########	Running		1.52	16:12	10:40	5.62	198	91	145	Cooldown	2023-02-18-092847.gpx
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bfd82b2e-	########	Running		2.41	18:18	7:35	7.9	319	108			2023-02-14-134252.gpx
2acdef70-	########	Running		3.88	33:23:00	8:37	6.97	500	66	135		2023-02-12-140240.gpx
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f6e545f6-	########	Running		7.73	1:02:47	8:07	7.39	1009	238	154		2023-02-05-105924.gpx
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b08cf9e2-	########	Running		4.58	46:19:00	10:07	5.93	612	280	133		2023-02-02-164955.gpx



Activity Id	Date	Type	Distance (	Duration (mins)	Average Pace	Average Pace (min/mile)	Average Speed (mph)	Calories B	Climb (ft)	Average H	GPX File
73603635-	4/9/2023 11:06	Running	9.07	78.6	8:40	8.666666667	6.92	1173	163		2023-04-09-110604.gpx
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7f7f7d47-	4/8/2023 7:21	Running	3.41	32.85	9:38	9.633333333	6.23	458	227	139	2023-04-08-072145.gpx
8c70821c-	4/5/2023 12:20	Running	1.79	17.16666667	9:36	9.6	6.25	246	179	138	2023-04-05-122001.gpx
57daaa33-	4/3/2023 16:56	Running	3	29.63333333	9:53	9.883333333	6.07	386	52	128	2023-04-03-165626.gpx
80cc7b5c-	4/2/2023 8:57	Running	2.69	23.21666667	8:38	8.633333333	6.95	350	64	131	2023-04-02-085718.gpx
6ab6a68d-	4/1/2023 7:09	Running	14.64	145.0333333	9:55	9.916666667	6.05	1949	1214	136	2023-04-01-070933.gpx
a625e6fd-	3/29/2023 15:29	Running	0.77	9.516666667	12:19	12.31666667	4.87	105	161		2023-03-29-152929.gpx
6530365f-	3/29/2023 7:39	Running	2.9	29.38333333	10:09	10.15	5.91	390	272	135	2023-03-29-073953.gpx
a940bcfc-	3/27/2023 16:57	Running	3.05	30.36666667	9:58	9.966666667	6.02	390	134	124	2023-03-27-165705.gpx
0301b695-	3/26/2023 15:26	Running	2.38	23.43333333	9:50	9.833333333	6.1	305	126	113	2023-03-26-152617.gpx
627ed283-	3/26/2023 13:29	Running	2.33	18.55	7:58	7.966666667	7.54	301	56		2023-03-26-132942.gpx
6867bfe9-	3/26/2023 13:02	Running	2.37	17.58333333	7:26	7.433333333	8.07	312	116	149	2023-03-26-130203.gpx
f3f5507a-	3/23/2023 15:42	Running	2.87	25.81666667	9:01	9.016666667	6.66	399	350	124	2023-03-23-154209.gpx
4c22e31f-	3/21/2023 9:39	Running	4.87	41.16666667	8:27	8.45	7.1	642	234		2023-03-21-093914.gpx
4e6b3fa5-	3/19/2023 7:05	Running	4.1	41.6	10:09	10.15	5.91	533	337	122	2023-03-19-070533.gpx
06901502-	3/18/2023 16:05	Running	2.8	25.6	9:10	9.166666667	6.55	384	292		2023-03-18-160547.gpx
024c77c6-	3/15/2023 7:35	Running	4.01	39.66666667	9:53	9.883333333	6.07	531	319	139	2023-03-15-073546.gpx
7bf4d2fd-	3/12/2023 11:43	Running	3.01	26.9	8:57	8.95	6.71	394	162		2023-03-12-114322.gpx
3b68ada1-	3/11/2023 11:15	Running	8.55	71.2	8:20	8.333333333	7.2	1114	271	162	2023-03-11-111522.gpx
210bf0d6-	3/10/2023 8:02	Running	3.71	32.93333333	8:53	8.883333333	6.75	499	279	130	2023-03-10-080232.gpx
a49cec47-	3/5/2023 9:42	Running	7.17	58.1	8:06	8.1	7.4	929	147	160	2023-03-05-094237.gpx
7f8c2575-	3/4/2023 12:54	Running	7.19	60.05	8:21	8.35	7.18	938	219	159	2023-03-04-125458.gpx
b7307cb9-	2/27/2023 16:20	Running	3	30.53333333	10:11	10.18333333	5.89	389	124		2023-02-27-162046.gpx
046e982b-	2/26/2023 17:03	Running	2.48	19.06666667	7:42	7.7	7.79	329	120	148	2023-02-26-170301.gpx
61e9ed42-	2/19/2023 15:12	Running	4.01	33.08333333	8:15	8.25	7.27	543	326	134	2023-02-19-151235.gpx
79264697-	2/18/2023 9:28	Running	1.52	16.2	10:40	10.66666667	5.62	198	91	145	2023-02-18-092847.gpx
55c4da25-	2/18/2023 9:01	Running	3.01	23.28333333	7:45	7.75	7.75	389	56	140	2023-02-18-090146.gpx
bfd82b2e-	2/14/2023 13:42	Running	2.41	18.3	7:35	7.583333333	7.9	319	108		2023-02-14-134252.gpx
2acdef70-	2/12/2023 14:02	Running	3.88	33.38333333	8:37	8.616666667	6.97	500	66	135	2023-02-12-140240.gpx
842b1add	2/11/2023 10:01	Running	8	65.75	8:13	8.216666667	7.3	1031	157	160	2023-02-11-100110.gpx
f6e545f6-	2/5/2023 10:59	Running	7.73	62.78333333	8:07	8.116666667	7.39	1009	238	154	2023-02-05-105924.gpx
630f7582-	2/4/2023 14:33	Running	6.35	59.61666667	9:23	9.383333333	6.39	819	182	143	2023-02-04-143305.gpx
b08cf9e2-	2/2/2023 16:49	Running	4.58	46.31666667	10:07	10.11666667	5.93	612	280	133	2023-02-02-164955.gpx



QUESTIONS

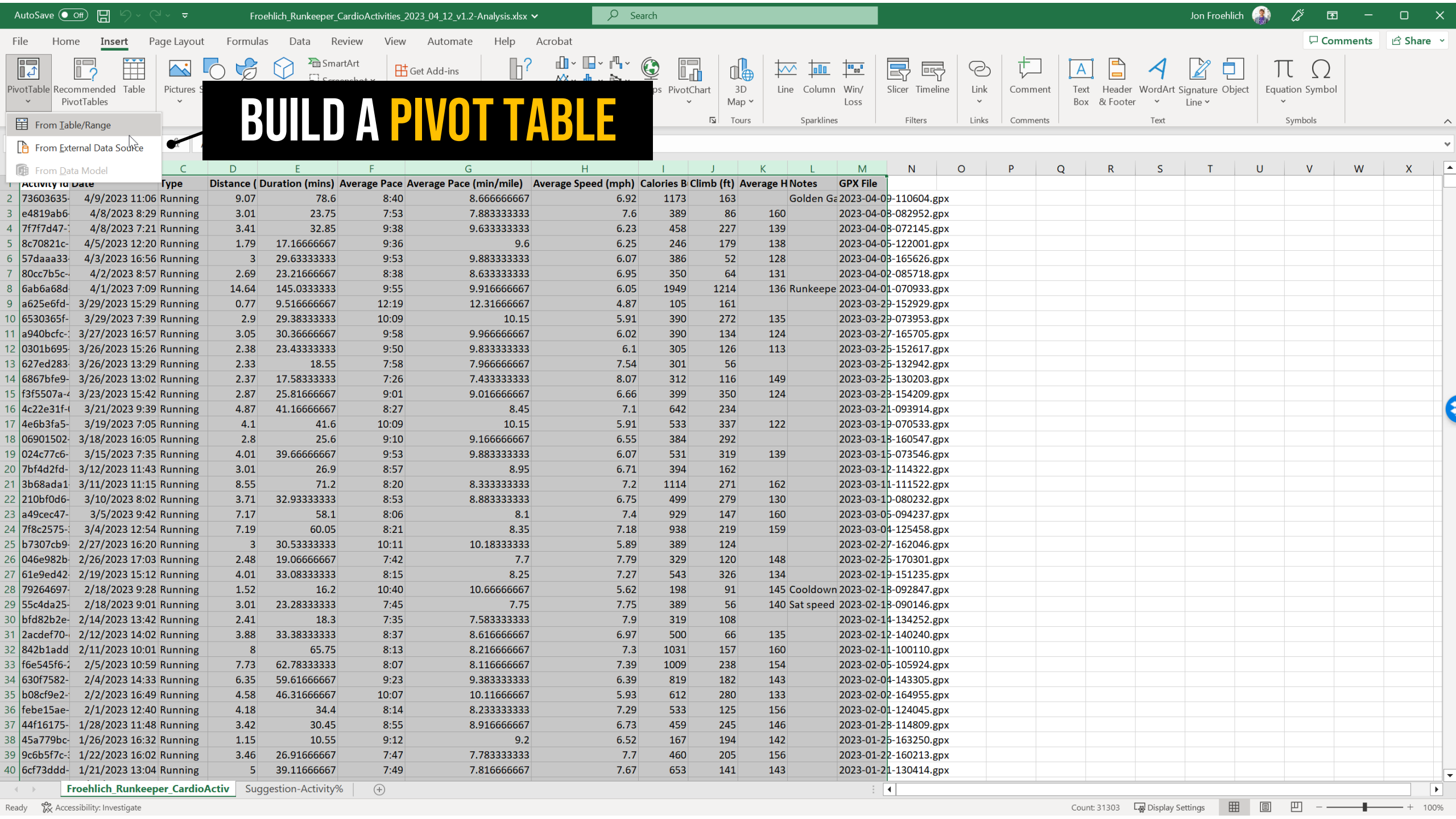
What year was I most active?
Measures: longitudinal time, activity count

Am I running more or less over time?
Measures: longitudinal time, total runs, distance.

Am I getting faster or slower over time?
Measures: longitudinal time, average pace.

What day of the week do I run the most?
Measures: day of week, total runs, distance.

How does elevation change affect my pace?
Measures: elevation, average pace.



Activity Id	Date	Type	Distance (	Duration (mins)	Average Pace	Average Pace (min/mile)	Average Speed (mph)	Calories B	Climb (ft)	Average H	Notes	GPX File
73603635-	4/9/2023 11:06	Running	9.07	78.6	8:40	8.666666667	6.92	1173	163		Golden Ga	2023-04-09-110604.gpx
e4819ab6-	4/8/2023 8:29	Running	3.01	23.75	7:53	7.883333333	7.6	389	86	160		2023-04-08-082952.gpx
7f7f7d47-	4/8/2023 7:21	Running	3.41	32.85	9:38	9.633333333	6.23	458	227	139		2023-04-08-072145.gpx
8c70821c-	4/5/2023 12:20	Running	1.79	17.16666667	9:36	9.6	6.25	246	179	138		2023-04-05-122001.gpx
57daaa33-	4/3/2023 16:56	Running	3	29.63333333	9:53	9.883333333	6.07	386	52	128		2023-04-03-165626.gpx
80cc7b5c-	4/2/2023 8:57	Running	2.69	23.21666667	8:38	8.633333333	6.95	350	64	131		2023-04-02-085718.gpx
6ab6a68d-	4/1/2023 7:09	Running	14.64	145.0333333	9:55	9.916666667	6.05	1949	1214	136	Runkeepe	2023-04-01-070933.gpx
a625e6fd-	3/29/2023 15:29	Running	0.77	9.516666667	12:19	12.31666667	4.87	105	161			2023-03-29-152929.gpx
6530365f-	3/29/2023 7:39	Running	2.9	29.38333333	10:09	10.15	5.91	390	272	135		2023-03-29-073953.gpx
a940bcfc-	3/27/2023 16:57	Running	3.05	30.36666667	9:58	9.966666667	6.02	390	134	124		2023-03-27-165705.gpx
0301b695-	3/26/2023 15:26	Running	2.38	23.43333333	9:50	9.833333333	6.1	305	126	113		2023-03-26-152617.gpx
627ed283-	3/26/2023 13:29	Running	2.33	18.55	7:58	7.966666667	7.54	301	56			2023-03-26-132942.gpx
6867bfe9-	3/26/2023 13:02	Running	2.37	17.58333333	7:26	7.433333333	8.07	312	116	149		2023-03-26-130203.gpx
f3f5507a-	3/23/2023 15:42	Running	2.87	25.81666667	9:01	9.016666667	6.66	399	350	124		2023-03-23-154209.gpx
4c22e31f-	3/21/2023 9:39	Running	4.87	41.16666667	8:27	8.45	7.1	642	234			2023-03-21-093914.gpx
4e6b3fa5-	3/19/2023 7:05	Running	4.1	41.6	10:09	10.15	5.91	533	337	122		2023-03-19-070533.gpx
06901502-	3/18/2023 16:05	Running	2.8	25.6	9:10	9.166666667	6.55	384	292			2023-03-18-160547.gpx
024c77c6-	3/15/2023 7:35	Running	4.01	39.66666667	9:53	9.883333333	6.07	531	319	139		2023-03-15-073546.gpx
7bf4d2fd-	3/12/2023 11:43	Running	3.01	26.9	8:57	8.95	6.71	394	162			2023-03-12-114322.gpx
3b68ada1-	3/11/2023 11:15	Running	8.55	71.2	8:20	8.333333333	7.2	1114	271	162		2023-03-11-111522.gpx
210bf0d6-	3/10/2023 8:02	Running	3.71	32.93333333	8:53	8.883333333	6.75	499	279	130		2023-03-10-080232.gpx
a49cec47-	3/5/2023 9:42	Running	7.17	58.1	8:06	8.1	7.4	929	147	160		2023-03-05-094237.gpx
7f8c2575-	3/4/2023 12:54	Running	7.19	60.05	8:21	8.35	7.18	938	219	159		2023-03-04-125458.gpx
b7307cb9-	2/27/2023 16:20	Running	3	30.53333333	10:11	10.18333333	5.89	389	124			2023-02-27-162046.gpx
046e982b-	2/26/2023 17:03	Running	2.48	19.06666667	7:42	7.7	7.79	329	120	148		2023-02-26-170301.gpx
61e9ed42-	2/19/2023 15:12	Running	4.01	33.08333333	8:15	8.25	7.27	543	326	134		2023-02-19-151235.gpx
79264697-	2/18/2023 9:28	Running	1.52	16.2	10:40	10.66666667	5.62	198	91	145	Cooldown	2023-02-18-092847.gpx
55c4da25-	2/18/2023 9:01	Running	3.01	23.28333333	7:45	7.75	7.75	389	56	140	Sat speed	2023-02-18-090146.gpx
bfd82b2e-	2/14/2023 13:42	Running	2.41	18.3	7:35	7.583333333	7.9	319	108			2023-02-14-134252.gpx
2acdef70-	2/12/2023 14:02	Running	3.88	33.38333333	8:37	8.616666667	6.97	500	66	135		2023-02-12-140240.gpx
842b1add	2/11/2023 10:01	Running	8	65.75	8:13	8.216666667	7.3	1031	157	160		2023-02-11-100110.gpx
f6e545f6-	2/5/2023 10:59	Running	7.73	62.78333333	8:07	8.116666667	7.39	1009	238	154		2023-02-05-105924.gpx
630f7582-	2/4/2023 14:33	Running	6.35	59.61666667	9:23	9.383333333	6.39	819	182	143		2023-02-04-143305.gpx
b08cf9e2-	2/2/2023 16:49	Running	4.58	46.31666667	10:07	10.11666667	5.93	612	280	133		2023-02-02-164955.gpx
febe15ae-	2/1/2023 12:40	Running	4.18	34.4	8:14	8.233333333	7.29	533	125	156		2023-02-01-124045.gpx
44f16175-	1/28/2023 11:48	Running	3.42	30.45	8:55	8.916666667	6.73	459	245	146		2023-01-28-114809.gpx
45a779bc-	1/26/2023 16:32	Running	1.15	10.55	9:12	9.2	6.52	167	194	142		2023-01-26-163250.gpx
9c6b5f7c-	1/22/2023 16:02	Running	3.46	26.91666667	7:47	7.783333333	7.7	460	205	156		2023-01-22-160213.gpx
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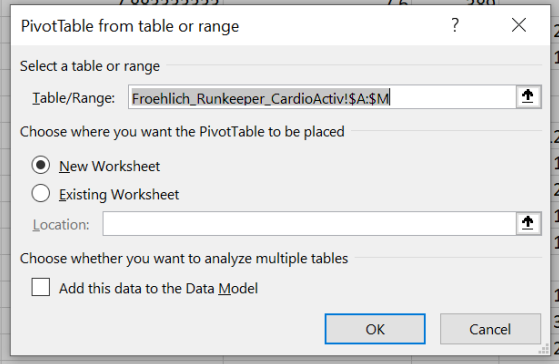
AutoSave Off | Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis.xlsx | Search | Jon Froehlich

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PivotTable Recommended PivotTables Table | Pictures Shapes Icons 3D Models SmartArt Screenshot | Get Add-ins My Add-ins | Recommended Charts Maps PivotChart | 3D Map | Line Column Win/Loss | Slicer Timeline | Link | Comment | Text Box Header & Footer WordArt Signature Line Object | Equation Symbol

Tables Illustrations Add-ins Charts Tours Sparklines Filters Links Comments Text Symbols

A1 | Activity Id



Activity Id	Date	Type	Distance (	Duration (mins)	Average Pace	Average Pace (min/mile)	Average Speed (mph)	Calories B	Climb (ft)	Average H	Notes	GPX File
73603635-	4/9/2023 11:06	Running	9.07	78.6	8:40	8.666666667	6.92	1173	163		Golden Ga	2023-04-09-110604.gpx
e4819ab6-	4/8/2023 8:29	Running	3.01	23.75	7:53				86	160		2023-04-08-082952.gpx
7f7f7d47-7	4/8/2023 7:21	Running	3.41	32.85	9:38				227	139		2023-04-08-072145.gpx
8c70821c-	4/5/2023 12:20	Running	1.79	17.16666667	9:36				179	138		2023-04-05-122001.gpx
57daaa33-	4/3/2023 16:56	Running	3	29.63333333	9:53				52	128		2023-04-03-165626.gpx
80cc7b5c-	4/2/2023 8:57	Running	2.69	23.21666667	8:38				64	131		2023-04-02-085718.gpx
6ab6a68d	4/1/2023 7:09	Running	14.64	145.0333333	9:55				214	136	Runkeepe	2023-04-01-070933.gpx
a625e6fd-	3/29/2023 15:29	Running	0.77	9.516666667	12:19				161			2023-03-29-152929.gpx
6530365f-	3/29/2023 7:39	Running	2.9	29.38333333	10:09				272	135		2023-03-29-073953.gpx
a940bcfc-3	3/27/2023 16:57	Running	3.05	30.36666667	9:58				134	124		2023-03-27-165705.gpx
0301b695-	3/26/2023 15:26	Running	2.38	23.43333333	9:50				126	113		2023-03-26-152617.gpx
627ed283-	3/26/2023 13:29	Running	2.33	18.55	7:58				56			2023-03-26-132942.gpx
6867bfe9-	3/26/2023 13:02	Running	2.37	17.58333333	7:26				116	149		2023-03-26-130203.gpx
f3f5507a-4	3/23/2023 15:42	Running	2.87	25.81666667	9:01				350	124		2023-03-23-154209.gpx
4c22e31f-(	3/21/2023 9:39	Running	4.87	41.16666667	8:27				234			2023-03-21-093914.gpx
4e6b3fa5-	3/19/2023 7:05	Running	4.1	41.6	10:09	10.15	5.91	533	337	122		2023-03-19-070533.gpx
06901502-	3/18/2023 16:05	Running	2.8	25.6	9:10	9.166666667	6.55	384	292			2023-03-18-160547.gpx
024c77c6-	3/15/2023 7:35	Running	4.01	39.66666667	9:53	9.883333333	6.07	531	319	139		2023-03-15-073546.gpx
7bf4d2fd-	3/12/2023 11:43	Running	3.01	26.9	8:57	8.95	6.71	394	162			2023-03-12-114322.gpx
3b68ada1-	3/11/2023 11:15	Running	8.55	71.2	8:20	8.333333333	7.2	1114	271	162		2023-03-11-111522.gpx
210bf0d6-	3/10/2023 8:02	Running	3.71	32.93333333	8:53	8.883333333	6.75	499	279	130		2023-03-10-080232.gpx
a49cec47-	3/5/2023 9:42	Running	7.17	58.1	8:06	8.1	7.4	929	147	160		2023-03-05-094237.gpx
7f8c2575-3	3/4/2023 12:54	Running	7.19	60.05	8:21	8.35	7.18	938	219	159		2023-03-04-125458.gpx
b7307cb9-	2/27/2023 16:20	Running	3	30.53333333	10:11	10.18333333	5.89	389	124			2023-02-27-162046.gpx
046e982b-	2/26/2023 17:03	Running	2.48	19.06666667	7:42	7.7	7.79	329	120	148		2023-02-26-170301.gpx
61e9ed42-	2/19/2023 15:12	Running	4.01	33.08333333	8:15	8.25	7.27	543	326	134		2023-02-19-151235.gpx
79264697-	2/18/2023 9:28	Running	1.52	16.2	10:40	10.66666667	5.62	198	91	145	Cooldown	2023-02-18-092847.gpx
55c4da25-	2/18/2023 9:01	Running	3.01	23.28333333	7:45	7.75	7.75	389	56	140	Sat speed	2023-02-18-090146.gpx
bfd82b2e-	2/14/2023 13:42	Running	2.41	18.3	7:35	7.583333333	7.9	319	108			2023-02-14-134252.gpx
2acdef70-	2/12/2023 14:02	Running	3.88	33.38333333	8:37	8.616666667	6.97	500	66	135		2023-02-12-140240.gpx
842b1add	2/11/2023 10:01	Running	8	65.75	8:13	8.216666667	7.3	1031	157	160		2023-02-11-100110.gpx
f6e545f6-2	2/5/2023 10:59	Running	7.73	62.78333333	8:07	8.116666667	7.39	1009	238	154		2023-02-05-105924.gpx
630f7582-	2/4/2023 14:33	Running	6.35	59.61666667	9:23	9.383333333	6.39	819	182	143		2023-02-04-143305.gpx
b08cf9e2-1	2/2/2023 16:49	Running	4.58	46.31666667	10:07	10.11666667	5.93	612	280	133		2023-02-02-164955.gpx
febe15ae-	2/1/2023 12:40	Running	4.18	34.4	8:14	8.233333333	7.29	533	125	156		2023-02-01-124045.gpx
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45a779bc-	1/26/2023 16:32	Running	1.15	10.55	9:12	9.2	6.52	167	194	142		2023-01-26-163250.gpx
9c6b5f7c-3	1/22/2023 16:02	Running	3.46	26.91666667	7:47	7.783333333	7.7	460	205	156		2023-01-22-160213.gpx
6cf73ddd-	1/21/2023 13:04	Running	5	39.11666667	7:49	7.816666667	7.67	653	141	143		2023-01-21-130414.gpx

Froehlich_Runkeeper_CardioActiv | Suggestion-Activity%

Point | Accessibility: Investigate | Count: 31303 | Display Settings | 100%

AutoSave Off | Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis.xlsx | Search | Jon Froehlich

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Calibri | 11 | Font

Wrap Text | Merge & Center | Alignment

General | Number

Conditional Formatting | Format as Table | Normal | Bad | Good | Neutral | Styles

