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DATA MAVERICKS WITH ZACH BOWDERS

Welcome to the December episode of “What’s Good?”  
December is finally upon us, and it’s been two full years of “What’s  
Good?” interviews.

I’m really pleased to be able to invite my good friend, JLL colleague, and  
data leader **Zach Bowders** onto the blog to re-emphasis why the guest  
blogs even began. The blogs were designed initially to highlight who you  
are, what you are passionate about and most importantly what makes  
you unique.

I find Zach has done just that through his early navigation of podcasting,  
through to his choices of how and why he goes about different  
dashboard builds. He resembles a lot of the good nature and spirit we  
see across the whole of the community and for his contributions has  
been recognised as a Tableau Ambassador and Visionary for multiple  
years.

CJ: Zach, thanks for joining, I tend to open up the blog in a similar  
format around how individuals’ backgrounds end up working in the data  
industry. How did navigating that path look like for you, away from IT? Is  
there anything about working in data that sets it apart from your previous  
experiences?

ZB: Leading up to actually being in BI I worked a variety of different jobs.

From grocery store clerk, 4-wheeler parts warehouse worker, several years at a swimming pool supply store, a year at a bank, nearly a decade in IT as a Dev and Business Analyst, and ultimately BI.

I went to an all-male Catholic School for high school (I'm not even Catholic!) and I had a few good friends who were into the things I was. We made films for school projects, tested new software, upgraded our parents PCs (whether they knew it or not), etc.

I'm 41, so I'm just old enough that I was into tech when that was still something worth being picked on for, and wasn't an innate part of being a teenager. Films like Hackers and The Matrix were pop-culture flashpoints that made us feel legitimate.

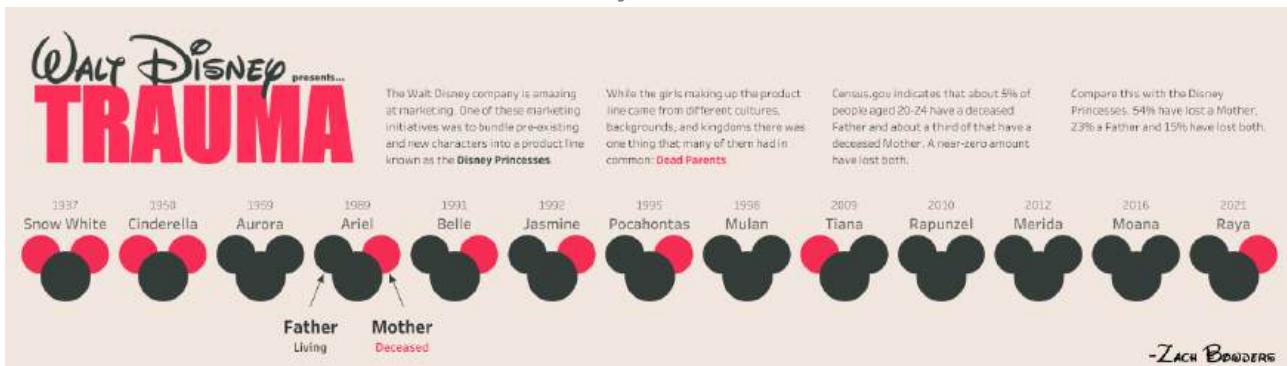
This was also before social media, smart phones, app stores, etc. So it's not like there was an easy way to connect with others with common interests. You see a kid reading Michael Crichton in your home room? Boom, best friend.

When I went to college I enrolled for a MIS Degree in the Business School (Management Information Systems). At the time I started (2000) dot coms were huge, and there were classmates being hired out of school at Juniors making six figures with wild signing bonuses. By end of 4 years when I was finishing my MIS degree (and a second degree I'd

added, Marketing) the bubble had burst, and Silicon Valley wasn't calling.

I went straight to grad school, got my MBA in 18 months while working my pool store job in the mornings and an assistantship advisor job at the university in the afternoons, ultimately graduated to 6 months of unemployment and eventually got hired at a bank where I worked for a year at about \$30k assisting on real estate development loans around the time that industry was collapsing. Was that a run-on sentence? I regret nothing

CJ: Has there been anyone in the community you'd like to especially call out from your career to date in the data industry? What influence have they had?



ZB: Well THAT'S a trap question if ever I heard one! There's dozens if not hundreds who I could name who inspired me, collaborated with me, appeared on my podcast, or just made the community a great and vibrant place to be. So that's me dodging the direct question.

Now here's me answering it anyway. In February 2020 I co-hosted the last-ever meeting of the Memphis TUG with my pals David Kelly and Wendy Brotherton. Steve Wexler and Anna Foard both came into town to present, and it was our single largest turnout (about 40). Earlier that day I got a call from Steve who was taking the opportunity of the visit to see some Memphis sites, "Want to go to Graceland?"

I hadn't been to Graceland in probably 30 years, and seeing it as an adult was oddly moving. Throughout the mansion and different sub-buildings nearly every area had seating for 10 or more. Elvis didn't like being alone. One of the biggest stars to ever walk the face of the Earth

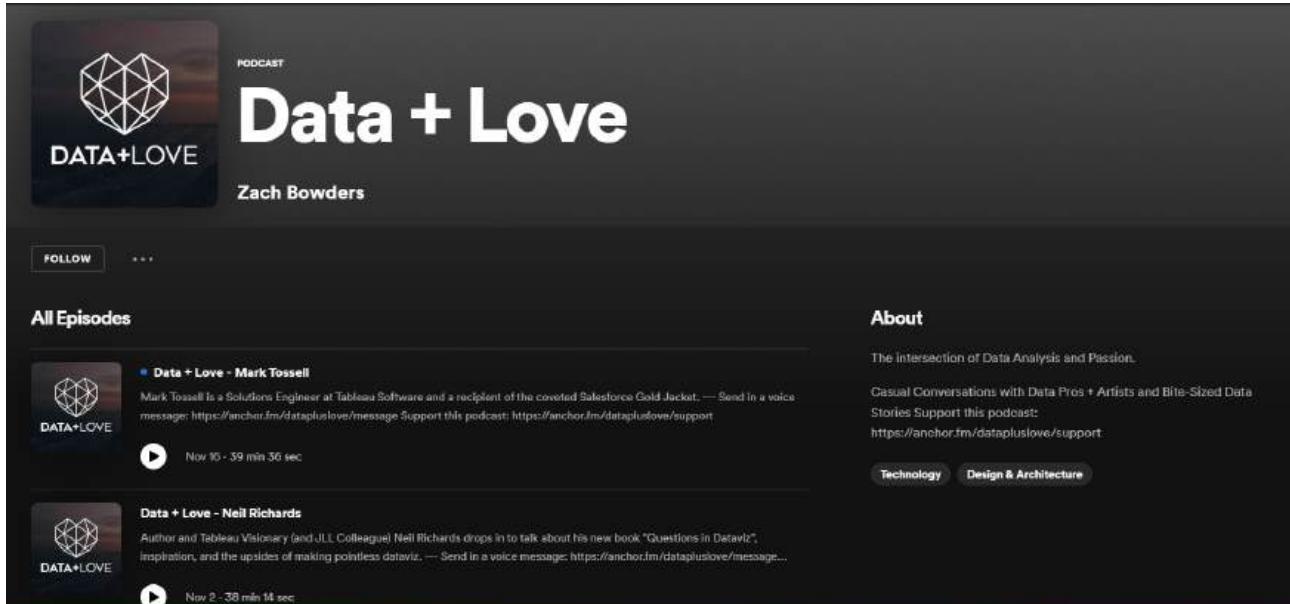
and he always wanted his friends and family nearby. (He also built out a suite in the house so his parents could move in.)

My other big Elvis thought was in cemetary/crypt portion of the property where Elvis and his family are buried his metal casket topper is emblazoned with a huge TCB and a lightning bolt. “Taking Care of Business”. And honestly, this made me sad. Elvis was a constantly evolving human and artist, and I have no doubt that if he’d gone another 5 to 20 years he’d have evolved several more times, but TCB was the end, and that felt uniquely tragic to me.

After walking the grounds in what turned out to be a pretty emotional afternoon Steve and I sat in a pink Cadillac cut into a diner table drinking coffee alone in a near-empty Graceland Cafe. We talked about careers and life, and I remember telling him that I didn’t know where to go or what to do but I felt unfulfilled and trapped at St. Jude where I’d been for 13 years.

In the next year we kept in touch and I had the good fortune of Steve reaching out to me at key times in my professional career. Having amazing mentors in your life that you can be candid with, share thoughts, fears, and ambitions, is vital.

CJ: I would assume most would recognise you community wise for your podcast data+love, how did it come about and what inspired the name?

A screenshot of the Data + Love podcast website. The header features a dark background with the show's logo (a stylized geometric heart) and the word "DATA+LOVE". Below the logo, the word "PODCAST" is written in small capital letters. The main title "Data + Love" is prominently displayed in large white letters. Underneath the title, the host's name "Zach Bowders" is mentioned. On the left side, there is a "FOLLOW" button and a "..." button. Below these are sections for "All Episodes" and "About". The "All Episodes" section lists two episodes: "Data + Love - Mark Tossell" and "Data + Love - Neil Richards". Each episode entry includes a thumbnail image of the host, a play button icon, the episode title, and a brief description. The "About" section provides a brief description of the podcast: "The Intersection of Data Analysis and Passion. Casual Conversations with Data Pros + Artists and Bite-Sized Data Stories Support this podcast." It also includes links to the anchor URL and categories: "Technology" and "Design & Architecture".

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ZB: On my way home from Tableau Conference '19 in Las Vegas I was sitting in the airport eating and talking with a friend and reflecting on all

of the great people and interesting conversations of the week. Returning home from conference is always a little bittersweet, because you've had an amazing summer-camp style experience with peers who share the same passions and pains as you. What if I could have that more often?

Data + Love was conceived of as those conversations happening regularly. It's why I don't script things. I want to talk and want to listen to people talk. Let things flow, meander, even if it gets far off topic. That's the joy of making new friends, and that's what I wanted to bring to the show.

It's about Data and what inspires and drives us.

CJ: In terms of leg work to get the podcast up and running. What did this look like from a time and commitment aspect? How have you made your process so sustainable over the years?

ZB: I had a Systems Analysis and Design professor who would say "A system is what you define it to be". Meaning, if you are unable to define scope, everything is in scope. For the podcast, I knew I had to accomplish a few things in order for it to be "successful" based on my own criteria.

First, it had to be regular. People don't listen if you are sporadic. It's also easier to stop doing it if you're not on a schedule. I chose every two weeks because it seemed reasonable enough I could actually be consistent (haven't missed one in 3 years) yet often enough that people might listen.

Second, it had to be sustainable. When I was starting I didn't know how much effort it was to actually cut an episode so I recorded and edited three of them before launch so I'd have some padding. As I've worked on the pod nearly 3 years now I've gotten faster and learned what's worth editing and what's not.

Third, It has to fit in with the rest of my life. If this was going to be too big a time-commitment then I wasn't going to be able to fit it in. So, before I launched I made sure I knew how to record, edit, and publish my podcast, so that when it came to actual production timelines I knew what I was in for.

CJ: Podcasting isn't all about having fancy gadgets and good recording software, but also your interactions. As someone that has guests on the podcast, what techniques do you use to help navigate conversation? Do you have any tips for individuals that are perhaps nervous or give shorter answers?

ZB: I made a choice from the beginning that I didn't want to do interviews. So many podcasts are based around the idea of pre-planned questions, and it puts the other person in a position of feeling like they're under fire. I wanted to have the conversations I was having at conference, so that meant we just had to talk, which in a way is both easier and harder.

I have to work a LOT harder having conversations for the podcast. I have to be a very active listener, rather than jumping to my next idea, listening carefully and responding to what people are actually saying (it sounds simple but we rarely actually do this in practice).

Beyond that, if someone is more verbose, I get out of their way. If they're more shy or nervous I talk more and give them opportunities to respond. Sometimes stuff starts to flow better, sometimes it doesn't. At the end of the day, I just want to get to know people and help a wider community get to know them in a way that's just not possible by only seeing their work.

CJ: I love the background research you do for your guest podcasts to be able to draw the best out of the individual. How do you balance content and script 'agenda' against active listening? Do you find the flow of conversation is impacted from organic vs pushed questions?

ZB: For the most part I avoid an agenda. Sometimes I have someone on for a specific reason, like our colleague and pal Neil Richards who's book has come out. But most of the time it's unstructured.

I used to take some time at the beginning of each podcast to explain to the guest how we'd chat, how I'd introduce them, etc. But I found the first couple minutes of the actual recordings were far more awkward. So now just start talking to someone when the call begins and fade into that conversation for the pod.

It's like you're joining a conversation already in progress.

I know, for me, trying to plan questions makes my part of the conversation less organic, because I'm not fully listening, and I'm just looking for ways to get to the things that I thought we should talk about vs the things we're actually talking about.

CJ: Have you found any other podcasts that have helped you in the way you present? Are there any stand out podcasts or other things that have inspired your set-up and delivery of the podcast episodes?

ZB: From the time I was a little kid I was drawn to spoken word. Fischer Price books for kids on tape, later radio mysteries like The Shadow, ultimately to talk radio, podcasts, etc. All extensions of the same idea, that people like to hear stories.

I listen to a wide variety of podcasts on topics like pop culture, history, comedy, etc. The “fade in” to the episode is taken specifically from The Joe Rogan Experience.

For me, I didn't want to try to do the same thing as anybody else, but at the same time, there's only so many ways you can talk. I want Data + Love to be all about the guest. From the beginning I knew I didn't want to chase data celebrities (there's enough shows about people everyone already knows). As a result, I know that means there's plenty of episodes people may not listen to because they don't recognize the name.

CJ: So let's talk data mavericks. I'm biased as top gun is my favourite film. But I loved your piece on data mavericks. Not just for film references, but also some of the sentiment around the different style of leaders. It can be read [here](#).



I'd love to hear your thoughts on whether everyone should aim to be more maverick-like or if you see an ideal balanced state of minds? Who can be a data maverick in your eyes? A manager? An evangelist? An analyst?

ZB: It's a good question. I think the idea of being a Data Maverick is about being a leader as an individual contributor. Not to diminish people in leadership roles, of course.

I used to have a CEO who talked about "leading from every role". It sounded great on paper, but there wasn't really a concrete example of what that meant or what it looked like.

Top Gun: Maverick kind of captured my imagination and reframed that idea for me.

In the film we find a Pete "Maverick" Mitchell who hasn't made the most of his skills. He's both declined opportunities to move into a more senior role as an Admiral, Senator, etc and he's also failed to create more Mavericks. He flies, but it's mostly for himself, and his incredible talent is being squandered.

Ice Man, now an Admiral, calls Maverick back to Top Gun to teach the next generation of pilots how to fly a seemingly impossible mission. While the call to action came from leadership, Maverick is teaching as a peer of the pilots, albeit one with more experience. And he has creative solutions to solve the mission (or, as we'd see it, a project) that someone several layers above him may not have.

I think it can be a state of mind that anyone can have, but I see it someone in the middle. What are you doing to pass on your skills and make more Mavericks?

I want to dispell a notion. This isn't about "going rogue". Leadership either makes rooms for Mavericks to operate, apply their unique expertise, and make (for lack of a better word) disciples, or it doesn't. But it's something that's difficult to accomplish unless you have Ice Man calling you to action.

CJ: When we last spoke you mentioned the concept of leading from the middle? What does this mean and what sentiment can analysts take away from this idea? Does this tie into your thoughts around giving up flying?

## What is a MAVERICK?

A maverick is an independent person who does their own thing in their own way. They are not afraid of breaking new ground even though they may not succeed.



ZB: Leading from the middle looks different for everyone. In Top Gun, Maverick had unique skills and life experiences that made him uniquely qualified to help inspire the younger pilots, but in order to do so he couldn't follow the book exactly.

For me, being a Maverick is often rapidly trying new ideas and failing, trying to push standards and ideas forward through nudges. I also make a point of trying to be a sounding board for others, troubleshooting issues and proposing alternatives.

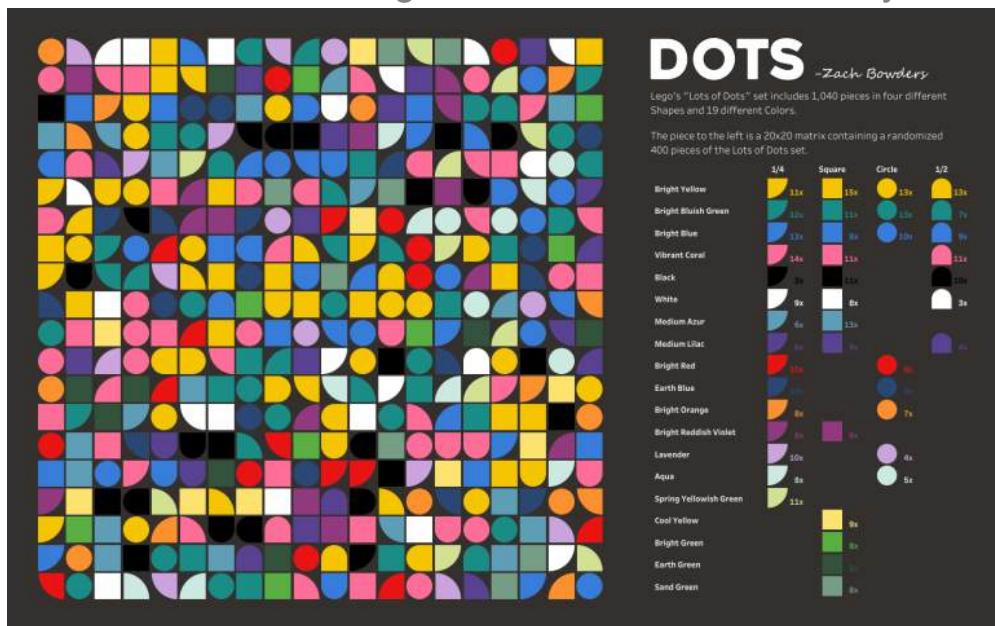
It won't be the same for everyone. We're each unique with our own distinct personalities, skills, and experiences.

Soft Skills, are one of my secret weapons to the point where I've been jokingly dubbed "Soft Skills Zach". If you are good with people / processes / communication that can be a total game changer. I was once put on a "problem account" where the account team was incredibly needy, messaging constantly throughout the day. It isn't the kind of problem you can viz your way out of.

I came in, and opened the lines of communication. Asked when they'd like to have regular meetings, how often they wanted email updates. Included them in working sessions, asked for feedback. Made OUR dashboards rather than MY dashboards.

In the end, they renewed with us for an extended period and I ended up delivering 15 dashboards rather than the original 3 they wanted.

CJ: What thoughts do you have around how to jump into new challenges? Ideas and activities? For those that want to make the leap of faith either into a new data role, start a new community initiative, take part in a new data challenge, what considerations do you have?



I'm a lot less hesitant now than I was when I was younger. Most of the adult growth, both personally and professionally I've had, has been in the past 5 years. When I first discovered the Tableau Datafam and wanted to get involved, I was kind of trying to do what I saw everyone

else doing. Doing weekly exercises, trying to make cool stuff in other people's styles, etc.

At a certain point I thought "Why don't I just try something different?" I did stuff in my own style, no topics I wanted, in the formats I chose...and the world didn't end. I said "What if I made a podcast?" and I did it. The big shift in understanding for me was that there's no REAL gatekeepers to your new idea, you just have to DO it.

The single biggest thing keeping you from what you'd like to be doing is your own will to get up and keep trying. Tenacity and grit, while not bulletproof concepts, will get you a lot further than raw talent.

Back to the question though, when considering jumping into something new, I first size it up a bit and ask "Is this something I REALLY want to do, or is it something I feel like I SHOULD do". Sometimes you do something because you should. It'll help you grow, help someone else, etc. Other times it's something you'd enjoy. It's good to have some balance between the two, if you're always filling one bucket and not the other you'll be kind of uneven as a person.

Another consideration is "CAN I do this"? Both in the sense of "is this in my skillset/wheelhouse or can I learn it?" and "how does this fit into my life?" I've had opportunities that are right up my alley that would have been significant disruptors to my family, and I choose not to pursue those.

I've found that if you can't envision/create a version of that thing you'd like to do that's sustainable and fits into your life then you're likely not to stick with it very long.

CJ: Speaking of delivering new ideas. I was really pleased to see the start of 'data dumps'. What was your intention with creating these mini projects on Tableau Public? How do you balance concepts of design, analytics and time into this project?

The image shows four separate Data Dump zine covers arranged in a row. Each cover has a title, author, and some statistics.

- data dump - Throwing Away My Shot**  
Zach Bowders  
3 stars, 111 views
- data dump - Jurassic Drop**  
Zach Bowders  
0 stars, 29 views
- data dump - 007th**  
Zach Bowders  
3 stars, 107 views
- data dump - Perfection**  
Zach Bowders  
3 stars, 71 views

One of my creative precepts for data projects is the idea of artificial constraints on myself. As a habit, I don't spend more than 3 hours on a public data viz, both because my attention begins to wane and I know (from past experience drawing) that if I give myself unlimited time I'll just never feel satisfied and never release it.

Data Dumps are short viz stories with text blocks and visualizations I came up with to express small ideas quickly without the need to reinvent the format each time. Presented like a zine, they have just enough space for 2-3 visuals and supporting text.

For my first round I decided to explore the "Boston Molassacre", which was a real world Molasses spill in 1919 where 2.3 million gallons of molasses flooded the streets of Boston. I knew I wanted to give context to the scale of that, so I discussed the details of what happened and had visuals comparing things we're comfortable with (a backyard pool, the size of a 2 story house, your running speed) against the various aspects of the molasses wave.

The first Data Dump was the most work, because I had to establish a template that gave adequate room to have a title, descriptive text, and room for a couple charts, but once I had it hammered out, it became a tool for me to rapidly deploy small ideas fast.

CJ: What are you most looking forward to as we roll into 2023 from both a personal and community perspective?

I'm involved in a lot of new ventures that will be seeing fruit this year. I'll be teaching for a second time with Emory University's Women in Technology program, which helps elevate single mothers by teaching them data skills. I also am in the process of finding another new side-gig for teaching that the Datafam is very familiar with, but I'm hesitant to reveal until I've actually made something.

In general, I'm feeling positive. Tableau's new features look promising and the community may be smaller than it's been in recent history but the level of engagement feels enthusiastic and high.

Data + Love is finishing its 3rd season, and I'll admit the beginning of this year was a bit of a struggle for me but I've rediscovered the love by having exciting conversations with new and different people.

Do what you love. It'll still be work, but it'll be satisfying work.

CJ Round Up:

I really enjoyed the opportunity to sit down with Zach and hear his thoughts around community, finding your own interests and his exploration of different themes and topics.

I am so pleased to see Data + Love continually there to inspire and engage new conversation. It even came up on my Spotify Wrapped this year!

Whether you want to get into podcasting, carve time out for quick analytical stories, or find love through the blend of films with data – what this conversation re-iterated to me is why it all began. Doing things that make you happy, and resemble you as a person.

Happy Holidays all – Logging Off for one final time in 2022,

CJ

#### STATSBOMB PASS HEAT MAP (PYTHON)

Hi all,

The festive period is slowly creeping up on us! I hope everyone finds time with friends, family and loved ones to recharge and reconnect.

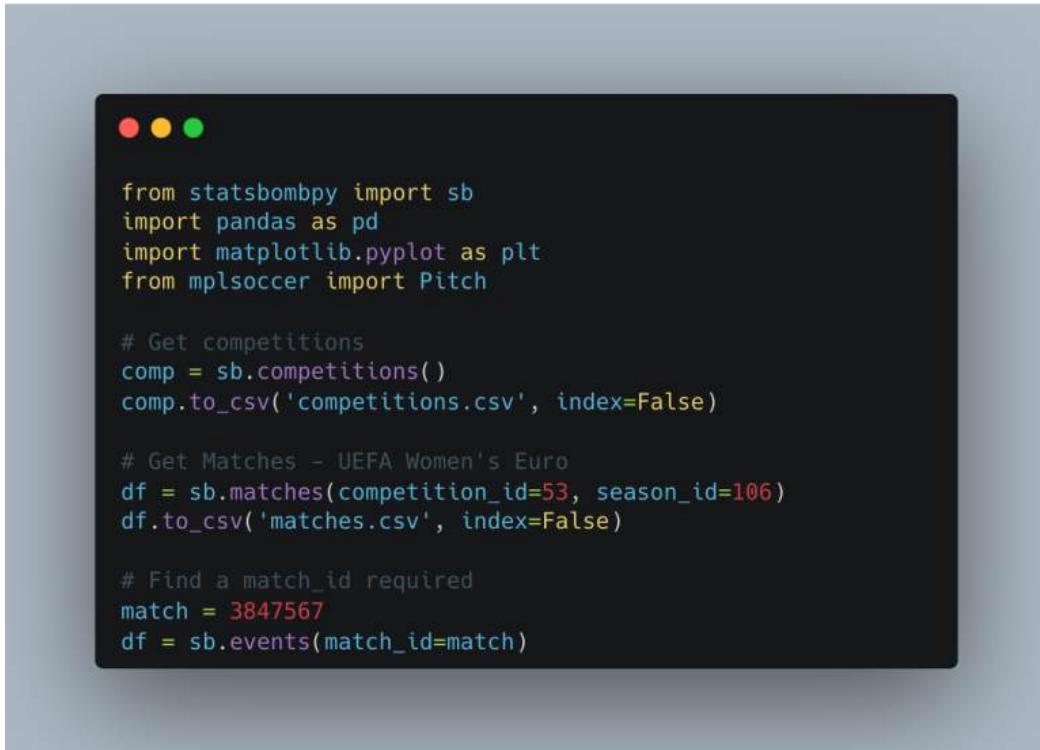
The blog today will look at an introduction to StatsBomb data and how to create your own heat-map of pass data in python. In the new year, we will probably look to replicate the same idea in Tableau.

If you are new to the open data, take a look at a previous introduction blog I wrote last year, [here](#).

All code resources, can be found at the top of the page below the title. Here is the repo for the [open data](#). We'll actually be using a package that stores this information but it will be useful as a reference point as

we dive in, so will look to explore the folder structure. As we will be using a prebuilt package there is no requirement to download this repo specifically.

I've chosen to plot the Womens euro's final – specifically the passes of the England team. Let's walk through the code snippets so you can go ahead and create your own.



```
from statsbombpy import sb
import pandas as pd
import matplotlib.pyplot as plt
from mplsoccer import Pitch

# Get competitions
comp = sb.competitions()
comp.to_csv('competitions.csv', index=False)

# Get Matches - UEFA Women's Euro
df = sb.matches(competition_id=53, season_id=106)
df.to_csv('matches.csv', index=False)

# Find a match_id required
match = 3847567
df = sb.events(match_id=match)
```

The first block of code looks at the packages we require. I then create two simple datasets, the first is a csv version of what competition data is available from statsbomb through their open data. I then pick the specific ID and season which equates to the Womens Euro Finals.

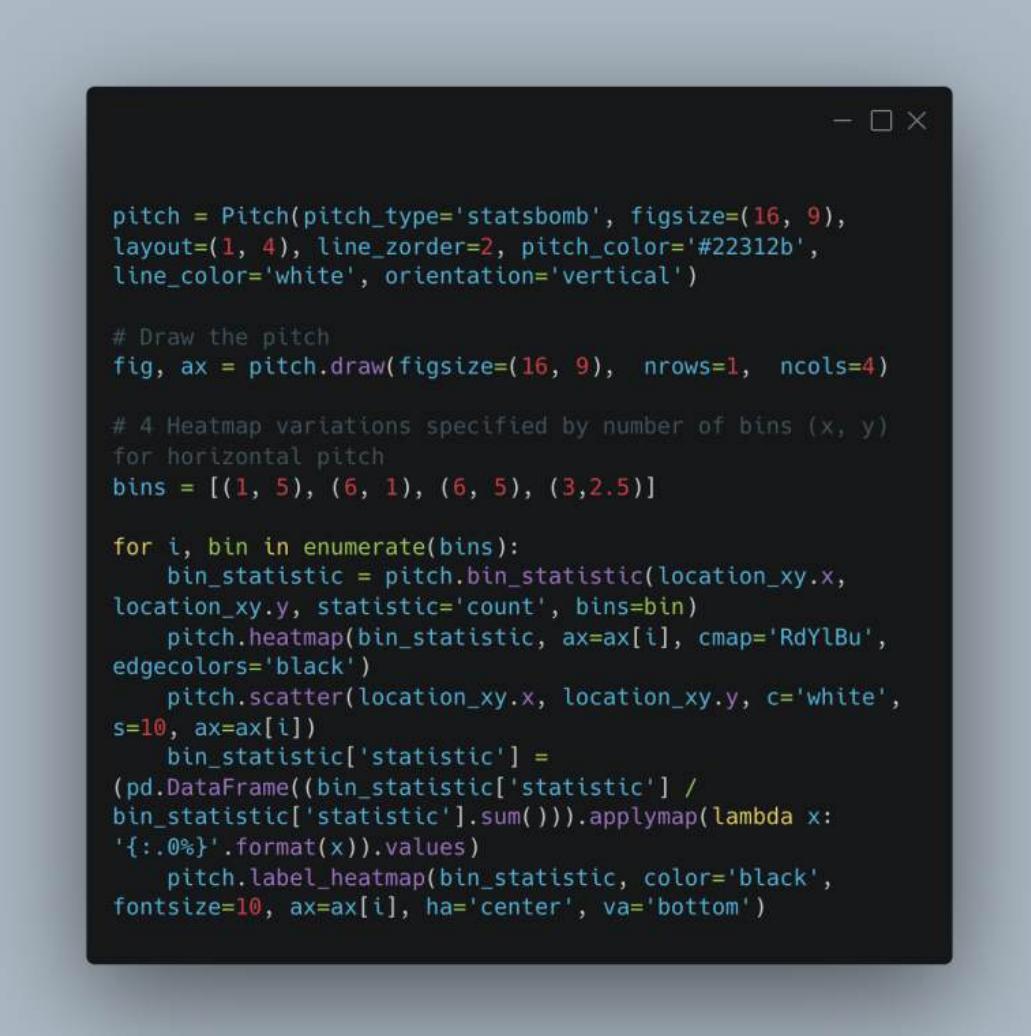
The actual final between England and Germany is a specific match id. The final line of code here, looks to create a dataframe of all the different events captured within that match.



```
df_pass = df.loc[(df['type'] == 'Pass') & (df['team'] == "England Women's")]

location_xy = df_pass.location.apply(pd.Series)
location_xy.columns = ['x', 'y']
location_xy.dropna(inplace=True)
```

The next few lines of code above are important in terms of splitting the location field out into its x and y co-ordinates. You'll notice here we also limit the type of event to Pass and the team to only the England team. Of course these steps are optional based on what measure you're looking at, but the syntax of splitting the field will be important.



```
pitch = Pitch(pitch_type='statsbomb', figsize=(16, 9),
              layout=(1, 4), line_zorder=2, pitch_color='#22312b',
              line_color='white', orientation='vertical')

# Draw the pitch
fig, ax = pitch.draw(figsize=(16, 9), nrows=1, ncols=4)

# 4 Heatmap variations specified by number of bins (x, y)
# for horizontal pitch
bins = [(1, 5), (6, 1), (6, 5), (3, 2.5)]

for i, bin in enumerate(bins):
    bin_statistic = pitch.bin_statistic(location_xy.x,
                                         location_xy.y, statistic='count', bins=bin)
    pitch.heatmap(bin_statistic, ax=ax[i], cmap='RdYlBu',
                  edgecolors='black')
    pitch.scatter(location_xy.x, location_xy.y, c='white',
                  s=10, ax=ax[i])
    bin_statistic['statistic'] =
    (pd.DataFrame((bin_statistic['statistic'] /
    bin_statistic['statistic'].sum()))).applymap(lambda x:
    '{:.0%}'.format(x)).values
    pitch.label_heatmap(bin_statistic, color='black',
                        fontsize=10, ax=ax[i], ha='center', va='bottom')
```

So this next chunk of code is a little meaty but hopefully we can make sense of it.

To start we define the figure size of the pitch, and we give it a few attributes in terms of style and colours.

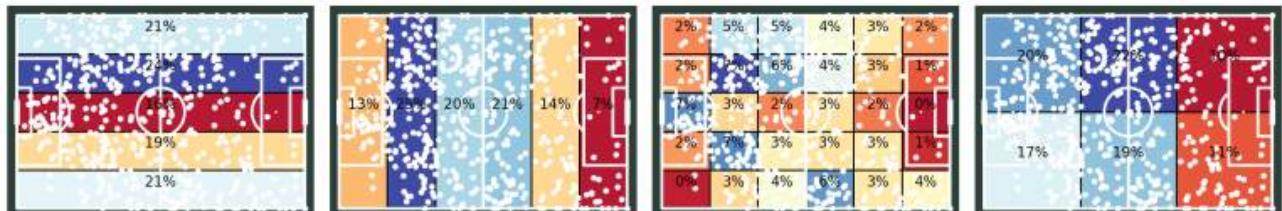
I then want to create a variety of different style heatmaps, to weigh up which ones may be the best representation of my data. You'll see the number of bins is equal to my layout. I.e I have 4 sets of bins, as well as a layout of 1×4 meaning my overall chart will be 4 pitches next to one another, with the heatmaps based on the bin sizes.

The for loop creates each of our heatmaps.

First it takes the pass co-ordinates of the x and y and bins them into their corresponding category.

Next we use the scatter function to also overlay our co-ordinates. Finally I add some labelling calculations to see what % of passes were made within that specific bin.

All goes well, the visualisation should appear.



Now seeing the input, it may help you with understanding the bin values.

Thats the end to the visualisation.

Of course, you can go back and amend labelling and colours and sizes to your own discretion. Do check out the mplsoccer documentation [here](#).

As well as some of the different colour mappings [here](#).

If you get stuck with the layout of the above, I also left in a chunk of code that looks to build just one chart.

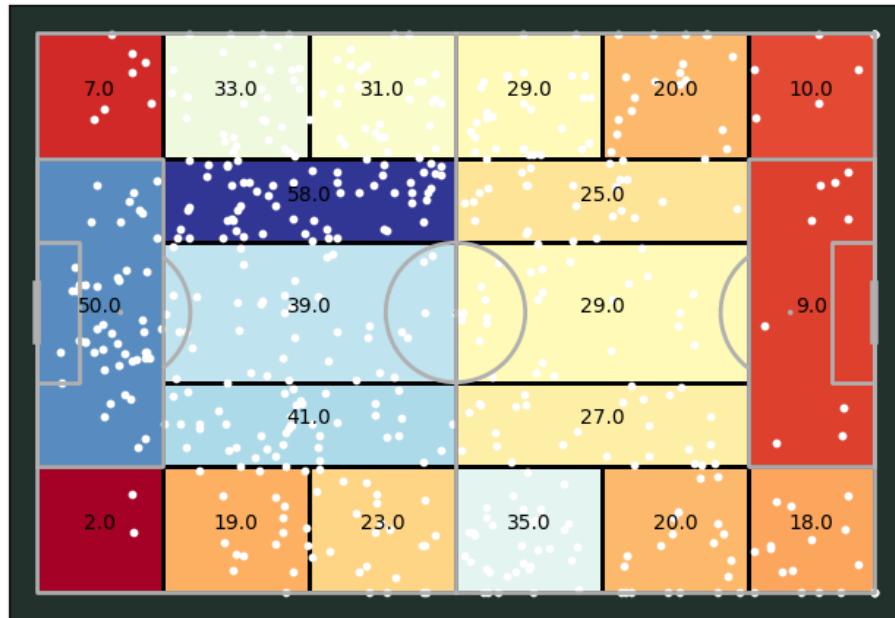
```
# Alternative method using mpl_soccer documentation
pitch = Pitch(line_zorder=2,
              pitch_color='#22312b', orientation='vertical', axis=True)
fig, ax = pitch.draw()
x = location_xy.x
y = location_xy.y
stats = pitch.bin_statistic_positional(x, y)
pitch.heatmap_positional(stats, edgecolors='black',
                         cmap='RdYlBu', ax=ax)
pitch.scatter(x, y, c='white', s=10, ax=ax)
text = pitch.label_heatmap(stats, color='black', ax=ax,
                           fontsize=10, ha='center')

plt.show()
```

This code takes the original x and y location data based on passes sets them equal to new values and then passes those through the bin statistic and heatmap position functions. Notice a few small changes including ax=ax as we only have one single chart.

The chart type in the second example tends to be used more for pressure events. If you'd like to follow the mplsoccer version of the code where they utilise pressure events, please follow [this link](#).

Another good follow along tutorial can be found [here](#).



Let me know how you get on with this one. As always the code can be found at the top of the page in the Github Repo.

LOGGING OFF,  
CJ

SOCCKER HEX SHOT MAP

Hi all,

Welcome back to another tutorial. Hope everyone is doing well. This is my first blog back using my new website! Do take a look around, get familiar and see what you make of it. I really wanted to bring my personal brand more to life whilst staying true to the content and style of work I put out.

With my new site.... all repo specific links for data and dashboard templates will be found at the top of the page. This was part of a huge migration piece to make life easier to manage and organise.

# SOCCKER HEX SHOT MAP

25/11/2022 

   
Return to category

Hi all,

The tutorial today looks to create Soccer Hex Maps in Tableau. With the World Cup being on, I started to revisit some of my old blogs from the years and one I quite enjoyed initially creating was the tutorial on retrieving Understat data. You can find the original blog [here](#). A copy of the dataset that the code produces is stored within the Git Repository at the top of the page.

We will solely be looking at producing the visual element today.

Firstly connect to the player shot data.

First thing I do is scale the map values up – It makes it easier to work with.

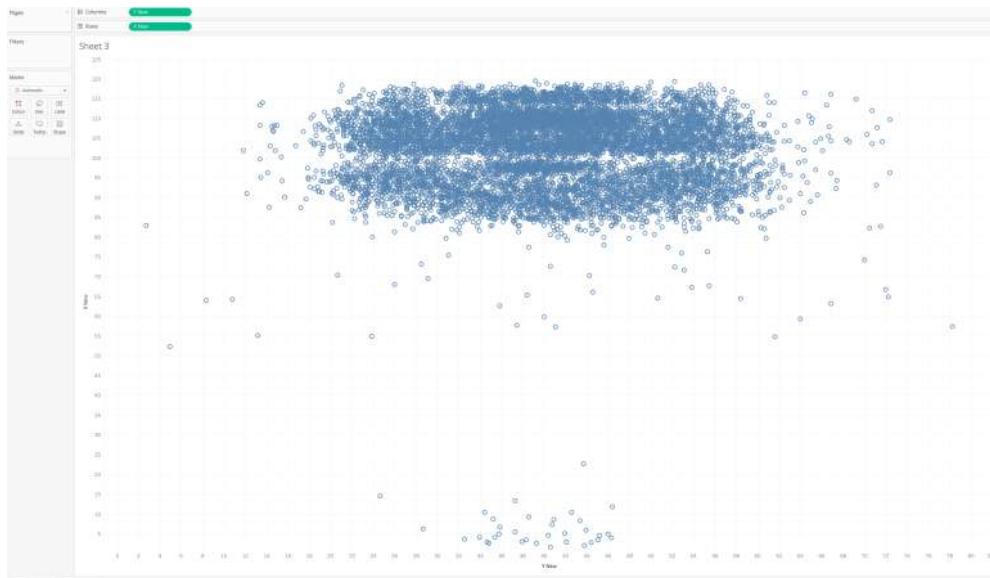
X New

X\*120

Y New

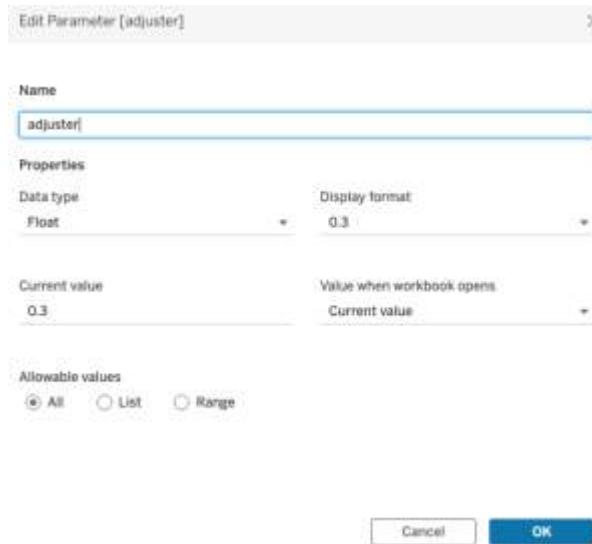
Y\*80

See below for a visual representation of this.



Next we will want to create our hex bins from the data. Create a parameter called adjuster. Within my workbook this is set to a float of 0.3 but this adjuster value will be dependent on the scale that you want your hex map sizes. The higher this value, the smaller the hex's (more hex's on the pitch).

Of course, therefore the lower the value, the less hex's presented on the pitch.



Hex X

**HEXBINX(\*,\*)/**

Hex Y

**HEXBINY(\*,\*)/**

Plot Hex Y onto columns, and Hex X onto rows making sure they are both dimensions. (not averages)



This is all the different bins of all the different shots. But we really want it to make sense by adding a football pitch behind it.

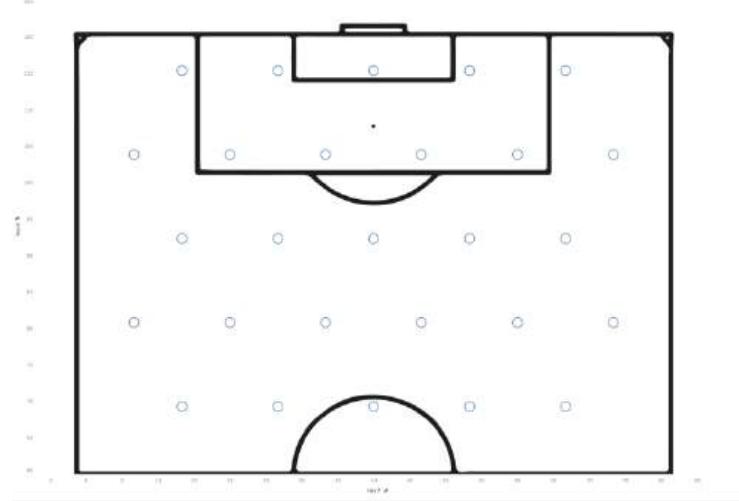
Take the pitch image from the repo and align it with the following coordinates.

Make the X field based on our Hex X field. with Left padding -7, Right padding 127.

Make the Y field based on our Hex Y field. With bottom padding -7, top padding 87.

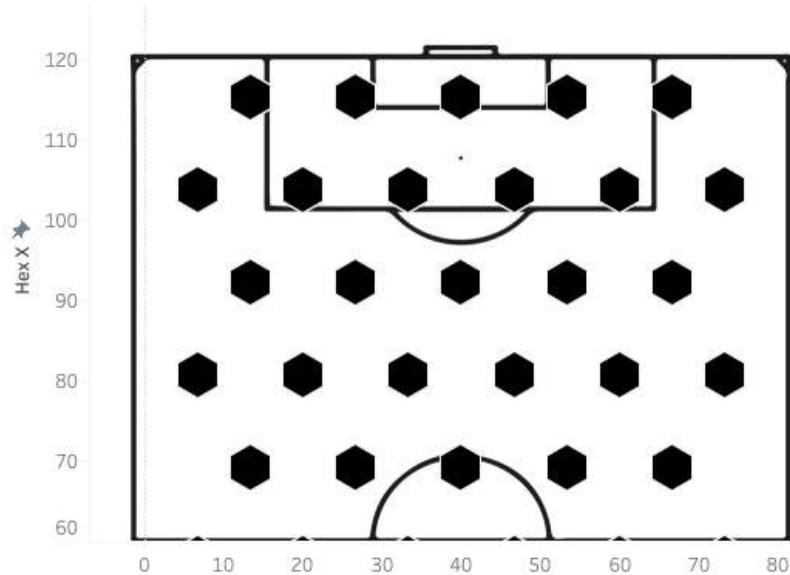


In the options, make sure not to click 'always show image' if you want to only make the pitch a half pitch.



Next fix the axis. I tend to fix Hex X to 60-125 & Hex Y -7 to 87 – similar to what we see in the mapping co-ordinates, but now just showing half the pitch.

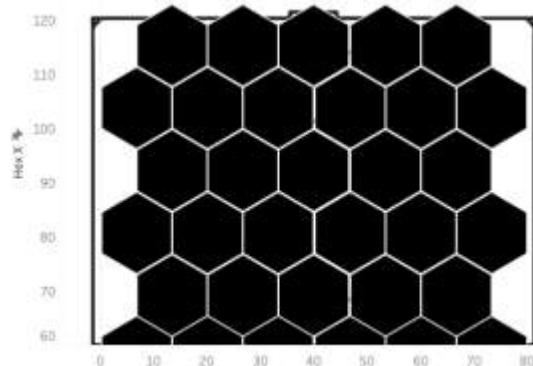
Add the hexagon shape from Github into your tableau public repository, changing your marks card to shape.



Lastly, we can adjust the size slider bar to match the sizing of our pitch.

It is best to go back and do this once you have added it to your dashboard.

We also can change our adjuster parameter to see how many hex's we want on our page.



The final thing is to add our colour metric, for now I will plot the count of number of shots as a measure onto the colours mark.

By reducing the opacity a little we can still see the pitch outline.

There we have it our hex shot map showcasing where the most shots are taken from last season. We could take this further by picking specific players, you'll notice in my final design I have added a filter just to look at the top 5 strikers that season, adding the player to the columns mark.

Taking it further:

- Try plot a small multiples of each the Top 20 Strikers this season.
- Try Overlaying individual shots over the top of the hex map.
- Try adding where the results = goals instead of total shots into the colour marks.

Let me know how you get on with this one.

## Top Strikers In The Premier League 21/22 | No Goal Scored



LOGGING OFF,  
CJ

LEARNING IS AN IMPERFECT PROCESS – SEAN MILLER

Hi All,

Welcome to the November episode of “What’s Good?”

It is with great pleasure to invite Sean onto the blog this month. I want to open the blog by wishing Sean well in his new role having been promoted to Director at Evolytics. What a fun and exciting time.

Sean is a tableau visionary, ambassador and TUG lead. You’ll often see his contributions and leading of WoW challenges & the DataPlusMusic initiative. In today’s blog you’ll get a flavour of how to both, set and solve, those challenges.

CJ: Sean, great to have you be a part of the series. My blog questions tend to originate from a similar starting question. How did your data viz journey begin and How did it grow with Tableau over time?



## Sean Miller - @HipsterVizNinja

Assoc. Director - Data Visualization at Evolytics | Kansas City, Missouri, United States

Sean has been using Tableau since April 2015 and is also an enthusiastic member of larger Tableau community.  
As a regular participant in #MakeoverMonday #WorkoutWednesday #ProjectHealthViz & #DataPlusMusic  
[Read more](#)



[Follow](#)

Vizzes 322 Favorites 53 Following 261 Followers 1,044

The grid displays 8 visualizations:

- #WOW2022 | Dynamic Anchor Date: A line chart showing time-weighted return from 2013 to 2022.
- Weekly avg. Occupancy - #WOW2022w34: A bubble chart showing average occupancy over time.
- Dynamic KPI Dashboard: A dashboard with three main KPIs: \$2.33M Sales, \$292.30K Profit, and 12.6% Profit Ratio.
- dynamic heatmap #wow2022: A heatmap visualization.
- Time-Weighted Return: 173%: A line chart showing time-weighted return.
- #WOW2022 | Let's build a Butterfly Chart: A butterfly chart showing gender split in the UK population.
- #WOW2022 | Let's make a bullet chart: A bullet chart comparing various metrics.
- Double Drill down with Set Actions: A bar chart with set actions.

S: Thank you so much for having me CJ! I'm excited to be here. My data viz journey started way back in the summer of 2013 when I had the chance to be an intern. During my internship, I was tasked with many business analysis projects. At this time, Excel was still king. I was creating massively complex workbooks with a sheet full of dozens of pivot tables which would then be used to create pivot charts with a dozen slicers...you know the drill, right, lol. From there, I was approached with the opportunity to take one of two Tableau licenses my team was purchasing. And from there, it just took off. I remember my trainer, Jeff James a fellow #datadev ambassador, actually had a section in the training PowerPoint to highlight how special the community was and where to find all the resources. And this was early 2015 when there weren't all these hashtags we have today. #MakeoverMonday didn't even exist yet – but the community was JUST as engaging, welcoming, innovative and genuine. I immediately jumped in and never looked back.

Since then I've had a reciprocal with the community. They continuously provide inspiration and I try my best to pay it forward

CJ: One project in the last few years you got involved in was helping set the workout Wednesday challenges, but it sounds like you have been completing them since back in 2017. What drove that early interest in this particular community challenge? How has it shaped your own personal skills over the years?

### Latest Challenges in Tableau

The image displays three separate Tableau dashboard cards, each featuring a different challenge:

- #WOW2022 Week 41: Can you do YoY comparisons?** This dashboard includes a line chart titled "Sales YoY by Product" and a bar chart titled "Commercial KPIs for week of Oct 11, 2022, East, South, West regions". It also features a small portrait of a person.
- #WOW2022 | Week 40 | Applying Accessibility Principles to Data Visualization** This dashboard shows a list titled "Top 10 products with highest Profit for week of Oct 11, 2022, East, South, West regions" with a "Select a metric" dropdown menu. It includes a bar chart and a small portrait of a person.
- 2022 - Week 39: Where were COVID-19 Cases most active on December 30th, 2021?** This dashboard is a map titled "MAP LAYERS" showing COVID-19 case density across the United States. It includes a small portrait of a person.

Each card also includes a "READ MORE »" link and a timestamp at the bottom.

S: There is so much I could say about Workout Wednesday and the impact it's had on my journey. I think it was a matter of perfect timing of where I was at in my progression in learning Tableau and the primary audience for Workout Wednesday. From its inception and to this day, #WOW is geared towards individuals who would consider themselves at the intermediate level of proficiency.

So after a year of participating in the first year of #MakeoverMonday, I was ready to take my skills to the next level. I've never really considered myself that much of a designer, not that I can't but it just takes more effort. But what I love was the technical side of the challenges is the puzzle. That's what #WOW challenges are, nothing more than a puzzle in Tableau, right? Think about it, when you set out to do a tabletop puzzle, the first thing is you dump all the pieces out – that's you reading through the requirements. Then you put the box top in front of you so you see what you're trying to put together – that's the final challenge dashboard. Third, you're going to put all the edges together. This is

where you break down a challenge into the pieces you know – you recognize (chart type, filters, parameters, actions, etc). Then you're ready to fill in the missing pieces, these are the technical pieces that you're not quite familiar with. And that's where the learning happens. I absolutely wouldn't be where I am today without #WOW – more than any other community initiative. Out of the hundreds of challenges there is likely something from each one that I've lifted and taken to my "office" work. The thing about #WOW challenges is that we don't intend for the challenges to be "replace data source" This isn't scope work, lol! We want people to learn something they can back to their stakeholders and

#WOW them 😊

CJ: I've always personally wondered, what behind-the-scenes work goes into setting the challenges? What factors do you have to consider? Are there any obstacles to making it replicable? What considerations do you give to the target audience?

S: The inspiration for challenges from all over the community, our work and the mad science labs of our own minds. One thing that we're constantly reminding ourselves is that what might take us an hour to complete will take our target audience 3-5 hours. So we really strive to keep our challenges short, less than 5 calculations. And something that we've tried to do over the past several years to focus on one aspect, tip, function or technique with each challenge. Another thing we're also always thinking about is using different data sources – we've done so much with Superstore (who hasn't, right?)

CJ: As someone that so heavily focuses on technical skills that can transfer directly to work related problem solving. What aspect of Tableau do you find users find most challenging? Are there particular challenges that you see get constantly revisited because of it?

S: Table Calculations, without a doubt. Everytime we survey the community about what they want more of – table calculations are the clear leader. Which is really interesting because we all, at a surface level, understand what table calculations however, the biggest challenge of table calculations is figuring out the scope and direction, right? And if the table calculations aren't happening in a crosstab it makes it that

much more difficult. And then you have the craziness of nested table calcs...oof.

Another thing we see of requests for is mapping challenges. And this too makes because very few of us have data with geospatial elements. Plus I think they are so intrinsic about creating a beautiful and insightful map.

Plus all the love that mapping has received in the past 3-5 years has been really amazing and is, to me, the key differentiator for Tableau.

CJ: Something I greatly appreciate about your work is the variety of mediums that you present. You often create video cuts as well as blogs.

Is there a particular reasoning behind this? Is it to accommodate a multitude of learners?

The screenshot shows the YouTube channel page for 'HipsterVizNinja'. At the top, there's a profile picture of a man with a beard, the channel name 'HipsterVizNinja', and '615 subscribers'. A red 'SUBSCRIBE' button is on the right. Below the header, a navigation bar includes 'HOME' (which is underlined), 'VIDEOS', 'PLAYLISTS', 'COMMUNITY', 'CHANNELS', 'ABOUT', and a search icon. The main content area features a video thumbnail for 'How to setup a default date range using Tableau dynamic para...', showing a line chart. To the right of the thumbnail is a description: 'With the release of Tableau v.2020.1 we are able to dynamically update the default values of our parameters.' Below this, there's a section for 'Upcoming live streams' with six entries, each featuring a thumbnail of the host and the text '#WOW2022 | [number]' followed by a timestamp and a 'NOTIFY ME' button. At the bottom, there's a section for 'Popular uploads' with six video thumbnails, each with a 'WOW' emoji, a title, a duration, and a view count. For example, the first video is titled 'How to combine relative and custom date ranges in a...' with a duration of 12:20 and 5.8K views.

S: That's an interesting question and I think it comes down to what I learned in college. I was on a path to teach middle school science & math (kids aged 12-15) and one of the things they teach teachers is to differentiate your lessons. Some learners do better with hands-on activities while others are readers and others are copycats. Some learners will immediately catch on while others will need the repetitive

sessions to really grasp a topic. As Tableau users, we are all still learning and these same principles still apply. So that's why I'm blogging, presenting and video recording. So that I can reach and meet my learners at their level. Lately, I've really taken to video recording on my YouTube channel. Part of that interest is that it's quicker for me to get an idea out there. There is a lot more setup that goes into a blog post. From grabbing all the screenshots to outlining to drafting/editing and publishing – it's a lot. For me, I can open up Tableau, turn on my webcam and talk through my process. Then I can splice everything together in post-production. It's an easier process for me...and I genuinely enjoy it.

CJ: In addition I love your choice to do live streams of some of the WorkoutWednesdays. As someone that has tried to approach them blind myself on team calls, It can be quite nerve-racking. Why do you personally choose to do this through a stream? What do you think people learn from those moments of the 'unknown'?

S: Thank you for those kind words. So let me tell you a story – when I joined the #WOW team back in 2020. They had decided to make a concerted effort to record the solutions which I was 100% behind. So I get my first challenge out there and I go to make my first video. Now, all the coaches had decided to keep our videos under 20 minutes. So I do my video and edit down as much as possible; dead time, filler words, all that – and my video was still 45 MINUTES long! Lol! I did a few more videos like this before I just decided to do it all live. So the reason I "started" doing the live streams was time-saving productivity. But then some amazing happened after a few live streams – people started talking about how much they get out of watching other people viz. And that makes total sense given how popular Andy Kriebel's "Watch Me Viz" series is. And one thing that I feel like is really showing people is how to troubleshoot.

To be completely honest with you CJ, there is a lot of "perfection" in our community, right? We share our final creation and it will be shared, liked, we'll blog about our creative process and the technical functions for the bespoke charts. Which is all really great and pushes us all forward but

what about what happens in between? What about all the times those technical functions did work and working through those #TableauBrokeAndMadeArt moments? I love those moments because that's where our target audience spends most of their time.

And that's what I'm trying to provide with my live streams for the community is to normalize failure. It's a failure in the traditional sense though as long as it's a failure that leads to learning it's all gravy, baby! CJ: When we recently caught up, what stood out to me was how much you valued the notion of learning and self-development. What advice would you give to those that want to progress technically in their own workplace and how to best to facilitate this?

S: Join #WorkoutWednesday in whatever capacity you are comfortable with. Join any of the community initiatives, really. I'm a big believer in not learning for a stakeholder, learn for yourself and be ready when the stakeholder asks. The Tableau community allows you every opportunity to do that. I'd love to talk to and welcome as many new members to the #DataFam but I recognize the social thing is not everyone's thing and that's okay. Just get out there and learn.

CJ: #DataPlusMusic is an initiative that you kicked off at the end of last year. No doubt it has resulted in some fantastic visuals. What was the reason you started it? What is it about the blend of data and music that brings you joy? How does this compare to some of the other community projects you're engaged in?



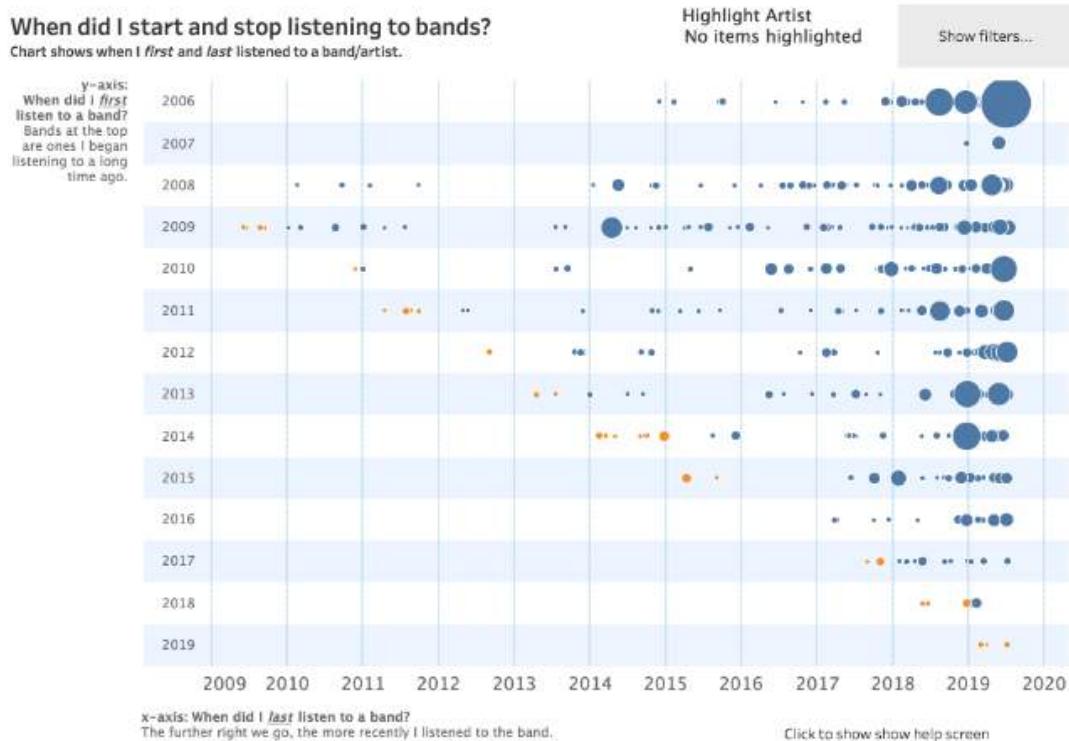
S: My first dataset I ever created was an excel sheet of my music CD collection...in 1995. At that time I had over 300 CDs and i decided to catalog them all. I used it rearrange them every 6 months or so. So, clearly I've been a music fan for a long time. And then now in the age of streaming we have technology to do all that for us! And when you look back at all the #MakeoverMondays and all the #IronViz qualifiers, some of the most impressive and creative vizzes have been music related. So I knew that I wanted to do something with music on a regular basis. I've been so impressed thus far is what the community has put together so far! We've got some great stuff planned for the rest of the year too, so keep an eye out.

CJ: I am always fascinated by the creativity of some individuals' music visuals, but always wonder what a good starting point is. What resources in the community would you recommend? Are there any data API's you could give a brief introduction to? Is there any work in the community that you think has showcased music data particularly well?

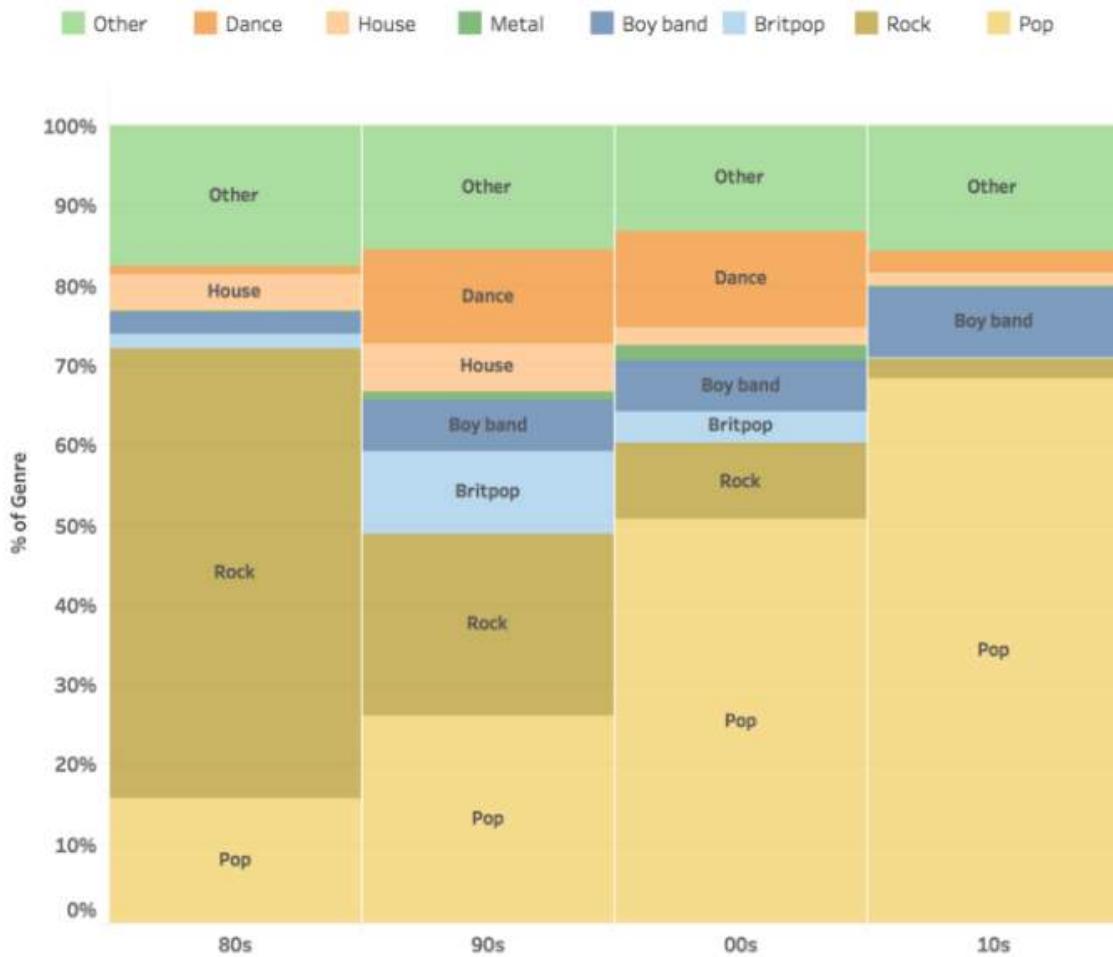
S: The starting point for your first music viz is to think about what you love listening to right now and look for the data angle. If nothing else, the Spotify Web API is an excellent start at simply visualize the musical attributes of a handful of great songs. In fact, if you check out my [github site](#), I have a several python scripts that are "plug and play" to get you started. If you are listening to your music on the web (who isn't, these days), then I highly recommend checking out connecting your streaming service to last.fm which will automatically record every song you listen to on the web. You can then use that to visualize how and when you listen to music. And if you looking for assistance with any of that, then please reach out to me!

Some of my favorite examples of amazing music vizzes are:

- I love what Andy Cotgreave did back in the day with [this listening habits](#)



- One of favorite music deep dives came from Chris Luv & Rob Radburn taking a look at the long-running **NOW! That's What I Call Music catalog**.



- Peter Gilkes did an amazing recap of his listening history WAY back in 2016 that has still stuck with me.

## What's Peter been listening to?

Top 25 Artists 2016



Click an artist to  
get a Spotify  
track



Q1 Q2 Q3 Q4



Top Songs by Top 25 Artists

No Matter Where We Go
Ugly Cherries
Golden Days
No Woman
Lipslap
Harvard
Sleep Talk
Breathless
Your Best American Girl
Masterpiece
Scene Sick
Cardboard
Making Breakfast
Break
Bridge to Hawaii
PINNED DATE



Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan

CJ: What part does music play in your life outside of work? How else do you like to unwind?

S: I love sharing music with my kids. We recently went to see Weird Al as a family and it was amazing. They had a total blast and we play Weird Al at home all the time. Additionally, I love to cook, my wife, Rachel, and I both do. So we're always looking for new recipes to try. One of my favorite non-tech activities is anything outside, working in the yard, going on a bike ride, walking the dog, if it's outside I'm loving it.

CJ Round-Up:

I am grateful to be able to host this guest interview with Sean. What stood out to me was his commitment to learning but also helping others learn through the variety of channels and mediums he posts in. I love

that he recognises there are different ways to absorb content. I particularly loved the puzzle metaphor Sean used earlier in convo.

The one thing I will carry forward is Sean's sentiment around there is a lot of "perfection" in our community. We often see the "pretty bit". (I know that phrase may rustle a few feathers) but in terms of development it is often the stuff that doesn't reach tableau public where most of our

learnings happen. Where you try something knew and essentially break things. That is the space of learning that we should all cherish! If you'd like to follow Sean, be sure to check out his [site](#), [public page](#), [youtube](#) as well as give him a follow on [Twitter](#).

LOGGING OFF,

CJ

#### FAN / CHORD CHART TUTORIAL

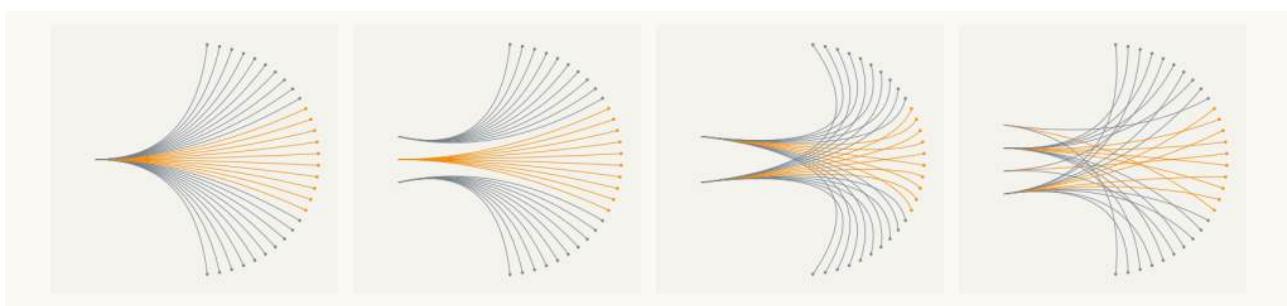
Hi all,

Once you've built one curved chart you've built them all. Bit of a brash statement you may think... but kind of true at the same time, especially in terms of logic. I think what may be particularly confusing in the community is everyone has their own unique way of building a chart with curves and the requirements of data densification.

For me, I build all circular and chord style charts in the same way every time. The only thing that may differ is having dynamic start and end points.

Today we will look to go through how to create a simple fan chord chart. It combines a bunch of knowledge from previous like [this one](#) but also includes elements taken from the work of **Brian Moore**, like his [bezier work](#).

Big shout out to Brian. Really this approach only differs in having dynamic start and end points. If you want to hardcode your values, it is well worth taking a look at Brian's tutorial. In fact the data we use is a reduced version of his.



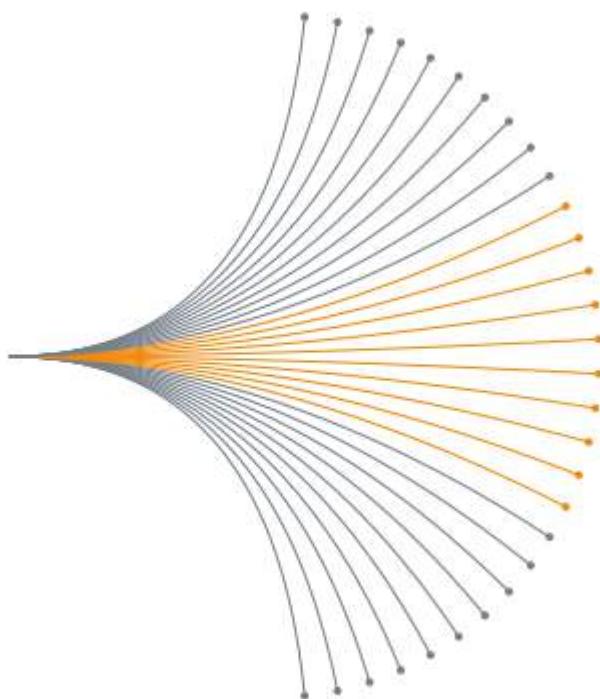
We'll look to cover off all four of these charts in the tutorial in some capacity, but a focus on creating the far left hand chart. But of course I must start with the disclaimer of: Please consider when you might want

to use this. Then consider it again. and a third time just for good measure.

So a couple of things for context when building stuff with radials and points along a curve.

- You'll need a start and an end point (both x and y points) These can be hardcoded into your dataset or they can be flexible. Ours will be flexible today as we will write the calculations for the circle. We will also make our start points flexible.
- Often quite confusingly you will need to join in a bunch of points (in this case 50) to plot as dots in between your start and end point. These points will then be adjusted (random maths equations) to give it the curvature of the path we want to follow.

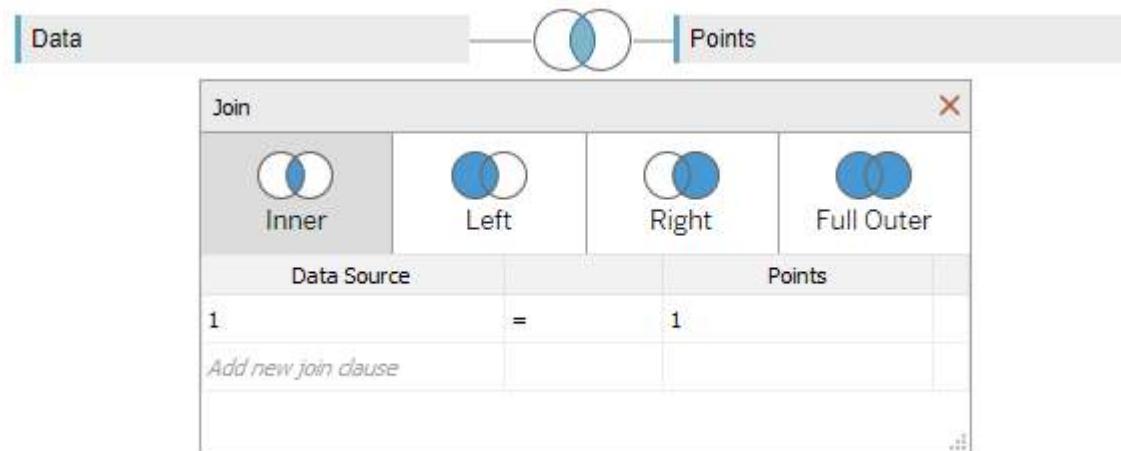
Here's what we will look to create:



So if we look at the template data from the repo at the top and the workbook. We have 30 points of data (which will end up being 30 chords outwards) and then just a category which we will use to show some adjustments.

The points tab, contains 50 records of data, this is needed to densify the data ie. create 50 points between the start and end co-ordinates along a curved path.

What we then do is join the data with a custom 1=1 relationship. Our total dataset therefore will be  $30 \times 50 = 1500$  records.



Now we are ready. You'll notice I don't have any start or end coordinates. This can be quite daunting.

For now lets create two calculations for a static start point.

Lets create

001. Start X

-1

and lets create

001. Start Y

0

we'll come back and play with these points a little later, but for now all our chords will come from a static position.

Now we need to take a look at creating some end points & for this we will need to know the fundamentals behind building a circle. Again, I always follow the same process:

- Rank the number of points I will need
- Find the angle between each of the given points, i.e the spacing amount between each point
- Then actually shift each point based on the spacing
- Finally use some trigonometry to make it into a circle

So here goes:

002. Rank

This is just anything that can order our values.  
then

003. Angle  
360/{MAX()+1}

This is a way of saying a full circle is 360 degrees so find the max value of all the records we will have. I.e 30 records in the data.

004. Rank Angle  
\*/2

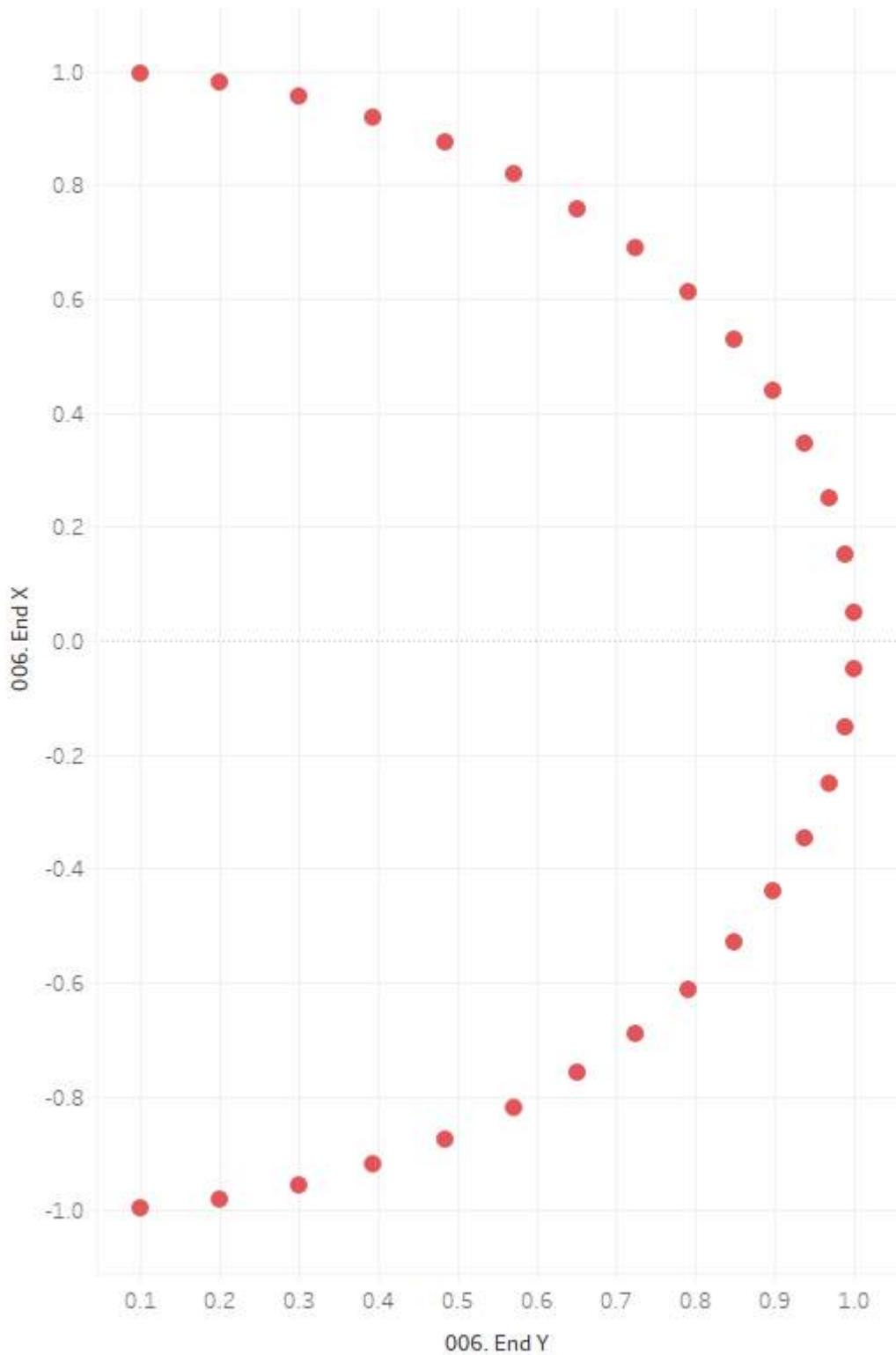
Now, given we have ranked all our marks and then found what the angle would be between each of them we multiply them together to be able to find the specific location of each mark. The division by two is because we want our end points to be a semi circle not a full circle!

005. Sin  
sin(RADIANS())  
Just some standard trig  
005. Cos  
COS(RADIANS())  
More trig!

I then convert these values into 006. End X and 006. End Y  
End X is our cosine calculation, End Y is our sin calculation

It's a bit of a useless step but I felt like if you wanted to cross reference this blog with Brian's it helps to understand where we are up to.

If we plot this on a chart this is how it looks:



Now we have

two pieces to the puzzle ticked off. We have some start points that are static, and we have some end points. Now we just need to find the chord along it.

Next we look to put in some placeholders for X Mid and Y Mid.

007. X Mid

0

007. Y Mid

0

Again, we can revisit these at the end, but these are the mid points our curves veer towards before reaching the final end point.

T

$(-1)/\{\text{MAX}()-1\}$

The T calculations finds all the points proportional between 0 and 1. Finally, we can create the chord calculations that take into account our start and end points.

008. Bezier X

$((1-)^2 + 2(1-) + ^2^*)$

and

008. Bezier Y

$((1-)^2 + 2(1-) + ^2^*)$

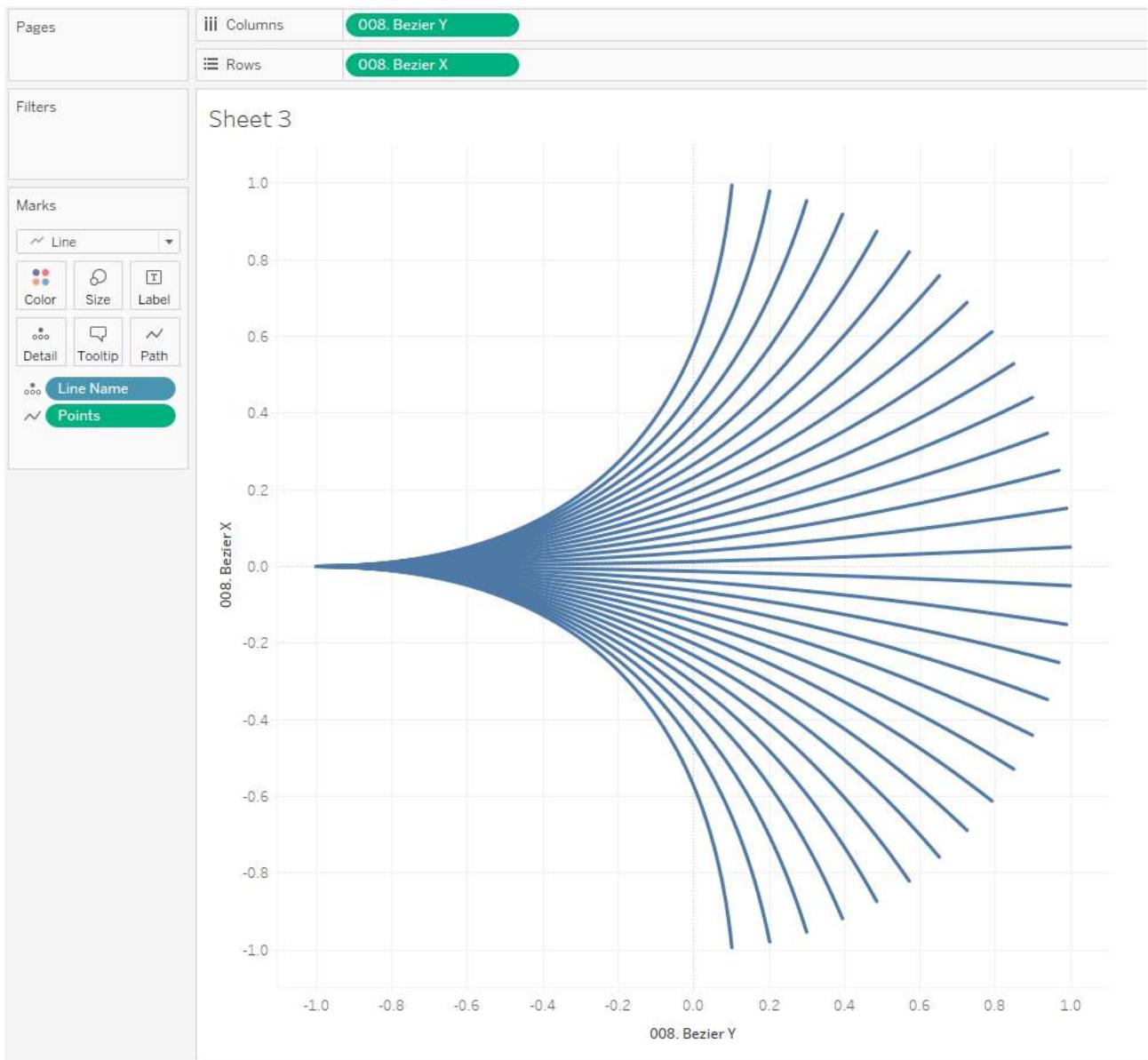
We can follow this step up to create some end points (dots), so where our T is 1 ie the maximum mark along the chord, then plot a dot.

010. Circles

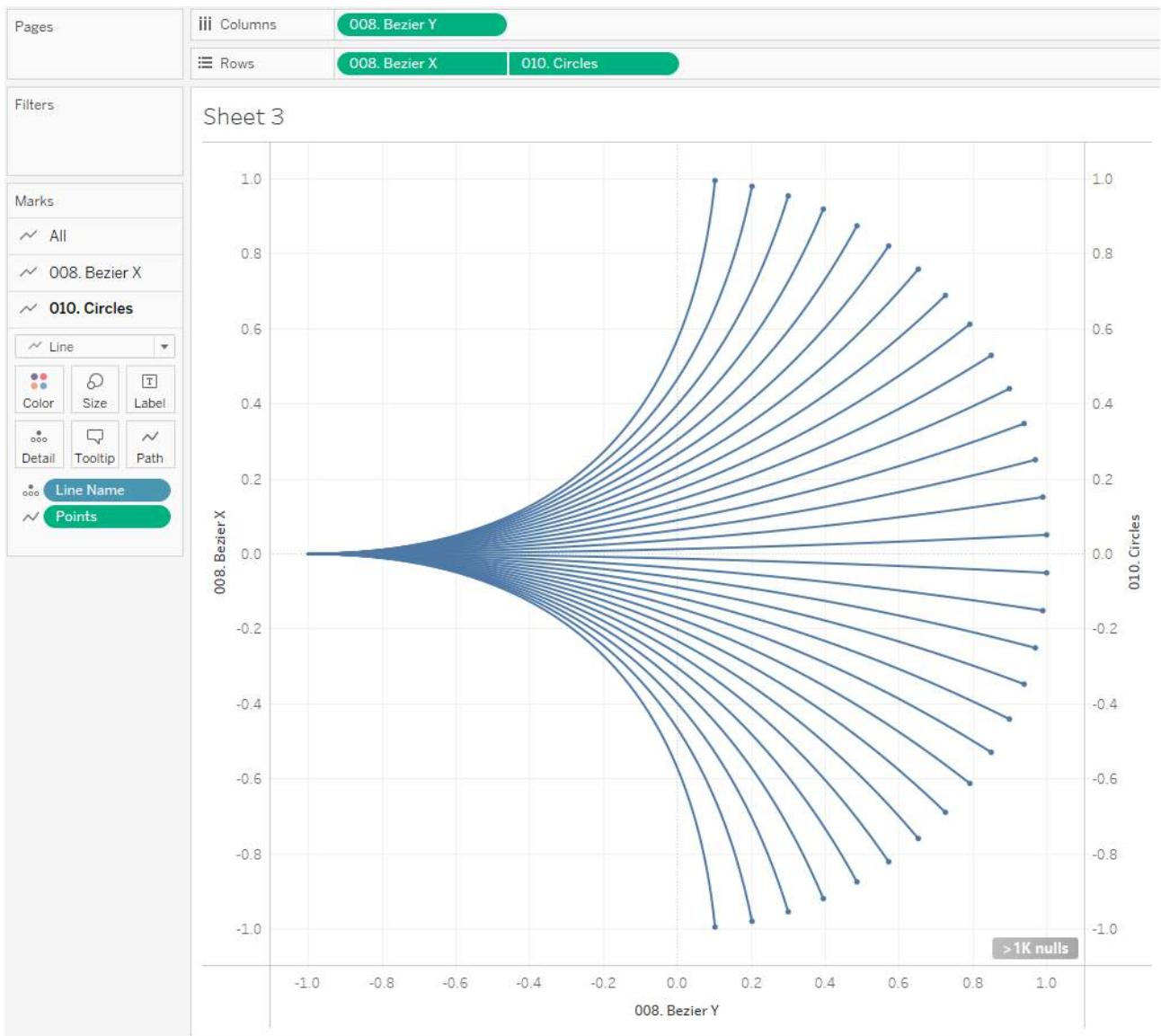
IF = 1 then END

Time to build.