Insert | Delete | Format | Cells

AutoSum | Fill | Clear | Sort & Filter | Find & Select | Editing

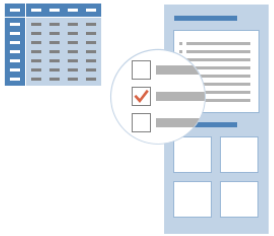
Analyze Data | Analysis

Sensitivity | Sensitivity

A3

PivotTable4

To build a report, choose fields from the PivotTable Field List



PivotChart Fields

Choose fields to add to report:

Search

- Activity Id
- Date
- Type
- Distance (mi)
- Duration (mins)
- Average Pace
- Average Pace (min/mile)
- Average Speed (mph)
- Calories Burned
- Climb (ft)
- Average Heart Rate (bpm)

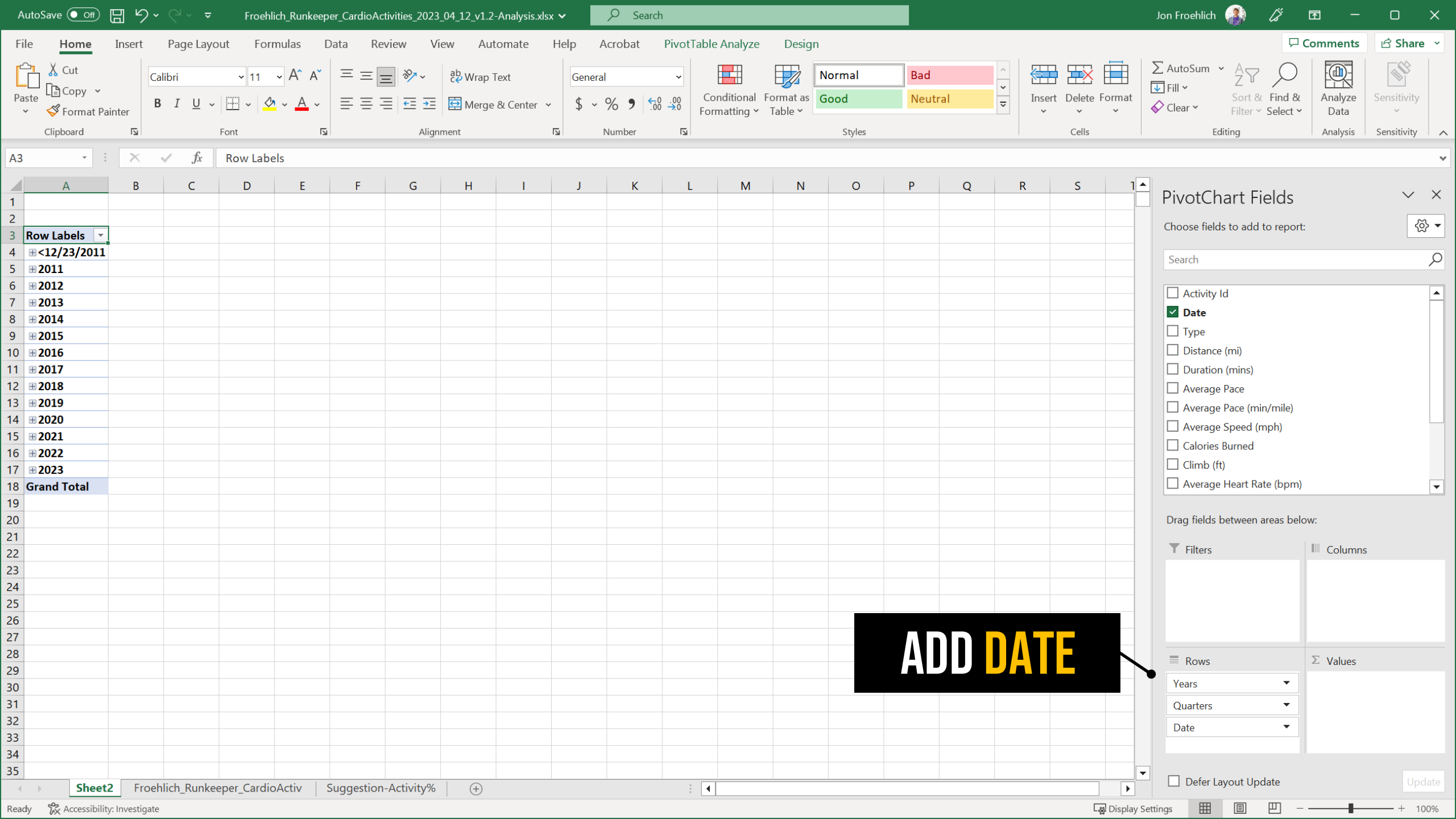
Drag fields between areas below:

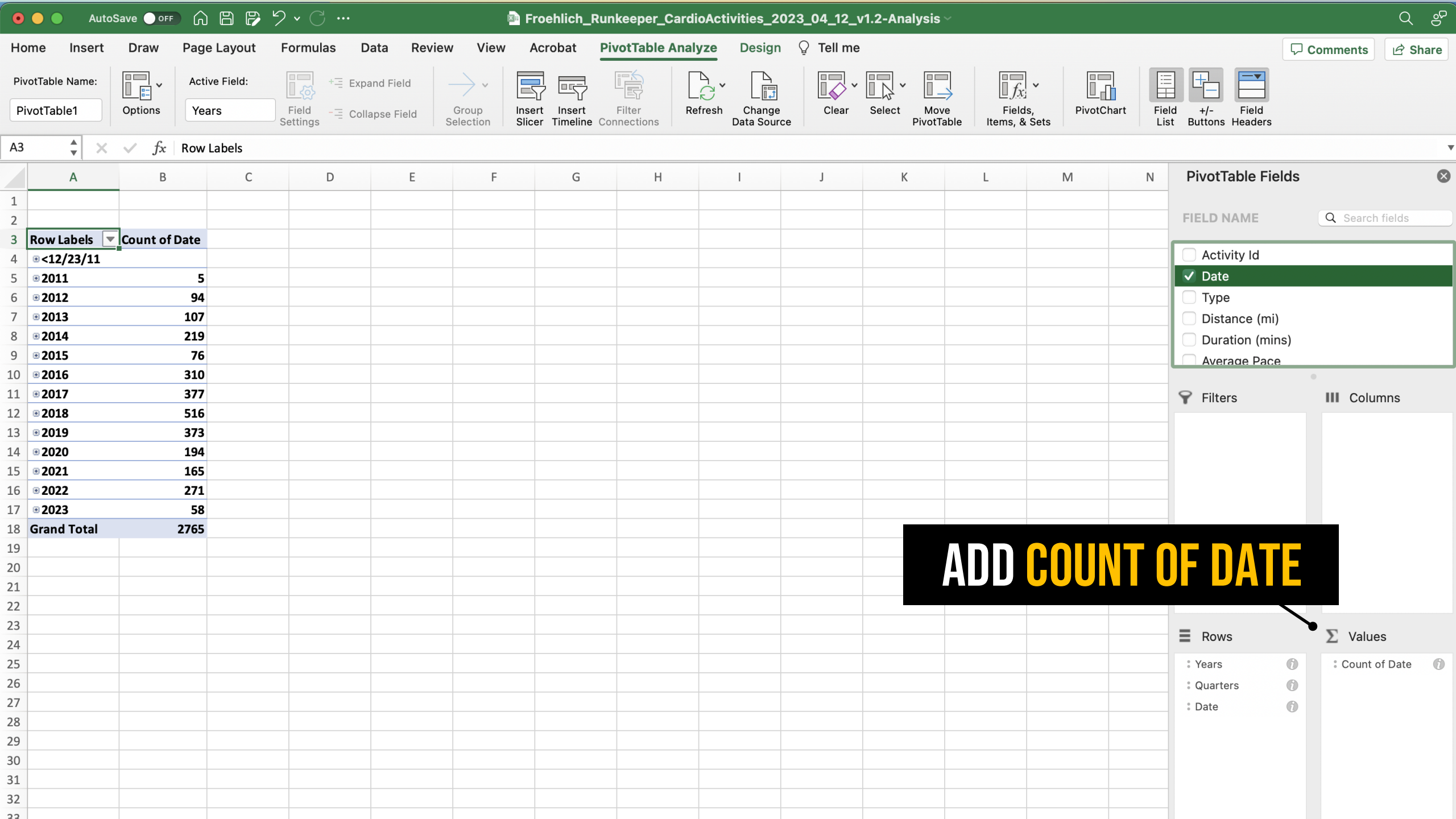
Filters | Columns | Rows | Values

Defer Layout Update | Update

Sheet2 | Froehlich_Runkeeper_CardioActiv | Suggestion-Activity%

Ready | Accessibility: Investigate | Display Settings | 100%


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Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis.xlsx
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Comments Share
Paste Cut Copy Format Painter
Calibri 11
Wrap Text Merge & Center
General
Conditional Formatting Format as Table
Normal Bad Good Neutral
Insert Delete Format
AutoSum Fill Clear
Sort & Filter Find & Select
Analyze Data
Sensitivity
Clipboard Font Alignment Number Styles Cells Editing Analysis Sensitivity
A3
Row Labels
Row Labels
<12/23/2011
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Grand Total
PivotChart Fields
Choose fields to add to report:
Search
Activity Id
Date
Type
Distance (mi)
Duration (mins)
Average Pace
Average Pace (min/mile)
Average Speed (mph)
Calories Burned
Climb (ft)
Average Heart Rate (bpm)
Drag fields between areas below:
Filters
Columns
Rows
Values
Years
Quarters
Date
Defer Layout Update
Update
ADD DATE
Sheet2
Froehlich_Runkeeper_CardioActiv
Suggestion-Activity%
Ready
Accessibility: Investigate
Display Settings
100%


AutoSave OFF
Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis
Home Insert Draw Page Layout Formulas Data Review View Acrobat PivotTable Analyze Design Tell me
Comments Share
PivotTable Name: PivotTable1
Options
Active Field: Years
Field Settings
Expand Field
Collapse Field
Group Selection
Insert Slicer
Insert Timeline
Filter Connections
Refresh
Change Data Source
Clear
Select
Move PivotTable
Fields, Items, & Sets
PivotChart
Field List
+/- Buttons
Field Headers
A3
Row Labels
Row Labels
Count of Date
<12/23/11
2011 5
2012 94
2013 107
2014 219
2015 76
2016 310
2017 377
2018 516
2019 373
2020 194
2021 165
2022 271
2023 58
Grand Total 2765
PivotTable Fields
FIELD NAME
Search fields
Activity Id
Date
Type
Distance (mi)
Duration (mins)
Average Pace
Filters
Columns
Rows
Years
Quarters
Date
Values
Count of Date
ADD COUNT OF DATE

AutoSave OFF

Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

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PivotTable Recommended PivotTables Table From Picture Pictures Shapes Icons Screenshot Get Add-ins My Add-ins Recommended Charts Slicer New Comment Text Equation Symbol

A3 Row Labels

Row Labels	Count of Date
<12/23/11	
2011	5
2012	94
2013	107
2014	219
2015	76
2016	310
2017	377
2018	516
2019	373
2020	194
2021	165
2022	271
2023	58
Grand Total	2765

2-D Column

3-D Column

2-D Bar

3-D Bar

PivotTable Fields

FIELD NAME Search fields

- Activity Id
- Date
- Type
- Distance (mi)
- Duration (mins)
- Average Pace

Filters Columns

Rows Values

- Years
- Quarters
- Date

Values: Count of Date

AutoSave OFF

Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

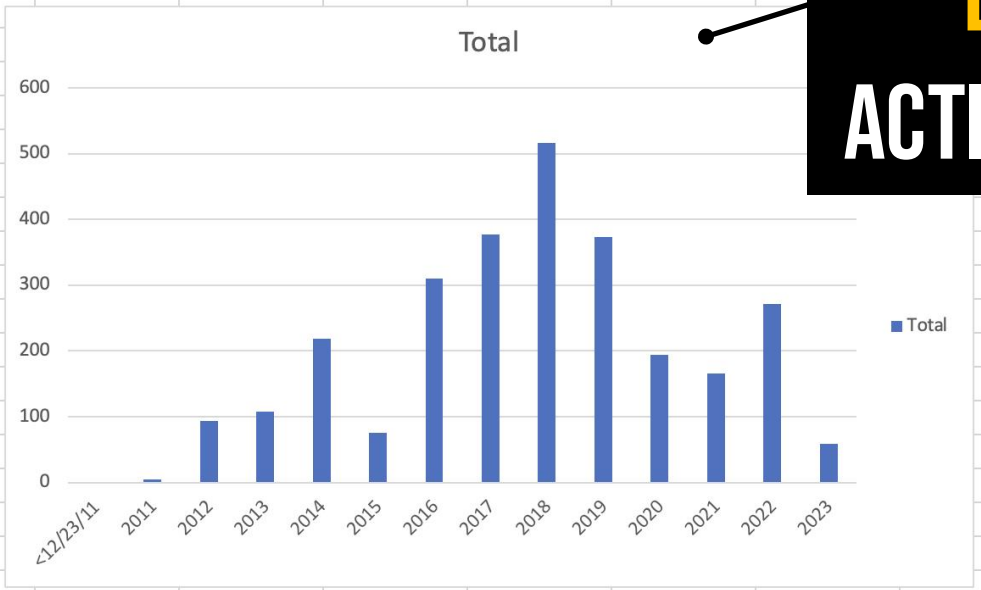
Home Insert Draw Page Layout Formulas Data Review View Acrobat Tell me

Comments Share

Paste | Calibri (Body) | 11 | Wrap Text | General | Conditional Formatting | Format as Table | Cell Styles | Insert | Delete | Format | Sort & Filter | Find & Select | Analyze Data | Create and Share Adobe PDF

I22

Row Labels	Count of Date
<12/23/11	
2011	5
2012	94
2013	107
2014	219
2015	76
2016	310
2017	377
2018	516
2019	373
2020	194
2021	165
2022	271
2023	58
Grand Total	2765



BAR GRAPH OF ACTIVITIES OVER TIME

Format Shape | PivotChart Fields

Fill

Line

AutoSave OFF

Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

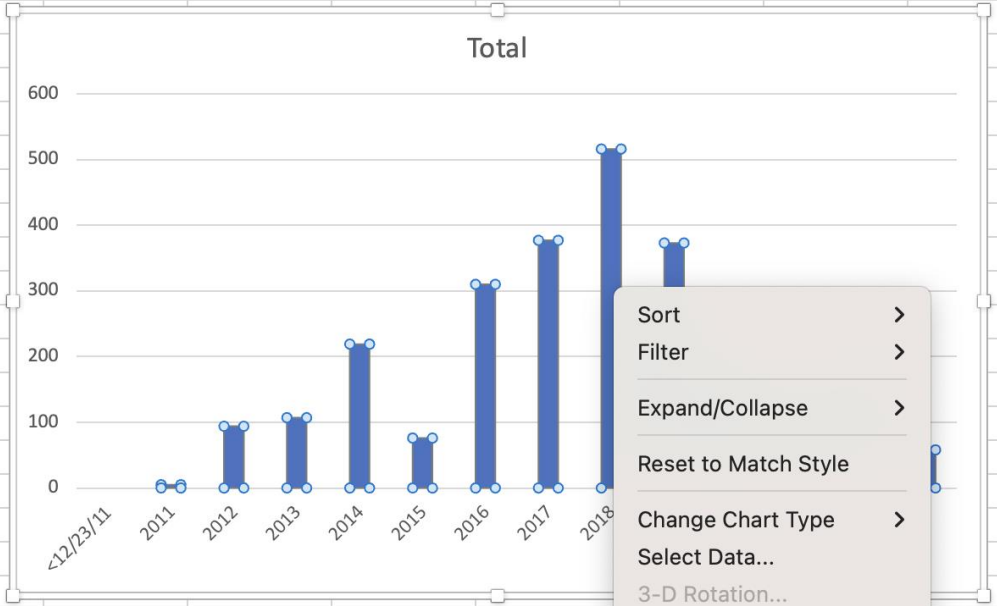
Home Insert Draw Page Layout Formulas Data Review View Acrobat PivotChart Analyze Design Format Tell me

Comments Share

Paste | Calibri (Body) | 10 | Wrap Text | General | Conditional Formatting | Format as Table | Cell Styles | Insert | Delete | Format | Sort & Filter | Find & Select | Analyze Data | Create and Share Adobe PDF

Chart 3

Row Labels	Count of Date
<12/23/11	
2011	5
2012	94
2013	107
2014	219
2015	76
2016	310
2017	377
2018	516
2019	373
2020	194
2021	165
2022	271
2023	58
Grand Total	2765



Sort
Filter
Expand/Collapse
Reset to Match Style
Change Chart Type
Select Data...
3-D Rotation...
Add Data Labels
Add Trendline...
Format Data Series...
Jon13
Take Photo
Scan Documents

ADD DATA LABELS

Format Data Seri... | PivotChart Fields

Series Options

Plot Series On

Primary Axis

Secondary Axis

Series Overlap -27%

Gap Width 219%

AutoSave OFF

Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

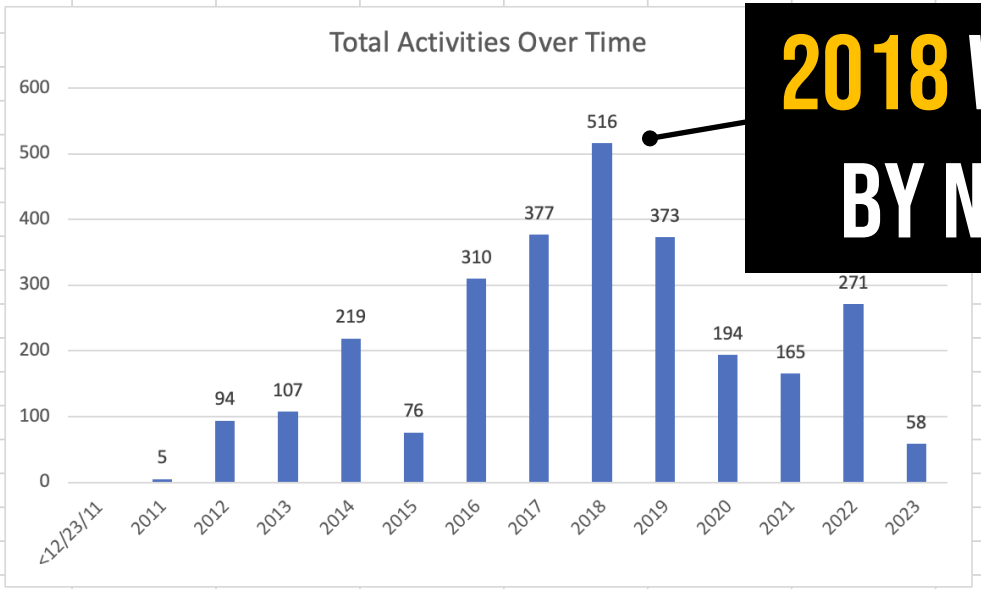
Home Insert Draw Page Layout Formulas Data Review View Acrobat Tell me

Comments Share

Paste | Calibri (Body) | 11 | Wrap Text | General | Conditional Formatting | Format as Table | Cell Styles | Insert | Delete | Format | Sort & Filter | Find & Select | Analyze Data | Create and Share Adobe PDF

I18

Row Labels	Count of Date
<12/23/11	
2011	5
2012	94
2013	107
2014	219
2015	76
2016	310
2017	377
2018	516
2019	373
2020	194
2021	165
2022	271
2023	58
Grand Total	2765



2018 WAS MOST ACTIVE YEAR BY NUMBER OF ACTIVITIES



QUESTIONS

What year was I most active?
Measures: longitudinal time, activity count

Am I running more or less over time?
Measures: longitudinal time, total runs, distance.

Am I getting faster or slower over time?
Measures: longitudinal time, average pace.

What day of the week do I run the most?
Measures: day of week, total runs, distance.

How does elevation change affect my pace?
Measures: elevation, average pace.

AutoSave OFF

Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

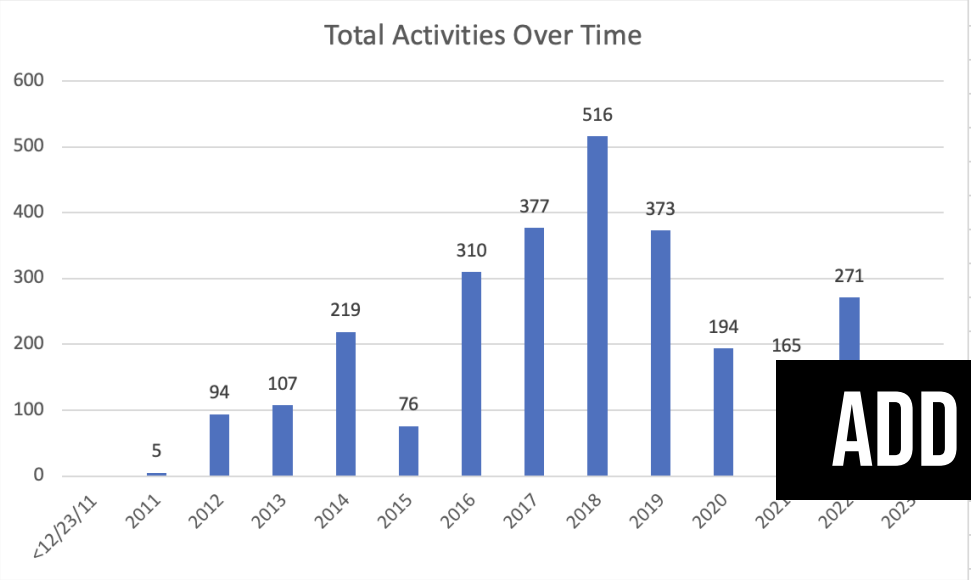
Home Insert Draw Page Layout Formulas Data Review View Acrobat PivotTable Analyze Design Tell me

Comments Share

Paste | Calibri (Body) | 11 | Wrap Text | General | Conditional Formatting | Format as Table | Cell Styles | Insert | Delete | Format | Sort & Filter | Find & Select | Analyze Data | Create and Share Adobe PDF

A3 | Row Labels

Type	(All)
Row Labels	Count of Date
<12/23/11	
2011	5
2012	94
2013	107
2014	219
2015	76
2016	310
2017	377
2018	516
2019	373
2020	194
2021	165
2022	271
2023	58
Grand Total	2765



ADD FILTER FOR ACTIVITY TYPE

PivotTable Fields

FIELD NAME | Search fields

- Activity Id
- Date
- Type
- Distance (mi)
- Duration (mins)
- Average Pace

Filters: Type

Columns

Rows: Years, Quarters, Date

Values: Count of Date

SET FILTER FOR ACTIVITY TYPE

Type	(All)

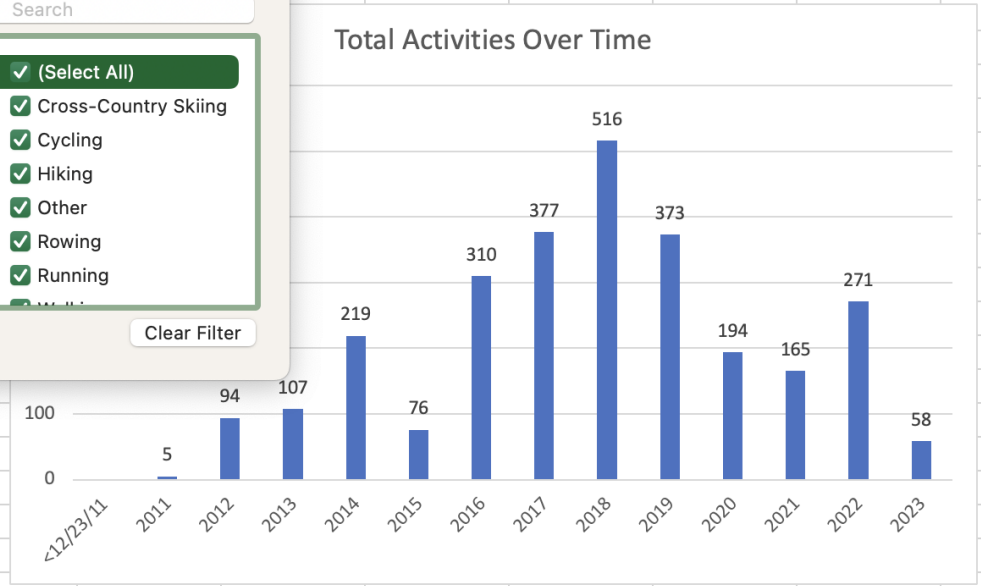
Row Labels	Count of Date
<12/23/11	
2011	5
2012	94
2013	107
2014	219
2015	76
2016	310
2017	377
2018	516
2019	373
2020	194
2021	165
2022	271
2023	58
Grand Total	2765

Type

Search

(Select All)
Cross-Country Skiing
Cycling
Hiking
Other
Rowing
Running

Clear Filter



PivotTable Fields

FIELD NAME

Search fields

Activity Id
Date
Type
Distance (mi)
Duration (mins)
Average Pace

Filters
Type

Columns

Rows
Years
Quarters
Date

Values
Count of Date

AutoSave OFF

Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

Home Insert Draw Page Layout Formulas Data Review View Acrobat PivotTable Analyze Design Tell me

Comments Share

Paste | Calibri (Body) | 11 | Wrap Text | General | Conditional Formatting | Format as Table | Cell Styles | Insert | Delete | Format | Sort & Filter | Find & Select | Analyze Data | Create and Share Adobe PDF

A3 | Row Labels

Type	Running

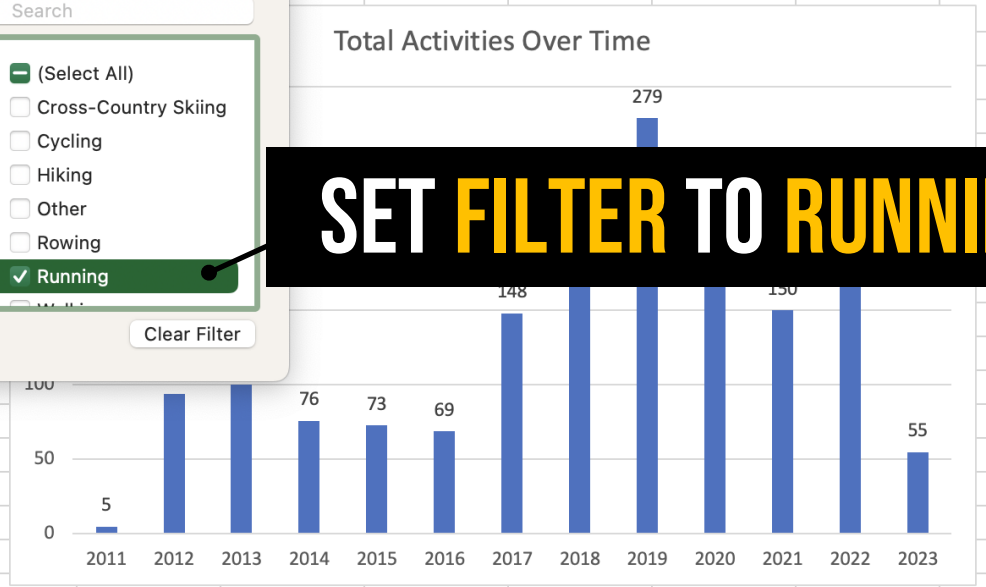
Row Labels	Count of Date
2011	5
2012	94
2013	100
2014	76
2015	73
2016	69
2017	148
2018	183
2019	279
2020	188
2021	150
2022	239
2023	55
Grand Total	1659

Type

Search

(Select All)
Cross-Country Skiing
Cycling
Hiking
Other
Rowing
Running

Clear Filter



SET FILTER TO RUNNING

PivotTable Fields

FIELD NAME | Search fields

Activity Id
Date
Type
Distance (mi)
Duration (mins)
Average Pace

Filters: Type

Columns

Rows: Years, Quarters, Date

Values: Count of Date

AutoSave OFF

Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

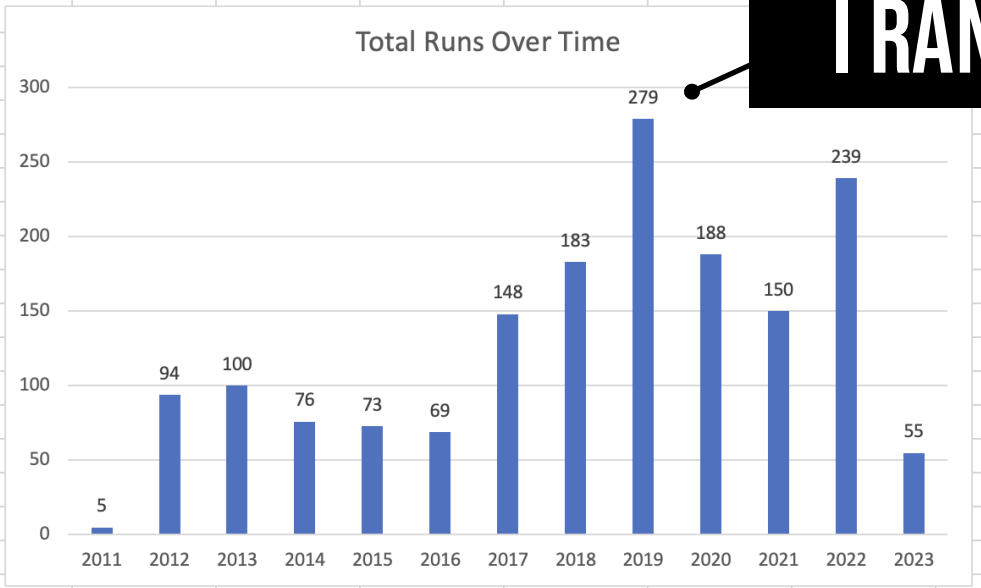
Home Insert Draw Page Layout Formulas Data Review View Acrobat PivotTable Analyze Design Tell me

Comments Share

Paste | Calibri (Body) | 11 | Wrap Text | General | Conditional Formatting | Format as Table | Cell Styles | Insert | Delete | Format | Sort & Filter | Find & Select | Analyze Data | Create and Share Adobe PDF

A3 | Row Labels

Type	Running
Row Labels	**Count of Date**
2011	5
2012	94
2013	100
2014	76
2015	73
2016	69
2017	148
2018	183
2019	279
2020	188
2021	150
2022	239
2023	55
Grand Total	**1659**



I RAN THE MOST IN 2019

PivotTable Fields

FIELD NAME | Search fields

Activity Id
Date
Type
Distance (mi)
Duration (mins)
Average Pace

Filters: Type

Columns

Rows: Years, Quarters, Date

Values: Count of Date

Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

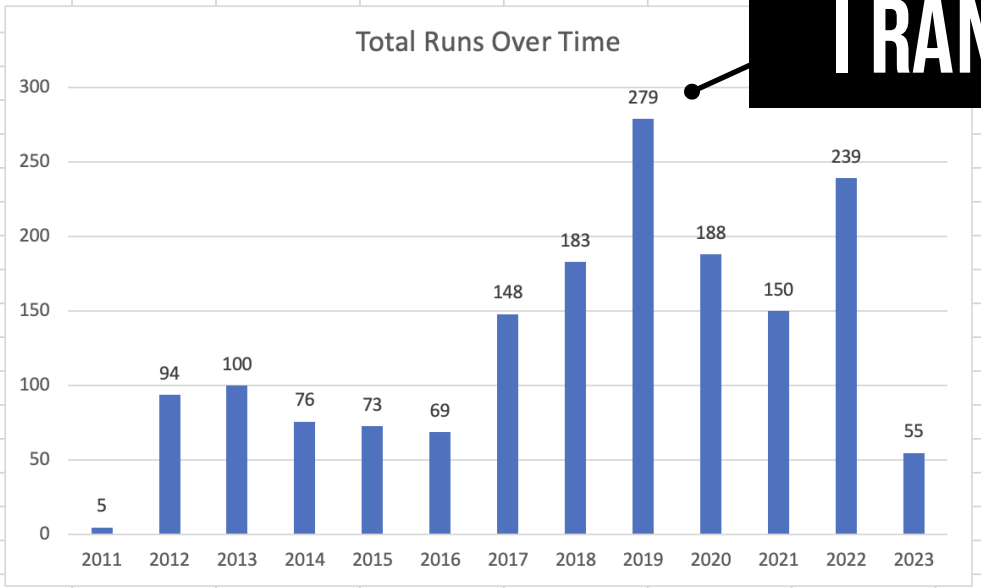
Home Insert Draw Page Layout Formulas Data Review View Acrobat PivotTable Analyze Design Tell me

Comments Share

Paste | Calibri (Body) | 11 | Wrap Text | General | Conditional Formatting | Format as Table | Cell Styles | Insert | Delete | Format | Sort & Filter | Find & Select | Analyze Data | Create and Share Adobe PDF

A3 | Row Labels

Type	Running
Row Labels	Count of Date
2011	5
2012	94
2013	100
2014	76
2015	73
2016	69
2017	148
2018	183
2019	279
2020	188
2021	150
2022	239
2023	55
Grand Total	1659



I RAN THE MOST IN 2019

HOW ABOUT BASED ON DISTANCE RATHER THAN NUM RUNS?

PivotTable Fields

FIELD NAME | Search fields

Activity Id
Date
Type
Distance (mi)
Duration (mins)
Average Pace

Filters: Type
Columns
Rows: Years
Values: Count of Date

AutoSave OFF

Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

Home Insert Draw Page Layout Formulas Data Review View Acrobat PivotTable Analyze Design Tell me

Comments Share

Paste | Calibri (Body) | 11 | Wrap Text | General | Conditional Formatting | Format as Table | Cell Styles | Insert | Delete | Format | Sort & Filter | Find & Select | Analyze Data | Create and Share Adobe PDF

A3 | Row Labels

Type	Running

Row Labels	Count of Date	Sum of Distance (mi)
2011	5	19.81
2012	94	469.97
2013	100	468.26
2014	76	368.18
2015	73	287.72
2016	69	199.47
2017	148	391.56
2018	183	407.58
2019	279	574.54
2020	188	351.71
2021	150	301.66
2022	239	613.12
2023	55	214.72
Grand Total	1659	4668.3

PivotTable Fields

FIELD NAME | Search fields

- [ ] Activity Id
- [x] Date
- [x] Type
- [x] Distance (mi)
- [ ] Duration (mins)
- [ ] Average Pace

Filters: Type

Columns: Values

Rows: Years, Quarters, Date

Values: Count of Date, Sum of Distanc...

ADD SUM OF DISTANCE

AutoSave OFF — Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

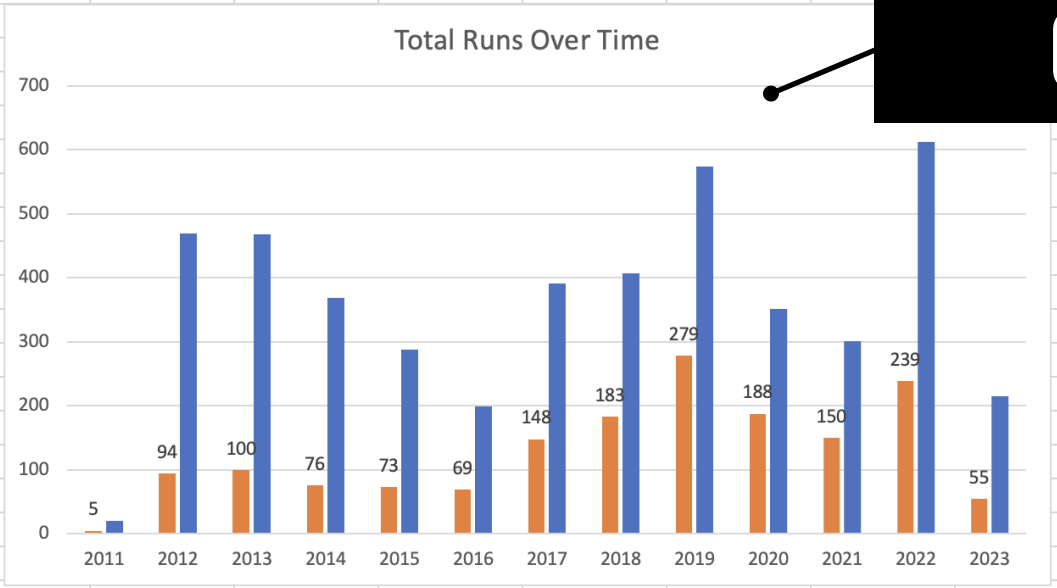
Home Insert Draw Page Layout Formulas Data Review View Acrobat PivotTable Analyze Design Tell me — Comments — Share

Paste | Calibri (Body) | 11 | Wrap Text | Merge & Center | General | Conditional Formatting | Format as Table | Cell Styles | Insert | Delete | Format | Sort & Filter | Find & Select | Analyze Data | Create and Share Adobe PDF

A3 | Row Labels

Type	Running

Row Labels	Count of Date	Sum of Distance (mi)
2011	5	19.81
2012	94	469.97
2013	100	468.26
2014	76	368.18
2015	73	287.72
2016	69	199.47
2017	148	391.56
2018	183	407.58
2019	279	574.54
2020	188	351.71
2021	150	301.66
2022	239	613.12
2023	55	214.72
Grand Total	1659	4668.3

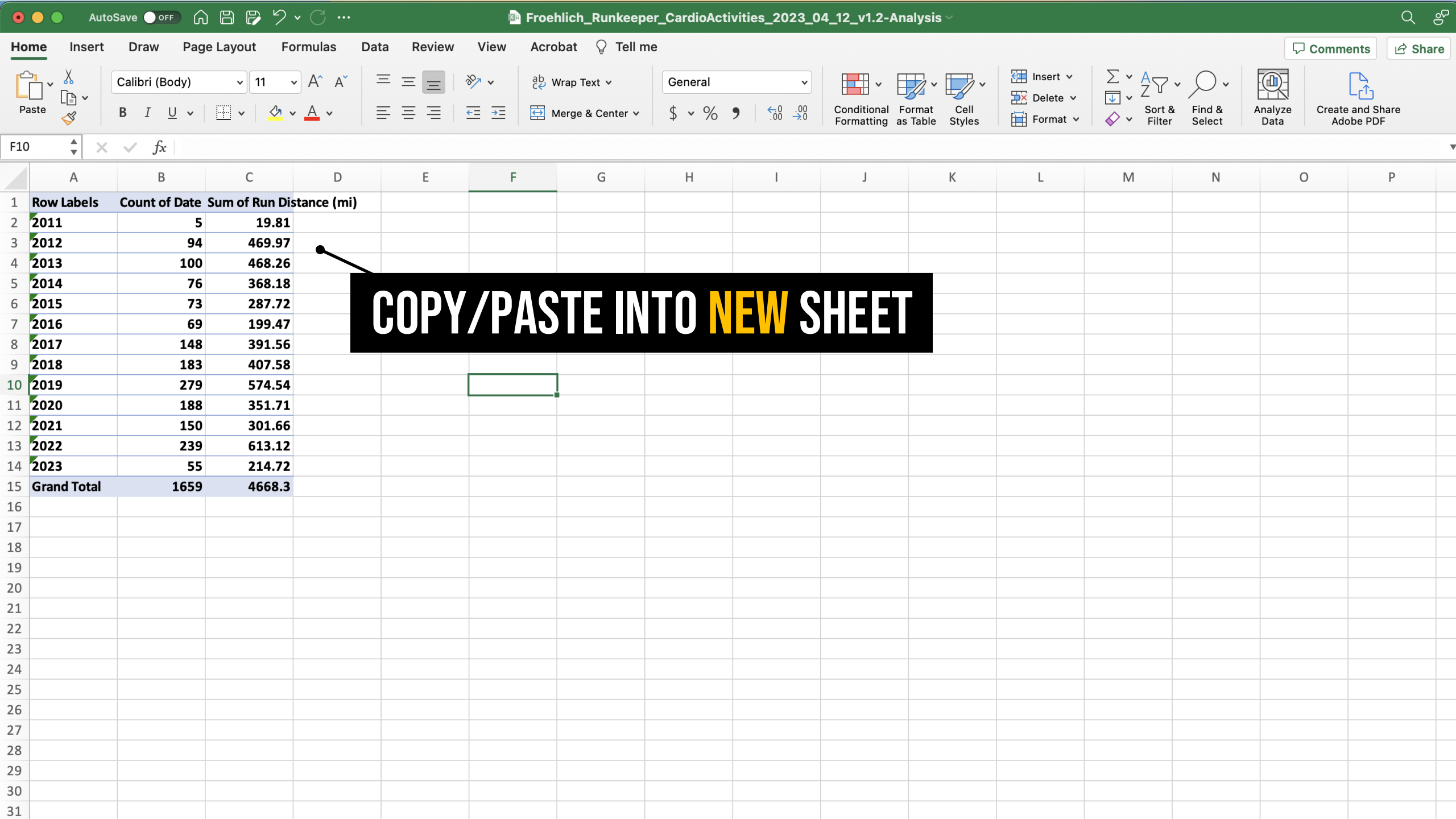


NOW AUTO-GENERATED GRAPH NOT GOOD!

PivotTable Fields

Average Pace

Filters: Type
Columns: Values
Rows: Years, Quarters, Date
Values: Count of Date, Sum of Distanc...



Row Labels	Count of Date	Sum of Run Distance (mi)
2011	5	19.81
2012	94	469.97
2013	100	468.26
2014	76	368.18
2015	73	287.72
2016	69	199.47
2017	148	391.56
2018	183	407.58
2019	279	574.54
2020	188	351.71
2021	150	301.66
2022	239	613.12
2023	55	214.72
Grand Total	1659	4668.3

AutoSave OFF

Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

Home Insert Draw Page Layout Formulas Data Review View Acrobat Tell me

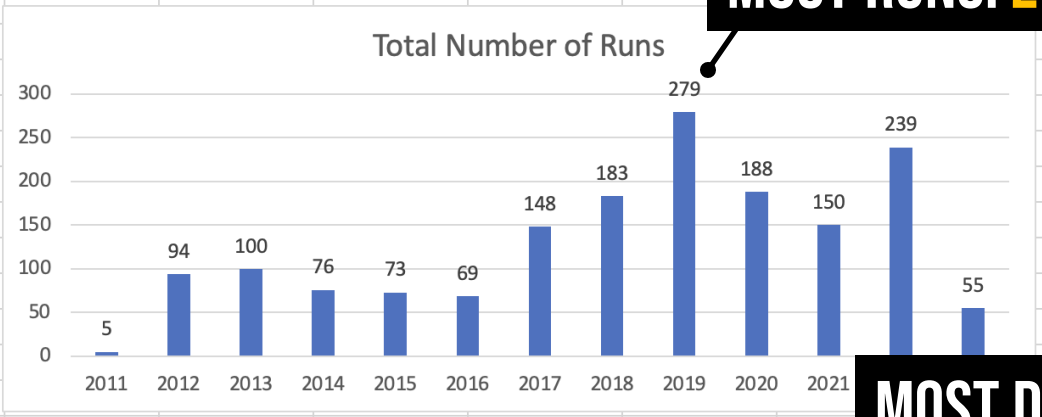
Comments Share

Paste | Calibri (Body) | 11 | Wrap Text | General | Conditional Formatting | Format as Table | Cell Styles | Insert | Delete | Format | Sort & Filter | Find & Select | Analyze Data | Create and Share Adobe PDF

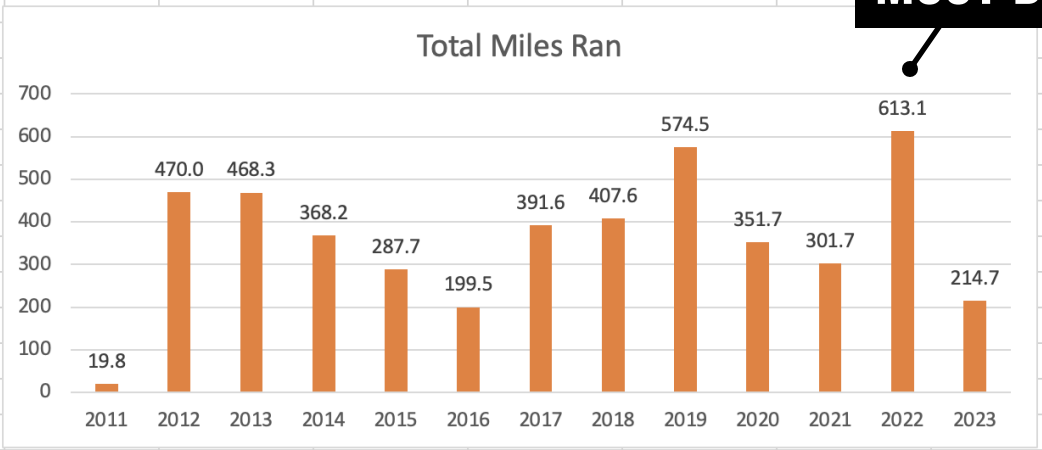
L30

Row Labels	Count of Date	Sum of Run Distance (mi)
2011	5	19.81
2012	94	469.97
2013	100	468.26
2014	76	368.18
2015	73	287.72
2016	69	199.47
2017	148	391.56
2018	183	407.58
2019	279	574.54
2020	188	351.71
2021	150	301.66
2022	239	613.12
2023	55	214.72
Grand Total	1659	4668.3

MOST RUNS: 279 IN 2019



MOST DISTANCE: 613.1 MILES IN 2022



AutoSave OFF

Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

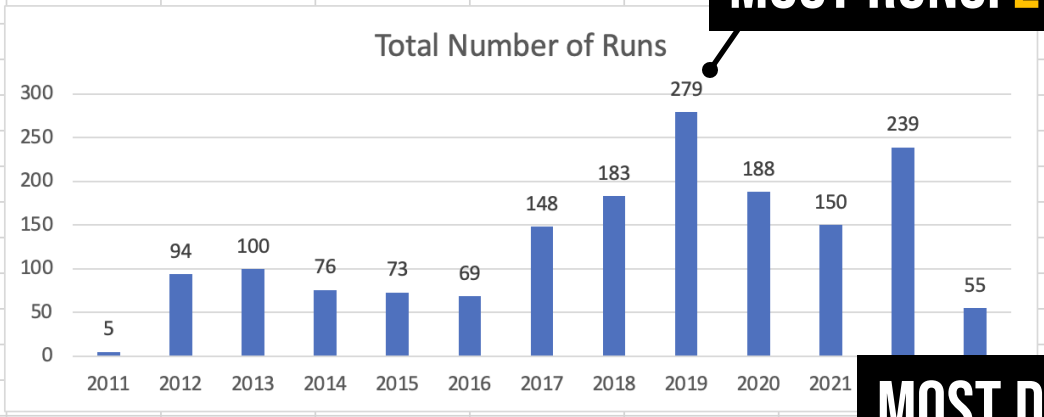
Home Insert Draw Page Layout Formulas Data Review View Acrobat Tell me

Comments Share

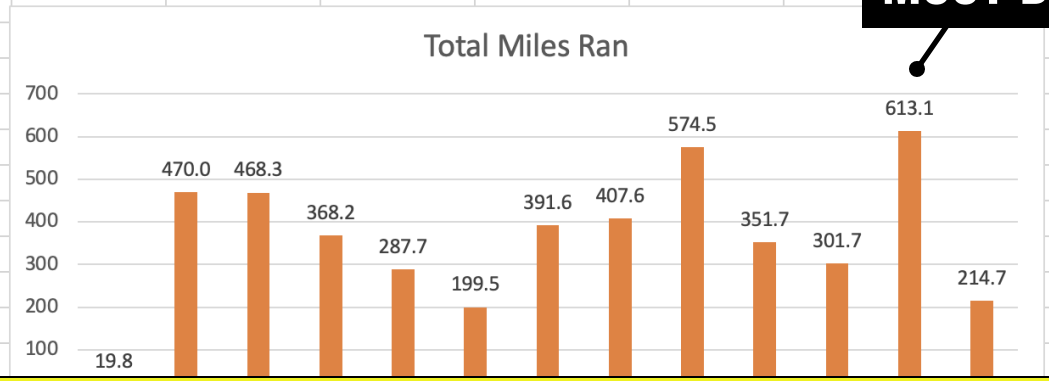
Paste | Calibri (Body) 11 | Wrap Text | General | Conditional Formatting | Format as Table | Cell Styles | Insert | Delete | Format | Sort & Filter | Find & Select | Analyze Data | Create and Share Adobe PDF

L30

Row Labels	Count of Date	Sum of Run Distance (mi)
2011	5	19.81
2012	94	469.97
2013	100	468.26
2014	76	368.18
2015	73	287.72
2016	69	199.47
2017	148	391.56
2018	183	407.58
2019	279	574.54
2020	188	351.71
2021	150	301.66
2022	239	613.12
2023	55	214.72
Grand Total	1659	4668.3



MOST RUNS: 279 IN 2019



MOST DISTANCE: 613.1 MILES IN 2022

SO MY AVERAGE RUN LENGTH MUST BE CHANGING. LET'S EXPLORE!