- Drag 008 Bezier Y onto Columns and 008 Bezier X onto Rows.  
Make them both dimensions.
- Add Line Name to detail
- Add Points onto path and make a dimension.



- Next add 010. Circles onto rows, dual axis and synchronise.
- You may need to remove the multiple fields off colour when synchronising.

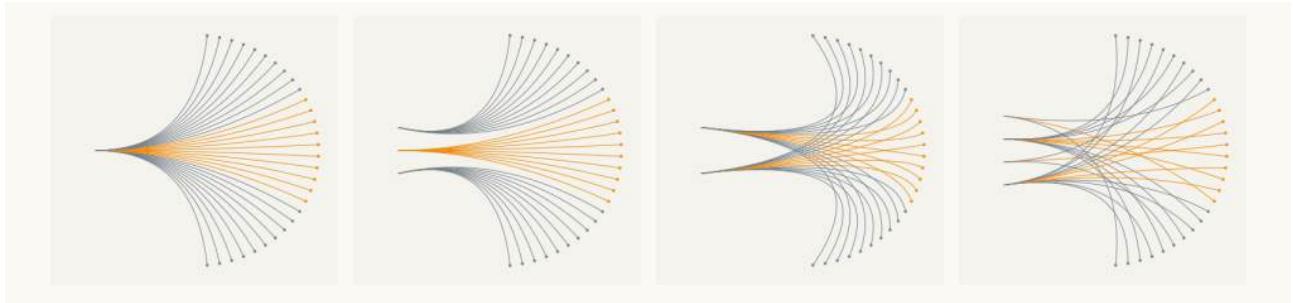


And there we have our fan chart.

Now we can go back and revisit some of our calculations.

### Going Further

- Making Y Mid 0.5 instead of 0. see how it moves the mid point making the chords fan later.
- Try moving the Start X & Y values. Notice the flexibility in these calculations.
- Why not change the Start Y based on category. You can have different sections with different start points.
- By playing around with the start and mid points you can make all 4 of the original chart types.



Have fun!

The template can be downloaded on Tableau Public, using the link at the top of the page.

LOGGING OFF,  
CJ

PIZZA PLOT PLAYER COMPARISONS

Hi All,

Welcome back to a quick update on a previous blog I wrote probably a year or so ago on **player metrics**.

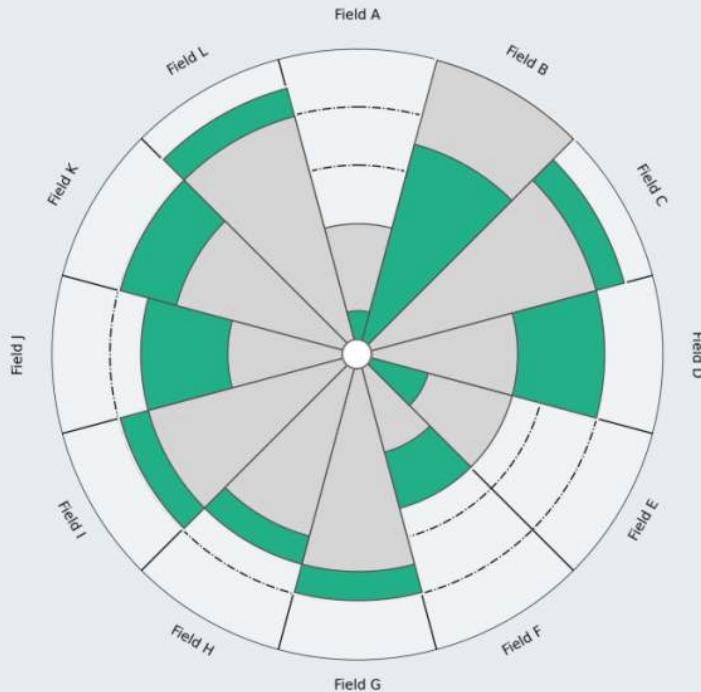
You can read it [here](#). It originally details some extra steps that looks at adding in a background.

Recently, I've had a few messages about how to add in a second players metrics and the ability to sort the values so that the lower value is on top of the larger value.

You can see how this looks below:

# PLAYER METRICS

V3. Multiple Players, Overlapping



This visualisation is for illustrative purposes and do..

CJ MAYES

I would recommend anyone that wants to fully understand the step by step guide to read the original player metrics blog on my site.

So what's new?

Well you can download the new dataset from the GitHub icon at the top of the page (data V3) that has an extra column now in called 'Sort' – We will use this within our template to layer which of the values we want on top. You'll see how the highlighted rows signal the ones where the layering will be the opposite way round.

A	B	C	D
Metric	Value	Player	Sort
A	10	A	A
B	70	A	A
C	90	A	B
D	80	A	B
E	20	A	A
F	50	A	B
G	80	A	B
H	70	A	B
I	80	A	B
J	70	A	B
K	80	A	B
L	90	A	B
A	40	B	B
B	100	B	B
C	80	B	A
D	50	B	A
E	50	B	B
F	30	B	A
G	70	B	A
H	60	B	A
I	70	B	A
J	40	B	A
K	60	B	A
L	80	B	A

Things to note: The X & Y calculations are now amended to include the sort calculation so that they can be layered correctly.

Can I populate my own?

The rest of the template remains the same! You can download the template from my Tableau Public page, just follow the link at the top of the blog.

All you will need to do is replace the dataset with the new dataset from the folder that you've populated with your own data, keeping the field headers the same.

## GOING FURTHER

Try playing around with different segment numbers.

As always, Let me know how you get on with this one. I can be reached on Twitter.

LOGGING OFF,

CJ

HOW TO IMPROVE YOUR STORY TELLING WITH KIMLY SCOTT

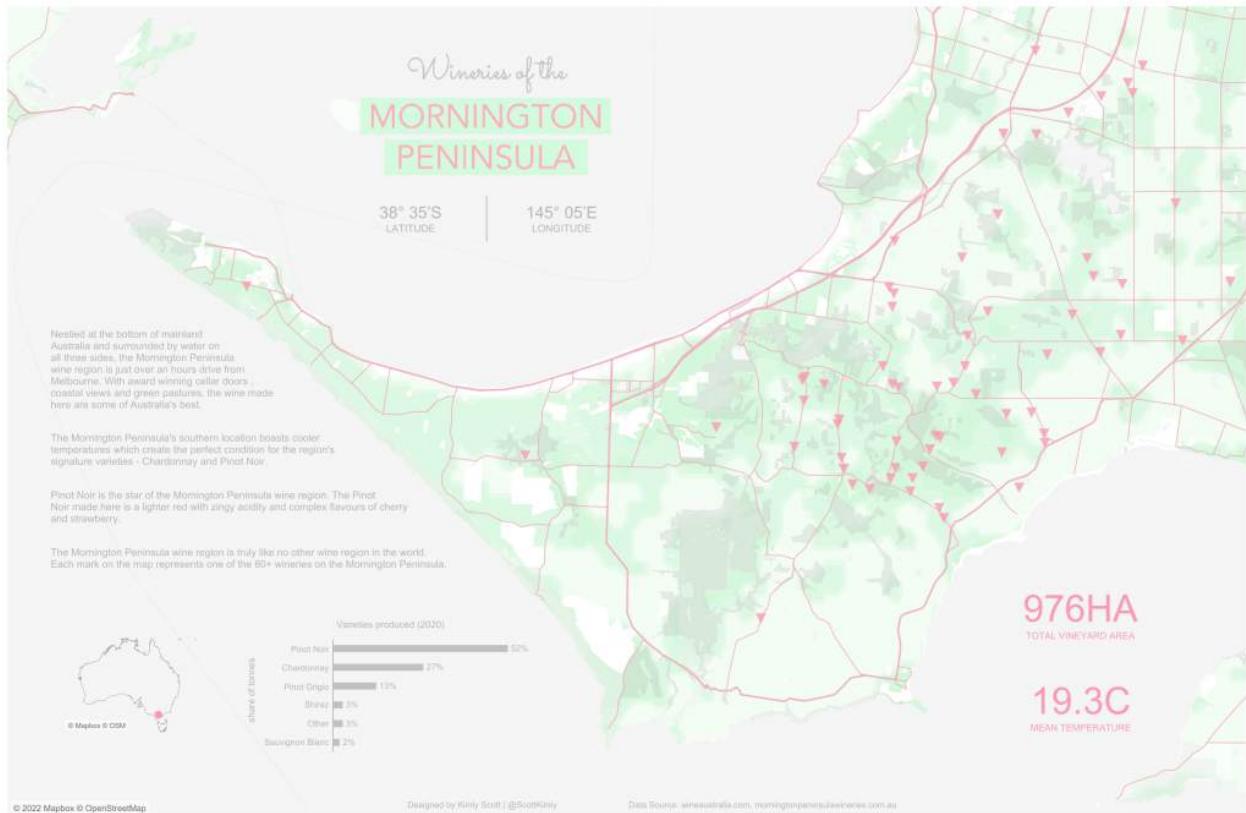
Hi All,

Welcome to the October episode of “What’s Good?”

You guys just knew I had to get Kimly Scott on the blog. Iron Viz finalist, 11x VOTD, data storyteller extraordinaire, and all round viz legend.

I had some of the greatest moments sharing time together with Kimly in Vegas on stage and behind the scenes. A person who is passionate, has strong values and adores the people around her. Today we will look to dive a little deeper into some of Kimlys interests and how they transpire into such thought-provoking, stunning visuals.

Take a look at one of my favourite viz of Kimly's below.



CJ: Thank you for joining Kimly. I was reading your introduction to [Tableau on this medium blog](#). Why was Makeover Monday a good starting point for you?

K: Firstly, thank you CJ for inviting me to be on “What’s Good” and for the lovely introduction. Vegas and Iron Viz was a great experience, but made all the more wonderful being able to share it with you and everyone else.

I think Makeover Monday is a good starting point into Tableau and data visualisation for everyone and I’m delighted to see that it’s coming back. For me, it was a great starting point for many reasons. I found Makeover Monday as I was just beginning my Tableau journey. Having something to work on every week, with manageable datasets supplied was a great way to practice and consolidate both my Tableau and data analysis skills. It also provided a connection to the community, feedback on my work helped me grow my confidence. When people ask me what they should do in order to get into data visualisation and Tableau, my answer is always to participate in Makeover Monday.

CJ Side note: This question was timely written a few weeks before the re-launch of Makeover Monday, do check it out and get involved. So

glad its back, especially given Kimly's testimonial above. Here is a review of week 1.

CJ: You mention in the community blog as well as the guest blog in the **Flerlage Twins** about keeping things simple. Do those words still resonate with you today? Do you mean simple in understanding, context or design? What are some of your design tips on creating clean, simple dashboards?



K: I definitely still think it resonates with me today. And for me, simple encompasses all those things you've mentioned. I read a great line in a Storytelling with Data blog post some time back. It said something like "A good visualisation should simplify a message and make the main take-aways as easy to understand as possible", and that has stuck with me.

Don't get me wrong though, I do like to experiment with complex and unconventional chart types. It may not be for everyone, but for me and my storytelling, I think simple understanding, design and context is key. In terms of design tips – I like to use minimal colour palettes. I usually stick with at most:

- Three or four colours or ideally just one or two colours (and this could just be that fact that I hate picking colours!).
- I use minimal images (lately, I've been experimenting with drawing my own images)
- If the story can be told with a simple bar or line chart, use them.
- I'm also a big fan of white or negative space – giving your elements breathing room will make your viz look a whole lot cleaner.

CJ: Has there been any visualisations in the community that you've seen that tell a good story? What is it about these visuals that are impactful? Does typography, colours, call outs and the shape of your dashboard matter when storytelling?

K: Yes, there have been so many great vizzes I've seen that tell compelling and insightful stories – just look at the Tableau Public profiles of **Nicole Klassen**, **Thi Ho**, **Jennifer Dawes** and **Soha Elghany** as an example. These awesome women use everything you've mentioned to tell their stories – typography and colours that suit the theme or topic and helps set the tone of the viz. Beautiful images and long form storytelling which I'm a fan of (I know not everyone is).



## Nicole Klassen

Atlanta, United States

I am a data visualization enthusiast and I love finding ways to showcase data as art on my Tableau Public. Some of my hobbies include #musicals, #books, #travel, and fandoms like #LordoftheRings and #DoctorWho....

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Nicole Klassen  
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to be Pregnant

Maternal Mortality - Fighting for a Mother's Right to Live  
Nicole Klassen  
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CAUGHT  
IN THE  
STORM

Depression - Trigger Warning #VOTD  
Nicole Klassen  
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Nicole Klassen  
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## Thi Ho

Singapore

Passionate about data visualization | Tableau Public Featured Author '20 | Tableau Social Ambassador '20 & '21 | Featured in Tableau's COVID-19 Viz Gallery and TC20 & TC21 Viz Gallery | #VizForSocialGood APAC Regional...

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**Featured** A DOCTOR.  
A PANDEMIC.  
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#IronViz | A Doctor. A Pandemic. A Mental Health Battle. (Top 10...  
Thi Ho  
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COVID-19 Situation Monitoring

COVID-19 Situation Monitoring  
Thi Ho  
☆ 52 ⏱ 7,473

JOY

#IronViz 2021 | 1 Year Of Netflix Joy In Solitude (Or Not?)  
Thi Ho  
☆ 24 ⏱ 848

Singapore Population, Housing & Infrastructure

#VOTD Singapore Population, Housing & Infrastructure  
Thi Ho  
☆ 193 ⏱ 11,823



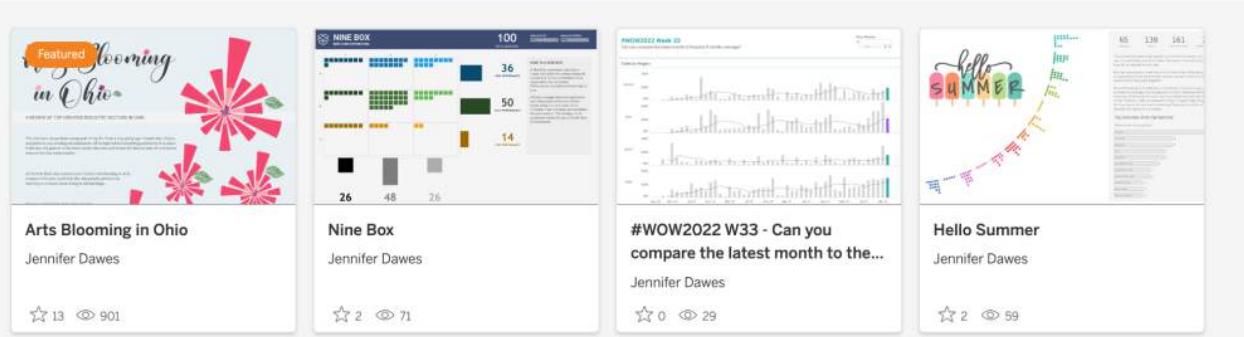
## Jennifer Dawes

Senior Consultant at Analytic Vizion | Cincinnati, Ohio, United States

Mom of 4 Boys, 2 Sets of Twins | Photographer | Senior Consultant at Analytic Vizion | 8x VOTD | Tableau Ambassador | Co-Founder Her Data | herdata.net

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## Soha Elghany

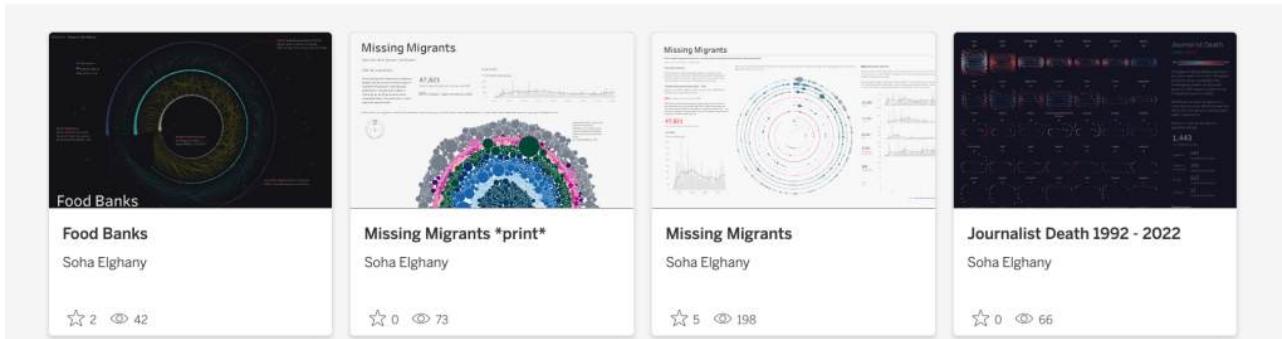
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CJ: I think 11 x VOTD's is testament to your talent, skills representation on important subject matter and succinct story telling. Do you have a secret formula?! Do you have any particular favourite visuals you made? What made them important to you?

K: Haha, no secret formula. Well, unless you count vizzing what I'm passionate about as a secret formula. There's a saying going around on

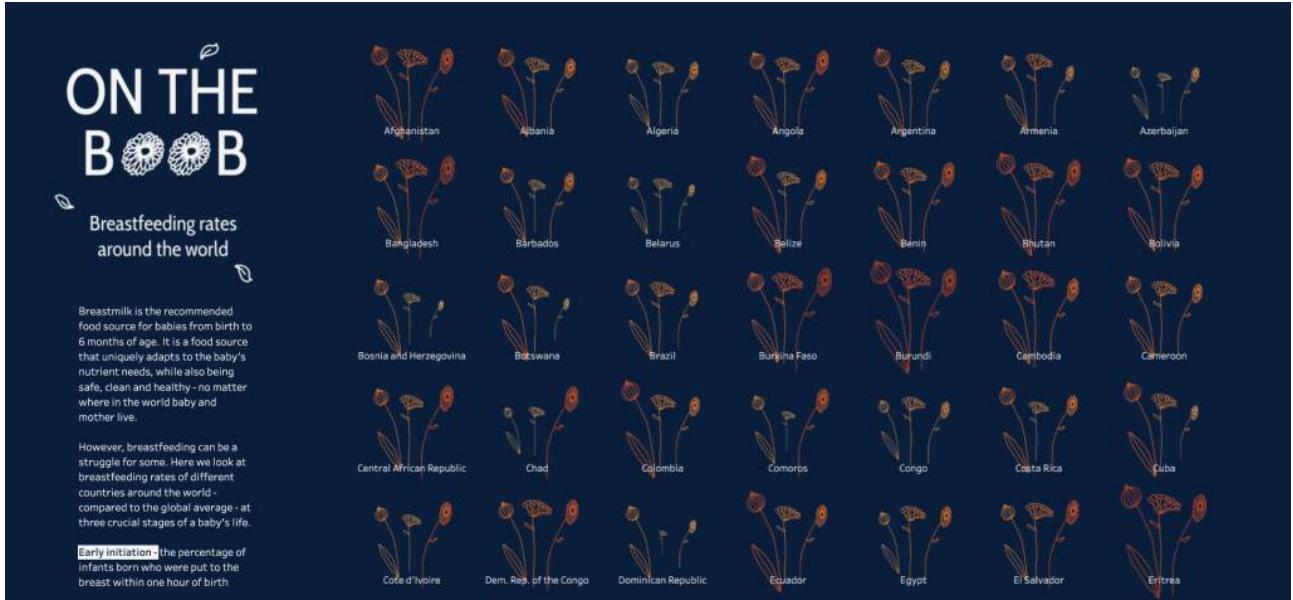
the #datafam twitter (and I can't remember who said it to be able to credit them). The saying is "viz what you love". That's what I do – I viz my passions hoping that that emotion comes through in my work. My favourite viz would have to be miscarriage viz – "**Why me? Ending the Stigma of Miscarriage**". It was deeply personal and I hesitated to publish it. But what made it so important to me was the impact it had and how it managed to reach out to others. And it was also deeply cathartic. This was also the first viz where I featured my hand drawn images to help set the tone of the viz.

CJ: You can also read Kevin's thoughts on viz of the day, [here](#). It talks more in depth around the type of requirements needed. Do note the hashtag has now changed, from VOTD to VizOfTheDay!

CJ: You've done various visuals on women's anatomy, and the exploration at both personal and international level. What considerations do you give stylistically when building visuals that are more floral in design such as "Why me?" and "On The Boob" compared to "Every Mother Counts" and "Period Poverty"?

K: I really don't have a formula. I guess, a lot of this is experimenting and working out what works and what doesn't. A lot of people talk about wireframing or drawing out their vizzes first before they start, but I can't do that. I like to explore the data first, see what I can make of it, then I actually can see in my head how I want it to look. If I think a floral design works and fits nicely with the tone I want to convey and overall look and feel of the viz, I'll add it in.

Having said that, it was only after my miscarriage viz that I started to use the hand drawn images in my vizzes.



CJ: What considerations should individuals give when visualizing topic matters that are perhaps more sensitive, or evoke strong emotion?

K: I think we need to remember that although we may not personally be affected by these sensitive topics, it can be a trigger for many others. If the topic you are vizing can be a trigger for some – add a trigger warning – let the people decide if you want to view your viz or not. If you're unsure whether you have handled the topic appropriately, get a second opinion. There are so many people in the community willing to offer feedback.

CJ: It's great to see you join the data and diversity team as well be a strong advocate of Moms Who Viz, I particularly enjoyed reading your piece on breaking bias. Can you tell us a little more about your build process when it comes to these topics. How do you navigate analyzing data with showcasing your personal story? Does one lead to the other?

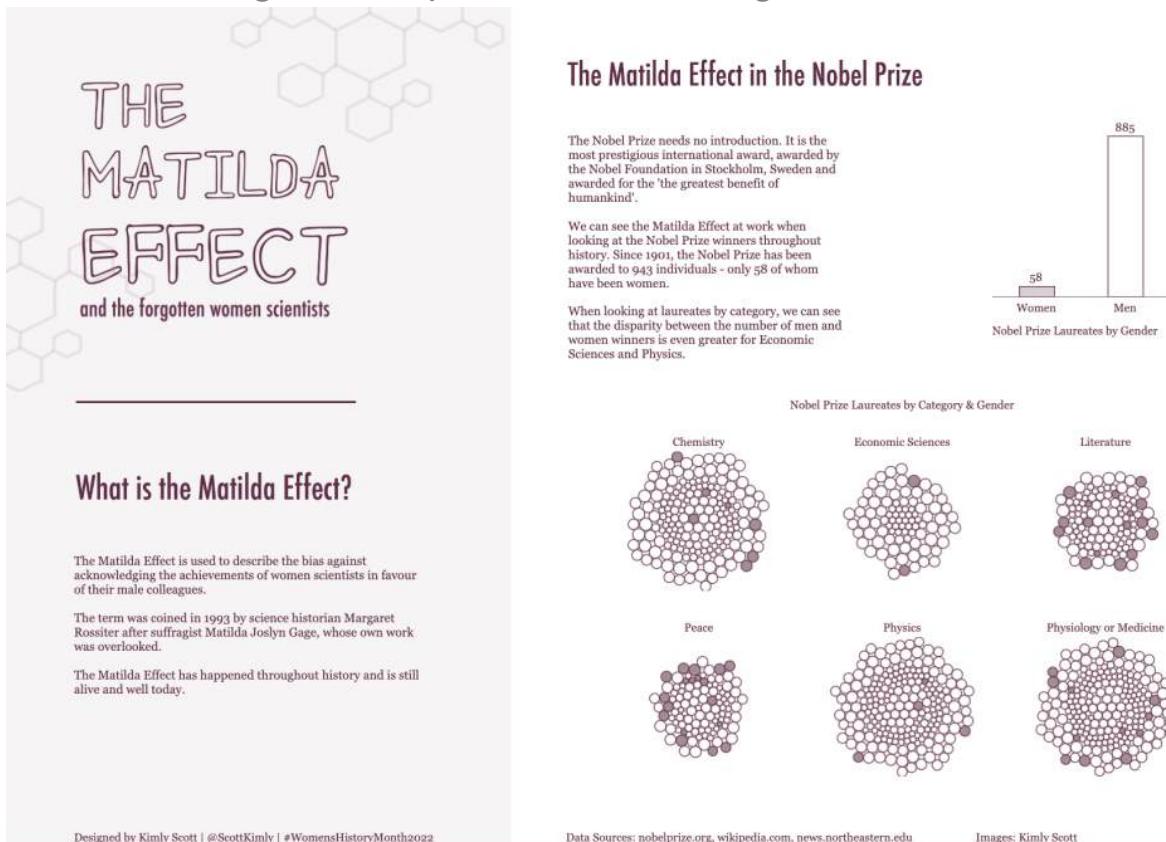
**DIVERSITY IN DATA**

#diversityindata

K: One does definitely lead to the other. I get many viz ideas from my life. Sometimes, something will happen in my life that triggers a viz idea

and so I'll go looking for the data to build a viz. Other times I'll come across an article or data set that resonates with me, so I'll incorporate my story into the viz. For me, the hard part is balancing how much of my story I want to include and share in the viz. As a typical introvert who hates small talk and prefers the deep and meaningful, I tend to overshare at times!

CJ: One of the most impactful aspects of your visualizations is how you are able to bring the person behind the numbers of figures to life. Do you find that often we get caught up in the numbers? Are there any storytelling means that we could perhaps consider more in the business setting, that helps elevate meaning behind the number?



K: Yes, as analysts, we can absolutely get caught up in the numbers. In terms of elevating the meaning behind the numbers in a business setting, when we are vizzing we can provide context to the data we are showing. Use annotations and callouts and be sensitive in the wording that is being used. In addition, look at the colours we are using – are there any colours that are not appropriate for certain subjects or colours that reinforce stereotypes?

CJ: What I appreciate a lot about you is your strong sense of values. One being, the importance of your family. You dedicated your Iron Viz to your mum and dad and it was great that you had your little one's support for Iron Viz. How does your family impact your data visualization topics more widely?

K: I get a lot of ideas from my life and my family – they are my inspiration – and you'll see that in my vizzes. I'm a big believer of vizzing your personal lived experiences because it provides weight and context to your message. So you'll notice that personal experience is scattered here and there in my vizzes.

I've also got two vizzes in my profile, one dedicated to each of my girls. See if you can spot them.

CJ: I love that during your Iron Viz you referred to a quote by Malala Yousafzai and within your new site you quote Viola Davis. Both quotes are used in reference to supporting one another. For you personally, why is that supportive network so important?

“

**ONE CHILD,  
ONE TEACHER  
ONE BOOK & ONE PEN  
CAN CHANGE  
THE WORLD.**

- Malala Yousafzai

Education is a human right, yet for millions of children around the world, quality education remains inaccessible. While Cambodia is not the hardest place in the world to get an education, if I had stayed there, I may not have had the opportunities I've had and most certainly would not be where I am today.

Help close the global education gap. Visit the Global Goals website to learn more: [globalgoals.org](http://globalgoals.org)

### Snippet from Kimlys Iron Viz

K: I don't believe we live in a vacuum. There's a saying "it takes a village". This is often referred to when speaking about raising children – you can't do it on your own, it takes a village to raise a child. But I believe it can apply to life in general. A supportive network is so important to me because my support network allows me to do what I do. They are also there to share and celebrate my triumphs (like getting into the Iron Viz finals) and support and encourage me when things don't go to plan (like not winning the IronViz finals).

In the data visualisation community – having the support of the community can give you confidence, grow your skills and create that

support network that I think is needed to succeed. I've had some many people support and nurture me, so it's time to pay it forward.

CJ: Your new site is predominantly focused on uplifting other women in the community. Are there any individuals you'd like to call out that significantly impacted your journey? As community advocates, what more could we be doing?

K: Again, it takes a village and I don't believe I would be where I am today without the support of many in the community. My current boss is absolutely amazing and has been such a great support for me during the last few years – in particular during the height of the pandemic. In terms of the community, I'd love to call out **Eva Murray, Thi Ho, Nicole Klassen, Sarah Bartlett, Lindsay Betzandahl, Kevin Flerlage, Caroline Yam and Michelle Frayman**. These wonderful people have impacted me through various points in my journey and through various ways, even today (even if they don't know it!).

I think as community advocates, one of the things we can do is be aware of our privilege. The privilege of being a Tableau Ambassador means that I can and should help elevate more underrepresented voices in our community – promoting and sharing work and providing a platform to share knowledge. This is what I'm trying to focus on at the moment and I am aware that there is a lot more I can do, but it will come in time.

CJ: What's next for Kimly Scott and She Will Viz?

K: To be honest CJ, I have no idea! I don't have much time to do extra curricular things so I have to take things as they come. I'd love to grow She Will Viz into something more than interviews with women as I mentioned in my first blog post, but we will have to see how that pans out.

CJ Round-up:

Thank you to Kimly for taking the time to join the blog and share her personal learnings on storytelling. I am constantly learning from Kimly and hope others are too, in how they articulate and humanise numbers on a page. Thank you for your openness, and thank you for your honesty in vizzling.

I am so appreciative of Kimly's efforts to help elevate others in the community. I think Kimly really exudes all the positive characteristics of the community and am so excited to continue following her She Will Viz blog platform. You can check out the first of these with **Nicole**, here.

LOGGING OFF,  
CJ

INCREMENTAL IMPROVEMENTS

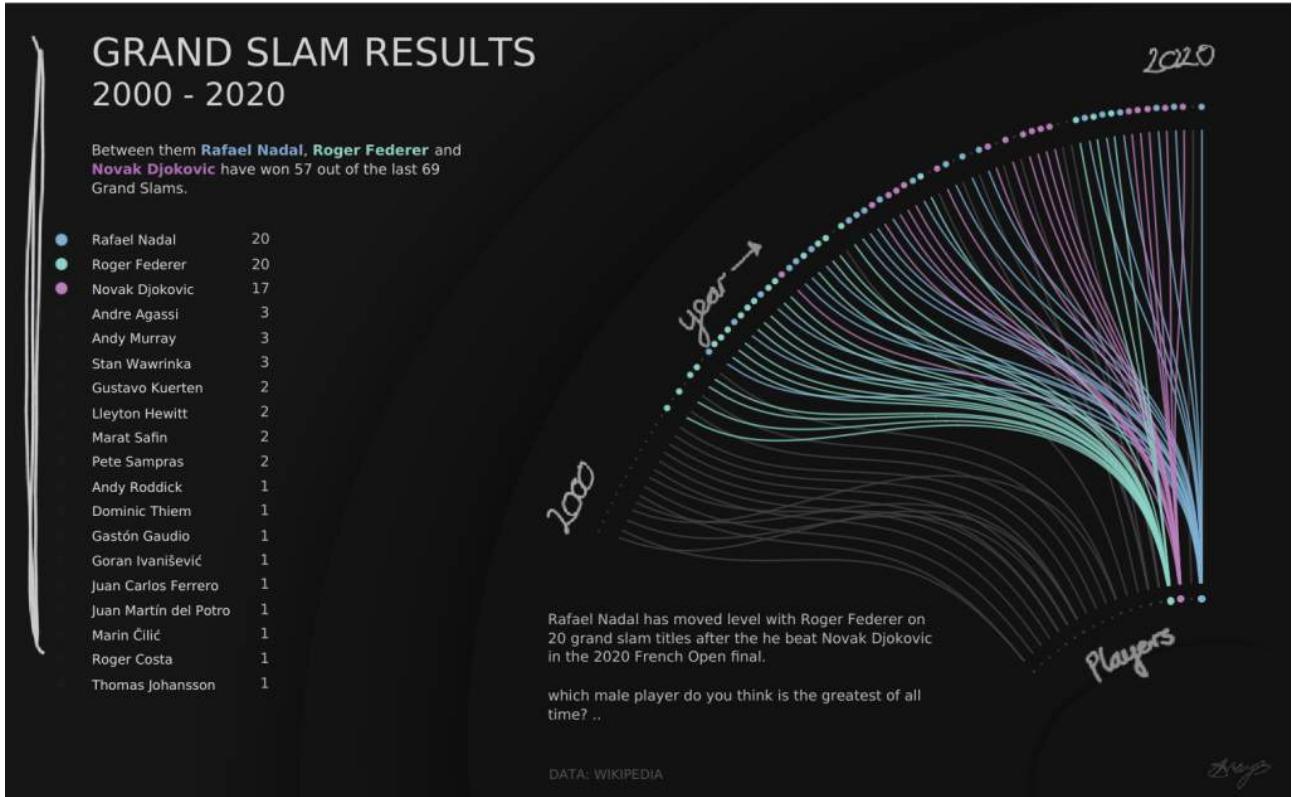
Hi all,

Hope everyone is getting back into the groove of things now the summer period comes to a close. It is the start of darker and shorter days here in London. Something that takes a little bit of mental adjustment, but on the whole quite excited for this remaining quarter of the year.

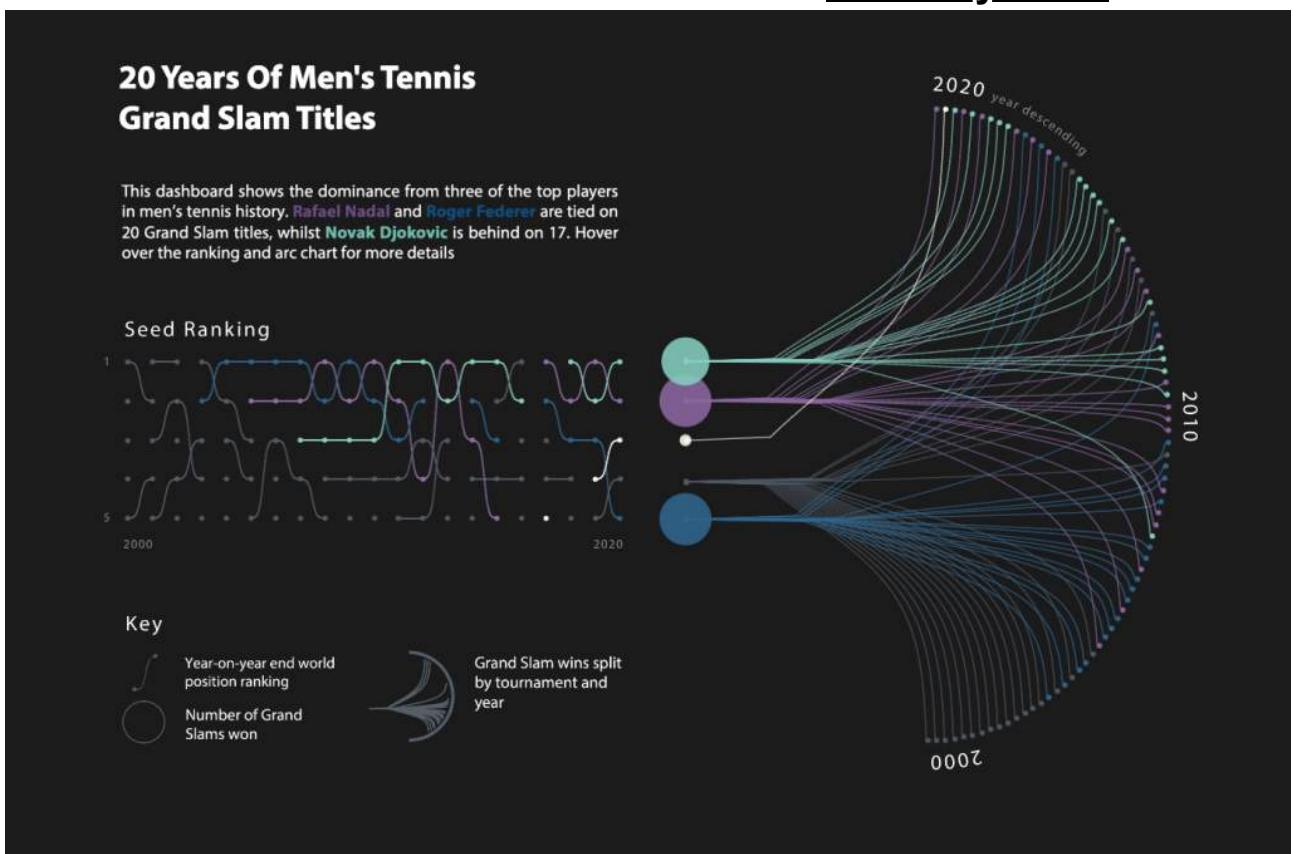
So where to begin with this blog?

Back in November 2020. I made this viz below, on **Grand Slam Results**. Truth be told I was pretty apprehensive about even posting it back then. Turns out someone in the Tableau team were kind enough to give it VOTD.

I remember these times fondly, life was good making random radial charts with no significant meaning. (I still feel I live in those times now, just tread more carefully.)

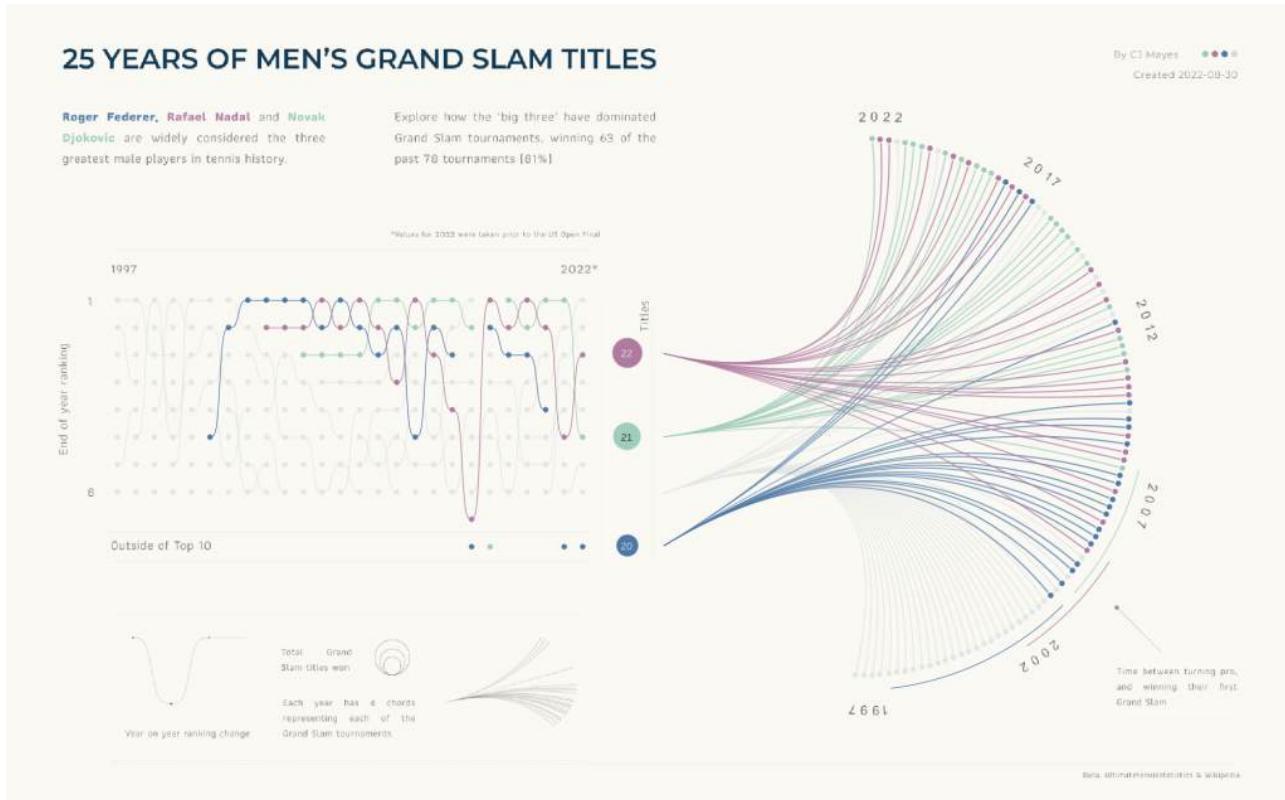


Since then I made over this chart in February 2021.

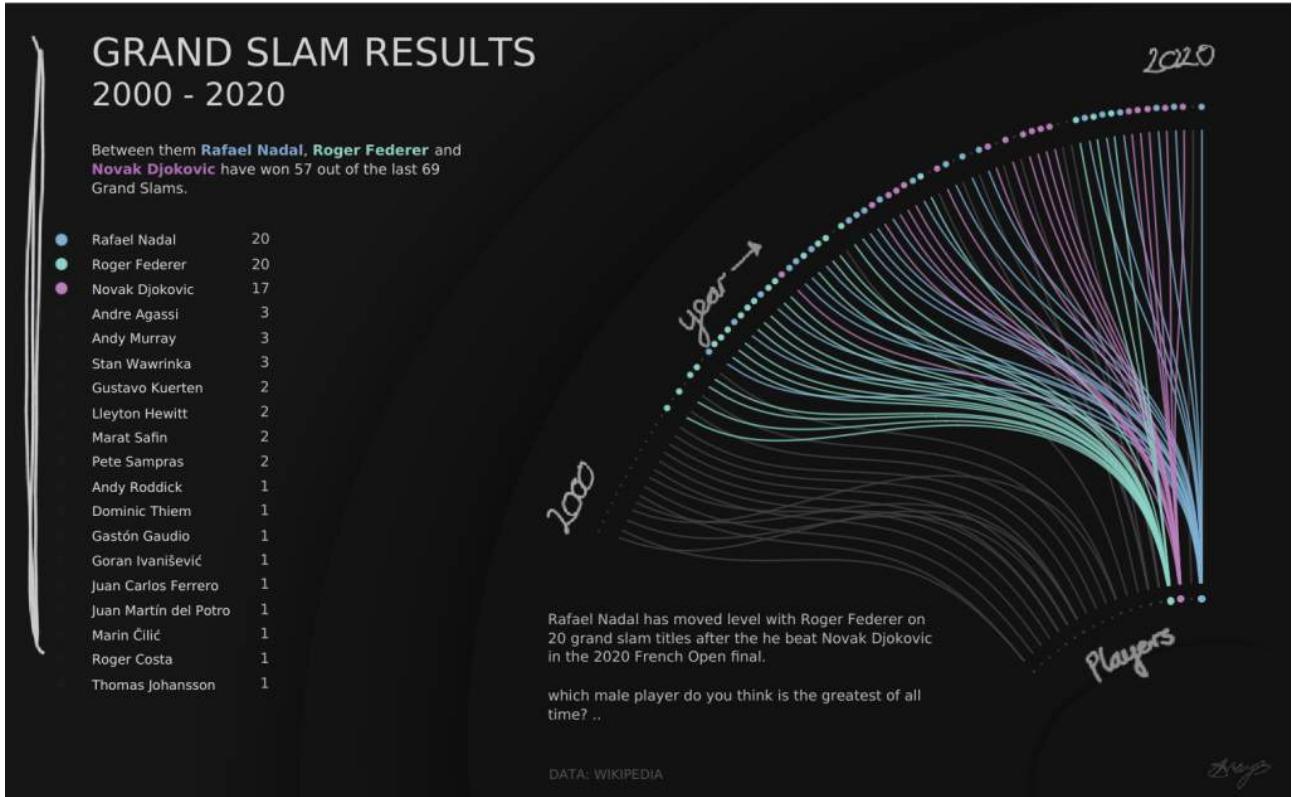


In fact, I even blogged about how to make it, with an appropriately named title "[Why you shouldnt make this radial graph!](#)" in which I proceed to explain exactly how to make the chart.

And most recently, I remade the viz a second time, shying away from that dark background that I couldn't resist using for the good part of a year. This visual looks at 25 years of data instead of the original 20. You can view it in full [here](#).



So really, this blog will be a progress review of the changes made and why I think there are small improvements with each one.



Okay, so where to begin with the review. The above isn't bad. We have a ranked order of grand slam winners during the period. I like the colour call out of the three main players.

The subtle black fading background is quite nice.

Perhaps the others could be grouped given they aren't a focal point but it does act as a good reference of how unlikely it is for those outside of the 'big three' to win.

The colour highlighting easily showcases from roughly 2003 that three players dominate the grand slam.

What do I now instantly want to change?

I can't get over my horrible handwriting though. So that had to go.

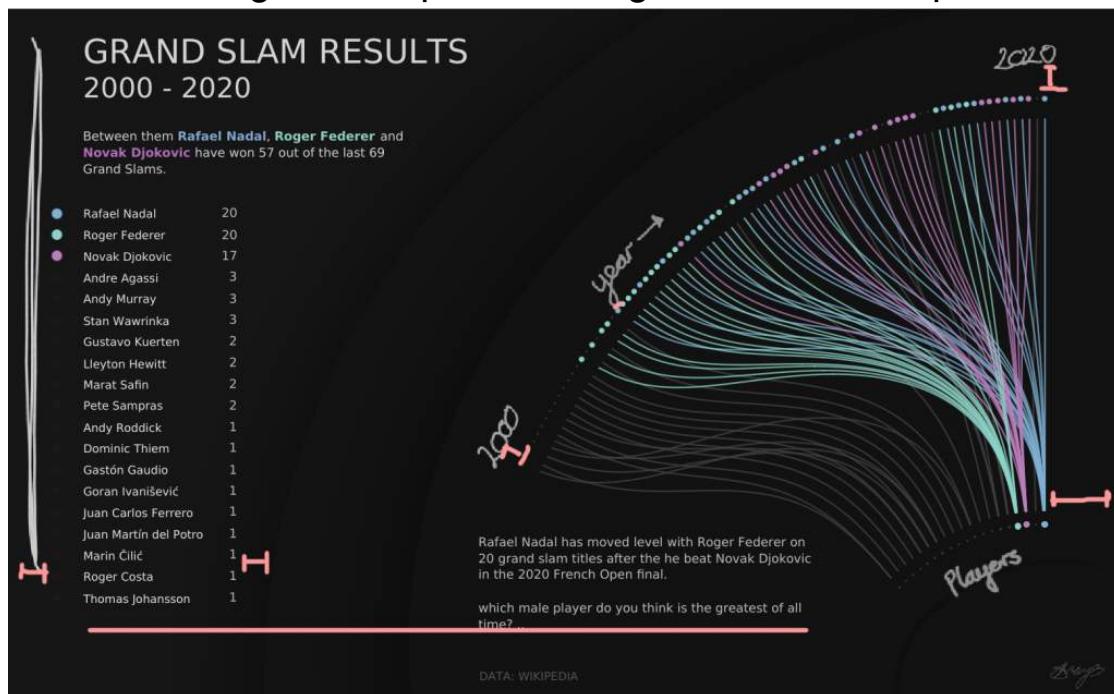
The typography has to change too, not the best choice and doesn't really fit the sport theme.

The calculation next to the players isn't correct in the tooltip as I have years popping through on the circles.

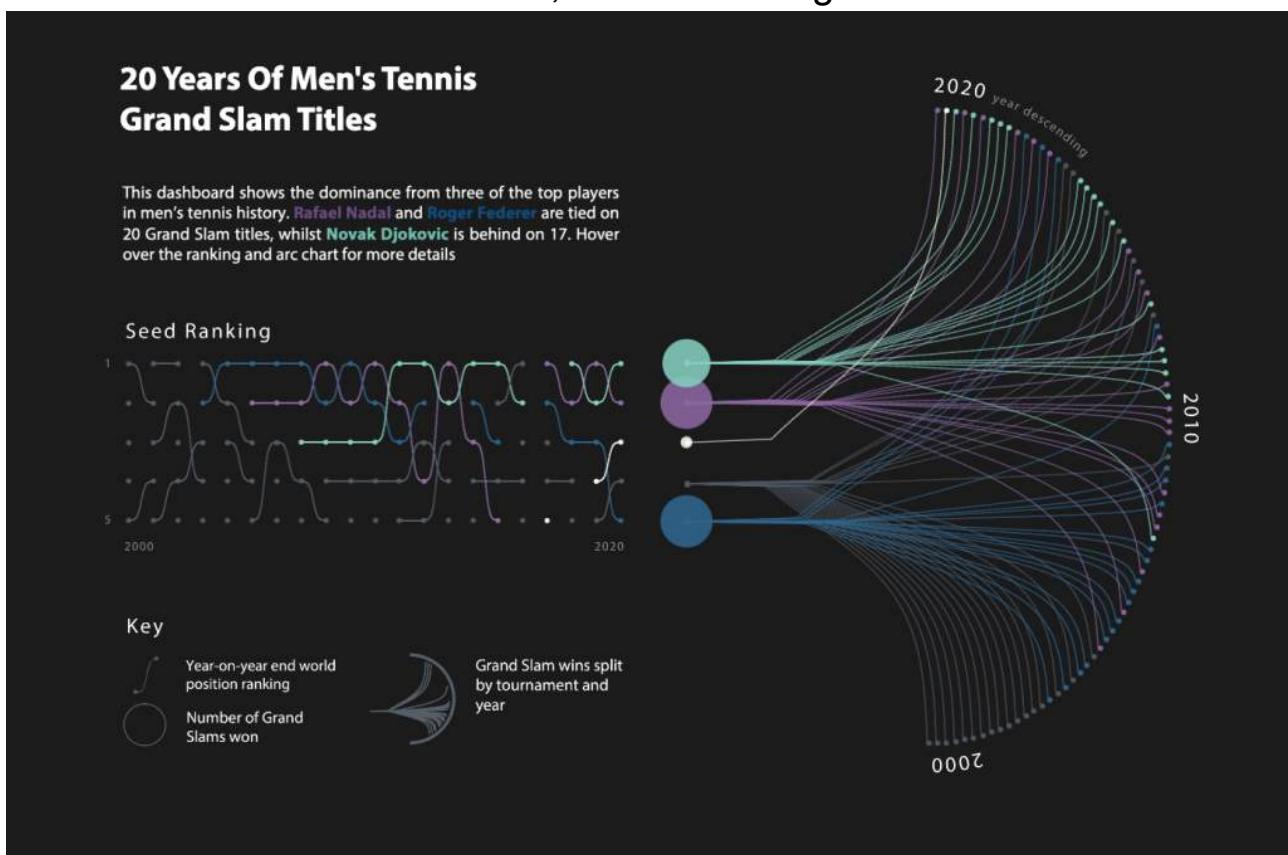
It's difficult to really see which tournaments correspond to which player as there is no highlighting feature.

The grey text i'm indifferent on, I think it blends okay into the black, I'd be interested to put it through a contrast checker though.

That text at the bottom of the chart needs moving. I feel there was no consideration given to space nor alignment. See the pink below.



So around comes 2021, and I think to give it another shot.



Now I'm pretty happy with this one.  
It has a key! That is always useful.

Some better consideration went into aligning the text, with the ranking, and the key.

Aligning of the year text radially looks a lot better.

Again, we are highlighting the dominance of the big three, but this time greying out other players.

We are introducing context of where players are ranked at the end of the year. This means we can carry that knowledge forward to see if the player won a Grand Slam in those years.

So what didn't sit well with me this time?

The key, I really didn't like the right hand radial aspect. I think it looks quite ugly and thick.

I called the first section seed ranking. In fact, it's just year end ranking.

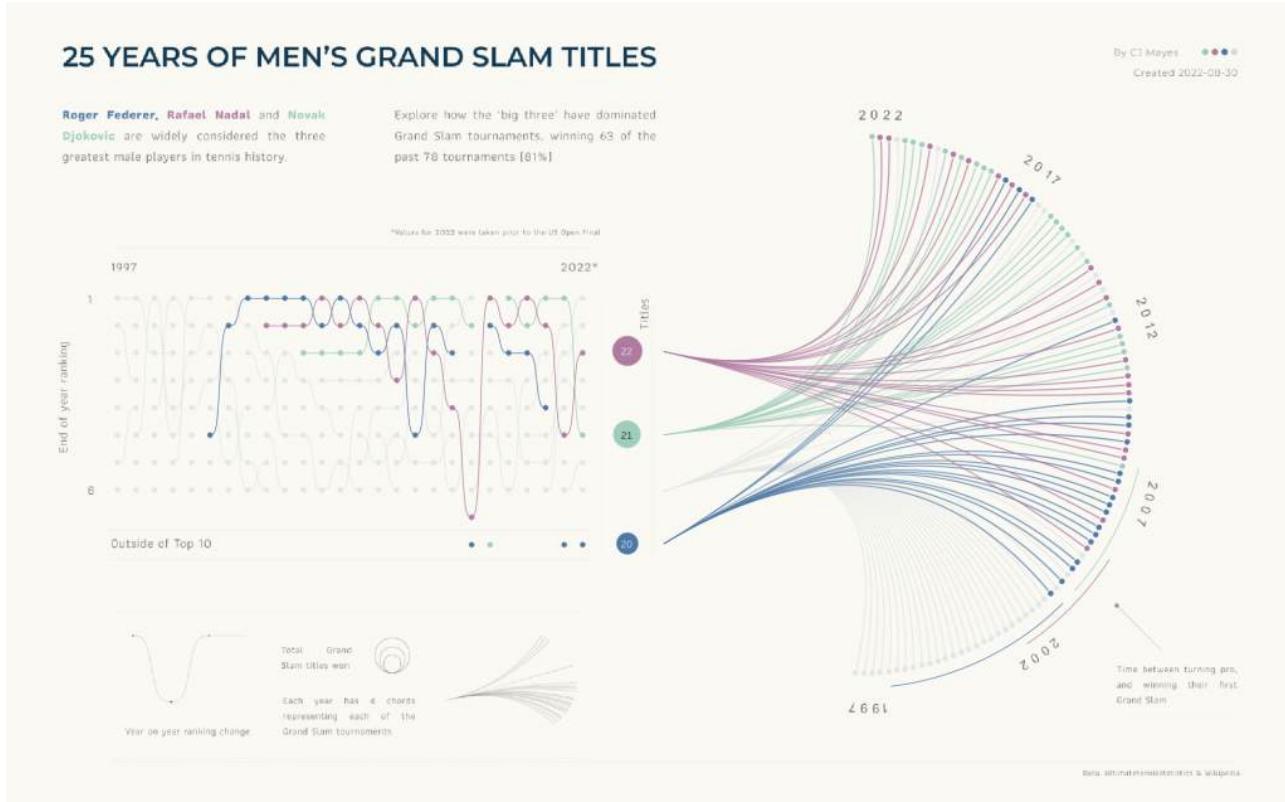
Seed is specific for tournaments.

Because Dominic Thiem ended up in rank 3, I wasn't sure how to group the end part of the visual. I received good feedback that there was no colour legend specific to him. Perhaps this should have been a grey line.

The curves of the lines are better. (They are sigmoid functions) but I didn't really like how they spread, it doesn't feel smooth enough. It's a little bit jagged mushroom like.

Again no hover functionality to really highlight the individual players.

So here we are. Coming up to the end of the US Open 2022, and I've created my Grand Slam visual for a third time.



## So what's new this time?

Well I think my key is cleaner in design, I like the lightness to the design. Alignment has much improved, although resembles roughly what was in the previous one.

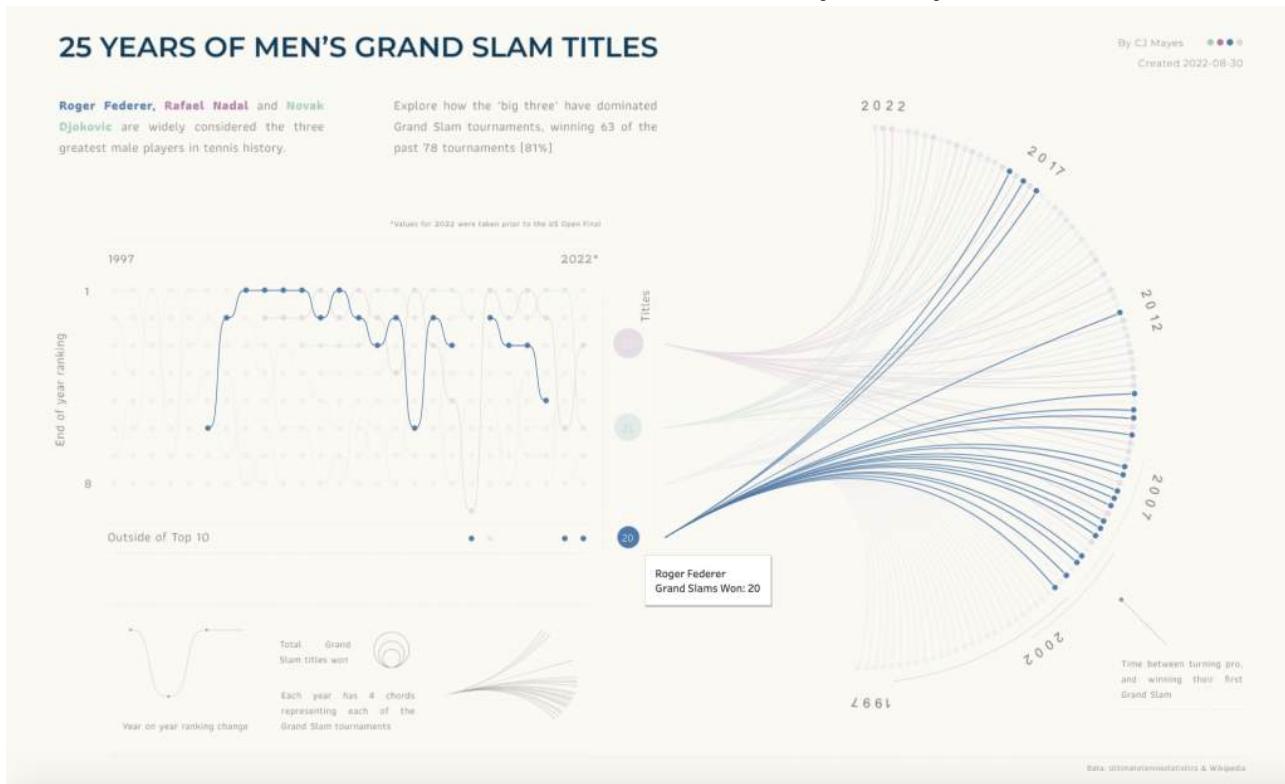
We have new rows of data inserted. I think this was important to reference when Roger turned pro, and then the overlap with Rafa and Novak. It adds the element of competitiveness against one another, and the rise of each of them.

The chord strings feel SO much cleaner thanks to Brian Moores blog, found [here](#).

Of course, I used Tableaus newer functionality to be able to layer multiple charts and marks on the same sheet allowing for greater creative freedom in builds.

The colour background has changed, I'm going through a bit more of a lighter colour palette phase but think it works well. Really I started to blend the colour palette with the one used in my [Iron Viz 2021](#) entry. The green was overwhelming in the other two vizzes, now there is much more equal strength in colour against the lighter background, and the added hover ability helps focus the chart to each of the specific players.

I'm pretty happy with some of the reference lines put in. I think they help frame the visual and the key nicely.



Will I remake this visual again?

100% no, life is moving on. But I could, as there are things that could be changed.

The biggest challenge faced was because Roger no longer appears in the Top 5. To find a way to balance the curve of the chart to reach the edge of the year ranking chart became quite problematic. Especially when I wanted to have the bump chart sit middle aligned to the chord.

Luckily I left my workbook with start points that I can adjust. I'd consider the colours again, for some reason I think a burnt orange would have worked well?

Perhaps I could add some supplementary information on each of the Grand Slams won. Roger dominates on grass, Rafa on clay and Novak on hard court, that's not really apparent from the design of the chart. It would have been cool to call out finals where each of the individuals appear, especially against one another.

Anyway, that's just my step through thoughts. Overall it's quite exciting making over your own visual, especially when you've had time to digest

the information, re-think what is important to highlight, and grow both in technical skills, but also visual design theory over time.

More chords, I say.

LOGGING OFF,

CJ

BUILDING AN NHL BRACKET WITH JARED FLORES (TABLEAU PREP)

Hi all,

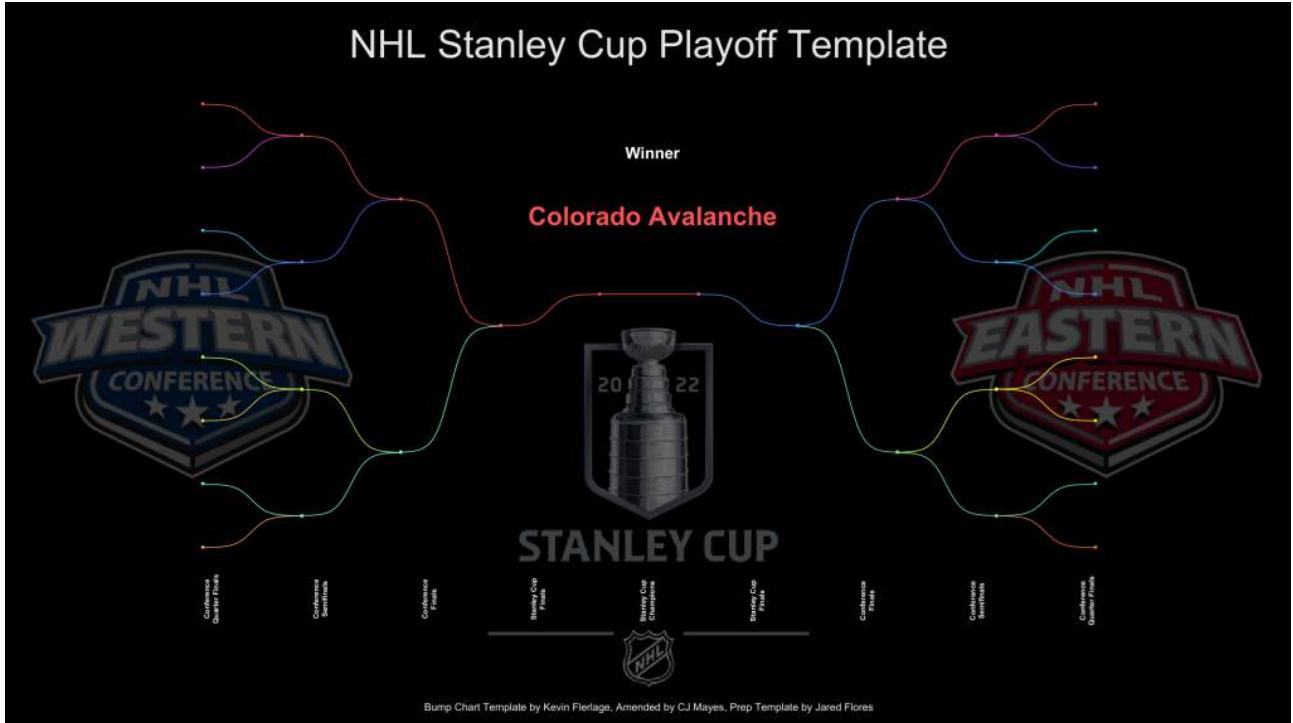
Welcome back to another guest blog,



Jared has been absolutely killing it with his online tutorials and prep flows, helping making building visualisations easier for the community. If you aren't already please follow Jared on Twitter and be sure to check out his site, [here](#).

Within this blog Jared will look to take us through some of the key components of how to take the data found at

hockey reference (<https://www.hockey-reference.com/>) and transform it to be template ready.



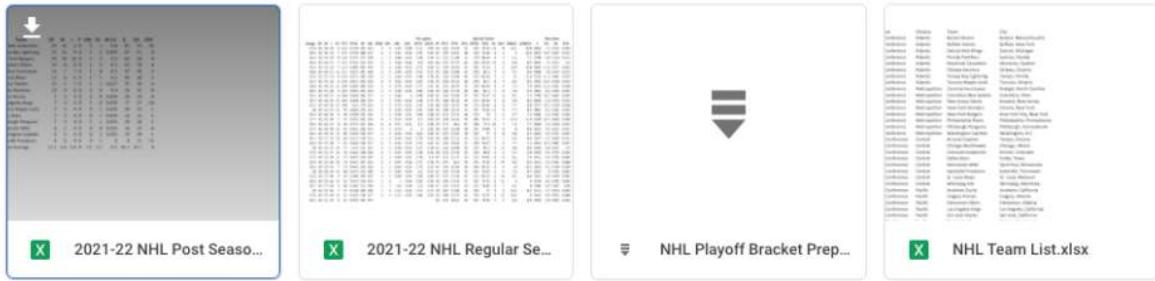
Before we start, here is a little more around what the blend of sports and data means to Jared.

*"I've mostly been a fan of Hockey my whole life and the more I got familiar with data, the more interesting player and team statistics became. So far I've only really done high-level visualizations with NHL data, but I'd really love to dig deeper to see if I could step into the mind of a team analyst or recruiter. For example, in games where Jamie Benn (the captain of the Dallas Stars) has more than one point recorded, how much ice time did he have? Is there a pattern there with other multi-point games? What about who was on the ice with him? There are so many ways to slice that information and use visualization to understand player performance."*

*"The automation and preparation piece has become my favorite part of data in general because of the different types of puzzles you get to solve. Extracting the data and getting it into a format that's usable for analysis is what really enables an organization to start making decisions with their data. With sports data it's an interesting challenge because each sport has different ranking systems, different ways of capturing the data, and it's usually formatted in less than ideal structures."*

Onto The Prep!

If you'd like to give it a go, attached in the GIT Repo at the top of the page.



### How is the original data shaped?

The original data is found from hockey-reference, below is an example of one of the data tables required.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	Per_game	Special Teams	Shot Data
1	Florida Panthers*	27.8	82	58	18	6	122	0.744	337	242	3	4	1.07	-0.08	4.11	2.95	64	262	24.43	53	259	79.54	12	8	10.1	10.8	3062	11	2515	0.904	5			
2	Colorado Avalanche*	28.2	82	56	19	7	119	0.726	308	234	2	2	0.91	-0.04	3.76	2.83	67	279	24.01	48	236	79.66	6	5	9	10.4	2874	10.7	2625	0.912	7			
3	Carolina Hurricanes*	28.3	82	54	20	8	116	0.707	277	200	1	2	0.88	-0.05	3.38	2.44	51	232	21.98	33	276	88.04	4	3	9.2	7.7	2798	9.9	2310	0.913	6			
4	Toronto Maple Leafs*	28.4	82	54	21	7	115	0.701	312	252	3	1	0.69	-0.06	3.8	3.07	63	231	27.27	42	234	82.05	13	4	8.6	8.5	2835	11	2511	0.9	7			
5	Minnesota Wild*	29.4	82	53	22	7	113	0.689	305	249	5	4	0.68	-0.02	3.72	3.04	53	258	20.54	63	264	76.14	2	5	10.8	10.8	2666	11.4	2577	0.903	3			
6	Calgary Flames*	28.8	82	52	21	11	111	0.677	291	206	2	2	0.99	-0.05	3.55	2.51	54	236	22.88	42	250	83.2	7	3	9.1	8.6	2908	10	2374	0.913	11			
7	Tampa Bay Lightning*	29.6	82	51	23	8	110	0.671	285	228	2	5	0.64	-0.02	3.48	2.78	62	259	23.94	49	252	80.56	7	5	11	11.4	2535	11.2	2441	0.907	3			
8	New York Rangers*	26.7	82	52	24	6	110	0.671	250	204	4	3	0.54	-0.03	3.05	2.49	55	218	25.23	40	226	82.3	8	2	8.2	8.2	2392	10.5	2528	0.919	9			
9	St. Louis Blues*	28.8	82	49	22	11	109	0.665	309	239	2	3	0.79	-0.05	3.77	2.91	65	241	26.97	35	220	84.09	9	5	7.5	7.9	2492	12.4	2591	0.908	4			
10	Boston Bruins*	28.5	82	51	26	5	107	0.652	253	218	2	2	0.38	-0.05	3.09	2.66	50	236	21.19	49	262	81.3	5	6	9.9	9.4	2962	8.5	2354	0.907	4			
11	Edmonton Oilers*	29.1	82	49	27	6	104	0.634	285	251	5	1	0.46	0	3.48	3.06	61	235	25.96	52	252	79.37	11	6	8.1	7.1	2790	10.2	2647	0.905	4			
12	Pittsburgh Penguins*	29.7	82	46	25	11	103	0.628	269	222	3	7	0.49	-0.04	3.28	2.71	50	248	20.16	33	212	84.43	3	8	6.9	8.4	2849	9.4	2576	0.914	7			
13	Washington Capitals*	29.5	82	44	26	12	100	0.61	270	242	5	3	0.35	-0.02	3.29	2.95	48	256	18.75	44	225	80.44	8	9	7.7	8.8	2577	10.5	2378	0.898	8			
14	Los Angeles Kings*	28.2	82	44	27	11	99	0.604	235	232	4	4	0.03	-0.01	2.87	2.83	40	248	16.13	53	227	76.65	11	9	7.7	8.3	2865	8.2	2341	0.901	5			
15	Dallas Stars*	29.4	82	46	30	6	98	0.598	233	244	5	2	-0.09	0.01	2.84	2.98	54	241	22.41	46	219	79	7	5	6.7	7.5	2486	9.4	2545	0.904	2			
16	Nashville Predators*	27.7	82	45	30	7	97	0.591	262	250	4	2	0.19	0.02	3.2	3.05	63	258	24.42	59	284	79.23	2	5	12.6	11.9	2439	10.7	2646	0.906	4			
17	Vegas Golden Knights	28.5	82	43	31	8	94	0.573	262	244	4	4	0.21	-0.01	3.2	2.98	39	212	18.47	47	208	77.4	10	7	7.6	7.7	2830	9.3	2458	0.901	3			
18	Vancouver Canucks	27.7	82	40	30	12	92	0.561	246	231	3	5	0.16	0	3	2.82	58	247	23.48	58	231	74.89	5	6	8	8.6	2622	9.4	2612	0.912	1			
19	Winnipeg Jets	28.2	82	39	32	11	89	0.543	250	253	2	4	-0.04	0.02	3.05	3.09	52	247	21.05	58	232	75	9	8	8.8	9.5	2645	9.5	2721	0.907	5			
20	New York Islanders	30.1	82	37	35	10	84	0.512	229	231	2	6	-0.09	-0.02	2.79	2.82	46	208	22.12	34	215	84.19	5	7	8.9	8.4	2367	9.7	2669	0.913	9			
21	Columbus Blue Jackets	26.6	82	37	38	7	81	0.494	258	297	4	3	-0.44	0.02	3.15	3.62	41	220	18.64	51	238	78.57	7	6	7.7	7.2	2463	10.5	2887	0.897	2			
22	San Jose Sharks	29	82	32	37	13	77	0.47	211	261	3	3	-0.58	0.03	2.57	3.18	41	216	18.98	33	223	85.2	4	11	8.8	8.6	2400	8.8	2622	0.9	3			
23	Anaheim Ducks	27.9	82	31	37	14	76	0.463	228	266	4	5	-0.45	0.03	2.78	3.24	48	219	21.92	43	224	80.8	6	4	9.3	9.8	2393	9.5	2725	0.902	4			
24	Buffalo Sabres	27.5	82	32	39	11	75	0.457	229	287	3	3	-0.69	0.02	2.79	3.5	47	222	21.17	50	212	76.42	6	6	8.1	7.9	2451	9.3	2702	0.894	1			
25	Detroit Red Wings	26.9	82	32	40	10	74	0.451	227	310	3	2	-0.95	0.06	2.77	3.78	37	227	16.3	59	225	73.78	4	10	8.9	8.5	2414	9.4	2761	0.888	4			
26	Ottawa Senators	26.6	82	33	42	7	73	0.445	224	264	3	2	-0.44	0.03	2.73	3.22	47	243	19.34	49	249	80.32	9	4	10	10.2	2463	9.1	2740	0.904	2			
27	Chicago Blackhawks	28	82	28	42	12	68	0.415	213	289	6	2	-0.83	0.05	2.6	3.52	47	245	19.18	53	223	76.23	2	6	7.9	8.7	2362	9	2703	0.893	4			
28	New Jersey Devils	25.8	82	27	46	9	63	0.384	245	302	3	5	-0.68	0.04	2.99	3.68	35	225	15.56	42	212	80.19	6	14	8.1	8.4	2562	9.6	2540	0.881	2			
29	Philadelphia Flyers	28.3	82	25	46	11	61	0.372	210	294	1	4	-1	0.06	2.56	3.59	30	239	12.55	57	235	75.74	6	11	9	9	2539	8.3	2785	0.894	1			
30	Seattle Kraken	28.7	82	27	49	6	60	0.366	213	284	3	1	-0.8	0.04	2.6	3.46	32	220	14.55	56	223	74.89	8	7	8.5	8	2380	8.9	2367	0.88	3			
31	Arizona Coyotes	28	82	25	49	7	57	0.348	206	309	1	2	-1.23	0.06	2.51	3.77	28	202	13.86	64	256	75	3	4	10.2	8.2	2121	9.7	2910	0.894	1			
32	Montreal Canadiens	27.8	82	22	49	11	55	0.335	218	317	3	2	-1.15	0.05	2.66	3.87	34	248	13.71	67	274	75.55	6	12	10.2	9	2442	8.9	2823	0.888	3			
	League Average	28.2	82	41	32	9	91	0.555	255	255					49	237	20.61	49	237	79.39	7	7	8.9	8.9	2593	9.8	2593	0.902	4					

When building the workflow what are some of the key elements to look out for?

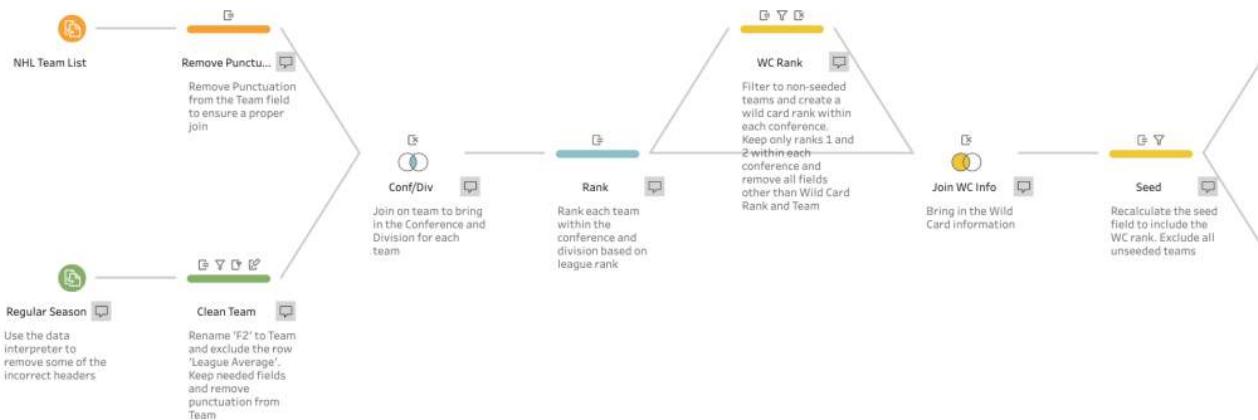
Jared: The desired output is supposed to fit into the curvy tournament bracket, so I had to ensure the end result was something that would plug into that workbook easily. Luckily, the data sets already had the team ranking embedded in them so I didn't have to worry about calculating the rank and various tie breakers. The biggest thing to work out was the original match ups. In the NHL, 3 playoff spots are guaranteed for each Division. There are 2 Divisions in each of the 2 Conferences for a total of 4 Divisions. There are then 2 Wild Card spots for each Conference. The Wild Cards have to face the first place team from each division so that

was the piece I had to really pay attention to for the rest of the bracket to line up correctly.

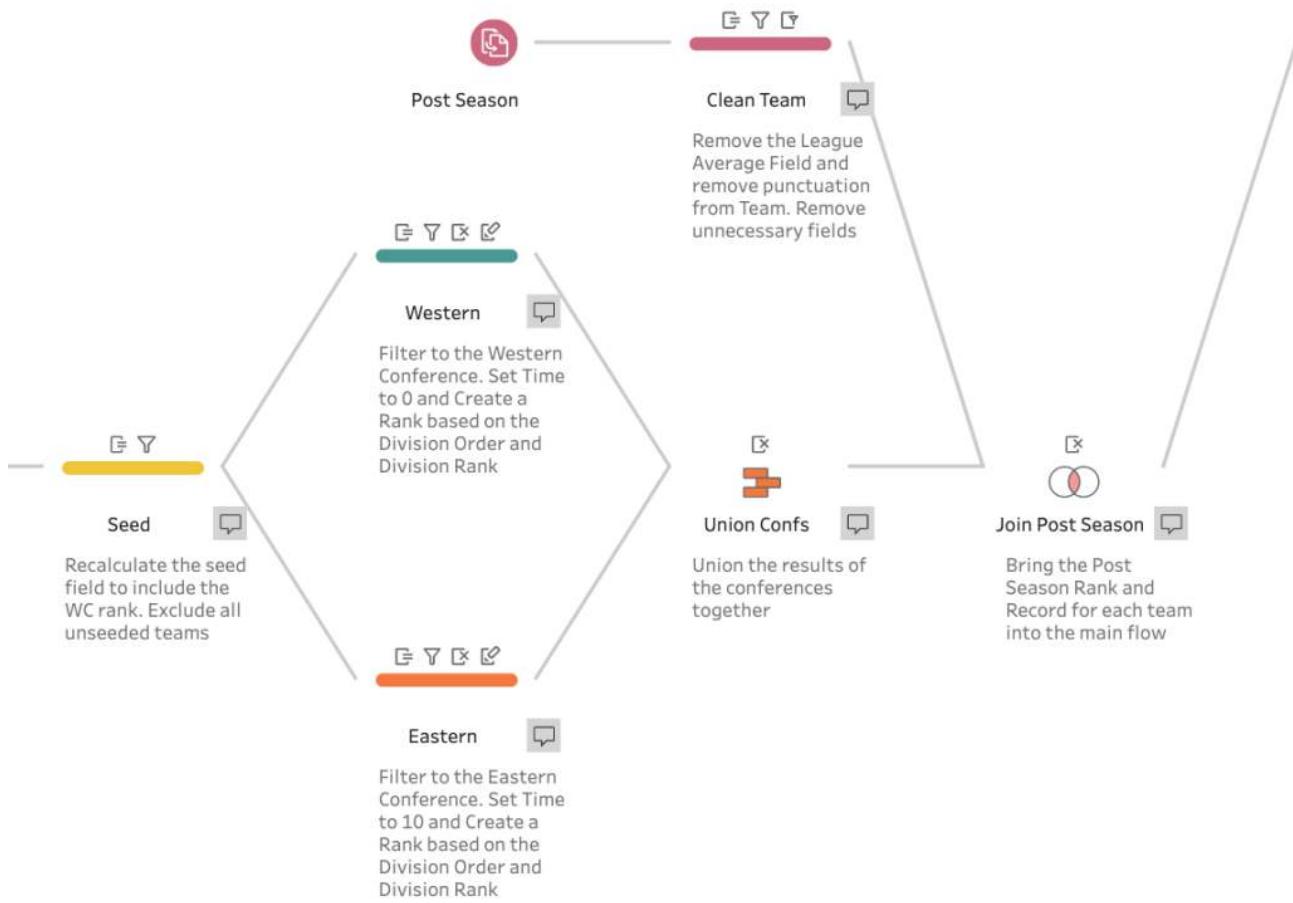
After determining the correct match ups, it was a matter of re-ranking the teams in order to get the points in Tableau to line up correctly. It took a few tries but ultimately came together really nicely. The only problem with the flow is that it only fits one very specific use case and you'd have to do a bit of work to mold it for a different sport. Perhaps later I'll try parameterizing it to work for different sports but for now I'm happy with the result.

### Understanding the workflow?

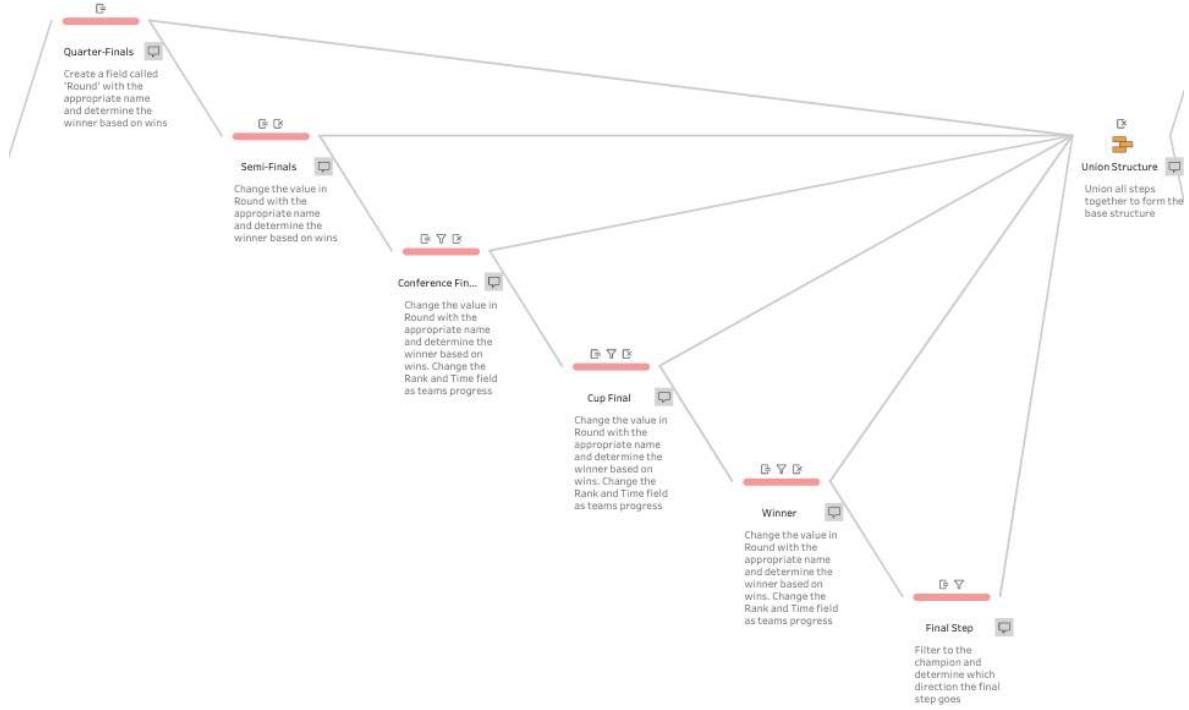
CJ: I would highly recommend downloading the workflow and giving it a go yourself to build an NHL bracket. Jared has very kindly commented the workflow throughout. Notice some of the early steps are looking to clean up some of the different field names and then assign them a ranking.



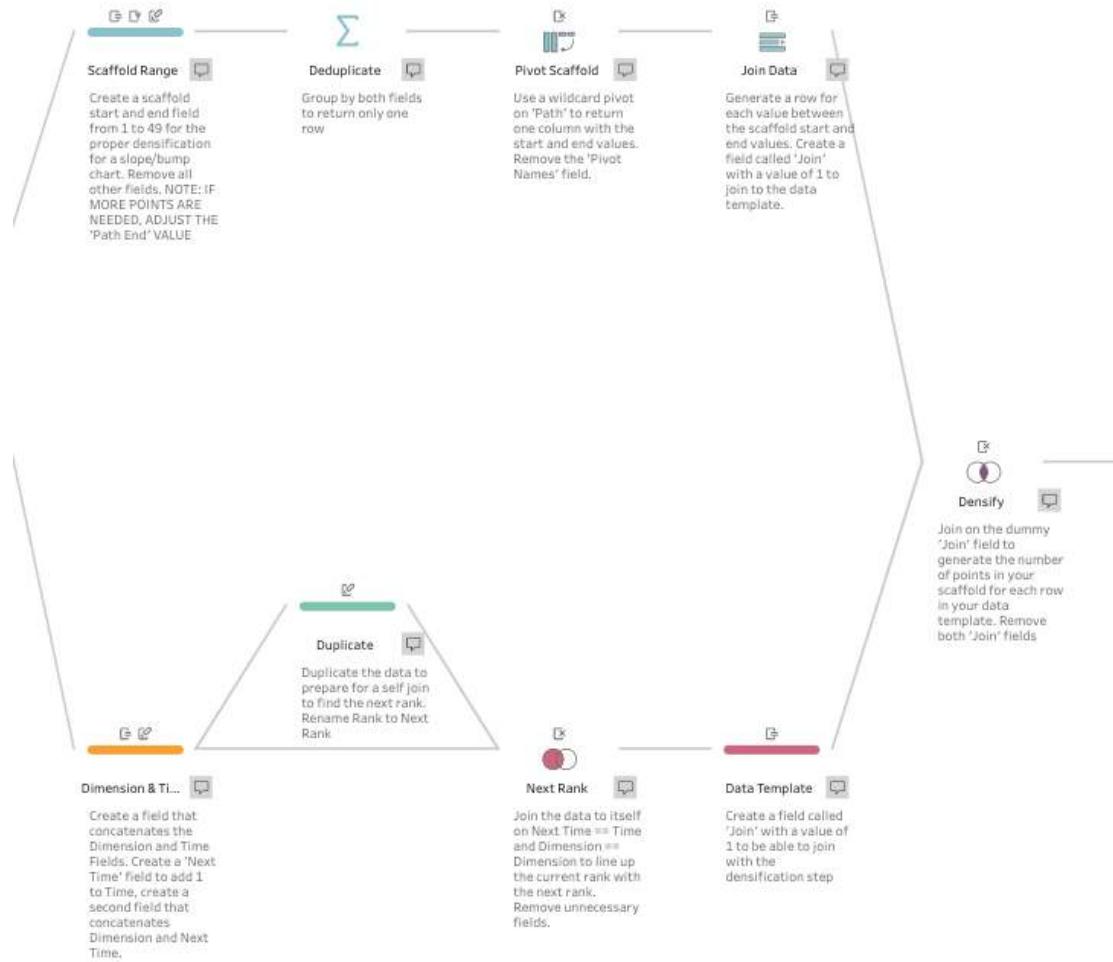
After this, we look to bring in a cleaned version of the post season and join it to our conference data of west and east.