AutoSave OFF

Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

Home Insert Draw Page Layout Formulas Data Review View Acrobat PivotTable Analyze Design Tell me

Comments Share

Paste | Calibri (Body) | 11 | Wrap Text | General | Conditional Formatting | Format as Table | Cell Styles | Insert | Delete | Format | Sort & Filter | Find & Select | Analyze Data | Create and Share Adobe PDF

C17 | 4668.30000000001

	A	B	C	D	E	J	K	L	M
1	Type	Running							
2									
3	Row Labels	Count of Date	Sum of Distance (mi)	Sum of Distance (mi)2					
4	2011	5	19.81	19.81					
5	2012	94	469.97	469.97					
6	2013	100	468.26	468.26					
7	2014	76	368.18	368.18					
8	2015	73	287.72	287.72					
9	2016	69	199.47	199.47					
10	2017	148	391.56	391.56					
11	2018	183	407.58	407.58					
12	2019	279	574.54	574.54					
13	2020	188	351.71	351.71					
14	2021	150	301.66	301.66					
15	2022	239	613.12	613.12					
16	2023	55	214.72	214.72					
17	Grand Total	1659	4668.3	4668.3					
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									

PivotTable Field

Source field: Distance (mi)

Field name: Average of Distance (mi)2

Summarize by | Show data as

- Sum
- Count
- Average
- Max
- Min
- Product
- Count Numbers
- StdDev

Number... Cancel OK

PivotTable Fields

FIELD NAME — Search fields

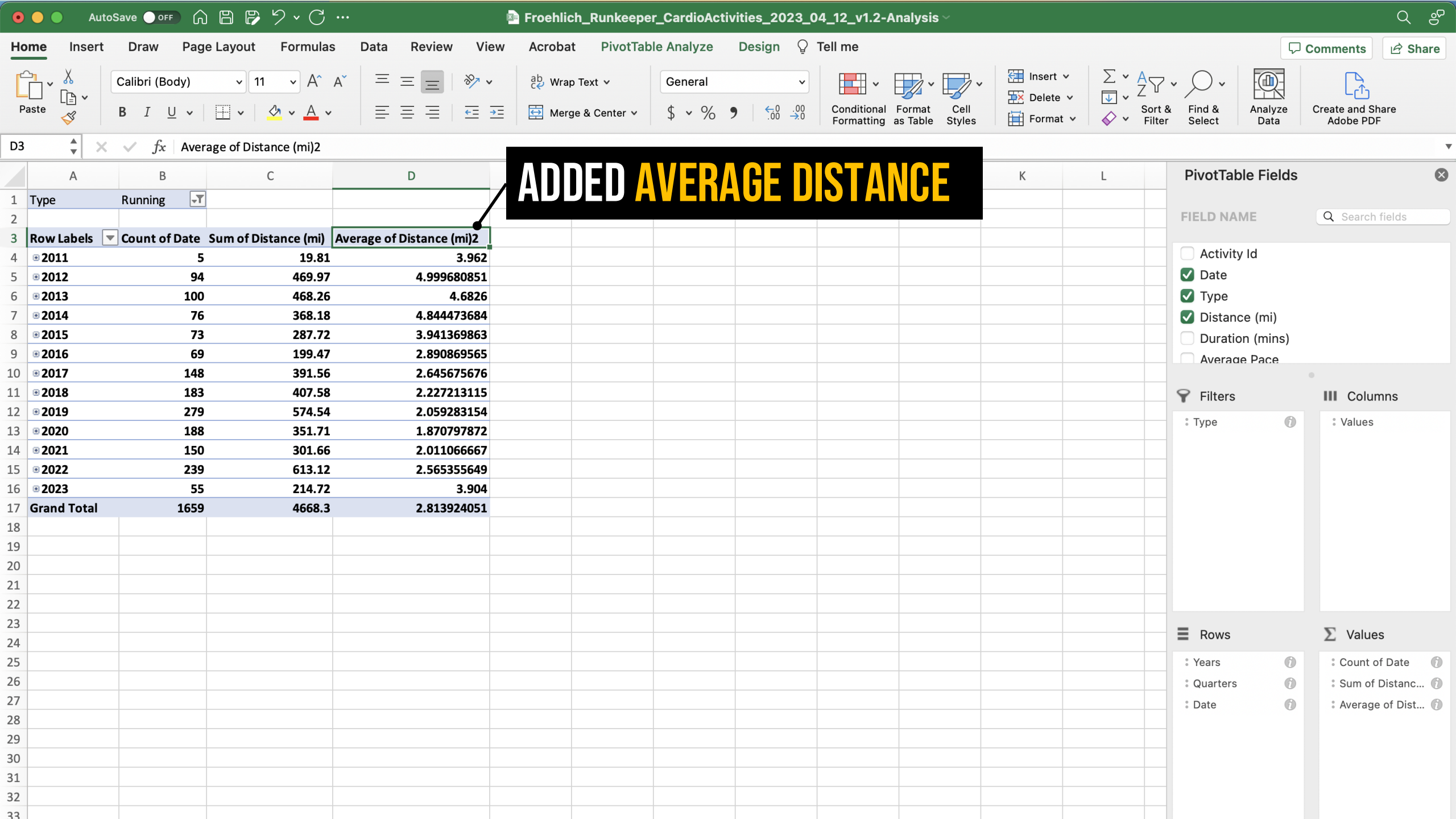
- Type
- Distance (mi)
- Duration (mins)
- Average Pace
- Average Pace (min/mile)

Filters: Type

Columns: Values

Rows: Years, Quarters, Date

Values: Count of Date, Sum of Distanc..., Sum of Distanc...



Type	Running		
Row Labels	**Count of Date**	**Sum of Distance (mi)**	**Average of Distance (mi)2**
2011	**5**	**19.81**	**3.962**
2012	**94**	**469.97**	**4.999680851**
2013	**100**	**468.26**	**4.6826**
2014	**76**	**368.18**	**4.844473684**
2015	**73**	**287.72**	**3.941369863**
2016	**69**	**199.47**	**2.890869565**
2017	**148**	**391.56**	**2.645675676**
2018	**183**	**407.58**	**2.227213115**
2019	**279**	**574.54**	**2.059283154**
2020	**188**	**351.71**	**1.870797872**
2021	**150**	**301.66**	**2.011066667**
2022	**239**	**613.12**	**2.565355649**
2023	**55**	**214.72**	**3.904**
Grand Total	**1659**	**4668.3**	**2.813924051**

AutoSave OFF

Froehlich_Runkeeper_CardioActivities_2023_04_12_v1.2-Analysis

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Comments Share

Paste | Calibri (Body) | 11 | Wrap Text | General | Conditional Formatting | Format as Table | Cell Styles | Insert | Delete | Format | Sort & Filter | Find & Select | Analyze Data | Create and Share Adobe PDF

Q36

Row Labels	Count of Date	Sum of Distan	Average of Distance (mi)2
2011	5	19.81	3.962
2012	94	469.97	4.99968085
2013	100	468.26	4.6826
2014	76	368.18	4.84447368
2015	73	287.72	3.94136986
2016	69	199.47	2.89086957
2017	148	391.56	2.64567568
2018	183	407.58	2.22721311
2019	279	574.54	2.05928315
2020	188	351.71	1.87079787
2021	150	301.66	2.01106667
2022	239	613.12	2.56535565
2023	55	214.72	3.904
Grand Total	1659	4668.3	2.81392405

COPY/PASTE VALUES INTO A NEW SHEET

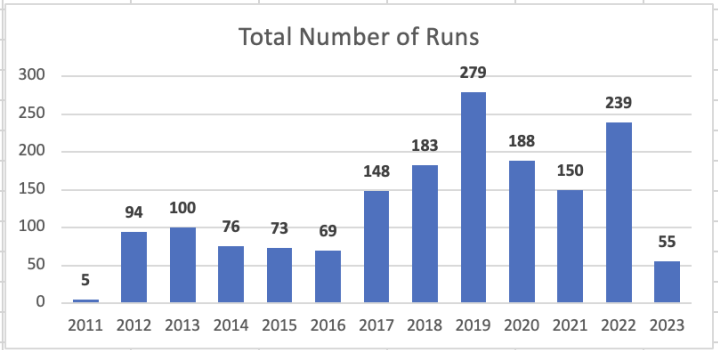
Format Shape

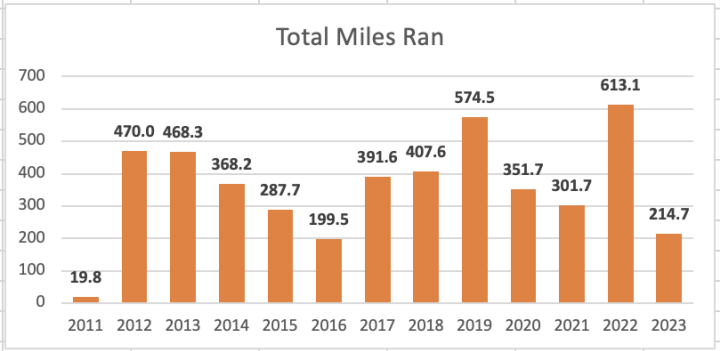
Fill

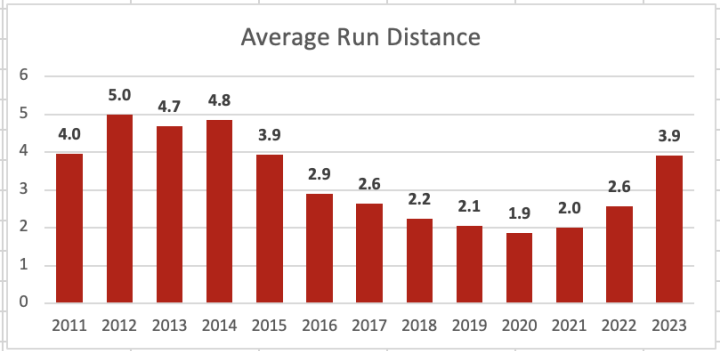
No fill
Solid fill
Gradient fill
Picture or texture fill
Pattern fill

Line

Row Labels	Count of Date	Sum of Distan	Average of Distance (mi)2
2011	5	19.81	3.962
2012	94	469.97	4.999680851
2013	100	468.26	4.6826
2014	76	368.18	4.844473684
2015	73	287.72	3.941369863
2016	69	199.47	2.890869565
2017	148	391.56	2.645675676
2018	183	407.58	2.227213115
2019	279	574.54	2.059283154
2020	188	351.71	1.870797872
2021	150	301.66	2.011066667
2022	239	613.12	2.565355649
2023	55	214.72	3.904
Grand Total	1659	4668.3	2.813924051







VISUALIZE AND DISCOVER

NOW LET'S DO THIS IN TABLEAU!

Tableau - Book2

File Data Server Window Help

Froehlich_Runkeeper_CardioActiv (Froehlich_Runk...

Connection
Live Extract

Filters
0 | Add

Connections Add

Froehlich_Ru...areWithClass
Microsoft Excel

Sheets

Use Data Interpreter

Data Interpreter might be able to clean your Microsoft Excel workbook.

Froehlich_Run...r_CardioActiv

New Union

New Table Extension

Froehlich_Runkeeper_Car...

Need more data?

Drag tables here to relate them. Learn more

EXAMINE DATA + INFERRED TYPES

Froehlich_Runkeeper_Car... 12 fields 2768 rows

100 rows

Name
Froehlich_Runkeeper_CardioActiv

Fields

Type	Field Name	Physical T...	Rem...
Abc	Activity Id	Froehlich!R...	Activit...
📅	Date	Froehlich!R...	Date
Abc	Type	Froehlich!R...	Type
#	Distance (mi)	Froehlich!R...	Distan...
#	Duration (mins)	Froehlich!R...	Durati...
📅	Average Pace	Froehlich!R...	Avera...

Abc Froehlich!Runkeeper!CardioActiv Activity Id	📅 Froehlich!Runkeeper!CardioActiv Date	Abc Froehlich!Runkeeper!CardioActiv Type	# Froehlich!Runkeeper!CardioActiv Distance (mi)	# Froehlich!Runkeeper!CardioActiv Duration (mins)	📅 Froehlich!Runkeeper!CardioActiv Average Pace	# Froehli Avera
73603635-a7b4-4619-8bc4-...	4/9/2023 11:06:04 AM	Running	9.0700	78.600	12/30/1899 8:40:00 AM	
e4819ab6-9235-4fde-a563-4...	4/8/2023 8:29:52 AM	Running	3.0100	23.750	12/30/1899 7:53:00 AM	
7f7f7d47-7df3-43a9-b1bc-b0...	4/8/2023 7:21:45 AM	Running	3.4100	32.850	12/30/1899 9:38:00 AM	
8c70821c-295b-48de-9cfb-b...	4/5/2023 12:20:01 PM	Running	1.7900	17.167	12/30/1899 9:36:00 AM	
57daaa33-bc9e-4c77-8e03-0...	4/3/2023 4:56:26 PM	Running	3.0000	29.633	12/30/1899 9:53:00 AM	
80cc7b5c-4164-4682-b940-...	4/2/2023 8:57:18 AM	Running	2.6900	23.217	12/30/1899 8:38:00 AM	
6ab6a68d-f886-49d6-9a20-...	4/1/2023 7:09:33 AM	Running	14.6400	145.033	12/30/1899 9:55:00 AM	
a625e6fd-cb12-435d-9c5f-d1...	3/29/2023 3:29:29 PM	Running	0.7700	9.517	12/30/1899 12:19:00 PM	
6530365f-6af9-4730-b49c-b...	3/29/2023 7:39:53 AM	Running	2.9000	29.383	12/30/1899 10:09:00 AM	
a940bcfc-1b62-49b1-8672-c...	3/27/2023 4:57:05 PM	Running	3.0500	30.367	12/30/1899 9:58:00 AM	

Data Source Sheet 1

AVERAGE PACE AS DATE/TIME?

rows

Activity Id	Date	Type	Distance (mi)	Duration (mins)	Average Pace
73603635-a7b4-4619-8bc4-...	4/9/2023 11:06:04 AM	Running	9.0700	78.600	12/30/1899 8:40:00 AM
e4819ab6-9235-4fde-a563-4...	4/8/2023 8:29:52 AM	Running	3.0100	23.750	12/30/1899 7:53:00 AM
7f7f7d47-7df3-43a9-b1bc-b0...	4/8/2023 7:21:45 AM	Running	3.4100	32.850	12/30/1899 9:38:00 AM
8c70821c-295b-48de-9cfb-b...	4/5/2023 12:20:01 PM	Running	1.7900	17.167	12/30/1899 9:36:00 AM
57daaa33-bc9e-4c77-8e03-0...	4/3/2023 4:56:26 PM	Running	3.0000	29.633	12/30/1899 9:53:00 AM
80cc7b5c-4164-4682-b940-...	4/2/2023 8:57:18 AM	Running	2.6900	23.217	12/30/1899 8:38:00 AM
6ab6a68d-f886-49d6-9a20-...	4/1/2023 7:09:33 AM	Running	14.6400	145.033	12/30/1899 9:55:00 AM
a625e6fd-cb12-435d-9c5f-d1...	3/29/2023 3:29:29 PM	Running	0.7700	9.517	12/30/1899 12:19:00 PM
6530365f-6af9-4730-b49c-b...	3/29/2023 7:39:53 AM	Running	2.9000	29.383	12/30/1899 10:09:00 AM
a940bcfc-1b62-49b1-8672-c...	3/27/2023 4:57:05 PM	Running	3.0500	30.367	12/30/1899 9:58:00 AM

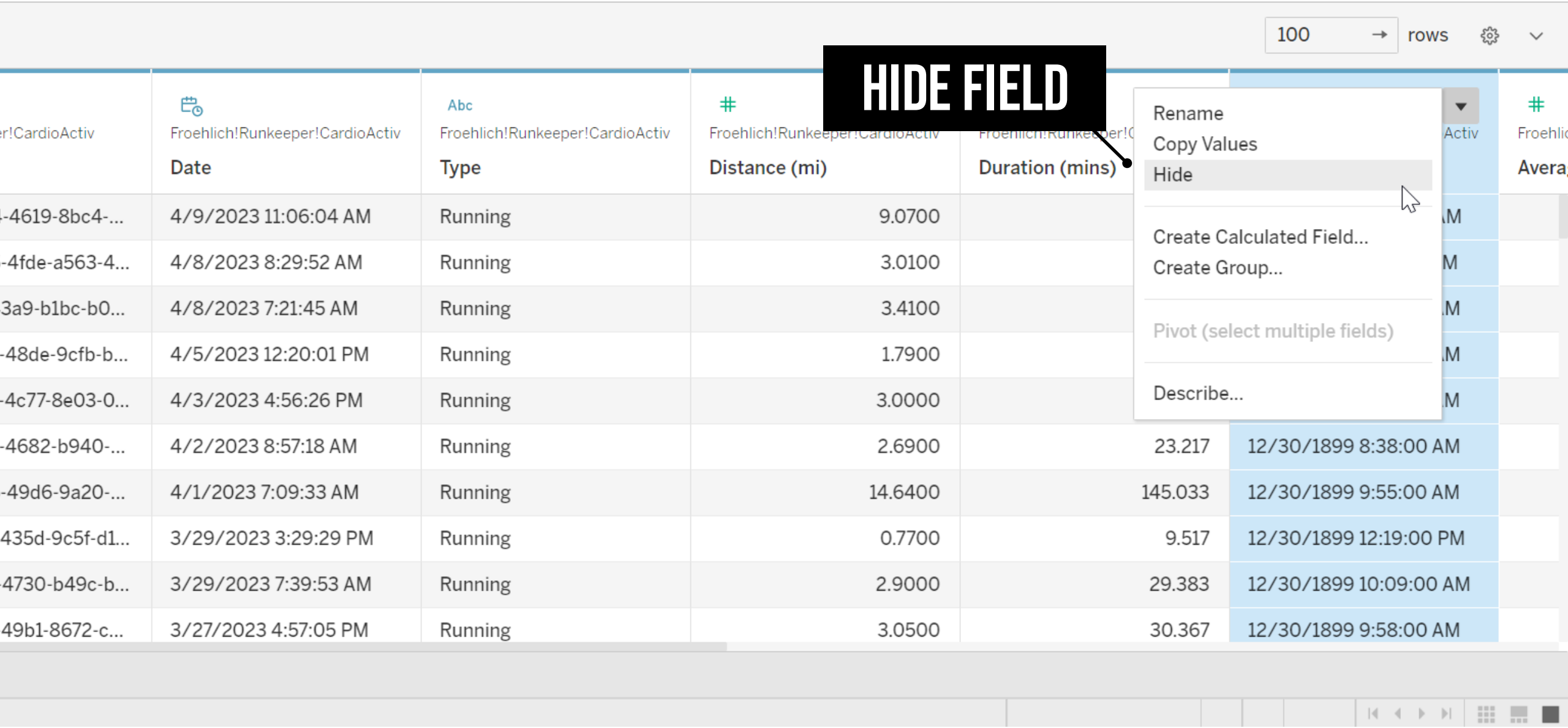

100
rows
HIDE FIELD
Froehlich!Runkeeper!CardioActiv
Date
Froehlich!Runkeeper!CardioActiv
Type
Froehlich!Runkeeper!CardioActiv
Distance (mi)
Duration (mins)
Rename
Copy Values
Hide
Create Calculated Field...
Create Group...
Pivot (select multiple fields)
Describe...
4/9/2023 11:06:04 AM
Running
9.0700
4/8/2023 8:29:52 AM
Running
3.0100
4/8/2023 7:21:45 AM
Running
3.4100
4/5/2023 12:20:01 PM
Running
1.7900
4/3/2023 4:56:26 PM
Running
3.0000
4/2/2023 8:57:18 AM
Running
2.6900
23.217
12/30/1899 8:38:00 AM
4/1/2023 7:09:33 AM
Running
14.6400
145.033
12/30/1899 9:55:00 AM
3/29/2023 3:29:29 PM
Running
0.7700
9.517
12/30/1899 12:19:00 PM
3/29/2023 7:39:53 AM
Running
2.9000
29.383
12/30/1899 10:09:00 AM
3/27/2023 4:57:05 PM
Running
3.0500
30.367
12/30/1899 9:58:00 AM

Tableau - Book2

File Data Server Window Help

Froehlich_Runkeeper_CardioActiv (Froehlich_Runk...

Connection
Live Extract

Filters
0 | Add

Connections Add

Froehlich_Ru...areWithClass
Microsoft Excel

Sheets

Use Data Interpreter

Data Interpreter might be able to clean your Microsoft Excel workbook.

Froehlich_Run...r_CardioActiv

Froehlich_Runkeeper_Car...

Need more data?

Drag tables here to relate them. Learn more

New Union

New Table Extension

Froehlich_Runkeeper_Car... 11 fields 2768 rows

100 rows

Name
Froehlich_Runkeeper_CardioActiv

Fields

Type	Field Name	Physical T...	Rem...
Abc	Activity Id	Froehlich!R...	Activit...
	Date	Froehlich!R...	Date
	Type		Type
	Distance (mi)		Distan...
	Duration (mins)		Durati...
#	Average Pace (min/mile)	Froehlich!R...	Avera...

Abc Froehlich!Runkeeper!CardioActiv Activity Id	Froehlich!Runkeeper!CardioActiv Date	Abc Froehlich!Runkeeper!CardioActiv Type	# Froehlich!Runkeeper!CardioActiv Distance (mi)	# Froehlich!Runkeeper!CardioActiv Duration (mins)	# Froehlich!Runkeeper!CardioActiv Average Pace (min/mile)
73603635-a7b4-4619-8bc4-...	4/9/2023 11:06:04 AM	Running	9.0700	78.600	8.6667
e4819ab6-9235-4fde-a563-4...	4/8/2023 8:29:52 AM	Running	3.0100	23.750	7.8833
7f7f7d47-7df3-43a9-b1bc-b0...	4/8/2023 7:21:45 AM	Running	3.4100	32.850	9.6333
8c70821c-295b-48de-9cfb-b...	4/5/2023 12:20:01 PM	Running	1.7900	17.167	9.6000
57daaa33-bc9e-4c77-8e03-0...	4/3/2023 4:56:26 PM	Running	3.0000	29.633	9.8833
80cc7b5c-4164-4682-b940-...	4/2/2023 8:57:18 AM	Running	2.6900	23.217	8.6333
6ab6a68d-f886-49d6-9a20-...	4/1/2023 7:09:33 AM	Running	14.6400	145.033	9.9167
a625e6fd-cb12-435d-9c5f-d1...	3/29/2023 3:29:29 PM	Running	0.7700	9.517	12.3167
6530365f-6af9-4730-b49c-b...	3/29/2023 7:39:53 AM	Running	2.9000	29.383	10.1500
a940bcfc-1b62-49b1-8672-c...	3/27/2023 4:57:05 PM	Running	3.0500	30.367	9.9667

CLICK SHEET

Data Source Sheet 1

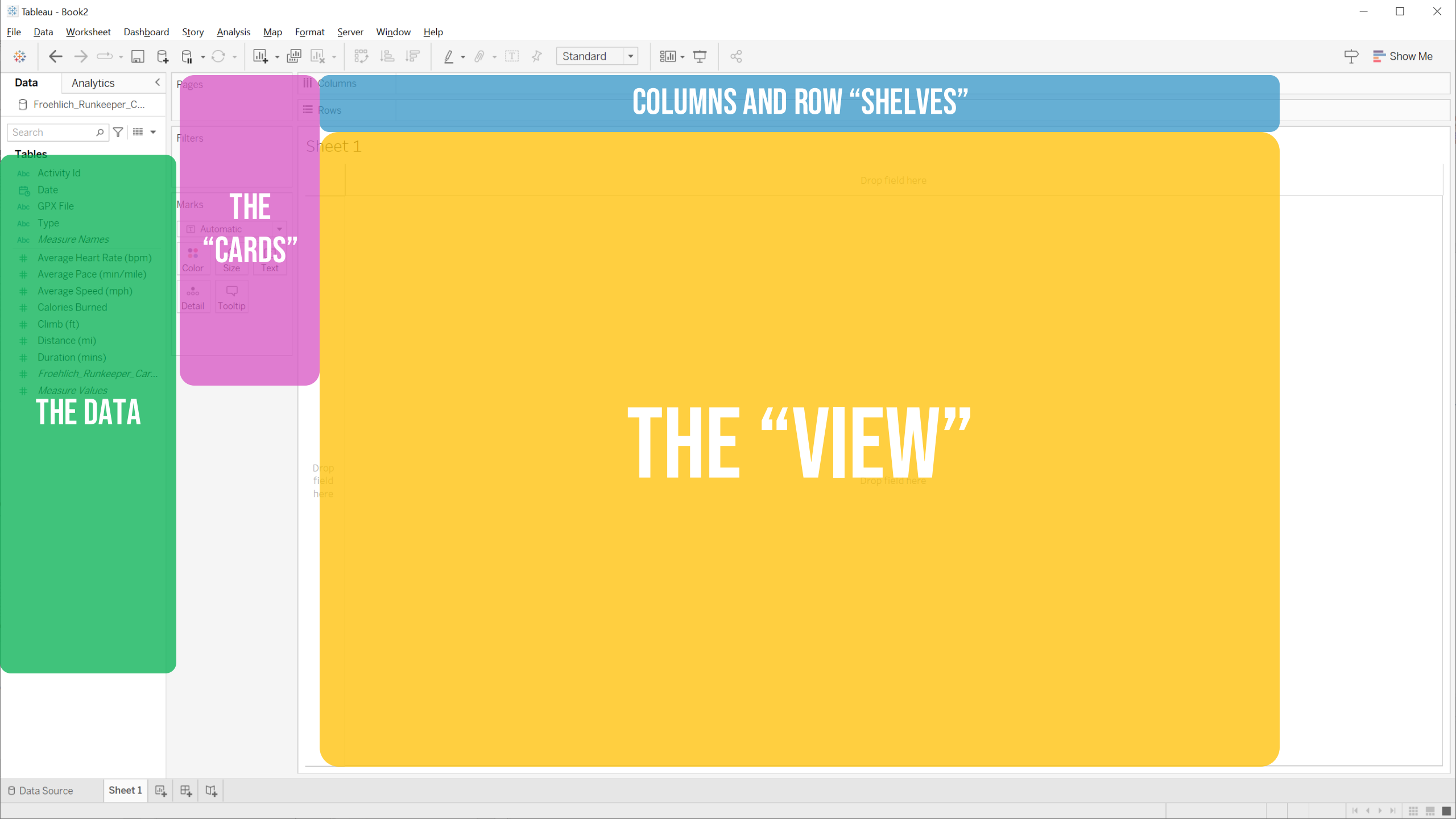

Tableau - Book2
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Show Me
Data
Analytics
Froehlich_Runkeeper_C...
Search
Tables
Abc Activity Id
Date
Abc GPX File
Abc Type
Abc Measure Names
Average Heart Rate (bpm)
Average Pace (min/mile)
Average Speed (mph)
Calories Burned
Climb (ft)
Distance (mi)
Duration (mins)
Froehlich_Runkeeper_Car...
Measure Values
THE DATA
Pages
Filters
Marks
Automatic
Color
Size
Text
Detail
Tooltip
THE "CARDS"
Columns
Rows
COLUMNS AND ROW "SHELVES"
Sheet 1
Drop field here
Drop field here
Drop field here
THE "VIEW"
Data Source
Sheet 1

Tableau - Book2

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Activity Id
- Date
- GPX File
- Type
- *Measure Names*
- Average Heart Rate (bpm)
- Average Pace (min/mile)
- Average Speed (mph)
- Calories Burned
- Climb (ft)
- Distance (mi)
- Duration (mins)
- *Froehlich_Runkeeper_Car...*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color Size Text Detail Tooltip

Columns

Rows YEAR(Date)

Sheet 1

Year of Date	
Null	Abc
2011	Abc
2012	Abc
2013	Abc
2014	Abc
2015	Abc
2016	Abc
2017	Abc
2018	Abc
2019	Abc
2020	Abc
2021	Abc
2022	Abc
2023	Abc

ADD YEAR

Data Source Sheet 1

14 marks 14 rows by 1 column

Tableau - Book2

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Activity Id
- Date
- GPX File
- Type
- *Measure Names*
- Average Heart Rate (bpm)
- Average Pace (min/mile)
- Average Speed (mph)
- Calories Burned
- Climb (ft)
- Distance (mi)
- Duration (mins)
- *Froehlich_Runkeeper_Car...*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color Size Text Detail Tooltip

Columns: Activity Id

Rows: YEAR(Date)

ADD ACTIVITY ID

Sheet 1

Activity Id

Year of Date	Null	0a6d19..	0a6d56..	0a43f4..	0a56c4..	0a81a0..	0a8806..	0ab37a..	0ab49e..	0ab398..	0ac4ad..	0ae331..	0b3f97..	0b38b0..	0b92e1..	0b98fc..	0b242a..	0b5390..	0b7040..	0b9028..	0bef9a..	0bf262..	0c07b
Null	Abc																						
2011																							
2012																							A
2013																			Abc				
2014			Abc										Abc			Abc	Abc						
2015																							
2016									Abc	Abc								Abc				Abc	
2017				Abc	Abc			Abc				Abc											
2018		Abc												Abc	Abc						Abc		
2019																							
2020							Abc																
2021						Abc																	
2022											Abc										Abc		
2023																							

Data Source Sheet 1

2766 marks 14 rows by 2766 columns

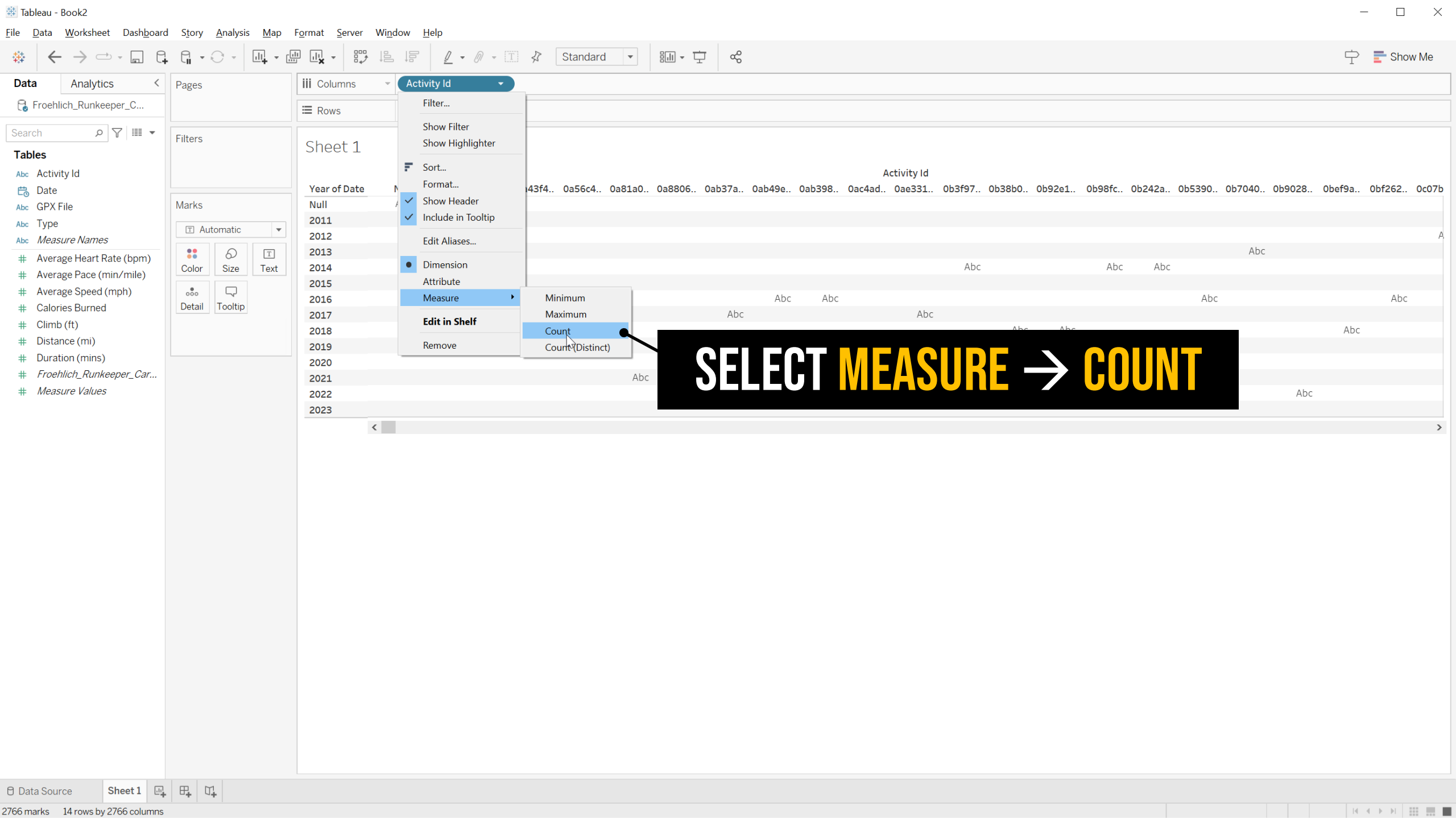

Tableau - Book2
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Show Me
Data
Analytics
Froehlich_Runkeeper_C...
Search
Tables
Abc Activity Id
Date
Abc GPX File
Abc Type
Abc Measure Names
Average Heart Rate (bpm)
Average Pace (min/mile)
Average Speed (mph)
Calories Burned
Climb (ft)
Distance (mi)
Duration (mins)
Froehlich_Runkeeper_Car...
Measure Values
Pages
Filters
Marks
Automatic
Color
Size
Text
Detail
Tooltip
Columns
Activity Id
Rows
Sheet 1
Filter...
Show Filter
Show Highlighter
Sort...
Format...
Show Header
Include in Tooltip
Edit Aliases...
Dimension
Attribute
Measure
Edit in Shelf
Remove
Minimum
Maximum
Count
Count (Distinct)
Activity Id
Year of Date
Null
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
SELECT MEASURE → COUNT
Data Source
Sheet 1
2766 marks
14 rows by 2766 columns

Tableau - Book2

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Abc Activity Id
- Date
- Abc GPX File
- Abc Type
- Abc *Measure Names*
- # Average Heart Rate (bpm)
- # Average Pace (min/mile)
- # Average Speed (mph)
- # Calories Burned
- # Climb (ft)
- # Distance (mi)
- # Duration (mins)
- # *Froehlich_Runkeeper_Car...*
- # *Measure Values*

Pages

Filters

Marks

Automatic

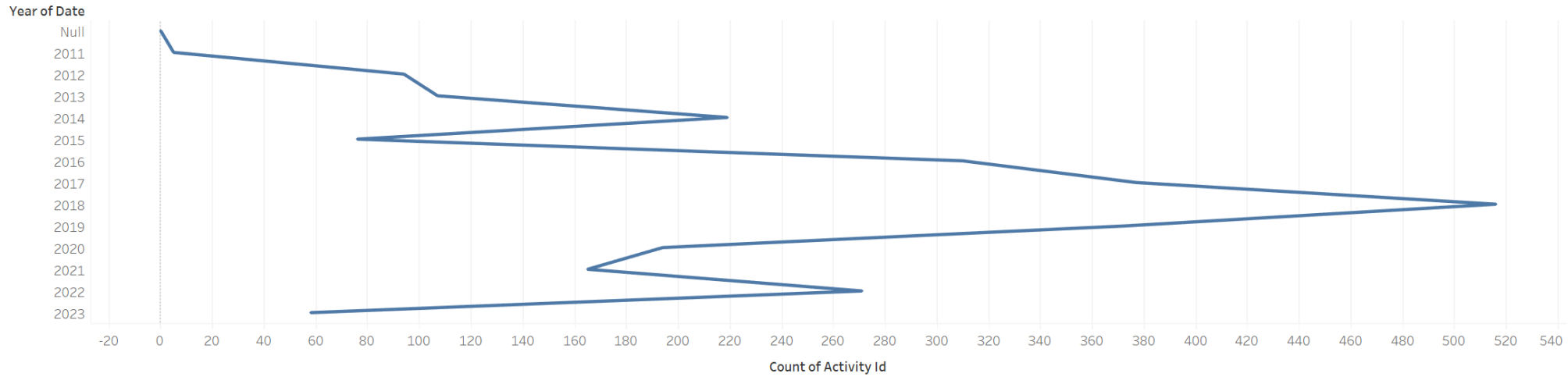
Color Size Label

Detail Tooltip Path

Columns CNT(Activity Id)

Rows YEAR(Date)

Sheet 1



Data Source Sheet 1

14 marks 14 rows by 1 column SUM of CNT(Activity Id): 2,765

Tableau - Book2

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Swap Rows and Columns (Ctrl+W)

SWAP ROWS/COLUMNS

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Abc Activity Id
- Date
- Abc GPX File
- Abc Type
- Abc *Measure Names*
- Average Heart Rate (bpm)
- Average Pace (min/mile)
- Average Speed (mph)
- Calories Burned
- Climb (ft)
- Distance (mi)
- Duration (mins)
- *Froehlich_Runkeeper_Car...*
- *Measure Values*

Pages

Filters

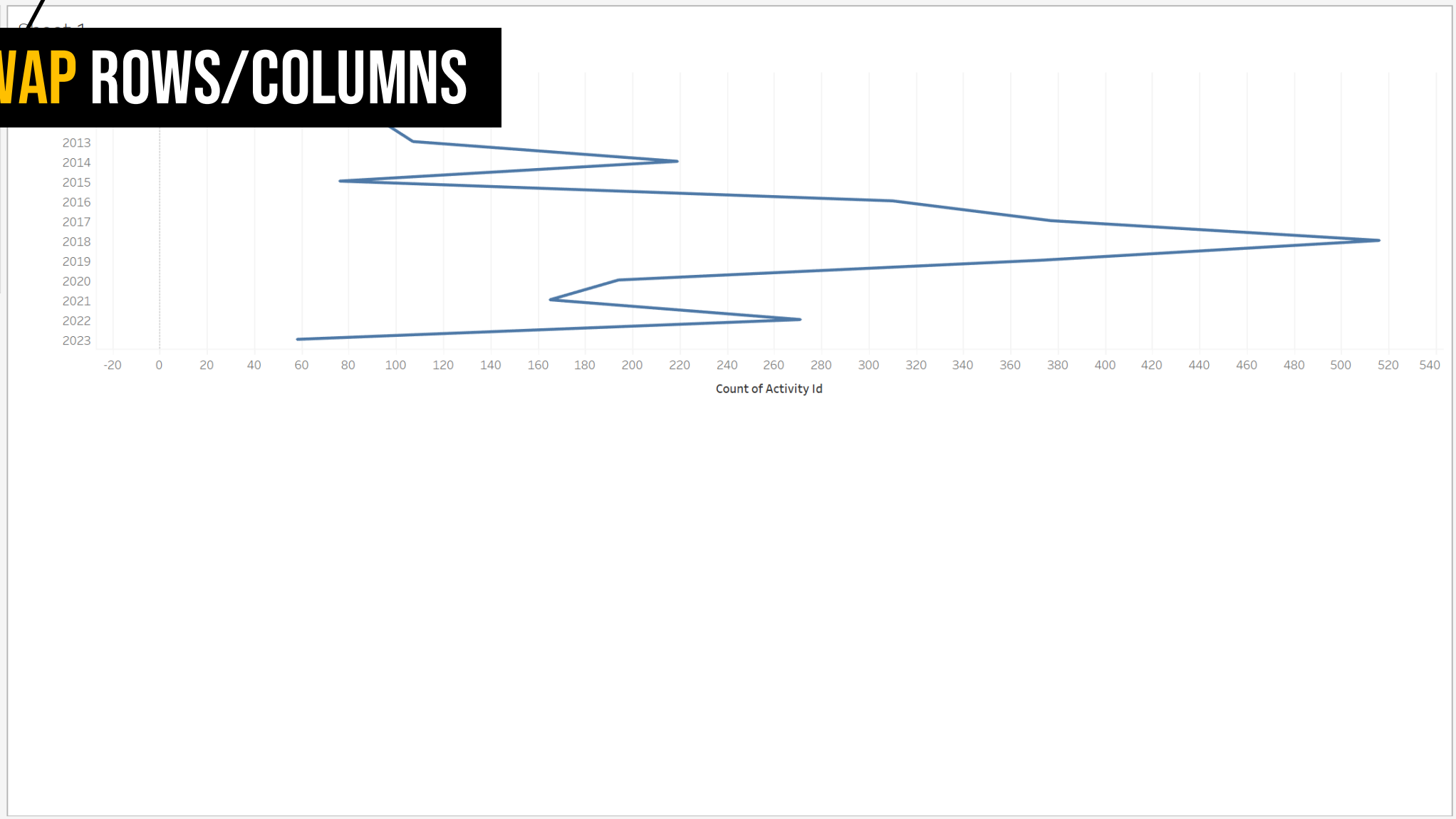
Marks

Automatic

Color Size Label Detail Tooltip Path

Columns

Rows YEAR(Date)



Data Source Sheet 1

14 marks 14 rows by 1 column SUM of CNT(Activity Id): 2,765

Tableau - Book2

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Abc Activity Id
- Date
- Abc GPX File
- Abc Type
- Abc *Measure Names*
- Average Heart Rate (bpm)
- Average Pace (min/mile)
- Average Speed (mph)
- Calories Burned
- Climb (ft)
- Distance (mi)
- Duration (mins)
- *Froehlich_Runkeeper_Car...*
- *Measure Values*

Pages

Filters

Marks

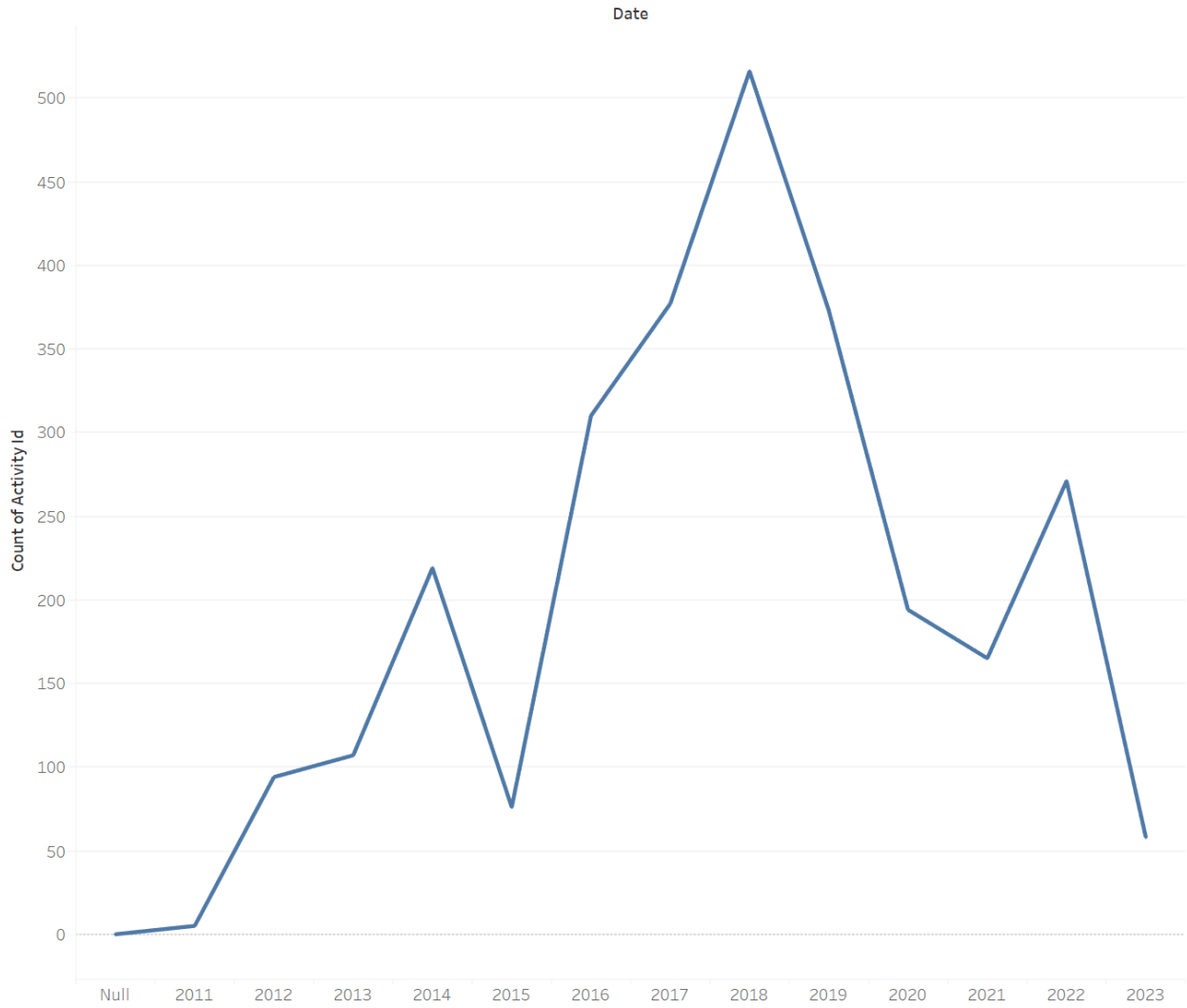
Automatic

Color Size Label Detail Tooltip Path

Columns: YEAR(Date)

Rows: CNT(Activity Id)

Sheet 1



Data Source Sheet 1

14 marks 1 row by 14 columns SUM of CNT(Activity Id): 2,765

Tableau - Book2

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Abc Activity Id
- Date
- Abc GPX File
- Abc Type
- Abc *Measure Names*
- # Average Heart Rate (bpm)
- # Average Pace (min/mile)
- # Average Speed (mph)
- # Calories Burned
- # Climb (ft)
- # Distance (mi)
- # Duration (mins)
- # *Froehlich_Runkeeper_Car...*
- # *Measure Values*