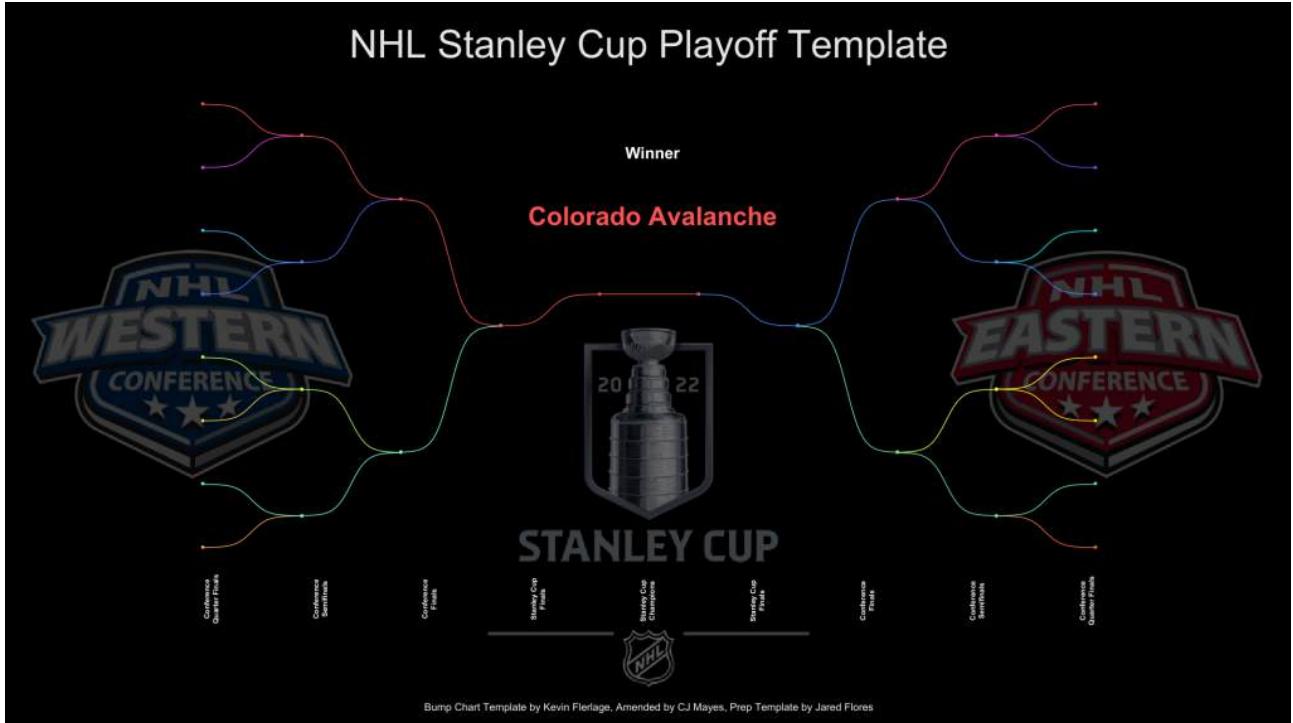
Next are various calculations based on each of the different stages of progressing through the tournament. These values become unioned together to form the base structure.



We follow the methodology seen to similar chart types, like in the original collaboration with Kevin in creating a **tournament bracket template** and the logic from **Kevins curvy bump chart**.



Finally we can use the output for this to replace the tournament bracket dashboard stored on Jared's Tableau Public page. You can find it [here](#) and attached at the top of the page.



There are rumours Jared will follow up on his own youtube site with a full run through, so do look out for that.

So excited to have had the opportunity to showcase a snippet of the amazing work Jared is doing right now, and would like to close this blog by congratulating him on becoming Tableau Ambassador this year.

LOGGING OFF,

CJ

#### THE VALUE OF SHARING KNOWLEDGE WITH LORNA BROWN

Hi All,

Welcome to the September episode of “What’s Good?” We have a really exciting guest this month. An individual who has impacted the community in so many ways over the years, helping educate, uplift, support and develop thousands of data journeys.

What a pleasure to invite Lorna Brown, Data School Coach, 3x Tableau Visionary, Tableau Public Ambassador, Workout Wednesday Host,

Tableau User Group Lead.... \*breathe\* (and many other accolades), to the blog this month.

This blog really focuses on that next stage of development, moving away from analyst work towards coaching, leading and the joy of helping others.

You can find Lorna on [Twitter](#), [Tableau Public](#), and follow Lorna's blog, [here](#).

CJ: Welcome Lorna, these blogs tend to start in the same way. I'd be quite keen to hear how and why tableau was first introduced to you?

What did your journey look like in those early days of being a consultant?

Firstly, thank you Cj for having me, it is much appreciated. So my journey started back in 2015, when I was doing a placement during my Masters in Sports Biomechanics. I was working within an Olympic Sport, when my placement manager asked me to take a look at this thing called Tableau. So I started to play around with it a little. I was given some data to visualise to present to the coaches and athletes, and at that moment I saw the real life implications of someone being able to see their data in a visual manner. By that point I was hooked. I was coming towards the end of my placement and I still didn't really know what I wanted to do, but I saw a job advertised on the Video Analyst website, a website for sports jobs, called The Data School. Where they pay you to train on Tableau and another software called Alteryx. I

thought it was too good to be true, but I started working on my application straight away. A few months later (I was an early applicant) we went to final interviews, and eventually I got the call to say they would like to offer me the job. I started The Data School as part of Cohort 2 in December 2015 and it has changed my entire life.

At the beginning of the Data School, I was very nervous and not confident in my approaches. I was 22 at the time and sometimes I felt too young and immature to be in a "Proper Job". When we went out into placements my love for the softwares continued to grow and grow. I loved being able to help people see and understand their data. I also

really enjoyed teaching people how to use Tableau and watching those lightbulb moments appear when they finally achieve a difficult technique.

CJ: You have since moved away from consulting into more of a coaching role in January this year. What is it about helping others develop that you take pride in?

I just mentioned that throughout my consulting career, the most fun part was teaching people how to use Tableau and Alteryx. I loved watching their faces light up the moment they understood something and could achieve it on their own. I love watching people grow as a person. I wouldn't be where I am today without teachers, coaches and mentors, they have made a real impact on my life in many different ways. I want to be that person who makes a difference to someone else's life and what better way than to help the next generation of Data Analysts.

CJ: One thing I wasn't actually aware of when we caught up, as it was just prior to me getting engaged in the community, was that you wrote the Tableau Tip Tuesdays. Do you have a few favourite tableau tips you live by?



The one thing I love doing is helping people, I think we have already established that, by sharing my knowledge through tips is another way of giving back to the community. **Tableau Tip Tuesday** originated by the one and only (thank god) **Andy Kriebel**. He still continues to blast out content all the time, I honestly don't know how he does it.

There are so many favourite tips, but I think the main one which I use ALL the time is AVG(0), AVG(1), AVG(-1), depending on the use case. I love this one because it gives me an axis and more flexibility over my marks cards.

As well as Tableau Tip Tuesday, I am a big lover of presenting Tableau Speed Tips for Usergroups and Conferences.

CJ: You then thought, Tuesday wasn't enough, I need Wednesdays as well! How were you first introduced to Workout Wednesday? Why did

being a part of the Workout Wednesday initiative appeal to you?

The grid displays 15 Tableau dashboards, each representing a challenge from the #WOW2022 series. The challenges include:

- #Data22 Tableau Speed Tips (Advanced) Lorna Brown
- Betfred Super League 2022 Lorna Brown
- #WOW2022 W28 Lorna Brown
- #WOW2022 W23 Lorna Brown
- #WOW2022 W17 Lorna Brown
- #WOW2022 W18 Lorna Brown
- #WOW2022 W12 Lorna Brown
- #WOW2022 W13 Lorna Brown
- Demo Overview Dashboard Lorna Brown
- #WOW2022 W09 Lorna Brown
- #WOW2022 W08 Lorna Brown
- #WOW2022 W07 Lorna Brown

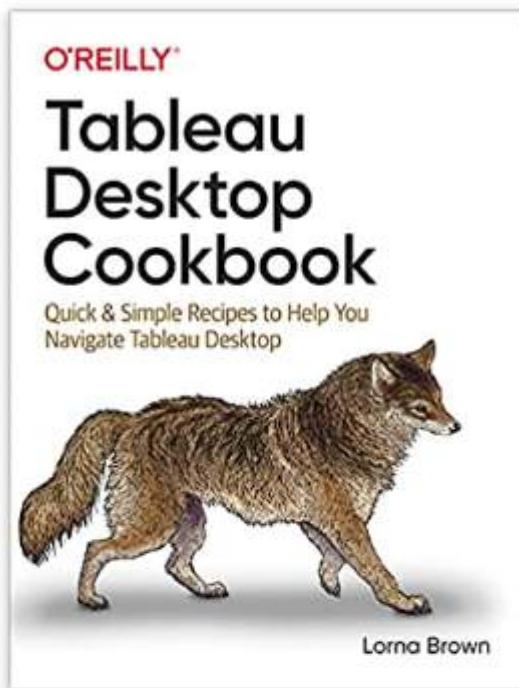
Each dashboard includes a brief description, author (Lorna Brown), and engagement metrics (stars and views).

Need to make sure I'm flexing those muscles every day of the week. Workout Wednesday is a weekly challenge which gives you a dashboard and you have to recreate that by using the requirements we give. This could be focusing on certain features like LODs or Table Calcs. I was first introduced to Workout Wednesday when **Andy Kriebel** (shocker) and **Emma Whyte** started the initiative in 2017. They are great challenges, but I never consistently took part in them until the 2018 team (**Ann, Rody & Luke**) did a WorkoutWednesday live session at TC, from there I was hooked. I completed all the 2018 challenges within 3 months. At that point, **Ann Jackson** my speed tipping buddy, took a leap of faith on me and asked me to become a leader of the initiative for the 2019 year, and I still remain as a coach there.

Workout Wednesday appealed to me in many different ways, I wanted to connect with the wider community. But the main reason, again, is to share my knowledge and give back to the community. The challenges

allow individuals to hone in on certain skills and even take some of the examples back to the workplace. Even now, 4 years on, I still get joy from seeing people complete the challenges.

CJ: So, writing a book is no mean feat. What made you choose to write a Tableau Cookbook? Having got a copy myself it seems like there is something for everyone. Did you have a particular audience in mind?



[See all 2 images](#)

[Follow the author](#)



Lorna Brown

[Follow](#)

The Book was inspired by many things, but mainly my desire and passion to give back to the community that helped me grow into the person I am today. The timing was also pretty perfect because of the global pandemic, it allowed me to focus on nothing but the book because we weren't allowed to go or do anything else.

I love the fact you noticed there is something for everyone because that was my intentions. Majority of the book is focused on those basic elements of Tableau, but even throughout those there are sprinkles of tips and tricks that can help even the advanced user. I've heard of some people using the book as a reference guide when they are training, which is super lovely to hear.

CJ: Over 650 pages of content, and worth every penny. Do go pick yourself up a copy! I'm waiting on Lorna to sign mine ha. I really feel Lornas book has given me alot more context to talk about areas of Tableau I would normally brush under the '*that's just the way it is*' category.

CJ: Your speed tipping sessions are without a doubt one of the crowd favourites at Tableau Conference. You must have done about 7 of them by now? How were the sessions born? What is it you think makes it so popular?

## Tableau Speed Tips | Tricks for All Skill Levels

### Ann Jackson

Managing Director  
Jackson Two  
@AnnUJackson

#data21

### Lorna Brown

Analytics Consultant  
The Information Lab  
 @\_Lorna\_Brown

### Heidi Kalbe

Senior Consultant  
Woodmark Consulting AG  
@TheHeidiK

Yes I've done 7 of them for Conferences, but many more over the years throughout the User Groups. I've lost count now. The session was originally done by **Andy Kriebel** and **Jeffrey Shaffer**, where they battled against each other with people keeping track of the number of tips. Before we made it to the big stage, **Ann Jackson** and I, were picked to represent our User Groups at a user group tip battle at the 2017 Vegas Conference, we then reached out to Andy and Jeff to see if

we could take over the session with the same format. And from there Ann and I have been doing them together ever since.

I think there are a variety of things that make the session so popular. Personally I'd like to think it's because Ann and I are complete Badass visionaries and having two women on stage showing they know their stuff. But on a more serious note, I think that people get to see the real us, how our minds work through the way we demonstrate the tips, it is a very fast paced session and almost an information overload.

CJ: If you'd like to catch up on a few of the speed tipping dashboards you can find the recent ones below:

[data22 – #Data22 Tableau Speed Tips \(Advanced\) Lorna Brown](#)

[data21- #TC21 Speed Tipping #Data21](#)

[data 20 – #Data20 Speed Tipping Favourites](#)

[data19 – #Data19 Tableau Speed Tipping – Lorna Eden](#)

CJ: Something I really admire about you is the impact you've made in the community over the years but through so many channels for a sustained amount of time. Do you have a personal achievement in the community that you cherish most?

The image is a promotional graphic for 'The Data School'. It features a large orange background with white text. At the top left, it says 'Meet the Coach'. Below that is a circular portrait of a woman with long brown hair, smiling. She is wearing a black t-shirt with a white 'Ω' symbol and the words 'ZEN MASTER'. To the right of the portrait, the text 'The Data School' is written in large, bold, white letters. Above 'The Data School' is a logo consisting of three overlapping circles in blue, orange, and purple. Below 'The Data School' is the text 'Powered by The Information Lab'. On the left side of the orange area, there is more text: 'Lorna Brown', 'Data School Coach', and 'Data School UK'.

Thank you Cj. There has been many milestones that have been such achievements for me personally. I take it one year at a time. Prior to becoming an Ambassador and Visionary, the biggest achievement was standing on the stage at TC in front of 1000 people speed tipping with **Ann Jackson**. Since then everything I have done and achieved I cherish. But this year, I am most proud of becoming a new Data School

coach, without the DS I wouldn't even know about the community or anything like that. So being able to provide that starting point for someone else is a real honor and one I take pride in.

CJ: Is there anyone in the community that you'd like to recognise that has helped guide your career and community work the last few years?

What advice would you give to someone who is an active member in publishing public vizzes but wants to now start giving back through other means?

Like with my personal achievements I have many people that have help guide my career and community work. I'd like to start with The Information Lab and The Data School for taking a risk on me, specifically Tom, Andy & Carl. They have been incredibly helpful over the past 7 years. But I have several community members that I now consider really close friends, but also cheerleaders. I'm not going to name names, but they know who they are. They always have my back when I'm having a wobble on my own beliefs and abilities.

My advice would be, don't change. By publishing vizzes you are helping so many people already. But if you want to give back in other ways, I find videos of tutorials really helpful, and a lot of people learn through visual means.

CJ: Besides the scattering of Workout Wednesday posts on your tableau public, we get treated to a sprinkle of SportsVizSunday vizzes. Will we see a return of a sports viz? Rumour has it you follow a lot of your team's stats?



## Super League Player Analysis 2022

Team or Player  Player  Team  Include Playoffs?  Yes  No  Play-Offs Round Number  Show Top



Data Source | Rugby League

@\_Lorna\_Brown

That's a great question Cj, I like to do them as a treat when I get an idea in mind. Happy to do a collaboration if you're interested, Cj.

Yes I do follow my Rugby League Team's stats, you can see it here. However I have been totally uninspired with it recently due to our team performances being such a low point. But I do really want to start doing more with the Rugby Data.

If any one wants to play around with the rugby data to see what they can come up with drop me a message and I can send it to you.

CJ: What in the rest of the year are you most looking forward to?  
I don't tend to look that far ahead of myself these days. I prefer to live in the moment. I still continuously look forward to my weeks of **WorkoutWednesday**, seeing all the different solutions. I also really enjoy seeing new faces in the community. I'd say one of my biggest aims over the rest of this year is to help elevate all the fabulous people I coach throughout the Data School.

I am also very much looking forward to attending **DreamForce** which should be one heck of an experience.

Cj, I just want to say, thank you for being you. You are doing great things in the Tableau Community, and well done for becoming the Youngest

Visionary. Keep being you, don't change and thank you for this opportunity to tell my story.

CJ Round-up:

It was such a pleasure of meeting Lorna at the Tableau Conference this year. I always find that a funny prospect when you live in the same country and have offices probably about 20 minutes apart but get to meet someone over 5000 miles away.

What I appreciate most about Lorna is that strong desire to help others in their own careers and really develop their skills to improve. There are so many lovely quotes to pull out around watching individuals grow and the eureka moment people get with the tool. What a lucky bunch the DS'ers are to have such badass (in Lornas words) thought leadership and technical skills like Lorna's in the room.

Finally, I want to say.... I will keep you to that collaboration offer Lorna. It's in print now which is almost the same as a legally binding contract in my eyes.

LOGGING OFF,

CJ

SOCCER SHAPE REPOSITORY (PYTHON)

Hi all,

Earlier last week we heard from **Alberto** and **Joris** on how to build a premier league dashboard. Taking a deeper look at the front end dashboard Joris raised a good point around Tableau Publics ability to render url's through a parameter.



## HALFTIME HEROES PREMIER LEAGUE WEEKLY ROUNDUP | ROUND 38

STANDINGS			
	Click a logo	PLAYED	POINTS
1		38	93
2		38	92
3		38	74
4		38	71
5		38	69
6		38	58
7		38	56
8		38	52
9		38	51
10		38	51
11		38	49
12		38	48
13		38	46
14		38	45
15		38	40
16		38	39
17		38	38
18		38	35
19		38	23
20		38	22

Legend: Champions League, Europa League, Conference League, Championship

### GAME OF THE WEEK

Arsenal vs Everton

5 - 1

22 May 2022  
Emirates Stadium  
London

### TOP SCORERS

1.		Heung-Min Son	23 goals
2.		Mohamed Salah Ghaly	23 goals
3.		Cristiano Ronaldo dos Santos Aveiro	18 goals

### FORM

Liverpool: WWWDW

Norwich: LDLLL

### TOP ASSISTS

1.		Mohamed Salah Ghaly	13 assists
2.		Trent John Alexander-Arnold	12 assists
3.		Jarrod Bowen	10 assists

On Tableau Public you end up with the player icons showing like this.

### TOP SCORERS

1.		Heung-Min Son	23 goals
2.		Mohamed Salah Ghaly	23 goals
3.		Cristiano Ronaldo dos Santos Aveiro	18 goals

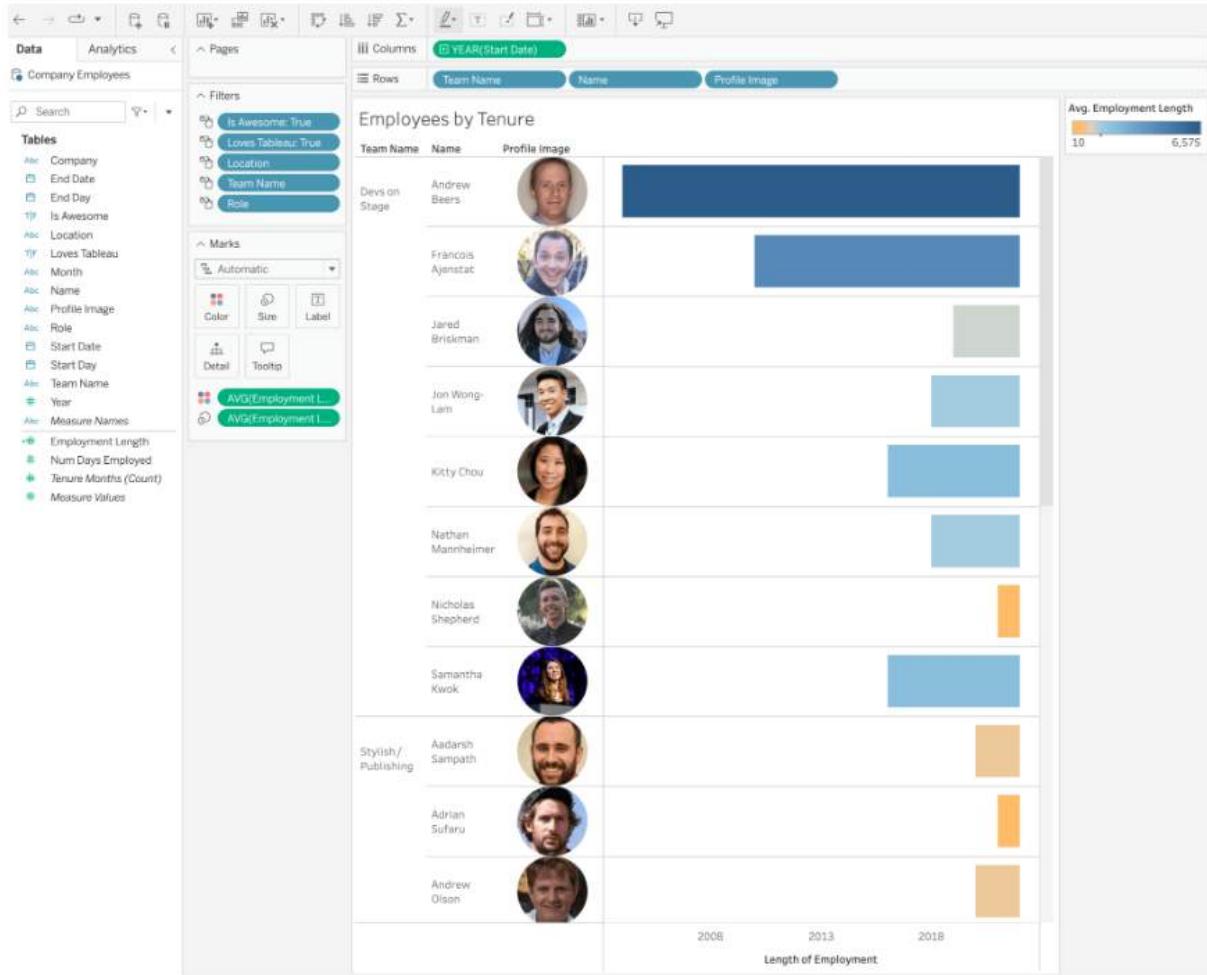
But in desktop they render perfectly fine!

## TOP ASSISTS

1		Mohamed Salah Ghaly	13 assists
2		Trent John Alexander-Arnold	12 assists
3		Jarrod Bowen	10 assists

Now Joris rightly mentioned that Tableau has announced image role at the Tableau conference. You can read more about what that looks like [here](#). Thanks to this new feature you can now have images render dynamically by having a field with the URL of the image in your data.

**Image Role** introduces an efficient way to add dynamically rendered images in bulk to your Tableau content using a field with image URLs.



Dragging and dropping a field with image URLs, Jon was able to add employees' headshots to his viz about tenure at Tableau.

Whilst we eagerly await the release of this, it's worth considering how these images may render in quality and size. What format they are stored and also the shape. Presumably this example has some well formatted circles as oppose to being dynamic crops. So for the time being, is there a quick work around? Well yes, we can still use the shapes repository file. What a lot of people aren't aware is that Tableau shapes repository works actually works alphanumerically.

This means that if we make sure our ID's and our shape files are labelled the same thing. To clarify, Tableau doesn't know that Mohamed Salah's image as 306.png is ID 306, it only knows the sequence of number of ID's on the sheet pane, and the sequence of the storing of the files within the shape repository.

## Things to be cautious of:

- Not having the same amount of players as shapes in your repository. – This will mean they misalign.
- Certain instances your alphanumerical ordering may break.

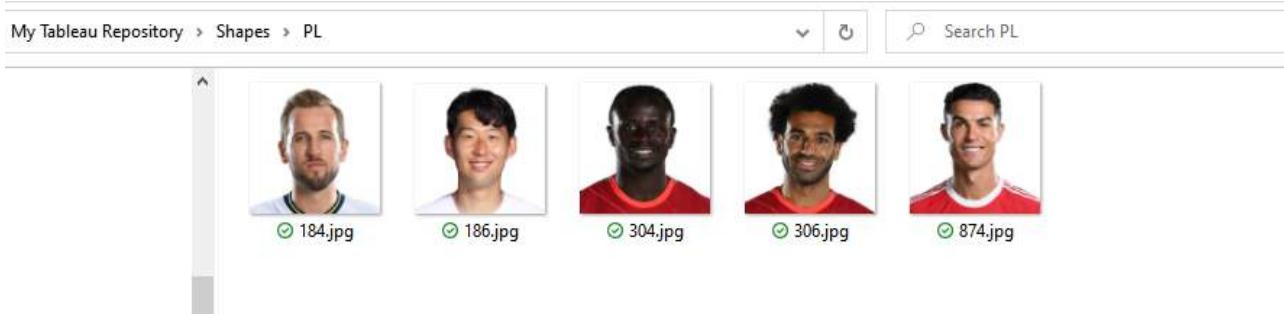
Let's look at an example of how the alignment works.

Here is a snippet of the top 5 strikers dataset from the season.

ID	Name	Nationality	Passes Key	Photo
186	Heung-Min Son	Korea Republic	73	<a href="https://media.api-sports.io/f">https://media.api-sports.io/f</a>
306	Mohamed Salah Ghaly	Egypt	64	<a href="https://media.api-sports.io/f">https://media.api-sports.io/f</a>
874	Cristiano Ronaldo dos Santos Aveiro	Portugal	26	<a href="https://media.api-sports.io/f">https://media.api-sports.io/f</a>
184	Harry Edward Kane	England	53	<a href="https://media.api-sports.io/f">https://media.api-sports.io/f</a>
304	Sadio Mané	Senegal	43	<a href="https://media.api-sports.io/f">https://media.api-sports.io/f</a>

Each player has an ID in the dataset, within the photo field it also has there ID, appended to the media.api site.

Here are the Top 5 goal scorers in a shapes repository.



Lets see that in action.

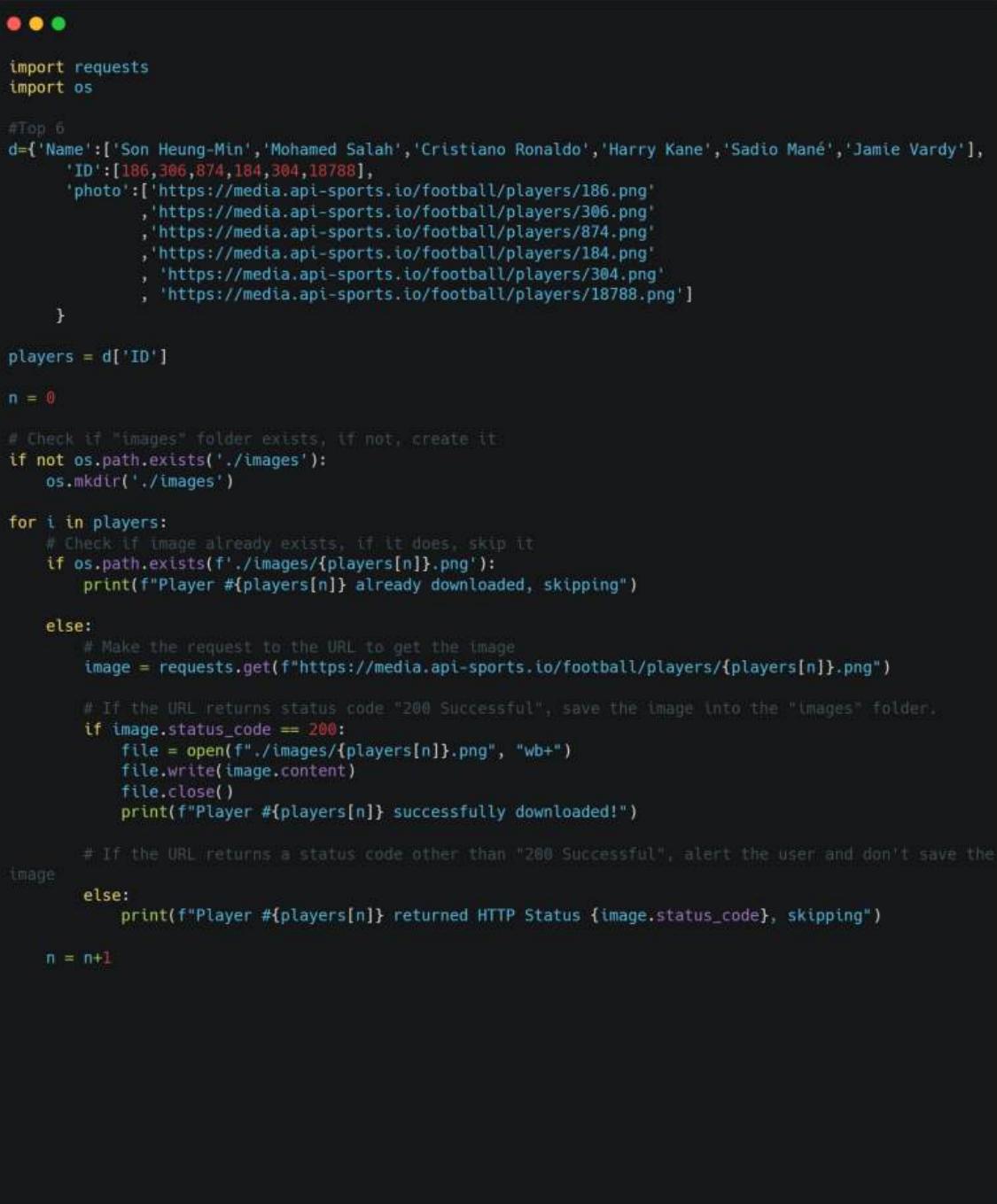
A screenshot of a Tableau visualization showing five player portraits in a row. Below each portrait is its name and ID: Harry Edward Kane (184), Heung-Min Son (186), Sadio Mané (304), Mohamed Salah Ghaly (306), and Cristiano Ronaldo dos Santos Aveiro (874). The visualization includes a sidebar with filters for "Id", "Shape", "Color", "Size", "Label", "Detail", "Tooltip", and "Shape". The "Id" filter is currently selected. The "Shape" filter is also selected, indicated by a blue highlight.

So because I've filtered the dataset to just the 5 ID's shown above, and then applied shape, it has alphanumerically assigned them in the correct order to match. This is to be used at caution when scaling to larger datasets.

So how can I scale this?

Well, presumably you won't want to go ahead and download every picture manually. So I've created this python script that will do it for you.

You can find the code at the top of the blog in the repository.



```
import requests
import os

#Top 6
d={'Name':['Son Heung-Min','Mohamed Salah','Cristiano Ronaldo','Harry Kane','Sadio Mané','Jamie Vardy'],
   'ID':[186,306,874,184,304,18788],
   'photo':['https://media.api-sports.io/football/players/186.png',
            'https://media.api-sports.io/football/players/306.png',
            'https://media.api-sports.io/football/players/874.png',
            'https://media.api-sports.io/football/players/184.png',
            'https://media.api-sports.io/football/players/304.png',
            'https://media.api-sports.io/football/players/18788.png']
}

players = d['ID']

n = 0

# Check if "images" folder exists, if not, create it
if not os.path.exists('./images'):
    os.mkdir('./images')

for i in players:
    # Check if image already exists, if it does, skip it
    if os.path.exists(f'./images/{players[n]}.png'):
        print(f"Player #{players[n]} already downloaded, skipping")

    else:
        # Make the request to the URL to get the image
        image = requests.get(f"https://media.api-sports.io/football/players/{players[n]}.png")

        # If the URL returns status code "200 Successful", save the image into the "images" folder.
        if image.status_code == 200:
            file = open(f"./images/{players[n]}.png", "wb+")
            file.write(image.content)
            file.close()
            print(f"Player #{players[n]} successfully downloaded!")

        # If the URL returns a status code other than "200 Successful", alert the user and don't save the image
        else:
            print(f"Player #{players[n]} returned HTTP Status {image.status_code}, skipping")

    n = n+1
```

I've put in some fake subset data for now, but I recommend probably parsing through an excel file and then converting the ID to a list. Next it looks to build a folder called images in your directory, and it loops through each of the id's and creates the media.api website using the ID for each player. These images then get saved down into the images folder.

The script can be then run again, and it will skip over players you already have saved.

This folder of images can then be placed within your shapes repository, fit for use!

Hope this was somewhat useful. Like mentioned previous, I'm nervously excited for what the new image role functionality will have to offer in Tableau!

LOGGING OFF,  
CJ

TABLEAU: BUILDING A PREMIER LEAGUE DASHBOARD (PART 2 – JORIS VAN DEN BERG)

Hi all,

This blog is the second of a two part series of guest blogs. If you missed it, please check out part 1 written by Alberto on how to **collect data from an API** and format that data fit for Tableau, using Alteryx.

Naturally, this blog picks up from that stage of data prep, and starts to showcase specific metrics you can look at to build a live Premier League Dashboard tracker. I am delighted to welcome **Joris Van Den Berg** onto the blog to show you through his halftime heroes dashboard. Please find a little more about Joris below;

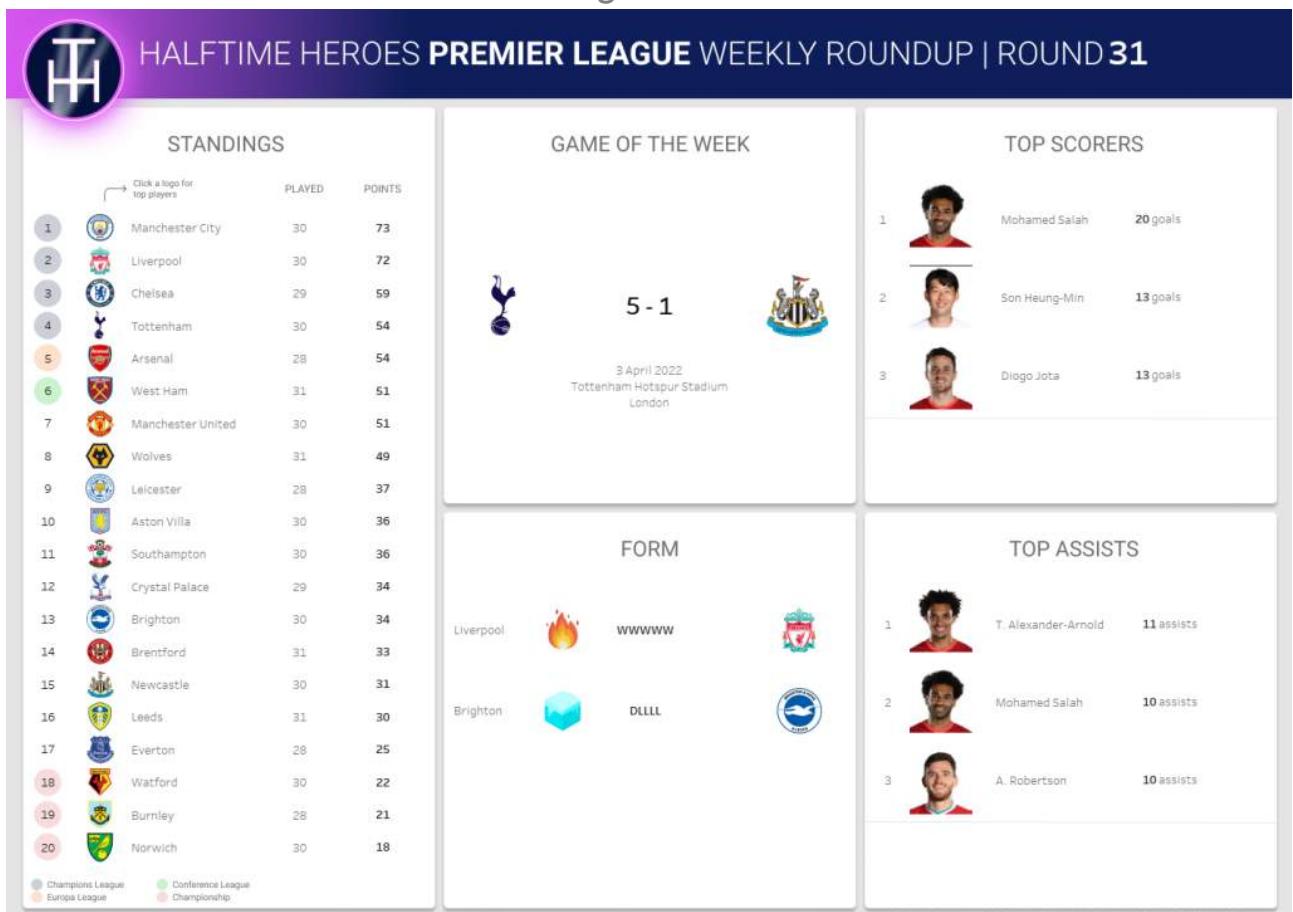
*“It was my dream as a football, Tableau and data lover: a live Premier League Dashboard that updates daily with the latest results. The best matches, results and players automatically displayed. And this without having to upload a new version every week. In this blog this dream becomes reality. We show you how to create a live Premier League dashboard on Tableau Public, from start to finish.”*

*“My name is Joris van den Berg and I am 30 years old. I live in Amersfoort, a beautiful city in the middle of the Netherlands. I first came into contact with data during my bachelor social geography, when we*

*had to make maps ourselves. Enthusiastic about maps and data, I decided to do a master in GIS (Geographical Information Systems) later on. Then, when I came across Tableau, I was hooked. Tableau was super easy to use, and you could make the most beautiful dashboards. With or without maps. I now work at The Information Lab Netherlands and started the **Halftime Heroes** together with colleagues Bibi and Lars. We combine our work with our passion and make dashboards about sports.”*

## Premier League Dashboard

Back to the Premier League dashboard. In the previous blog, you read how Alberto uses the Football API to pull in data. In this part, I describe some of the tricks I use in the Premier League dashboard. These tricks provide a weekly updated dashboard, including the match of the week, the teams in form and the players with the most assists and goals.



The trick for ‘live’ data in Tableau Public is to use Google Sheets. Live because Tableau Public only gets new data from Google Sheets on a daily basis. So it is not possible to put real live data in Tableau Public.

But this way you at least have new data in Tableau Public every day. You can read more about how to link Tableau and Google Sheets in [this blog](#).

(\*The Google Sheets reader will likely **no longer be supported** by Tableau as of April 2023.)

Now that we have the data, it is time to create a dashboard. I will show you some handy tricks that I have used myself. Use these tricks to create your own Premier League dashboard, or recreate our dashboard for practice. Our Premier League dashboard is also available for download from Tableau Public, so feel free to use it.

### Game of the Week

## GAME OF THE WEEK



**5 - 1**

May 22, 2022  
Emirates Stadium  
London

Let's start with the match of the week. For how do I determine this if the data is updated automatically? Simple. I created a calculated field that looks at the results every week. For me, the match of the week is the match that scores the most goals. I have therefore worked this out in a calculated field.

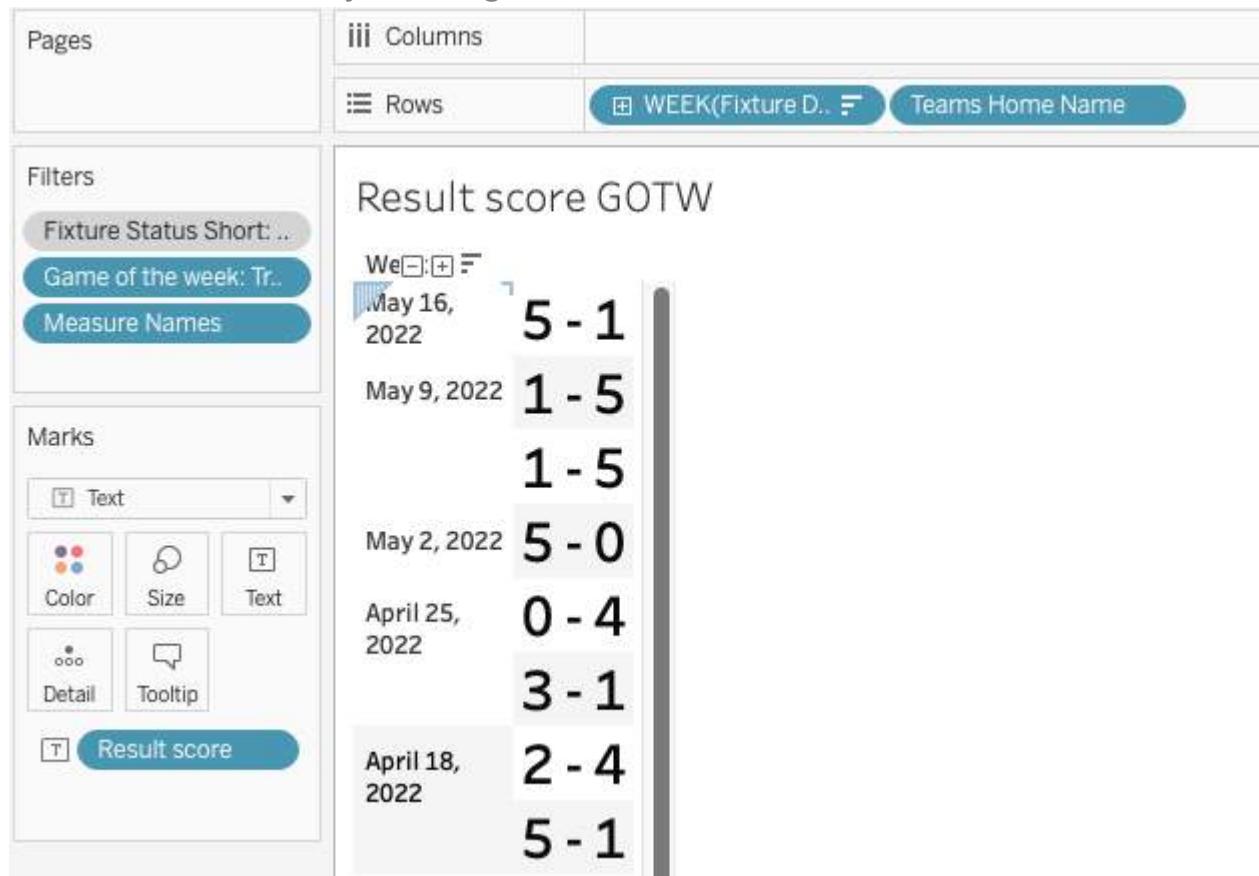
Game of the week

```
// Look at the games each round with the most goals scored and compare to all games.
{ FIXED [League Round - Number]: MAX([Goals Home]+[Goals Away])}
=
[Goals Home] + [Goals Away]
```

The calculation is valid.

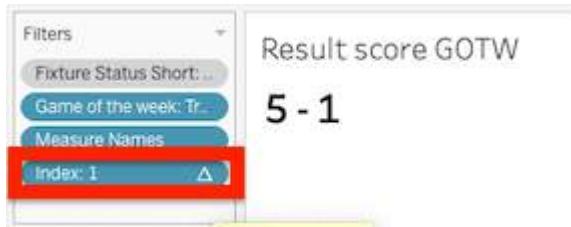
5 Dependencies ▾ Apply OK

We compare the maximum number of home and away goals scored in a match round with all individual matches. All matches with the most goals in that round are then marked TRUE. Matches with less goals are marked FALSE. We can then list the games with the most goals in each round by filtering on Game of the week = TRUE.



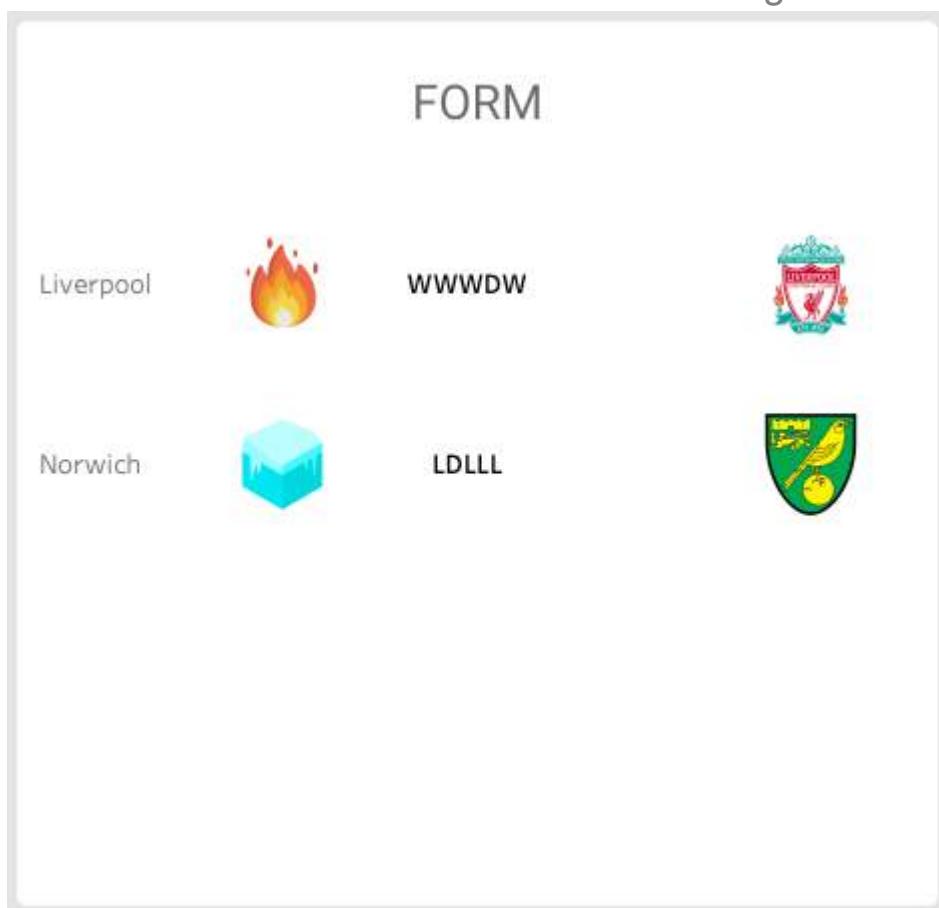
As you can see, sometimes there are two matches with the same number of goals. In addition, we want to have only the most recent match. This is solved by sorting the matches by date and using INDEX(

). By filtering on INDEX( ) 1, Tableau only shows the first row in the data. And voila, you have a calculation that shows the game with the most goals after each round of play.



Form

In a similar way, I have also determined the shape of teams. This includes a calculated field that calculates how many games teams have won or lost. This results in the teams with the most games won or lost.



In the data, we have the field "Form". It contains the names of the last matches, whether they were won (W), drawn (D) or lost (L). Using the calculated field we check how many W's there are and subtract these from the total number of characters in the Form field. This leaves us with the number of matches won as a number.

Number of wins

X

// Determine number of wins from field form.

LEN([Form]) - LEN(REPLACE([Form], "W", ""))

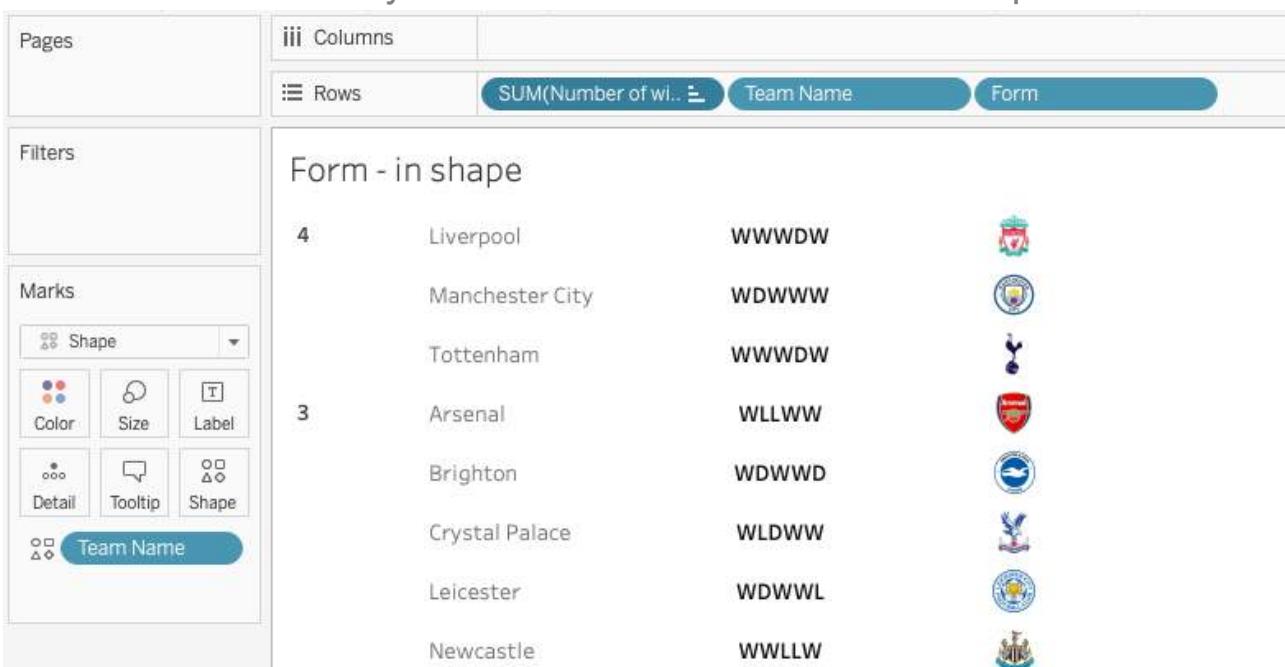
OK

The calculation is valid.

3 Dependencies ▾

Apply

Then we use this number again to make a list of the most winning teams. Using the same INDEX( ) trick we described earlier, we keep only the top team. Thus we have the team in shape. I use exactly the same way to determine the teams out of shape.



### URL Images

This last trick is the trickiest one. We want the players with the most goals and assists to be dynamically updated. However, to do this, we need to update the players' pictures as well, and this is a challenge. We could solve this with custom shapes, but then we would have to save a picture for each player and link it to the name. That is very time-consuming. So we did it with URL actions and parameters.

## TOP SCORERS

1		Heung-Min Son	23 goals
2		Mohamed Salah Ghaly	23 goals
3		Cristiano Ronaldo	18 goals

Don't spend too much time on this. It has given me a lot of headaches and Tableau has also announced **Image Role** at the Tableau Conference. Thanks to this new feature you can now have images render dynamically by having a field with the URL of the image in your data. And we have just that for the players.

In the end, the trick was to create a calculated field that calculates which player has scored the most goals or assists. The result of this calculation is the URL of the player in question. Then we create a parameter, which every time the dashboard opens, fills in the URL of the highest scoring player. Finally, we use this parameter in a URL action. This way, a web page with the highest scoring player opens every time. Let's look at this step by step.

1. Calculate player with most goals

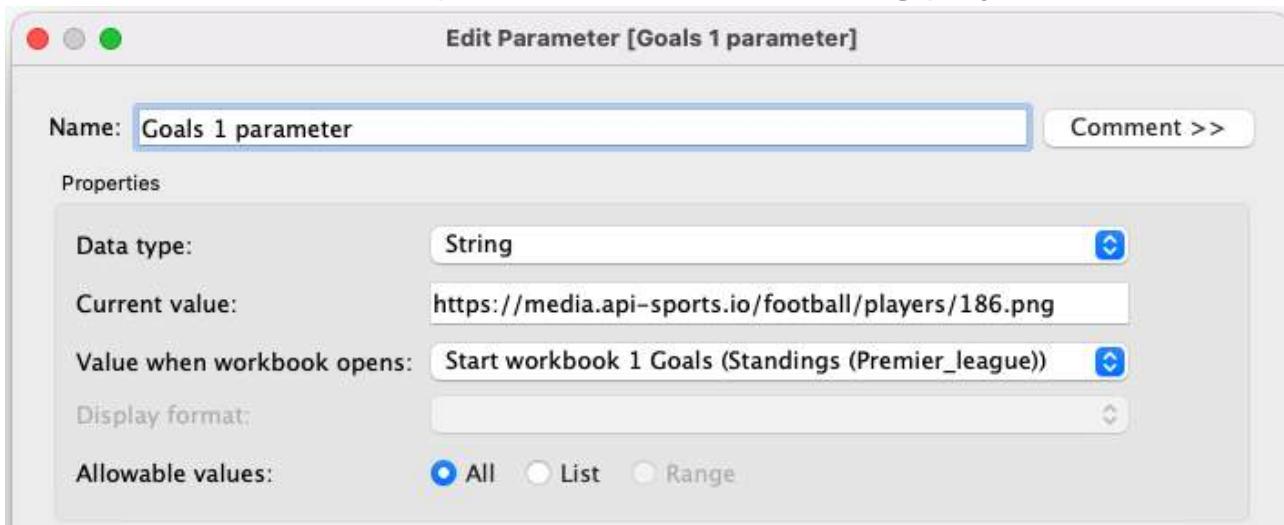
Start workbook 1 Goals

```
// Calculate what player is ranked nr. 1 in terms of goals scored.  
// For that player return photo URL.  
  
{ FIXED :  
MAX(  
IF [Goals_rank] = { FIXED :MIN([Goals_rank])} THEN [Photo]  
ELSE ''  
END  
)}
```

The calculation is valid.

In this calculation we look at the field goals rank. If the goals rank is 1, i.e. the most scoring player, the calculation will return 'Photo'. This is the field containing the URL of the player. Next, there is a fixed calculation in this field. This fills every line in the data with the URL of the highest scoring player. As a result, Tableau always performs the URL action with the URL of the highest scoring player.

## 2. Create parameter for most scoring player



In step 2, we create a parameter. We fill this parameter with the calculated field from step 1. At 'Value when workbook opens:' we also set this calculated field. The dashboard opens and the parameter is updated with the highest scoring player.

## 3. Add web page with image

Finally, we will add a webpage to our dashboard. Drag a web page into your dashboard. In the popup that appears, enter a URL. Enter the

parameter from step 2. This way, the URL of the highest scoring player will be filled in as a webpage.

The screenshot shows a Tableau dashboard with a list of players and their goals. The players are listed in descending order of goals:

Rank	Player	Goals
2	Mohamed Salah Ghaly	23 goals
3	Cristiano Ronaldo	18 goals
17	Mason Mount	11 goals

A context menu is open over the third player, Mason Mount. The menu lists various parameters, with 'Parameters.Goals 1 parameter' highlighted in blue.

Repeat these steps for the top 2 and 3 most scoring players to build up your top 3 picture. Perform the same steps to show the players with the most assists on your dashboard.

### Mobile Layout

Since we find that many users view the dashboards via Twitter and LinkedIn on their cell phones, we also created a mobile layout. I also have a handy tip for that, so that it looks neat. Tableau's default phone layout is often not very nice. That's why I create my own background image specifically for the cell phone. I add this image to my desktop version. Then I make the image floating and 1x1 pixel. Hide the image behind another floating object, and voila: now you have a special image for the background of your mobile layout. Finally, you place all the components of your dashboard into the new image.



## HALFTIME HEROES PREMIER LEAGUE WEEKLY ROUNDUP

### GAME OF THE WEEK



**5 - 1**



April 3, 2022

Tottenham Hotspur Stadium  
London

### TOP SCORERS

1		Mohamed Salah	<b>20</b> goals
2		Son Heung-Min	<b>13</b> goals
3		Diogo Jota	<b>13</b> goals

### TOP ASSISTS

1		T. Alexander-Arnold	<b>11</b> assist
2		Mohamed Salah	<b>10</b> assist
3		A. Robertson	<b>10</b> assist

### FORM

Liverpool



WWWWW



Brighton



DLLLL



### STANDINGS

1		Manchester City	30
2		Liverpool	30
3		Chelsea	29
4		Tottenham	30
5		Arsenal	28
6		West Ham	31
7		Manchester United	30

Those were some tricks to create a live premier league dashboard! Hopefully you'll be inspired and get started yourself. You can of course create dashboards for other leagues too. We are looking forward to seeing your beautiful creations. Tag Halftime Heroes on Twitter, Instagram or LinkedIn.

### CJ Round-up:

Thank you Joris for that insight into some calculations for finding, top teams, players and games as well as a few formatting tips and tricks to bring the visual to life with badges and players.

What an honour to have Alberto and Joris join to do an end to end process of collating, transforming and visualising premier league data.

Shout out to them both, the information lab and halftime heroes.

What excited me most about Alberto & Joris collaboration was that it provides a full e2e automated solution!

LOGGING OFF,

CJ

API'S IN ALTERYX: BUILDING A PREMIER LEAGUE DASHBOARD (PART 1 – ALBERTO ORAA)

Hi all,

group	Rank	team_name	team_logo	description	status	form	points	goalsdiff	all_draw	all_goals_all_goals_	all_lose	all_playedall_win	home_dre	home_gohome_	home_los	home_plahome_will	away_dra	away_goa	away_los	away_pla	away_won	0	
Premier League	1	Tottenham	https://m.Promotionsame	W	W	W	3	3	0	1	4	0	1	1	0	1	4	0	1	1	0	0	0
Premier League	2	Arsenal	https://m.Promotionsame	W	W	W	3	2	0	0	2	0	0	1	1	0	0	0	0	0	2	0	1
Premier League	3	Manchester City	https://m.Promotionsame	W	W	W	3	2	0	0	2	0	1	1	0	0	0	0	0	0	2	0	1
Premier League	4	Newcastle	https://m.Promotionsame	W	W	W	2	2	0	0	2	0	1	1	0	0	0	2	0	1	1	0	0
Premier League	5	Bournemouth	https://m.Promotionsame	W	W	W	3	2	0	0	2	0	0	1	1	0	0	2	0	1	1	0	0
Premier League	6	Brighton	https://m.media-api-14same	W	W	W	3	1	0	1	2	0	0	1	1	0	0	0	0	0	1	2	0
Premier League	7	Leeds	https://m.media-api-14same	W	W	W	3	1	0	1	2	0	0	1	1	0	1	2	0	1	0	0	0
Premier League	8	Chelsea	https://m.media-api-14same	W	W	W	3	1	0	0	1	0	0	1	1	0	0	0	0	0	0	1	1
Premier League	9	Fulham	https://m.media-api-14same	D	D	D	1	0	1	2	2	0	0	1	0	1	2	0	0	0	0	0	0
Premier League	10	Everton	https://m.media-api-14same	D	D	D	1	0	1	2	2	0	0	1	0	1	2	0	0	0	0	0	0
Premier League	11	Leicester	https://m.media-api-14same	D	D	D	1	0	1	2	2	0	0	1	0	0	0	0	0	0	1	2	0
Premier League	12	Brentford	https://m.media-api-14same	D	D	D	1	0	1	2	2	0	0	1	0	1	2	0	0	0	0	0	0
Premier League	13	Manchester United	https://m.media-api-14same	D	D	D	0	-1	0	2	1	1	0	0	0	2	1	1	1	0	0	1	0
Premier League	14	Wolves	https://m.media-api-14same	L	L	L	0	-1	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
Premier League	15	Fulerton	https://m.media-api-14same	L	L	L	0	-1	0	1	0	1	0	0	0	1	0	1	1	0	0	0	0
Premier League	16	Aston Villa	https://m.media-api-14same	L	L	L	0	-2	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0
Premier League	17	West Ham	https://m.media-api-14same	L	L	L	0	-2	0	2	0	1	1	0	0	2	0	1	1	0	0	0	0
Premier League	18	Crystal Palace	https://m.media-api-14same	L	L	L	0	-2	0	2	0	1	1	0	0	0	2	0	1	1	0	0	0
Premier League	19	Nottingham Forest	https://m.media-api-14same	L	L	L	0	-2	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0
Premier League	20	Southampton	https://m.media-api-14same	L	L	L	0	-3	0	4	1	1	0	0	0	0	0	0	0	0	4	1	1

This blog is the first of a two part series of guest blogs, with a particular focus in this blog on how to get football stats from API-Football using Alteryx!

I am delighted to welcome **Alberto Oraa** onto the blog to demonstrate how you can access premier league data. Please find a little bit more about Alberto and his love for data and sports below:

*"There are not many things I enjoy more than watching sports. However, I soon realized the beauty of analyzing everything related to what came before the event, the event itself and whatever comes after. Analyzing it,*

*I believe, gives you a better perspective of what happened and how future events can change by looking at patterns and different scenarios. Many times I have encountered a conversation related to using data and if it really worth the effort and resources while using it for sports and every single time I got to the same conclusion: "If there is an opportunity to have another point of view, you should definitely take it because that is going to show missing details and even the smallest detail can make a difference".*

*I would have never been able to create any analysis if I did not have the chance to meet both the data and the sports community and I must say both work incredibly well together. That's absolutely what I have enjoyed the most."*

Onto the blog itself!

### How to get football stats from API-Football using Alteryx

If you have ever tried to use sports data for your analysis, you may have encountered how difficult it is to find data. If it is free that is because it might be quite old and if is up to date it will probably come at a cost not everyone can afford. But there is always a way to find up to date data for free and that is exactly what today's blog is about. Once data is available, Joris will share with all of us a great example of how that could be visualized into a tool like Tableau.

### What is API-Football?

API-Football is a Restful API that covers +915 leagues & cups with livescore, standings, events, line-ups, players, pre-matches odds, statistics and many more. Even though it has an easy integration and works with code libraries in popular languages, we will cover today how it does work with Alteryx.

For those of you have been worked with RapidAPI before, it also works with it and it will allow you to manage from one dashboard, view endpoints, test from the browser, connect using code snippets, code libraries in popular languages, call volume and billing, check errors and latency, take a look at logs for your API calls and secure payment.

API-Football works with 4 different plans:

- Free for 0\$ Month at 100 requests/day
- Pro for 19\$ Month at 7500 requests/day
- Ultra for 29\$ Month at 75000 requests/day
- Mega for 39\$ Month for 150000 requests/day

However, we will be using a free plan for this specific blog's content.

The screenshot shows a landing page for the API-Football pricing section. On the left, there's a large green button labeled "TRY IT". Below it, the "FREE PLAN" is highlighted in a green box. The text explains that the free plan gives access to the entire API by registering on the dashboard. It emphasizes that no credit card is required and the plan remains free. A note states that once registered, users will have free access to other APIs like Basketball, Baseball, Formula-1, Handball, Hockey, Rugby, and Volleyball. At the bottom, there's a red "TRY THE FREE PLAN" button with a double slash icon.

TRY IT

## FREE PLAN

Our Free plan gives you access to the entire API, simply by registering on our dashboard.

No credit card is required for this plan !  
And it will always remain free !

Once registered on our dashboard you will also have Free access to our other APIs: **Basketball, Baseball, Formula-1, Handball, Hockey, Rugby, Volleyball.**

</> TRY THE FREE PLAN

\*API-Football might require you to introduce your CC details while signing up. However, while using a free subscription in the specified requests of 100/day no charge is to be made. It is specified in the terms and conditions that can be found [here](#).

### Step 1: Create an API-Football Account

First of all, we need to set up our own API-Football account. To do so, we need to access the API-Football pricing section and choose SUBSCRIBE to the Free plan.

**PRICING****Choose your Perfect Plan**

Free

Pro

Ultra

Mega

All our plans include all competitions and endpoints.

Free	Pro	Ultra	Mega
<b>\$0</b> / month	<b>\$19</b> / month	<b>\$29</b> / month	<b>\$39</b> / month
100 Requests / day	7 500 Requests / day	75 000 Requests / day	150 000 Requests / day
Countries	Countries	Countries	Countries
Seasons	Seasons	Seasons	Seasons
Leagues	Leagues	Leagues	Leagues
Standings	Standings	Standings	Standings
teams	teams	teams	teams
Livescore	Livescore	Livescore	Livescore
Fixtures	Fixtures	Fixtures	Fixtures
Head 2 Head	Head 2 Head	Head 2 Head	Head 2 Head
Events	Events	Events	Events
Line Ups	LineUps	LineUps	LineUps
Top Scorers	Top Scorers	Top Scorers	Top Scorers
Players & Coachs	Players & Coachs	Players & Coachs	Players & Coachs
Players Transfers	Players Transfers	Players Transfers	Players Transfers
Trophies	Trophies	Trophies	Trophies
Sidelined	Sidelined	Sidelined	Sidelined
Injuries	Injuries	Injuries	Injuries
In-play Odds	In-play Odds	In-play Odds	In-play Odds
Pre-match Odds	Pre-match Odds	Pre-match Odds	Pre-match Odds
Statistics	Statistics	Statistics	Statistics
Predictions	Predictions	Predictions	Predictions
<a href="#">SUBSCRIBE</a>			
<a href="#">SUBSCRIBE</a>			
<a href="#">SUBSCRIBE</a>			

By subscribing, you agree to the [Terms of use](#).

It is also possible to sign up and create our account from the API Sports website as you can see in the following image. Either way works and will give us the right access after your account has been created, your X-RapidAPI-Key or your API-Key (this will depend on which subscribing method you choose) will be created and that will be used to call the API to get our data.

:

[Access to key in the RapidAPI-Key environment](#)  
[Access to key in the API Sports environment](#)

## 2 WAYS TO SUBSCRIBE

# Choose the one best suited to your needs

Each subscription method is independent of the other. Regardless of the subscription method you will have access to the entire API.



### RAPIDAPI

- Registration required on their platform
- Monthly subscription
- Automatic Renewal
- Secure payment by credit card

[SUBSCRIBE WITH RAPIDAPI](#)



### WITH US

- Prepaid subscription
- Secure payment by Paypal
- No credit card required for the free version
- Up to -50% for any subscription according to the chosen duration

[SUBSCRIBE WITH US](#)

## Step 2: Check API-Football Documentation

After we have just created our account and log into the API services to get our key, it is time to check which kind of calls we can make and how to make those. That information will be stored in the documentation web-page of the API-Football service which can be accessed [here](#).

It will contains information about which information is required and where to get it as well as the architecture and sample scripts for different types of code.

## Authentication

We uses API keys to allow access to the API. You can register a new API key in [rapidapi](#) or directly on our dashboard.

The accounts on **RapidAPI** and on our **Dashboard** are dissociated. Each of these registration methods has its own **URL** and **API-KEY**. You must therefore adapt your scripts according to your subscription by adapting the URL and your API-KEY.

**RAPIDAPI** : <https://api-football-v1.p.rapidapi.com/v3/>

**API-SPORTS** : <https://v3.football.api-sports.io/>

Our API expects for the API key to be included in all API requests to the server in a header that looks like the following:

Make sure to replace `xxxxxxxxxxxxxx` with your API key.

### REQUESTS HEADERS & CORS

The API is configured to work only with **GET** requests and allows only the headers listed below:

- `x-rapidapi-host`
- `x-rapidapi-key`
- `x-apisports-key`

If you make non-GET requests or add headers that are not in the list, you will receive an error from the API.

Some frameworks (*especially in JS, nodeJS..*) automatically add extra headers, you have to make sure to remove them in order to get a response from the API.

Furthermore, there will every piece of possible endpoint of data that can be collected from an API call. Some of them may require the use of

some parameters.

Here are some examples:

Timezone: <https://v3.football.api-sports.io/timezone>

Countries: <https://v3.football.api-sports.io/countries>

Leagues: <https://v3.football.api-sports.io/leagues?id=39>

Teams: <https://v3.football.api-sports.io/teams?league=39&season=2019>

Venues: <https://v3.football.api-sports.io/venues?id=556>

Standings: <https://v3.football.api-sports.io/standings?league=39&season=2019>

Fixtures: <https://v3.football.api-sports.io/rounds?league=39&season=2019>

Injuries: <https://v3.football.api-sports.io/injuries?team=85&season=2020>

Coach's: <https://v3.football.api-sports.io/coachs?team=33>

Players: <https://v3.football.api-sports.io/players/seasons?player=276>

In order to get the information required for the parameters of any specific API query, it will be really important to check the IDs documentation of the API-Football service. It is possible to get to the IDs from the API Sports dashboard where it will be possible to get the League's & Team's IDs. For example, 39 is league id for the Premier League while 33 would be the id for Manchester United. However, after being logged in it could be access from this two URLs:

:

[Leagues](#)  
[Teams](#)

## Building An Alteryx Workflow to Get Football Data

Once our API account has been set up and we have collected our Key, it is time to move to Alteryx to build a workflow that allow us to make queries to the API.

If you'd like to download the exported data, or download the Alteryx workflow you can do so in the links at the top of the page.

Both the:

[Premier League Workflow](#)

[Premier League Example Output](#)

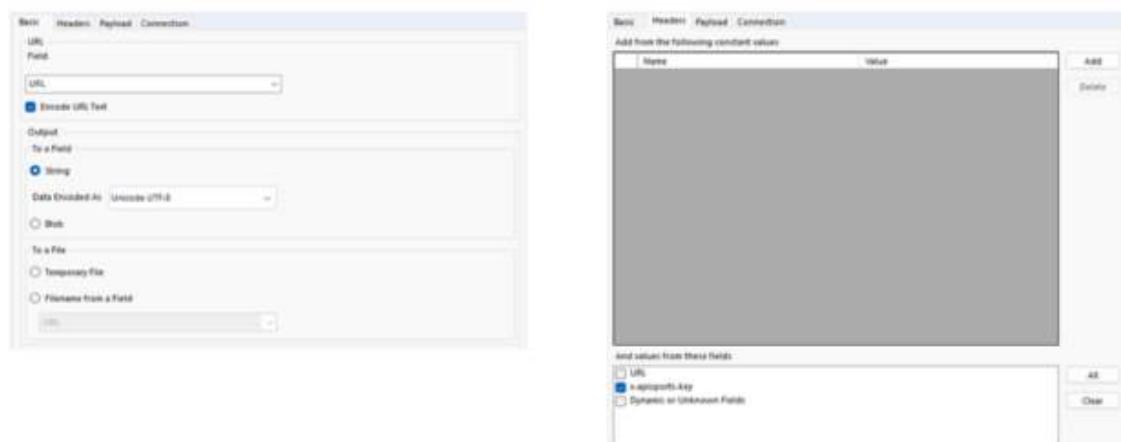
will be stored in the GitHub repo.

### Step 1: Assigning Credentials

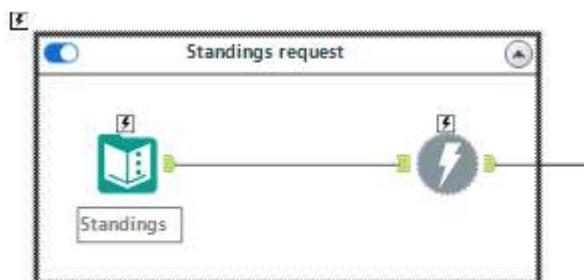
Our first input into Alteryx must contain the URL of the query and our Key. It would be a Text input tool the one we can use in order to set one row and two columns (one that contains a URL query such as [“https://v3.football.api-sports.io/standings?league=39&season2021”](https://v3.football.api-sports.io/standings?league=39&season2021) and another one for the key).

### Step 2: Downloading the data

After these credentials have been brought into Alteryx, then it is required to make the API call. There is one specific tool to make it which is the Download Tool and it will require us to specify which is the URL of the query. It will also require us to select which field contains the key as that will be selected in the Headers tab of the Download Tool configuration.

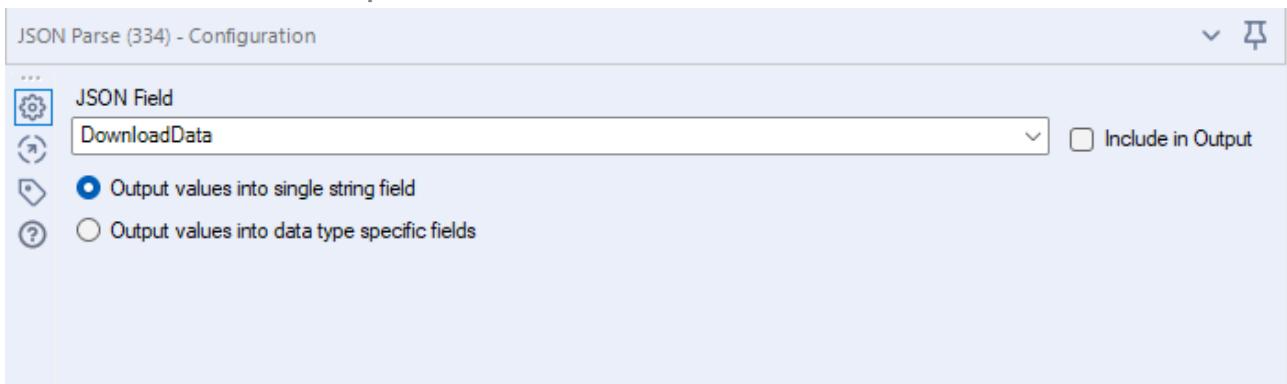


Steps 1 & 2 would then look like this:



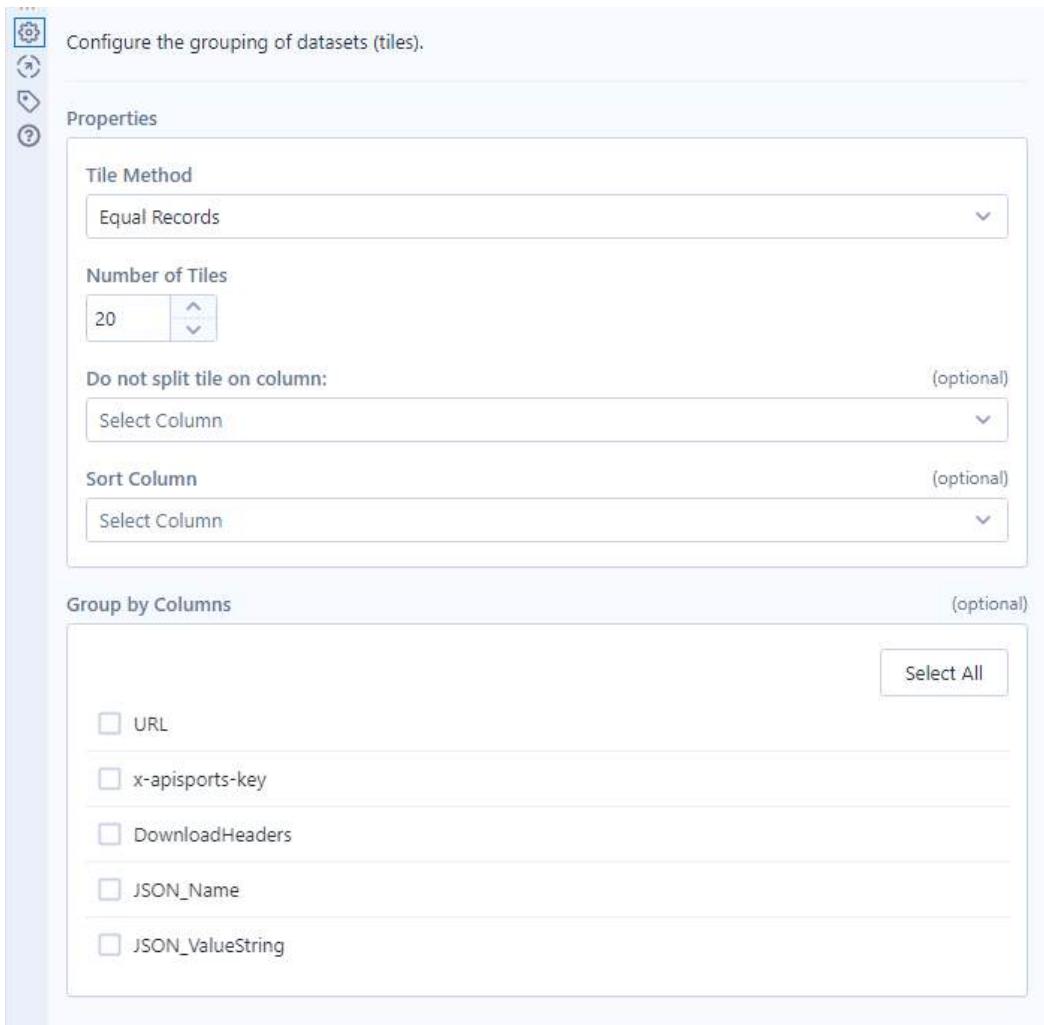
Step 3: Performing data cleansing on the data

This, if successful with a code such as HTTP/1.1 200 OK, will download data in a JSON format and that will require the use of the JSON Parse tool set to parse a JSON Field called DownloadData.



Once it has been parsed, data is structured in rows containing data which would need to cross tab into columns in order to get data ready to be analyzed later in any other tool. Before we do so, it is important to understand that there is a need to perform data cleansing that will involve a Sample Tool, a Tile Tool, a Filter Tool and a RegEx Tool:

- **Sample Tool:** First 13 rows (**always!**) contain data related to the league or competition as well as the season even though that is information that we are already aware of as we needed to include in the URL used to make the query. That is why there is a need to use a Sample Tool to skip the first 13 rows.
- **Tile Tool:** As our query contains data related to the standings for a specific league and season, then it will contain as many records as information it returns for every team of that specific league and season. For example, if we are downloading the data of the Premier League 2021/2022, we must consider that we will have 20 teams so we should use a Tile Method of Equal Records for a total of 20 tiles (which it really means teams for this use case). However, we must consider the number of teams in Tile Tool based on which competition we are querying its data.



- **Filter Tool (optional):** If there are any records coming out of the Tile Tool that we believe are not interesting to our main purpose, a Filter Tool can be used to filter out based on the Tile\_SequenceNum because that way it is possible to remove it from every team in that specific league and season.
- **RegEx Tool:** Using RegEx here can be useful in order to rename those values that will serve as column names (or headers) for our final dataset. Once our download data is parsed using a JSON Parse Tool, the name for each will value will be under a column called JSON Name. That will contain some characters such as `response.0.league.standings.0.0.team.id` but we are interested only in the two final words of that name. That way we can use a RegEx to parse just that part of the name:

```
(\{\d{8}\}.\d{1}(\d{1}).\d{1}(\d{6}).\d{1}(\d{9}).\d{1}(\d{1}).\d{1}(\d{1}).(.)+)
```

Build an expression to parse, match, or replace data.

Column to Parse

JSON\_Name

Format to Convert

Regular Expression [?](#)

(\{8\}).{1}(\d{1}).{1}(\{6\}).{1}(\{9\}).{1}(\d{1}).{1}(\d+).(.)



Case Insensitive

Output

Output Method

Replace



Replacement Text [?](#)

\$7



Copy unmatched text to output.

Finally, we could then move to use a Cross Tab Tool to pivot the table so based on the identification of each team (Tile\_Num coming from the Tile Tool).

Select data to transform.

Group data by these values:

Select All

- URL
- x-apisports-key
- DownloadHeaders
- JSON\_Name
- JSON\_ValueString
- Tile\_Num
- Tile\_SequenceNum

Change Column Headers

JSON\_Name

Values for New Columns

JSON\_ValueString

Method for Aggregating Values

Select All

- Concatenate
- First
- Last

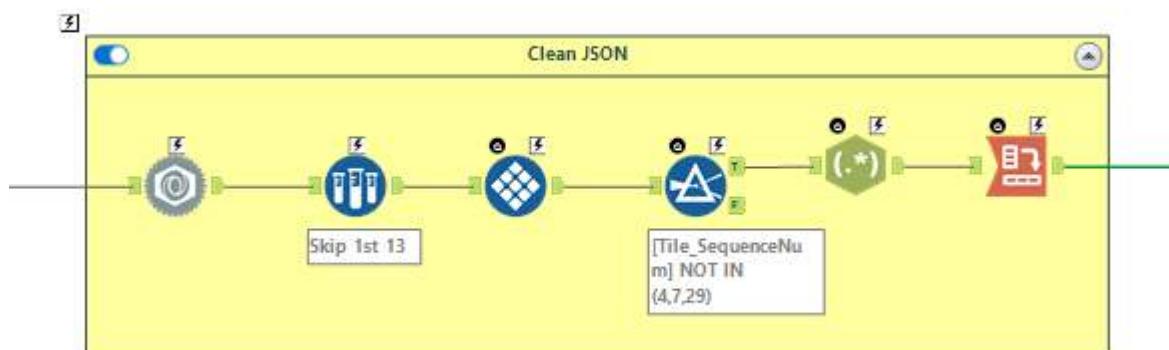
Separator

,

Field Size

2048

After all these steps, data cleansing would be completed.

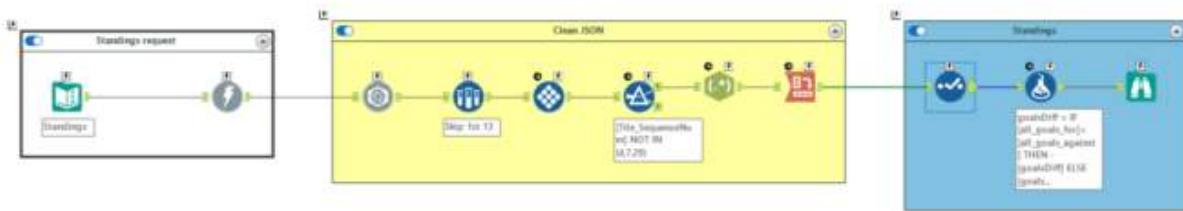


Step 4: Sorting and renaming columns to build our final table

# It is now almost over!

In order to just have data that we can finally output to any kind of format (XLSX, CSV, HYPER, Google Sheets etc.), a Select Tool can be used to sort and rename the data so we can end up with a table that it looks like this. It is highly important to take into consideration the Google Sheets output as this one will allow users to update automatically their data later on Tableau Public by following Joris' blog! However, it is really important to understand that this Tool is not automatically installed once Alteryx Designer has been installed but you will need to install it from the Alteryx Community once download from [here](#) and install the YXI right after. You can follow this instructions from the [Alteryx Help page](#) to make sure you can authenticate and write something from Alteryx in a Google Sheets.

After a query just like this one, we would be able to get information related to the competition, a team name, id & logo, results due to its ranking (UCL, UEL, Relegation), status compared to previous week, games played (home & away), games won (home & away), games lost (home & away), games drawn (home & away), goals scored (home & away), goals against (home & away) and the latest date for a game.



Once it is ready, we can just bring in an Output Data Tool to get our data and start our analysis by following Joris' steps in Tableau.

PS. It may require a few more steps through the data cleansing for different types of queries but the data obtained always comes with the same structure.

## CJ Round-up:

Thank you Alberto for that insight as to how to prepare data from the Football API ready for analysis in Tableau. I love that the workflow on the most part is plug and play. Later this week we will hear from Joris, in part

two as to how to calculate top teams, players and games as well as a few formatting tips and tricks to bring the visual to life with badges and players.

Once again, be sure to download your own copy of the workflow and or example dataset if you're wanting to take part in the Tableau section.

You can find the files within the repo.