Pages

Filters

Marks

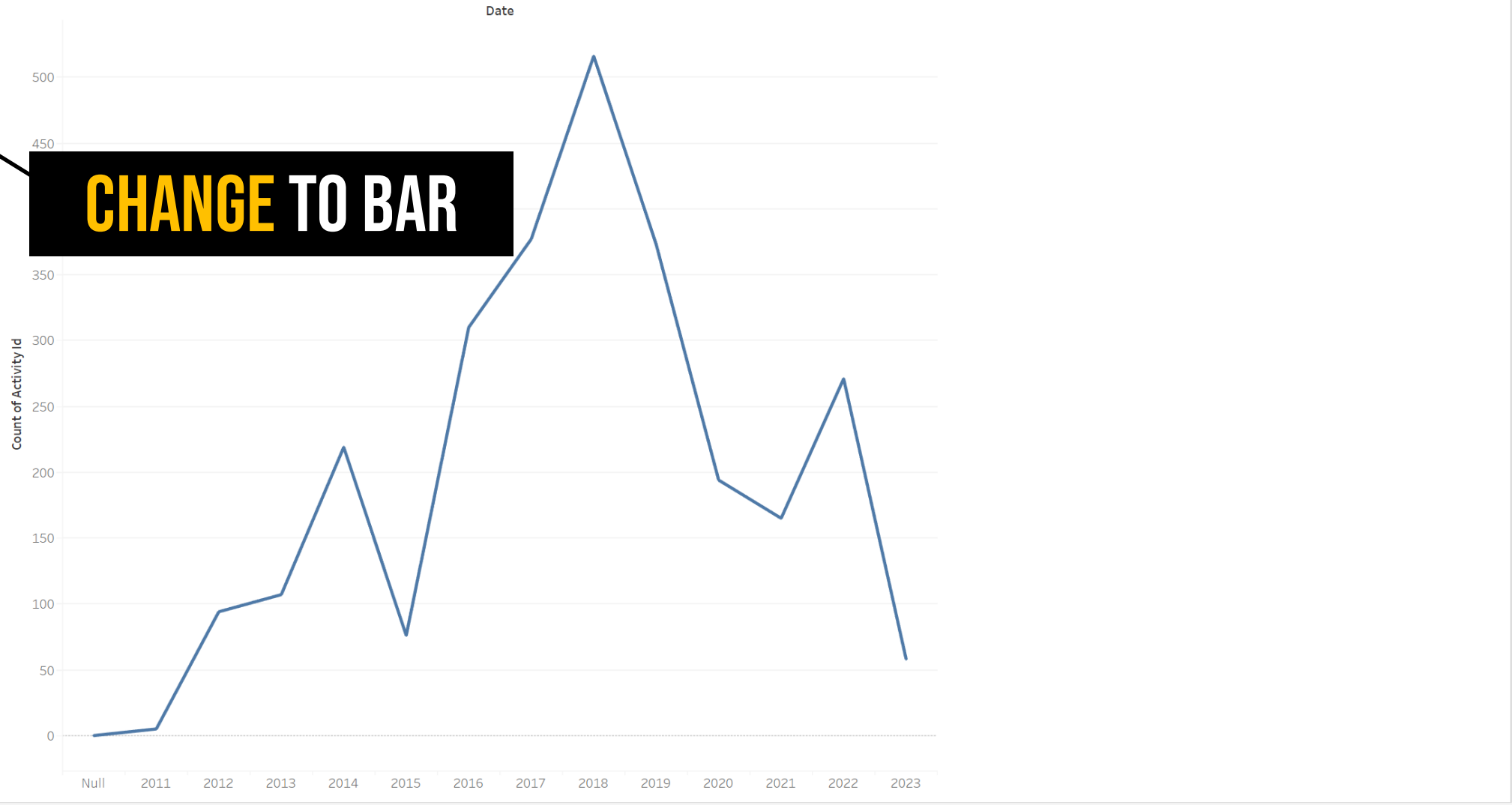
Automatic

- Automatic
- Bar
- Line
- Area
- Square
- Circle
- Shape
- Text
- Map
- Pie
- Gantt Bar
- Polygon
- Density

Columns YEAR(Date)

Rows CNT(Activity Id)

Sheet 1



CHANGE TO BAR

Data Source Sheet 1

14 marks 1 row by 14 columns SUM of CNT(Activity Id): 2,765

Tableau - Book2

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Abc Activity Id
- Date
- Abc GPX File
- Abc Type
- Abc *Measure Names*
- Average Heart Rate (bpm)
- Average Pace (min/mile)
- Average Speed (mph)
- Calories Burned
- Climb (ft)
- Distance (mi)
- Duration (mins)
- *Froehlich_Runkeeper_Car...*
- *Measure Values*

Pages

Filters

Marks

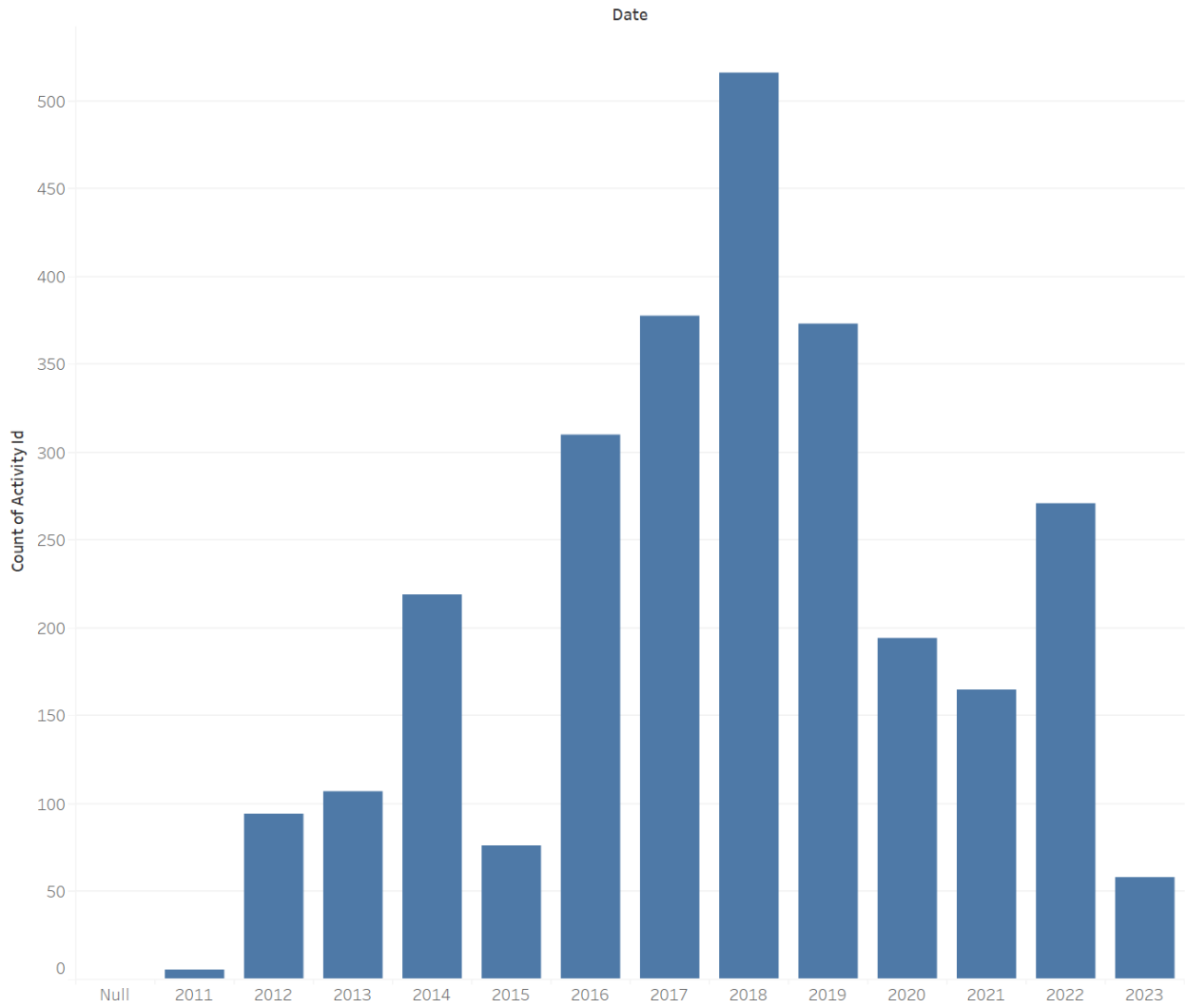
Bar

Color Size Label Detail Tooltip

Columns: YEAR(Date)

Rows: CNT(Activity Id)

Sheet 1



Data Source Sheet 1

14 marks 1 row by 14 columns SUM of CNT(Activity Id): 2,765

Tableau - Book2

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Activity Id
- Date
- GPX File
- Type
- *Measure Names*
- Average Heart Rate (bpm)
- Average Pace (min/mile)
- Average Speed (mph)
- Calories Burned
- Climb (ft)
- Distance (mi)
- Duration (mins)
- *Froehlich_Runkeeper_Car...*
- *Measure Values*

Pages

Filters

Marks

Bar

Color Size Label

Detail Tooltip

Activity Id

Columns: YEAR(Date)

Rows: CNT(Activity Id)

Sheet 1

Date

Count of

500 450 400 350 250 200 150 100 50 0

Null 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023

DRAG ACTIVITY ID HERE

Data Source Sheet 1

2766 marks 1 row by 14 columns SUM of CNT(Activity Id): 2,765

Tableau - RunkeeperAnalysis

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Activity Id
- Date
- GPX File
- Type
- *Measure Names*
- Average Heart Rate (bpm)
- Average Pace (min/mile)
- Average Speed (mph)
- Calories Burned
- Climb (ft)
- Distance (mi)
- Duration (mins)
- *Froehlich_Runkeeper_Car...*
- *Measure Values*

Pages

Filters

Marks

Bar

Color Size Label

Detail Tooltip

Activity Id

Columns YEAR(Date)

Rows CNT(Activity Id)

Sheet 1

Date

500 450 400 50 00 50 150 100 50 0

Null 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023

Filter...

Show Filter

Show Highlighter

Sort...

Format...

Include in Tooltip

Edit Aliases...

Dimension

Attribute

Measure

Edit in Shelf

Remove

Minimum

Maximum

Count

Count (Distinct)

SWITCH TO COUNT

Data Source Sheet 1

2766 marks 1 row by 14 columns SUM of CNT(Activity Id): 2,765

Tableau - RunkeeperAnalysis

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Activity Id
- Date
- GPX File
- Type
- *Measure Names*
- Average Heart Rate (bpm)
- Average Pace (min/mile)
- Average Speed (mph)
- Calories Burned
- Climb (ft)
- Distance (mi)
- Duration (mins)
- *Froehlich_Runkeeper_Car...*
- *Measure Values*

Pages

Filters

Marks

Bar

Color Size Label

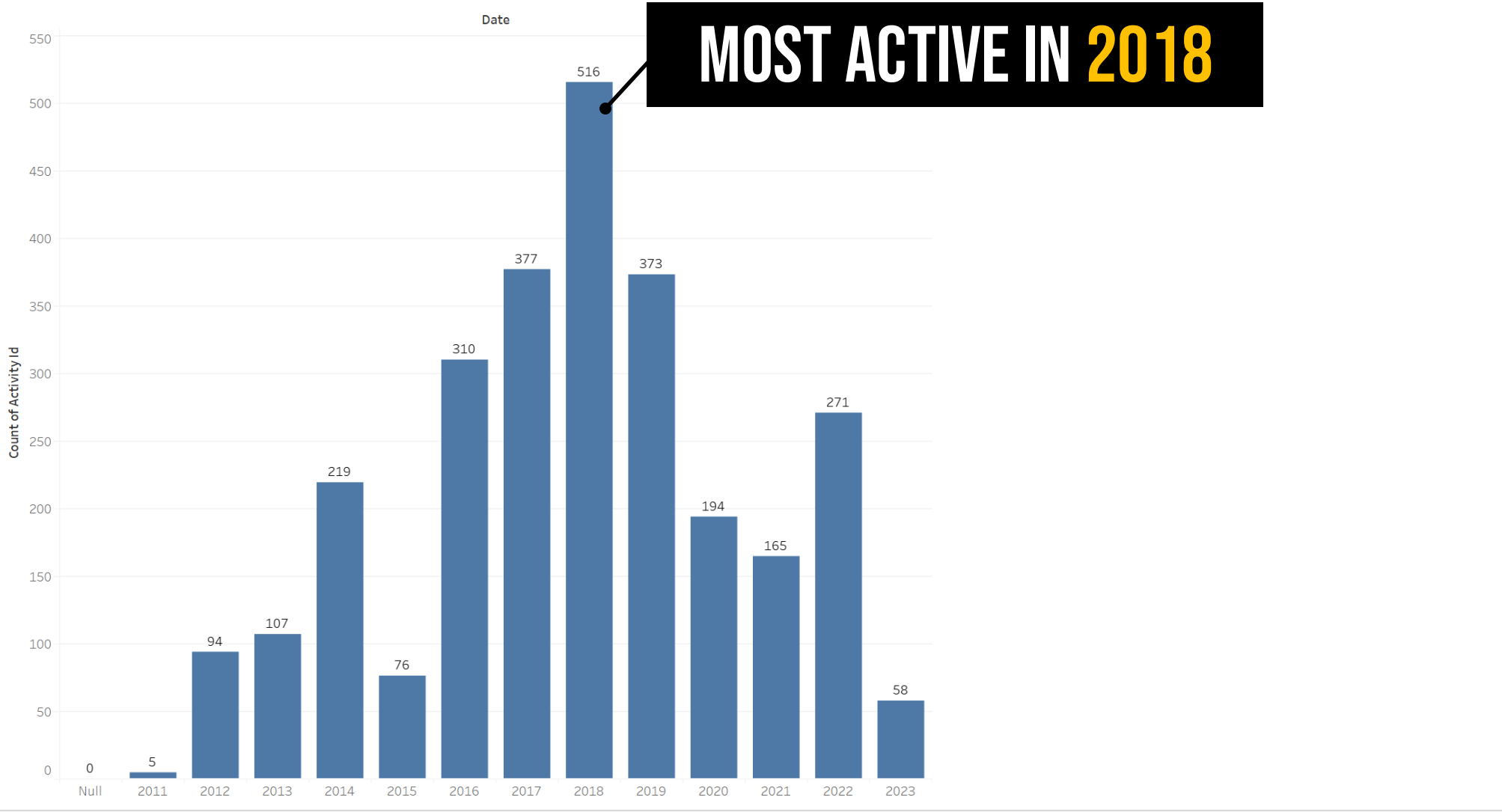
Detail Tooltip

CNT(Activity I..

Columns YEAR(Date)

Rows CNT(Activity Id)

Sheet 1



Data Source Sheet 1

14 marks 1 row by 14 columns SUM of CNT(Activity Id): 2,765

WHAT ACTIVITIES DO I ENGAGE IN OVER TIME?

Tableau - RunkeeperAnalysis

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Activity Id
- Date
- GPX File
- Type
- *Measure Names*
- Average Heart Rate (bpm)
- Average Pace (min/mile)
- Average Speed (mph)
- Calories Burned
- Climb (ft)
- Distance (mi)
- Duration (mins)
- *Froehlich_Runkeeper_Car...*
- *Measure Values*

Pages

Filters

Marks

Bar

Color Size Label

Detail Tooltip

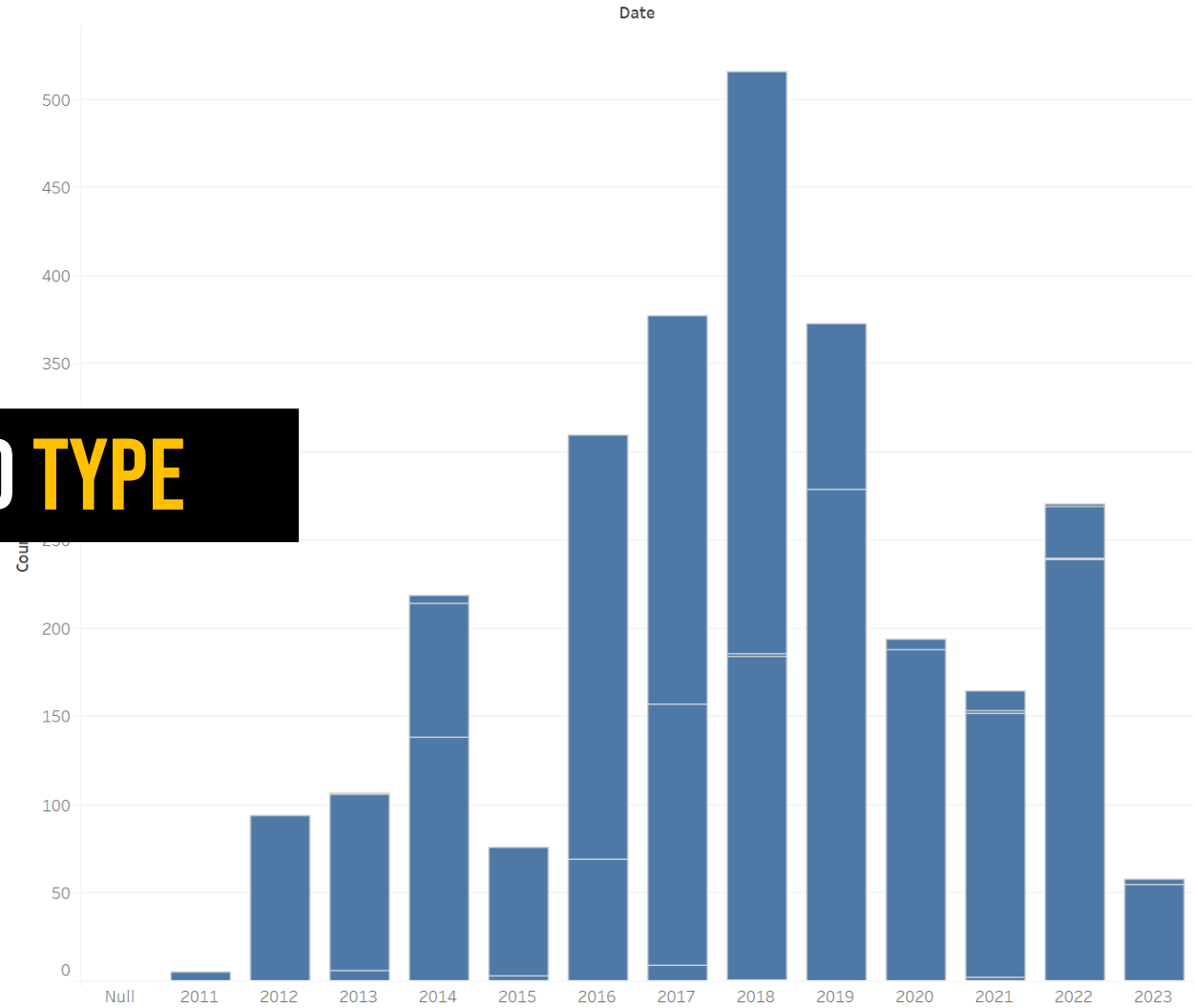
CNT(Activity I..

Type

Columns YEAR(Date)

Rows CNT(Activity Id)

Sheet 1



ADD TYPE

Data Source Sheet 1

34 marks 1 row by 14 columns SUM of CNT(Activity Id): 2,765

Tableau - RunkeeperAnalysis

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Abc Activity Id
- Date
- Abc GPX File
- Abc Type
- Abc *Measure Names*
- Average Heart Rate (bpm)
- Average Pace (min/mile)
- Average Speed (mph)
- Calories Burned
- Climb (ft)
- Distance (mi)
- Duration (mins)
- *Froehlich_Runkeeper_Car...*
- *Measure Values*

Pages

Filters

Marks

Bar

Color Size Label

Detail Tooltip

CNT(Activity I..

Type

COLOR BY TYPE

Columns YEAR(Date)

Rows CNT(Activity Id)

Sheet 1

Date

Count

0 50 100 150 200 350 400 450 500

Null 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023

Type

- Null
- Cross-Country Skiing
- Cycling
- Hiking
- Other
- Rowing
- Running
- Walking

Data Source Sheet 1

34 marks 1 row by 14 columns SUM of CNT(Activity Id): 2,765

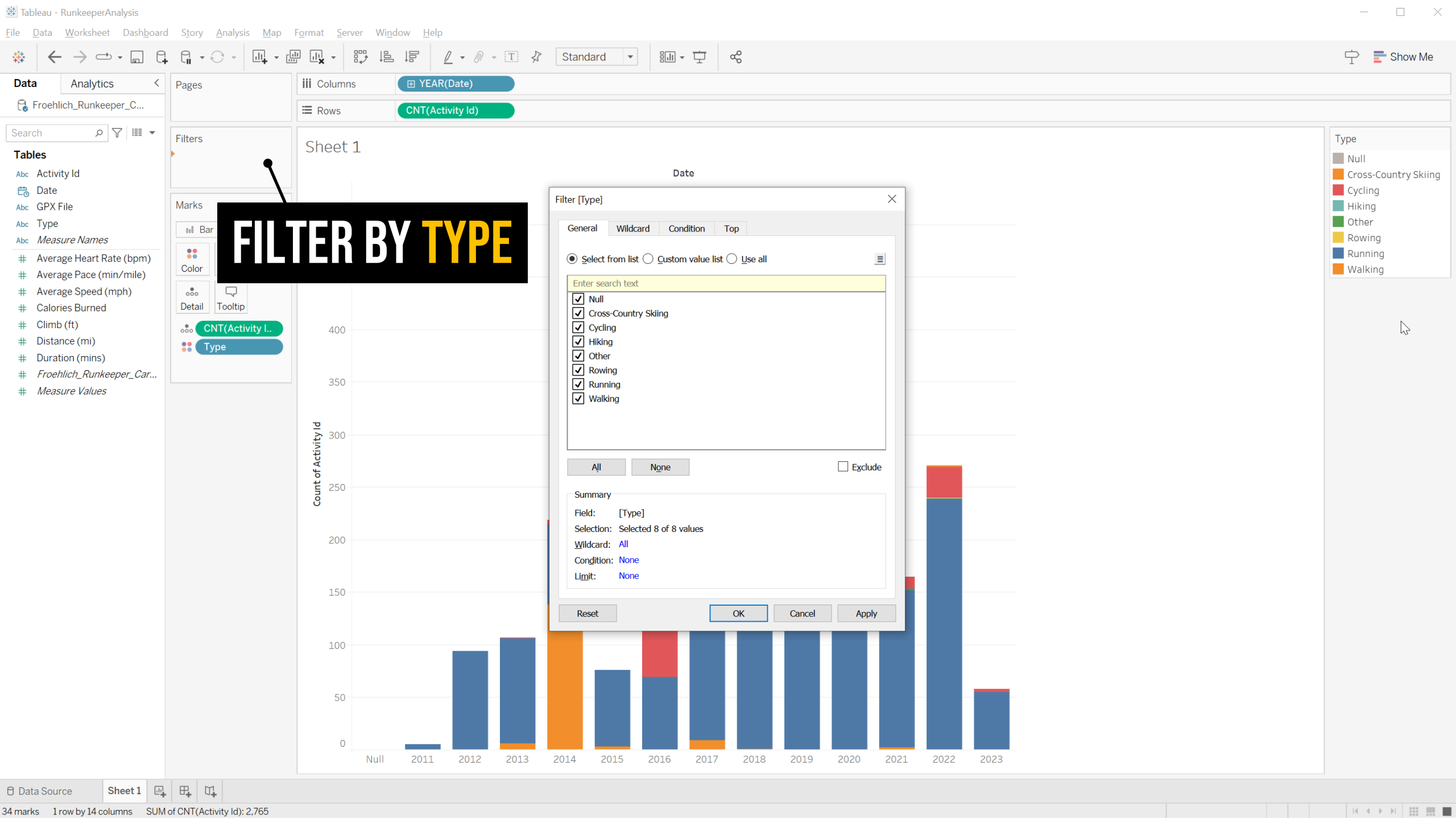

Tableau - RunkeeperAnalysis
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Show Me
Data
Analytics
Froehlich_Runkeeper_C...
Search
Tables
Abc Activity Id
Date
Abc GPX File
Abc Type
Abc Measure Names
Average Heart Rate (bpm)
Average Pace (min/mile)
Average Speed (mph)
Calories Burned
Climb (ft)
Distance (mi)
Duration (mins)
Froehlich_Runkeeper_Car...
Measure Values
Pages
Filters
Marks
Bar
Color
Detail
Tooltip
CNT(Activity I..
Type
Columns
YEAR(Date)
Rows
CNT(Activity Id)
Sheet 1
Date
Count of Activity Id
0
50
100
150
200
250
300
350
400
Null
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
FILTER BY TYPE
Filter [Type]
General
Wildcard
Condition
Top
Select from list
Custom value list
Use all
Enter search text
Null
Cross-Country Skiing
Cycling
Hiking
Other
Rowing
Running
Walking
All
None
Exclude
Summary
Field: [Type]
Selection: Selected 8 of 8 values
Wildcard: All
Condition: None
Limit: None
Reset
OK
Cancel
Apply
Type
Null
Cross-Country Skiing
Cycling
Hiking
Other
Rowing
Running
Walking
Data Source
Sheet 1
34 marks
1 row by 14 columns
SUM of CNT(Activity Id): 2,765

Tableau - RunkeeperAnalysis

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Abc Activity Id
- Date
- Abc GPX File
- Abc Type
- Abc *Measure Names*
- Average Heart Rate (bpm)
- Average Pace (min/mile)
- Average Speed (mph)
- Calories Burned
- Climb (ft)
- Distance (mi)
- Duration (mins)
- *Froehlich_Runkeeper_Car...*
- *Measure Values*

Pages

Columns YEAR(Date)

Rows CNT(Activity Id)

Filters

Type

Edit Filter...

Show Filter

Show Highlighter

Clear Filter

Add to Conte

Apply to Wor

Sort...

Create Set...

Dimension

Attribute

Measure

Remove

SHOW FILTER

Sheet 1

Date

Count of Activity Id

0 50 100 150 200 250 300 350 400 500

Null 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023

Type

- Null
- Cross-Country Skiing
- Cycling
- Hiking
- Other
- Rowing
- Running
- Walking

Data Source Sheet 1

34 marks 1 row by 14 columns SUM of CNT(Activity Id): 2,765

Tableau - RunkeeperAnalysis

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics

Froehlich_Runkeeper_C...

Search

Tables

- Activity Id
- Date
- GPX File
- Type
- *Measure Names*
- Average Heart Rate (bpm)
- Average Pace (min/mile)
- Average Speed (mph)
- Calories Burned
- Climb (ft)
- Distance (mi)
- Duration (mins)
- *Froehlich_Runkeeper_Car...*
- *Measure Values*

Pages

Filters

Type

Marks

Bar

Color Size Label

Detail Tooltip

CNT(Activity I..

Type

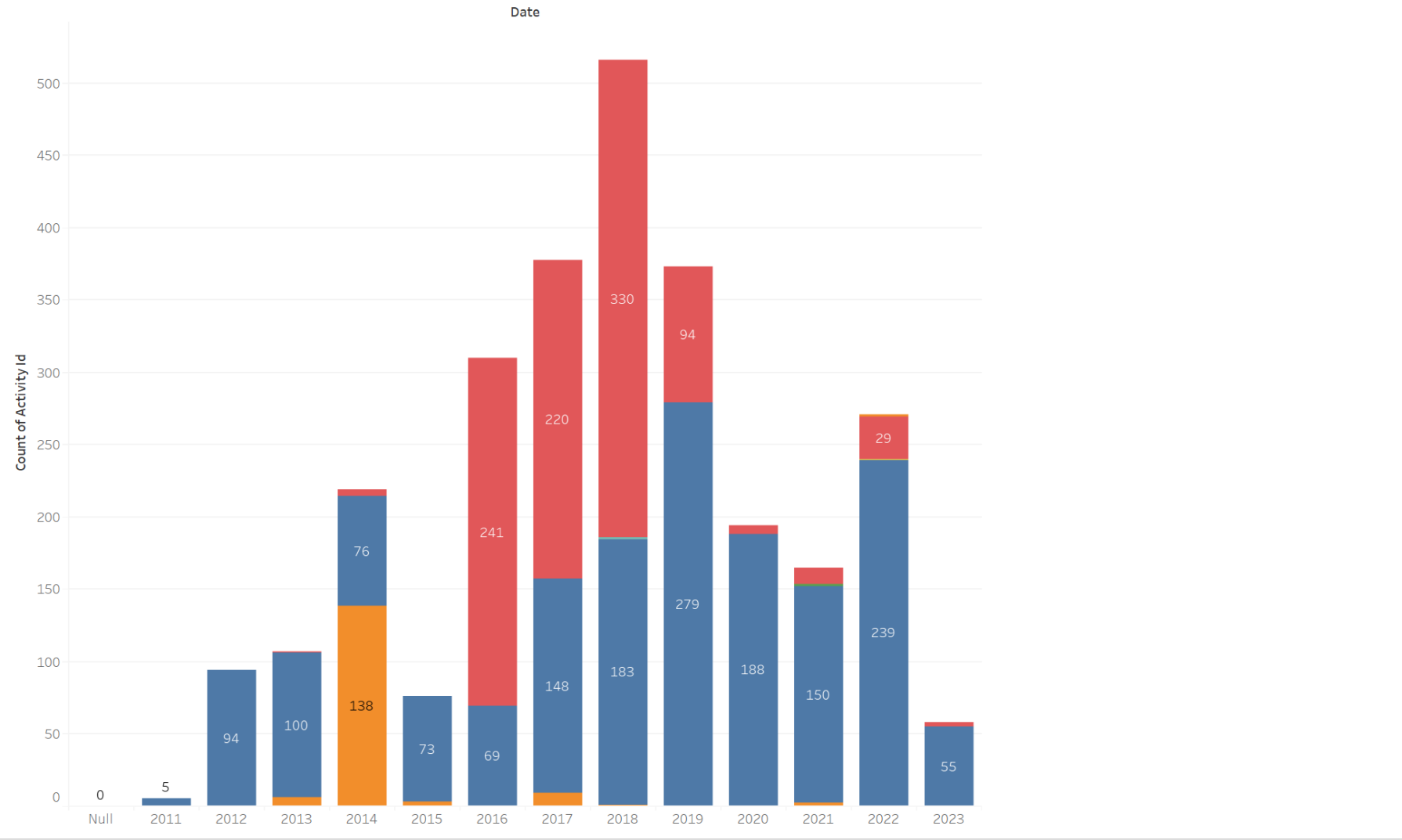
Columns YEAR(Date)

Rows CNT(Activity Id)

Standard

Show Me

Sheet 1

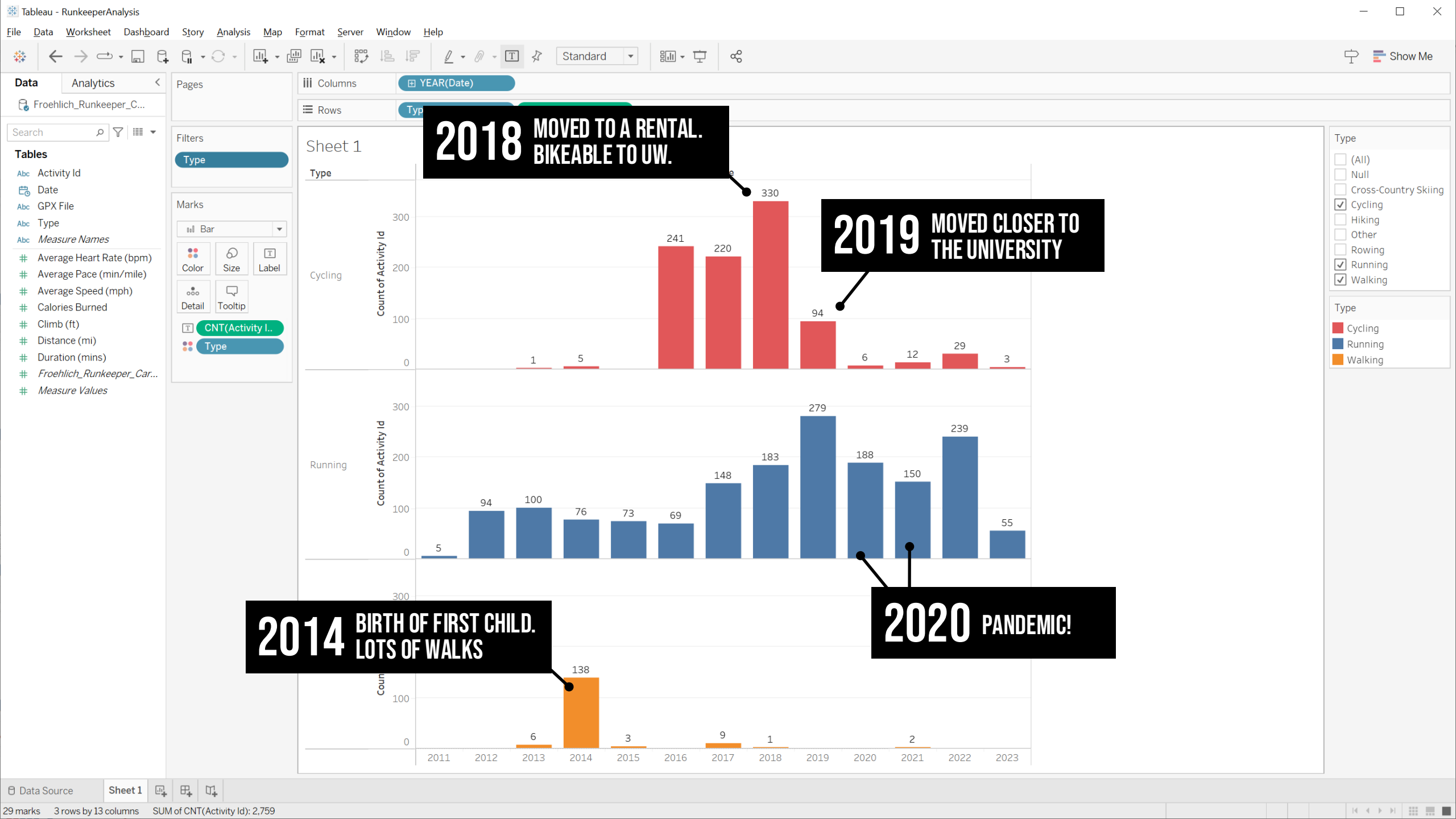


Type

- Null
- Cross-Country Skiing
- Cycling
- Hiking
- Other
- Rowing
- Running
- Walking

Data Source Sheet 1

34 marks 1 row by 14 columns SUM of CNT(Activity Id): 2,765


Tableau - RunkeeperAnalysis
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Show Me
Data
Analytics
Froehlich_Runkeeper_C...
Search
Tables
Activity Id
Date
GPX File
Type
Measure Names
Average Heart Rate (bpm)
Average Pace (min/mile)
Average Speed (mph)
Calories Burned
Climb (ft)
Distance (mi)
Duration (mins)
Froehlich_Runkeeper_Car...
Measure Values
Pages
Filters
Type
Marks
Bar
Color
Size
Label
Detail
Tooltip
CNT(Activity I..
Type
Columns
YEAR(Date)
Rows
Sheet 1
2018 MOVED TO A RENTAL. BIKEABLE TO UW.
2019 MOVED CLOSER TO THE UNIVERSITY
2020 PANDEMIC!
2014 BIRTH OF FIRST CHILD. LOTS OF WALKS
Type
Cycling
Running
Count of Activity Id
2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023
Type
(All)
Null
Cross-Country Skiing
Cycling
Hiking
Other
Rowing
Running
Walking
Type
Cycling
Running
Walking
Data Source
Sheet 1
29 marks
3 rows by 13 columns
SUM of CNT(Activity Id): 2,759

THE GLOBAL LIBRARY EXAMPLE

Tableau - Book3

File Data Server Window Help

Global Library Data

Connections Add

Global Library Data
Microsoft Excel

Sheets

Use Data Interpreter

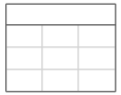
Data Interpreter might be able to clean your Microsoft Excel workbook.

About
Country Data
Sources

New Union

New Table Extension

Country Data



Drag tables here

Data Source Sheet 1

Tableau - Book3

File Data Server Window Help

Country Data (Global Library Data)

Connection: Live / Extract

Filters: 0 | Add

Connections Add

Global Library Data
Microsoft Excel

Sheets

Use Data Interpreter

Data Interpreter might be able to clean your Microsoft Excel workbook.

- About
- Country Data
- Sources
- New Union
- New Table Extension

Country Data

Need more data?

Drag tables here to relate them. Learn more

Country Data | 7 fields 219 rows | 100 rows

Name: Country Data

Fields

Type	Field Name	Physical ...	Rem...
🌐	Country	Country D...	Country
Abc	Region	Country D...	Region
#	Expenditures (US Dollars)	Country D...	Expen...
#	Total Libraries	Country D...	Total ...
#	Total Librarians	Country D...	Total ...
#	Total Volumes	Country D...	Total V...

Country Data Country	Country Data Region	Country Data Expenditures (US Dollars)	Country Data Total Libraries	Country Data Total Librarians	Country Data Total Volumes	Country Data Total Users
Afghanistan	Asia	*null*	150	*null*	577,300	48,133
Albania	Europe	134,036	2,107	32	12,398,795	581,298
Algeria	Africa	641,176	760	56	4,363,718	1,430
American Samoa	Oceania	*null*	32	*null*	170,009	*null*
Andorra	Europe	5,777,651	39	6	222,869	16,596
Angola	Africa	*null*	62	*null*	392,870	*null*
Anguilla	Latin America	*null*	1	*null*	14,000	*null*
Antigua and Barbuda	Latin America	*null*	8	*null*	10,000	*null*
Argentina	Latin America	*null*	2,537	658	28,770,630	787,788
Armenia	Asia	133,148	2,555	1,430	30,935,507	13,615,227

Data Source | Sheet 1

WHAT REGION HAS THE MOST LIBRARIES?

Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard | Show Me

Data | Analytics

Country Data (Global Libr...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Marks

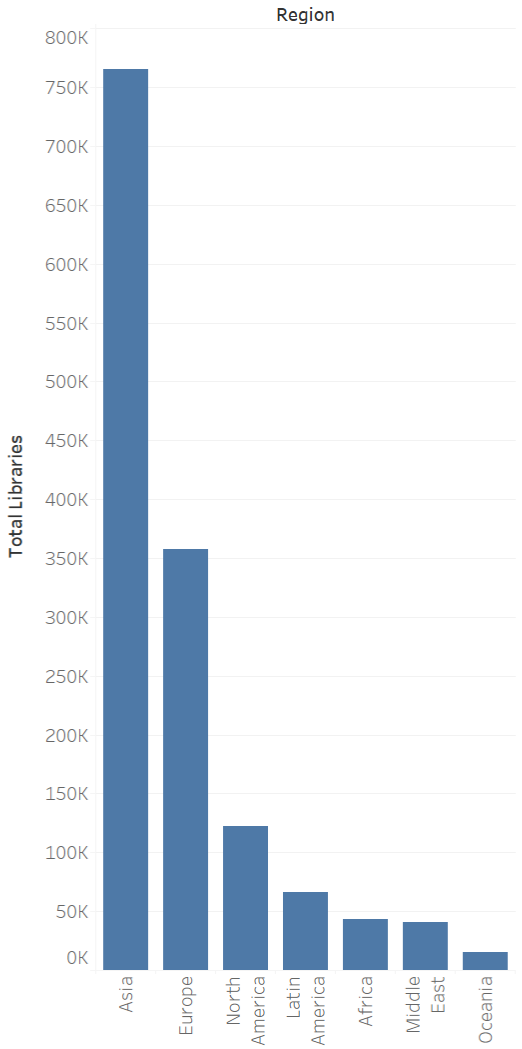
Automatic

Color | Size | Label | Detail | Tooltip

Columns: Region

Rows: SUM(Total Libraries)

Sheet 1



Data Source | Sheet 1

7 marks | 1 row by 7 columns | SUM(Total Libraries): 1,411,688

Tableau - GlobalLibrary

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard | Show Me

Data | Analytics

Country Data (Global Libr...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Expenditures ($USD)/Library
- Expenditures ($USD)/User
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color | Size | Label | Detail | Tooltip

SUM(Total Libr..

Columns: Region

Rows: SUM(Total Libraries)



Data Source | Total Libraries by Region | Crosstab | Map

7 marks | 1 row by 7 columns | SUM(Total Libraries): 1,411,688

WHAT COUNTRY HAS THE MOST EXPENDITURES?

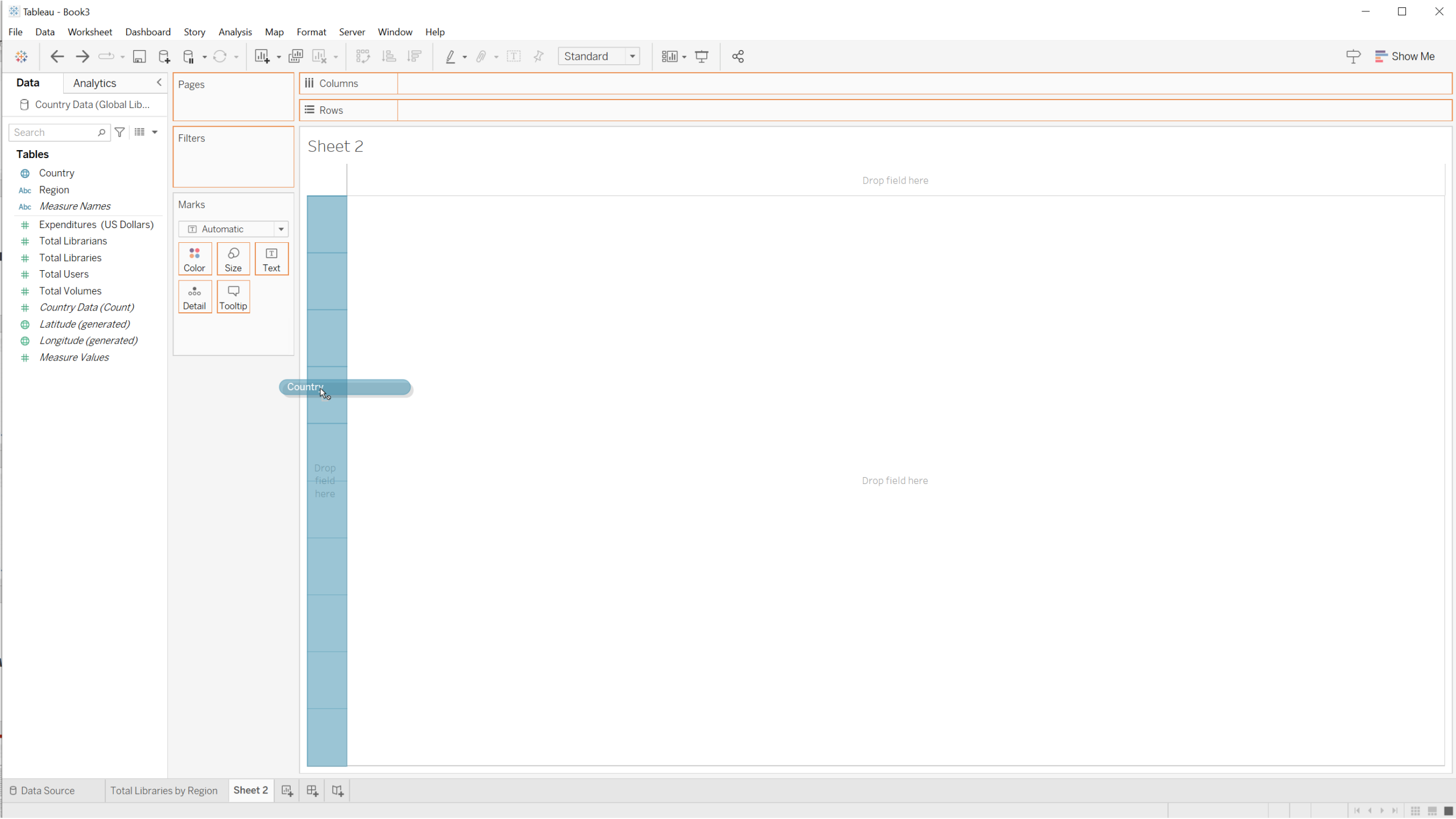

Tableau - Book3
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Show Me
Data
Analytics
Country Data (Global Lib...
Search
Tables
Country
Region
Measure Names
Expenditures (US Dollars)
Total Librarians
Total Libraries
Total Users
Total Volumes
Country Data (Count)
Latitude (generated)
Longitude (generated)
Measure Values
Pages
Filters
Marks
Automatic
Color
Size
Text
Detail
Tooltip
Columns
Rows
Sheet 2
Drop field here
Country
Drop field here
Drop field here
Data Source
Total Libraries by Region
Sheet 2

Tableau - Book3

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Country Data (Global Lib...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color Size Text Detail Tooltip

Columns

Rows Country

Sheet 2

Country	
Afghanistan	Abc
Albania	Abc
Algeria	Abc
American Samoa	Abc
Andorra	Abc
Angola	Abc
Anguilla	Abc
Antigua and Barbuda	Abc
Argentina	Abc
Armenia	Abc
Aruba	Abc
Australia	Abc
Austria	Abc
Azerbaijan	Abc
Bahamas	Abc
Bahrain	Abc
Bangladesh	Abc
Barbados	Abc
Belarus	Abc
Belgium	Abc
Belize	Abc
Benin	Abc
Bermuda	Abc
Bhutan	Abc
Bolivia	Abc
Bosnia and Herzegovina	Abc
Botswana	Abc
Brazil	Abc
Brunei Darussalam	Abc
Bulgaria	Abc
Burkina Faso	Abc
Burundi	Abc
Cambodia	Abc
Cameroon	Abc
Canada	Abc
Cape Verde	Abc
Cayman Islands	Abc

Data Source | Total Libraries by Region | Sheet 2

219 marks 219 rows by 1 column

Tableau - Book3

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Country Data (Global Lib...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color Size Text Detail Tooltip

Columns

Rows Country

Sheet 2

Country	
Afghanistan	Abc
Albania	Abc
Algeria	Abc
American Samoa	Abc
Andorra	Abc
Angola	Abc
Anguilla	Abc
Antigua and Barbuda	Abc
Argentina	Abc
Armenia	Abc
Aruba	Abc
Australia	Abc
Austria	Abc
Azerbaijan	Abc
Bahamas	Abc
Bahrain	Abc
Bangladesh	Abc
Barbados	Abc
Belarus	Abc
Belgium	Abc
Belize	Abc
Benin	Abc
Bermuda	Abc
Bhutan	Abc
Bolivia	Abc
Bosnia and Herzegovina	Abc
Botswana	Abc
Brazil	Abc
Brunei Darussalam	Abc
Bulgaria	Abc
Burkina Faso	Abc
Burundi	Abc
Cambodia	Abc
Cameroon	Abc
Canada	Abc
Cape Verde	Abc
Cayman Islands	Abc

SUM(Expenditures (US ..