LOGGING OFF,

CJ

#### TALKING ABOUT THE Y

*This blog post will look to cover off some thoughts around a recent thread within the community of axis labelling. Naturally, I'll throw in a few bias opinions but leave the question open for you to make your own conclusions around whether you prefer a chart with a left or right hand Y axis.*

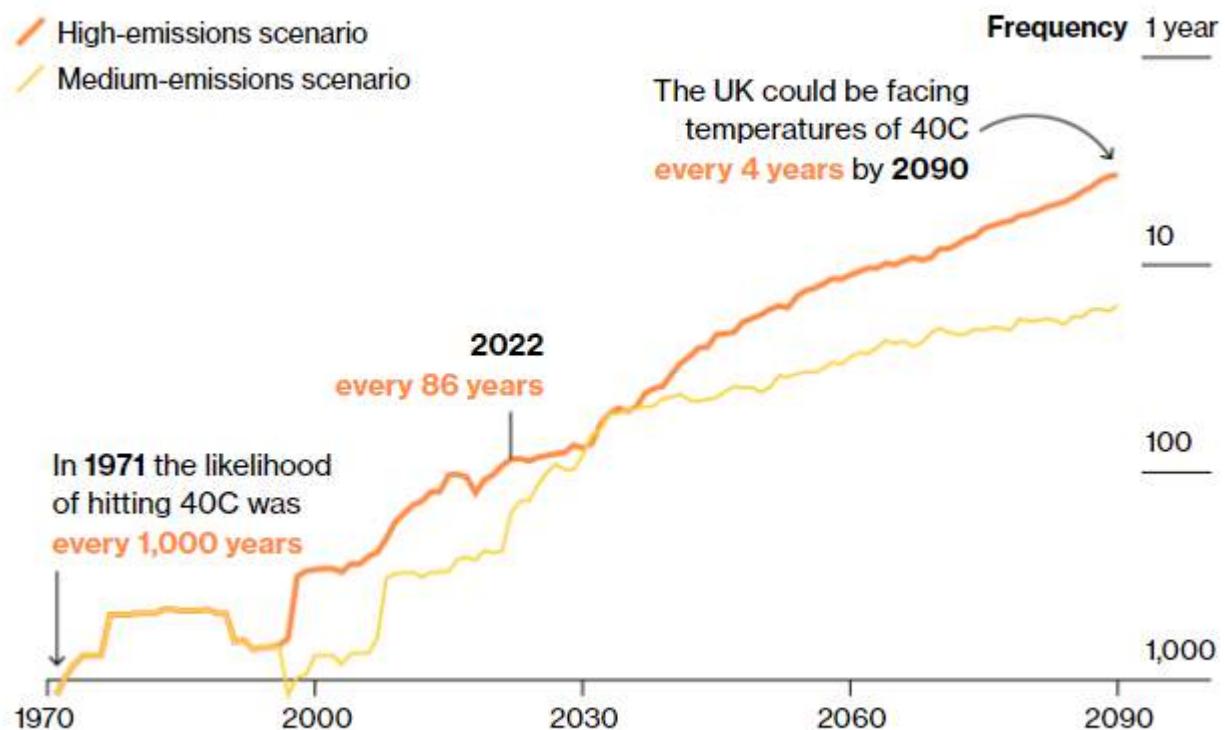
Hi all,

How is it going? Life has been a little mayhem recently. I miss those days a little where I could really sit in my relaxed creative mindset space and come up with new ideas for visualisations. I'd quite like to do a big project soon again, I actually really miss the feeder viz time period. That's not meaning to come off a little negative though, I'm still grateful, lots of good things happening – just itching to get back in the game. Anyway enough pre-rambling, onto the proper rambling. We will look to go through some of the ideas in the community recently with chart layouts, and will look to throw a few ideas over the top and leave you with the question.

“How do you think visualisations should be formatted?”

## The UK Is Set for More 40C Days

Emissions are raising the chances of more extreme heat waves



Source: Met Office Hadley Centre

Note: The best estimate is shown for both scenarios.

So this was the original visual I came across, from [Jon Schwabish](#). The original article can be found [here](#).

Jon raised the point why we don't put more vertical axes on the \*right side\* of our graphs? That's where we are usually trying to direct people's attention, right?

And I was sitting here like hmm, that's not the norm. I could get behind that and rustle a few feathers further. But does it have legs. I want to make it clear that whilst I'm using this chart as a running example for open ended questions, I'm not definitively saying it is right or wrong, and would hate to think the original author to think that too.

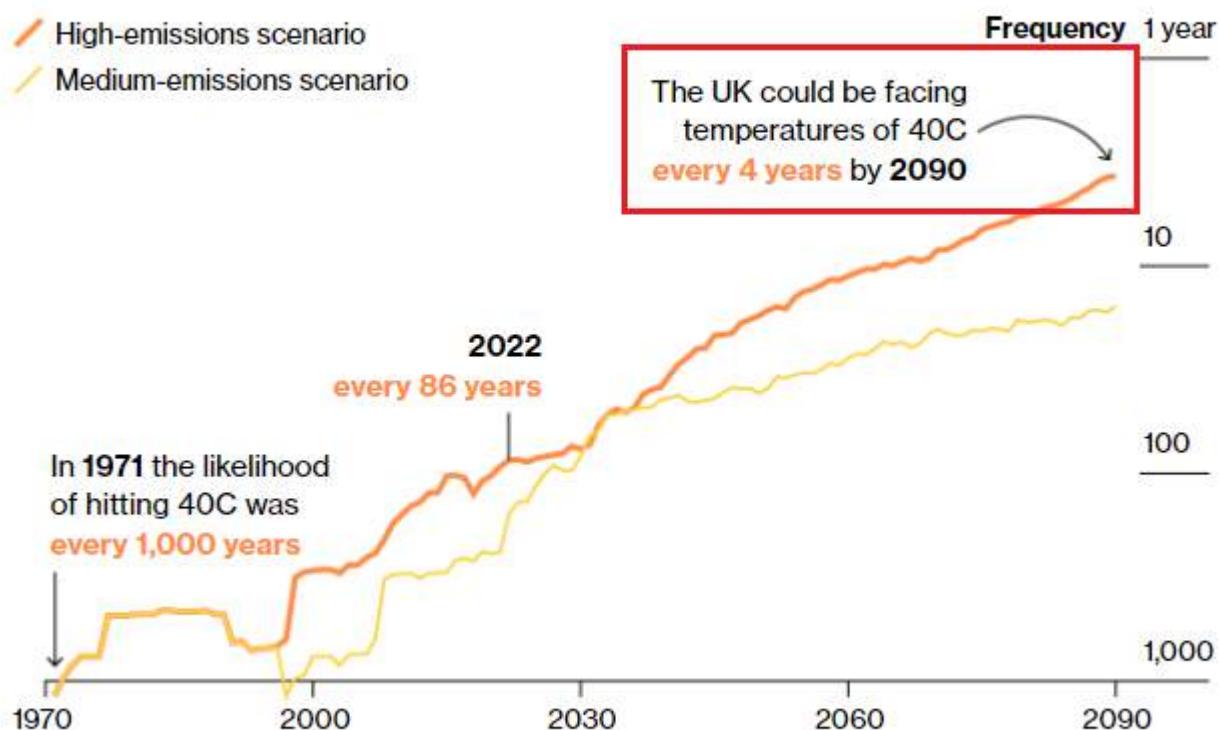
So why do I think it works in this case?

- I agree with Jon on the fact, when we look at trends over time, whilst we get the overall change, often its the more recent time periods we want to look at.  
Does data 'relevancy' matter?  
How about data recency?

- The call to action in the visual below is seemingly is on the right hand side.

## The UK Is Set for More 40C Days

Emissions are raising the chances of more extreme heat waves



Source: Met Office Hadley Centre

Note: The best estimate is shown for both scenarios.

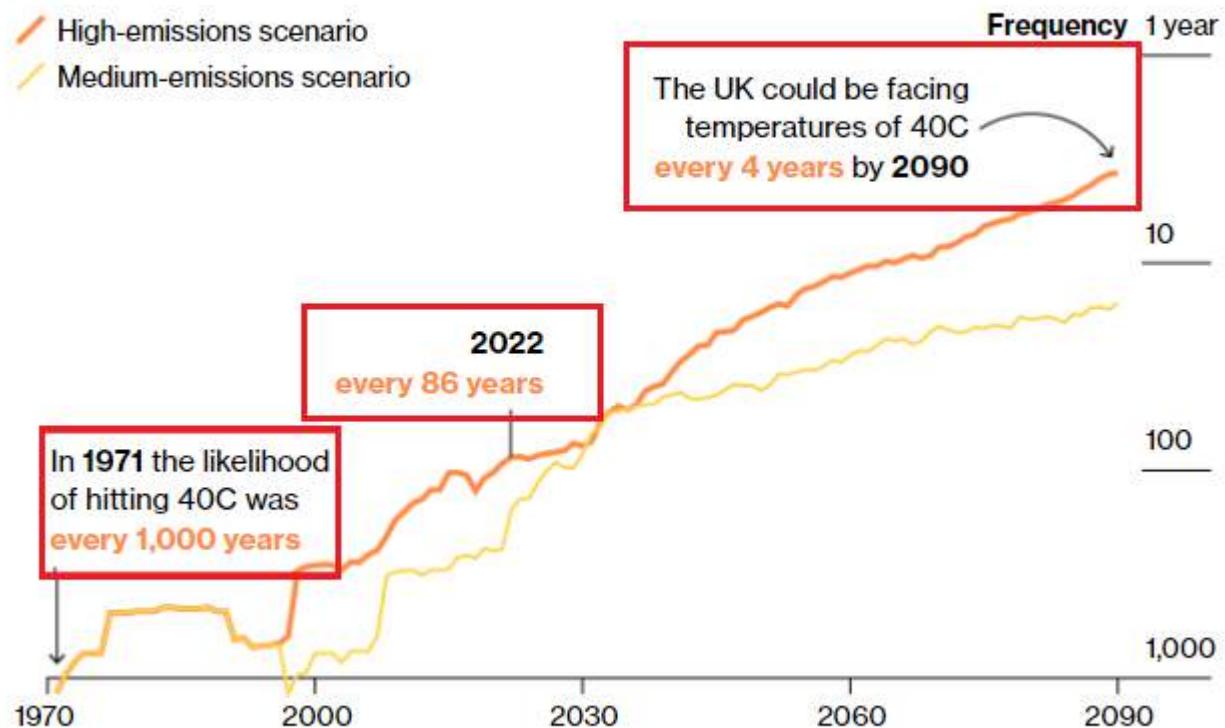
But does it work in all user cases?

- On the most part people read left to right, up-down. So an Axis on the left hand side gives context early to the chart. For most chart types it would therefore make sense in many cases to have the axis on the left for that scale factor.
- Visually therefore where our eyes are pulled to on the page and the order of understanding of the chart plays a part.

For example which order did you read these call outs?

## The UK Is Set for More 40C Days

Emissions are raising the chances of more extreme heat waves

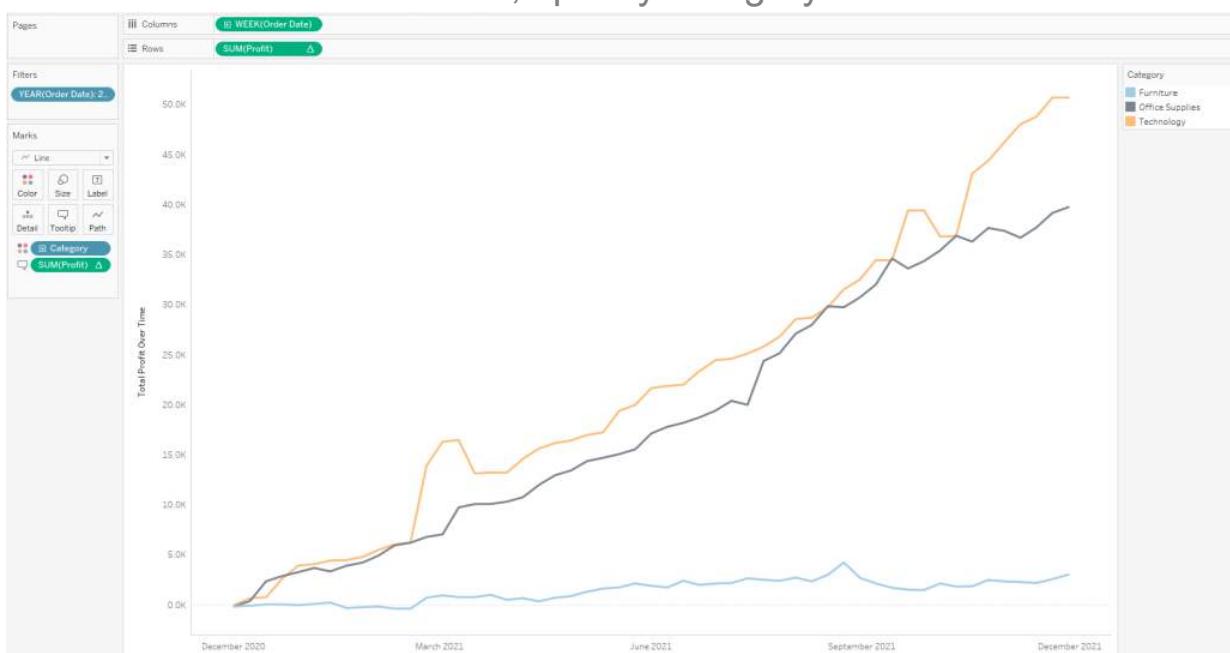


Source: Met Office Hadley Centre

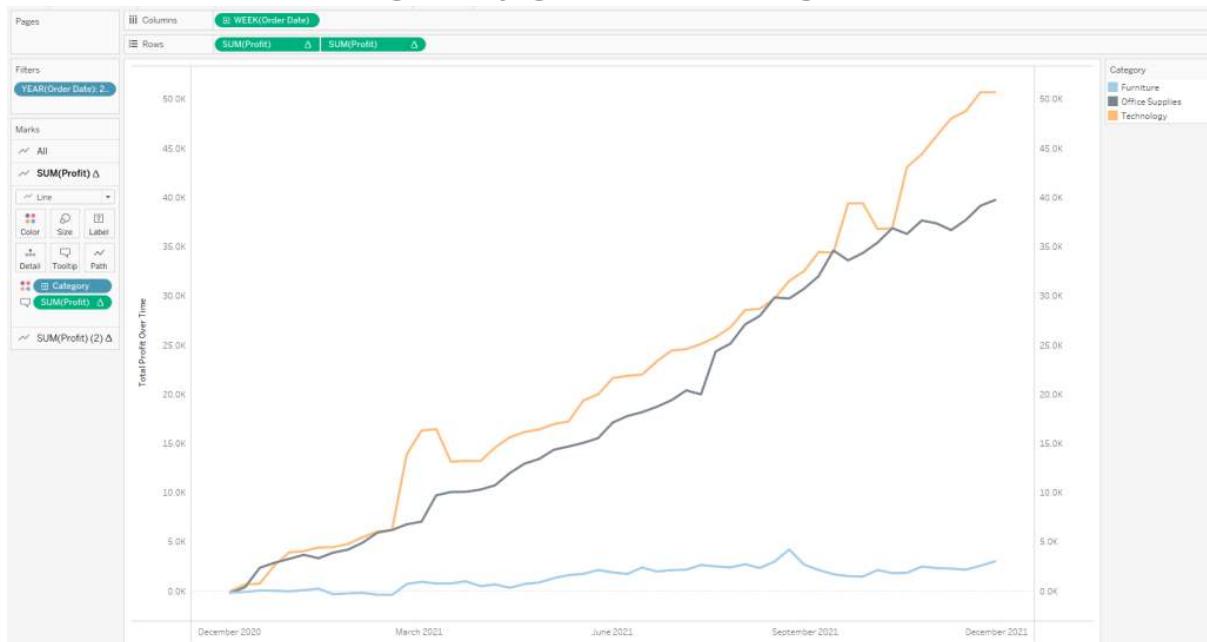
Note: The best estimate is shown for both scenarios.

So can it be replicated in Tableau?

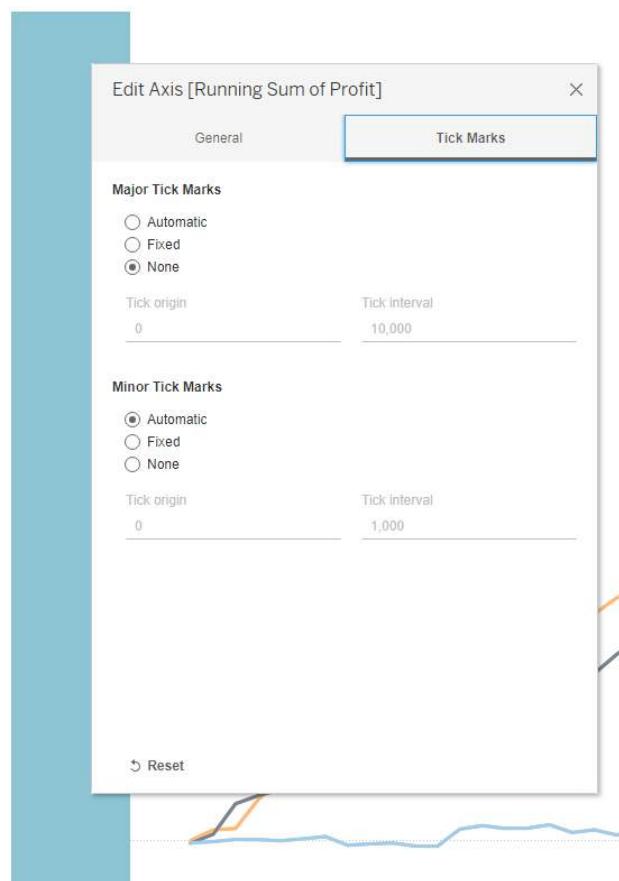
Well, not perfectly but let's give it a think. Lets take a simple total profit visual, split by category.



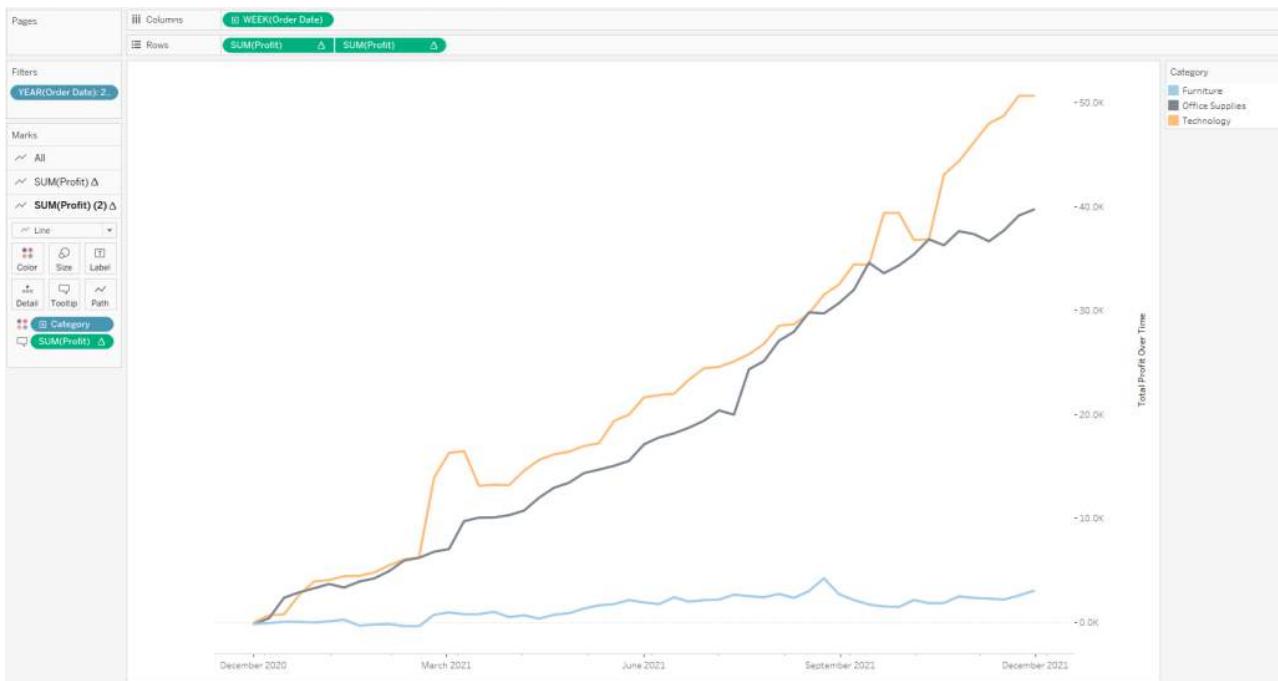
A quick dual axis and synchronise and we have that right axis. Obviously nothing wildly ground breaking so far.



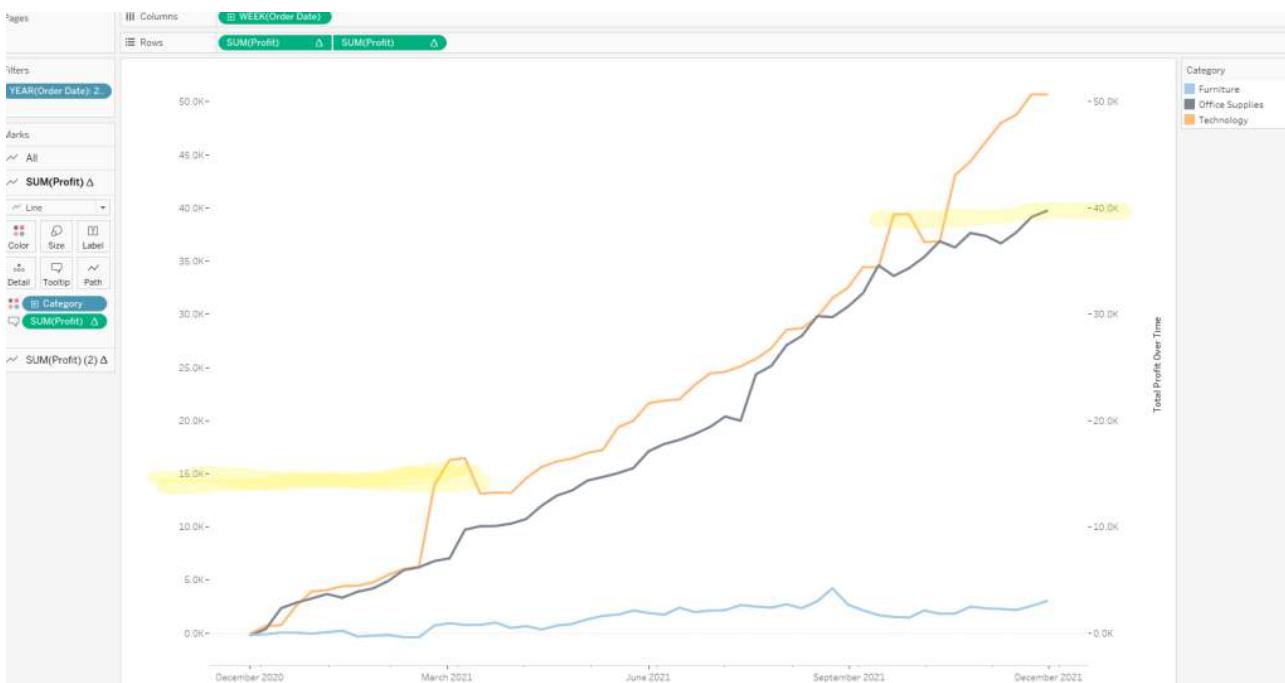
We can then edit the axis and remove the tick marks and axis label from the left hand axis.



But it does leave this unappealing looking axis gap. Tough to counterbalance when on a dashboard.



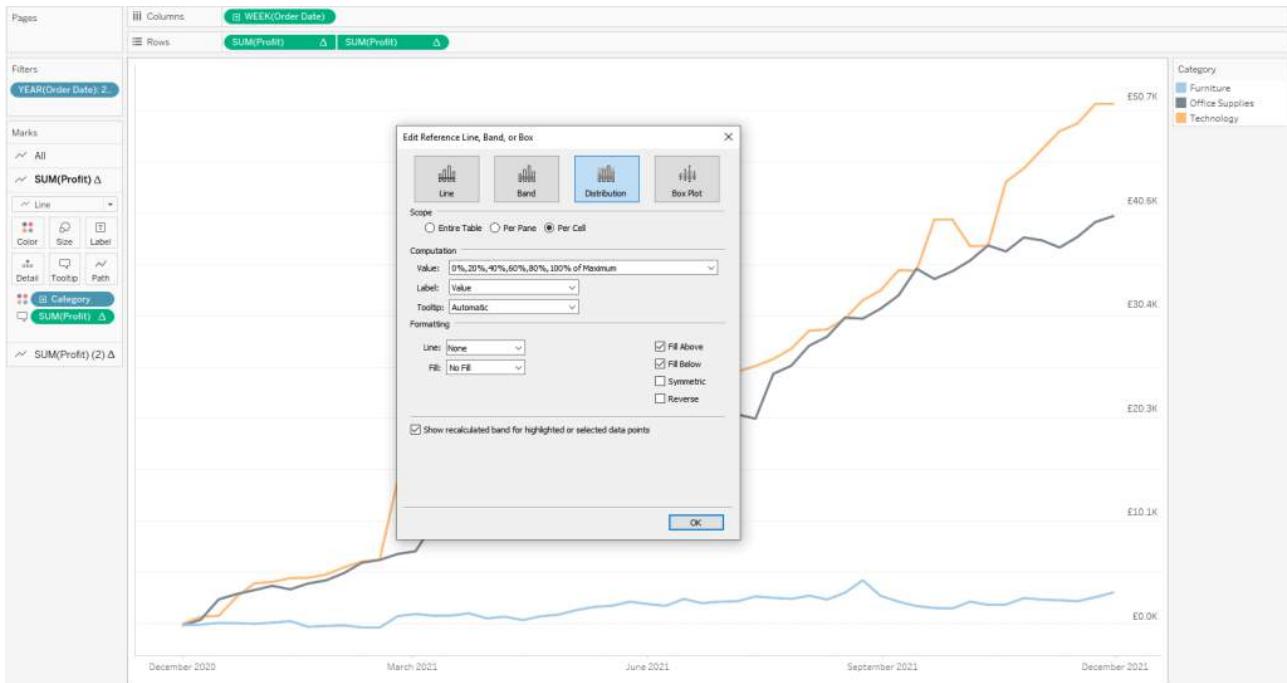
Another thought that came up in the twitter thread was the idea of having two axis. A few suggestions were to have the axis match the data. Maybe it is worth having the axis have more tick marks closer to where the call out on the charts are.



I did come up with some alternative labelling ideas using map layers previously in an analytics TUG a few months back. But it takes a chunk of prep and normalising of the data. Check it out [here](#) if you're interested. So where does that leave us?

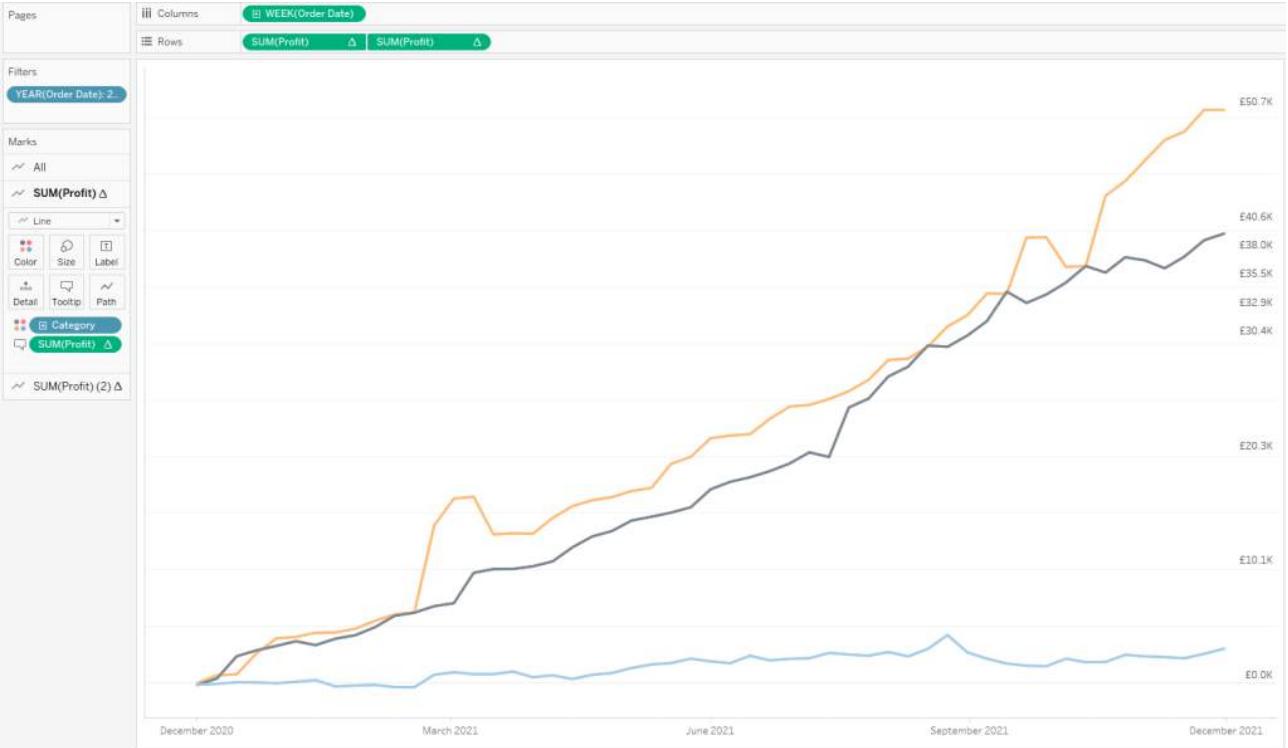
A less intensive way we could format charts is through reference lines. We can compute specific calculations of a label, and then right align

them. This actually solves our issue with the axis as we can remove them completely!!



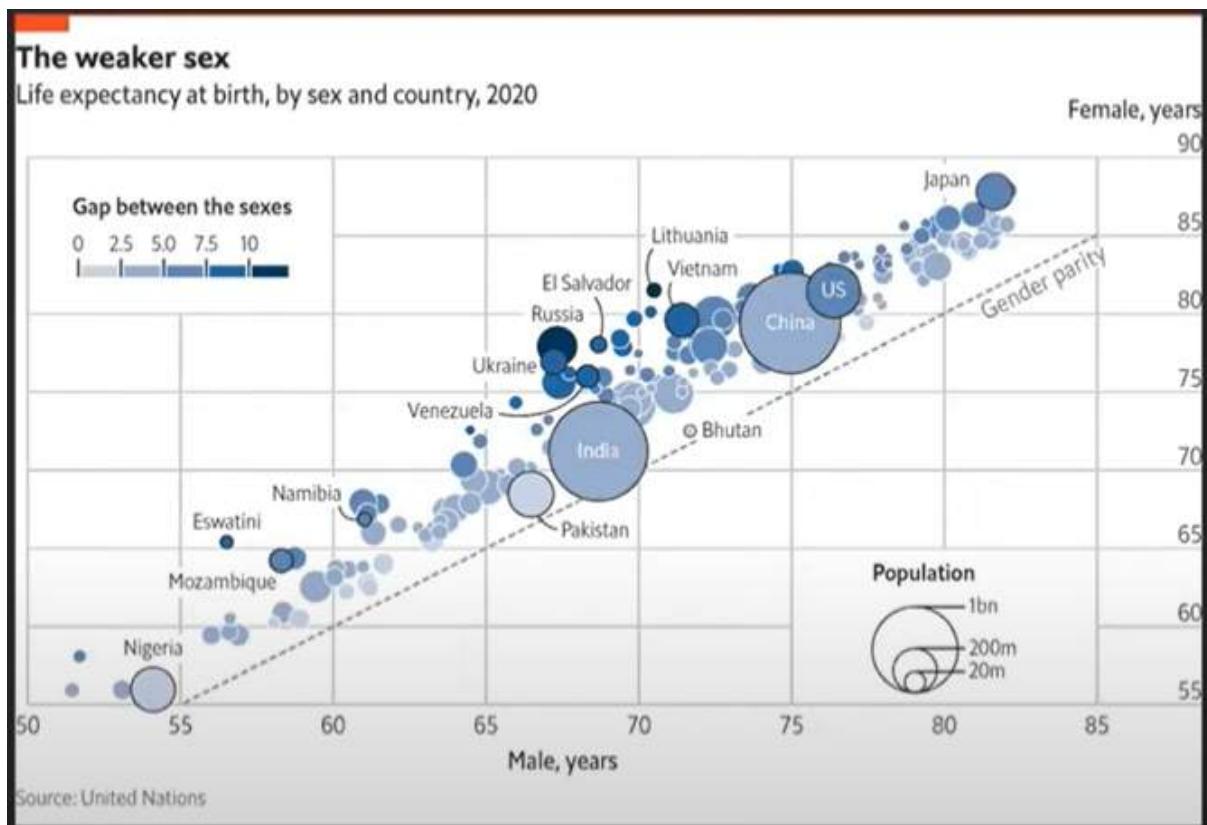
For this, add a distribution label on the pane and add all the values of the % you want to add. I went for 20% increments up to the maximum values.

Only other formatting needed is to make the fill on none, and label them as values. Go into the formatting pane and right align and it's done. I reckon someone might hang me out to dry if I was to suggest that you could completely break tick mark norms by adding more labels in the focussed area this way.



I'll end on sharing this **fantastic chart chat** where Jeffrey Shaffer, Steve Wexler, Amanda Makulec, and Andy Cotgreave debate this in a much more articulate fashion. (Skip to the 08.30 mark where they discuss the right hand axis life expectancy chart) Really interesting how they discuss the balance of the axis with the overall page, and if it is to impede on the colour legend / title amongst other things.

Positioning of elements and aspect ratios also came up in conversation and I think those are a nice way to consider balance in design.



If a right aligned axis is good enough for the economist style-guide, It's good enough for me.

LOGGING OFF,

CJ

HOW TO ELEVATE TABLEAU LEARNING AT ALL SKILL LEVELS – ERIC BALASH

Hi All,

Welcome to the August episode of “What’s Good?”

This month, I am delighted to welcome **Eric Balash** to the blog. Eric is a well known community member to many and has more recently restarted with a magic touch the Back to basics initiative helping elevate analysts of all skill levels.

You can find Eric on **Twitter**, **Tableau Public**, and follow the B2VB initiative [here](#).

Funnily enough it's also Eric's birthday today so go drop him a happy birthday on Twitter!!

CJ: Eric, thank you for agreeing to be part of the What's Good series. You've been a long standing member in the community, at least relative to me but i'm really interested in your journey to now.. Tell us a little bit about how that journey first started and the move to data viz at **Lovelytics**.

E: Hi CJ! Thanks for having me and for the kind Birthday wish! My Tableau journey takes us back to my college days. I was interning with a healthcare start-up where they had me building these clunky reports in SQL Server Reporting Services (SSRS). They looked terrible and took me quite a bit of time to put together. One day a new data analyst hire was looking over my shoulder and said "Hey, you should use Tableau for that." I was like, "What's that?" and the rest was history. I built out new, better-looking reports in a quarter of the time that it was taking me in SSRS. From that moment on, I was hooked on Tableau and wanted to work with it in any capacity that I could. Keeping that in mind, my first job out of college was with a hospital where I was a Healthcare Data Analyst. I was working in Tableau daily building out Population Health reports for the hospital. We were doing some pretty cool things and it really brought my Tableau game to the next level. While I was there, I was sent off to my first Tableau Conference. I was hooked – on Tableau Public, the community, all of it. The energy and support from everyone at Tableau Conference really made me want to get involved more. Things came to an end at the hospital, and I moved to the Washington DC area to work for Booz Allen Hamilton. I was building internal reports for them and running their Center of Excellence. I spent a lot of time engaging with the community and participating in local user groups and sharing dashboards on Tableau Public. Eventually, I found myself taking on a new and my current role at **Lovelytics** (a Tableau Partner) with my good friend, mentor, and Tableau Visionary, **Chantilly Jaggernaut**. So here we are. The community has so much to do with my Tableau Journey and I wouldn't be where I'm at or as happy as I am if it wasn't for the DataFam.

CJ: When we were chatting a really strong love for the community came across. You mentioned that your first conference was back in 2018. How have those friendships in the community grown? Has anyone in particular really helped cultivate your own growth?

E: Totally! My first friend in the Tableau Community was **Katie Wagner**. Katie is super outgoing and extremely passionate about the Community. She explained who's-who and what's-what, how to connect with people, and just so much more about Tableau it's community that I never would've known existed. She really helped me feel a part of the DataFam and introduced me to a lot the friends I have today. I definitely have to shoutout Chantilly as well. I mentioned early that I work with her at Lovelytics, but I'm also a trainer for her non-profit, **Millennials & Data**. Millennials & Data's (#MAD) mission is to bridge the data literacy and analytical skills gap by training, mentoring, and preparing millennials to enter a data-driven global environment. It's an incredible program, so definitely check it out when you can. Outside of work, Chantilly is an awesome friend. She's like that big sister I never had. I definitely have her to thank for a lot of my growth both in and out of the workplace.

## MISSION

#MAD's mission is to bridge the data literacy and analytical skills gap by training, mentoring and preparing millennials to enter a data-driven global environment.

## VISION

#MAD's vision is to build a community of millennials who have the analytical skills needed to become data driven leaders within any industry.

CJ: Can you share a little more about the history of The Tableau Student Guide. How did it transition into what it is now? Why did you want to get involved in B2VB in the first place?

E: Great question. Once upon a time, there was a Student Ambassador by the name of **Maria Brock**. In her learning of Tableau, she came to realize that there's no "one-stop-shop" for everything you need to know about Tableau and the Community when getting started. She had about 50 tabs of blog posts, YouTube tutorials, webinars, whitepapers all open

in her browser about things to do in Tableau. She saw an opportunity to get the community a resource that summarized all of this information in one spot. Introducing, **The Tableau Student Guide**. Maria started to shift gears but wanted the Student Guide to live on, so she happily passed it on to me. I was so excited to take on this incredible resource because sharing Tableau and all its capabilities with others is something

I absolutely love. I did however want to add my own significant contribution to it, so I came up with the idea to run a Tableau Community project through it. **Back 2 Viz Basics** was born. At the time some other Tableau Community projects were slowing down or ending, and there really was not one project dedicated to those just starting out. The project is not industry specific and there's no need to create a comprehensive dashboard. We focus on one small chart or topic at a time, which makes it the perfect community projects for those just starting their Tableau Journey or for those who wish to go back and re-establish those basic fundamental Tableau skills.

CJ: If you were to reflect on your own profile with the B2VB theory in the background. Are there any visuals of yours where you would revisit? If so, why?

The image displays a grid of 12 Tableau visualizations (vizzes) created by Eric Balash, showcasing various data analysis projects. The vizzes are arranged in three rows of four. Each viz has a title, author, and some engagement metrics (stars and views).

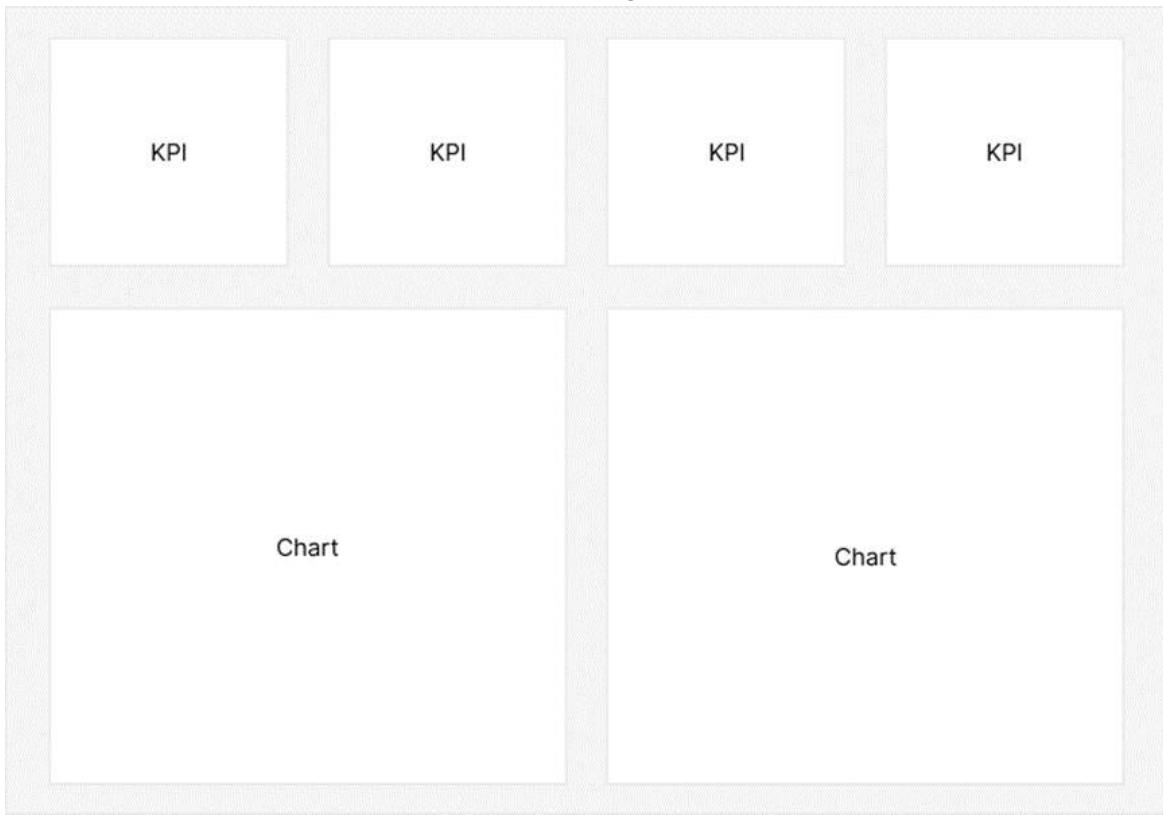
- Back 2 Viz Basics Submission Tracker**: Eric Balash. 115 stars, 6,325 views.
- Tableau Landing Pages**: Eric Balash. 149 stars, 14,397 views.
- Never Married on the Rise**: Eric Balash. 8 stars, 298 views.
- Anti-Asian Hate Incidents in America**: Eric Balash. 250 stars, 15,620 views.
- Capital Bikeshare Membership | #MAD**: Eric Balash. 4 stars, 148 views.
- PHV | Admitted Patients Analysis**: Eric Balash. 51 stars, 1,679 views.
- F\*CKING UP THE GLASS CEILING**: Fortune 500 Female CEOs. 14 stars, 261 views.
- MM | The Rise of US Trail Usage**: Eric Balash. 5 stars, 203 views.
- WEAR A MASK**: Eric Balash. 34 stars, 747 views.
- Tableau Resume - Chinese Version**: Eric Balash. 20 stars, 3,617 views.
- Ironviz 2020 | Finding Her Reflection**: Eric Balash. 47 stars, 1,415 views.
- President Ronald Reagan**: Ironviz 2020. 13 stars, 270 views.

E: Oh totally! I think a lot of us look back at our old vizzes and say “What was I thinking!?” I also think that’s the beauty of our journeys. We all start somewhere and we each take our own unique path to get where we want to be. Keeping Back 2 Viz Basics in mind, I look back at some of my old vizzes and see poor choice of color and a lot of overcomplication. The main thing I stress in my project is keeping things simple. Focus on one thing at a time – using labels, adjust colors, removing gridlines – play with each feature and see how it positively or negatively impacts your viz.

For me, I would tell my old self to use 1 to 2 dominant colors in my viz and not 5. I would also tell myself to keep things simple. I feel like there is a lot of added graphic detail and overcomplication of charts and layouts in my old vizzes.

CJ: What are some design tips you think all business KPI dashboards should have?

E: I love a good business dashboard. **Ellen Blackburn** and **Autumn Battani** are the two people I think of when it comes to clean and crisp business dashboards. I think a time element is really important include in your design. A lot of the stakeholders I work with want to splice the data in so many – sometimes too many – different time periods. Giving them a custom option to use to compare KPIs from a one period versus another is always a big win. I also think it's important to keep things consistent and aligned. Think about designing to a grid. If you're listing 4 KPIs across the top and you have 2 charts underneath in the next section, those two charts should be the width of 2 of your KPI sections (see the example below). Keeping things aligned and consistent in your business dashboard will definitely elevate it to the next level.

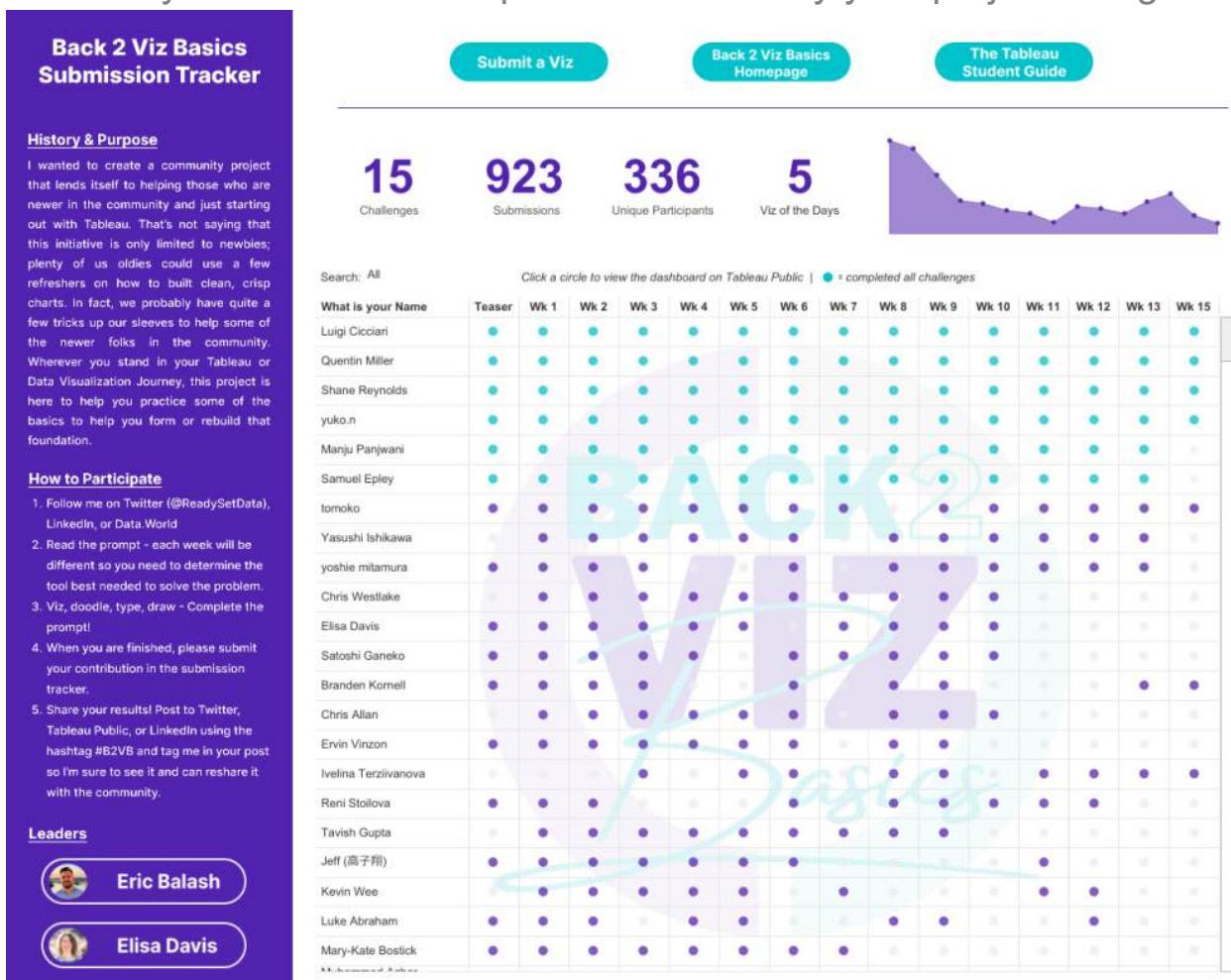


CJ: What I particularly love about B2VB is that it is a really safe space to learn. Not only this, it accommodates individuals of all skill levels. How do you nurture building this culture around the initiative?

E: I think it mentioned this earlier, but we can all benefit by going back to our Tableau roots and starting with the basics. Whether you've been using Tableau for a week or you're a Tableau Visionary with 10 years of experience, we can all learn something new through this project. I didn't

want the project to have any barriers to entry; people should be able to open Tableau and join this community project from day one. I think what's helped in nurturing the culture around the project is that every two weeks we focus on something small. There's no need to go in and build a dashboard with 15 worksheets or try to figure out something super complicated from a calculation's perspective. We keep things simple. By having users of all skills levels participate, I think everyone finds it to be quite inviting and a safe space to share their work.

CJ: At the time of writing there has been been 13 weeks of content. What is your reaction to response and visibility your project has gotten?

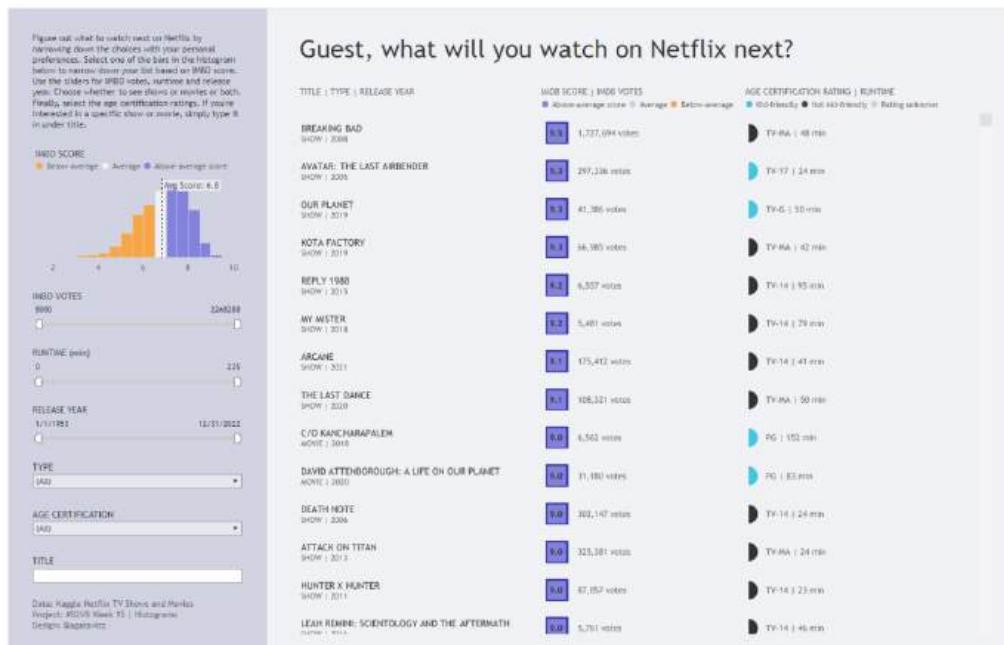


E: Honestly, CJ, I'm shocked. I never would've thought that we would have over 900 submissions through Week 15. I received so much positive feedback from so many different people in the community and that makes me truly happy. I've always wanted to give back to the community that has given me so much, so I'm truly thankful and still can't believe how much it has taken off. I'm proud to say that we have had 5 Viz of the Days come out of Back 2 Viz Basics and even more

incredible content that is all available in the submission tracker. The tracker is a huge collection of content by category and designer that anyone is able to access. There are so many different ideas out there that people have added to their dashboards and I love getting to see how unique they are all even though it's the same topic and data in a given week. Overall, I'm super thankful for all the participants and I can't wait to see what we'll do the rest of the year.

What is your Name	Teaser	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	Wk 12	Wk 13	Wk 15
Agata Ketterick															●
Ashwin Shankar					●										
Chimdi Nwosu										●					
Katie Kilroy		●													
tomoko											●				

CJ: Check out the most recent VOTD based on histograms from Agata Ketterick, [here](#).



CJ: When we speak about design, people often refer to 'clean and simple' being of high value. We often see, especially in public work, individuals trying to implement more modern website interactivity into their UI. Why are these principles so important?

## Business Dashboards

The image displays a grid of 12 business dashboard examples from Tableau Public, each with a title, author, and star rating.

- Business Dashboard (Personal Development)** by Irene Diomi: 174 stars, 15,657 views.
- Web Traffic Dashboard | Digital Marketing** by Pradeep Kumar G: 821 stars, 59,727 views.
- Insurance Dashboard** by Autumn Battani: 155 stars, 13,452 views.
- Regional Scorecard** by Kim Tricker: 164 stars, 14,077 views.
- Superstore Dashboard - Business Dashboard** by Marcelo Has: 667 stars, 62,800 views.
- Customer Support Case Demo** by Ellen Blackburn: 378 stars, 20,813 views.
- European Superstore Focusing on Issues** by Samuel Parsons: 106 stars, 7,895 views.
- Sales Funnel Dashboard** by Seoyeon Jun: 211 stars, 11,141 views.
- Expenses Audit Dashboard** by Luke Donovan: 417 stars, 31,141 views.
- Call Center Dashboard** by Autumn Battani: 479 stars, 41,970 views.
- HR Attrition Dashboard #RWFD** by Pradeep Kumar G: 374 stars, 17,564 views.
- Finance Business Dashboard** by Fuad Ahmed: 444 stars, 28,361 views.

Taken from Tableau Public – Business Dashboards

E: One of the biggest barriers to using Tableau that I've seen is that if something breaks or doesn't do what a user expects, they won't use it.

An analyst could build a dashboard and pass it off to their users. If a user can't figure out how to use it, they'll just ask the analyst to export the data and send it to them in Excel. With that said, this is why it's important to keep things clean and simple. The dashboard doesn't need

to be modern looking. As long as dashboards are accessible and designed with the user in mind then the designer has done their job. I also want to add that I think its good to include some of more modern website design into our dashboards because this what we are familiar with. We know how navigation and interactivity works in a website so if we carry these same principles over to our dashboards, our users should have no issues with the dashboard's accessibility.

CJ: I see you store some of your works of art on Etsy for print. A few others have done similar in recent years. Could you share a few thoughts on how to get set up, list, and any challenges you found along the way. Do you have any on the wall at home?

Items

Sort: Most Recent ▾

<a href="#">Search items</a>	
All	13
Wall Art	1
NCAA Basketball	7
Quotes & Speeches	1
Other Prints	2
NCAA Football	2

[Contact shop owner](#)

10 Sales

16 Admirers

[Report this shop to Etsy.](#)

Custom Sports Team Data Viz Print | 24...  
£52.25 FREE UK delivery

Virginia Cavaliers College Basketball D...  
£43.90 FREE UK delivery

North Carolina Tar Heels College Baske...  
£43.90 FREE UK delivery

Duquesne Dukes College Basketba...  
£43.90 FREE UK delivery

The Time We Have Data Viz Print Wall Art  
£41.80 FREE UK delivery

Duke Blue Devils College Basketball Dat...  
£43.90 FREE UK delivery

Purdue Boilermakers College Basketba...  
£43.90 FREE UK delivery

President Ronald Reagan 'Tear Down T...  
£41.80 FREE UK delivery

U.S. Population Distribution Data Viz Pri...  
£33.44

Penn State Nittany Lions Football Data ...  
£43.90 FREE UK delivery

Villanova Wildcats College Basketball D...  
£43.90 FREE UK delivery

Michigan State Spartans Football Data ...  
£43.90 FREE UK delivery

Kentucky Wildcats College Basketball D...  
£43.90 FREE UK delivery

E: Thanks, CJ! The Etsy store was a lot of fun to figure out, but there are definitely a lot of moving parts. I learned a lot from **James Smith** and worked together with **Jeffery Plattner** to get our stores up and running. Check out **James' store** and **Jeff's store** and see some of their awesome viz prints. The first challenge was learning that you cannot simply export your viz from Tableau and upload it to Etsy. Unfortunately, it's not that easy. In short there are 4 mains steps that involve 4 different mediums.

1. Tableau – design you dashboard in Tableau and export as a PDF
2. Adobe Illustrator – insert your PDF from Tableau. After doing this you'll have to edit your PDF and add text, labels, and other

elements (check out Jeff's blog post from above on the other steps involved here). Once complete, export your print as a PNG.

3. Prodigi – upload your PNG to Prodigi to buy your print. We've found that the pricing, quality, and options available from Prodigi are some of the best out there. This is our recommended viz printer.
4. Etsy – If you want to set up a store, you can create mock-ups and post your vizzes to sell

Like I said, there's quite a few steps involved and the process can be a little tedious so keep that in mind before jumping in and creating your own viz prints. James, Jeff, and I are always available to chat and help others with their viz prints.

CJ: One of your most well known pieces I would say is 'The Time We Have' from 2019. Can you share more about this visual?

# THE TIME WE HAVE

THERE ARE 28,835 CIRCLES IN THIS SPHERE, ONE FOR EACH DAY THAT THE AVERAGE AMERICAN WILL LIVE. SOME OF US MAY HAVE MORE, SOME LESS, BUT WHAT DO WE DO WITH ALL OF THIS TIME?

HERE'S A SINGLE CIRCLE. IT'S YOUR VERY FIRST DAY. A SPECIAL DAY, BUT KIND OF A ROUGH DAY ON EVERYONE INVOLVED.

ADD 364 MORE AND YOU HAVE THE FIRST YEAR OF YOUR LIFE.

ADD ANOTHER 5,130 AND YOU'VE REACHED THE THRESHOLD OF ADULTHOOD; YOU'VE LIVED THE FIRST 15 YEARS OF YOUR LIFE.

AT THAT MOMENT, THIS IS THE TIME THAT WE HAVE LEFT AND THIS IS, ON AVERAGE, WHAT WE WILL DO WITH ALL THAT TIME.

720 DAYS WILL GO TO COMMUNITY ACTIVITIES LIKE RELIGIOUS AND CIVIC DUTIES, CHARITIES, AND TAKING CLASSES.

WE WILL WATCH TELEVISION, IN ONE FORM OR ANOTHER, FOR A TOTAL OF 2,676 DAYS.

WE WILL CARE FOR THE NEEDS AND WELL-BEING OF OTHERS, OUR FRIENDS, AND FAMILY, FOR 564 DAYS.

HOUSEHOLD ACTIVITIES, LIKE CHORES, TENDING TO OUR PETS, AND SHOPPING WILL TAKE ANOTHER 1,576 DAYS.

WE WILL BE ASLEEP FOR A TOTAL OF 8,477 DAYS. IF WE'RE LUCKY, SOME OF THAT TIME WILL BE SPENT SLEEPING NEXT TO SOMEONE WE LOVE.

WE WILL BE IN THE PROCESS OF EATING, DRINKING, OR PREPARING FOOD FOR 1,635 DAYS.

WE WILL BE AT WORK, HOPEFULLY DOING SOMETHING SATISFYING FOR THE EQUIVALENT OF 3,202 DAYS.

1,099 DAYS WILL BE SPENT COMMUTING OR TRAVELING FROM ONE PLACE TO ANOTHER, THOUGH MAYBE A LITTLE BIT MORE IF YOU LIVE IN LOS ANGELES.

WE WILL SPEND 671 DAYS BATHING, GROOMING, AND DOING ALL OTHER BATHROOM-RELATED ACTIVITIES.

AFTER WE REMOVE THOSE DAYS, THIS IS WHAT REMAINS. 2,740 DAYS: THIS IS ALL THE TIME WE HAVE LEFT. TIME FOR LAUGHING, SWIMMING, MAKING ART, GOING ON HIKES, TEXT MESSAGES, READING, CHECKING FACEBOOK, PLAYING SOFTBALL, AND maybe even teaching ourselves to play the guitar.

SO WHAT ARE YOU GOING TO DO WITH THIS TIME? HOW MUCH OF IT DO YOU THINK YOU'VE USED UP? IF YOU ONLY HAD HALF OF IT, WHAT WOULD YOU DO DIFFERENTLY? WHAT ABOUT A QUARTER OF IT? HOW MUCH TIME HAVE YOU ALREADY SPENT WORRYING INSTEAD OF DOING SOMETHING YOU LOVE?

WHAT IF YOU JUST HAD ONE MORE DAY? WHAT ARE YOU GOING TO DO TODAY?

Created by: Eric Balash | @ReadySetData | Data Source: U.S. Bureau of Labor Statistics | Original Video: [https://www.youtube.com/watch?v=8Oksw\\_NabEk](https://www.youtube.com/watch?v=8Oksw_NabEk)

E: For sure! This was my first Viz of the Day and “viral” viz that I created. I got the idea from a YouTube video that I saw years ago that broke down the time an average human spends doing different tasks – sleeping, working, traveling, etc. – what’s left is our true, absolute free time. When you break it down like this, it really puts into perspective how much time we actually have for doing things we love. The main message is to not waste a day. Tomorrow is not promised to anyone so if you’re waiting for tomorrow, why not do it today? It’s important to live everyday to its fullest and to give your best effort in all that you do. I love all the messages that I got from seeing that video and I was happy to turn it into a viz using Tableau and share it with the community.

CJ: I also heard there was some exciting personal news that happened just after Tableau Conference – Are we allowed to plaster the excitement here?!! I’m sure the DataFam would love to hear more about the special moment.

E: Yes and thanks for asking! I’m excited to share that my fiancé, Olivia, and I recently got engaged. Olivia joined me in Las Vegas while I attended Tableau Conference. She was able to meet so many of my “internet friends,” who she thought were fake, and was able to learn more about my nerdy data side.

We had a great week, but then we had to take a red-eye home. We flew all night, slept for like 2 hours on the plane, got home around 8 am, slept for another 2 hours, and then it all started to come together. We “had plans” to meet her friends from out-of-town at the Kennedy Center in Washington DC. They were “running late” so we decided to walk around outside. Please note this was the hottest day of the year...in May...over 100 degrees. Sweating through my shirt, I got down on one knee and asked the question. She said “YES!” I then planned for our family and friends to surprise her and celebrate with us after I proposed. We had an incredible day celebrating with friends and family but definitely couldn’t wait to get some more sleep. We’re in the wedding planning stages right now and it’s been great so far! We’ve locked in October 7th, 2023 as our wedding date and I can’t wait to marry my best friends.

CJ: Last but not least, what’s been your most memorable moment in the community?

E: Oh man. That’s a tough one to end on. Can I say all of them? It has to be the three Tableau Conferences I’ve been lucky enough to attend. Everything from the content, the sessions, the keynotes, the data village, the people, the location – it’s all amazing. I’ve made so many friends at Tableau Conference and I know these are relationships that I’ll have professionally and personally for a long time. Everyone in the community is so selfless and will always offer their help to others. Tableau Conference is the only time one a year that we are all together and it’s just one giant party. I also have to give a huge shoutout to all the Tableau and Salesforce employees that continue to put on conference

after conference for us. Your work and dedication does not go unnoticed. Finally, if you're thinking about joining the Tableau Community, do it. You won't regret it.

Thanks for having me, CJ. You crushed it on stage during Ironviz this year and your blog posts are helpful to so many people. Thanks for taking the time to put all of those together and for this series. I'm so thankful to be a part of it! Cheers!

#### CJ Round-Up:

Such a pleasure to have Eric join for this month, he is such a considerate person, and having got the chance to meet him in person, it really reinforced that. B2VB really is such a great initiative in terms of building your skills and visualisation theory one step at a time. So a shout out to all those that have completed most of the challenges. I see

**Luigi C** at the top of the list at the time of writing! Impressive stuff. Truth be told, I often go through the thread to pick up new tricks from the community. It is crazy to see all the different ways to format different chart types. I think some of my favorites was from the initial launch of bar charts, with tables week coming in a strong second. You can check out the full list [here](#).

Lastly, congratulations to Eric in his personal life, as well as celebrating his birthday today.

I hope these last few months have been filled with smiles from ear to ear.

LOGGING OFF,  
CJ

ALL THE RIGHT NOTES

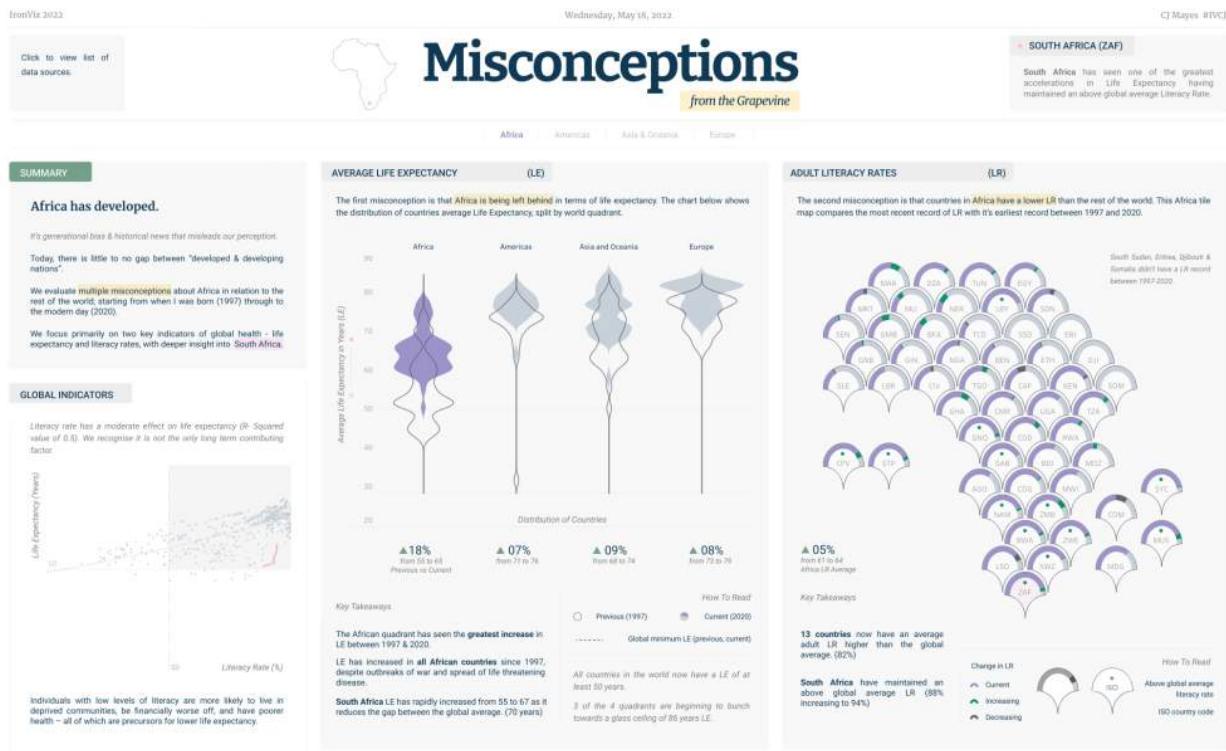
Hi all,

How is everyone feeling? We are moving into the height of summer sunshine here in London, I do welcome the extension of daylight in hours, sometimes I don't even notice how late in the evening it is when I go to close the laptop for the day. I hope many are taking some deserved summer holiday breaks to refresh and declutter the mind.

Truth be told I haven't made much time for tutorial writing, that and, well I haven't had any crazy ideas to share.

That being said, this blog will be a monologue of my recent builds, thought patterns behind them and hopefully just a bit of a brain dump that others might be able to do something more meaningful with.

So throw back, 8 weeks ago, I built a violin chart on stage.



Inspiration: Hans Rosling

Page 1

Now it was a little marmite, and irrespective of the competition, I actually really enjoyed learning about the chart type and also reflecting on individuals opinions on its practical use. It was a chart I had never built before in my career, and that alone brings me a lot of joy doing something new. Feels like I'm growing.  
If you'd like to learn more check out the blog on how the build works [here](#).



But, It sent me a down a bit of rabbit hole. What does the chart really show? Why is it useful? Was it complex for the sake of it? Where are the difficulties in interpreting the chart type?

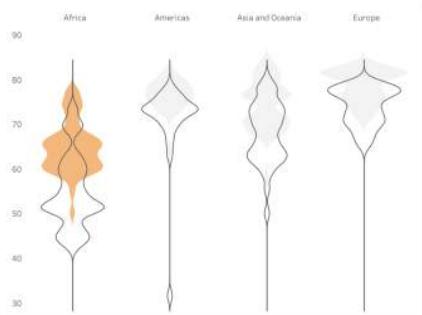
And you may have seen me slightly facetiously present my own bias on why I think the violin is a ‘good looking’ chart compared to its evil stats twin whilst at the North West TUG. With a few clickbait slides on whether visual best practice always matters, I wanted to gauge how people felt about experimenting with other charts and why my violin chart was *out of tune*.



*Originally tweeted by Neil Richards (@theneilrichards) on 5th Jul 2022.*

A moment of reflection, why did I think the violin worked well?

## So what about the violin?

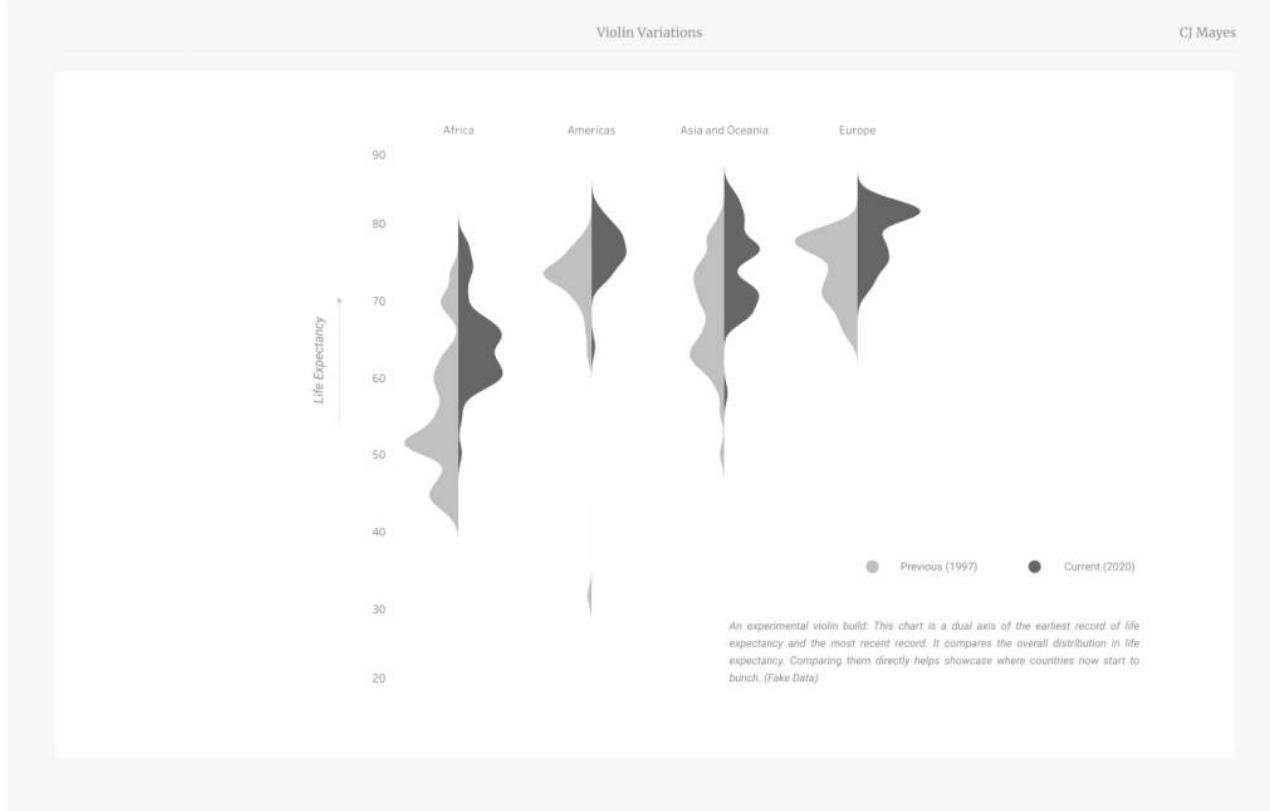


- Aggregates the data to show overall shape.
- Easy to interpret. ✓
- Fairly complex to create.
- Hard to find quartiles, median & outliers.
- Summarises variation in large datasets. ✓
- GOOD LOOKING! ✓

Well, we see where the main bulk of the data sits. We can gauge quite easily things such as minimum, maximum and vaguely we could hazard

a guess at where the interquartile range sits. It works great for a simplified overview. Finally and most importantly in this case we got to see the change over time with plotting a previous line, with a polygon current.

So I started to experiment with different ways of showing it visually.

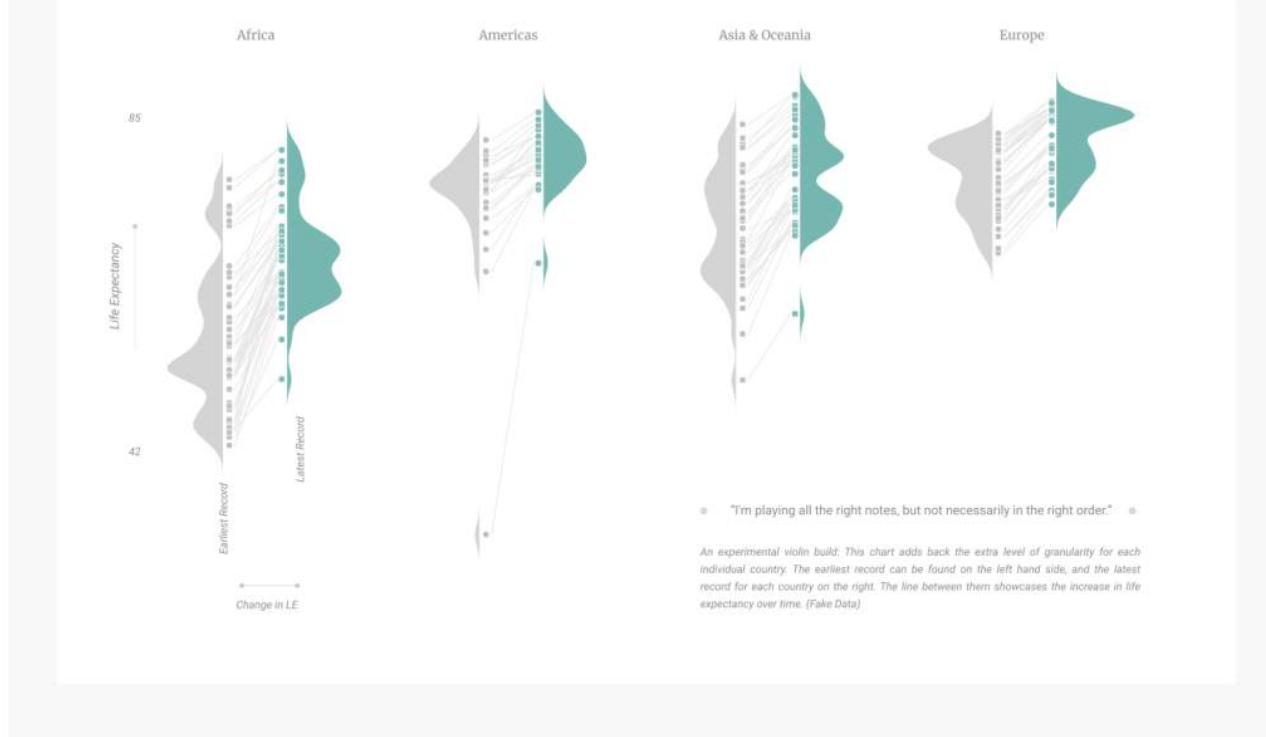


And whilst, I think the disjointedness in symmetry still works aesthetically, it doesn't solve some of our issues.

It further raise the question, is there anything we can do to improve it as a chart type to bring out some of the following missing elements.

- How do I bring data in from not being at an aggregate level?
- How can I find the quartiles, medians and outliers?

Where do I turn in a moment of need? Well to my favourite part of Tableau, layers!

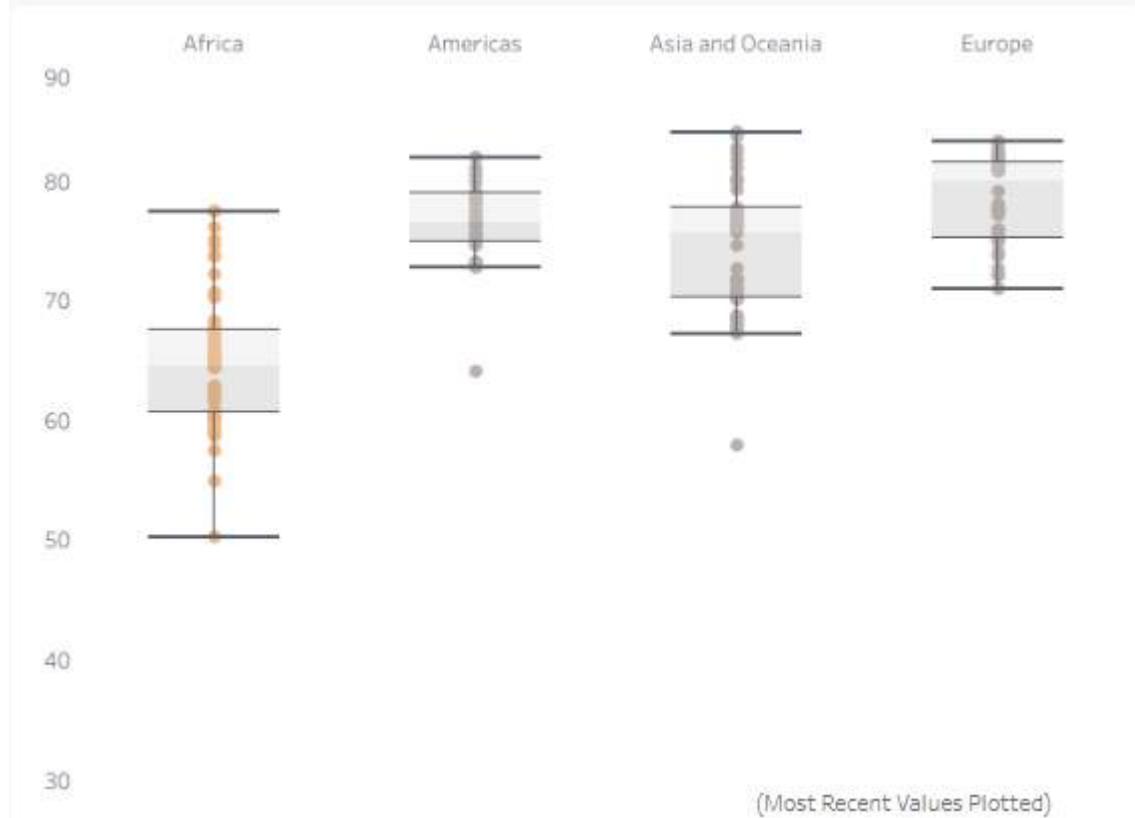


So I reunion the output of my violin and stack it with a full outer join with my original dataset. Now I am able to plot all my original values at a more granular level. A few more extra bits and pieces to tie the previous value with a line to the value on the right to see the shift over time and it actually feels like I'm getting somewhere.

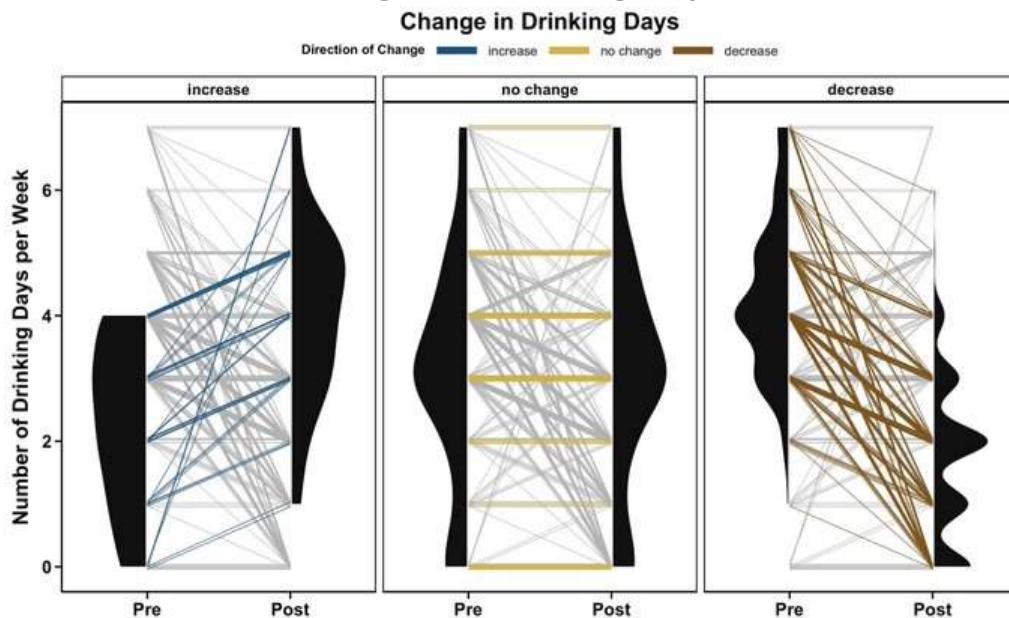
But I'm still not focusing on quartiles, medians and outliers. At this point, Maybe the boxplot was all I ever needed?

The box plot after all:

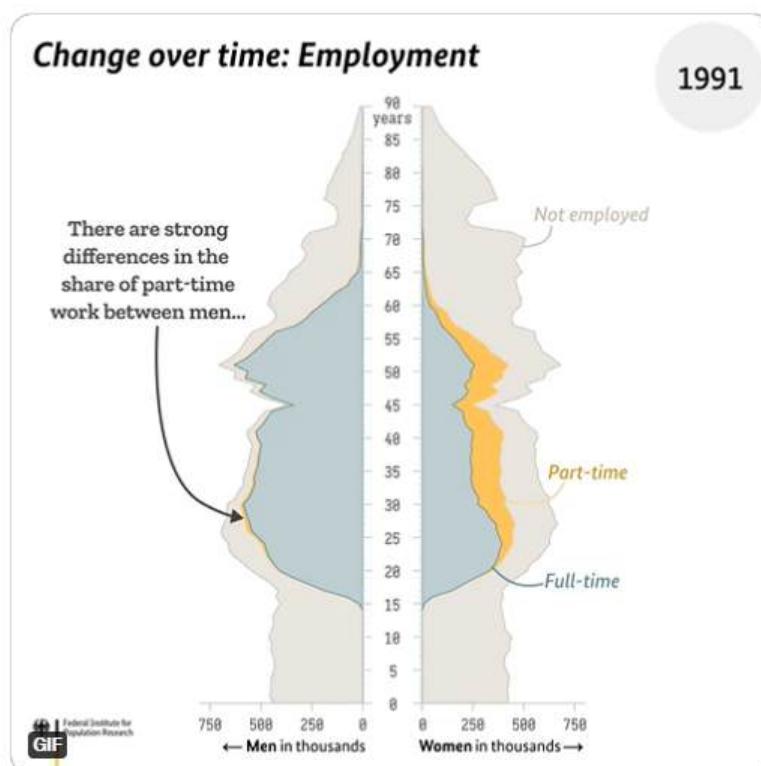
- . Has a granular level of life expectancy for each country.
- . It is easy to interpret
- . They are easy to create
- . We can find the quartiles, median and outliers
- . We can summarise variations in large datasets very easily



Who knows, I'll let you decide. Either way, I'm glad to have gone down this thought path and learnt a bunch of calculations along the way. To finalise, here are a few things I saw in the community in the last few weeks that really excited me. Firstly, at the NW TUG we even started talking about pyramid type charts with bars and bins. We even started to discuss whether what I ended up with is really even a violin chart? I saw this great example online calling it a **corset plot**, looking at changes in drinking days.



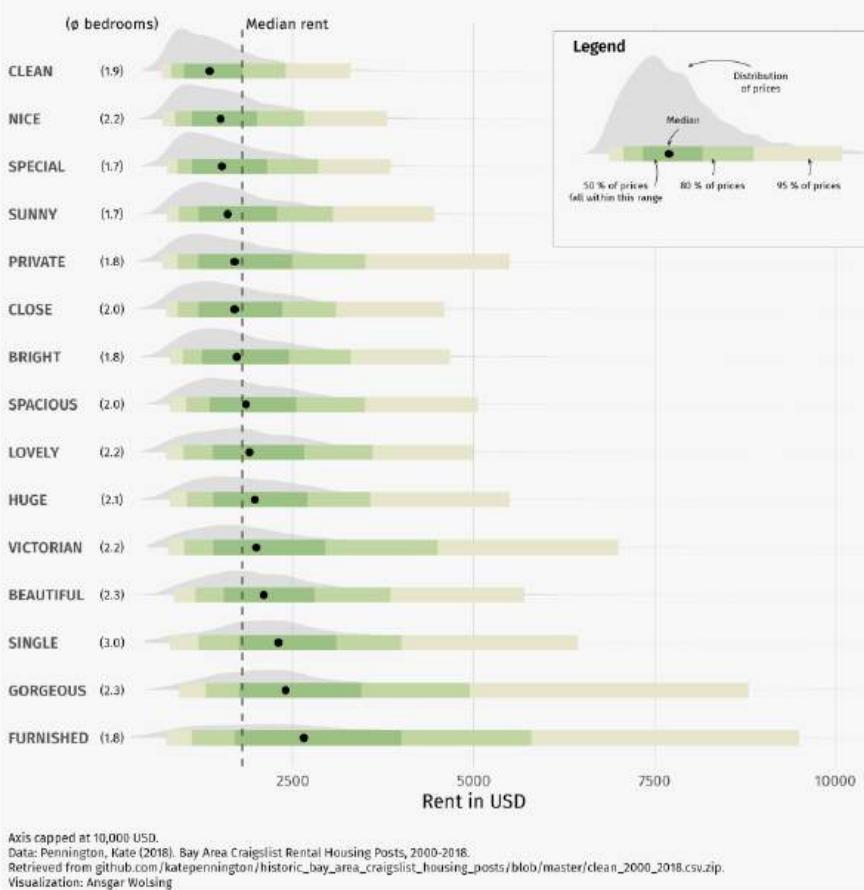
I came across this lovely animated piece more recently on twitter looking at employment levels over time. I loved the animation piece to it, as well as the design having the values down the centre. I wish there was a way to animate opacity.... Imagine how incredible the seamless storytelling could be.