Data Source | Total Libraries by Region | Sheet 2

219 marks 219 rows by 1 column

Tableau - Book3

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Data Analytics

Country Data (Global Lib...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color Size Text

Detail Tooltip

SUM(Expendit..

Columns

Rows Country

Sheet 2

Country	
Afghanistan	
Albania	
Algeria	
American Samoa	
Andorra	
Angola	
Anguilla	
Antigua and Barbuda	
Argentina	
Armenia	133,148
Aruba	
Australia	1,927,384,739
Austria	182,404,250
Azerbaijan	1,490,047
Bahamas	
Bahrain	3,351,600
Bangladesh	453,100
Barbados	55,262,617
Belarus	112,128
Belgium	311,814,353
Belize	257,500
Benin	384,242
Bermuda	1,103,000
Bhutan	1,646
Bolivia	24,943
Bosnia and Herzegovina	
Botswana	5,881,533
Brazil	453,645
Brunei Darussalam	595,348
Bulgaria	9,222,761
Burkina Faso	
Burundi	120,603
Cambodia	
Cameroon	925,443
Canada	3,755,331,450
Cape Verde	
Cayman Islands	3,920

Data source order
Alphabetic
Field
Nested
SUM(Expenditures (US Dollars))

Data Source | Total Libraries by Region | Sheet 2

219 marks 219 rows by 1 column SUM(Expenditures (US Dollars)): 52,229,479,573

Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard | Show Me

Data | Analytics

Country Data (Global Libr...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Measure Names

Marks

Automatic

Color | Size | Text | Detail | Tooltip

Measure Values

Measure Values

SUM(Expenditures (..

SUM(Total Users)

Columns: Measure Names

Rows: Country

Sheet 2

Country	Expenditures (US Dollars)	Total Users
United States	21,759,280,324	232,107,561
United Kingdom	4,585,212,280	38,498,469
Canada	3,755,331,450	36,288,469
Japan	3,402,158,652	61,142,547
Germany	2,791,915,929	11,521,384
Australia	1,927,384,739	14,477,916
France	1,857,796,885	12,814,122
Italy	1,785,377,616	22,576,988
South Korea	1,234,464,524	438,235,848
Netherlands	1,102,169,201	5,591,545
Denmark	752,339,642	2,541,602
Spain	704,295,300	18,753,442
Switzerland	651,921,548	2,448,003
Finland	636,508,657	3,915,122
South Africa	484,705,816	
Tunisia	482,300,000	100,455
Sweden	435,817,849	4,508,392
Norway	419,628,603	2,074,580
Belgium	311,814,353	3,388,405
Turkey	279,827,681	13,166,534
Poland	278,480,321	20,564,277
New Zealand	243,268,295	1,723,375
Ireland	200,357,592	1,742,237
India	186,956,633	550,179
Austria	182,404,250	1,559,109
Mexico	181,744,087	57,309,733
China	152,000,440	16,852,456
Greece	124,435,801	4,071,801
Romania	104,465,496	5,695,820
Malaysia	87,578,838	5,714,291
Hungary	87,327,354	3,395,952
Hong Kong	80,557,024	2,536,365
Portugal	77,783,835	3,206,805
Singapore	70,612,183	7,053,742
Slovenia	66,674,576	981,446
Czech Republic	63,305,946	3,407,241
Taiwan	59,264,831	26,444,220
Barbados	55,262,617	431,624
Russia	53,754,058	60,104,774

Data Source | Total Libraries by Region | Sheet 2

438 marks | 219 rows by 2 columns | SUM of Measure Values: 53,566,189,396

WHAT COUNTRY HAS THE HIGHEST EXPENDITURES PER LIBRARY AND PER USER?

Tableau - Book3

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard

Show Me

Data Analytics

Country Data (Global Libr...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color Size Text

Detail Tooltip

Columns

Rows

Sheet 1

Drop field here

Drop field here

Create Calculated Field...
Create Parameter...
Create Folder (use group by folder)
Group by Folder
Group by Data Source Table
Sort by Name
Sort by Data Source Order
Hide All Unused Fields
Show Hidden Fields
Expand All
Collapse All

Data Source Sheet 1

Tableau - Book3

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard

Show Me

Data Analytics

Country Data (Global Libr...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color Size Text

Detail Tooltip

Columns

Rows

Sheet 1

Drop field here

Drop field here

Drop field here

ures ($USD)/Library

```
[Expenditures  (US Dollars)]/[Total Libraries]
```

The calculation is valid.

Apply OK

Data Source Sheet 1

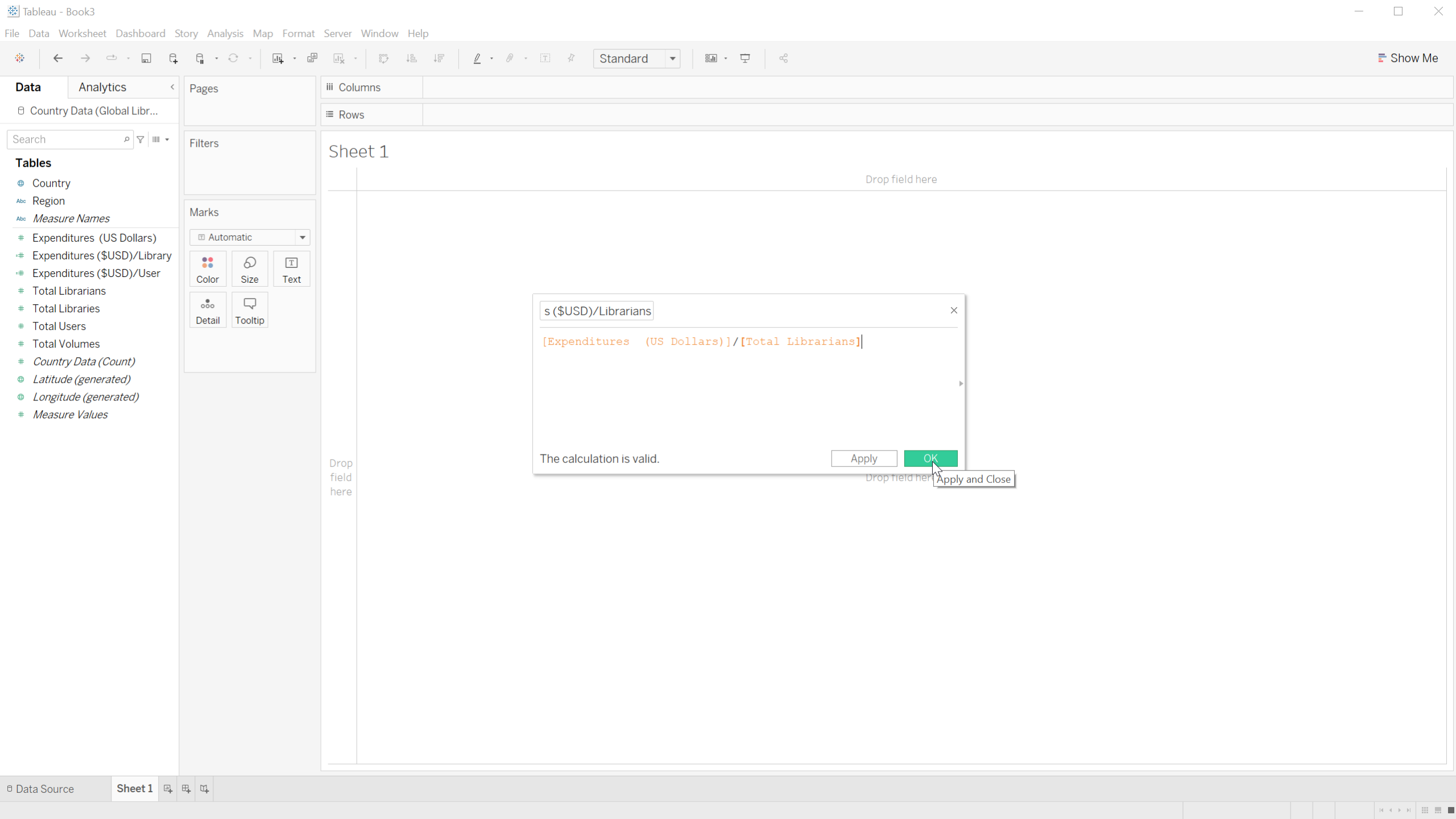

Tableau - Book3
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Show Me
Data
Analytics
Country Data (Global Libr...
Search
Tables
Country
Region
Measure Names
Expenditures (US Dollars)
Expenditures ($USD)/Library
Expenditures ($USD)/User
Total Librarians
Total Libraries
Total Users
Total Volumes
Country Data (Count)
Latitude (generated)
Longitude (generated)
Measure Values
Pages
Filters
Marks
Automatic
Color
Size
Text
Detail
Tooltip
Columns
Rows
Sheet 1
Drop field here
Drop field here
s ($USD)/Librarians
[Expenditures (US Dollars)]/[Total Librarians]
The calculation is valid.
Apply
OK
Apply and Close
Data Source
Sheet 1

Tableau - Book3

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard

Show Me

Data Analytics

Country Data (Global Libr...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Expenditures ($USD)/Libr...
- Expenditures ($USD)/Library
- Expenditures ($USD)/User
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color Size Text

Detail Tooltip

Columns

Rows

Sheet 1

Drop field here

Drop field here

Drop field here

Data Source Sheet 1

WHAT COUNTRY HAS THE HIGHEST EXPENDITURES PER LIBRARY AND PER USER?

build a “crosstab” to address this question

Tableau - Book3

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard

Show Me

Data Analytics

Country Data (Global Libr...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Expenditures ($USD)/Libra...
- Expenditures ($USD)/Library
- Expenditures ($USD)/User
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color Size Text Detail Tooltip

Columns

Rows Country

Sheet 1

Country	
Afghanistan	Abc
Albania	Abc
Algeria	Abc
American Samoa	Abc
Andorra	Abc
Angola	Abc
Anguilla	Abc
Antigua and Bar..	Abc
Argentina	Abc
Armenia	Abc
Aruba	Abc
Australia	Abc
Austria	Abc
Azerbaijan	Abc
Bahamas	Abc
Bahrain	Abc
Bangladesh	Abc
Barbados	Abc
Belarus	Abc
Belgium	Abc
Belize	Abc
Benin	Abc
Bermuda	Abc
Bhutan	Abc
Bolivia	Abc
Bosnia and Herz..	Abc
Botswana	Abc
Brazil	Abc
Brunei Darussal..	Abc
Bulgaria	Abc
Burkina Faso	Abc
Burundi	Abc
Cambodia	Abc
Cameroon	Abc
Canada	Abc
Cape Verde	Abc
Cayman Islands	Abc
Central African R..	Abc
Chad	Abc
Chile	Abc
China	Abc
Colombia	Abc
Congo, Democra..	Abc
Congo, Republic ..	Abc
Costa Rica	Abc
Côte d'Ivoire	Abc
Croatia	Abc
Cuba	Abc
Curaçao	Abc
Cyprus	Abc
Czech Republic	Abc

For **symbol maps** try

1 geo Dimension

0 or more Dimensions

0 to 2 Measures

May use spatial measure in place of geo dimension

Data Source Sheet 1

219 marks 219 rows by 1 column

Tableau - Book3

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard

Show Me

Data Analytics

Country Data (Global Libr...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Expenditures ($USD)/Libra...
- Expenditures ($USD)/Library
- Expenditures ($USD)/User
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color Size Text Detail Tooltip

SUM(Expendit..

Columns

Rows Country

Sheet 1

Country	
Afghanistan	
Albania	134,036
Algeria	641,176
American Samoa	
Andorra	5,777,651
Angola	
Anguilla	
Antigua and Bar..	
Argentina	
Armenia	133,148
Aruba	
Australia	1,927,384,739
Austria	182,404,250
Azerbaijan	1,490,047
Bahamas	
Bahrain	3,351,600
Bangladesh	453,100
Barbados	55,262,617
Belarus	112,128
Belgium	311,814,353
Belize	257,500
Benin	384,242
Bermuda	1,103,000
Bhutan	1,646
Bolivia	24,943
Bosnia and Herz..	
Botswana	5,881,533
Brazil	453,645
Brunei Darussal..	595,348
Bulgaria	9,222,761
Burkina Faso	
Burundi	120,603
Cambodia	
Cameroon	925,443
Canada	3,755,331,450
Cape Verde	
Cayman Islands	3,920
Central African R..	14,275
Chad	
Chile	2,261,325
China	152,000,440

For **symbol maps** try

1 geo Dimension

0 or more Dimensions

0 to 2 Measures

May use spatial measure in place of geo dimension

Data Source Sheet 1

219 marks 219 rows by 1 column SUM(Expenditures (US Dollars)): 52,229,479,573

Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard | Show Me

Data | Analytics

Country Data (Global Libr...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Expenditures ($USD)/Libr...
- Expenditures ($USD)/User
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Measure Names

Marks

Automatic

Color | Size | Text | Detail | Tooltip

Measure Values

Measure Values

SUM(Expenditures (..

SUM(Expenditures (..

SUM(Expenditures (..

SUM(Total Users)

Columns: Measure Names

Rows: Country

Sheet 2

Country	Expenditures (US Dollars)	Expenditures ($USD)/Library	Expenditures ($USD)/User	Total Users
Barbados	55,262,617	2,908,559	128	431,624
Netherlands	1,102,169,201	1,570,042	197	5,591,545
New Caledonia	8,571,877	714,323	12,246	700
United Kingdom	4,585,212,280	542,821	119	38,498,469
Tunisia	482,300,000	509,293	4,801	100,455
Ireland	200,357,592	414,819	115	1,742,237
France	1,857,796,885	354,406	145	12,814,122
Denmark	752,339,642	339,503	296	2,541,602
Belgium	311,814,353	251,058	92	3,388,405
Switzerland	651,921,548	250,932	266	2,448,003
Germany	2,791,915,929	222,552	242	11,521,384
United States	21,759,280,324	214,697	94	232,107,561
Guadeloupe	1,409,156	201,308	391	3,600
Liechtenstein	1,668,946	185,438	29	57,334
Canada	3,755,331,450	179,030	103	36,288,469
Australia	1,927,384,739	174,392	133	14,477,916
Singapore	70,612,183	164,597	10	7,053,742
Andorra	5,777,651	148,145	348	16,596
Kenya	44,135,156	147,117	79	561,679
Italy	1,785,377,616	143,577	79	22,576,988
Hong Kong	80,557,024	136,076	32	2,536,365
Faroe Islands	232,288	116,144	41	5,600
Norway	419,628,603	104,672	202	2,074,580
Finland	636,508,657	104,346	163	3,915,122
Iceland	22,978,653	101,675	157	146,524
Greece	124,435,801	96,913	31	4,071,801
South Korea	1,234,464,524	91,571	3	438,235,848
Luxembourg	8,169,216	86,907	51	159,368
New Zealand	243,268,295	81,306	141	1,723,375
Japan	3,402,158,652	74,246	56	61,142,547
Sweden	435,817,849	67,948	97	4,508,392
Austria	182,404,250	67,682	117	1,559,109
Réunion	642,049	64,205	214	3,000
Slovenia	66,674,576	56,408	68	981,446
Portugal	77,783,835	55,049	24	3,206,805
Costa Rica	28,822,223	46,563	35	820,353
Puerto Rico	38,348,570	45,491	40	957,414
South Africa	484,705,816	42,496		
Bermuda	1,103,000	39,393	9	118,508

Data Source | Total Libraries by Region | Sheet 2

876 marks | 219 rows by 4 columns | SUM of Measure Values: 53,577,942,559

Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard | Show Me

Data | Analytics

Country Data (Global Libr...

Search

Tables

- Country
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- Expenditures (US Dollars)
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- Expenditures ($USD)/User
- Total Librarians
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- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Measure Names

Marks

Automatic

Color | Size | Text | Detail | Tooltip

Measure Values

Measure Values

SUM(Expenditures (..

SUM(Expenditures (..

SUM(Expenditures (..

SUM(Total Users)

Columns: Measure Names

Rows: Country

Sheet 2

Country	Expenditures (US Dollars)	Expenditures ($USD)/Library	Expenditures ($USD)/User	Total Users
New Caledonia	8,571,877	714,323	12,246	700
Tunisia	482,300,000	509,293	4,801	100,455
Algeria	641,176	844	448	1,430
Guadeloupe	1,409,156	201,308	391	3,600
Andorra	5,777,651	148,145	348	16,596
India	186,956,633	555	340	550,179
Denmark	752,339,642	339,503	296	2,541,602
Switzerland	651,921,548	250,932	266	2,448,003
Germany	2,791,915,929	222,552	242	11,521,384
Réunion	642,049	64,205	214	3,000
Norway	419,628,603	104,672	202	2,074,580
Netherlands	1,102,169,201	1,570,042	197	5,591,545
Finland	636,508,657	104,346	163	3,915,122
Iceland	22,978,653	101,675	157	146,524
Ghana	13,766,957	1,895	157	87,953
France	1,857,796,885	354,406	145	12,814,122
New Zealand	243,268,295	81,306	141	1,723,375
Australia	1,927,384,739	174,392	133	14,477,916
Barbados	55,262,617	2,908,559	128	431,624
United Kingdom	4,585,212,280	542,821	119	38,498,469
Austria	182,404,250	67,682	117	1,559,109
Ireland	200,357,592	414,819	115	1,742,237
United Arab Emi..	5,502,452	4,034	110	50,000
Falkland Islands	52,202	26,101	104	500
Canada	3,755,331,450	179,030	103	36,288,469
Rwanda	183,434	6,551	100	1,841
Sweden	435,817,849	67,948	97	4,508,392
United States	21,759,280,324	214,697	94	232,107,561
Belgium	311,814,353	251,058	92	3,388,405
French Guiana	68,033	13,607	85	800
Italy	1,785,377,616	143,577	79	22,576,988
Kenya	44,135,156	147,117	79	561,679
Slovenia	66,674,576	56,408	68	981,446
Oman	25,103,260	23,885	65	385,085
Japan	3,402,158,652	74,246	56	61,142,547
Luxembourg	8,169,216	86,907	51	159,368
Colombia	518,032	266	51	10,128
Faroe Islands	232,288	116,144	41	5,600
Puerto Rico	38,348,570	45,491	40	957,414

Data Source | Total Libraries by Region | Sheet 2

876 marks | 219 rows by 4 columns | SUM of Measure Values: 53,577,942,559

PERHAPS USEFUL TO SEE THIS ON A MAP

Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Show Me

Data | Analytics

Country Data (Global Libr...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Expenditures ($USD)/Library
- Expenditures ($USD)/User
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color | Size | Label | Detail | Tooltip

Country

Columns: Longitude (generated)

Rows: Latitude (generated)

Sheet 3



Data Source | Total Libraries by Region | Crosstab | Sheet 3

218 marks 1 row by 1 column

Tableau - Book3

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Show Me

Data Analytics

Country Data (Global Lib...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color Size Label

Detail Tooltip

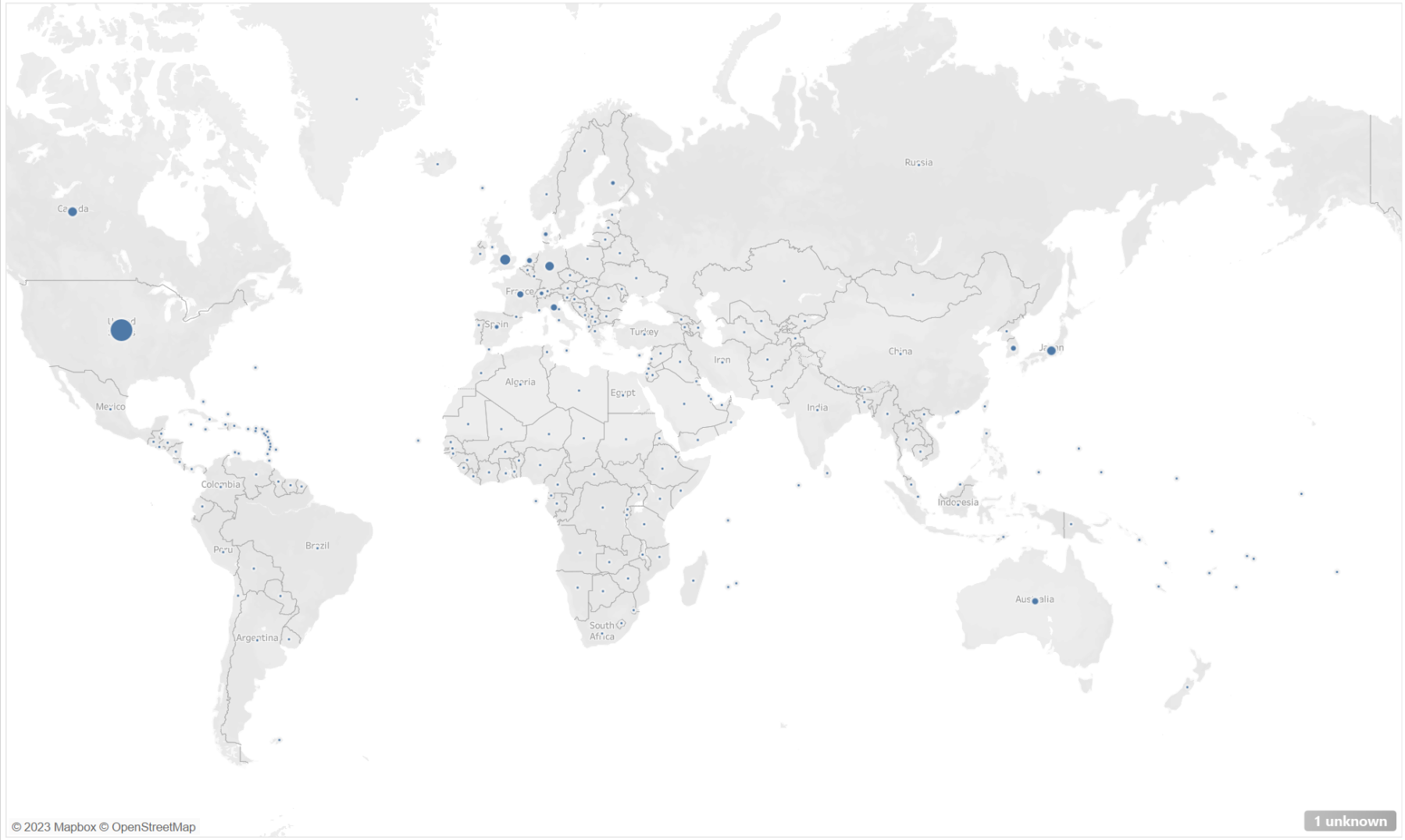
Country

SUM(Expendit..

Columns: Longitude (generated)

Rows: Latitude (generated)

Sheet 3



SUM(Expenditures (U...

295

5,000,000,000

10,000,000,000

15,000,000,000

21,759,280,324

Data Source | Total Libraries by Region | Sheet 2 | Sheet 3

218 marks 1 row by 1 column SUM(Expenditures (US Dollars)): 52,229,479,573

Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Show Me

Data Analytics

Country Data (Global Libr...

Search

Tables

- Country
- Region
- *Measure Names*
- Expenditures (US Dollars)
- Expenditures ($USD)/Library
- Expenditures ($USD)/User
- Total Librarians
- Total Libraries
- Total Users
- Total Volumes
- *Country Data (Count)*
- *Latitude (generated)*
- *Longitude (generated)*
- *Measure Values*

Pages

Filters

Marks

Automatic

Color Size Label

Detail Tooltip

Country

SUM(Expendit..

Columns: Longitude (generated)

Rows: Latitude (generated)

Sheet 3



SUM(Expenditures ($U...

0
2,000
4,000
6,000
8,000
10,000
12,246

Data Source | Total Libraries by Region | Crosstab | Sheet 3

218 marks 1 row by 1 column SUM(Expenditures ($USD)/User): 23,625