Finally, this piece from Ansgar. Does it finally tackle how I could have looked at quartiles and median using a bar over polygon?

## NICE AND CLEAN - RELATIVELY LOW RENT?

Adjectives used to describe houses and apartments in the titles of rental posts on Craigslist and how they are related to rental prices. Titles from 198,279 rental posts on Craigslist between 2000 and 2018. The 15 most frequent adjectives are shown.



So I guess, I'm playing all the right notes, just not necessarily in the right order.

LOGGING OFF,  
CJ

DEVELOPING SKILLS THROUGH HAVING FUN – ADAM GREEN

Hi All,

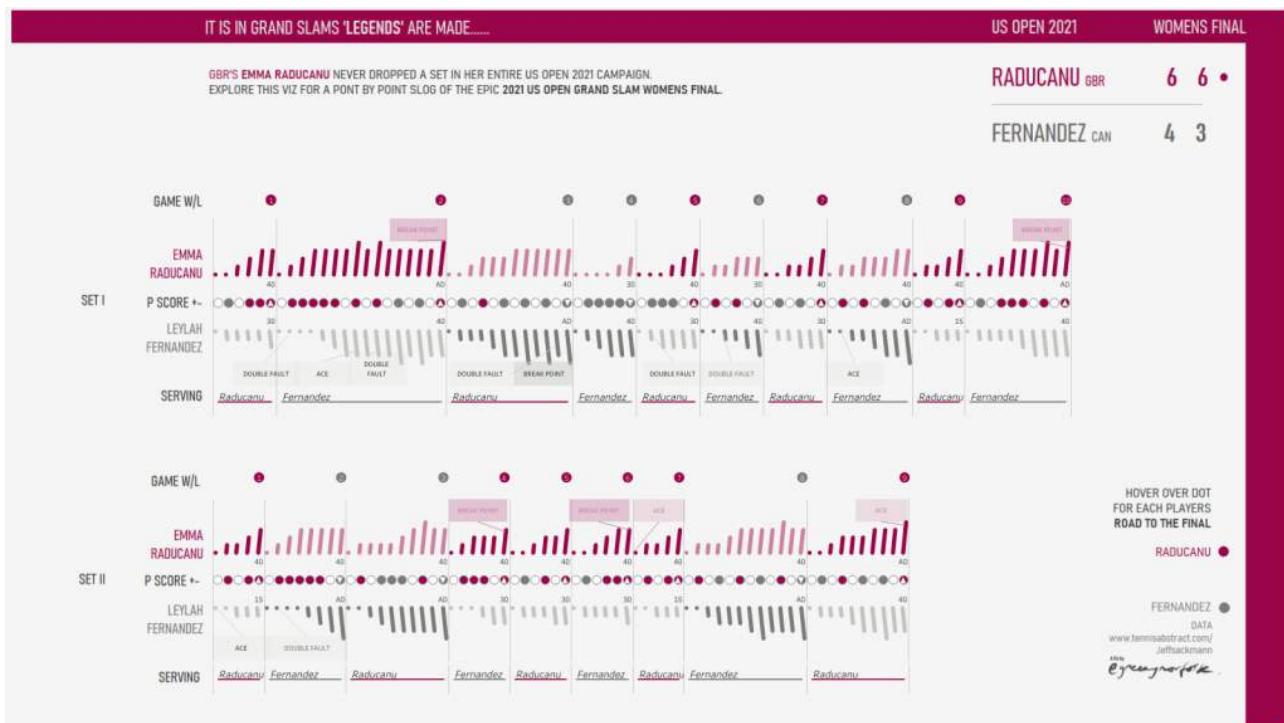
Welcome to the July episode of “What’s Good?”

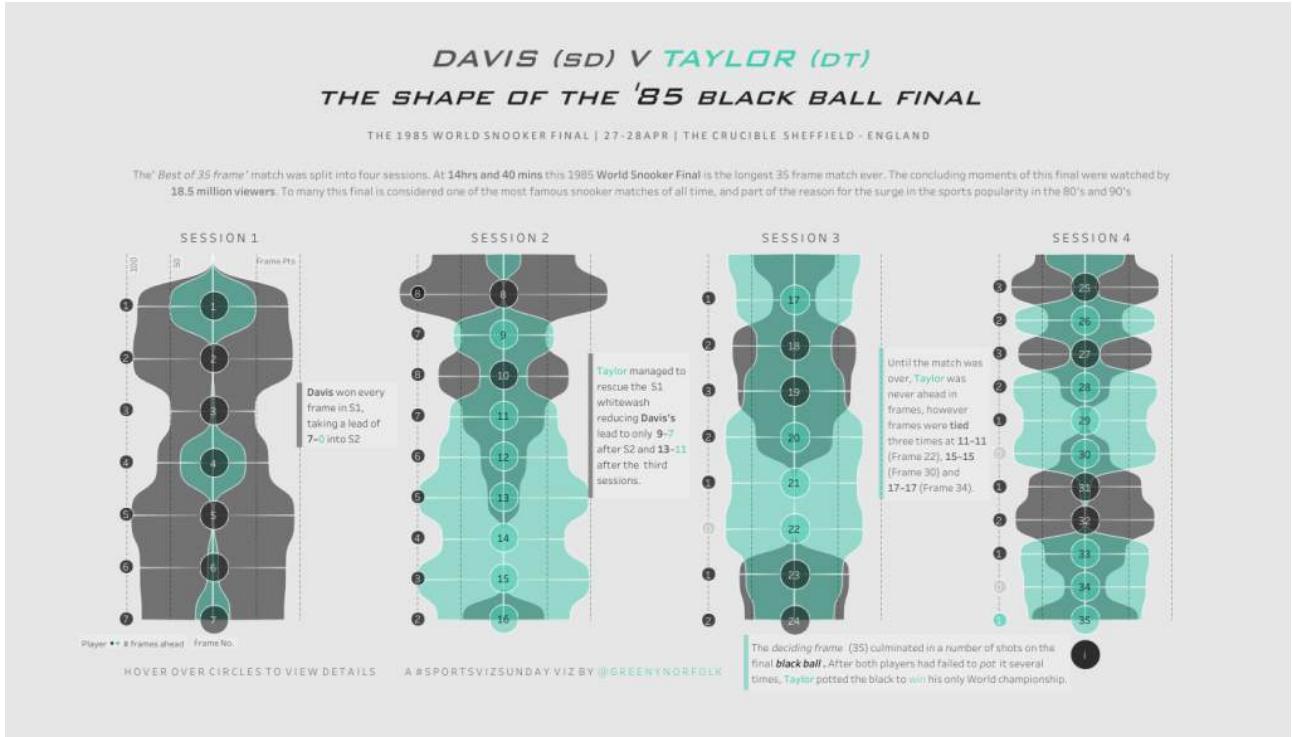
It’s a true delight to have Tableau Public Ambassador, Adam Green, join this month to discuss developing skills through faff & fun.

I have the great pleasure of working with Adam at work, in fact he was my first JLL friend IRL. Adam knows so many small tips and tricks, the amount I learn from him is quite incredible.

When I look through Adams public profile I see such breadth in design, thought pattern and technical elements. When you look at a profile, I feel you learn a little bit about that person, and that sentiment can definitely be said about Adam.

To reinforce the breadth of style on show, take a look at some of my favourite of Adam's vizzes below.





If you aren't already, please follow Adam on his socials. He can be found on Twitter, Tableau and his blog site.

CJ: Adam, good to have you be part of the series. Can you share a little about your journey to date?

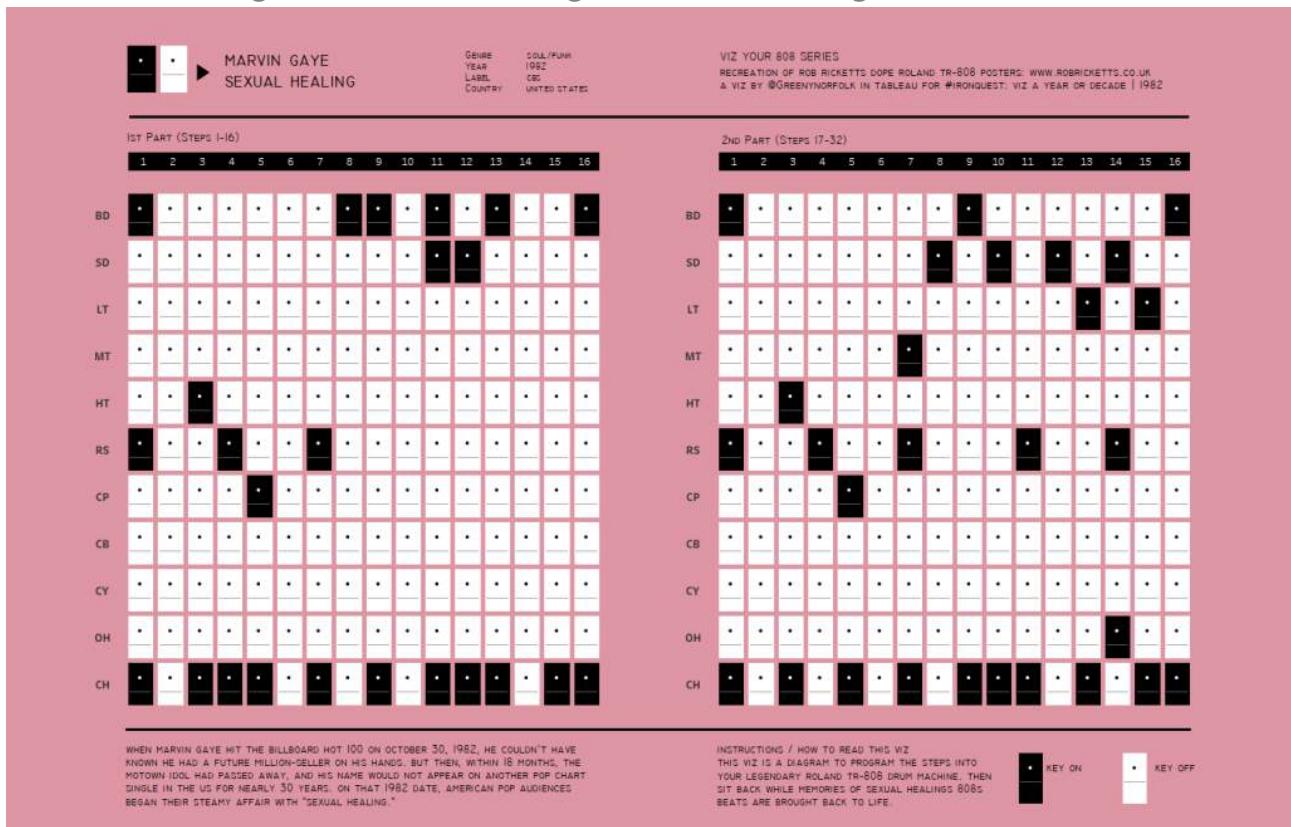
A: Well obviously, getting a spot on 'what's good' is a career highlight to date, it's a real honour to be asked to pen a few thoughts about what makes me tick, I love reading your blog and learning a little about the immense talent you have featured to date, with that in mind I'm slightly daunted to be asked if I'm honest.

Anyways, without further ado, Music has always been a key element in my life and to be honest is the catalyst for my enthusiasm for data. Whether it was analysing Shoenberg tone rows or building crazy AI systems for live improvisation with my trumpet, my love of music analysis at university is fundamentally the basis of my love for all things data and visualisation today. This interest led me to work in UK Higher Education (the UK university sector) BI for 10+ years, managing teams and building strategic insights for senior leaders. More recently I got the opportunity to blend team lead responsibilities and coaching future data rock stars on national collaboration projects (still within the education sector) with focus on developing sector data analysis and visualisation

skills at a national level, in that role I had a blast and learned tons, but I fancied something outside of the public sector. To which I seized the opportunity to join the global #jlldatafam powerhouse in Nov 2020 during the pandemic. Since joining JLL it has been a great journey so far and every day is a learning day. Working for a company that invests so heavily in personal development and the opportunity that gives, along with the ability to rub shoulders and share ideas with the best of the best has been nothing short inspiring, we have such a good team and I enjoy every minute.

CJ: Luckily for readers, I think that will be the last of the JLL promo, don't worry.

CJ: Your profile is one of the most creative I've seen. What's the secret ingredient to building out a wide range in vizzes?



### A: The long answer:

I approach a viz project like it's a blank canvas. Each viz is a new painting and deserves a fresh perspective, approach and potentially style. Therefore, I tend not to copy blueprints from previous vizzes in my portfolio too often, instead I tend to flag, store, favorite and mentally hoard inspirational ingredients from elements of other public vizzers I

admire. I have increasingly found Workout Wednesday challenges to be a great ‘base sauce’ (charts, techniques, and functionality) to build interesting and technically competent visuals or functionality. And I lean on non-Tableau graphics found on Instagram for inspiration too. With these resources, plus the great variety of community projects out there to draw inspiration from, help me ‘stock the shelves’ with a ‘not so’ secret ingredients to build a wide range of vizzes in my portfolio.

Data is certainly an Achilles heel for many, having a ready supply of data is often half the battle when kicking off a personal project. Some of my fav community projects include Sportsvizsunday, dataplusmusic and Ironquest but here’s a link to many more amazing community projects to get the creative juices flowing.

#### The short answer

Sometimes all it takes to come up with a creative idea is a glass of wine, a free evening to research a topic and willingness to study others work. Collecting technical inspiration from the community pantry act as a great catalyst to transform and remix ideas into something fun and interesting for a new project.

#### The even shorter answer

“Steal like an Artist – Austin Kleon”

CJ: Your viz topics vary hugely. How did the Alphabet project impact that? Do you have a favorite topic or subject to viz about?

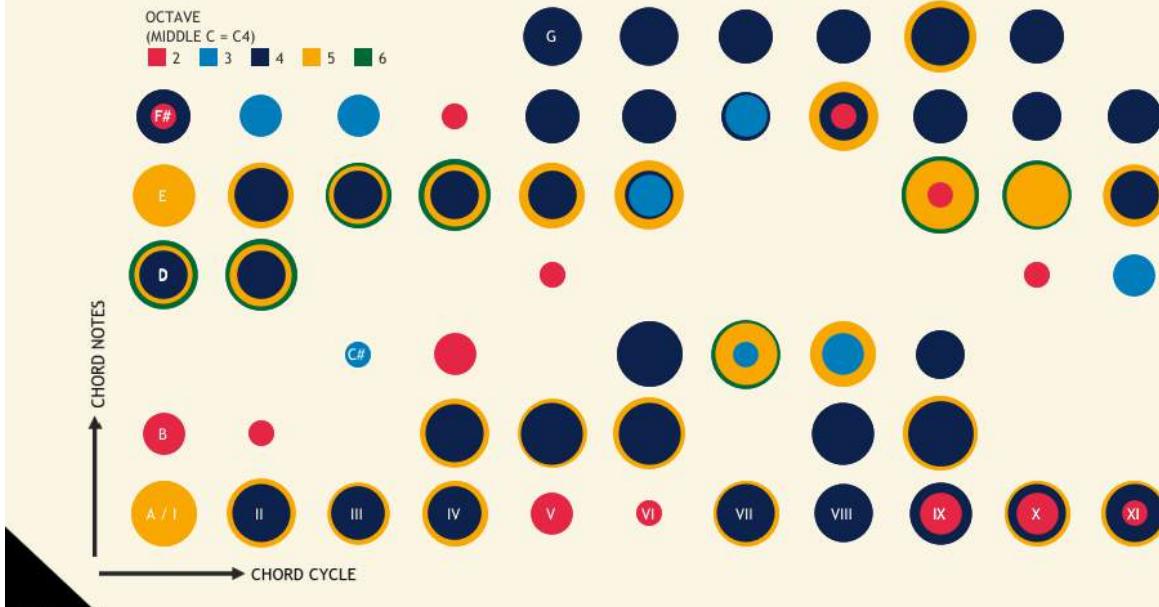
# MUSIC FOR 18 MUSICIANS | STEVE REICH

THE 11 FOUNDATIONAL CHORDS OF 'MUSIC FOR 18 MUSICIANS'

#ALPHABETPROJECT  
X IS FOR XYLOPHONE

BY  
Ergenaynorfolk

VIZ INSPIRED BY ERIK HALL'S COVER ALBUM ARTWORK



Yeh my projects are a little 'scatter gun' in terms of focus, but that's primarily driven by when I tend to be personal vizzing and generating ideas. I like to pick up the laptop and viz when the kids are in bed, over a glass of wine and film. I'm generally inspired by the topic of a film, the music, an actor, or often people in the news and or just random facts that peak my interest as I thumb through twitter, then spend a little time researching and sourcing data about.

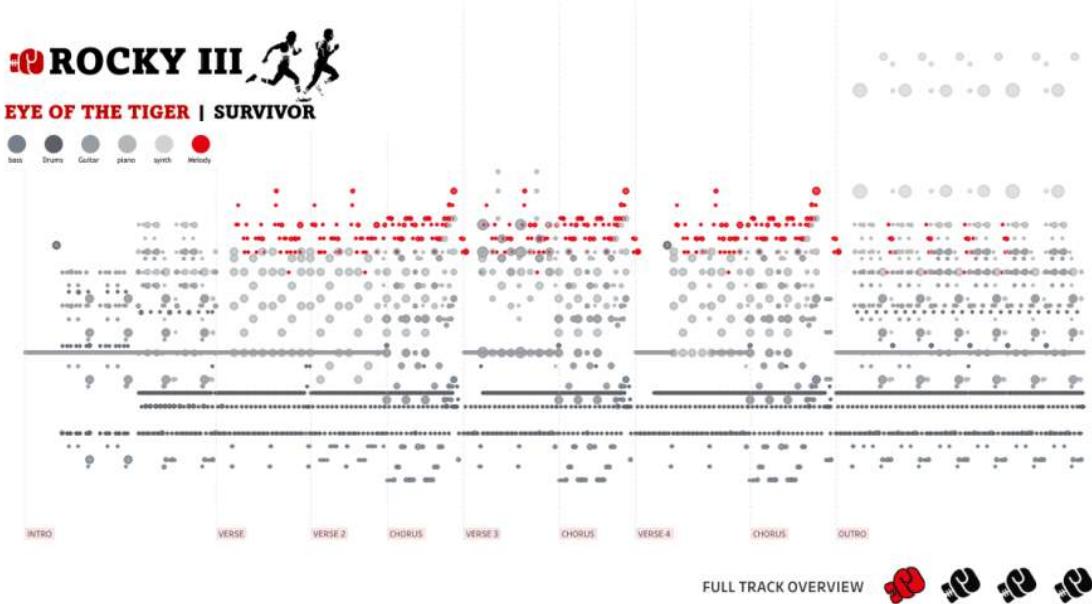
During 2020-21 I kicked off a project with the legend **Laura Sandford** – London TUG lead and Tableau Ambassador. We committed to create a viz every two weeks for the whole year based on a topic chosen alternatively by each of us, cycling through a-z alphabetically. This project aimed to push us both technically and creatively. We had to dig deep to come up with new ideas and techniques and found myself searching in less obvious areas for inspiration. Family life was a key source of inspiration, conversations with kids aged 5-7 is random at best and a great source of creative thinking. I also fed off projects the kids

were doing at school to both learn and help them but also to involve the two little beauties a bit too.

However, if I'm pushed to name my favorite viz topics, I'd probably say it would be music or sport. I don't tend to prioritize time these days to either play team sports, less so to sit and watch them, therefore I find it fun and technically rewarding to take sports data and visualise it. I've done it with Tour de France, Olympics. Snooker and tennis and find it a fun way to understand how events unfolded, getting my kicks from being creative in ways to visualise it.

Similarly, vizzing music is a fun way to research genres, artists and or specific songs / compositions. I'm a big fan of jazz and a viz occasionally materializes out of an evening spent reading, tracing artist and their musical journeys.

CJ: You rarely create the same chart type twice. What power comes with that? Is that a conscious decision in wanting to show breadth in design or just moving onto new projects?



A: Well, I have the attention span of a gnat and not a huge amount time for producing complex multifaceted projects. Therefore, I think my portfolio looks the way it does (relatively concise, 1400 x 900, single chart vizzes) because I like to try a technique or chart type against a dataset, tidy it up and bang it out on public, I prefer to keep it quick and

not dither too long building the viz out to ‘Ironviz standards’, i.e. ticking the story telling, design and analysis type boxes. I tend to use this time as learning and development and want my evenings to be fun and letting a project drag over many evenings and multiple weeks feels like a bit of a grind rather than fun, so I just don’t often create what I call ‘big’ projects.

I believe having a wider breadth of skills and techniques to your ‘viz armory’ provides a greater versatility as a developer and analyst within a work-based context. Whilst my memory is appalling, I do tend to remember I have created something similar in a public viz about X and am therefore able to reference back to a technique to help me deliver at speed.

CJ: With such a range in viz styles must come an element of community influence. What vizzes in the community have you liked recently? How about tutorials you’ve enjoyed following?

A: I’m a big fan of continuous learning, and love to try out new techniques and chart types. People in the community never cease to amaze me in this realm. More so the effort they go to, in sharing back to the community with how to tutorials/blogs; **Brian Moore**, **Marc Reid** and our very own **CJ Mayes** are great examples of these beacons of information and resources. I’ll have to admit that whilst I have read with interest the tutorials mentioned above, I have yet had the project lined up to use them – but watch this space I can’t wait to have a crack.

#### **Dots – Zach Bowders (May 2022)**

Zach has a viz style I would die for, they are bold, stylish, memorable, most often a single chart with supporting text and rarely exceed a 1400 x 900 single pane. Dots is such good pointless fun. I love it.

#### **Couldn’t hit a barn door – Simon Beaumont (Apr 2022)**

*I love Beaumont’s style, he packs a lot in, but the designs feel spacious and faultless. I love to dive in and read his vizzes.*

#### **W.E.B Dubois Portrait Gallery – Chimdi Nwosu (Feb 2022)**

Chimdi’s designs are exceptional, this Du Bois Gallery is one of my favorites and I’m eager to dive into this workbook and unpick how some

of the charts are built out in Tableau. These hold gems for future creative ideas I'm sure.

### **NFL Player movement tracker – Brian Moore (Apr 2022)**

Brian is the master of custom charts and this one is no exception, so many of Brian's vizzes invite you to come in and have a play. The network radial chart (not sure of its official name) in this movement tracker is just stunning, yet I just love the supporting bar charts -they are so well done! as with everything in his portfolio.

### **Six Nations Player Performance – Sam Parsons (March 2022)**

Sam Ace's both technical build and design utopia in everything he touches, and his portfolio is a go to for me if I ever want to show anyone the art of the possible. This 'Six Nations' viz has great interaction and functionality too and I love the ability to export, like Simon, Sam packs so much in and you can be lost in a Sam viz for hours exploring the depth and breadth of the subject.

### **Happy Mario Day – Ant Pulley (Feb 2021)**

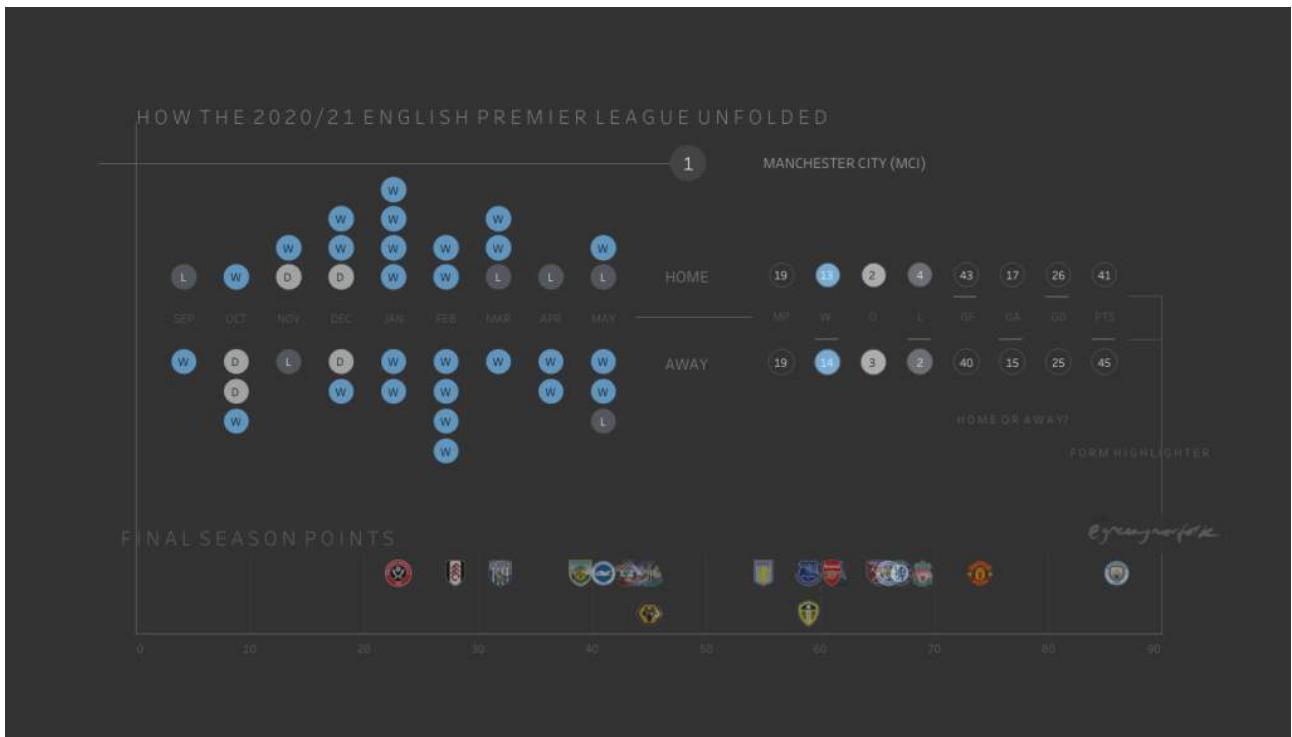
The Elissa Fink "WTF I Never Knew Tableau Could Do That" Vizzie winner 2022 – need I say more.

### **Top 20 Nasdaq Stocks – Marc Reid (Apr 2022)**

Now here is a man who knows how to do tooltips. Marc creates great blogs and tutorials that come in so handy, where would we be without his knowledge and willingness to share.

### **Geometric Snowflakes – Will Sutton (28 Nov 2021)**

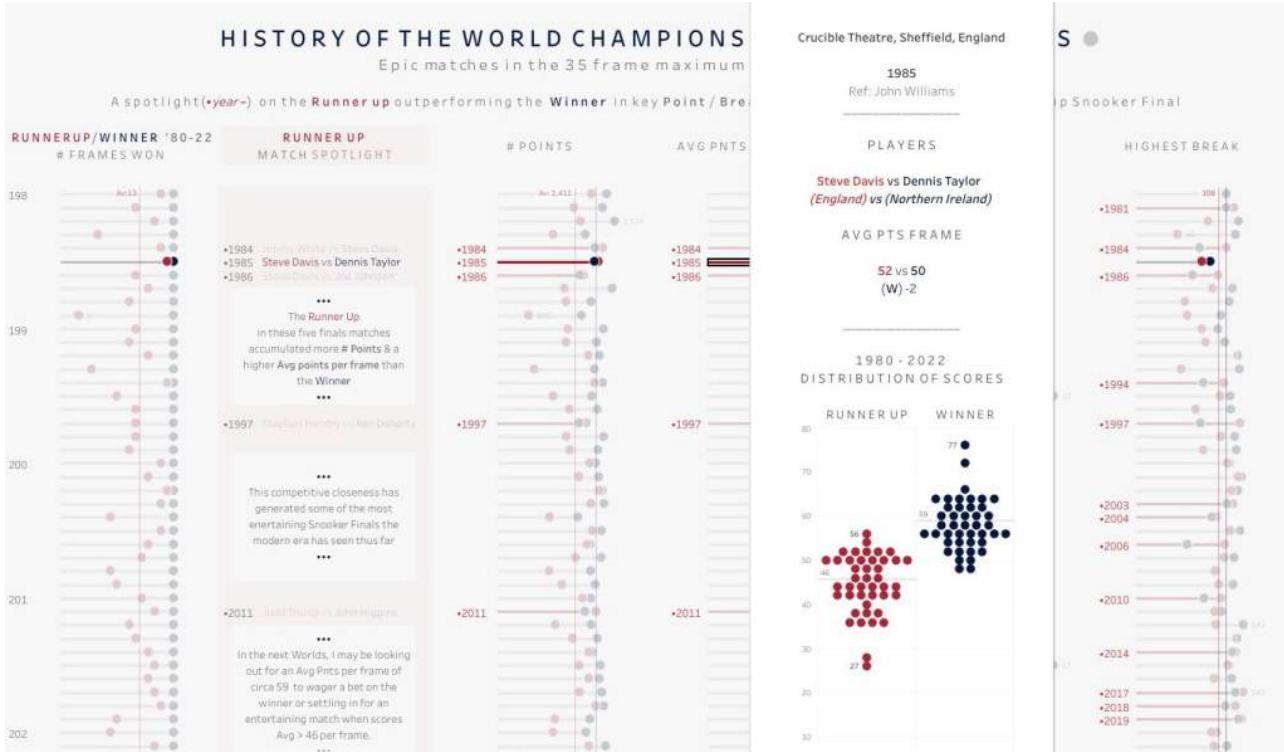
Will has so many great vizzes, not only his Ironviz Winning viz but the feeder viz was superb too and so much fun. I love his creativity and he's one smart cookie to boot. His profile is a go to for me for tips and tricks. CJ: I think one thing that concerns people is not finding enough time for vizzing. Could you share a little about how long on average you may spend on a viz? How does someone find the sweet spot? Does this impact your dashboard size and layout?



A: Time is a precious commodity and it's about how you balance it. I don't always get it right and my wife will be the first to tell me when I'm not pulling weight on the family front. I also like to keep fit, I love running (when my old knees aren't playing up) but mostly cycling. Getting the balance right between family, work, exercise, and personal viz projects is tough and frankly there is not enough hours in the day to ace it on all fronts. So, my approach is to juggle stuff about a bit each month. Some activities go on the backburner, while I give other areas a bit more focus. For anyone following me on Strava/Zwift you will know my activity feed goes in fits and starts. These days I trade exercise for Tableau viz projects – Home DIY and family life wait for no man.

From a time-point perspective I will very rarely exceed 6-7 hours in a single viz, this time is typically broken down over 3 nights; a finding data and data prep evening, an evening doing the main viz and a third evening fiddling with tooltips, tidying up and publishing /posting. Naturally therefore the complexity and depth of my public vizzes tend to reflect the time taken, given the required time it takes for 'fiddling' and covering all the basis on getting a viz to publishable standards.

CJ: You're not one to shy away from designing some pretty spectacular viz in tooltips. How can these elevate a viz?



A: Great question CJ, I'm a big fan of tooltips and a Tableau feature that I think a developer should take some time and care with. AND a user should make full use of. Whilst I know they struggle to tick the box in terms of accessibility, I love a good tooltip, I think of them as like hidden easter eggs for the keenos among the viz community. I create nice tooltips for people that engage in more depth than a quick 'like' on the static twitter image, I feel that if people take the time to click, they get the easter eggs. I once created a viz of knock knock jokes, all located in the tooltips for this exact reason.

Tooltips can really elevate a viz and allow you to nest much contextual information about a data point and or element of a viz. After stumbling over **Andy Cotgreave's** Bar chart in tooltips hack written in a 2010 blog post, I've always made sure I spend a little time on my tooltips with the aim to elevate them above the Tableau defaults, implementing many of the formatting tips and tricks championed by people like **Ryan Sleeper** over the years (top ten lists in tooltips / how to make dynamic tooltips in tableau ) or the Information Lab data school blog features great examples such as conditionally coloured tooltip text or more recently (and welcomed) viz in tooltips functionality.

CJ: You joke a little online about 'Faff Factor'. What does this mean? What are some examples of techniques or vizzes that were high in 'Faff

Factor?’

### *Ha the faff factor ■ / ■■■■■ (1/5)*

Well, I like to provide an indicator within my blog write ups to give the reader (my future self) an indicator on the amount of effort the viz or a component of the viz took to bring to life. it ain’t scientific but essentially it relates to factors like; the No. sheets, have I had to float and overlay worksheets to get the visual to work, the complexity of the chart build, how annoying the data prep was, or how much effort I put into blinging the tooltips up a bit?

### *Recent High Faff factor vizzes*

#### **Wimbledon 2021 AB vs KP (Apr 2022)**

Design Faff Factor ■■■■ / ■■■■■ this has quite a few sheets behind it, mainly due to the way the viz evolved as I built it, therefore the final viz is a bit clunky in the floaty sheet department, ergo pretty faffy!

#### **IRONVIZ Qualifier 2022 Intro to Pop (Feb 2022)**

Well, its Ironviz! this one’s got an Overall Faff Factor ■■■■■ / ■■■■■ from the dashboard containers and parameter navigation to the chunky tooltips hiding much of the content, this one’s a Faff Factor 5/5 from me.

#### **Womens Frech Open Final 2021 (CJ Mayes Collab)**

Tooltip Faff Factor ■■■ / ■■■■■ CJ did all the hard work on this viz, but in terms of tooltips, we blinged them up a bit in the ‘shot summary’ section to provide loads of contextual data nestled in there (if anyone is kind enough to explore the interactive version and stumbles across the easter eggs).

#### **Marvin Gaye 1982 – (Dec 2021)**

Prep Faff Factor ■■■■ / ■■■■■ – I had to build the sequencer matrix out in excel to give this viz the styled effect, it was a bit of a head scratcher at first but I was pleased with the overall look and feel of the final version.

#### **US Open GS Womens Final 2021 (Sept 2021)**

Overall Faff Factor ■■■■ / ■■■■■ I spent much longer on this viz than usual, it’s got a lot of sheets, multiple formatted tooltips, plenty of detail, design considerations and had a lot of story to tell. Therefore, right up there in the Greeny Faff Factor ratings.

CJ: I am waiting for Tableau Public now to bring in a rating system of faff factor when posting. You know where the royalties are going if they do.

CJ: I really enjoy reverse engineering some of your dashboards to see your approach in formatting. Do you have any special formatting techniques you can share with us that are your favorites?

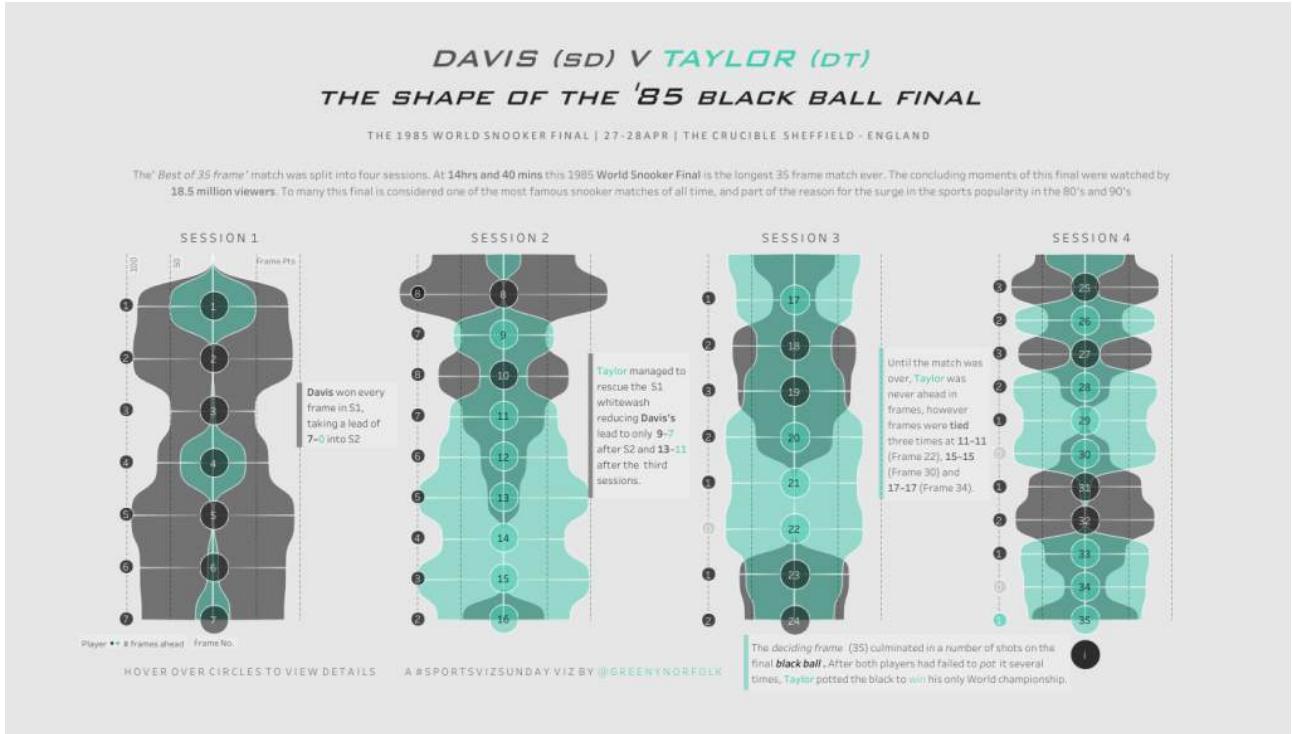
A: As you pointed out earlier my public portfolio is quite wide and stylistically diverse. However, I'd like to think there are some tell tail greeny'isms people may associate with my vizzes. Formatting wise I like to faff with

- 1) Grid lines and reference lines – I like to think they help break up a viz and guide the eye if you play about with the opacity of the lines, reference lines can also be used to add further info to complement a chart.
- 2) Colour opacity – oh man I faff with this for ages.
  - 3) tooltips (obvs).

- 4) and finally you can get quite creative with labels when you need to. I love to leverage ascii characters and the occasional excessive use of the space bar to get the characters where you want them.

CJ: Your world snooker viz was one of my favorites on TP this year. How do you come up with the concept of the reflected violin chart for points?

How do you approach data transformation and prep in the case of something like this?



A: Thanks, it's actually one of my favorite vizes I've published recently too. I love to watch a game of snooker. I have fond memories of sat watching games with my grandad when I was young, him walking me through the play, rules and telling me random stories about his youth. For this viz, I knew the match I wanted to viz it was an epic and wanted to try and convey the flow and fun on the final black ball. The question was 'How on earth do you convey that point-by-point tension visually?'

Inspiration came from sports viz legends **Sam Parsons**, **Simon Beaumont** and **Lorna Browns Rematch – Joshua v Ruiz – Clash of the Dunes** boxing fight viz. I downloaded it to peek at how it was achieved. it didn't take me long to realize that I was gonna need to do some prep.

So, I hoped into Alteryx to give it a churn. The key to this chart is to essentially plot difference between points. This is effectively what we are seeing in the violin plot as the shape moves vertically point by point, sitting by sitting.

CJ: On the notion of varied tools. Could you give examples of some external tools you use? How have you utilized them before?



Oh man, I'm no happier than playing about building pictures in Tableau. I have a couple tools I keep going back to when I need a bit of creativity. Firstly **power tools** for Tableau. In this fabulous tool you can upload an image and trace out either lines points or polygons and export the resulting x y points to excel. Once you have exported the coordinates it's a case of dropping the data into tableau and cracking on with a bit of fun.

Secondly, I'm quite fond of [processing.org](https://processing.org) I've used a script many a time to make pixelated data points to plot on a grid, but the community behind this is huge and there is so much that could be done leveraging tools like this and Tableau combined to create visualisations.

CJ: Thanks for that! I hope others can take inspiration and utilize those tools in future work. Is there anything else you'd like to share today?

A: Viz for fun, it's fun to viz, and do it in Public.

#### CJ Round-Up:

There are some really lovely sentiments we can all take away from Adam's comments. I find it such a beautiful description of creating a visual as painting a work of art with different approach, perspective, style and design. I should add each piece is unique too!

The second thing that stood out for me was Adam's commentary around balance of life. I'm of the mindset work-life balance is really work embedded into life but appreciate his prioritisation, his safe space for creative thinking and his strong family values. The takeaway really is, make time for whatever it is in life you love.

I think the last thing that is worth mentioning again is, Adams portfolio. Such an array in design and technical requirements. He strikes such a

lovely balance between artistic flair and grounded theory. Wishing Adam all the best with his future viz faffin'

LOGGING OFF,

CJ

CHARTING TENNIS GAMES

Hi all,

Yes that's right – Wimbledon is round the corner. Time to get the strawberries and cream ready. (& a glass of champagne or two.) Is it too early to guess who you think will be crowned champion?

I didn't manage to get tickets this year, but having been at the French Open earlier last month I've decided I want to add it to my imaginary bucket list to go to every single Grand Slam venue, so best get use to some long flights if I want to get to Melbourne and New York.

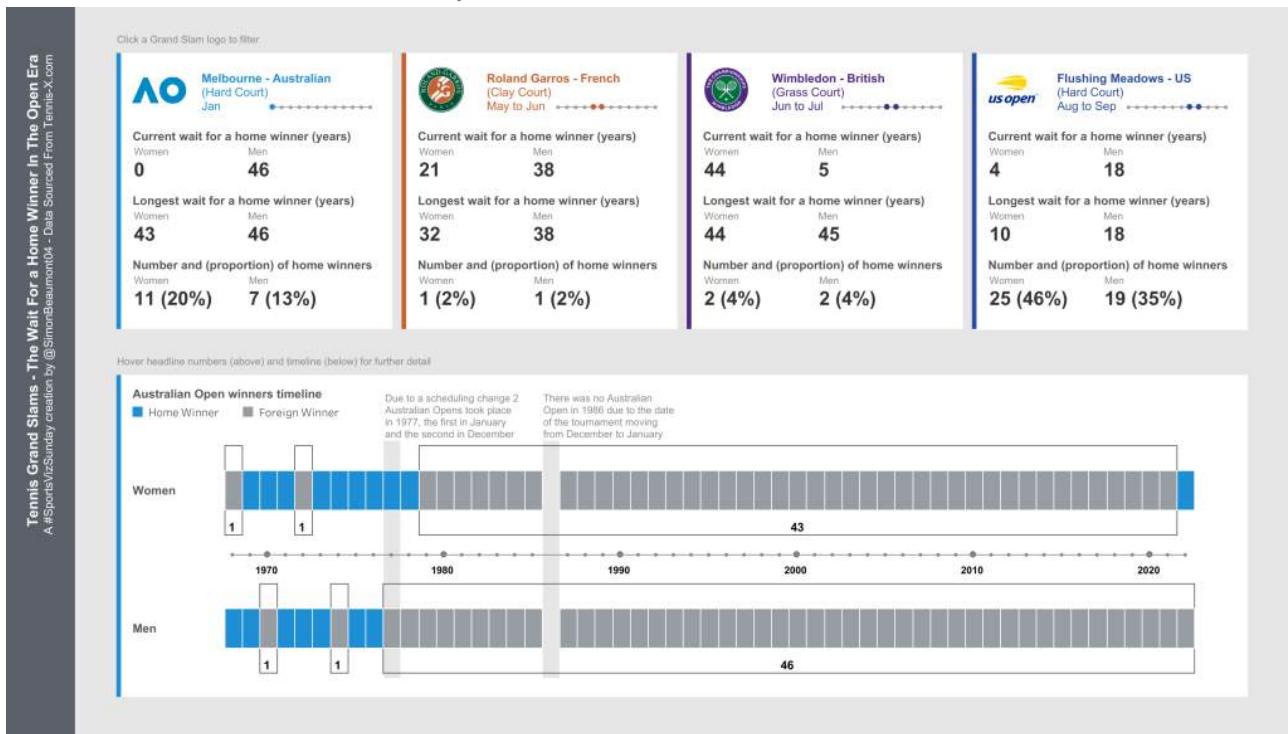




So I LOVE visualising tennis data, and fortunately have had the time to make about 13 tennis visualisations showcased on Tableau public, some *regrettably* a little earlier on in my career. But one thing that has stood out to me is the different levels of data you can chart, be it grand slam winners, all matches, point data, shot data, match summaries or even tournament brackets.

This blog we will look at various new ways to showcase some tennis data. It will look at examples in the community as well as try and provide a workbook that you can utilise for your own games. We will strictly be looking at point-by-point data, but before that lets look at some of my all time favourite tennis visualisations.

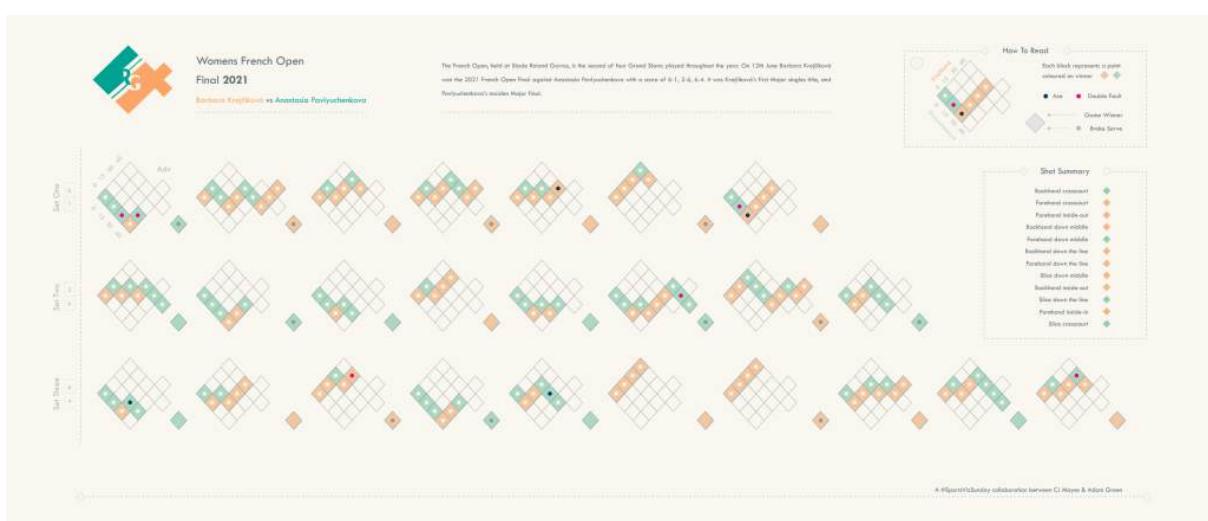
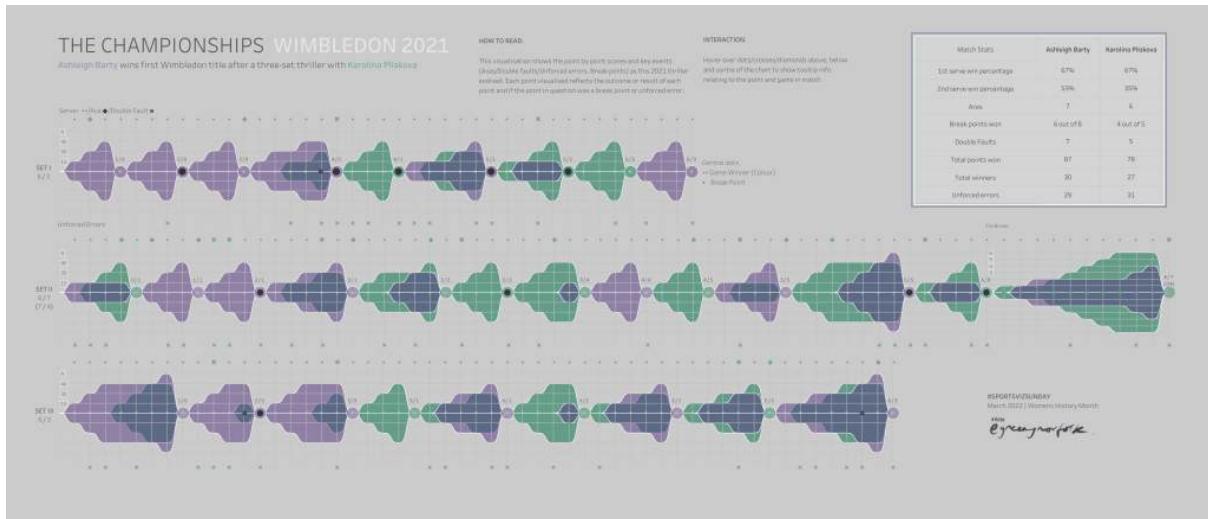
# Tennis Inspiration found on Tableau Public

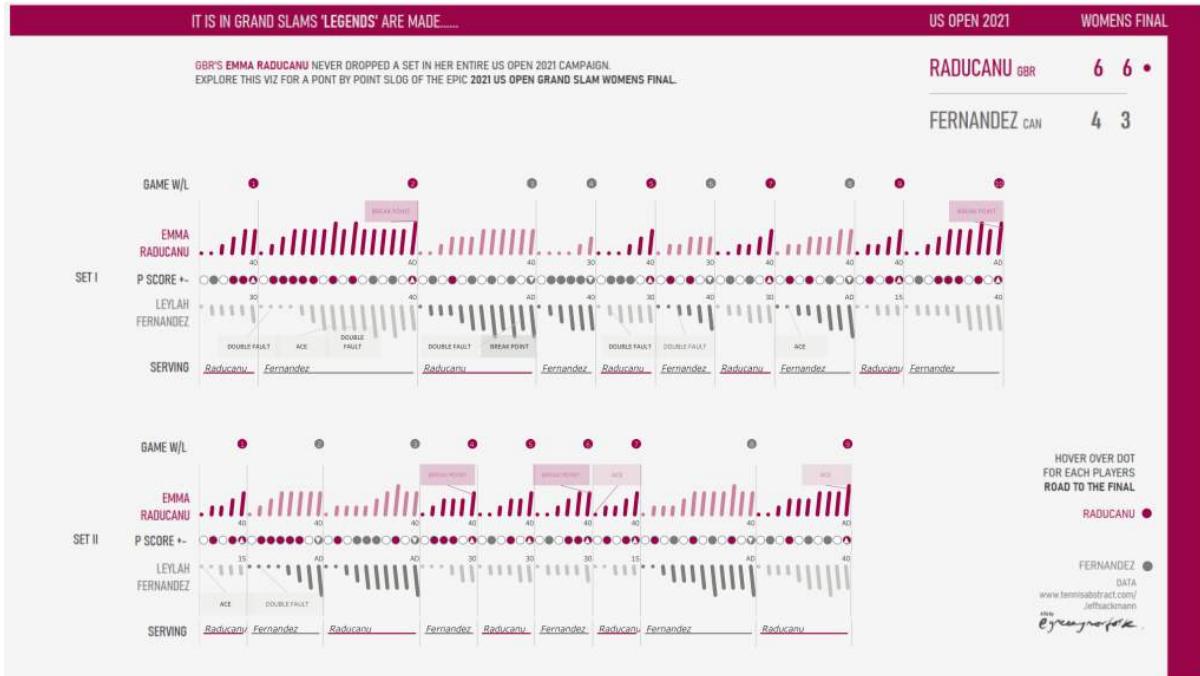


Simon Beaumont – The Wait For a Home Winner  
Bo Platinga – Naomi Osaka – 2018 US Open Tennis Final  
Priyanka Dobhal – Caroline Wozniacki – Matches  
Ashley Ratinckx – Grand Slam Underdogs  
Kevin Flerlage – Tournament Bracket  
Harpreet Ghuman – Wimbledon 2018  
Simon Beaumont – Wimbledon Open Era

Now, you will notice I may have held a few resources back and that leads me on to plotting game data. Finally the focus of the blog, game level data.

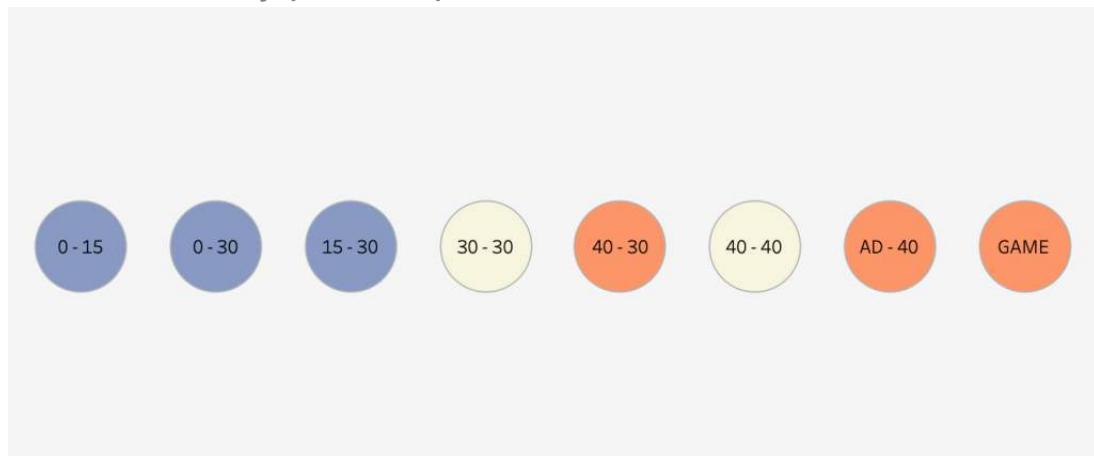
Adam Green – so good I had to showcase three different visualisations of his.





Let's start with the **Radacanu viz**. I love the Points Score. To showcase each mini recreation I will be using the Naomi Osaka – Serena Williams data found [here](#). The workbook to follow along can be found [here](#). So only a few calculations are needed to replicate a similar idea for the first section. You'll find all the additional calculations with 001 appended.

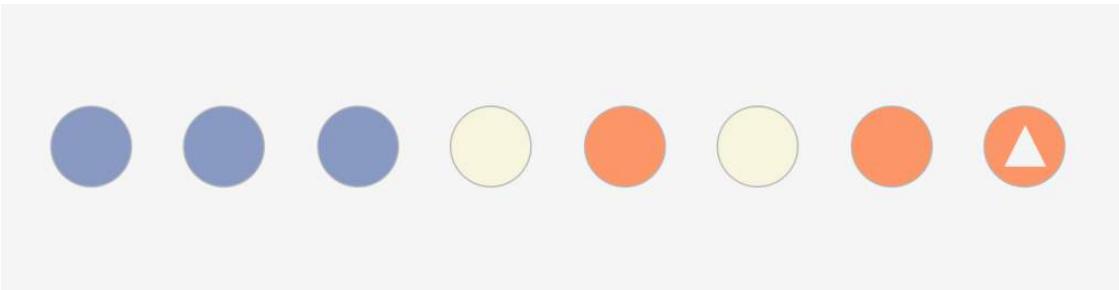
We can easily plot our point number and who is in the lead.



We could always visualise this in other means other than a circle, for example using the gantt with no sizing.

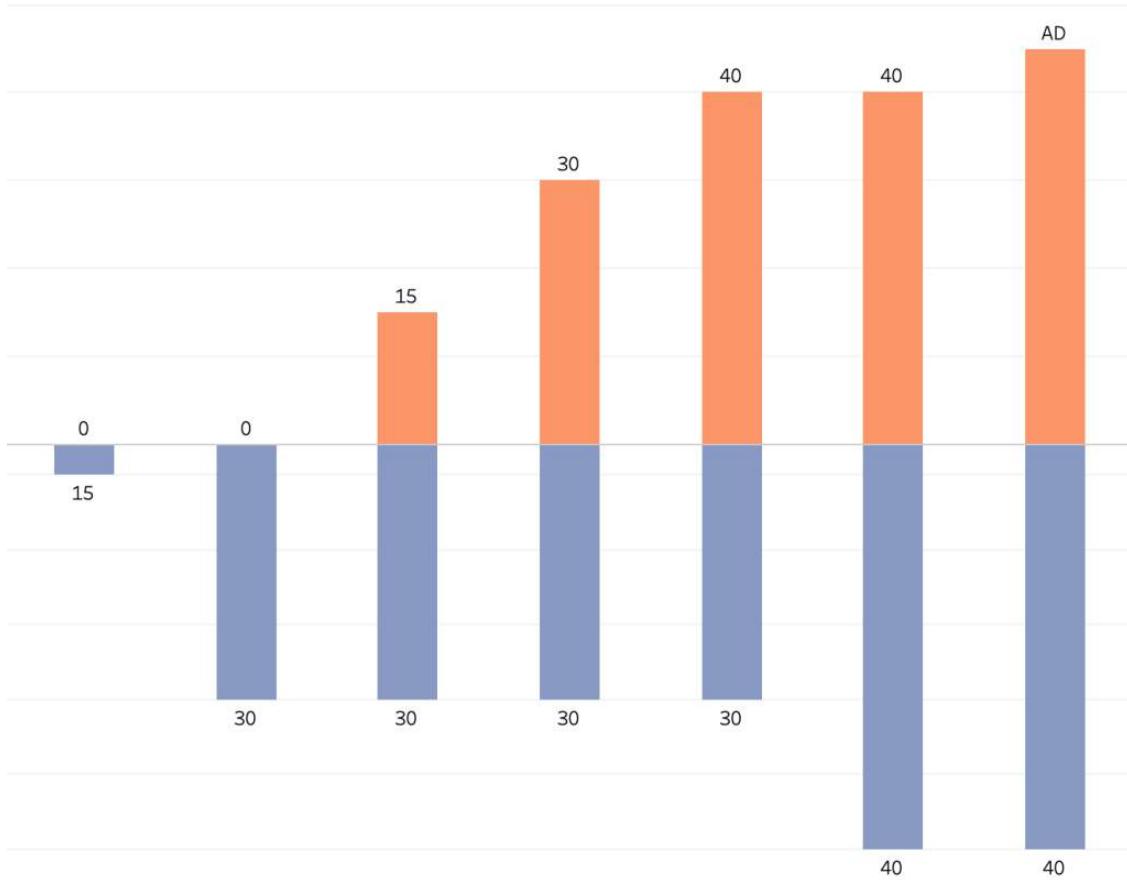


Some may think this is a little too wordy. So we can switch back and replicate some of Adam's work using a layering to allow for a shape. I've also used a transparent shape in this sheet, recently learned from Kevin & Ken at Tableau Conference 2022.

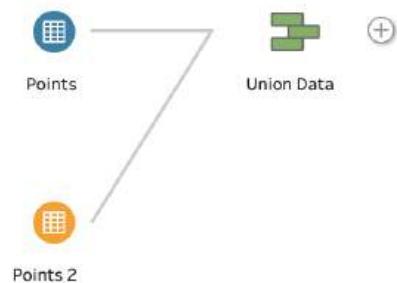


The second thing I love within this visualisation is the slanted lines. So without a union in the dataset we probably can't create this effect but we could replicate it as bars. A couple things to note with this is, how much is 'advantage point' worth as a bar length. I do however think this method shows the build up to a winning game quite nicely. Some more considerations are deciding whether each point should be worth an equal distance. For example 15,30 and 40 are not equal in range... but theoretically a point is equal in value.

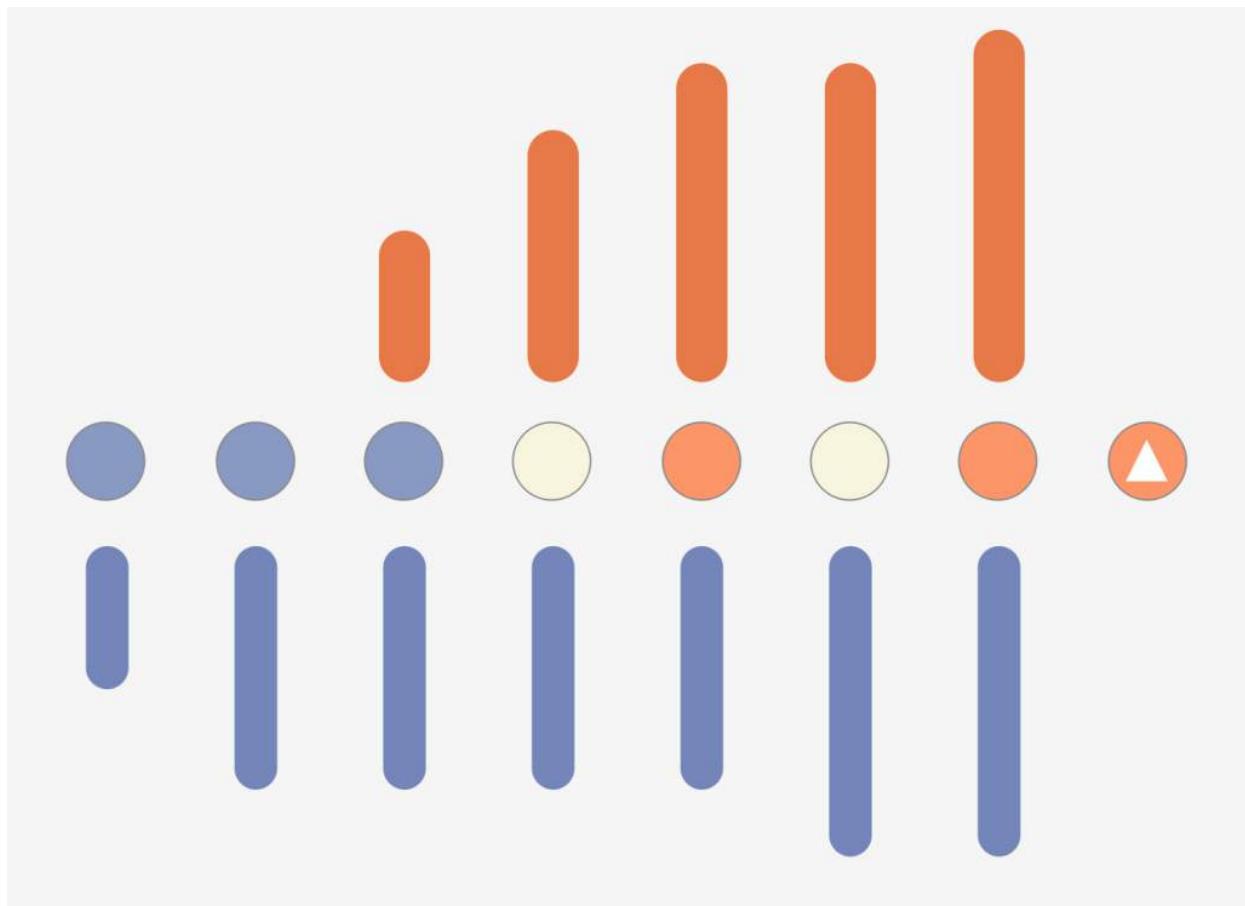
You also will note how the score adv changes the field to a string so a little prep needs to be done before creating the chart below using a reversed sum axis. You can find all additional calculations with 002. appended.



Within Adam's it looks like the bars are lines, that gives me the hint that he may have used a union.



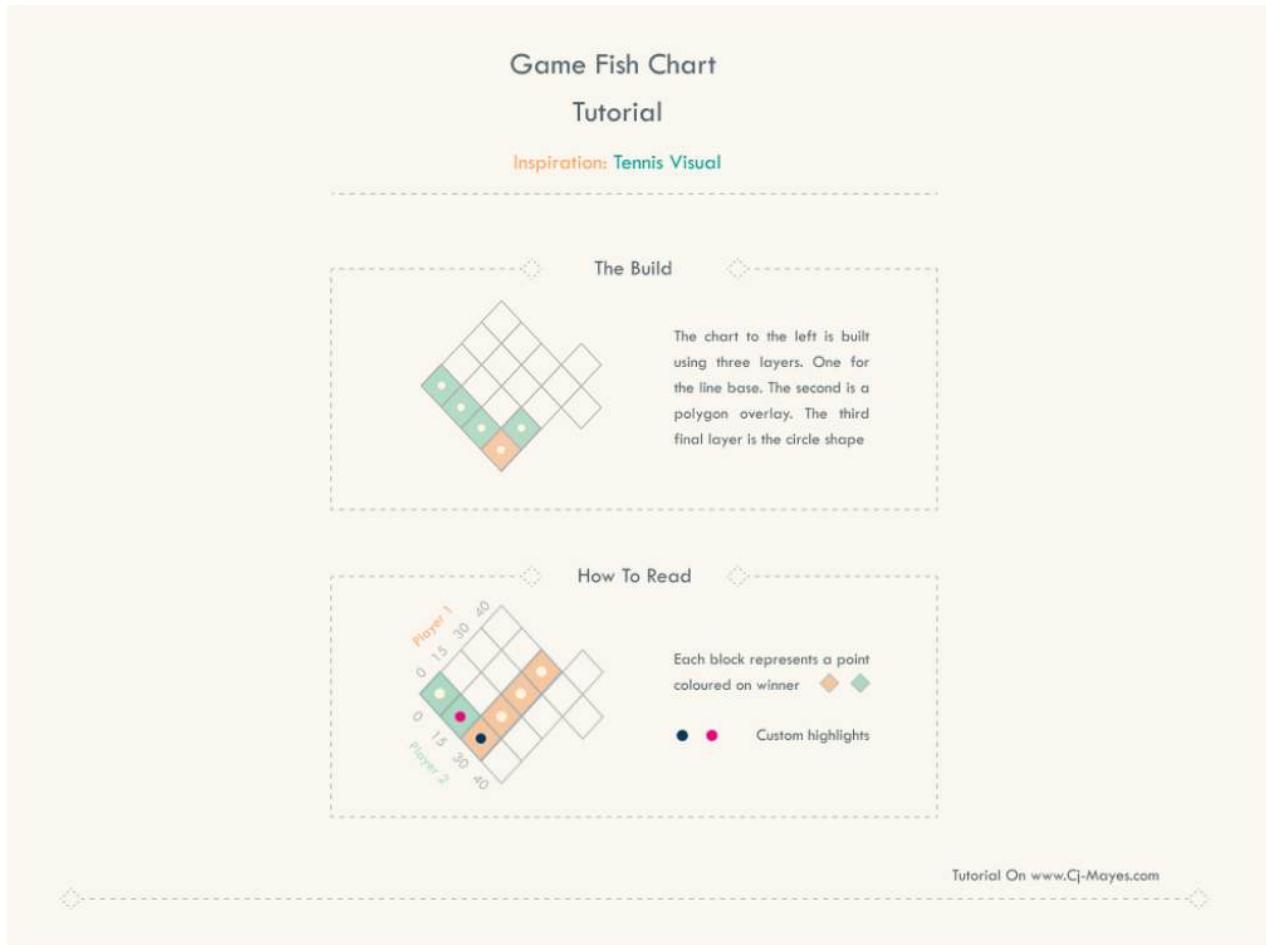
So let's take a quick look at the union version of a bar, but in fact using a line. Of course, these points can all be plotted in one sheet using multiple layers, the end point of the line can then also be adjusted to be sloped like in Adams.



Please download the workbook to take a further look. I would also recommend downloading Adam's work as this is just my own methodology of creating the same effect.

#### Game Fish Chart

The next way you could show tennis results is through a fish game chart. Fortunately I've already written the blog on this method so would encourage anyone to take a look. It's a little bit of data prep given the outline, but I think it creates a nice plotting effect.



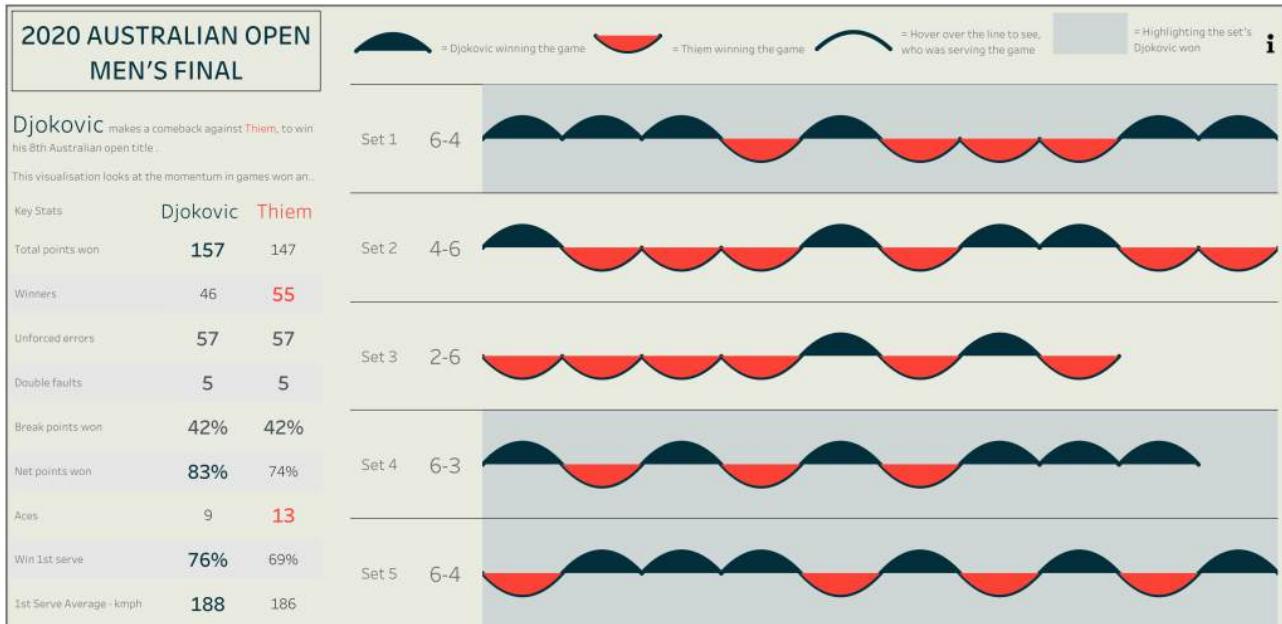
## You can read it here. FURTHER INSPIRATION

To close out this blog below are 3 of my favourite three ways of creating game maps can be seen below.

Krisztina creates this beautiful arcade like theme way of representing each of the games within a set and the respective scores being animated beneath.

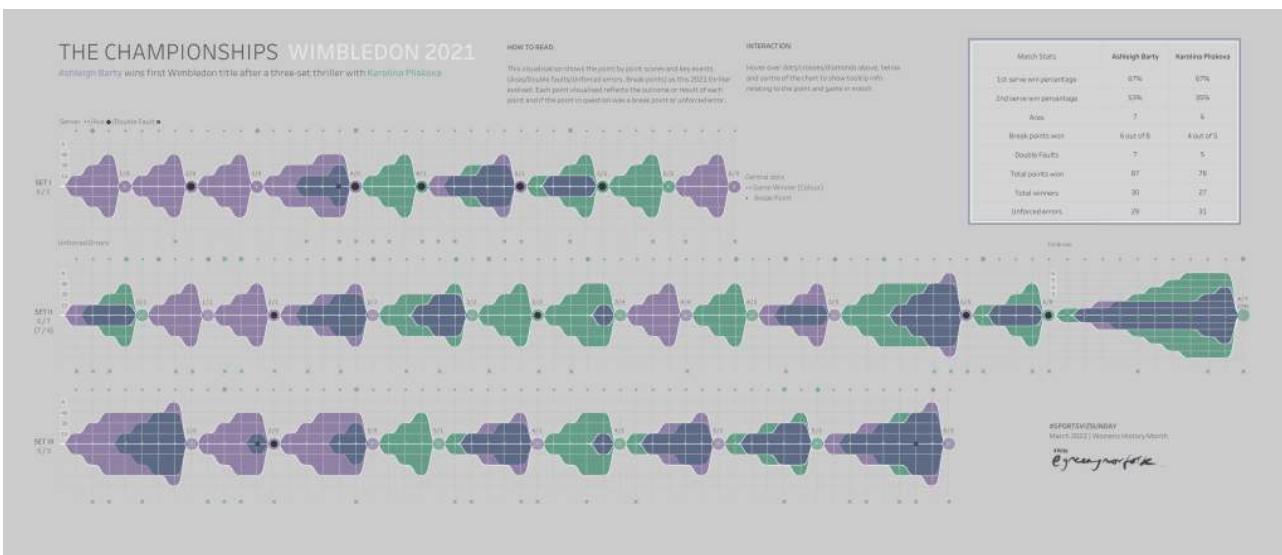
<https://twitter.com/szucsi/status/1531974152105631744>

This visualisation from Varun Varma is a creative way of showcasing each game through a smooth curve. I think this method is a really nice way of showing dominance during a set, the breaks of serve and overall length of the set comparing them game for game.



Finally, this Wimbledon piece by Adam Green. I'm going through a violin phase at the moment so seeing this pop up recently was fantastic. I particularly like Adams efforts to keep the symmetry in the visual with the players details overlapping. With this style of visual it becomes really apparent when one player dominates early points within a game. I also like his method of normalising the values for the tie break in the second set.

Yes, okay this blog feels a little like the Adam Green show, but maybe if i ask nicely he'll do a guest blog at some point. A happy early birthday for the 15th June!



That's it for this week. More so showcasing others instead of a full written tutorial, but hopefully there are a few tips and tricks in the workbook that may be useful to access.

## GOING FURTHER

- Try charting a game from the upcoming Wimbledon 2022 matches.

LOGGING OFF,

CJ

## NO REST FOR THE WICKET (PYTHON)

Hi all,

On this months episode of pretending to know how to code, I'm delighted to do a run through of a **cricket package**. The blog has the aim of extracting multiple different datasets from a package as well as explore different types of matches available.

What I really want people to get from the blog is the small reminder of different ways of collating your own data. It doesn't always have to be copy and pasted, nor pre-canned from a website, but there are ways of accessing it through different repositories and packages too.

### PYTHON CRICKET SCRAPER

To install, you will need the following command in the terminal.

```
pip install python-cricket-scraper==0.1.2
```

So where to start?

so python-cricket-scraper is built to get cricket data from Cricsheet and ESPNCricket. Makes sense to take a look at **Cricsheet website**. At the moment Cricsheet have ball-by-ball information for 11,685 matches. What we will look to do is navigate how to find one specific match and some of the surrounding details around that game.

## MATCH DATA

At the moment we have ball-by-ball information for **11,685** matches comprising **715** Test matches, **23** other multi-day matches, **2,320** One-day internationals, **383** other one-day matches, **1,981** T20 internationals, **329** international T20s, **23** Afghanistan Premier League matches, **474** Big Bash League matches, **298** Bangladesh Premier League matches, **47** Bob Willis Trophy matches, **911** County Championship matches, **38** Charlotte Edwards Cup matches, **277** Caribbean Premier League matches, **256** CSA T20 Challenge matches, **19** FairBreak Invitational Tournament matches, **64** The Hundred matches, **948** Indian Premier League matches, **7** Cricket Ireland Inter-Provincial Limited Over Cup matches, **40** Cricket Ireland Inter-Provincial Twenty20 Trophy matches, **47** Lanka Premier League matches, **56** Mzansi Super League matches, **937** T20 Blast matches, **214** Pakistan Super League matches, **53** Rachael Heyhoe Flint Trophy matches, **512** Royal London One-Day Cup matches, **85** Sheffield Shield matches, **203** Super Smash matches, **319** Women's Big Bash League matches, **95** Women's Cricket Super League matches, and **11** Women's T20 Challenge matches featuring **95** countries, **162** club teams, and **3** representative XIs going back as far as **2007** (for women), and **2004** (for men).

The most recent matches added to the site are: the **Kent vs Somerset** Vitality Blast match that was played on the 25th of May, 2022, the **Worcestershire vs Yorkshire** Vitality Blast match that was played on the 25th of May, 2022, and the **Royal Challengers Bangalore vs Lucknow Super Giants** Indian Premier League match that was played on the 25th of May, 2022.

## THE DATA FORMAT

The match data is provided in multiple different formats. The current formats are JSON, YAML, XML, and 2 versions in CSV. A detailed description of each format can be found [in the Format section](#).

Wow! Look at all the choices available.  
For now lets navigate down to the super smash.

### Pakistan Super League

214 matches - [JSON](#) (710 KB), [YAML](#) (673 KB)

### Rachael Heyhoe Flint Trophy

53 matches - [JSON](#) (263 KB), [YAML](#) (276 KB)

### Royal London One-Day Cup

512 matches - [JSON](#) (2.4 MB), [YAML](#) (2.5 MB)

### Sheffield Shield

85 matches - [JSON](#) (939 KB), [YAML](#) (1.1 MB)

### Super Smash

203 matches - [JSON](#) (641 KB), [YAML](#) (630 KB)

### T20 Blast

937 matches - [JSON](#) (2.9 MB), [YAML](#) (2.8 MB)

### The Hundred

64 matches - [JSON](#) (195 KB), [YAML](#) (183 KB)

### Women's Big Bash League

319 matches - [JSON](#) (989 KB), [YAML](#) (975 KB)

### Women's Cricket Super League

95 matches - [JSON](#) (293 KB), [YAML](#) (286 KB)

### Women's T20 Challenge

11 matches - [JSON](#) (36 KB), [YAML](#) (35 KB)

Within this data we have 203 matches stored in JSON format.  
We can directly look at these JSON files..

	File Name	Size	Last Modified
1	1289633.json	80 kB	JSON Document Today at 14:42
2	1289632.json	79 kB	JSON Document Today at 14:42
3	1289634.json	78 kB	JSON Document Today at 14:42
4	1289632.json	77 kB	JSON Document Today at 14:42
5	1289631.json	72 kB	JSON Document Today at 14:42
6	1289634.json	74 kB	JSON Document Today at 14:42
7	1289633.json	74 kB	JSON Document Today at 14:42
8	1289634.json	81 kB	JSON Document Today at 14:42
9	1289625.json	71 kB	JSON Document Today at 14:42
10	1289624.json	79 kB	JSON Document Today at 14:42
11	1289621.json	79 kB	JSON Document Today at 14:42
12	1289617.json	80 kB	JSON Document Today at 14:42
13	1289616.json	78 kB	JSON Document Today at 14:42
14	1289615.json	78 kB	JSON Document Today at 14:42
15	1289614.json	78 kB	JSON Document Today at 14:42
16	1289613.json	79 kB	JSON Document Today at 14:42
17	1289612.json	79 kB	JSON Document Today at 14:42
18	1289611.json	79 kB	JSON Document Today at 14:42
19	1289610.json	79 kB	JSON Document Today at 14:42
20	1289609.json	79 kB	JSON Document Today at 14:42
21	1289607.json	79 kB	JSON Document Today at 14:42
22	1289605.json	74 kB	JSON Document Today at 14:42
23	1289604.json	79 kB	JSON Document Today at 14:42
24	1289602.json	81 kB	JSON Document Today at 14:42
25	1289633.json	76 kB	JSON Document Today at 14:42
26	1289630.json	78 kB	JSON Document Today at 14:42
27	1289629.json	78 kB	JSON Document Today at 14:42
28	1289628.json	78 kB	JSON Document Today at 14:42
29	1289627.json	78 kB	JSON Document Today at 14:42
30	1289626.json	78 kB	JSON Document Today at 14:42
31	1289625.json	72 kB	JSON Document Today at 14:42
32	1289620.json	80 kB	JSON Document Today at 14:42
33	1289619.json	80 kB	JSON Document Today at 14:42
34	1289618.json	77 kB	JSON Document Today at 14:42

But we need a way to understand what's in the files.

If we open the read me file we find even more information.

README.txt

Q 2022-01-29

This zip archive contains data files from ~~https://cricsheet.org~~ in JSON format. This archive contains 203 Super Smash matches.

The JSON data files contained in this zip file are version 1.0.0, and 1.1.0 files. You can learn about the structure of these files at <https://cricsheet.org/format/json/>

You can find the available downloads at <https://cricsheet.org/downloads/>, and you can find the most up-to-date version of this zip file at [https://cricsheet.org/downloads/ssm\\_json.zip](https://cricsheet.org/downloads/ssm_json.zip)

The matches contained in this zip archive are listed below. The first field is the start date of the match (for test matches or other multi-day matches), or the actual date (for all other types of match). The second is the type of teams involved, whether 'club', or 'international'. The third is the type of match, either Test, ODI, ODM, T20, IT20, MDM, or a club competition code (such as IPL). The 4th field is the gender of the players involved in the match. The 5th field is the id of the match, and the remainder of the line shows the teams involved in the match.

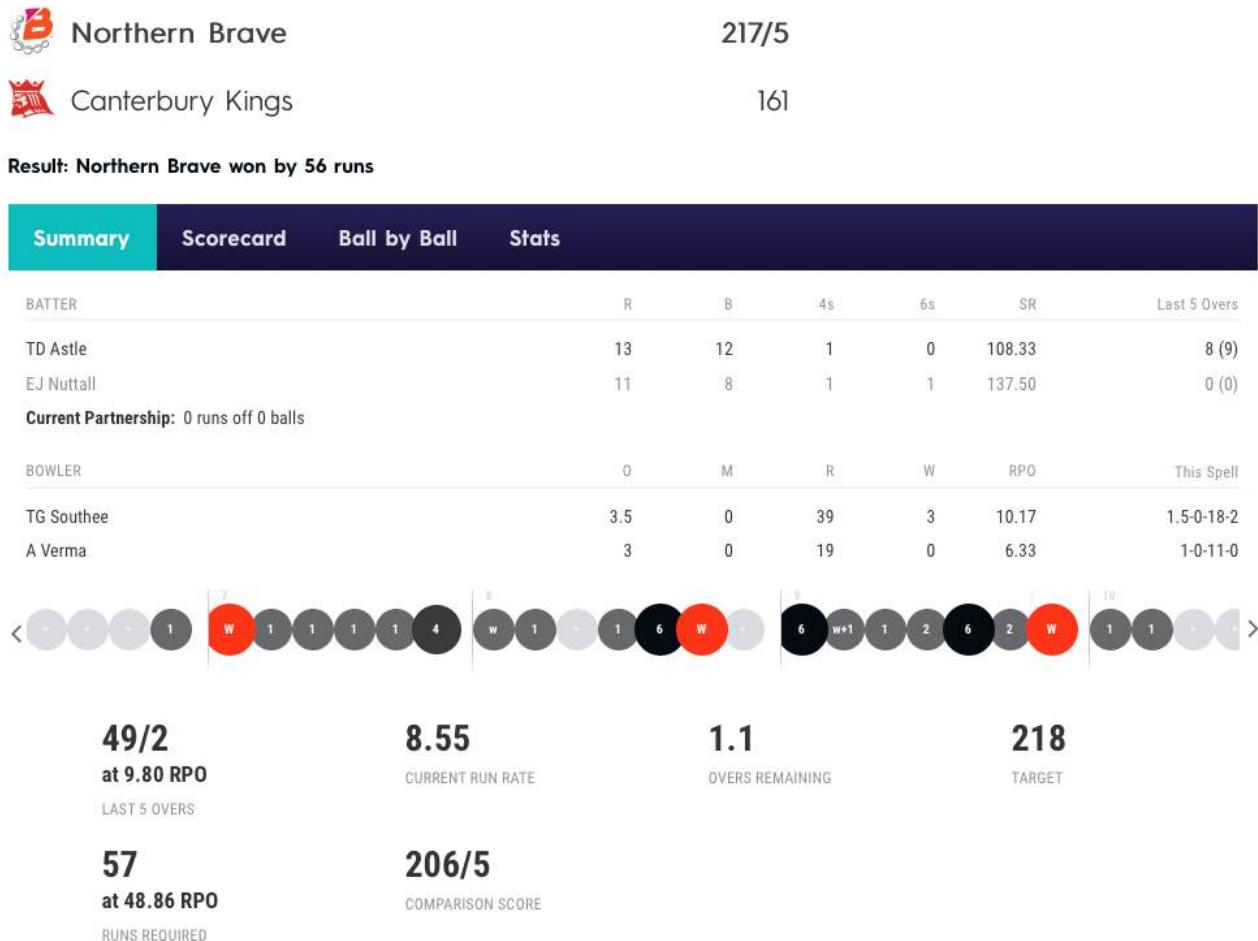
```
2022-01-29 - club - SSM - male - 1289634 - Northern Districts vs Canterbury
2022-01-27 - club - SSM - male - 1289633 - Wellington vs Canterbury
2022-01-24 - club - SSM - male - 1289632 - Wellington vs Northern Districts
2022-01-23 - club - SSM - male - 1289631 - Otago vs Canterbury
2022-01-22 - club - SSM - male - 1289630 - Central Districts vs Auckland
2022-01-21 - club - SSM - male - 1289629 - Canterbury vs Northern Districts
2022-01-20 - club - SSM - male - 1289610 - Auckland vs Wellington
2022-01-18 - club - SSM - male - 1289607 - Canterbury vs Auckland
2022-01-16 - club - SSM - male - 1289628 - Wellington vs Northern Districts
2022-01-15 - club - SSM - male - 1289627 - Otago vs Auckland
2022-01-14 - club - SSM - male - 1289626 - Northern Districts vs Central Districts
2022-01-08 - club - SSM - male - 1289625 - Central Districts vs Wellington
2022-01-07 - club - SSM - male - 1289624 - Auckland vs Canterbury
2022-01-06 - club - SSM - male - 1289623 - Otago vs Wellington
2021-12-31 - club - SSM - male - 1289622 - Central Districts vs Canterbury
2021-12-30 - club - SSM - male - 1289621 - Central Districts vs Northern Districts
2021-12-29 - club - SSM - male - 1289620 - Otago vs Auckland
2021-12-28 - club - SSM - male - 1289619 - Otago vs Wellington
2021-12-27 - club - SSM - male - 1289618 - Central Districts vs Auckland
2021-12-26 - club - SSM - male - 1289617 - Canterbury vs Otago
```

So let's take this first row as an example and as a reference point you can cross compare our data to the results found on this website. This means when we write our code we know if what we are extracting is similar to the actual results we find online from a secondary reliable source.

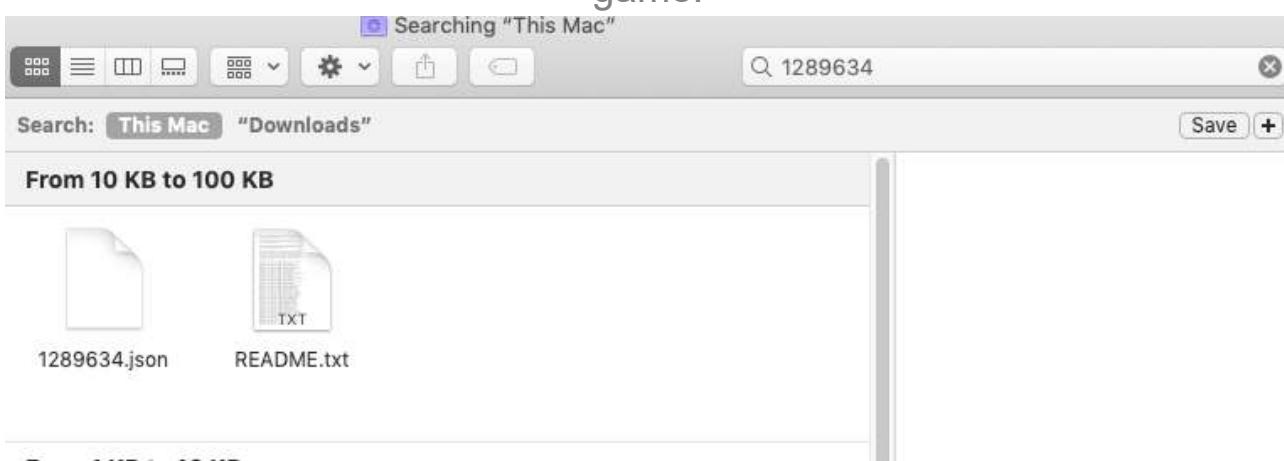
[◀ MATCH LIST](#)

## Men's Grand Final, Dream11 Super Smash - Men

MATCH COMPLETE Twenty20 Match • 29 January 2022, Seddon Park, Hamilton



If we go back to our original Json folder we can search for this specific game.



When we open that file as a text file we may feel a little lost, but it's a good way of seeing how all the information is stored.

```
☒ < > □ 1289634.json } No Selection
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2   "meta": {
3     "data_version": "1.1.0",
4     "created": "2022-01-29",
5     "revision": 2
6   },
7   "info": {
8     "balls_per_over": 6,
9     "city": "Hamilton",
10    "dates": [
11      "2022-01-29"
12    ],
13    "event": {
14      "name": "Super Smash",
15      "stage": "Final"
16    },
17    "gender": "male",
18    "match_type": "T20",
19    "missing": [
20      "player_of_match"
21    ],
22    "officials": {
23      "match_referees": [
24        "GAV Baxter"
25      ],
26      "reserve_umpires": [
27        "P3 Pasco"
28      ],
29      "tv_umpires": [
30        "Kim Cotton"
31      ],
32      "umpires": [
33        "CM Brown",
34        "WR Knights"
35      ]
36    },
37    "outcome": {
38      "winner": "Northern Districts",
39      "by": {
40        "runs": 56
41      }
42    },
43    "overs": 28,
44    "players": {
45      "Northern Districts": [
46        "KD Clarke",
47        "TL Seifert",
48        "JA Raval",
49        "C de Grandhomme",
50        "MJ Santner",
51        "HR Cooper",
52        "SC Kuggeleijn",
53        "A Verma",
54        "TD Southee",
55        "IS Sodhi",
56        "JW Walker"
57      ],
58      "Canterbury": [
59        "CJ Bawes",
60        "TM Latham",
61        "DJ Mitchell",
62        "LJ Carter",
63        "CE McConchie",
64        "CD Fletcher",
65        "MJ Hay",
66        "HB Shipton",
67        "MJ Henry",
68        "TD Astle",
69        "EJ Nuttall"
70      ]
71    }
72 }
```

Time for us to utilise python.  
PYTHON

```
from cricscraper.cricinfo import CricInfo
import pandas as pd

match = CricInfo("1289634")

match_name = match.match_name()
match_dates = match.match_dates()

# Create a Pandas Excel writer using XlsxWriter as the engine.
writer = pd.ExcelWriter('match_data.xlsx', engine='xlsxwriter')

match_playing11 = match.playing11()
match_playing11.to_excel(writer, sheet_name='match_playing11')

# Write each dataframe to a different worksheet.
match_summary = match.summary()
match_summary[0].to_excel(writer, sheet_name='match_summary')
match_summary[1].to_excel(writer, sheet_name='match_summary1')

# Write each dataframe to a different worksheet.
match_scorecard = match.scorecard()
match_scorecard[0].to_excel(writer, sheet_name='match_scorecard1')
match_scorecard[1].to_excel(writer, sheet_name='match_scorecard2')
match_scorecard[2].to_excel(writer, sheet_name='match_scorecard3')

# Close the Pandas Excel writer and output the Excel file.
writer.save()
exit()
```

Let's break it down section by section. First we know what match we are looking for as we just found it in the readme files. The match number is **1289634**.

We can also double check the date of this game.

We set up an excel sheet using the excel writer as we want to export multiple tables into one excel file.

First we look at the overall team. When we run our code this comes out as the first tab.

	<b>Northern Dis</b>	<b>Canterbury</b>	
<b>0</b>	KD Clarke	CJ Bowes	
<b>1</b>	TL Seifert	TWM Latham	
<b>2</b>	JA Raval	DJ Mitchell	
<b>3</b>	C de Grandhomme	LJ Carter	
<b>4</b>	MJ Santner	CE McConchie	
<b>5</b>	HR Cooper	CD Fletcher	
<b>6</b>	SC Kuggeleijn	MJ Hay	
<b>7</b>	A Verma	HB Shipley	
<b>8</b>	TG Southee	MJ Henry	
<b>9</b>	IS Sodhi	TD Astle	
<b>10</b>	JG Walker	EJ Nuttall	

This is the easy one!

The next few are a little more complex just because of way the data is structured. There are multiple tables of our data listed within the summary sheet and scorecard so we have to say which one to look at.

```
criscraper.cricinfo.CricInfo
def summary(self) -> tuple[DataFrame, DataFrame]
```

Returns a tuple(length 2) of DataFrame of batter and bowler summary.

 < Python 3.9 >

⋮

Once you've run the code you'll see.

Match Summary – is the top 4 batsman

Match Summary (1) – is the top 4 bowlers

Match Scorecard (1) – Looks at all the batsman for both teams

Match Scorecard (2) – Looks at all the bowlers for both teams

Match Scorecard (3) – Looks at the overall summary of the game H2H.

You can find the dataset in the repo at the top of the page, along with code – just navigate to the Github icon.

Remember again, we can make sure our code is correct by comparing it with external third party sites.

BATTERS		R	B	M	4s	6s
CJ Bowes	c Raval b Kuggeleijn	19	13	22	3	0
TWM Latham	b Southee	11	9	12	2	0
DJ Mitchell	c Santner b Sodhi	8	12	20	0	1
LJ Carter	st Seifert b Walker	11	8	18	0	1
CE McConchie*	c Clarke b Sodhi	23	10	16	1	2
CD Fletchert	c Raval b Santner	9	6	12	0	1
MJ Hay	b Walker	2	5	9	0	0
HB Shipley	c Verma b Sodhi	4	8	11	0	0
MJ Henry	b Southee	44	22	24	4	3
TD Astle	not out	13	12	27	1	0
EJ Nuttall	c Clarke b Southee	11	8	10	1	1
Extras	(lb 1, w 5)	6				
Total	for 10 wickets in 18.5 overs	161	113	93	12	9
BOWLERS		O	M	R	W	RPO
TG Southee		3.5	0	39	3	10.17
A Verma		3	0	19	0	6.33
MJ Santner		3	0	23	1	7.67
SC Kuggeleijn		1	0	6	1	6.00
IS Sodhi		4	0	48	3	12.00
JG Walker		4	0	25	2	6.25
BATTERS		R	B	M	4s	6s
KD Clarke	c McConchie b Mitchell	71	34	62	8	4
TL Seifertt	c Bowes b Shipley	5	5	5	1	0
JA Raval*	c Fletcher b Shipley	9	15	18	1	0
C de Grandhomme	c Bowes b McConchie	9	8	13	0	1
MJ Santner	not out	92	40	62	4	9
HR Cooper	run out (Nuttall)	16	14	29	0	1
SC Kuggeleijn	not out	6	4	8	0	0
A Verma						
TG Southee						
IS Sodhi						
JG Walker						
Extras	(w 9)	9				
Total	for 5 wickets in 20 overs	217	120	100	14	15
BOWLERS		O	M	R	W	RPO
MJ Henry		4	0	36	0	9.00
HB Shipley		4	0	30	2	7.50
EJ Nuttall		4	0	42	0	10.50
TD Astle		3	0	40	0	13.33
CE McConchie		3	0	36	1	12.00
DJ Mitchell		2	0	33	1	16.50

So there we have it, a basic introduction to extracting cricket data from a python package with little to no prep.

Here is a small table I've created just to summarise the batting performance of the match. It's downloadable by following the Tableau Public link at the top of the blog.

## Men's Grand Final, Dream11 Super Smash - Men

Twenty20 Match • 29 January 2022 Seddon Park, Hamilton



Northern Brave - Won by 56 Runs

Batsman	Wicket Type	Strike Rate	Runs	Balls	4S	6S
KD Clarke	caught	208	71	34	8	4
TL Seifert	caught	100	5	5	1	0
JA Raval	caught	60	9	15	1	0
C de Grandhomme	caught	112	9	8	0	1
MJ Santner	• not out	230	92	40	4	9
HR Cooper	run out	114	16	14	0	1
SC Kuggeleijn	• not out	150	6	4	0	0
A Verma	○ DNB					
TG Southee	○ DNB					
IS Sodhi	○ DNB					
JG Walker	○ DNB					
Grand Total		208	120	14	15	



Canterbury Kings

CJ Bowes	caught	146	19	13	3	0
TWM Latham	bowled	122	11	9	2	0
DJ Mitchell	caught	66	8	12	0	1
LJ Carter	stumping	137	11	8	0	1
CE McConchie	caught	230	23	10	1	2
CD Fletcher	caught	150	9	6	0	1
MJ Hay	bowled	40	2	5	0	0
HB Shipley	caught	50	4	8	0	0
MJ Henry	bowled	200	44	22	4	3
TD Astle	• not out	108	13	12	1	0
EJ Nuttall	caught	137	11	8	1	1
Grand Total		155	113	12	9	

## GOING FURTHER

- Try accessing the results of an entire tournament.
- Try accessing some other parts of the package, i.e best performers of match, partnerships, wicket details and venue.
- Try prepping the data ready for Tableau after you extract it.
- Try building a cricket scorecard in Tableau.

LOGGING OFF,  
CJ

## CUSTOM CHART TYPES WITH BRIAN MOORE

Hi All,

Welcome to the June episode of “What’s Good?”

It's a true delight to have Brian Moore join this month to discuss building custom chart types in Tableau.

Whenever Brian Moore posts there is a huge chance I will want to go and download the visual and go through the calculations. The things Brian comes up with are not just aesthetically pleasing but also pretty hard to make!

It is no surprise that Brian was named a Tableau Visionary this year, where he has made such an impact on the community through the Boston TUG, blogging and proficiency of Tableau.

Take a look at some of my favourite of Brian's vizzes below.

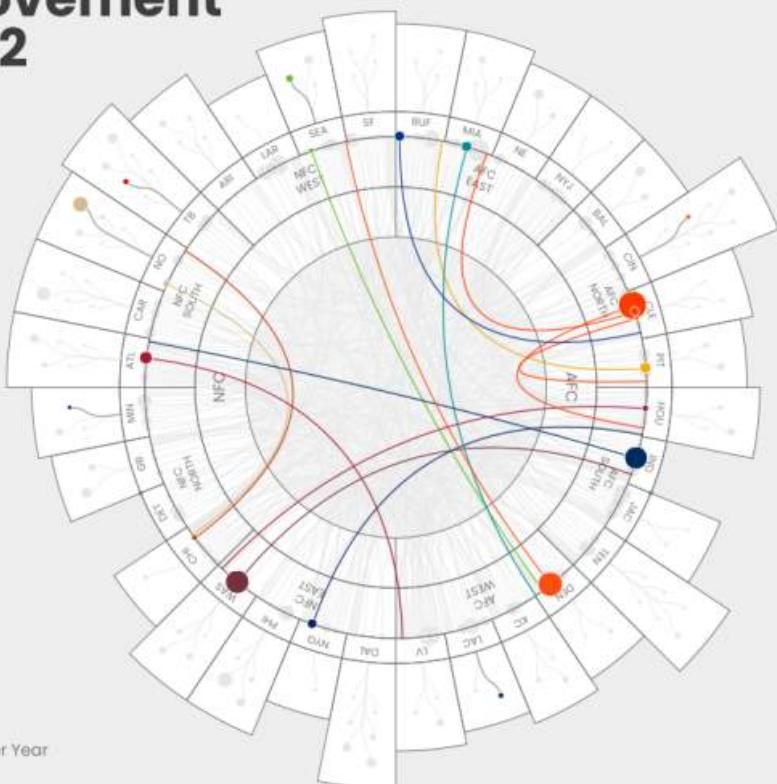
# NFL Player Movement Tracker - 2022

Following the 2021 NFL season, more than 600 players entered Free Agency. As of April 27, 2022, **225** players signed with new teams, **98** players re-signed with their current team, and **320** remained Free Agents. Another **20** players have been traded to a new team. This visualization focuses on players who have moved to a new team, either by trade, or through free agency (represented by lines & circles in the inner ring), or signed new contracts with their current team (represented by lines & circles in the outer ring). This does not include players that will be playing under the franchise tag in 2022 or those that have signed contract extensions. Use the parameters below to explore the 2022 off-season player transactions.

All Teams NFL Team

Select Quarterback or Position Group

Amount Per Year  
Size Players by Total Contract or Amount Per Year



## Top Player Movements

Deshawn Watson (QB)  
Traded from Texans to Browns - \$46.00M / year

Russell Wilson (QB)  
Traded from Seahawks to Broncos - \$35.00M / year

Carson Wentz (QB)  
Traded from Colts to Commanders - \$32.00M / year

Matt Ryan (QB)  
Traded from Falcons to Colts - \$30.00M / year

Marcus Mariota (QB)  
Signed from Raiders to Falcons - \$9.38M / year

Mitchell Trubisky (QB)  
Signed from Bills to Steelers - \$7.14M / year

Teddy Bridgewater (QB)  
Signed from Broncos to Dolphins - \$6.50M / year

Case Keenum (QB)  
Traded from Browns to Bills - \$6.00M / year

Tyrod Taylor (QB)  
Signed from Texans to Giants - \$5.50M / year

Jacoby Brissett (QB)  
Signed from Dolphins to Browns - \$4.85M / year

## Top Players Retained

Jameis Winston (QB)  
Re-signed with Saints - \$14.00M / year

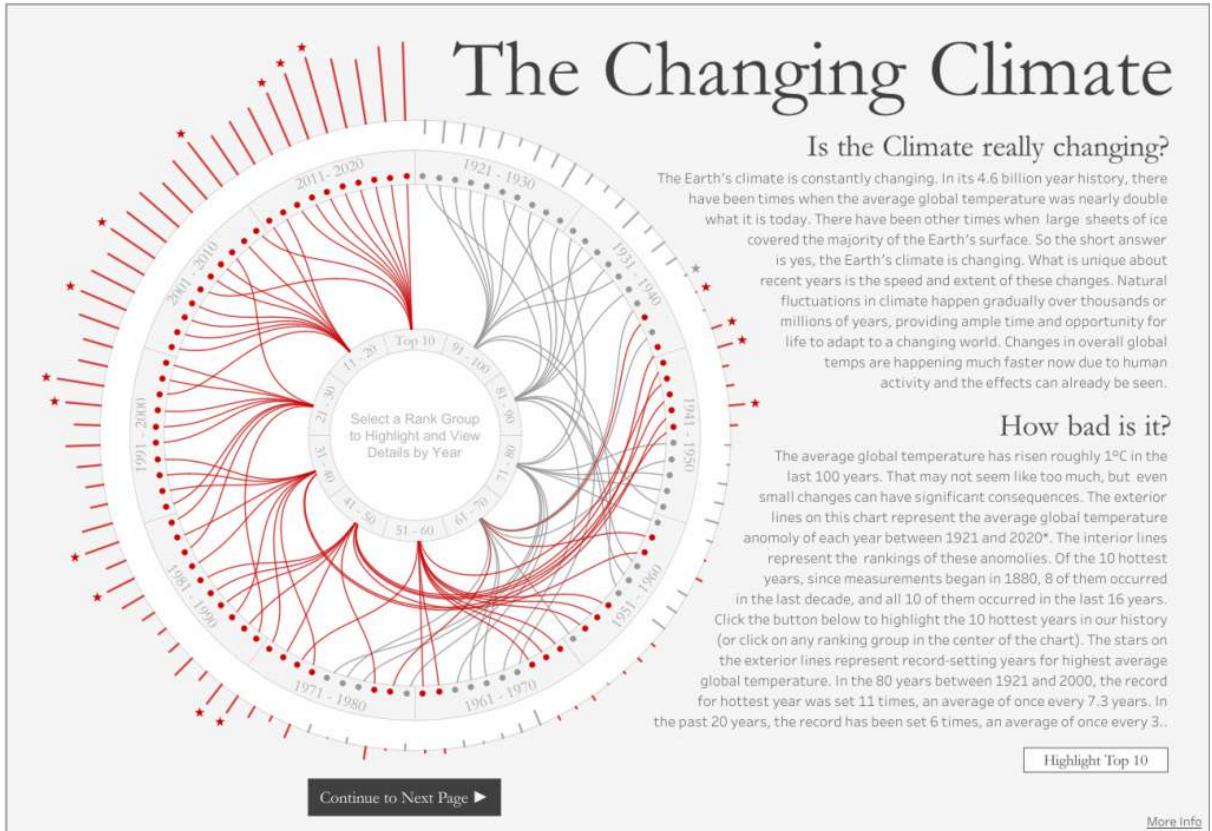
Geno Smith (QB)  
Re-signed with Seahawks - \$3.50M / year

Blaine Gabbert (QB)  
Re-signed with Buccaneers - \$2.25M / year

Chase Daniel (QB)  
Re-signed with Chargers - \$2.00M / year

Brandon Allen (QB)  
Re-signed with Bengals - \$1.50M / year

Sean Mannion (QB)  
Re-signed with Vikings - \$1.27M / year



CJ: Brian I am so pleased to have you join the What's Good blog. For those that are unaware, can you give us a little about your background in data?

BM: Thanks for having me CJ! I love the blog and I'm really excited to be a part of it. I've been working with data for almost 15 years now. I started my career in 2008 and I've worked in various analytic roles since. But I didn't fall in love with data until 2015 when my amazing wife, **Jacqui Moore**, introduced me to Tableau. Prior to that I was an excel power user, and I was hesitant to learn something new, I had put in a lot of time mastering Excel, it's what every company I had worked for was using, and I just hadn't really heard much about Tableau. But as soon as Jacqui gave me a demo, it was over. Love at first sight. I started learning Tableau and haven't looked back since. I am now a Senior Data Visualization Consultant with Cleartelligence, Inc. and I couldn't imagine doing anything else. I love helping people with data, I love facing new data challenges every day, I love Tableau, and I love the company that I work for.

CJ: A massive congratulations on becoming a Tableau Visionary this year. We are a few months in now! To reflect, what did the news mean to

you and has it made you think any differently about your approach to community work?



Brian Moore  
@BMooreWasTaken

...

Wow, now it's official! Thank you so much @tableau!  
And thank you to everyone in this amazing  
community!! #TableauVisionaries



BM: Congratulations to you too! I can't put into words how much it means to me. It wasn't something I set out to do, it wasn't something that even seemed possible, but knowing that my contributions to the community have been meaningful and impactful, it means the world to me. As far as how being selected will change my approach, it just makes me want to do more. I want to blog more, I want to mentor more, I want to help more people get the most out of their experiences with Tableau. This community has given me so much over the past few years, I just want to pay that forward as much as possible.

CJ: Wow, what a lovely sentiment around helping others.

CJ: At the time of writing this only 2 of the last 10 vizies contain what I would call a standard chart type. Can you share a little more around your thoughts on your approach to Tableau Public? What attracts more customized charts?

BM: I spend all day building 'normal' dashboards with standard charts for work. If I'm spending my nights or weekends in Tableau, it has to be on

something different. I like spending that time exploring what's possible in Tableau, and creating weird, custom visualizations is a great way to do that. And I love to learn new things. In every viz that I create for Tableau Public, I try to do something that I've never done before.

General Options	
<a href="#">Click here to start over</a>	<a href="#">Clear</a> <a href="#">Download</a>
Show Outer Ring? No	Inner Circle Size Small

<b>First Row Design</b>	
Type Lotus Petals	Type Other Petals
Size Small	Size Medium
Pattern Lines I	Pattern Circles I
Count 6	Count 12
<b>Second Row Design</b>	
Type Lotus Petals	Type Other Petals
Size Medium	Size Medium
Pattern Lines I	Pattern Circles I
Count 12	Count 12
<b>Third Row Design</b>	
Type Ring	Type Rounded Petals
Size Medium	Size Small
Pattern Lines I	Pattern Lines I
Count 24	Count 24
<b>Fourth Row Design</b>	
Type Ring	Type Rounded Petals
Size Medium	Size Small
Pattern Lines I	Pattern Lines I
Count 24	Count 24
<b>Fifth Row Design</b>	
Type Ring	Type Lotus Petals
Size Large	Size Large
Pattern Circles I	Pattern Lines II
Count 12	Count 12
<b>Sixth Row Design</b>	
Type Ring	Type Lotus Petals
Size Large	Size Large
Pattern Circles I	Pattern Lines II
Count 12	Count 12

Click on a section to  
paint it Blue  
  
[Show Full Instructions](#)

**Color Palette**  


  
**Lines**  

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CJ: What fascinates you about the blend between mathematics and art?

BM: I just love that you can use math, a discipline that is typically thought of as much more scientific than artistic, to build something creative and beautiful. And the fact that no matter what you are trying to create, there is an equation, or set of equations, that somebody figured out hundreds, or even thousands of years ago, that will allow you to do exactly what you're trying to do. The hardest part is figuring out what you need to use. And I use a lot of math in my visualizations, but I really only use a handful of equations. I've barely scratched the surface of what's possible, and I'm really excited to keep learning.

CJ: Watching your portfolio grow has been super exciting. Has there been anyone in the community that has prompted that journey?

BM: Absolutely! First off, my wife, Jacqui. As I mentioned earlier, she was the one who introduced me to Tableau. A few years later, she also

introduced me to Tableau Public and encouraged me to start getting involved with the Community. So, I really have her to thank for everything that came after. And then there's the Flerlages. It was **Kevin** and **Ken**'s 'Beyond Show Me' presentation at TC19 that really opened my eyes to what's possible in Tableau. I remember them describing how the Tableau canvas was basically just a cartesian plane, and if you could figure out the math, you could literally draw anything. It seems obvious now, but it's something that had never really occurred to me. It opened up a world of possibilities. Since that day, I have spent a lot of time learning or re-learning geometry and trigonometry. A lot of that learning was done on their blog or by reaching out to them directly and asking for help. They've been incredibly supportive of me since I joined the community, and I can't thank them enough. And I have to mention the folks at **#SportsVizSunday**. That's how I started getting involved with the community back in 2019 and they were very supportive from the start. And the 1,000 other folks in this amazing community whose work has inspired me along the way.

CJ: No I did not pay Brian to shout out SVS!

CJ: As someone that likes to stretch the boundaries of what can be created in Tableau, do you have any future concepts or chart ideas in the wider data visualization community that you want to re-create?

BM: I hear a lot of people talk about how they have so many viz ideas and not enough time to work on them. That, unfortunately, is not the case with me. I really struggle to come up with new ideas. I don't really have a bank of them to pull from. Typically, I will get hit with an idea, I'll work on it for a few weeks, publish it, and then go weeks, or even months before another idea comes. That also means I don't have a lot of unfinished vizzes, which is another thing I hear people talk about often. I'll work and re-work a visualization for months sometimes, just because it's the only idea I have at the time. For example, the viz called 'The Originals', I worked on for 4 or 5 months. The final product only took a week or two, but I went through so many iterations before I found something that worked. So that's the long answer. The short answer is no, I have no idea what I'm going to build next.

CJ: Do you have any tips for individuals that consider themselves decent at the standard Tableau interactivity but want to expand into some more unique designs?

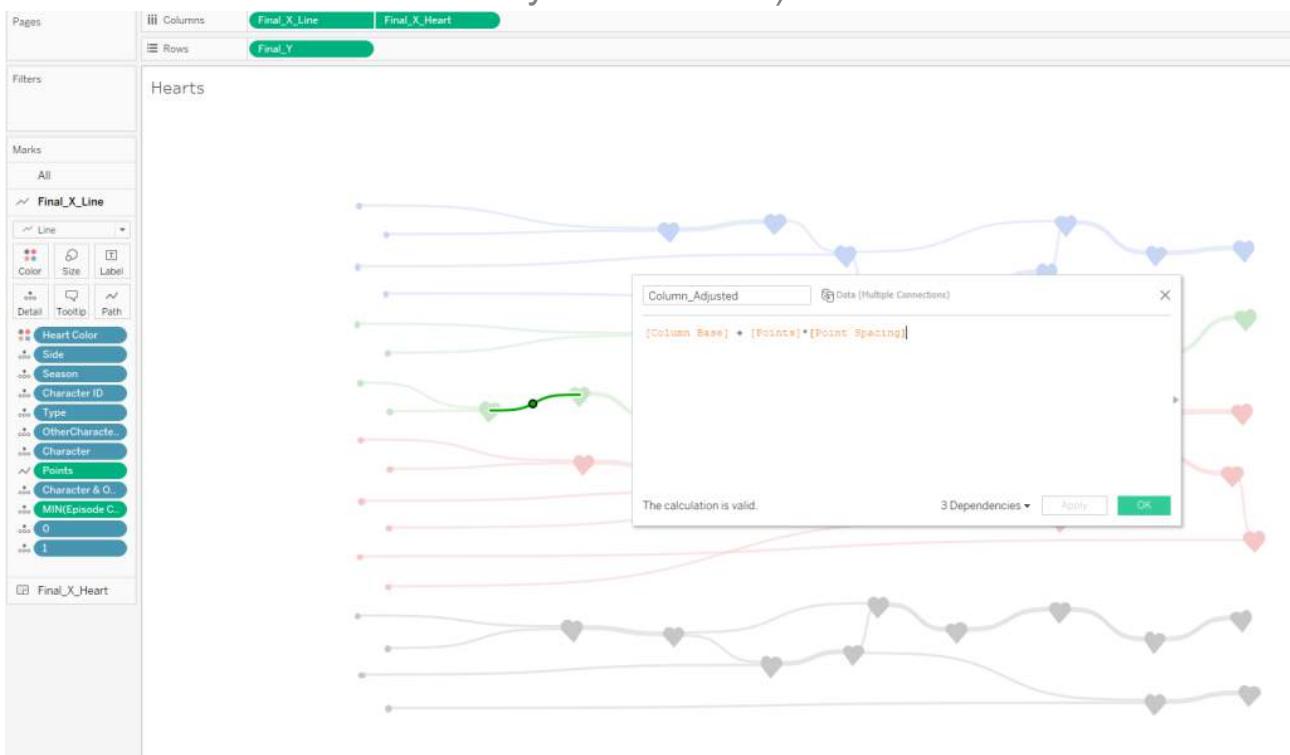
BM: I would definitely check out **Kevin and Ken's presentation** that I mentioned earlier. That was the tipping point for me. And then just have fun with it. I always start with an idea, and then figure out how to make that idea happen. If you can imagine it, there is probably a way to do it in Tableau. And if you're not sure how to do it, please reach out to me anytime because I love figuring these kinds of things out. Also, shameless plug here, check out my blog series "**Fun With Curves in Tableau**". There are a lot of simple techniques in that series that you can put together to create some really cool, unique visualizations.

The screenshot shows a blog post titled "Fun With Curves in Tableau Part 1: Circles" by Brian Moore. The post is dated December 21, 2021, and has 5 comments. It includes a "Sticky post" badge. The main content area features a blue header with the title and author information. Below the header is a large, stylized chart with various data points and curves, likely demonstrating the techniques discussed in the post. The overall design is clean and professional.

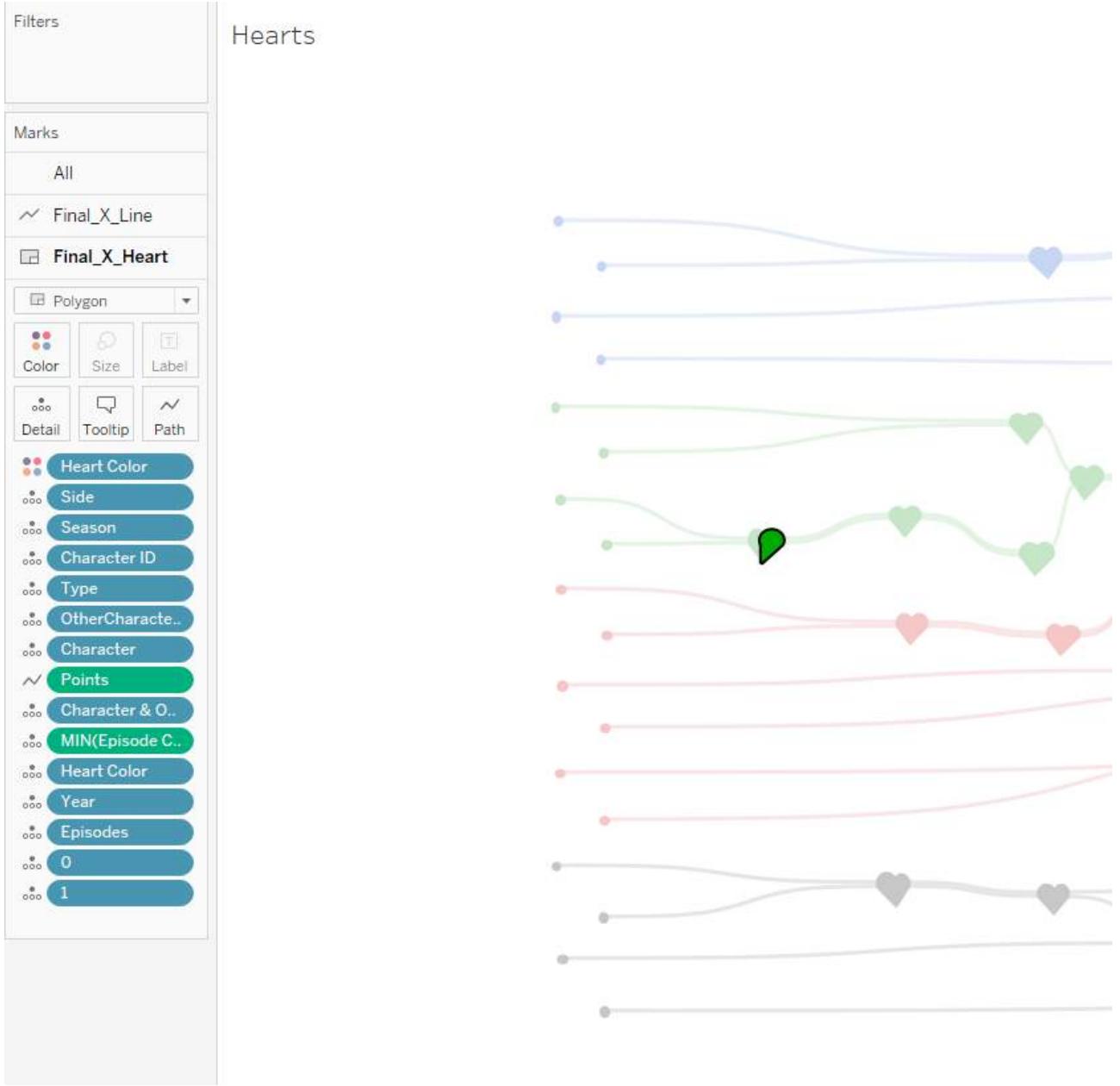
CJ: In a more recent 'Office Relationships' viz you created curved lines that looked hand-drawn. Can you explain a little bit behind the methodology in approach to being able to create curves of different wavelengths? Are there any resources that you use to see the different effects calculations can have along a line?



BM: I used a lot of random numbers. A LOT. I did a little bit of math to get a ‘base’ position for the start and end of each of the lines and then used a bunch of random numbers to offset them randomly in different directions. Then once I had those randomized points, I used the sigmoid curve calculations that, another shameless plug, you can find in the 3<sup>rd</sup> installment of the “**Fun With Curves in Tableau**” series (using the Dynamic Model).



I also used a lot of random numbers to create the hearts in that visualization. You can't really tell unless you look closely, but I used polygons to draw the hearts so they're all slightly different shapes and sizes. I wanted the whole thing to look hand-drawn, so I relied really heavily on random numbers throughout the entire viz.

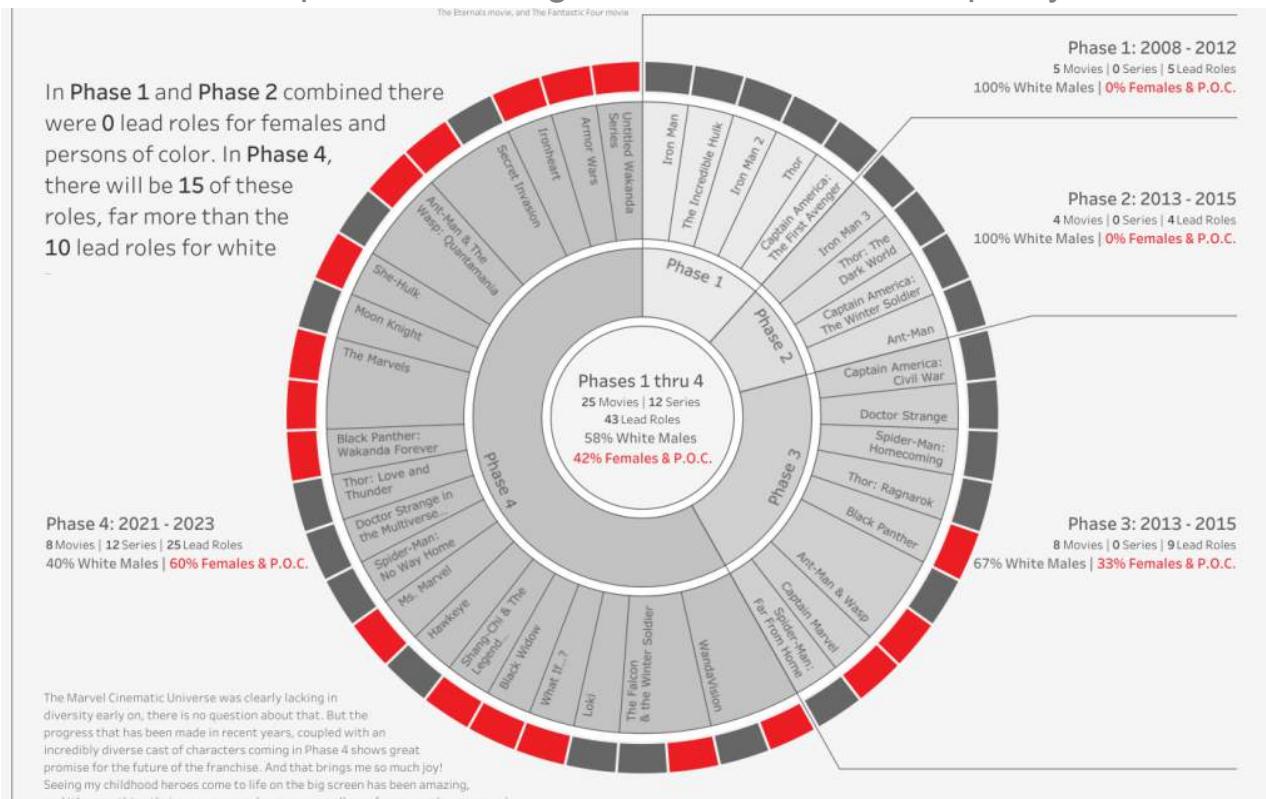


CJ: You have a great mix of personal vizzes, SDG vizzes and sports vizzes on your profile. But do you have a favourite? What makes it so special?

BM: That's a tough call. It might be a 3-way tie between “**Design Your Own Mandala**”, “**Diversity in the Marvel Cinematic Universe**”, and “**The Dance of the Cosmos**”, and I like them all for different reasons. I love the Mandala one because it’s a really weird application of Tableau and it’s a lot of fun to play with. My 5 year old son spent hours playing with it, which was pretty awesome.

I love the Diversity one because it’s such an interesting story. Most of my visualizations don’t have much of a story to them. They’re just fun to look at and interact with, but I spent a lot of time researching and

planning this one, and I think the story really came together well. And I love the *Cosmos* one because the realization that those types of patterns exist in nature is just fascinating. And using the play controls to watch the patterns emerge with each rotation is pretty cool.



CJ: You did a fantastic collaboration with Tina to create the *squid games* in an interactive animated tableau form. Can you share a few thoughts on what you liked about collaborating as well as how you came up with a few of the technical elements displayed?



Squid Game is a last chance opportunity for people to compete, on equal footing without discrimination, for life changing money to repay their crippling debts. Will you play?

The choice is yours, do you want to leave and live out your life running from creditors? Or will you seize the opportunity we are offering?

Created by @visual\_endgame & @bmoorewastaken

BM: Collaborating with Tina was awesome! She is incredibly talented and someone I look to all the time for help with design or to just brainstorm viz ideas. When I asked her about collaborating, I really had nothing in mind, no ideas whatsoever. All I knew was that I wanted to do something with Squid Game and that I wanted to work with her because I love her design work. We ended up going back and forth for weeks, maybe months, brainstorming, trying out different ideas, building off of each other, and the whole thing just kept evolving and getting better and better. It was a very iterative process. And I think the sign of a successful collaboration is that the “whole is greater than the sum of the parts”, and that was absolutely the case here. I don’t think either of us could have done something like this on our own, but by working together and playing to each of our strengths, we were able to build something together that was really unique.

I honestly don’t remember how we landed on using animations to simulate each of the games, but if I had to guess it was probably Tina’s idea. From a technical perspective, the viz was pretty simple. The hardest part was plotting all of the players’ starting and ending positions for each game, which unfortunately, was mostly manual. But what really

brought the whole thing together were the incredible “game boards” that Tina designed.



CJ: I mentioned in previous blogs that your website is one of my go to places to learn new things. (For example using the arc tutorial for my feeder viz!) I loved how easy it was to follow. Is there anything you want to share that's coming up soon that the community can share excitement for?

BM: I do have a new series, which just launched, that I'm pretty excited about. It's called "**Totally Useless Charts & How to Build Them**". In each part of the series I'll walk through how I built something from one of my Tableau Public Visualizations. Things like Lotus Flowers, or Hand-Drawn Bar Charts, or 3D Marimekko Charts. Things that have almost no valid use cases but are fun to build. The hope is that seeing the process I went through with each of these will help others that are interested in building their own custom visualizations.

#### CJ Round-up:

So... now i've met people in person. I can first hand say how lovely Brian is. What a cool guy. We had some nice chats at the data+women events as well as throughout the rest of the conference. It was a pleasure to be able to thank him for his incredible community work in person.

Anyone else's mind feel like it is on fire after reading Brians domoorewithdata blogs? Yep me too. I'm glad how he manages to break down the maths in such a digestible manner. They are so fun to follow along to, and really pushes the boundaries of what's possible in Tableau.

Finally, It's lovely to see how grateful Brian is of the community, especially of Jacqui. So heartwarming.

Hope everyone enjoys some sunshine as we roll into the Summer period.

LOGGING OFF,  
CJ

VIOIN OVER TIME

Hi all,

So, first blog back since Iron Viz. That was a thing. A really fun thing too. I have so much appreciation for the support of the community, friends, the JLLDataFam, Tableau team and all the event management. Being on stage felt electric, and those moments will last forever. Being in rehearsals for a good chunk of time meant I had the pleasure of getting to know Will, Kimly and our respective sous vizzers on such a deeper level. I can't wait to see who we will be cheering on next year, the experience of presenting on stage, is worth it alone.



Inspiration: Hans Rosling

Page 1

This blog really acts as a violin follow up to the wonderful work of Liam Holland. If you'd like to make a standard violin chart in Tableau, this is where I would start. I wanted to share how it was possible to take this chart one step further to showcase the shift of previous and current metrics on the same chart using a dual axis as well as some thoughts for using Tableau Prep for the VERY FIRST TIME.

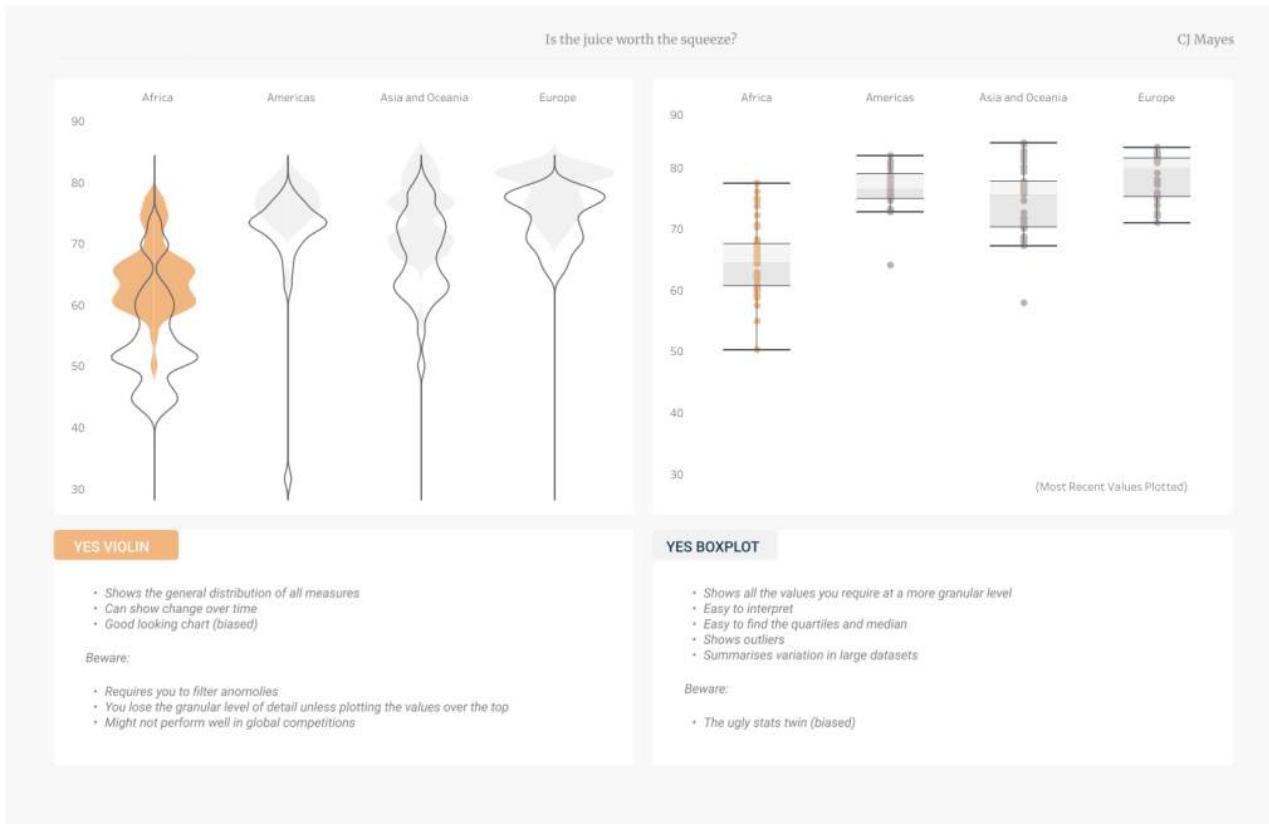
I wasn't sure if I was allowed to share the original dataset, so the one shown throughout this blog I've masked all the country names, this will have been a subset of the full original data provided to us for the competition. I feel like i've amended it enough as the original dataset didn't include continent or quadrant in my case, this was something I had prepped. You can find my files in the GitHub Repo at the top of the page.

We'll break the blog into three sections.

- 1.
- 2.
- 3.

- Why Violin charts  
How the prep flow worked  
Other resources for distribution charts

## WHY VIOLIN CHARTS?



Well, just check out my cost benefit analysis above. The violin plot is a beautiful way of displaying range in a dataset as well as probability density of a value. With the violin plot what i wanted to focus on was two things.

1. The change in shape – Something that you can't see with using a box-plot. The change in shape shows how African countries are accelerating, whilst at different rates, this acceleration phase looks different to perhaps a more natural progression stage of the other quadrants where countries are reaching a ceiling value of life expectancy.
2. The upwards shift – Comparing a previous and current value helps show the shift in life expectancy. I wanted to draw attraction to where the main bulk of countries now sit (in the 60-70 range) as oppose to the 50-60 range as well as the minimum life expectancy now sitting at 50 years old.

The box plot, is a safe option and also has its own benefits.

1. You can see two country outliers, something that I don't necessarily account for in my equations, so you see a small bump in the violin

chart. For example, the country in the America's for the previous value was struck by a natural disaster in that year.

2. It's much easier to compare quartiles and the median. What you would notice from the box plot is the range in life expectancy is still quite large in Africa, even though there are many countries that sit in the same space as the other three quadrants.
3. Box plots are something analysts are much more familiar with and the reflection of the violin may over exacerbate the true density at each age mark.

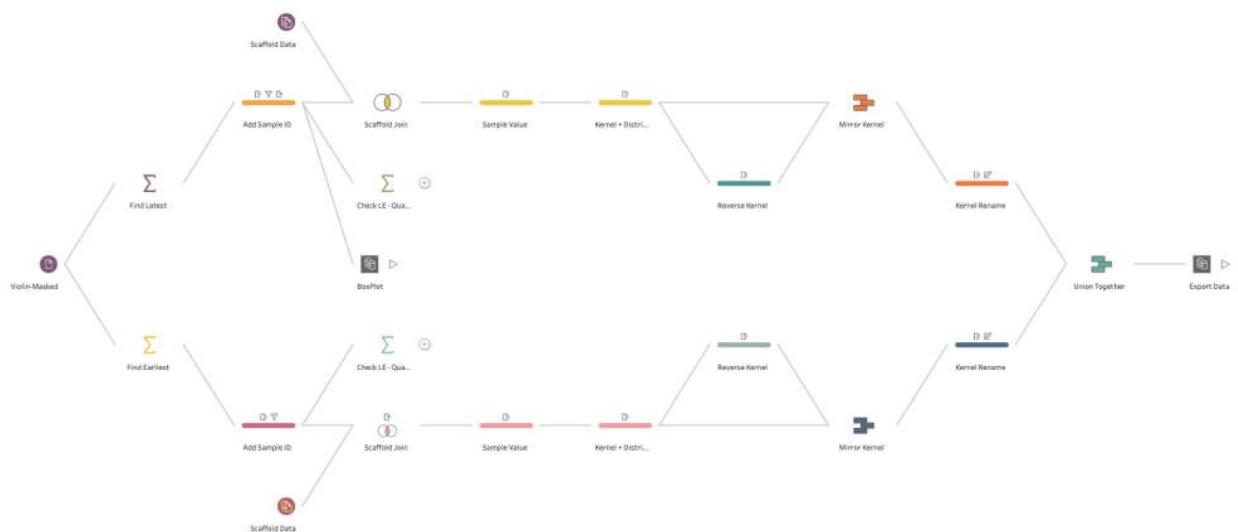
I feel like that was somewhat a fair reflection even though i'm biased.  
Anyway, onto the creation.

### TABLEAU PREP

Before reading – do revisit [Liam Holland blog](#), as I won't be re-explaining the specific calculations, just the amendments needed to add two layers.

First things first. Prep. I liked using it once I got the hang of it. A fairly simple, easy to interpret prepping tool. I like that I could stick multiple formula changes into one clean step. I also like that it comes with my Tableau license, so I can use it in future prep work. I can't necessarily comment on it in the business setting as I've never used it before

IronViz.



We want to find our maximum year and minimum year value for each country. This is because our data had a few holes in it, so we have to take the closest to my date range ends.

Next we assign a SampleID from Liam's blog. (I.e a Row ID). To do so I just create a custom calculation of 1. Then add a partition using the following { PARTITION : { ORDERBY ASC: RANK()}}, pretty much meaning give each row a new number.

Following that we revisit the blog and look to add the scaffolding element. To make our chart nice and curvy we have to add in a bunch of marks in between to help smooth out the lines.

In the same way that you would do this join in Tableau, you can do it in prep. I ended up joining 1=1 through two custom join calculations in the dataset. Repeating this both for our minimum section and maximum section.

I throw in a quick aggregate to check the my calculations have worked looking at the average life expectancy across the 4 quadrants.

The screenshot shows the 'Applied Join Clauses' section of the Tableau Prep interface. It displays a join clause where 'Add Sample ID' is joined to 'Scaffold Data' on the 'Join' field. The 'Join Type' is set to 'inner'. A visual representation of the join shows two overlapping circles, one orange and one purple, with their intersection shaded grey. Below the join settings, there is a 'Summary of Join Results' section which includes a bar chart with segments labeled 'Included' and 'Mismatched values'.

The next thing to do is create three new calculations from the blog.  
Sample Value – This is just our value of life expectancy relabelled.

Evenly distributed scaffold values –

'Evenly distributed scaffold values'

```
IF [Scaffold Values] = 0 THEN {MIN([Sample Value])} - [Scaffold scaling factor]
ELSEIF [Scaffold Values] = 99 THEN {MAX([Sample Value])} + [Scaffold scaling factor]
ELSE
({MIN([Sample Value])} - [Scaffold scaling factor]) +
(
ABS(
({MAX([Sample Value])}+[Scaffold scaling factor]) - ({MIN([Sample Value])}-[Scaffold scaling fac
)

* ([Scaffold Values]/99)

)
END
```

So this is quite the chunky calc at the moment – So i replace as much of it as possible. The {MIN} and {MAX} values I ended up working out and hardcoding.

The scaffold factor is also replaceable. I actually built the chart multiple times over in Tableau before moving my calculations to prep so I knew a scaffold factor of 4 worked well.

Here is an example calculation stripped back.

```
IF = 0 THEN 50.16 – 4
ELSEIF = 99 THEN 83.94 + 4
ELSE
(50.16 – 4) +
(
ABS(
(83.94+4) – (50.16-4)
)
*
(/99)
)
END
```

Do note these hardcoded values will change dependent on looking at the minimum or maximum dataset.

Kernel –

'Kernel'

```
(1/({COUNTD([Sample Value])}*[Bandwidth]))
```

\*

```
(1/(SQRT(2*PI()))))
```

\*

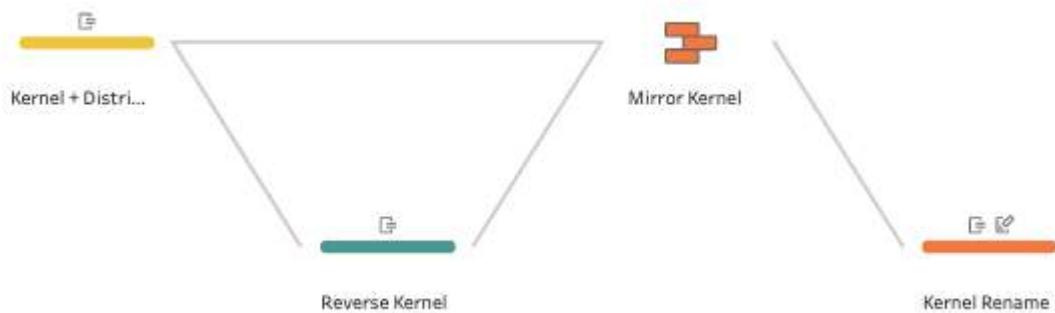
```
EXP(-0.5 * (([Evenly distributed scaffold values] - [Sample Value])^2)/[Bandwidth]))
```

Again, we can replace the Bandwith as a hardcoded value instead of a parameter that is used in Tableau once we know what looks good. For example here is an example calculation

```
(1/(155*1.52)*(1/(SQRT(2*PI())))) * EXP(-0.5 * (( - )^2)/1.52))
```

Amazing. so far, all we have done is replace a few tableau parameters and moved our tableau calculations into prep.

So where is the value in this?



Well this bit. Currently, we have the calculations to create half a violin chart. But now we want to be able to create the reflection. You'll see in Liams blog he reflects the axis using a dual axis. But we want this already pre done in prep. So what we can do is create a duplicate dataset and reverse the kernel using -1 of kernel.

## Edit Field

Field Name

Kernel

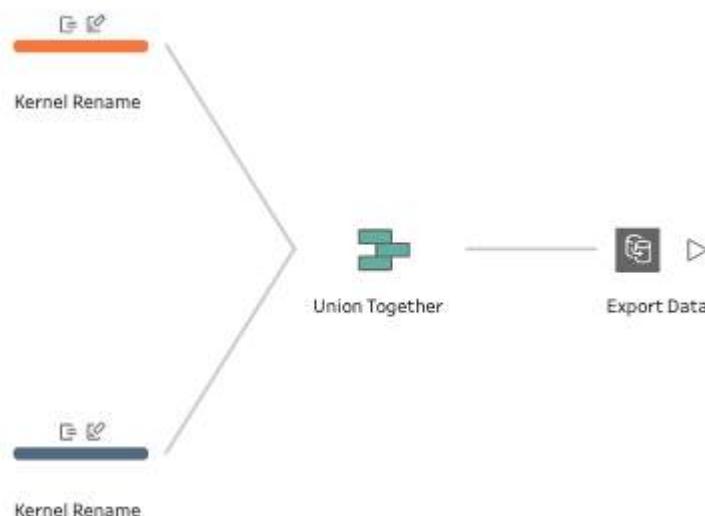
- [Kernel]

Calculation is valid ^

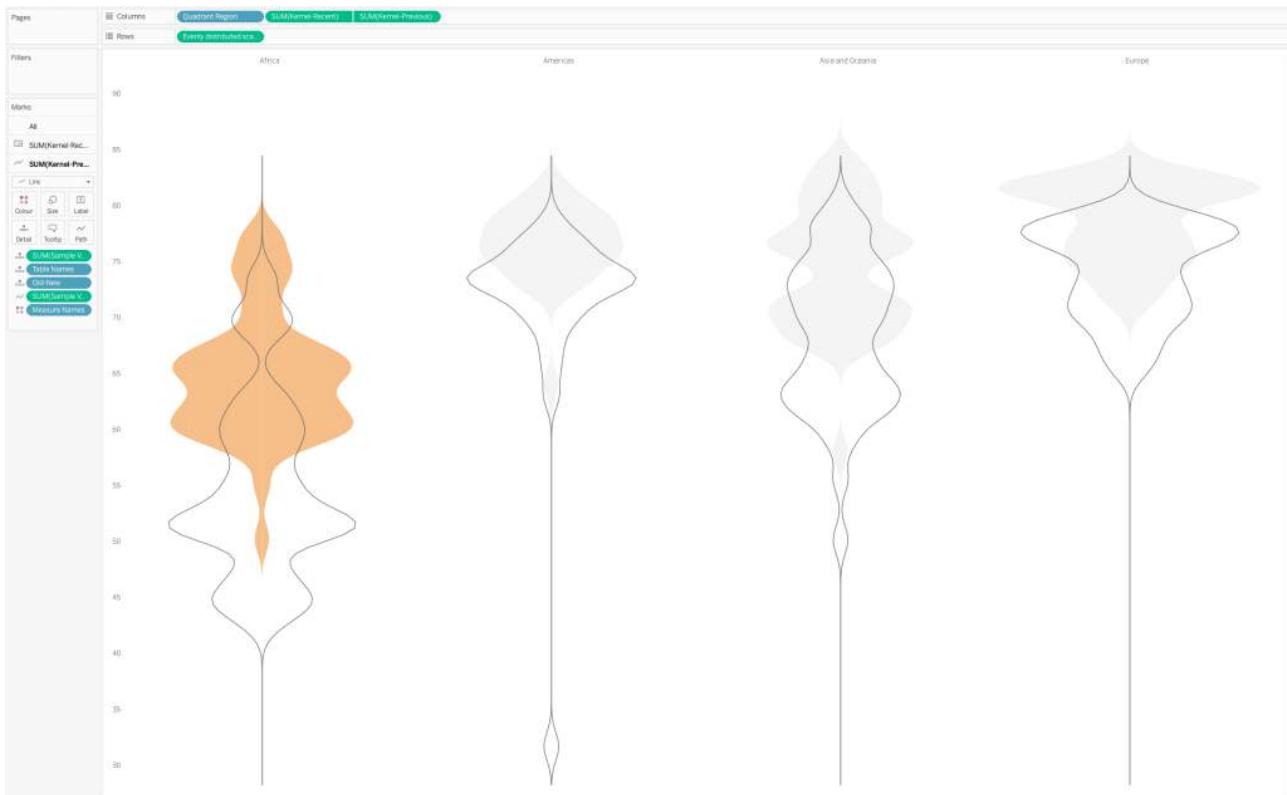
We then union this data back on itself.

So we have all the points, but reflected on their y axis. Once we've done this we would be able to plot the violin and it would automatically connect our negative values to the end of 0!

The final part of this section would be to rename our Kernel. We want our kernel to be a different name for our previous and current values.



To finish the data prep all we need to do is bring back together our worksheets for the maximum and minimum values. Voila!



For how to finish building this visual you can now refer back to Liam's blog. The only things to bear in mind are:

You will want to drag an extra column of 'Table' onto detail. This is so tableau knows if you are referring to the current (max) or previous (min) data sets.

You will need to dual axis the kernels. One you will make a polygon, one will be a Line. Feel free to [download my workbook \(link at top\)](#) to see how this was done within my own viz. Once again, the prep file can be found at the top of the page.

## OTHER RESOURCES

It's only fair to list out some resources for other where to learn more about distribution in a non bias way.

**Caitlin Walsh – Data School**

**James Driver – Data School**

**Anna Foard – Box and Whisker Plot**

**Chartio – Violin Plots**

## GOING FURTHER

- Try using layers to add extra details in of median, LQ and UQ.

- Try applying it to your own data.
- Try prepping the data in a tool outside of prep.

LOGGING OFF,  
CJ

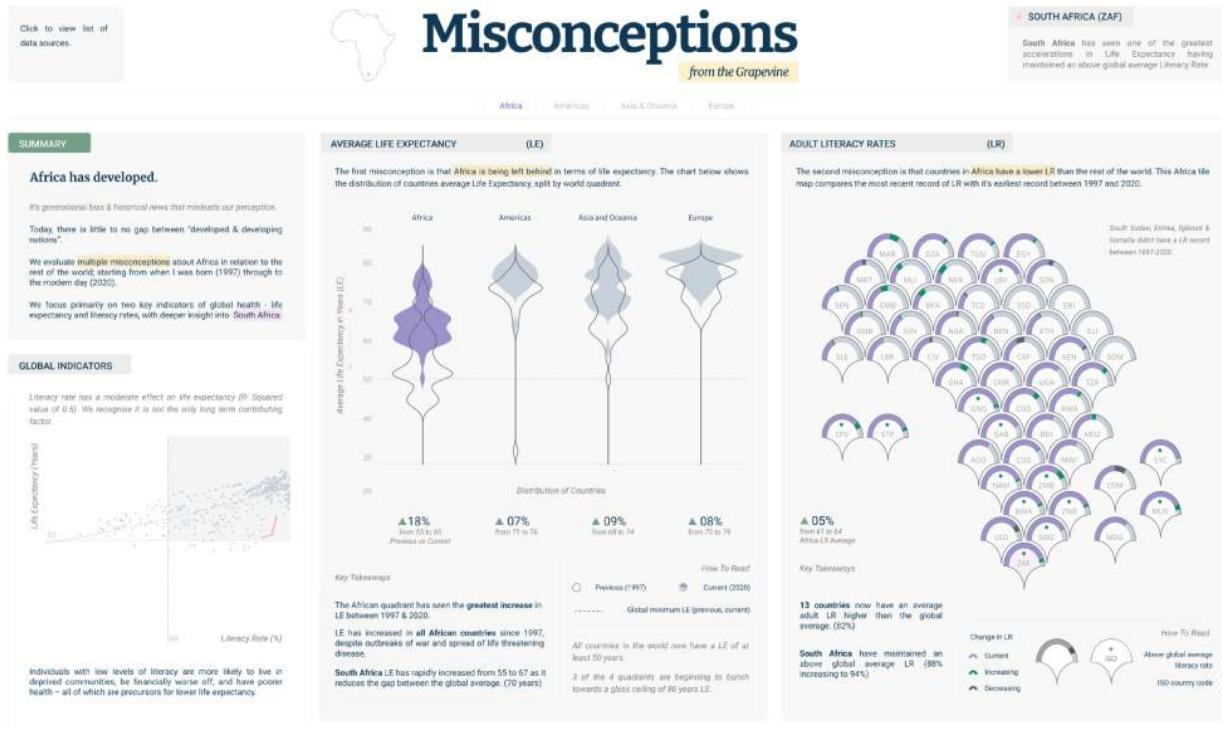
TABLEAU CONFERENCE 22

Hi All,

I wasn't sure whether to write a small blog on my first Tableau Conference experience or not, namely because I would want to mention every single person I met and how much joy it brought me to being able to connect with everyone. Given though, it was possibly one of my favourite work, and even life moments I think it's only apt. Instead of re-writing the full schedule and sessions I attended, here are three moments that will stay with me.

#### Iron Viz

I have so much appreciation for both the Tableau IV team (Brandon etc) and the efforts they went to this year for bringing what I hope was an exciting showdown on stage. Having got to spend time with **Will** and **Kimly** and learn more about them both personally much beyond our vizzes and the competition was a real highlight. Both such talented, caring, individuals. Same goes for our Sous vizzers – **Mark**, **Nina** and **Doris**. In and amongst the playful stage comments were some really nice friendships and support mechanisms shown when in rehearsals. I can't wait to see who we will be cheering on next year, come spring time.



Inspiration: Hans Rosling

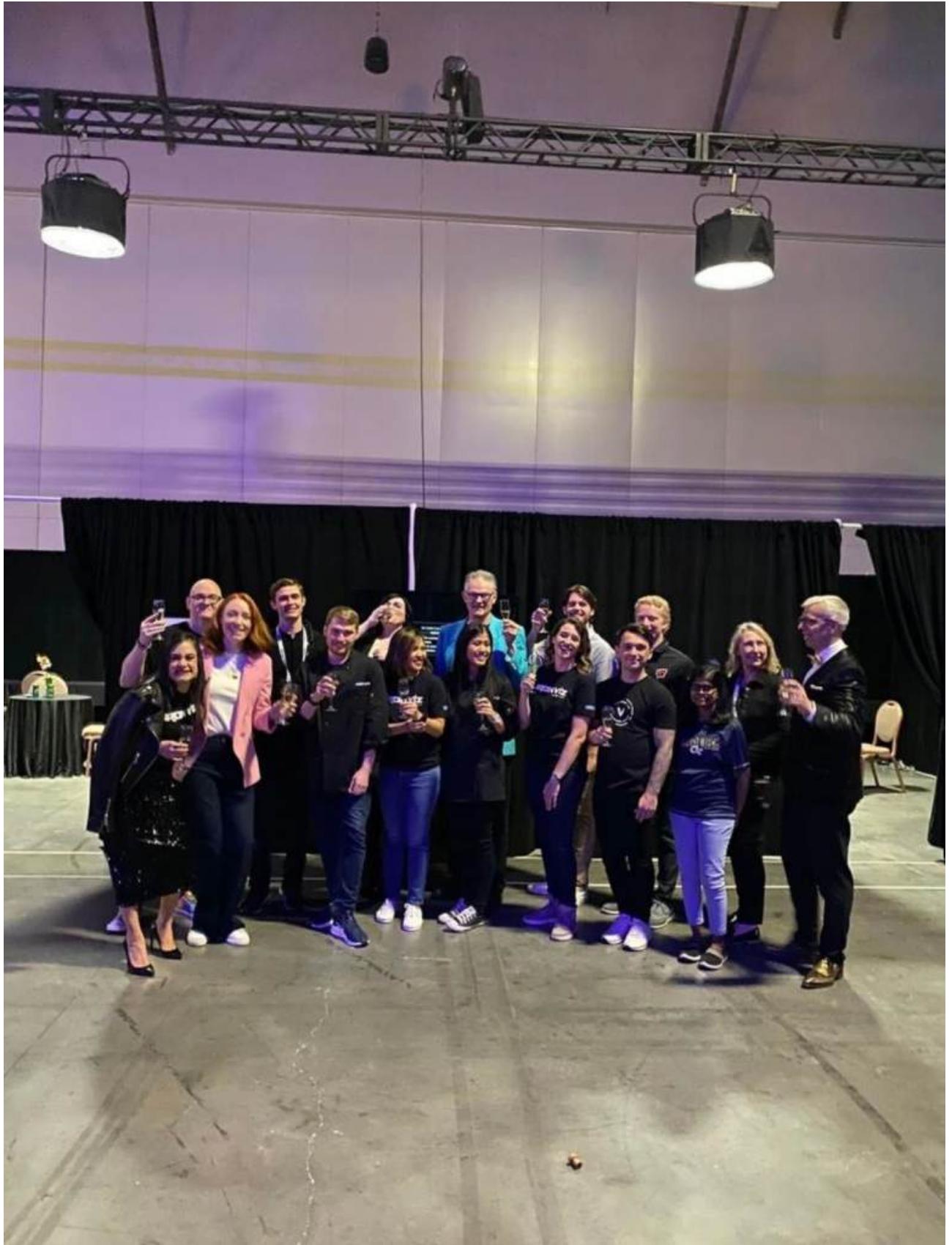
Page 1

## Inspiring Individuals

Yes, I got to meet A LOT of my data heros. As did everyone, I'm sure. But to have been my first conference I wasn't quite sure how people would react to meeting me for the first time. Breakfasts, small chat in the hallways, visionary summit, the occasional beer... oh and the sessions themselves. It all adds up and wow it feels welcoming. Its not just visionaries that are my heros, we have ambassadors, long standing community members, first timers, and colleagues.

It was also great opportunity to meet the #JLLDataFam. What a fab bunch, to say hi and share stories. Truly invaluable. At JLL, we are building culture the right way and it truly shows. Not just in person, we also had channels virtually for those wanting to get involved and have loved reading through the threads and hearing everyones voice on topics like the keynote, devs on stage, and how it will impact the future of JLL.

Data night out was a blast, I am so grateful for the amount of people that would make the time to connect. The best interaction was definitely when an *unnamed individual* asked if the second or first place from IV was here LOL, I see how it is!









### Personal Development

Before this week the largest in person crowd I ever presented to was about 10 people. The confidence IV gives you in yourself and the support network of the event is something that will live with me forever. They say people attend for the connections, but I must say the sessions themselves were also actually remarkable. There were a lot of technical features that I learnt in regards to transparency from **Kevin** and **Ken**, as well as containers and pre attentive attributes from **Sam P & Simon B.**

The list could go on. I loved geeking out listening to all the different sessions on offer.

I don't think **Paul C** will let me hear the end of it for missing his early Thursday morning session on retaining talent though (Sorry!)







## Future

So, where does that leave me now?

The conference left me feeling refreshed. Excited for what's to come in the wider community as well as my own professional development.

My main reflections include:

More content. I'm quite excited to get back into routine and publish up some more Tableau blogs. It's only recently I've got use to perhaps my new working structure and I hope to continually share more of my own technical builds as well as showcase other community members through the blog. I hope I can really build the site further to resemble who I am as a person and my own personal brand.

Wanting to make **#SportsVizSunday** one of the most well-known data communities worldwide. I really hope we can expand its online presence as well as push our connections with clubs, sports and events. You may have noticed a lack of its promotion at TC this year and I do blame myself a little for not organising anything sooner.

Giving back. Helping others sees their confidence grow from attending or presenting at the conference really hit me. No matter what stage in your career you are, you can contribute to the conference through different means. Finding your voice is something I'm passionate about and would like to help others with.

Take care all & once again thank you to the Tableau team for helping make conference such a memorable experience. Andrew, Britt, Larissa – it was absolutely magical.

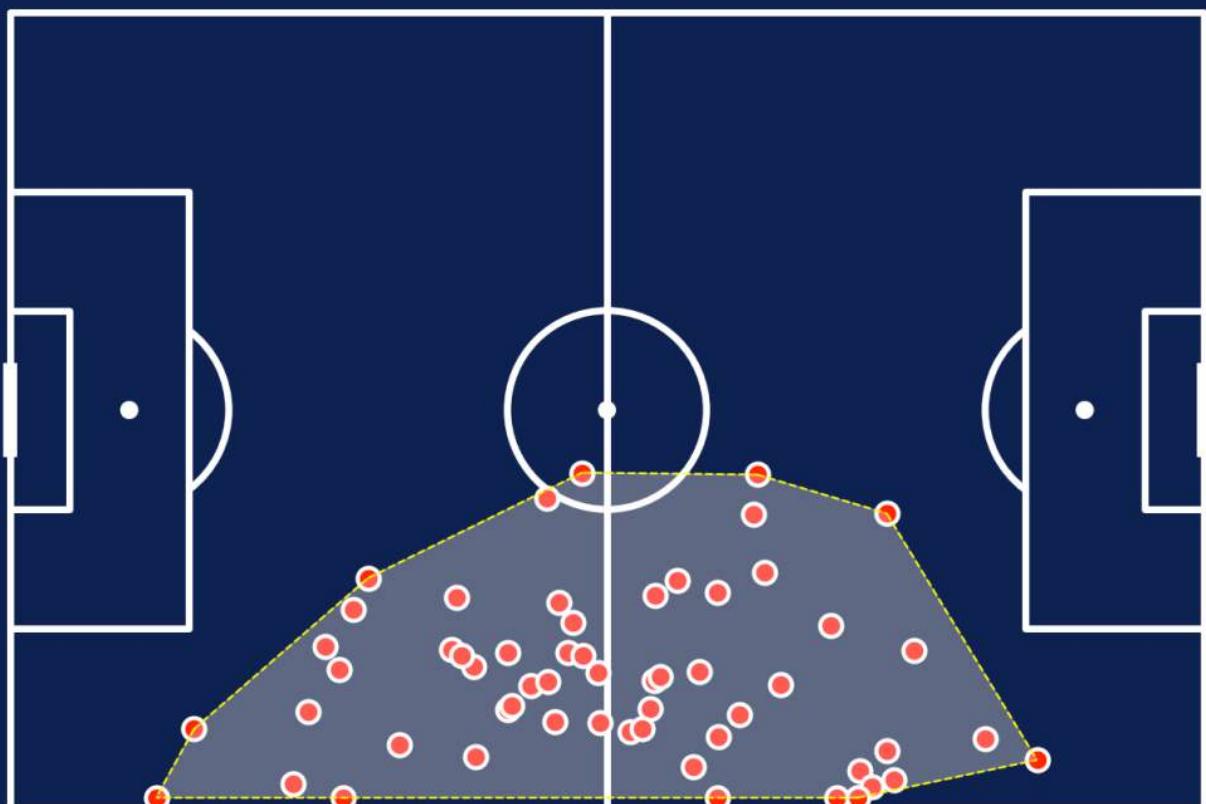
Logging Off,

CJ

#### CONVEX HULLS IN TABLEAU

*This post includes a run-through of how to create a convex hull soccer chart in Tableau from some of the free data StatsBomb provide.*

#### Crystal Alyssia Dunn Soubrier's Territory Map



Hi All,

I recognise it's been a good few weeks since my last post. Truth be told, juggling isn't always my forte. This season has excitingly been sprinkled with talks, Iron Viz, and conference but I'm glad to have carved out the time to share another tutorial.

I have grandiose plans of trying to convert as many data analysts python curated charts to Tableau, where they belong! As part of that, it does entail me fighting with python code a fair bit, often thinking what on earth is going on.

This blog will be no different, It has a brief data prep element using the free data from StatsBomb and then we look to create the convex hull chart in Tableau. If you'd like to skip ahead and just do the build, the dataset can be found in the repo at the top of the page.

### What is a convex hull chart / Territory Map?

There are a whole range of reasons why convex hull charts can be useful in football. They can be used to explore teams coverage area, spread on the pitch while attacking and defending, as well as shot on goal situations.

In the example below we look at just one individuals placement on the pitch when making passes.

### Python Code

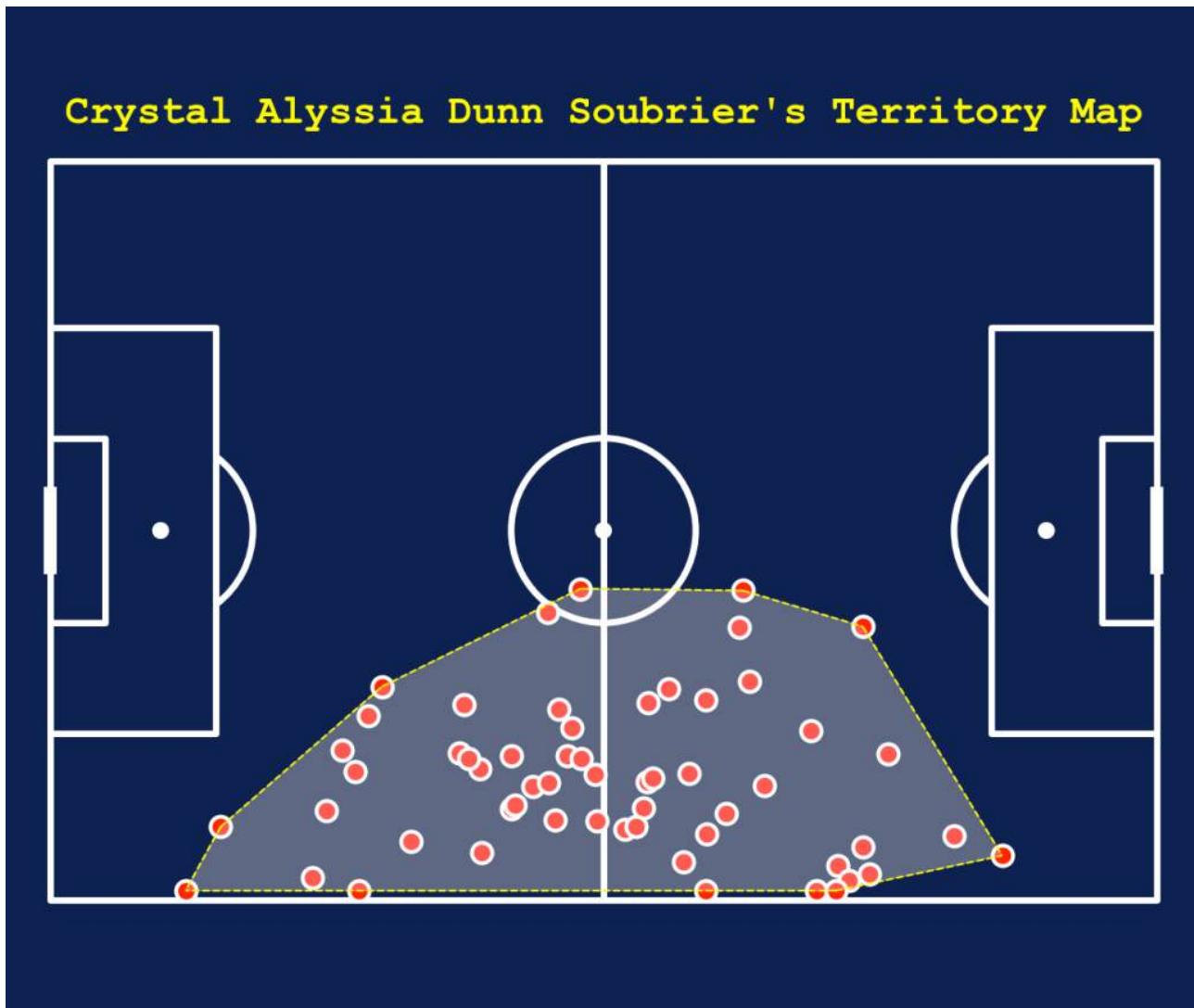
I'd like to say a huge thank you to **Chun hang** who helped me with my code. We went back and forth over email has to how to prep the dataset ready for Tableau. I'm glad together we also figured out how to create the PathID for joining what will be our eventual polygon shape. Please follow him on Twitter [here](#), and his blog [here](#).

If you'd like to access the code it can be found on my git repo at the top of the page.

### What the code does:

- . We look at the statsbomb free data to identify the list of competitions available, we find the Final of the Womens World Cup for 2020/21.
- . We only look to take the event data for when someone made a pass, and we split the data into X and Y locations.

- We pick to look at the US team and then find which players had made passes and take Crystal Dunn as our example to plot.
- We make sure we only include choices of players that have made at least 3 passes to be able to plot our polygon shape.
- We set up the pitch like normal with python code the output looks like this thanks to Chun Hang's help.



Next

- We look to find all the passes for Crystal.
- We take the hull points and anticlockwise add into the dataframe a pathID. This is really important as it will be what we utilise on our path in Tableau, without it, we do not know what order to join the points. Fortunately, the package orders the points in anticlockwise order.
- We then merge the hull points data back into all of Crystals passes.
- We export the dataset to CSV ready to use.

```

#Vertices that make up the outer shape of the hull
o = points[hull.vertices]
dfa = pd.DataFrame(o,
                    columns = ['x','y'])
dfa

data1 = pd.DataFrame(o, columns=list('xy')).to_dict('r')
data2 = pd.DataFrame(points, columns=list('xy')).to_dict('r')

data1 = pd.DataFrame(data1)
data1['pathID'] = range(1, len(data1) + 1)
data2 = pd.DataFrame(data2)

df3=pd.merge(data1,data2, how='inner')
df3 = df3.drop_duplicates(subset=['x', 'y'], keep='last').reset_index(drop=True)

df3['player'] = player_df['player']
df3['team'] = player_df['team']
df3['type'] = player_df['type']

df3 = df3[['player','team','type','x','y','pathID']]

#for the purpose of merging the two dataframes, name one of either x or y as a dummy
player_df = player_df.rename({'x': 'oldx'}, axis=1)

#merge it so we can find the values that do coincide with the hull points
merged = player_df.merge(df3, how='left',
                          left_on=['player','team','type','oldx','y'],
                          right_on=['player','team','type','x','y'])

#create a new column, if it is N/A, it means the point is not a hull
merged['HullPoint'] = np.where((merged['x'].isnull()),"no","yes")

#drop the x variable because it's served its purpose in helping us identify the columns
merged = merged.drop(['x'],axis=1)

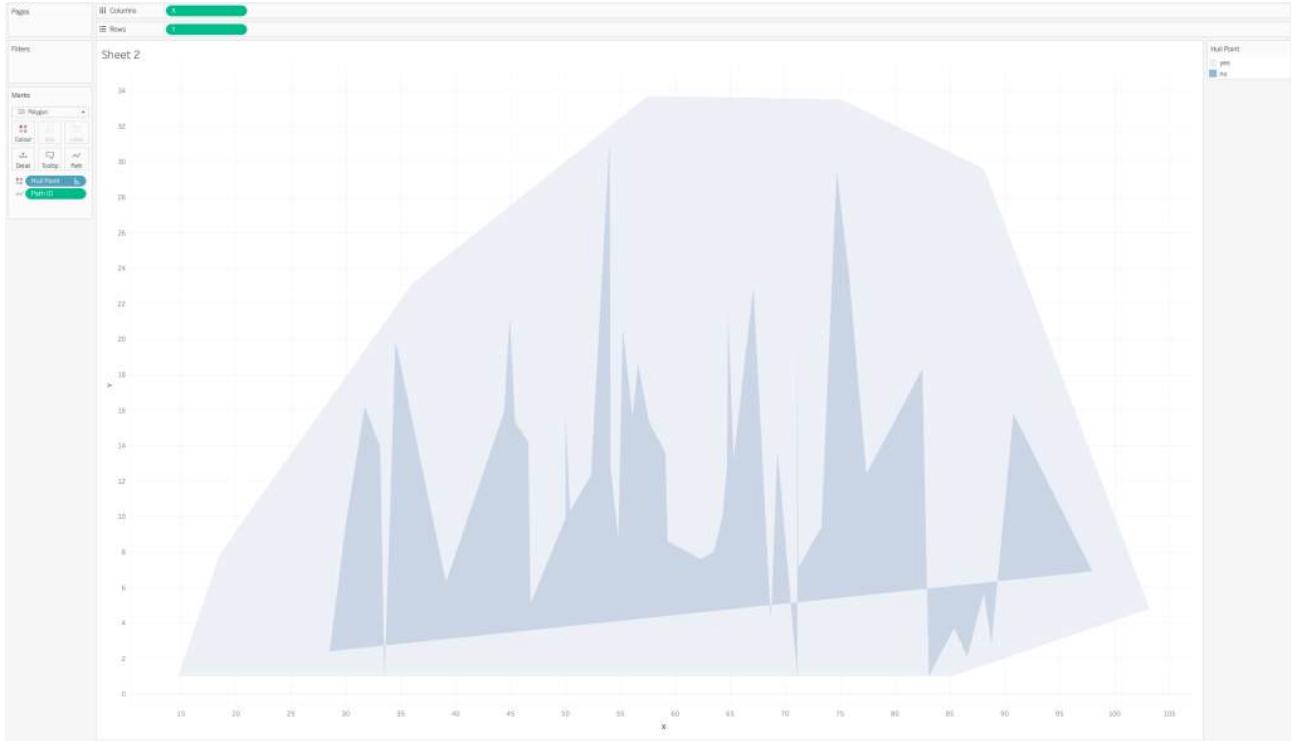
#rename the oldx to x back
merged = merged.rename({'oldx': 'x'}, axis=1)
merged.to_csv('dataset.csv')

```

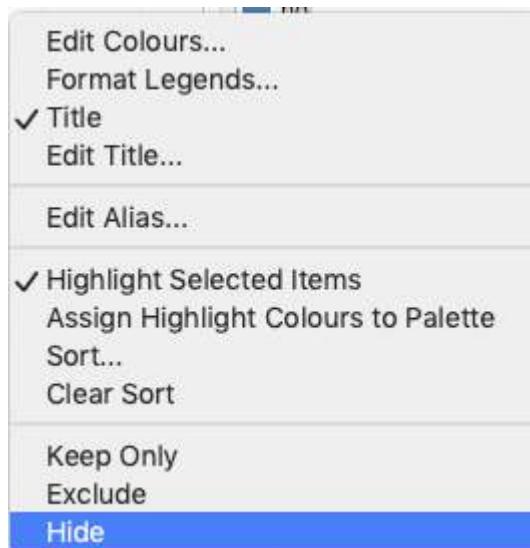
Now we have our dataset prepped we can open up Tableau!

Tableau

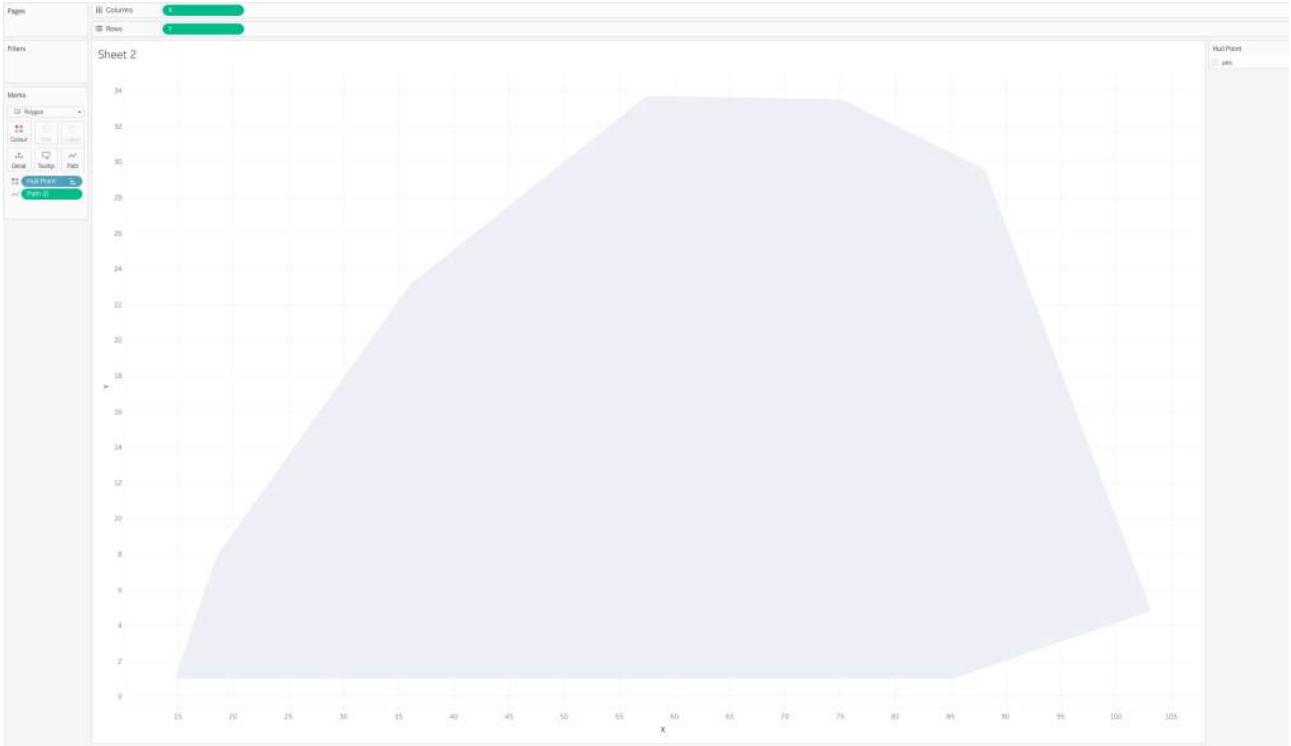
- Connect to the data.
  - Drag X onto Columns and Y onto Rows. Make them both dimensions.
- Lets create the convex hull first.
- Change the marks to a polygon
  - Path ID onto path
  - Hull Point onto Colour
  - You will see that when the PathID is yes, it creates the Hull shape we want.



- We also will want to HIDE (not filter) the PathID that is no – right click the colour legend on the ‘no’ hull points and hide them. Reason for hiding is because we want these points still in our underlying data.

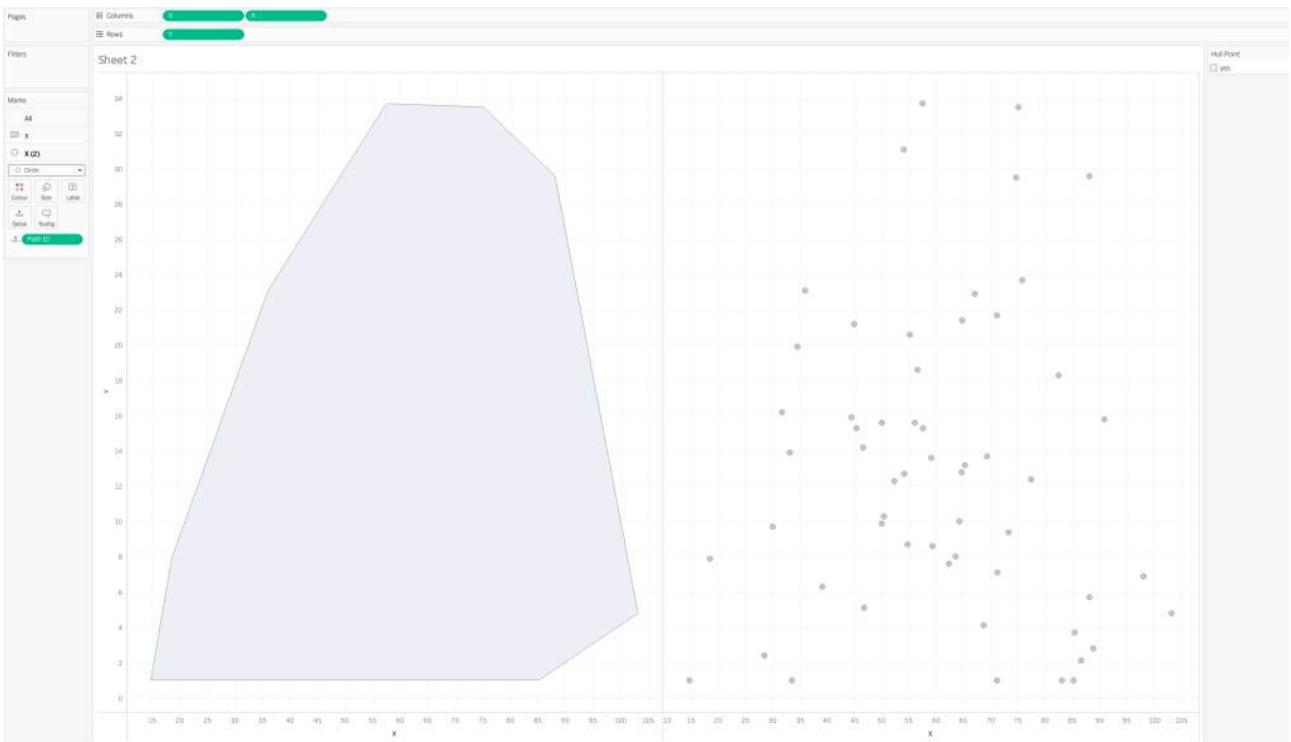


Now your view should look like this:



Next up lets look to add all the pass position points.

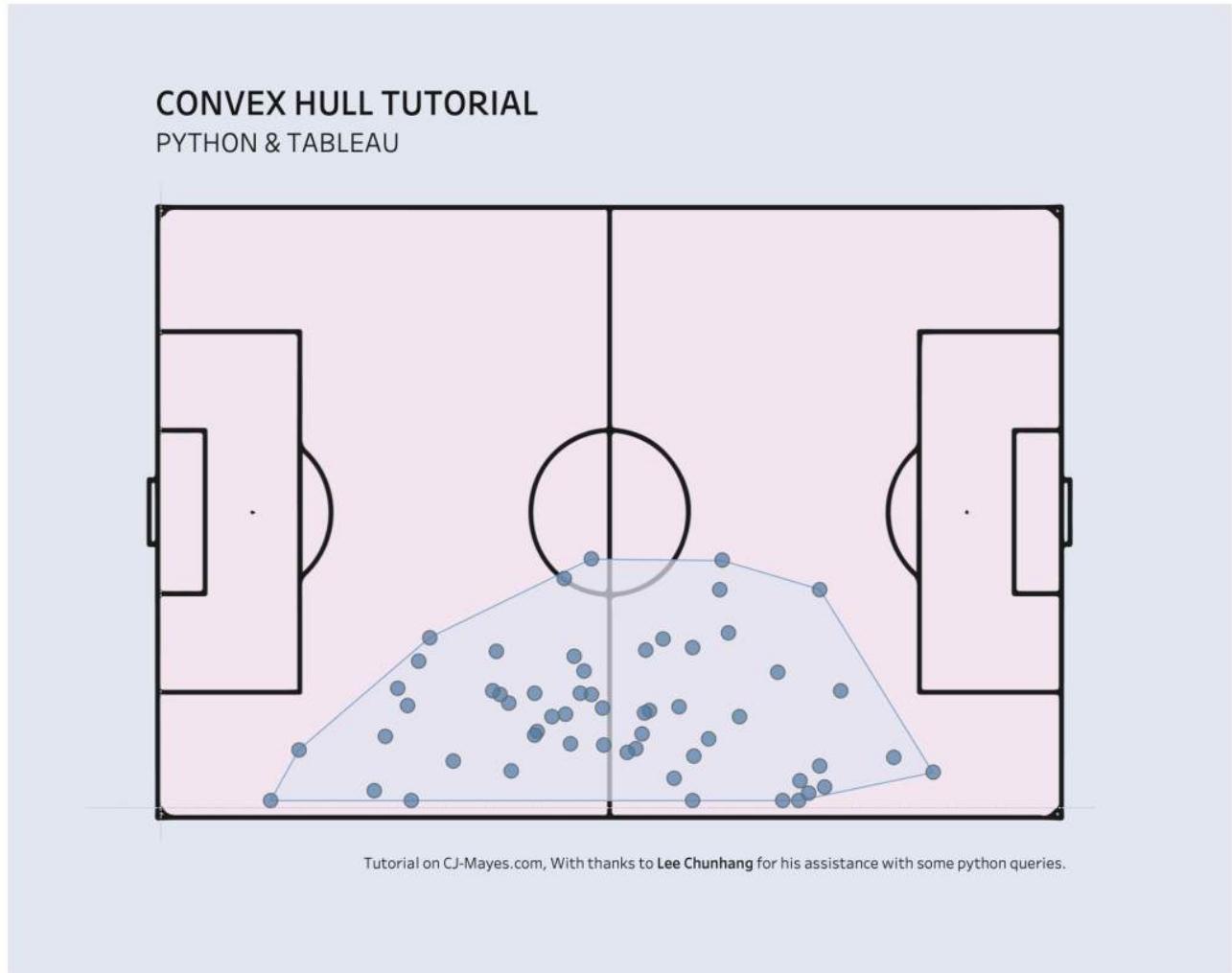
- Add another X to columns as a Dimension.
- Change the marks to Circle.
- Remove Hull Point from colour for this card.



Finally we can dual axis these and syncronise.

The last thing to do is to fix our axis and add our football pitch in as a background.

James Smith kindly shows us how this is done in his blog [here](#). Once you've completed this step, the end output should look a little like this.



My only final tip would be to turn the zoom on your pitch off to make sure it keeps its axis in proportion. You can do that by clicking on your pitch sheet, going to map options and unticking the boxes.



As seen below.



And that's it. Our first Convex Hull chart in Tableau.  
The example dashboard can be found through the Tableau Public link.

Extra Resources:

[Football Image background – James Smith](#)

[Convex Hulls – Mckay Johns](#)

[Convex Hull documentation](#)

[MPLSoccer documentation](#)

Looking forward to seeing what you come up with.

LOGGING OFF,

CJ

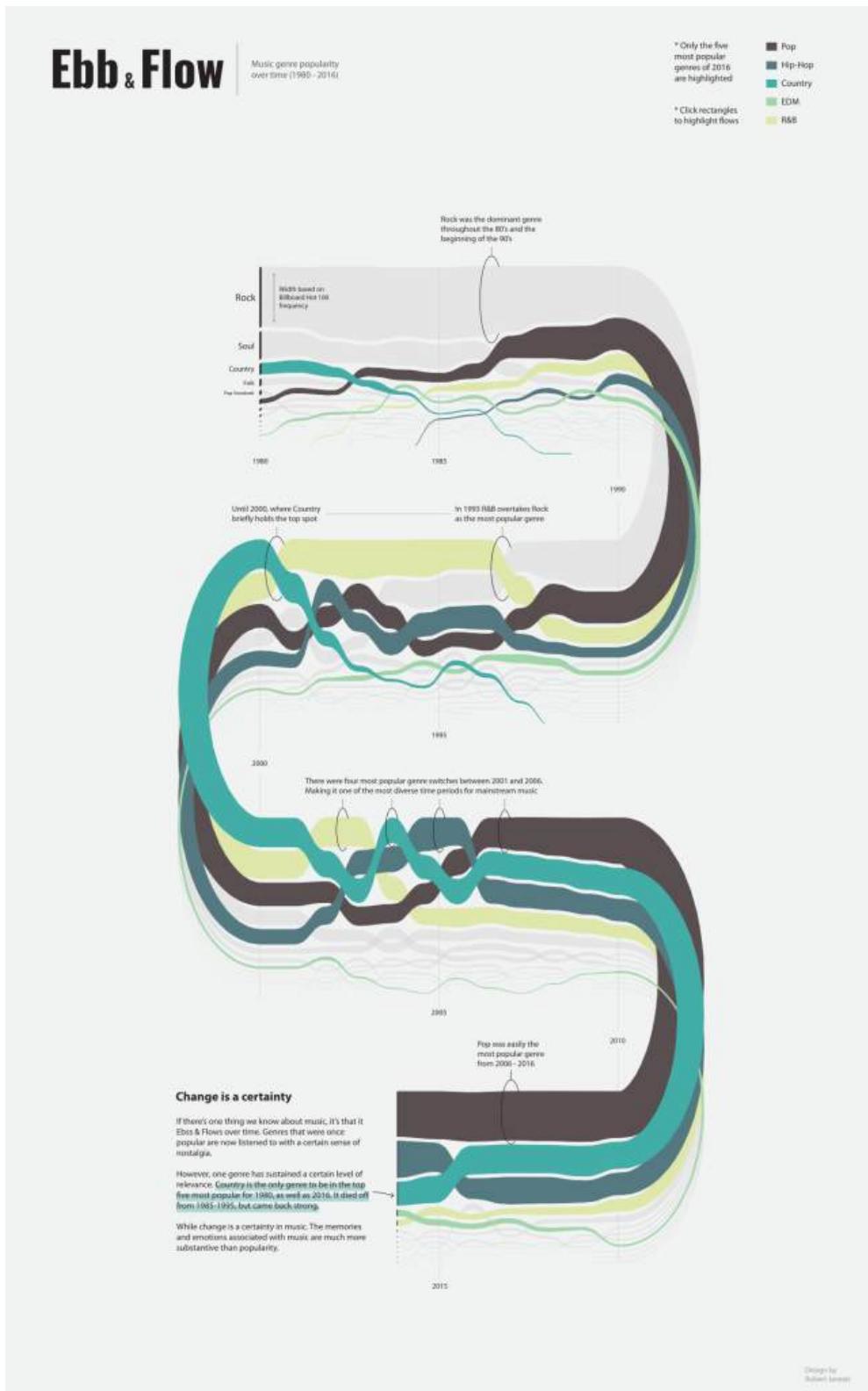
THE DESIGN COMMUNITY WITH ROBERT JANEZIC

Hi All,

Welcome to the May episode of “What’s Good?”

This month I have the pleasure of hosting a guest blog from **Robert Janezic** on design. Many of you may be aware of **Robert’s Tableau UI Kit** that helps developers with prototyping. What truly impresses me is Robert’s both depth and breadth of technical skills. I hope readers today get to take away Robert’s sentiment around embracing being better designers.

Before this you will have seen some of his own **Tableau Public** content, such as the **Beatles viz**, **Liv** and **Ebb & Flow**. All wonderful in design.



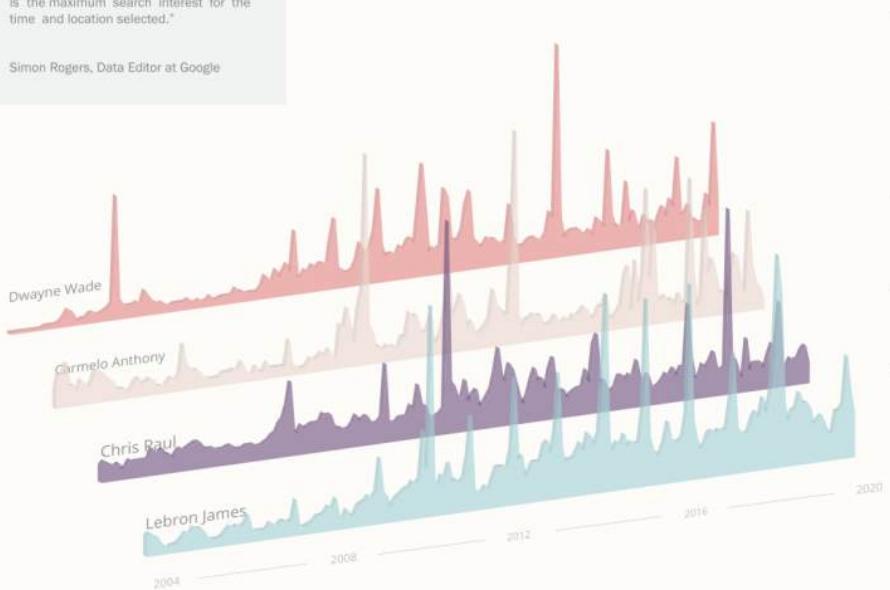
CJ: Robert, Thanks for joining. Let's start by diving into your own journey. Can you share with us a little more about the transition to become a designer? At what point do you feel you become a designer... instead of say, an analyst?

## Banana Boat Crew

By Google Search Interest

"The context of our numbers also matters. We index our data to 100, where 100 is the maximum search interest for the time and location selected."

Simon Rogers, Data Editor at Google



Design by Robert Janezic

R: Happy to be here CJ, appreciate you reaching out. My transition to becoming a designer wasn't straightforward and really came from a necessity in our team (Tableau COE at JPMorgan Chase). We started creating applications for our users and the need for a designer became more apparent. We needed to create the designs before the engineers coded everything. I already had a good eye for design from my years of creating Tableau Public work, so it just made sense that I would be the person to create these designs. I already wanted to get into UI work before that, so I really took it upon myself to learn all I could about it. It was at this point I felt like I became a designer. I say that because all my work was focused on design, and I was in Figma 90% of my day. To be honest I thought the transition would be easy, because in my head I was saying "I can create well designed Tableau dashboards so the two should overlap, right?". Ya I was just dead wrong lol. It became very apparent that there wasn't that much design skills overlap between a Tableau dashboard and an entire application.

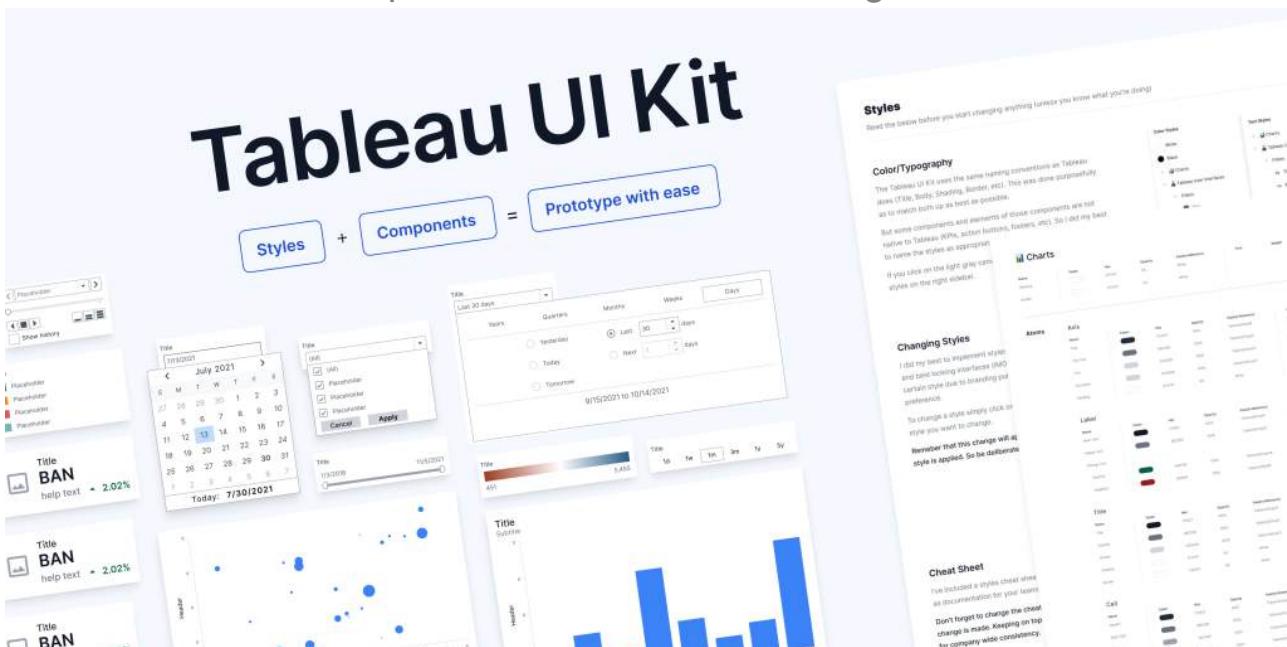
I now must think about:

- States (Hover, Active, Focus, Disabled)

- Smaller components (Dropdowns, Switches, Radio buttons, Text Fields, etc.)
- More text options (Line height, Paragraph spacing, Kerning, etc.)
- Design Systems (Type Scales, Color Palettes, Spacing Scales, Componentization etc.)
- Engineer handover (Making sure the engineers have what they need to copy 1-1)
  - And a lot more

In general, you can get away with not thinking about any of the above while designing a Tableau dashboard. So, it was overwhelming at first but like everything with time and practice I got the hang of it. I can confidently say this is what I want to do for my career, I absolutely love it!

CJ: What I'm really impressed by with your UI Kit is not only its functionality but how it reflects on your business acumen of seeing something that can be done better and building something to fill that gap. Can you share a little more around this journey, was it ignited by product or business thinking?



R: I got the idea for the Tableau UI Kit about a year and a half ago. The Figma community has a TON of UI Kits, but most of them are for applications and websites. When I first started there was nothing related to Tableau and thought “wow, if someone wants to prototype their dashboard, they have to do it manually by hand and it most likely won’t

look like Tableau and will take a long time". I know that to be true because I used to do the same thing, and both of those statements applied. Not only that, but I used to do my dashboard prototyping in PowerPoint and it was an absolute nightmare.

The entire Tableau UI Kit took me about six months to build and was easily the most work I've ever put into a side project. Here's the steps:

1.

### Procrastinate

1. Starting is always the hardest part for me. But once I do, I'm all in!

2.

### UI Kit and Design System research

1. This was a really important step because it saved me a lot of potential rework. I ended up still having to do some rework, but this minimized it substantially. Plus when I do something I want to make sure I'm doing it right and not doing it half-heartedly.

3.

### Development

1. This was the most technical step and really pushed my Figma skills to its limits. I was deep into advanced features/tricks every single day for months (I think in autolayout now). There were points where I got bummed out because I had so much work left to do and there were some days I couldn't figure something out. But taking it day by day and frequently stepping away from the computer is the best way to tackle larger projects (I usually only work on side projects for 2-3 hours at a time).

4.

### User Feedback

1. As with everything you create, getting feedback is very important. Although I found it difficult to get feedback because the Tableau UI Kit is such a new concept for most of the community. I had to trust my instincts on a lot of things. Some of those instincts turned out great, others not so much. But you just adjust and keep it moving.

5.

## Create website and gumroad store

1. As some of you may know I'm a huge fan of Webflow and love jumping at the chance to create a new website. At first I didn't know if I was going to create one, but having an official website adds legitimacy (and you need that especially if you're charging for it).
2. The Gumroad stuff was brand new for me and I did pretty extensive research on what service I wanted to use (It was between Gumroad and Lemonsqueezy). I chose gumroad because of the simple fee structure and the great reputation it's had. Hosting a product on Gumroad taught me a lot about marketing and the important role it plays.

6.

## Marketing

1. If you're creating something DO NOT SKIP MARKETING (I almost fell into this trap). After I finished development I got the urge to just release it. But I had to tell myself not to do that, because it would have been a disservice to the value the product brought. People really need to understand what it is you're creating and why they should care.

7.

## Release

1. Release the dang thing already!!

8.

## More Marketing

1. Just because you released doesn't mean it's done and over with. Most people probably missed your social media posts. Even if they did see them, they're still probably not convinced of the value it may offer them. So you have to keep updating people on new versions, talks you're giving and reminders that the product still exists.

9.

## Even More Marketing

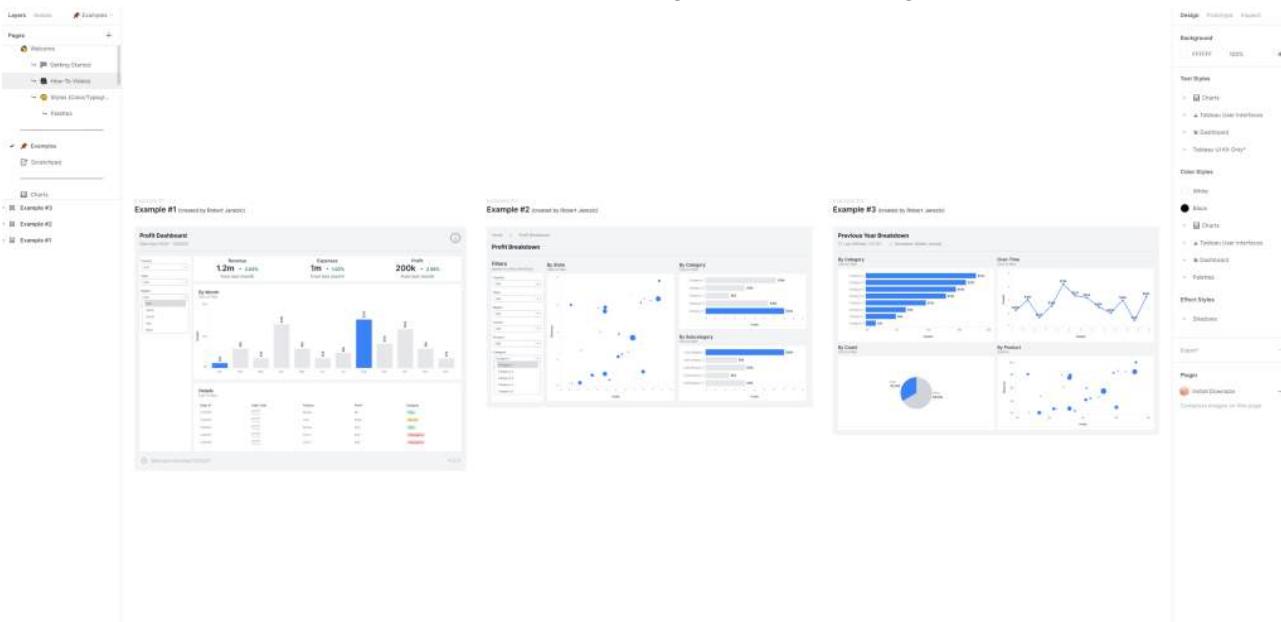
1. Forreal, just do more marketing.

I've got to admit I spent a long time deciding if I should make it a paid product or not. Because let's face it, most of the resources in the community are free and I got the feeling that people would look down on

me for making it paid. So, I asked around to some people I trust. They told me “you 100% should make this a paid product, it fits an area of the market that has not been tapped into yet”.

I took their advice and am happy I did so. For anyone who’s reading this – if you have an idea that adds value for others, don’t be afraid to stick your neck out and turn it into something more than an idea. I’ve really gotten the entrepreneurial itch, and I don’t see it going away anytime soon.

CJ: Could you share with us some of your own personal processes with design in respect to site mapping, wireframing and prototyping? What does the E2E Journey look like to you?



R: This is a great question, and one that needs to be discussed more. Let me walk through the design process I take on most of my projects (this applies to Tableau work as well):

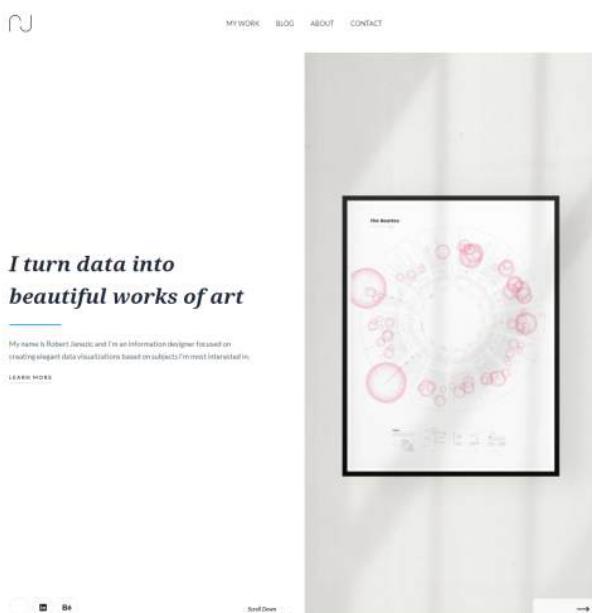
1. User research (understanding user behaviors, needs, and motivations)
2. Define the problem (what user problem will you be trying to solve)
3. Ideate (brainstorm on a range of creative ideas and solutions that address the problem)
4. Sitemap (hierarchical diagram of the application)
5. Wireframe (low-fidelity, basic layout and structural guidelines)
6. Prototype (mid-to-high-fidelity, design model of the final UI)
7. Feedback

8. Iterate
9. More Feedback
10. More iteration (if necessary)
11. Handover to developers

Skipping steps is the fastest way to low adoption and rework.

CJ: If you'd like to take a further look you can [view the site here](#), or find it on Gumroad for purchase [here](#).

CJ: Your personal website is a thing of beauty. What have been some of your learnings from doing web design?



R: Appreciate that! I've learned that well designed applications/websites add legitimacy and users can feel when they're not designed well. They may not have the vocabulary to explain it, but they know it when they see it.

Don't just take my word for it, look up "Design web statistics" and you'll see exactly what I'm talking about. The idea that these same statistics wouldn't apply to Tableau dashboards doesn't make sense to me.

CJ: What are some common design pitfalls?

R: I talked about one of the biggest pitfalls earlier, which is not following processes. The worst thing you can do is just go for it. I've seen time and time again people just going for it and having to do a lot of reworks.

By following specific processes, you get a better result, but also significantly cut down on the potential for rework.

Another pitfall I see is people focusing on features over usability. This thinking often hurts startups and significantly reduces the number of sales conversions. I would suggest focusing on doing a few things really well and having a great user experience rather than adding every feature under the sun. Having a bad user experience is one of the quickest ways for a user to never want to use your tool again.

CJ: How do you see Tableau in the broader community? What tips would you give individuals that are immersed in the Tableau community to learn more about design?

# The Beatles

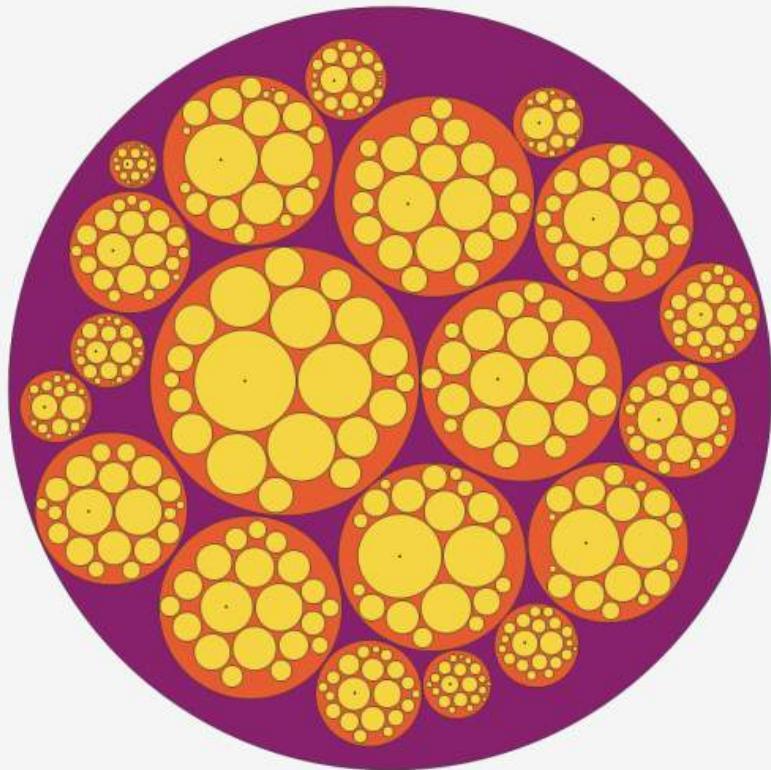
## RABBIT HOLE

The Spotify **FANS ALSO LIKE** tab is a powerful feature for music lovers alike. However, it has its downfalls. It's impossible to see hierarchies and it's easy to fall into a rabbit hole and not find your way out (without clicking back a lot).

Bubbles sized by followers; relative to group size.



- The Beatles
- Immediate Related Artist
- Secondary Related Artist
- Most followers in group



# 180

Distinct Artists

60% of artists  
have less than  
five connections



The Byrds, George  
Harrison and The Hollies  
(in order of dots) had the  
three most connections.  
Click their dots to view  
connections above.

Design by Robert Janezic

R: I think which community you go to is really important. Do not feel like all your information should come from one community!! If I have a tableau question or want to learn more, I'll go to the Tableau community. If I have a Figma question or want to learn more, I'll go to the Figma

community. This applies to all communities; you go to the experts to learn more.

If we're talking about Tableau and design, I think people have the most to learn from User Interface designers. I say that because User Interface designers work in a structured environment, not unstructured (in general). Almost all Tableau design (especially in day-to-day business work) is structured. You'll also get the added benefit of understanding how to design an application or a website. It's really a win-win all around.

CJ: With this in mind – who are some of your favorite designers to follow? Do you have any resources that are a good starting place to learn better design?

R: Here's some great designers you can follow on twitter: [@jamesm](#), [@DannPetty](#), [@Ridderingand](#), [@charliprangley](#), [@alyssaxuu](#), [@jsngr](#), [@joeyabanks](#), [@steveschoger](#)

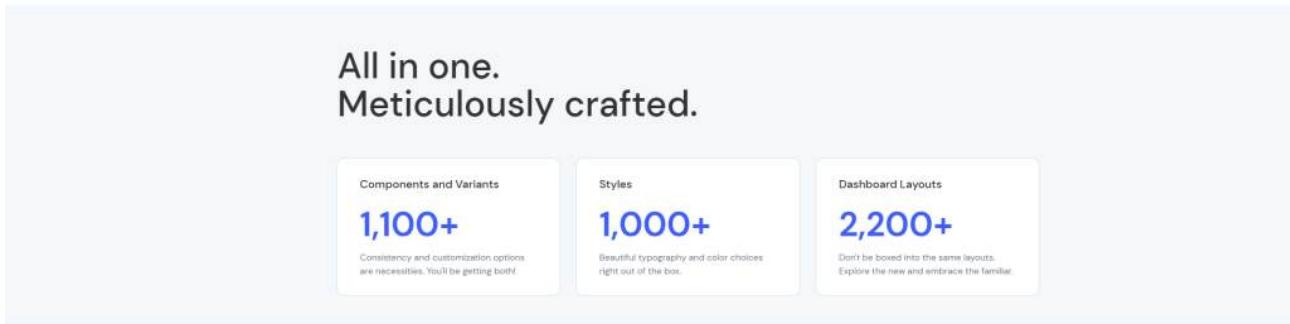
That's a pretty good list to get started. Obviously there's a lot more, but you can just get to the people I'm following on Twitter for more.

CJ: I fondly remember dialing into a Twitter Spaces call where you were discussing some quick tips for those just getting started. Can you give us 5 of your top tips for using Figma?

R: Ohhh I've got a lot of these haha. Here's my top 5:

1. Use more frames.
2. Stop using Groups. Generally the only reason to use Groups is for file organization.
3. Use Autolayout way more. Once you understand the power of autolayout you'll wonder how you ever did anything before it.
4. Learn important keyboard shortcuts. You'll be able to work a lot faster.
5. Use Figma for almost everything. At this point I use it for prototyping, presentations, icon design, graphic design and essentially everything when it comes to design. My point is you can use it for a lot more tasks than you may think.

CJ: Thank you so much for joining today. Is there anything you'd like to share about the remainder of the year, particularly in regards to your journey with Figma and your Tableau UI kit?



Here to help you

Having a great user experience  
is mandatory, not an option

R: I'm currently working on v1.5 for the Tableau UI Kit and I'm excited for the new features coming. I've collected a lot of feedback from customers and I'm taking all of it into consideration for future releases.

Outside of the Tableau UI Kit I've been thinking about and workshopping new tools for Tableau users. I'm pretty in tune with the issues users currently have with Tableau, and I'm trying to fill that gap with tools that immediately add value at scale.

Thank you for having me CJ, really enjoy the What's Good series!

CJ Round-up:

I revisit Roberts Tableau Public page often for inspiration. It is a goldmine when combining good design with technical chart types. I can't speak for the rest of the community but I would love to see a return to the public vizing again. I always enjoy profiles like Robert's where I think "wow, how was that made?"

Roberts move towards becoming a designer full time is really inspiring and I hope the tips shared in this blog can help others with making that step towards better design. Do take the opportunity to reach out to

Robert with any further questions you may have.

Having had the pleasure of looking at the UI kit during its test phase and more recently through acquiring a license through the company I have to say I am super excited for the future release of v1.5. I wish to congratulate Robert on reaching a milestone in sales recently, paying testament to his hard work and his desire to help others become better designers.

See some of you in Vegas in a few weeks.

# LOGGING OFF, CJ

LEARN AND SHARE CYCLES WITH MARC REID

Hi All,

Welcome to the April episode of “What’s Good?”

I had a bit of a reminiscing moment writing this month’s blog, casting my mind back to 2019. I was sitting in what was then the London Bridge office of Lloyds Banking Group and caught wind we had hired an ambassador. Buzzing! I sat down with Marc 1:1 to get to know him better, we traded stories and I vividly remember him telling me about his contracting days as well as some awesome travelling he had done. Anyway, we’re 2-3 years down the line and I still consider **Marc** one of the best things since sliced bread. You can tell the investment of time that Marc has put into becoming a leader and expert in the Tableau community.

This concept of an end to end learn & share cycle is something we will look to explore through Marc’s journey from utilising Tableau for the past 5 years!

*If you aren’t already, please follow Marc on his socials. He can be found on Twitter, Tableau, his blog site and Youtube!*



## STARTING THE CYCLE

CJ: Marc thank you for joining! For those that don't know, how did you get started in the data industry?

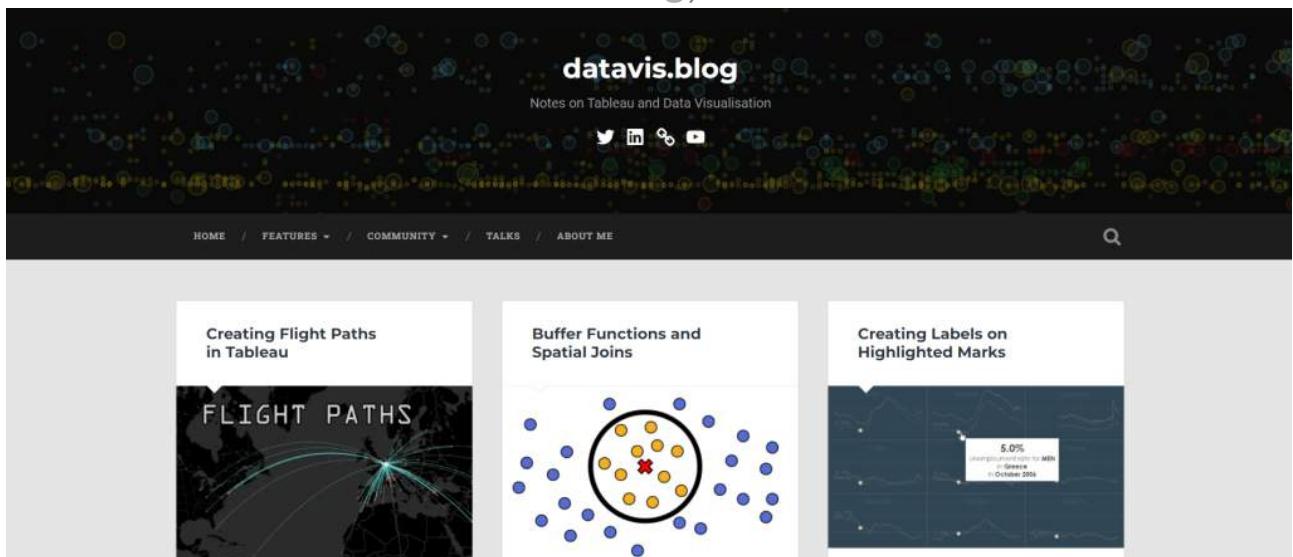
MR: Thanks for the invite, CJ. A lot's happened in the few years since we first met – it's been great to see your presence in the Tableau Community develop so much.

I was always interested in technology growing up and went on to study Software Engineering but then had a swift change of heart and within a year of working as a programmer after university, I left that role and went to teach English in Spain for a year. When I returned I moved into a Business Analyst role and then, after some time out travelling, studied for an MSc in Business Intelligence part-time, which helped me to move into a more data focussed role. After a company restructure, I had the opportunity to refocus my career and moved into visual analytics by joining **The Data School** programme at The Information Lab and have since worked in data analysis and visualisation roles.

CJ: During your time at The Data School, you had placements with UBS, JLL (Woo!) and Ocado. How did you find experiencing different companies in terms of aiding your understanding of different data problems and requirements?

MR: Different working environments, teams and business problems all make for a great learning experience as you have the opportunity to interact with a variety of people all of whom you can learn from, be it technically, approaches to problem solving or methods of communication etc. It's also helped me grow and better understand the type of environment that I'm happier and more productive working in as well as the type of work I'm most enthusiastic about – data analysis and visualisation.

CJ: The one question I get asked a bunch is, where do I look to start learning Tableau, or even more broadly data visualisation concepts? Do you have any recommendations in mind from both a visual (books / blogs) as well as Audio perspective? ([Youtube](#) / [Videos](#) / [Seminars](#)?)  
How have these influenced your journey? ([Marcs Youtube](#), [Marcs Blog](#))



MR: Books have been my main resource for learning about data visualisation, the first of which was Edward Tufte's ***The Visual Display of Quantitative Information***, which I read many years ago and, as someone completely new to data vis at the time, found it revelatory.

Below is one of my favourite quotes from the book:

“Graphical excellence is that which gives to the viewer the greatest number of ideas in the shortest time with the least ink in the smallest space.” – Edward Tufte

There will be exceptions and caveats to the above, of course, but as a starting point, especially in a business context, I've found it helpful. Commentary on Tufte's work has certainly been more mixed in recent years, but that book taught me a lot and, more importantly, piqued an interest that I've been happy to develop in more depth over the last five years.

In regards to recommendations, I've found all the below books helpful in different ways:



These two books would be a great place to start:

- ***The Functional Art***, by Alberto Cairo
  - ***Data Visualization Handbook***, by Juuso Koponen and Jonatan Hildén

In regards to learning Tableau specifically, I've tended to focus more on hands-on practice and experimenting along with online resources, of which there are no shortage for getting started:

- Tableau's online free videos
  - The **Tableau Starter Kit** provides a guided learning path with many resources
  - Ask a question on the Tableau **Forums**
  - Take part in a Tableau **community projects** (more on these later)
  - Attend one of the many Tableau **User Groups**

- Community blog posts and YouTube videos – read the monthly and weekly editions of the “**Best of the Tableau Web**” and “**DataFam Roundup**” posts for links to recent content from a variety of contributors.
- A number of excellent books have also been written by experts in the Tableau community: **Andy Kriebel & Eva Murray**, **Ann Jackson & Luke Stanke**, **Carl Alchin**, **Josh Milligan**, **Lindsey Betzendahl et al.**, **Lorna Brown**, **Steve Wexler**, **Jeffrey Shaffer & Andy Cotgreave**

Practice is really the most important thing. Once you’re comfortable with the interface and building basic charts, find some data that interests you, be it film, sports, politics or maybe **space travel** and then practice with it. Ask questions of the data that you’re genuinely curious to find the answers to and then set out to answer them. You’ll be motivated if you’re exploring data that has a real meaning to you.

CJ Add on: How do you prevent feeling overwhelmed by the number and breadth of different channels to consume knowledge through? Is there such thing as a one size fits all learning plan for Tableau?

MR: One amazing quality of the Tableau community is the willingness of its many members to contribute content to help others. Trying to consume all of it, along with all the books, videos, TUG recordings and so on will be exhausting. See **Steve Wexler’s blog post** on this very topic, which includes these parting words: “Try to be inspired, and not overwhelmed, by all that you see around you.”

On many occasions I’ve found myself clicking links to Tableau resources as I scroll through twitter with the best intention that I ‘must read this later’. By the end of the day, with 20+ browser tabs open and the certainty there’ll be another 20+ links tomorrow and the day after that, I’ve had to accept that it’s just not possible to read, watch and interact with everything that such a prolific community has to share.

I’d recommend browsing the different forms of content from a variety of authors and see what resonates with you. The round-up posts mentioned earlier are very helpful in highlighting new writing, videos, visualisations and projects that you can learn from and participate in.

Regarding a fixed learning path, there are some key concepts that it's important to learn early on, such as the different pill types (also known as **blue things and green things**, by **Tom Brown**) and Tableau's free videos and starter kit mentioned previously walk through those key topics.

Once you have the foundations down, learning becomes, at least in my own experience, more open ended and you'll naturally go down rabbit holes as you bump up against new concepts such as **addressing and partitioning**, **data densification** or **scaffolding** as and when you need them. Personally, I've found that's the best time to learn those new concepts, at the time you need them and with a real use case in which to apply them.

### DEVELOPING & GROWING

CJ: If we reflect on your journey so far. You get a strong sense of community projects especially in your earlier years, on Makeover Monday and WorkoutWednesday. How did these play a part in your development?

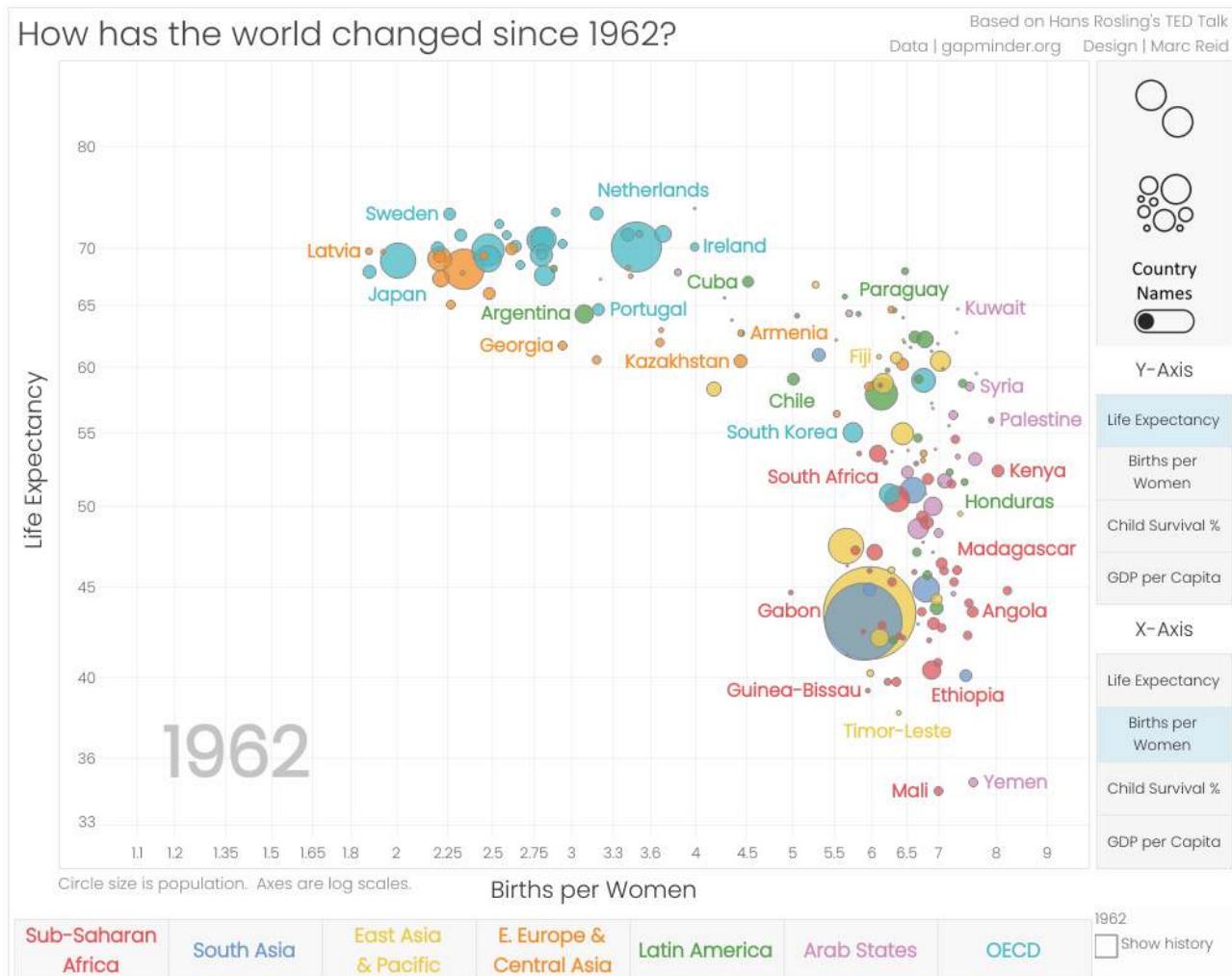
MR: The Tableau community projects have been instrumental to my growth in different ways.

**#WorkoutWednesday** helped me develop technically. Each challenge has a predefined end goal and often focuses on a particular feature or approach to solving a problem. How you get to that end goal may differ – the person setting the challenge may have used an LOD, but you use a window calculation, for example – which provides a great learning opportunity; seeing different approaches to solve the same problem. I've completed over 90 WoW challenges, all of which are downloadable from my Tableau Public profile. For guidance and worked solutions, I highly recommend the blogs of **Donna Coles** and **Rosario Gauna** as well video solutions by **Sean Miller** and other members of the **WoW team**.

**#MakeoverMonday** helped improve my data vis design as, similar to WoW, there was a common starting point with everyone using the same dataset and source visualisation, but the end design participants create is completely open. The result was always a diverse set of

visualisations, styles and approaches, along with more learning opportunities as you see how others have interpreted and visualised the data and story. That could be in regards to the overall design, or the details such as the title someone used, the spacing, the legend and so on, which, week after week, all add up to refine your skills over time. I've been less active in other projects, unfortunately, but wherever I've participated, they've all provided an opportunity to practice and improve with Tableau. I highly recommend taking part in **community projects** wherever you have the available time and motivation.

CJ: 227 vizzes later, we reach today. I certainly associate some of your past years or so's work strongly to beta testing new features. Was being at the forefront of new Tableau concepts something that's always interested you or did it come about naturally with time?



MR: I think the technical background along with having done software testing as part of some previous roles led me towards wanting to beta test new features. Finding out what's possible with new functionality, the

new types of analysis they enable and new user experiences they afford is an area I find very interesting. It's always fun to receive that notification that the latest beta version is available for download. It's also led to some very constructive conversations with Product Managers to discuss feedback I've provided and learn more about new feature use cases and ongoing development.

I'd encourage people to get involved with the **beta program** and to provide feedback – it really helps ensure the final shipped product is the best it can be.

CJ: As someone who has produced a lot of blogs and visualisations helping others understand new features, Is there anything that is on your wishlist for future iterations of Tableau releases? More broadly what direction do you see the tool going with respect to usability, formatting and ease of navigation?

MR: It looks like there's currently over **8,000 open ideas** on the ideas forum so the Product Managers certainly have plenty to choose from!

Tableau has done a great job introducing significant features to the product suite – explain data, ask data, data lineage etc. and these features add huge value, as well as help to sell the product, of course. That said, I think it would also add a lot of value to develop or fine tune existing parts of the product further such as formatting, dashboard construction and layout to ensure the user experience for analysts spending the most time in the product is as fluent and efficient as it can be.

It seems fairly clear that there is an ongoing move to the web, based on the continuous development of the web editor and with Tableau Prep being effectively web-native, all of which makes a lot of sense given the flexibility web-based platforms offer.

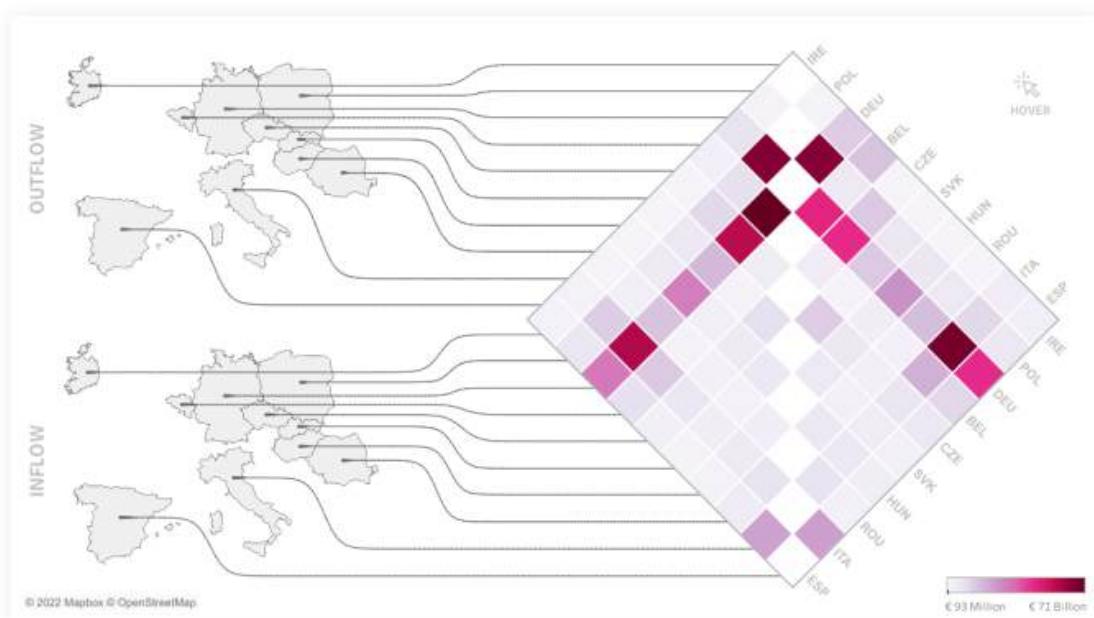
As for completely new features and product direction, I'll be watching Devs on Stage at Tableau Conference like everyone else to be the first to know!

CJ: I think your content with regards to maps in terms of layers, data prep, buffer, and drill down abilities all progressed the community's

functionality with maps. Of all your map work, what do you think the most important takeaways have been?

### MapTrix Chart of 2019 Intra-EU Exports between 10 Countries

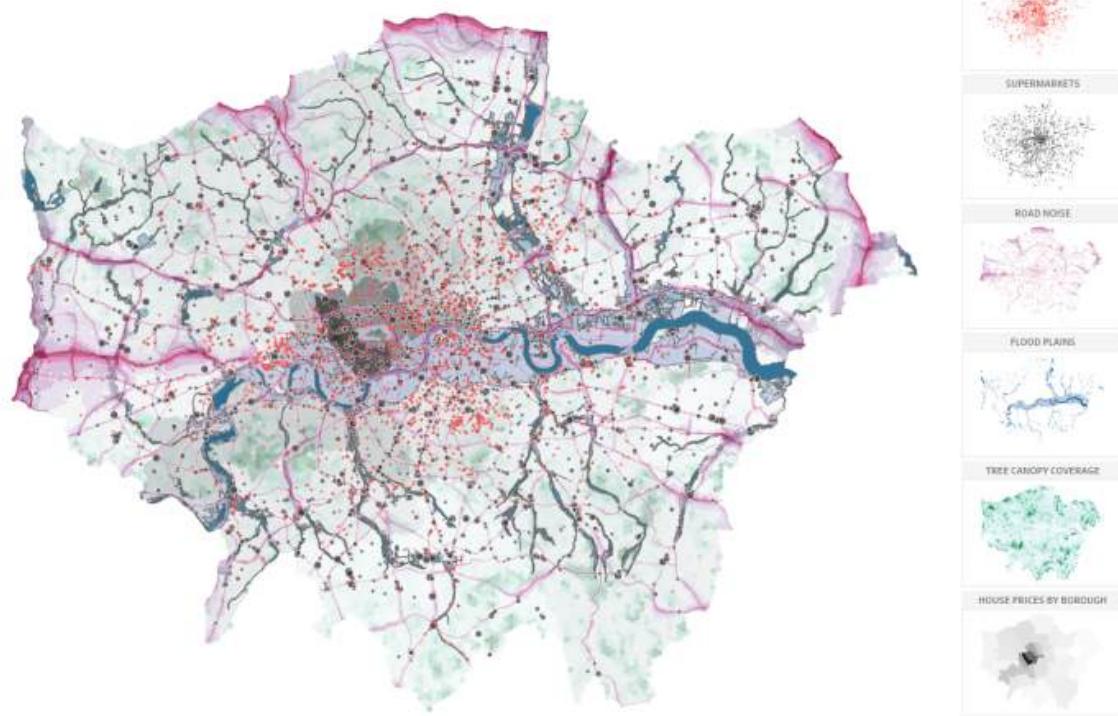
Countries shown are those with the largest exports in euros for which data was available as both a "Reporter" and "Partner" country for 2019. Source: eurostat.



MapTrix chart concept | Source: [bit.ly/MapTrixPaper](https://bit.ly/MapTrixPaper)  
Authors: Yalong Yang, Tim Dwyer, Sarah Goodwin and Kim Marriott

Design | Marc Reid  
@marc\_reid [dataviz.blog](http://dataviz.blog)

### Tableau Map Layers



© 2020 Mapbox © OpenStreetMap. Contains public sector information licenced under the Open Government Licence v2.0. Source | London Datastore: <https://data.london.gov.uk/>. Supermarket data | GEOFOLK. Residential Points: Marc Reid | [dataviz.blog](https://dataviz.blog)

MR: If you've never worked with spatial data before, maps can seem a bit intimidating. Fortunately, it's quick and easy to get started with maps in Tableau, sometimes only requiring the double-click of a geographic field, so that's the first thing I'd emphasise.

The spatial capabilities of Tableau continue to evolve. It's now possible to add a practically unlimited number of map layers to a map all from separate data sources. A range of new **spatial functions** has also become available in the last few years and combining some or all of these new features enables some powerful spatial analysis all within Tableau.

The primary source of information I would recommend in regards to mapping in Tableau are the many **workbooks** and **blogs** created by **Sarah Battersby**, and this **FAQ blog** is a great place to start.

Tableau (and other tools) sometimes receive criticism for using the mercator map projection as this causes distortion when mapping larger areas, especially farther away from the equator. While it's not an 'out-of-the-box' technique, it is possible to use alternative map projections in Tableau. See this multi-part **blog post** by Sarah for more details.

Finally, as much as I like maps, it's important to ask if a map is the right visualisation based on the use case and the analysis you're performing.

As Jonathan Schwabish says in his book, *Better Data Visualizations*, "Many maps are made simply because the creator has geographic data, not because the map is the best medium for that content".

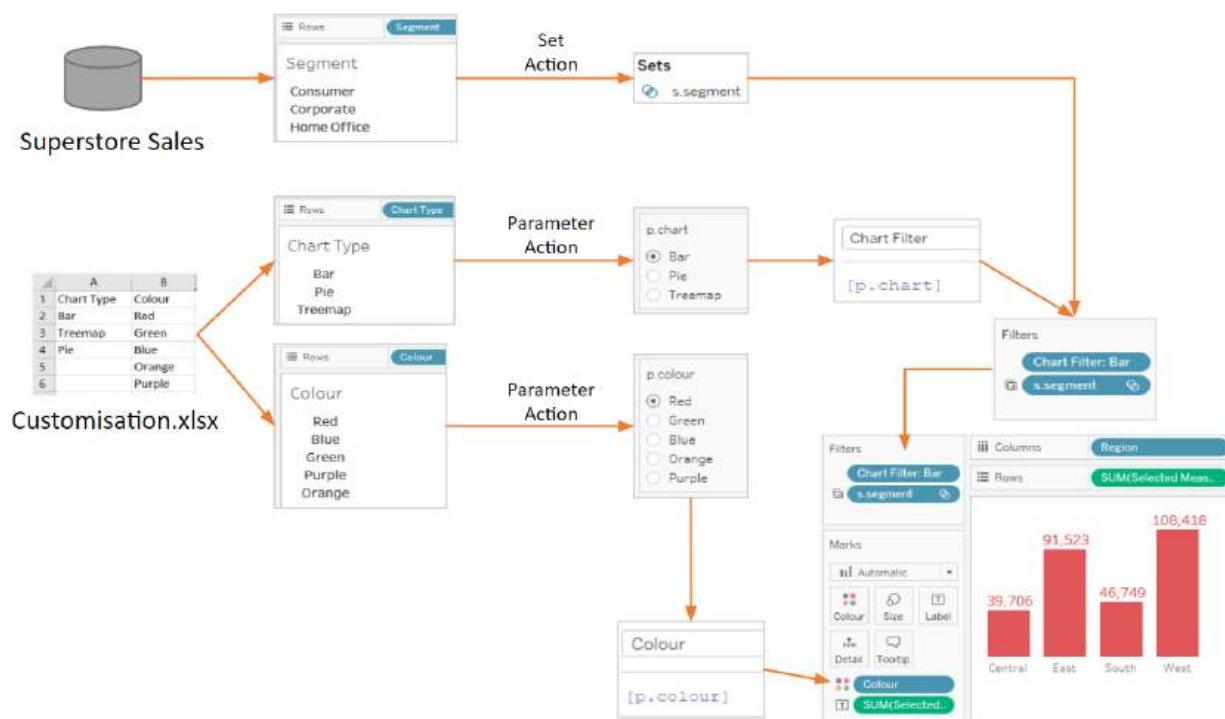
CJ Add on: Random fact, watching Marc present at the London TUG two years ago on buffer calculations was the first Tableau event I went to, and I also think it's been the last in-person London TUG since.

CJ: Another heavy chunk of focus you did was around parameter actions as well as animations. Is there anything from this that you think revolutionised how we utilise Tableau?

MR: The introduction of parameter actions, show/hide containers and other features made version 2019.2 a major release. It opened up all kinds of new opportunities for direct interaction with our data. One concept I mentioned in a roundup **blog post** at the time was the idea of dashboards potentially becoming more like applications due to the new

forms of interaction that these features made possible. Not to suggest that this is what *should* happen – and certainly not in all cases, but it became a real possibility.

One example of this is the ability to replace the standard UI objects available in Tableau with data driven versions that also provide insights directly from your source data, additionally, specific data sources can be added to drive these custom UI controls, something I discussed in **this talk** at The Data School, which included this diagram as an example.



Marc Reid | @marcreid

Tableau Beta 2019.2

This dashboard from **Sam Parson** and this recent **dashboard** from **Autumn Battani** are two of many examples that have been shared in the community highlighting the types of user experience it's now possible to create with this new functionality.

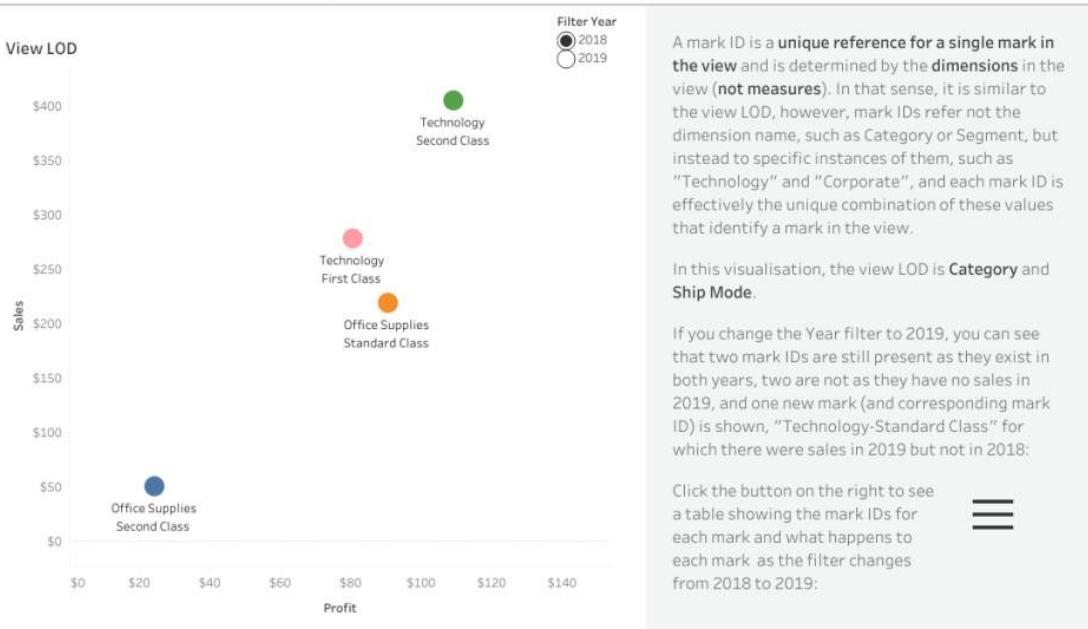
There's many great blog posts exploring parameter actions, such as these from **Dorian Banutoiu**, **Rosario Gauna** and **Filippos Lymeropoulos**.

Animation was a long awaited feature and received a very positive reception in the community when it was released in 2020.1. Its impact has been more subtle I would say, but also more prevalent, especially now they are enabled by default, as you frequently see them in

visualisations shared in the community as filters and sorting options are changed.

The object constancy that animations enable reduces the cognitive burden when tracking moving marks in the view, improving comprehension. I discussed the advantages of animation [here](#) and went into some detail on how animated transitions are implemented in Tableau in this [workbook](#) and [blog post](#), which also contains links to a number of animation examples from the community. (snippet below)

## TABLEAU ANIMATION | WHAT IS A MARK ID?



## TABLEAU ANIMATION | VIEW LOD

Home < >

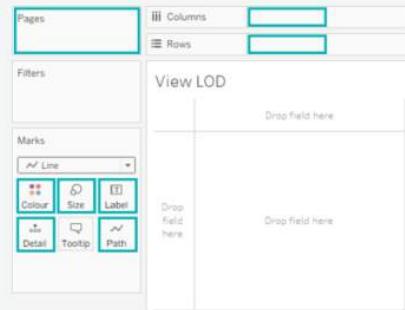
### View LOD - Category = 3 marks



### View LOD - Category and Segment = 9 marks



The number of marks in the view is dependent on level of detail of the view - the **view LOD** - and the view LOD is determined by the dimensions that are added to specific parts of the view.



3 Categories = 3 marks

3 Categories x 3 Segments = 9 marks

Marc Reid | datavis.blog

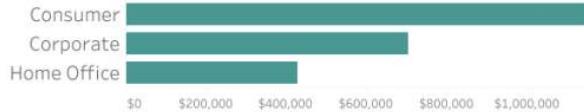
## TABLEAU ANIMATION | WHAT IS A MARK?

Home < >

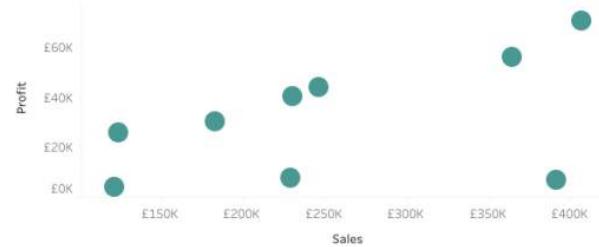
### 1 Text Mark

\$2,297,201

### 3 Bar Marks



### 9 Circle Marks

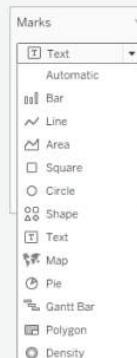


A mark is how Tableau encodes data in the view. This could be with circles, bars, lines, shapes, polygons etc.

The number of marks in the view is not dependent on the number of rows in your data. One million rows could be represented by a single mark, for example a text mark that shows the total sum of sales.

Conversely, just three rows of data could be represented by 3 marks, for example the sum of sales by customer, where each mark represents a different customer ID.

The mark type can be changed from the drop down list at the top of the Marks Card, shown on the right.



Marc Reid | datavis.blog

## Agenda

### Fundamentals

- What is a mark?
- View Level of Detail (view LOD)
- What is a mark ID?

### Default Animation

- Animating with the Pages shelf
- Animating with filters

### Custom Animation

- Changing the Date Part
- Sequential to Parallel Dates
- Changing the view LOD - Line Charts
- Changing the view LOD - Scatter Plots
- Animating Headers

### Resources

- Blogs and examples from the Tableau Community
- Tableau Conference videos and Help pages

### Marc Reid

Tableau Zen Master  
Tableau Public Ambassador  
Data Visualisation Designer

Twitter: <https://twitter.com/marcreid>  
Website: <https://datavis.blog>  
LinkedIn: <https://www.linkedin.com/in/marcreiduk/>  
Tableau: <https://public.tableau.com/profile/marc.reid#!/>

Marc Reid | datavis.blog

CJ: Over your 5 years of Tableau usage you must have slowly created a mental image of dos and don'ts / best practice guide for developing dashboards. Are there any golden rules you can share, especially in relation to your public vizzes?

MR: In the context of business dashboards, the main advice I would offer is: keep it simple. Simple charts will help your dashboard consumers answer the vast majority of their questions. Especially when those charts have been created with your consumers' questions in mind. See **Lisa Muth's excellent blog post** for more on the value of 'simple charts'.

Try to put yourself in the situation of the consumer of the data visualisation you're creating, seeing this information in this format for the first time. Does your visualisation – the charts choices, functionality and design – enable your intended audience to answer the questions they might have effectively and efficiently?

CJ: I think one thing that is often missing from people's development is 'reverse-engineering' visualisations. Has there been anything in the community that made you want to go do this? What actions do you tend

to go through when trying to understand the creation of someone else's visualisation?

Yes, reverse engineering can be very helpful, especially for specific elements or techniques that you've not seen before. The degree of learning will often be dependent on how well documented the calculations are, which I must admit is not something I've always done as well as I should have on my public work, though I have improved. I don't really have a defined process for reverse engineering, but a few steps I might take are:

- Viewing calculations
- Removing pills to see what changes in the visualisation
- Deleting sheets on a dashboard one by one to understand any layering that's used
- Changing parameter values to see what changes etc.

There's over 220 downloadable workbooks on my profile as I write this, some of which have an associated blog post or video to explain more about the build process or any unusual techniques but if anyone has questions you are welcome to DM me on **Twitter**.

If you are working on something out of the ordinary and are keen to share with the community I'd encourage you to write a blog post to provide more insights and explanation as it can really help (along with documenting calculations, of course!).

#### SHARING KNOWLEDGE

CJ: So we've discussed a few channels of learning by doing. What's your opinion on certifications in the data space? I know you have quite a few yourself, do they act well as confirmation of your level of skillset?

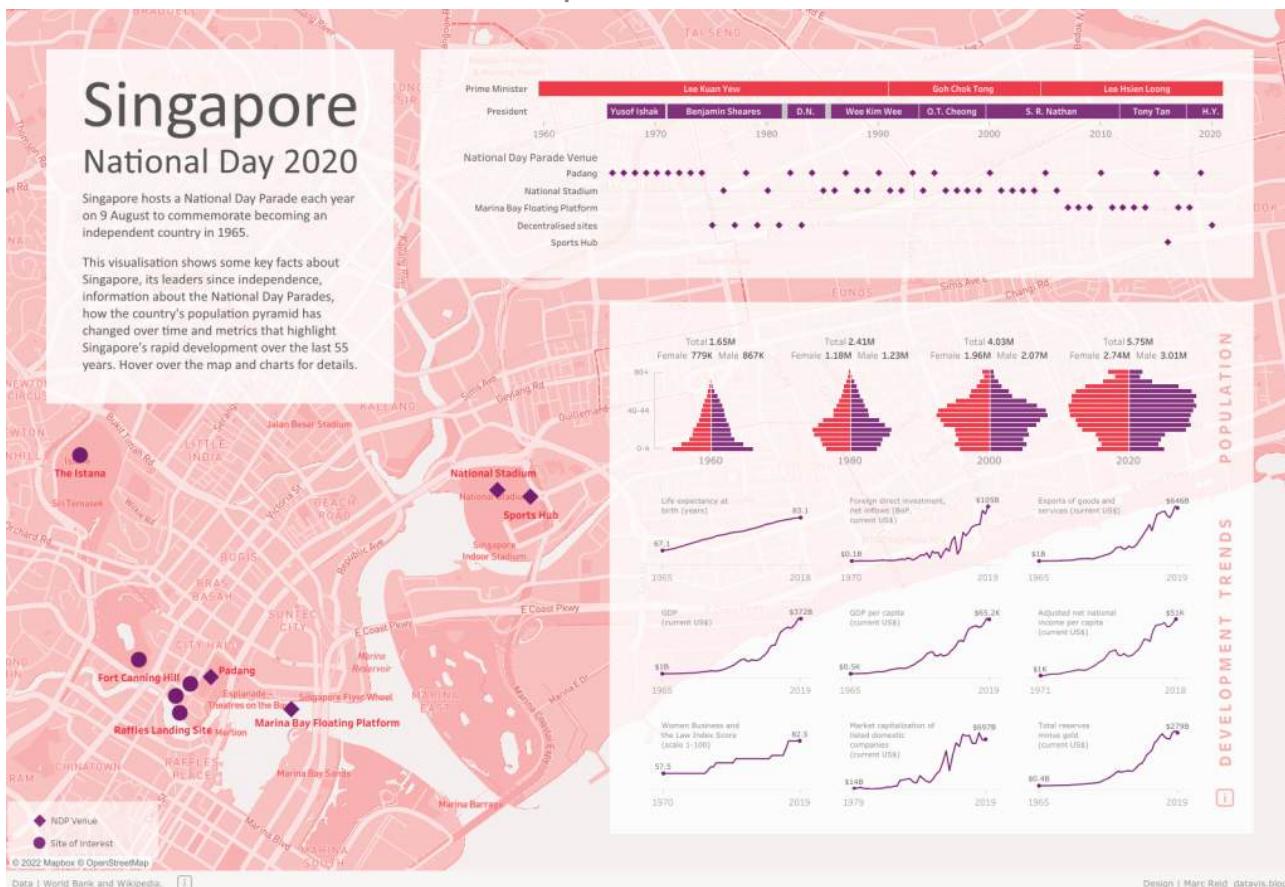
MR: Personally, I've found the process of preparing for and taking the certifications extremely helpful to my learning. As I've worked my way through different exam guides, it's directed me to areas of the products I might use less frequently as well as leading to a number of 'aha' moments and broadened my appreciation for the full product suite, what's possible, and how the products interrelate.

**Mark Edwards** (a big advocate for certification) sums it up quite well in his **blog post** on the topic:

“The exams are not cheap, but the rewards are real. For me, this comes in two parts – how others perceive your skills, and how you perceive your own abilities”.

See also this **twitter thread** from Mark with a number of links to resources and profiles of people who have shared their experiences of getting certified.

CJ: It's interesting to see that a lot of your work is functionality based. When you explore more the design remit you end up with multiple VOTD's!!! Is sharing concepts, new features something you now prioritise?



### One of many VOTD's from Marc

MR: This has changed over time. My early Tableau public work was a mix of various community projects and experiments, with a focus on practising as much as possible to try and improve my design and general Tableau abilities. Over the last few years, exploring and sharing what's possible with new functionality and creating educational content has been more of a focus and I see that continuing as I find it very rewarding.

To be honest, creating really striking designs is not my strength, though my design skills have improved over time through general data vis education and through emulating and being inspired by the work of others who excel in this area. A list of those who have provided inspiration would be too long to include here but as a starting point I highly recommend following all the **Tableau Public Ambassadors** for countless examples of exceptional work.

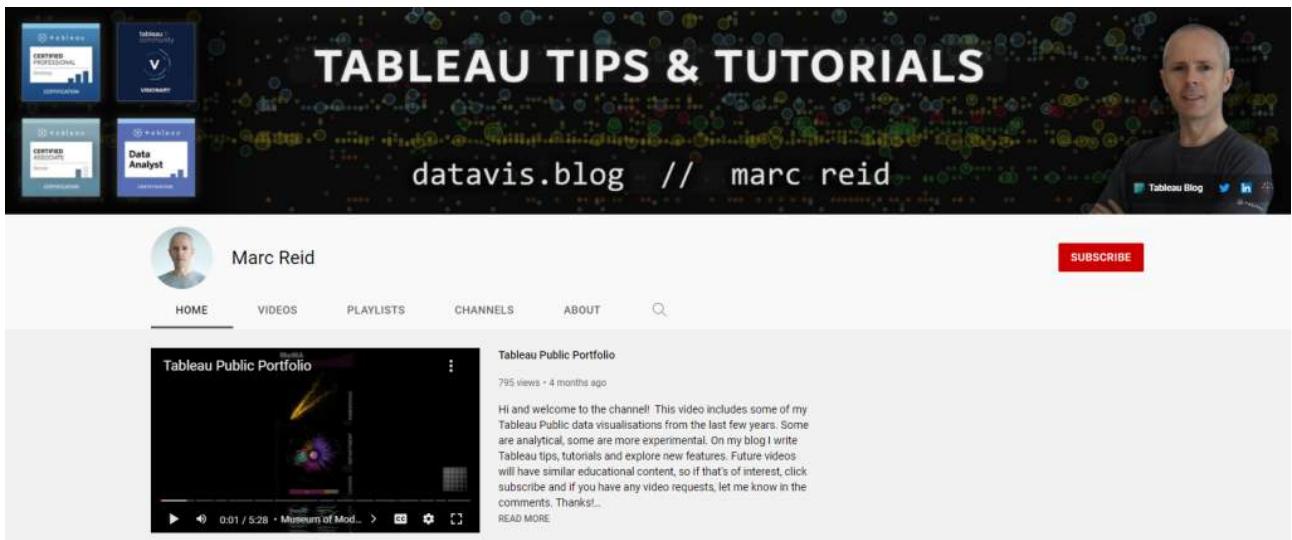
CJ add on: I politely disagree with Marc saying striking design is not his strength. The Singapore viz above is testament to that.

CJ: March 2020 is actually the ONLY month since January 2019 you didn't put out a new blog for that month. Yes, that is 36 months worth of content! What is it you enjoy about sharing knowledge with others? Why is it important for you to continue this sharing of knowledge? Does the impact it has technically, in emotional reward or consolidation of personal skills drive this – if any?

MR: Prior to my time at The Data School, I'd never blogged (or tweeted for that matter) and had minimal presence online. But after blogging throughout those two years I'd formed a habit and found it very helpful for my own learning, so after finishing there I set up a simple blog on WordPress and have been writing every month since.

I've learnt, and continue to learn, a lot from other people's blogs so it feels good to give back and share what I'm learning in my own words. It's also a reminder, as well as a way to motivate myself to keep learning and not sit back on what I already know; there's always a new feature to explore, a new technique to try or a new way to explain a fundamental concept.

CJ: I'm loving your new Youtube videos too now. What inspired that new channel of information?



MR: Thanks, CJ. It's been a bit of a step into the unknown for me in terms of the technology, software and the overall process of recording and editing videos. It's also taken me out of my comfort zone somewhat as recording my own voice feels more personal than words on a screen but I'm enjoying the experience so far.

I'll admit my process is slightly over engineered compared to what's essential – I'm using a mix of software tools including a relatively advanced editing tool (DaVinci Resolve), which has its own learning curve but, again, I really enjoy the learning process and discovering what's possible. As an aside, I also feel that having some basic video production and editing skills is useful given their transferability.

In terms of inspiration, that came partly from something I've heard **Tim Ngwena** say a few times about people's different learning styles and how blogs are not always the most accessible forms of media for everyone. Hopefully these videos will help more people interested in Tableau who have a preference to consume content and learn through audio/visual media. I highly recommend browsing through the library of content on Tim's **YouTube channel**.

CJ: What advice would you give to those that are at a stage of wanting to give back more in the community? Do you have any specific tips in regards to starting a blog or youtube channel?

MR: The short answer is 'give it a go' as there's nothing to lose and, whatever happens, you will learn from the experience. The main blogging platforms typically offer a free tier, site templates and don't

require any coding. YouTube took a bit more effort, for me at least, but some may prefer that medium. Again, the platform is free to use and you can start with a basic screen recorder or use a mobile phone or webcam if you want to appear in the video as well.

For more advice, I'd recommend this **blog post** by Sarah Bartlett, which is from a few years back but all the advice is just as relevant today. Also, this insightful **twitter thread** from **Bridget Cogley** provides excellent guidance and ideas.

Also, given your recent and rapid growth in the Tableau community in terms of presence and giving back, I would encourage you to offer your own advice here, CJ, as your readers will benefit a lot from what you can share of your experience.

CJ Add-on: hmm...always happy to share my two pence!

To keep it short, for me there are two hurdles for giving back.

The first is in what form – As you've alluded to and showcased in previous questions. The way you give back to the community doesn't have to be through stunning visualisations, initiatives, blogging or videos. Find what you're comfortable with and run with it. I've seen people even use the twitch streaming site as a platform while creating vizzes. Very different to the norm, but also exciting to see.

The second is finding your voice and thinking you need to be consistent with it. I feel a lot of people in the community need to be reminded that they are unique, bring their own ideas and perspective to the world. That is a super power in itself. We must step away from thinking you have to be a content machine. Some people blog way more than me, others less so. Find that middle ground of content that you want to produce and it'll help remove the guilt factor.

CJ: Lastly, is there anything you'd like to share from a personal or work perspective that we can share excitement for?

MR: I've enjoyed this opportunity to reflect on my Tableau journey over the last five years, so thanks again for the invite, CJ. I'd also like to say thanks to everyone who's helped me on that journey so far: **Andy Kriebel** and the many expert coaches at The Information Lab who I learnt from during my time there; the Tableau Product Managers and

Community team who I've had great interactions with over the years; and, of course, the whole Tableau Community who continually share their knowledge and encouragement, all of which ensures a positive environment to share and learn.

As for what I'm excited for, I'll be going to Tableau Conference for the first time in person this year, which I'm really looking forward to. It's a great opportunity to finally meet many people from the Tableau Community who I've interacted with over the last five years but haven't met in person. On that note, for anyone reading, if you'll be at TC in Vegas this year and would like to catch-up, feel free to drop me a DM on **Twitter** and we can arrange to meet. I hope to see you there!

#### CJ Round-up:

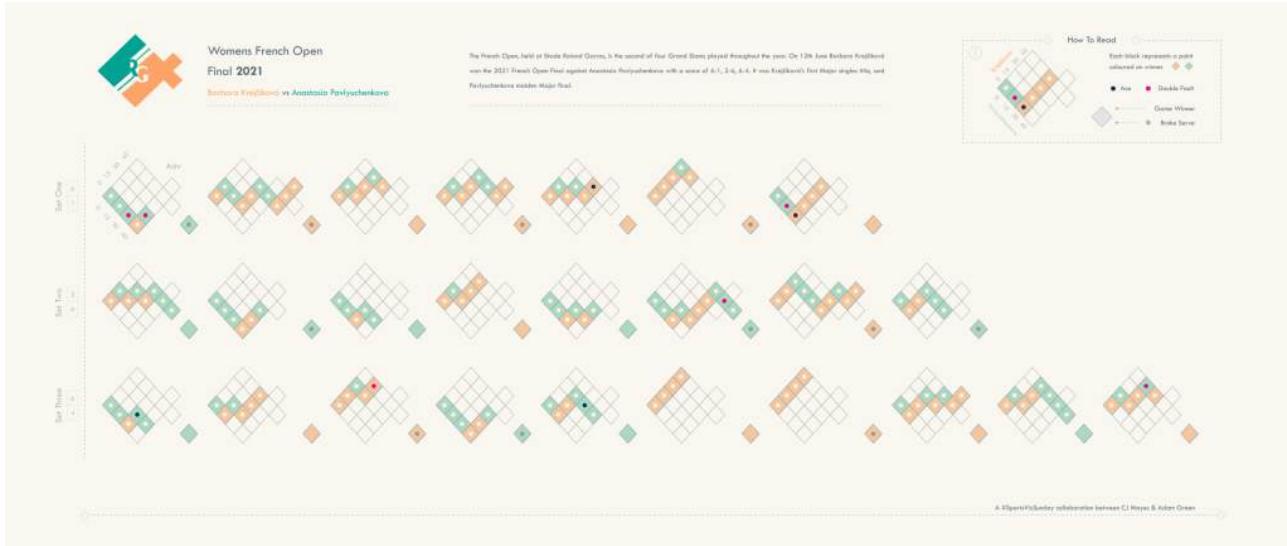
Very grateful for Marc. It's definitely been an inspiring journey. Always appreciate the time he would give, to help me, and many others. Marc has provided so many great call outs to external resources in the community that can help anyone on their journey whether you are just starting out, or looking for something to advance your skills even further. I really appreciate the strength of Marc's admiration for those that have joined him on his journey so far.

I want to reiterate how incredible it has been seeing Marc's consistency in blogging over the years as well as his contributions to Tableau through talks and tutorials. I'm excited to see how Marc's mix in medium of content continues over the year. Looking forward to catching up in Vegas... even though you live only a few miles down the road. ha!

LOGGING OFF,  
CJ

HOW TO ACE THE GAMEFISH CHART IN TABLEAU

*This post includes a run-through of how to create a GameFish chart in Tableau.*



Hi All,

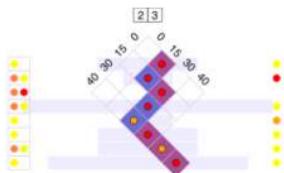
You may or may not have seen at the end of last week I had the pleasure to do a collaboration with Adam Green. We chose to chart the final of the Womens French Open 2021 for #SportsVizSunday.

### WHAT IS A GAMEFISH CHART?

So.... I don't actually know if it has an official name or not. I first came across it on **Tennis Visual** with that name, liked it, so stuck with it. The visualisation provides a single glance overview of one game from a tennis match. The gamegrid indicates the winner of the point by cell colour.

### GameFish: Point Progression, Key Shots, Rallies

The GameFish visualization provides a single-glance overview of one game from a tennis match. It is an enhancement of the standard score-matrix for tennis matches.



The boxes on the edges the graphic indicate which player was serving. Light Green dots represent Service Winners; Yellow dots represent Serves that were "In"; Red dots represent faults.

The Game Grid in the center of the graphic indicates the winner of the point by cell color as well as the final "Key Shot" which determined the point winner.

Rally lengths are depicted with bluish-grey bars which appear "behind" the GameFish.

The whole point of the “Game Tree” or GameFish is a depiction of Point Progression for a selection of games within a tennis match or across a series of tennis matches; it possesses the “**Markov property**”,

meaning that the set of future “states” that are possible are constrained by the current “state”, the point score at any moment in a game. The best bit is, It can be customised to your liking! you will see Adam and I chose to highlight aces and double faults on the grid using coloured circles, deviating slightly away from what you will see on the Tennis Visual.

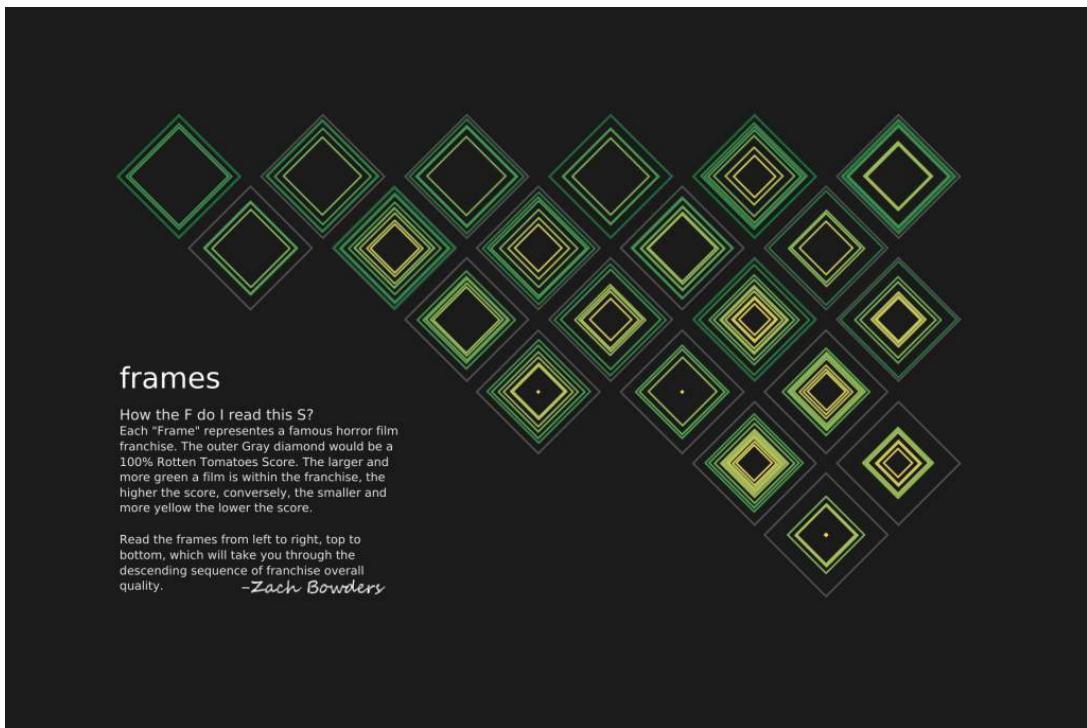
One thing to note on formatting: I chose to do the colouring of points based on when the point was started. You will see a lot of the charts created have 0-0 as a clear box, and 15-0 as the first coloured box. Myself, I colour the 0-0 box on whoever wins the first point, which then in turn making the score 15-0. Personally, I found this more intuitive, but understand where others may differ in opinion. You will notice how this will impact our data preparation later on.

However, this won’t impact the way we look to build the base of the visualisation.

If you would like to use a reference point, please access the [tutorial data & visualisation, here](#).

## BUILDING A GRID IN TABLEAU

I think a great starting point to understand my methodology behind the build is to take a re-read of [Understanding Polygons Part 1](#) and [Understanding Polygons Part 2](#) They both will cover off in more detail how to utilize different polygons, and lines as shapes in greater detail.



So what you will see is multiple lines forming the grid. To build this, we need all possible outcomes that can happen within a match. I start by mapping the very first point of 0-0.

But what do we need for one point?

A	B	C	D	E	F	G	H	I	J
Point_ID	Point_Equi	Point_Equi	Y Shift	X Shift	Set_Detail	Game_Detail	Y_Set_Shift	X_Game_Shift	match_id
1	0	0	0	0	1	1	0	0	0 2021-frenchopen-2701

A	B	C
Y Square	X Square	Line ID
-1	0	1
0	1	2
1	0	3
0	-1	4
-1	0	5

Take a look at the data prep sheets to see that each individual point requires 5 lines of data.

We join these together with a relationship of 1=1, to create for each point, the equivalent 5 points.

Grid+ (GameFish)

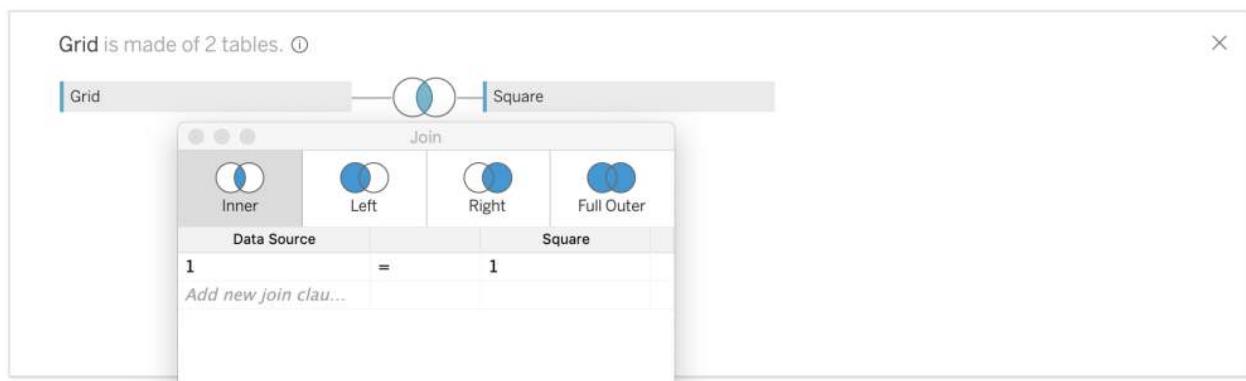
Connection

Live

Extract

Filters

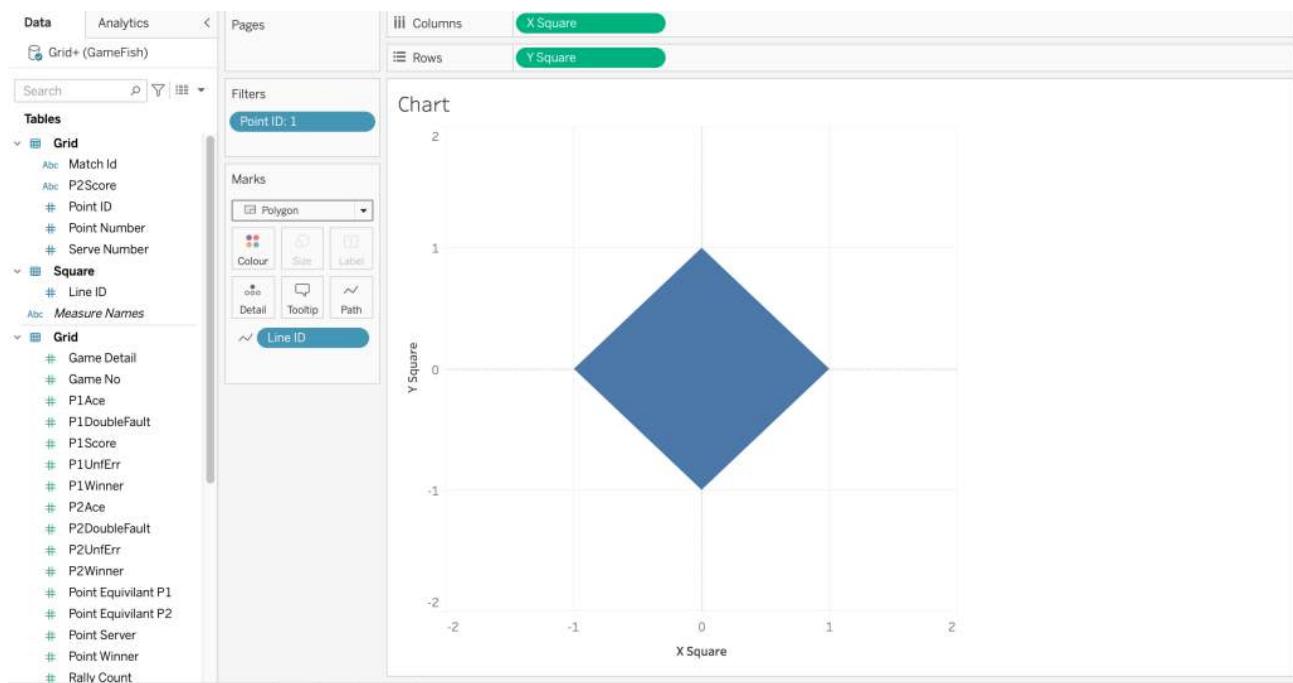
0 | Add

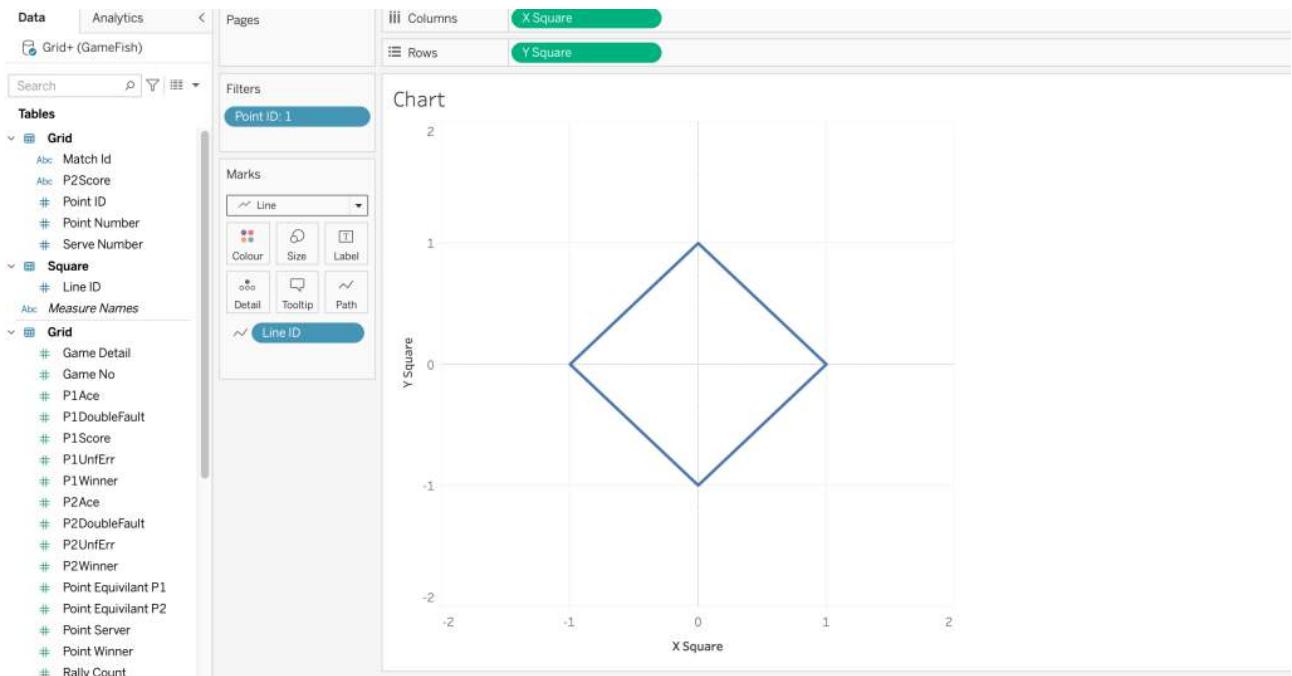


So why do we need 5 points, not 4?

If our chart was going to use polygons, then 4 points would be fine, as it would join up automatically then end of the 4th mark back with the 1st. However, As we want our background grid to be a line chart, we require 5 points. This extra 5th point joins the 4th point back up to the 1st.

What does this look like?





So.... this is the base for the first point of the game. But now we need to plot every other possible point in the game as well as add in the context of the match itself. As really we have just built a diamond so far!

### PLOTTING THE REMAINING POINTS

With the first point in place, it is time to place the remainder of points within the map. i.e 15-0,30-0,40-0,15-15 etc etc. As a reference point I felt it easier to build everything with respect to the 0-0 start point. You will see that every other point is therefore a transposed version of these marks.

I introduce two new columns of X Shift and Y Shift values that shift the shape, right & up/down based on where the point needs to be positioned.

Note: This is why I built the original point as an equal diamond. This meant shifting the values by a constant a lot easier to align.

Lets revisit the data

Point_ID	Point_Equivilant_P1	Point_Equivilant_P2	Y Shift	X Shift	Set_Detail	Game_Detail	Y_Set_Shift	X_Game_Shift
1	0	0	0	0	1	1	0	0
2	15	0	1	1	1	1	0	0
3	30	0	2	2	1	1	0	0
4	40	0	3	3	1	1	0	0
5	0	15	-1	1	1	1	0	0
6	15	15	0	2	1	1	0	0
7	30	15	1	3	1	1	0	0
8	40	15	2	4	1	1	0	0
9	0	30	-2	2	1	1	0	0
10	15	30	-1	3	1	1	0	0
11	30	30	0	4	1	1	0	0
12	40	30	1	5	1	1	0	0
13	0	40	-3	3	1	1	0	0
14	15	40	-2	4	1	1	0	0
15	30	40	-1	5	1	1	0	0
16	40	40	0	6	1	1	0	0
17	99	40	1	7	1	1	0	0
18	40	99	-1	7	1	1	0	0

For each of these outcomes we create a new grid of the 5 points from the square sheet. Then by adding the Y shift to our Y Values and X Shift to our X Values we can move the diamond that is created, up/down and right of the first game point.

## HOW TO BUILD

Now we have the data prepped we can take a look at how this is reflected in the build.

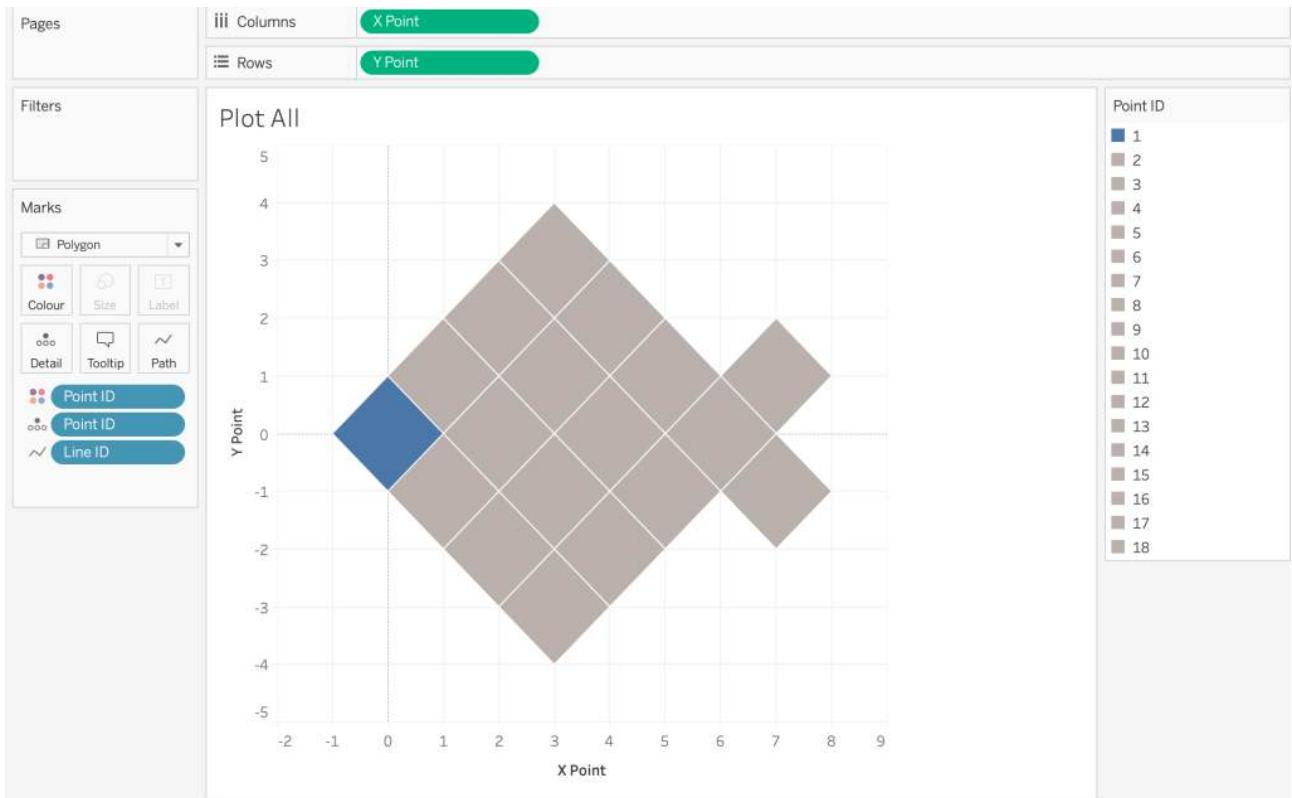
Here are the calculations

X Point

+

Y Point

+



Add Point ID to detail and Line ID to the path/Line ID.  
See how we have replicated the diamond for the remaining points. The 0-0 point is highlighted here in blue.

Now we have the grid laid out, we want to align a match to the points. Let's take a sample game from the French Open Womens 2021 Final.

### Finishing the build

This is where you need to give some consideration as to what you are plotting.

Let's revisit the sample data.

Point_ID	Point_Equivalent	P1	Point_Equivalent	P2	X_Shift	X_Shift	Set_Detail	Game_Detail	Y_Set_Shift	X_Game_Shift	match_id	SetNo	GameNo	PointNumber	PointServer	Speed_KMH	PTScore	PTScore	PTAces	PAce	PTWinner	PTWinner	PTDoubleFault	PTDoubleFault	PTUnfair	PTUnfair	ServNumber	BallyCount	
1	0	0	0	0	0	0	1	1	1	0	0	0	1	1	1	158	0	30	0	0	0	0	0	0	0	1	0	1	2
2	15	0	1	1	1	1	1	1	1	0	0	0	1	1	2	158	0	30	0	0	0	0	0	0	0	1	0	1	2
3	46	0	2	3	1	1	1	1	1	0	0	0	1	1	3	158	0	30	0	0	0	0	0	0	0	1	0	1	2
4	46	0	3	3	1	1	1	1	1	0	0	0	1	1	4	158	0	30	0	0	0	0	0	0	0	1	0	1	2
5	15	-1	1	1	1	1	1	1	1	0	0	0	1	1	5	158	0	30	0	0	0	0	0	0	0	1	0	1	2
6	12	15	2	2	1	1	1	1	1	0	0	0	1	1	6	158	0	30	0	0	0	0	0	0	0	1	0	1	2
7	30	15	3	3	1	1	1	1	1	0	0	0	1	1	7	158	0	30	0	0	0	0	0	0	0	1	0	1	2
8	40	15	2	4	1	1	1	1	1	0	0	0	1	1	8	158	0	30	0	0	0	0	0	0	0	1	0	1	2
9	0	40	0	4	1	1	1	1	1	0	0	0	1	1	9	158	0	30	0	0	0	0	0	0	0	1	0	1	2
10	12	30	-1	2	1	1	1	1	1	0	0	0	1	1	10	158	0	30	0	0	0	0	0	0	0	1	0	1	2
11	30	30	0	4	1	1	1	1	1	0	0	0	1	1	11	158	0	30	0	0	0	0	0	0	0	1	0	1	2
12	40	30	-1	5	1	1	1	1	1	0	0	0	1	1	12	158	0	30	0	0	0	0	0	0	0	1	0	1	2
13	0	40	0	2	1	1	1	1	1	0	0	0	1	1	13	158	0	30	0	0	0	0	0	0	0	1	0	1	2
14	15	40	-2	4	1	1	1	1	1	0	0	0	1	1	14	158	0	30	0	0	0	0	0	0	0	1	0	1	2
15	30	40	-2	5	1	1	1	1	1	0	0	0	1	1	15	158	0	30	0	0	0	0	0	0	0	1	0	1	2
16	40	40	0	6	1	1	1	1	1	0	0	0	1	1	16	158	0	30	0	0	0	0	0	0	0	1	0	1	2
17	99	40	0	7	1	1	1	1	1	0	0	0	1	1	17	158	0	30	0	0	0	0	0	0	0	1	0	1	2
18	40	99	-1	7	1	1	1	1	1	0	0	0	1	1	18	158	0	30	0	0	0	0	0	0	0	1	0	1	2

I've organised the data for my desired effect. This is what I was referring to earlier when I said in the TennisVisual example 0-0 isn't coloured.

Whereas in mine, I colour a lag of 1 point.

### MAKEPOINTS

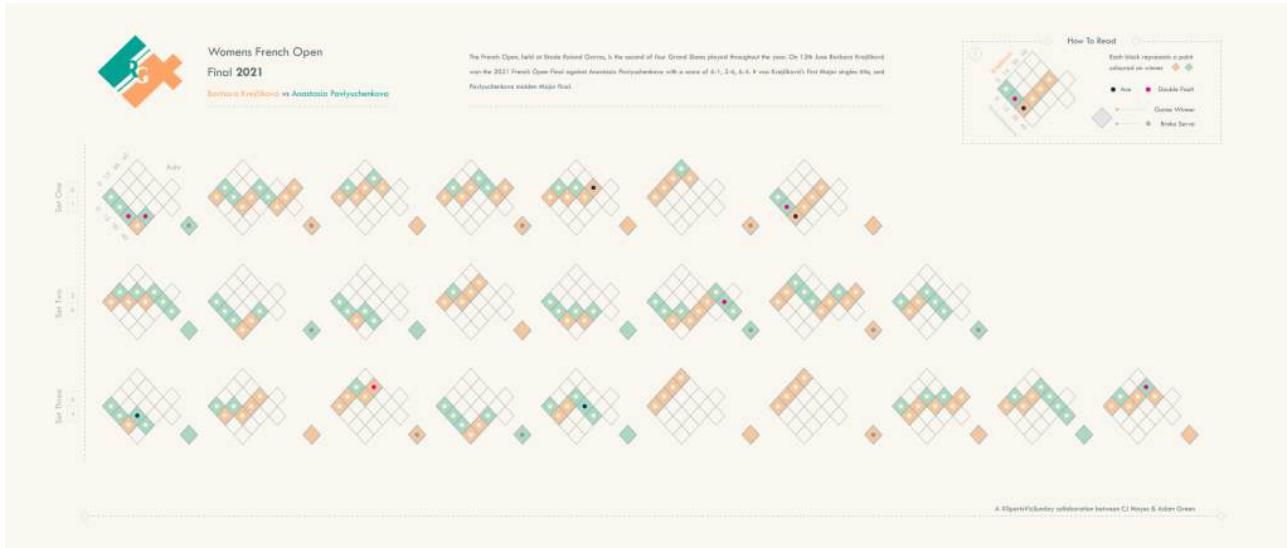
How do I build out for multiple games?

You can either build them in separate sheets, or create new columns

that will look to 'shift' the games outwards in terms of on its X-axis if you want to build them in the same sheet like Adam & I did.

You will see I have left in two blank columns (X Game Shift, and Y Set Shift) These values would be a way for me to transpose a whole game to the right, or down for each set.

Check out some of these details in the full build with Adam.

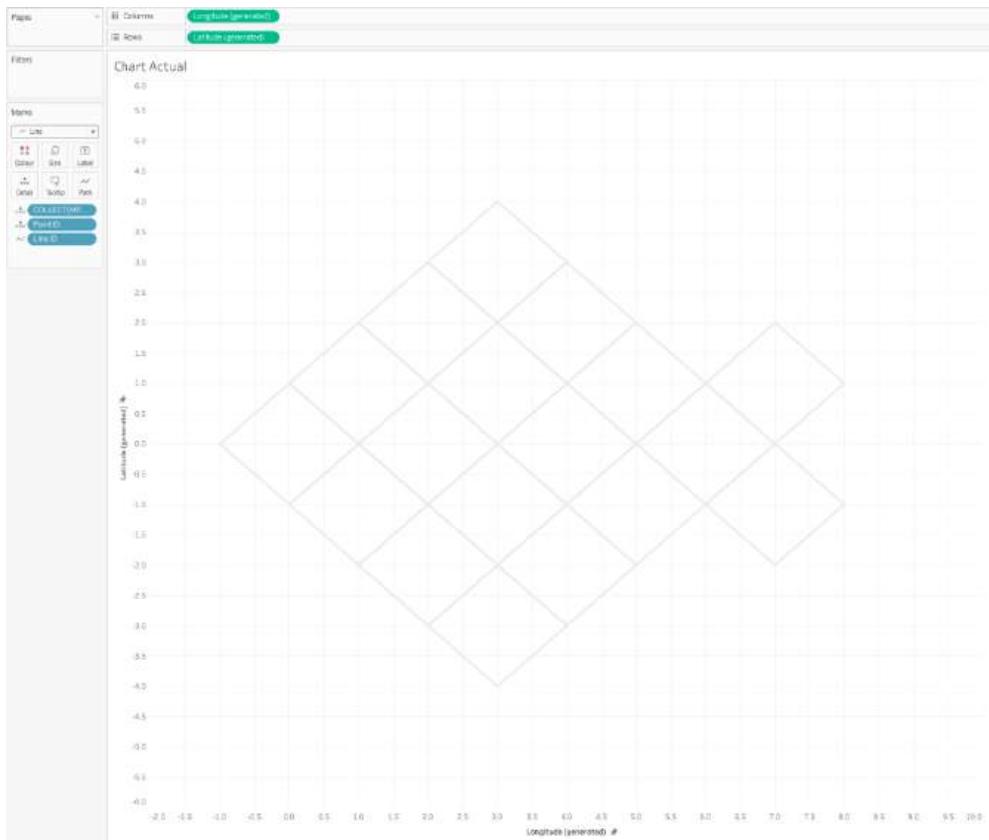


Here are some example calculations that may help you with your journey.

MP. Base

`MAKEPOINT(,)`

We can use this to build a line chart base.



We can add a second layer of colour using the polygon tool.

MP. Colour Base

if

=

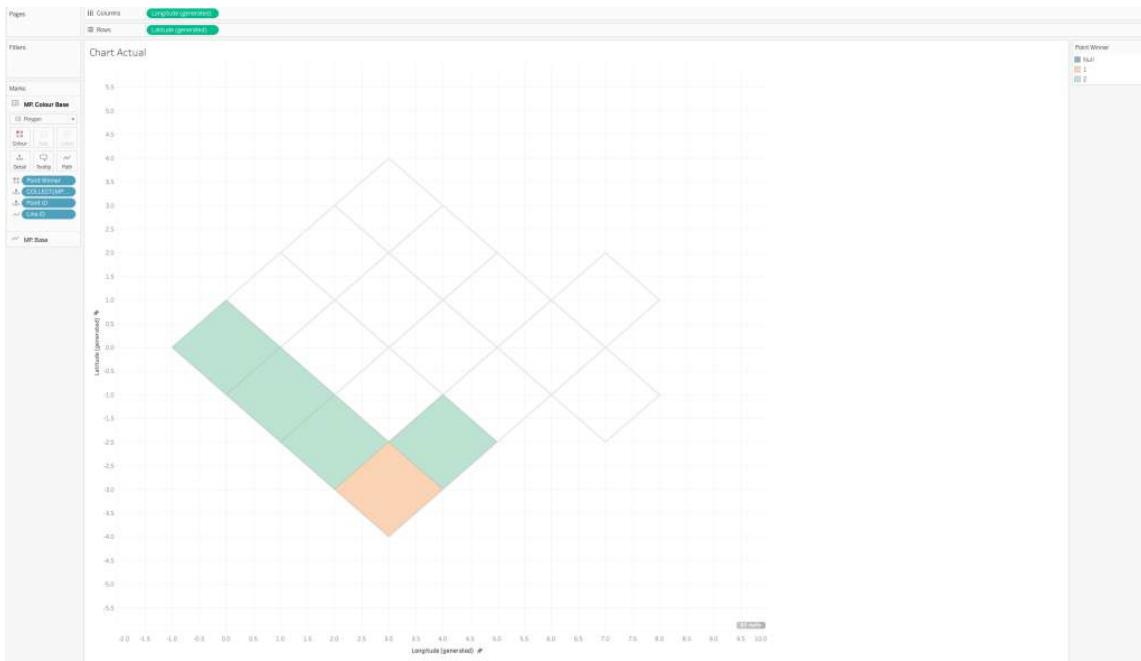
'2021-frenchopen-2701'

then

MAKEPOINT(,)

END

This calculation says where we have a point within our tennis data, then acknowledge the points we plotted using the polygon mark.



Lastly, let's add some circles into the middle of each square. Remember we currently have 5 points for each 'game point' – so I look to just take one of these.

### MP. Circles

if =

'2021-frenchopen-2701'

and = 1

then

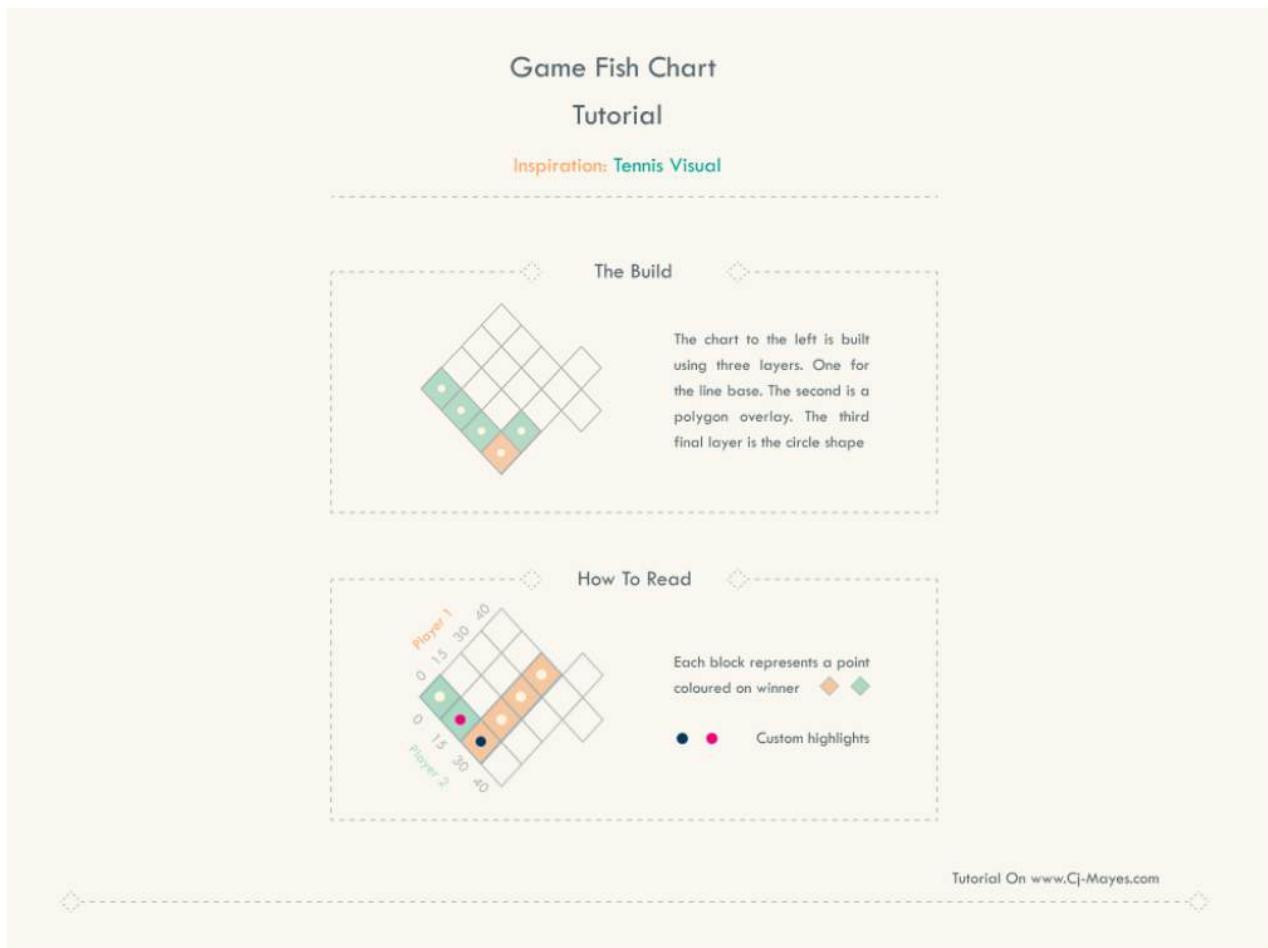
MAKEPOINT(+1,)

END

Why do I add 1 to Y Point? Remember our 5 original points are making a diamond, to bring the circle or where line id = 1 into the middle of the circle I just need to transpose (i.e shift right slightly) the point.



With that you can start charting your own games!



## REFLECTIONS

That's a lot of points for a match, is there a better method of creating this chart?

Sure, you could probably replicate similar using the shapes tool and aligning them that way. I am yet to try it but personally wanted to experiment using polygons and lines. I think this method gives me more flexibility and freedom in design.

Perhaps someone could look at trying this themselves using the shapes and sizing tool? It would mean you only need the point by point data instead of 5x the number of values.

Going further:

Try applying it to a game-match of your choosing?

Try adding in new metrics to enhance the visualization?

Try creating a similar effect using only shape files

CJ Round-up:

So to finalise, I want to say another thank you to **Adam Green**. Please check out his profile [here](#), it is a great collection of vizzes with a wide

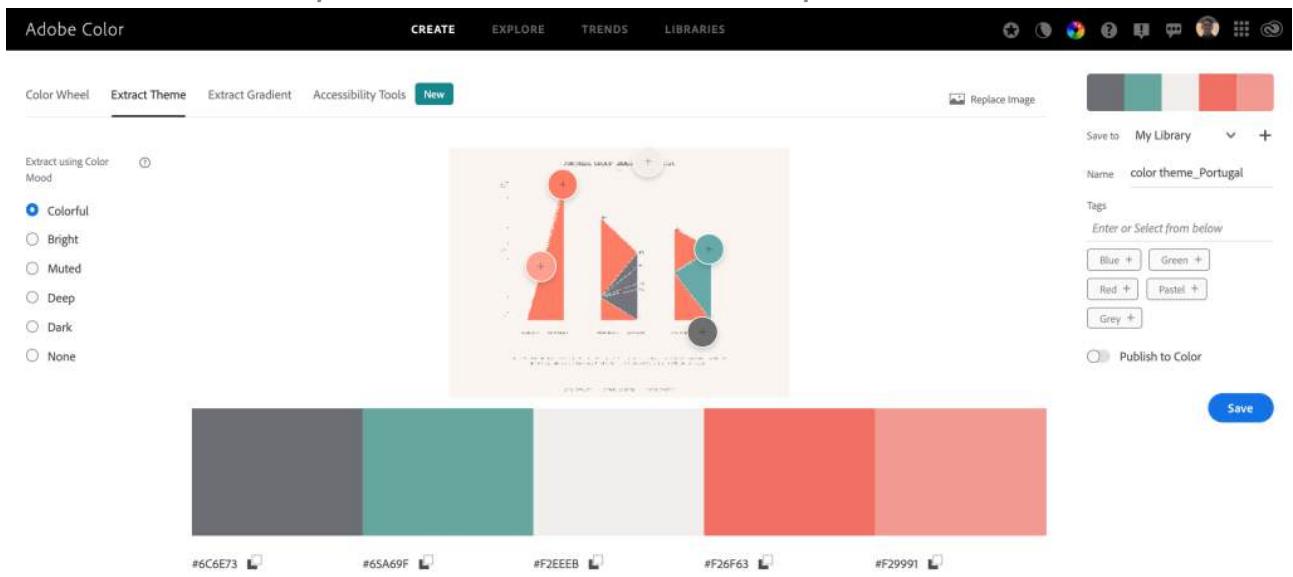
variety of styles and techniques. I had so much fun piecing this together with him. In the on coming weeks I am hoping to showcase the build on a VizConnect, keep an eye out for it.

LOGGING OFF,

CJ

## 29 COLOUR PALETTES

*This post includes 29 colour palettes comprising of 5 colours in each palette that I've created using the adobe colour wheel. They have all been passed through a colour-blind test individually. You can find the preference file in the Git Repo above.*



Hi All,

At the end of last year, I saw Kate Brown's post recommending **“Colors for Data Science A-Z: Data Visualization Color Theory”** so thought it would be an interesting watch! The course is about 4 hours long and covers everything from the physics insights of the electromagnetic spectrum, how and why we see colours because of wavelengths and frequencies. Through learning about colour emotions, tooling's and colour palettes. I too, would highly recommend the course. It was light hearted and the instructors made it fun.

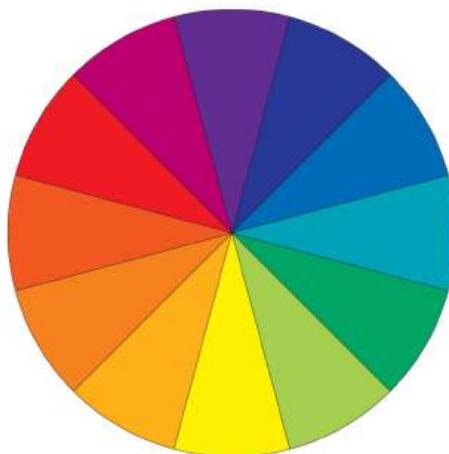
I won't go into details fully of the course for the sake of repetition and taking away from the value it served, but below are some of my thoughts

on applying colour within the realm of Tableau and a few other resources found on the way. The focuses will predominately be on colour blindness and how we can build dashboards with that in mind.

### Working with Tints, Shades and Tones

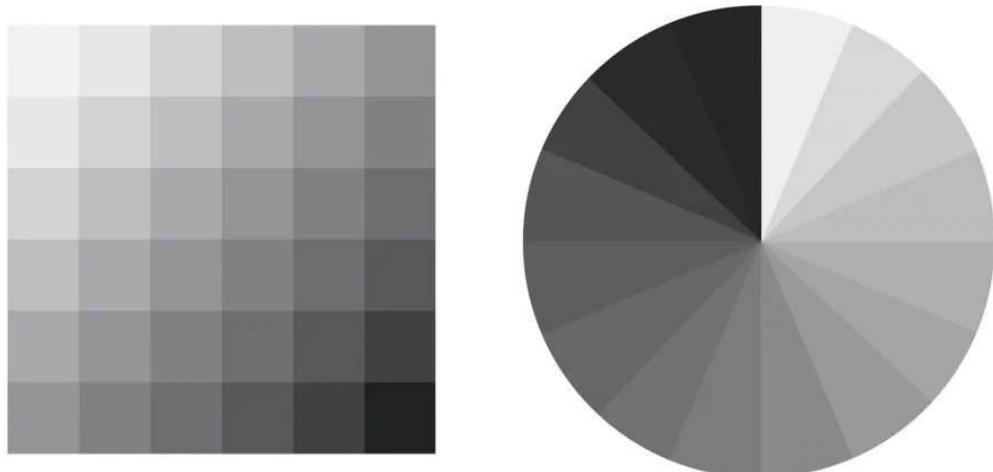
So by means of introduction it's important to introduce a few things for basic understanding of colour first.

This is a normal colour wheel that most of us will be familiar with.



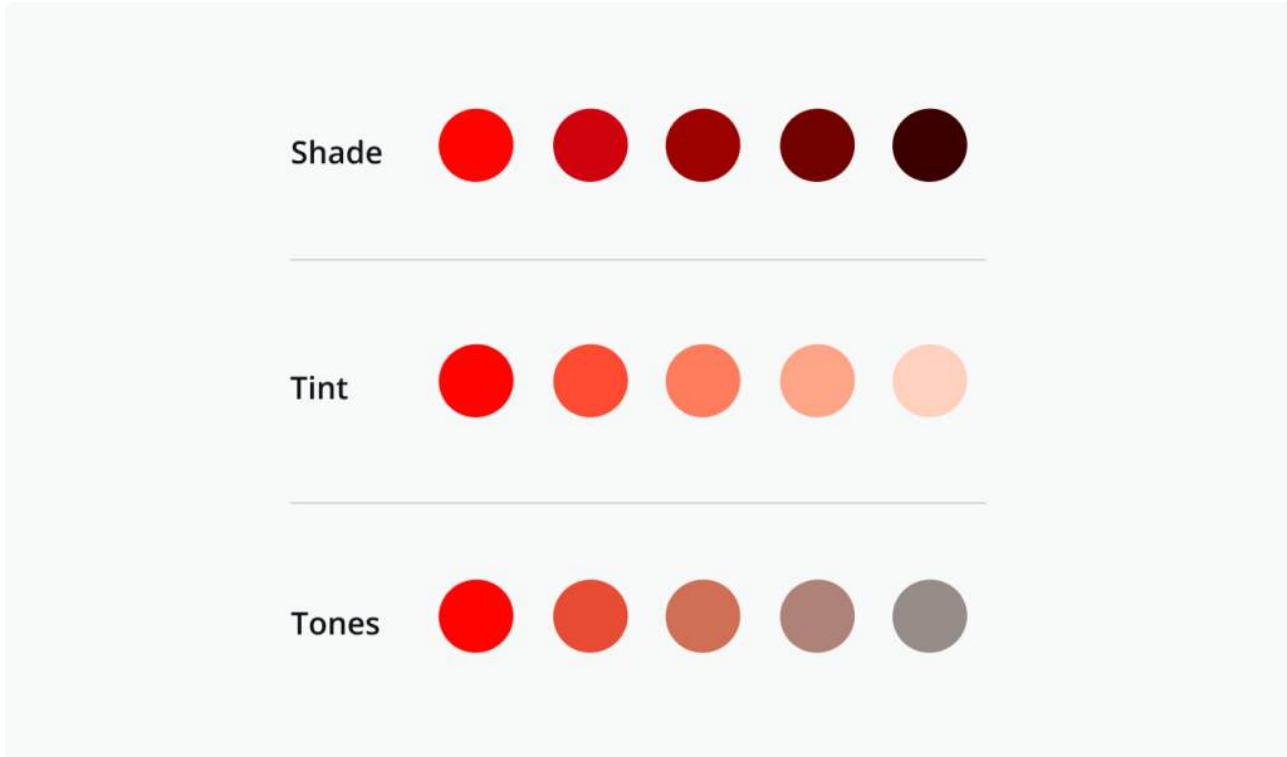
Source: Adobe

Achromatic colours are not in the colour wheel (black/white/grey). Since there is no hue in it, they have no saturation. They have their own wheel.



Source: Adobe

When we consider Tint, shades and tones. We can take an initial colour and work outwards to white, grey and black. Check out below.



Source: Canva

### The importance of RGB

Dashboards tend to be things we view on laptop screens and phones. They will rarely be printed. Devices have light sources that will emit the different colour or mix the waves. They start as dark and the colours are added.

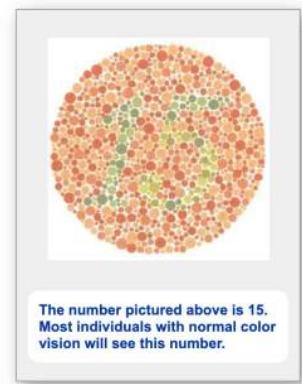
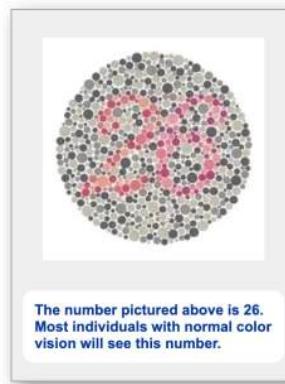
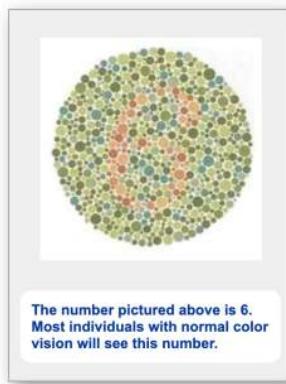
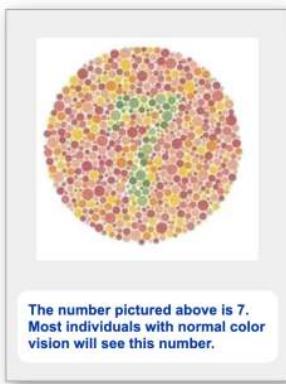
I found this great resource on [99Designs](#) that discusses the differences between CMYK (subtractive) and RGB (additive) colour.

### Colour blindness Theory

Onto the main subject today, colour blind tested palettes.

The colour test that you can find here is a way of testing the different types of colour blindness through using coloured dots. Someone who is colour blind will see all the dots as the same colour, or will mistakenly get the number wrong, whereas someone who isn't colour blind should be able to spot the number in the dotted pattern.

[Here](#) is an example site to try your own.



So lets test some of my previous vizzes! Would they pass colour-blind tests?

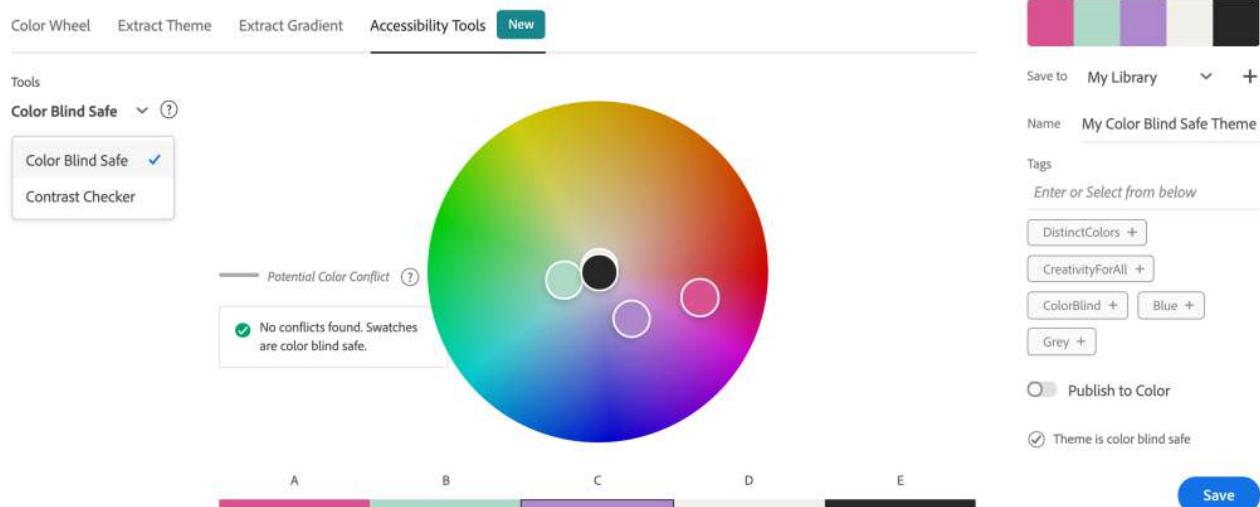
For this, again I'm going to refer to the [adobe tool](#). This adobe colour wheel is my go-to resource for creating my own palettes, and finding new colour palettes through the explore page. Let's start with Last years Iron Viz.

First go to extract theme.

Upload an image of your dashboard.

The screenshot shows the Adobe Color Extract Theme interface. At the top, there are tabs: 'Color Wheel', 'Extract Theme' (which is selected), 'Extract Gradient', 'Accessibility Tools', and 'New'. Below the tabs, there's a section titled 'Extract using Color Mood' with a 'Colorful' radio button selected. There are also other options: 'Bright', 'Muted', 'Deep', 'Dark', and 'None'. To the right of this is a vertical color palette strip with various colors. At the bottom, there's a horizontal bar divided into five colored segments with their corresponding hex codes: #D95291, #A080BF, #ADD9CS, #F2F0EB, and #262626. Each segment has a small icon next to it.

You can then go to the Accessibility Tools section, make sure from the drop down you click Color Blind Safe instead of Contract Checker.



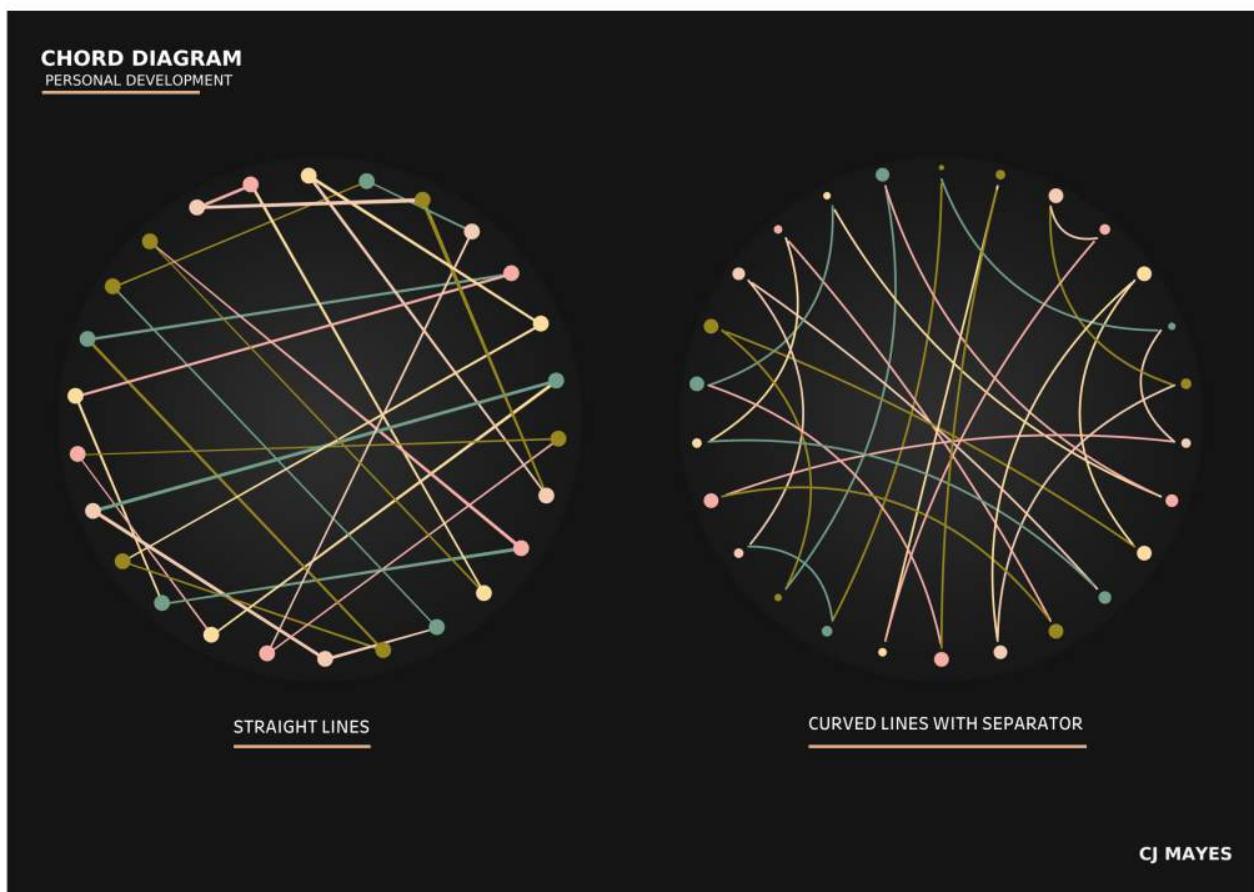
In the bottom right of the screen shot next to the blue save UI button you will see “Check for Accessibility”. By clicking this, a colour blind simulator appears.



So it looks like this colour palette passes the colour blind simulator. It particularly works well for Tritanopia but less so for Protanopia and Deutanopia.

But what happens if the palette isn't safe?

Lets give another viz a look. How about the chord diagram practice visualisation.



Here are some of the extracted colours from the screen.

Extract using Color ?

Mood

- Colorful
- Bright
- Muted
- Deep
- Dark
- None

#7BA68D

#9A8822

#FDDDA0

#F8AFA8

#F5CDB4

Lets go back into the accessibility colour checker.

Color Mode: RGB

Show RGB Sliders

A	B	C	D	E
#7BA68D	#9A8822	#FDDDA0	#F8AFA8	#F5CDB4

Name: Enter theme name

Tags: DistinctColors +, CreativityForAll +, ColorBlind +, Green +, Cream +

Publish to Color

Theme is not color blind safe

Save

Uh-oh!! Looks as though this colour palette causes some conflicts. Fortunately it shows us with dashes where the clashes are so we can then go back and amend those colours. Our light pastel yellow and pink tones are clashing.

Color Mode: RGB

Show RGB Sliders

A	B	C	D	E
#7BA68D	#9A8822	#FDDDA0	#F8AFA8	#F5CDB4

Color Blind Simulator

Deutanopia

Protanopia

Tritanopia

So that's how we can test some of our previous colour palettes – but what about creating new ones?

In the repo are 29 palettes I've made that you can copy and paste into your Tableau preferences file.

You can rename them before adding them to your Tableau script. You can find them in the repo link at the top of the page. I've saved the colours too as images if you just want to take your favourites.

As you can see from the small snippet below I created each of these themes with accessibility in mind. The icon in the bottom right of each

palette means that it is a colour blind safe theme.



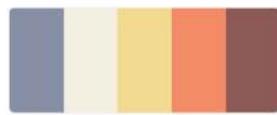
Palette 017  
COLOR BLIND SAFE THEME



Palette 016  
COLOR BLIND SAFE THEME



Palette 015  
COLOR BLIND SAFE THEME



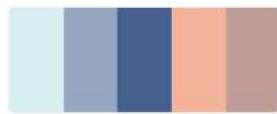
Palette 014  
COLOR BLIND SAFE THEME



Palette 013  
COLOR BLIND SAFE THEME



Palette 012  
COLOR BLIND SAFE THEME



Palette 011  
COLOR BLIND SAFE THEME



Palette 010  
COLOR BLIND SAFE THEME



Palette 009  
COLOR BLIND SAFE THEME

Still wanting to learn more on colours?

Check out the following resources:

[Datafam Colors: A Tableau Color Palette Crowdsourcing Project –](#)

Flerlage Twins & Rodrigo Calloni

[Custom Palettes in Tableau – Interworks](#)

[Colour Palettes using images – DataSchool](#)

[Formatting custom colour Palettes – Tableau](#)

Going further:

Try create your own colour palette and put it through a colour blind simulator

Try amending your preferences.tps file to add your own colour palettes

Try creating a diverging colour palette instead of a regular one!

LOGGING OFF,

CJ

VERSATILE SKILLSETS WITH SAM PARSONS

Hi All,

Welcome to the March episode of “What’s Good?”

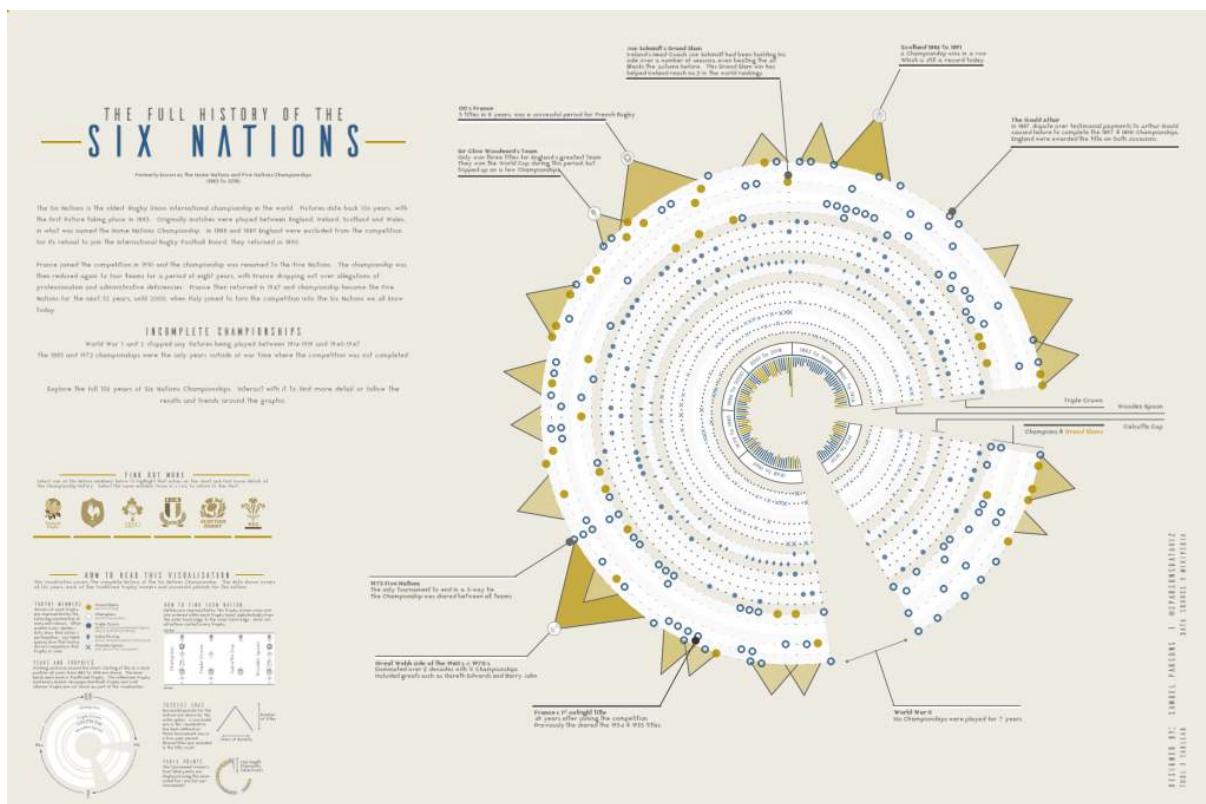
For this month, It’s a true delight to have Sam Parsons join, to discuss building a versatile skill set through your portfolio. We cover themes of

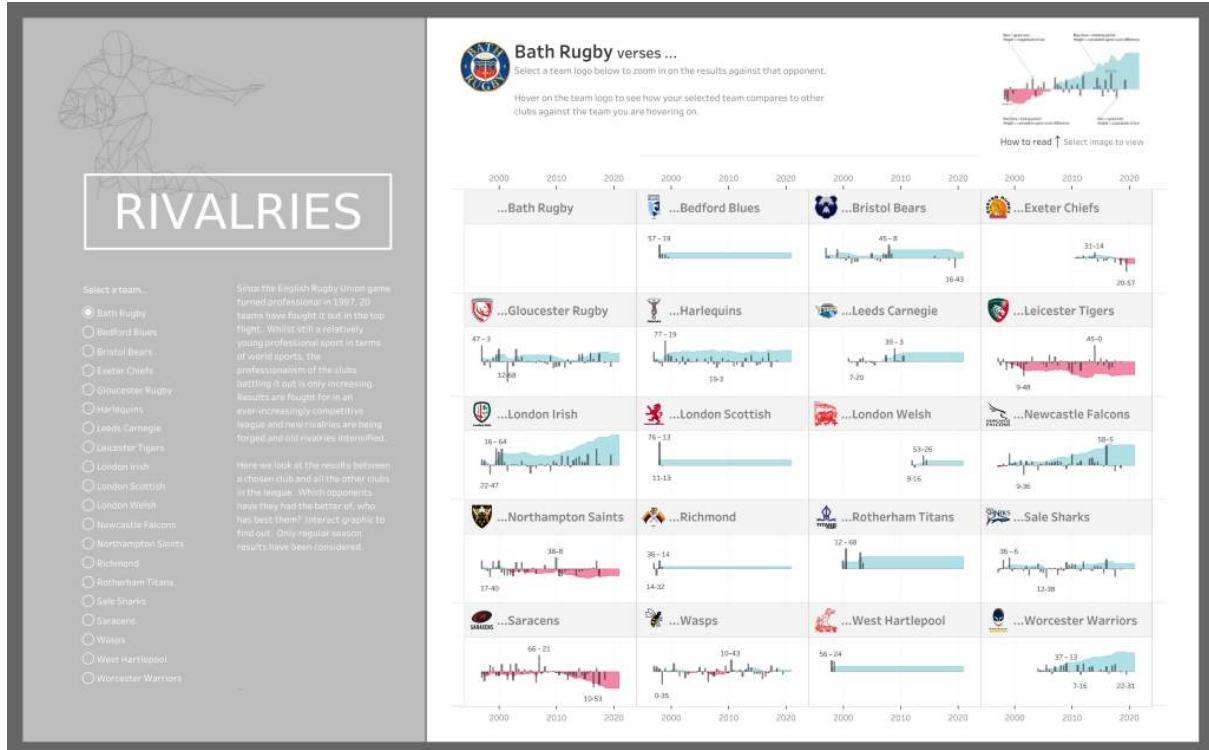
observing, doing and learning. I'm eager to explore the different milestones in some of Sams development.

If you're anything like me, you're in awe of, not only the calibre of Sam's vizzes, but the impressive depth of different technical skill sets on show.

Design, difficult calculations, storytelling, best practice, abstract art, business dashboards... literally, you name it, Sam probably has it on his profile.

To reinforce the breadth of style on show, take a look at some of my favourite of Sam's vizzes below.





CJ: Sam! Thanks for joining. Let's roll back the LinkedIn – you've had with a range of product design at university, Business analytics roles and then into data visualisation. Tell us a little more about these experiences. It seems to be a unique mixture in skills – would you say you're a left brain thinker or right brain?

Sam: Hey CJ! Thanks for inviting me to talk with you. So we are starting with a trip down memory lane then, ha. OK, I'm game! Growing up I spent most of my time drawing, painting and model-making – I loved creating things. Naturally this was the way I was wired. This was reflected in the school subjects I enjoyed and I decided that I wanted to study Product Design at university. I love solving problems and I thought a career in Product Design would be a perfect marriage of problem solving and being creative. As it transpired, the course I enrolled on was actually run by the engineering faculty and so there were far more engineering based modules than I first realised. A lot of the students dropped out in the first year and switched to a more design based Industrial Design course. I decided to stick at it and actually this has proven to have been beneficial now I'm working in Tableau. Why?

Well, I was forced to work in very mathematical areas, such as Thermodynamics, Material Stresses & Strains, Robotics, all sorts of

areas that you need to understand when designing a product solution.

These subjects really made me approach problems with a logical mindset.

When I left University, I became a little disillusioned at my own ability as a Product Designer and I needed to get some money in quickly. So I joined the National Trust in their Finance team. I started as a temp worker and slowly I worked my way up. I enjoyed working with the people there and before I knew it I had stayed 5 years and I suddenly realised that this was the career I needed to make something out of. So I started studying accountancy qualifications and I was showing a real flair for using Microsoft Excel. This enabled me to continue moving up and into the Business Analyst role. I became 'the Excel guy' within Finance in the company and was entrusted with building complicated Excel models that supported and filled in the gaps within the company's Finance System. I honestly thought that was my career. I was going to stay there till retirement.

Then Tableau came into my world. I immediately saw that Tableau allowed me to reconnect with my creative side of myself and I had an awful lot of fun playing with it in my spare time. Within 3 months of picking it up for the first time I had applied to Dyson as their Senior Data Visualisation Developer. I somehow had convinced them that I knew enough about Tableau and design that I could take the team forward with their own suite of reports. From there I stayed 3 years and moved on to Biztory as a Senior Analytics Consultant.

My career path has definitely been mixed one, Early on my career path was more by accident than design. Since Tableau though I have been very focused on what I want from my career – something I have not had in the 15 years previous. I am naturally creative and I love problem solving and looking for solutions, Yet my engineering and analysis roles have built into me that logical and analytical mindset. I have been burned a few times along the way, but all those experiences I believe have really helped temper me into the character I am today.

CJ: You've been at Biztory just shy of a year. How are you finding the transition from an in-house build to a consultancy type role? Has there

been any strong learning opportunities you've experienced either in technical or soft skills with the change in role type?

Sam: That's an interesting question and one I was asked by a candidate I was interviewing recently. The transition has not been a difficult one in my opinion. I have been exposed to stakeholder management in my career before and so being put on to client work early on didn't faze me at all. The team at Biztory have been fantastic in their support to new employees, it's very much an 'arm round the shoulder' type company and the skills within the company are like nothing I've seen before. So that filled me with great confidence that if I was asked anything from my new client that I didn't know the answer to, I knew I could ask internally and I'd probably get the answer from the team within the next 20 minutes. Biztory put great emphasis in learning and developing their people and as such I have been afforded a lot of time to work on my own skills since joining.

Consultancy was a new thing for me and so I was acutely aware that building working relationships with the client quickly was key. Those soft skills as a consultant are near as important as your own technical skills.

I'm lucky that Biztory aim to line up the right engagement with the consultant with the skills to match. So the whole thing has been rather painless so far – touch wood!

CJ: We've just had this year's Iron Viz feeder. One which you probably know well about given last year's performance! Was there anything that particularly stood out this year? Were there any personal takeaways you had from hosting some of the review sessions that Sarah set up? ([link](#))

Check out the IV Gallery [here](#).



IRON VIZ

## FEEDBACK INITIATIVE RECAP

2022

BY *Sarah Loves Data*

Sam: Firstly the level of quality of this year's entries were so very good (yours included!) I particularly liked that this year from a design perspective there seemed a lot of variety with the choice of viz set up. By that I mean, in previous years we saw Iron Viz was mostly long-form vertical entries, but this year I got a real sense of variety – some long-form, some wide-scape, some using story points and others customs navigation buttons. I like that it was a little more mixed up this year, it made it visually more interesting. Your own entry was one of the few that saw to keep to a single screen space with no scrolling or button navigation required.

I also felt like I saw a few more Glyph Charts (using map-layers and icons / shapes) than previously seen – this I am a little mixed on, because normally I dislike those types of charts. This is because when size is being used on the different elements they are so hard to make comparisons – it doesn't feel like best practice and from a Iron Viz perspective they would struggle to score Analysis points (in my opinion).

However, when these charts are operating in a more Boolean way (the shape is shown or not shown, it is coloured red or coloured black), then I think they are much more accessible and easier to understand – for example, Kimly Scott's entry this year (**#IronViz 2022 | Winning the Archibald Prize | Tableau Public**). It does this Boolean approach very well.

My main personal takeaways (having sat in 13+ sessions giving feedback) were probably these three things:

1. Design – This appeared to be the main focus of a lot of entries (colours, fonts, stylings etc). I would say this appeared to be overly focussed on, especially considering my next two points.
2. Context – So many charts were placed without introductory text or with supplementary annotations that help the reader understand what they should be focusing on. Giving that context to the analysis will really help those analysis scores.
3. Storytelling – This was by far the scoring criteria that was not focused on enough – I actually found it frustratingly so. Maybe it's because I have a different viewpoint on storytelling than other people, but for me, presenting an overview of a dataset is not Storytelling.

The process I would love to see is, something like this:

1. Analyse your data, using Tableau
2. Research to find how your data could lead into a bigger story or another dataset (i.e. what's your story angle?)
3. Then plan how you would like to take the reader though the data to that storyline conclusion.
4. Use your design to make it easy to follow through the viz and draw emphasis to the key areas.
5. Pick your charts to support the analysis
6. Order your analysis to bring the reader through your storyline.

Being able to present a cohesive story line using your data is the Holy Grail of Iron Viz. It's not easy and I don't always achieve it myself.

Lastly I was sad not to see more people use, and also creative use, Show & Hide containers. If used correctly they can really set up the flow of the story line. I was hoping my Iron Viz final entry might have inspired a few to try it.

CJ: You will forever have had a long lasting influence through your Iron Viz submissions and the knock on effect of helping others through your strengths of analytical mindset, design talent and storytelling abilities. Is IronViz where you would like to make the most impact in the community?

Sam: Honestly, no.

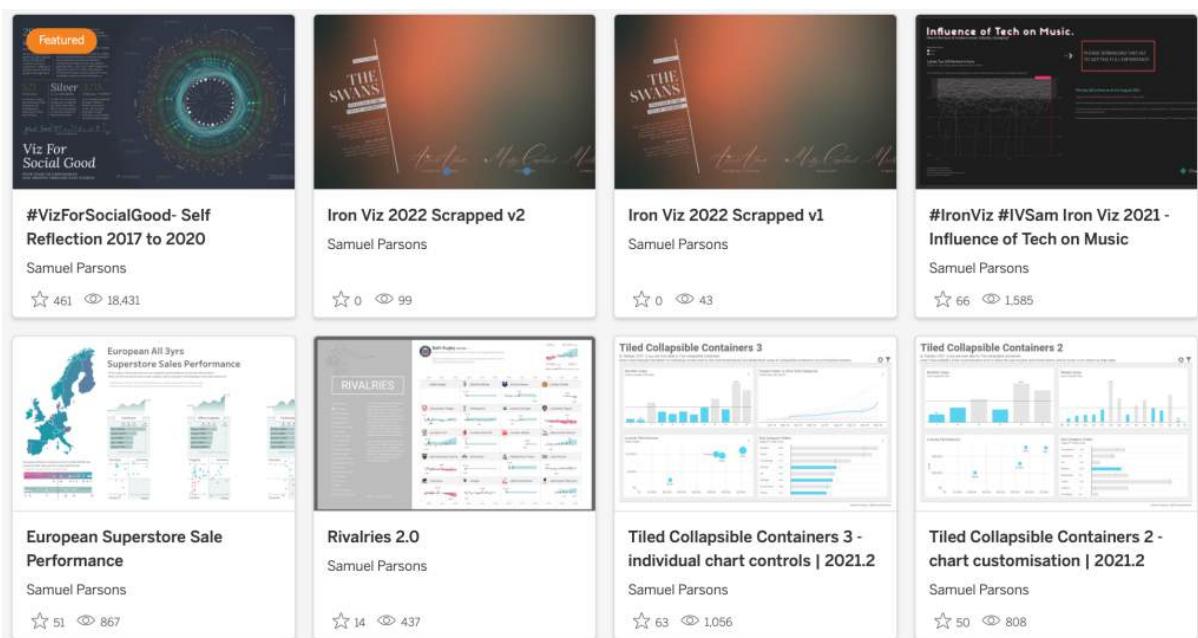
I think as we move through this interview, you'll see I don't like to be pigeon-holed as a single thing. I LOVE IronViz as a competition – I have my personal views on the format and other things like feedback, but overall I love what it gives our community and how it pushes people to move out of their comfort zone and test their skill sets. It's fabulous. I am also proud of the vizzes I have created for IronViz, each one I learned something new and the same could be said for those entries I failed to submit (like this year). IronViz is great.

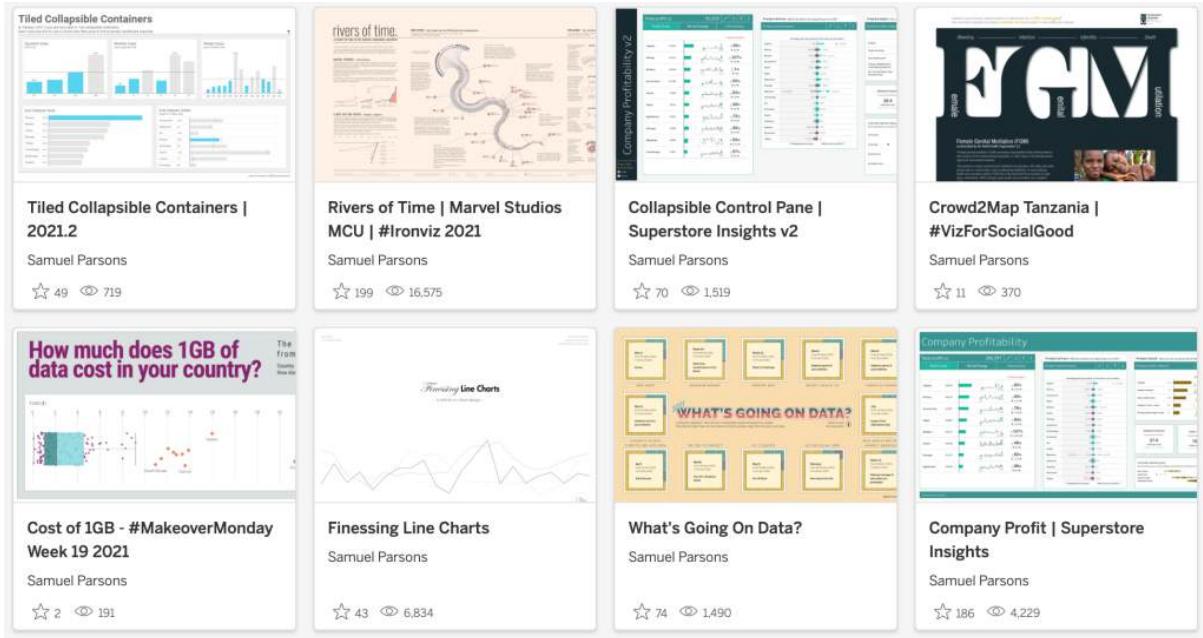
Would I want to be known for making my biggest impact in the community with Iron Viz? No.

I love doing me. I like mixing up my styles with the vizzes I make, how I move in and out of writing blog posts on topics that interest me and I love providing feedback for others.

Personally, I have no ambitions on how I want to be known to have made an impact, other than my input into the community has been a positive and inspiring (if possible) one.

CJ: One thing I think is important is building your personal brand. A lot of that is evident through the portfolio of vizzes on your profile. They are all different in style but all easily associated with you. What advice would you give to others in terms of building a personal brand, without falling into the catchment of making them look visually similar?





Sam: This is difficult because I have never intentionally set out to create my own ‘Brand’ or ‘Style’, yet I’ve had others say similar things like ‘You can always tell when it is a Sam Parsons viz’. That for me is strange, because I don’t see my work in that way. I’ve guessed before as to what made my work attributable to me, and I’ve come up with questionable tags such as ‘adding lots of little details / flourishes to vizzes’, ‘technically stretching chart techniques’, but I really struggle to put a finger on it as a Brand.

What I do know, is in building my own profile or Brand, if you want to call it that, I concentrate on these two things: Experimentation & Internal Focus.

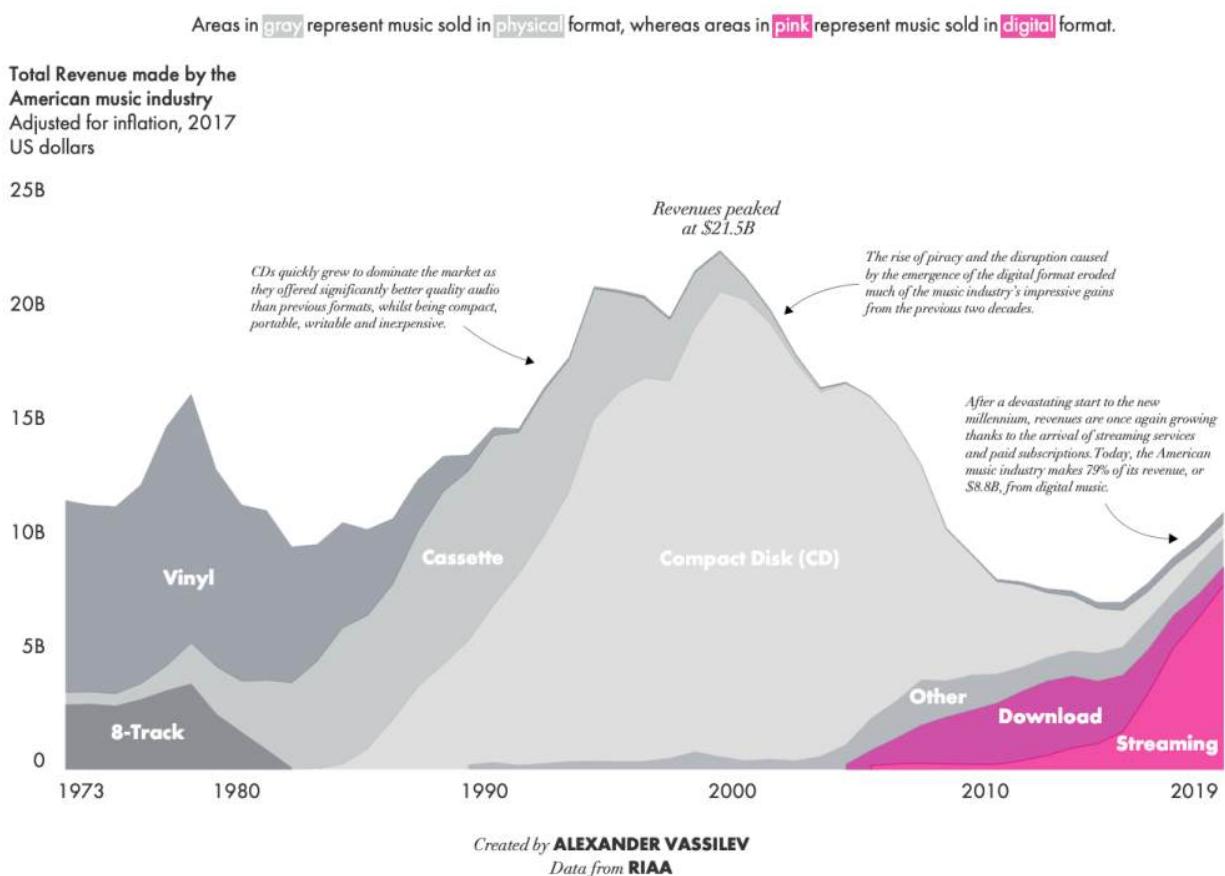
### Experimentation

I have always, in every viz I create, tried to look to do something new for me. That could be a chart type, a design layout, use a new feature, or a different colour palette. I like to test what works and what doesn’t for myself. I can see how others in the community might do some of these things, but for me to truly understand them, I need to test it for myself. A good example is looking back to Makeover Monday from 2020, week 21 – that week was a very popular week looking at the technology changes within the music industry. There were so many fantastic area charts created that week (e.g. Alexander Vassilev’s – **How Music Entered the Digital Era | Tableau Public**) , but I wanted to try out a

different style, I wanted to try creating a boldly coloured visual and see if I could make them work together well. We are taught that the less colours used the better and to supplement your main colours with shades of grey – this is visual best practice. I wanted to experiment with making something that visually worked but doesn't stick to the rules (My viz: **Tech & Music – #makeovermonday Wk 21 2020 | Tableau Public**) , and this leads me nicely into my 2<sup>nd</sup> point.

## HOW MUSIC ENTERED THE DIGITAL ERA

*Looking back at 40 years of sales in the American music industry*

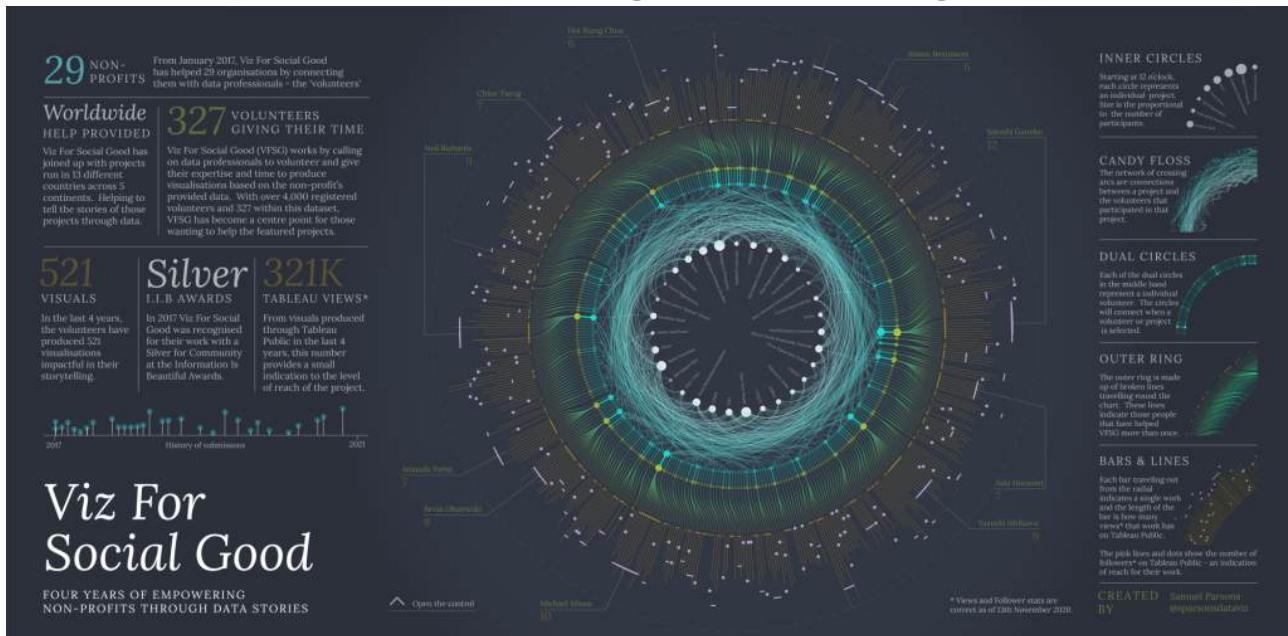


### Internally Focused

The nature of our supportive community is that we are actively encouraged to share our work on social media, seek feedback and support others with their work. This means inevitably that our work is tagged with 'likes', 'favourites', 'retweets' and comments. It can be highly addictive with the social media gains to be had from positive responses and new followers after a release of a viz. I've had many a

high when my Twitter explodes after a piece of work is well received. The key point is not to go searching for it. You may create a long-form viz in a minimalist black & grey style, using certain fonts and lots of white space and get a great reception of the viz. Naturally you would be tempted to repeat those different elements in your next viz and gain a similar response. Then you do it again, before you know it you are known for a particular style. I try to avoid that temptation, because for me, what do you learn from this? Very little. I'd much rather focus on mixing it up for my own learning than look to try and get a similar response from everything I do. For me, this has provided so much more learning and it broadens your skill set and as a visualisation designer I feel I'll be in a much better position to transition from one client to another taking and applying different branding styles. It just happens that this also lends itself to the Iron Viz competition very nicely. This avoidance of keeping to a design formula that works is probably a factor in why I don't have a high output on Tableau Public, because each viz I'm spending more time thinking about a new style or format, rather than the quick win of replicating a style that works.

CJ: I would say up until early 2021, your profile shared a lot of visualisations focused on more unique, abstract or radial style of visualisations. What was the thought behind making content like this?

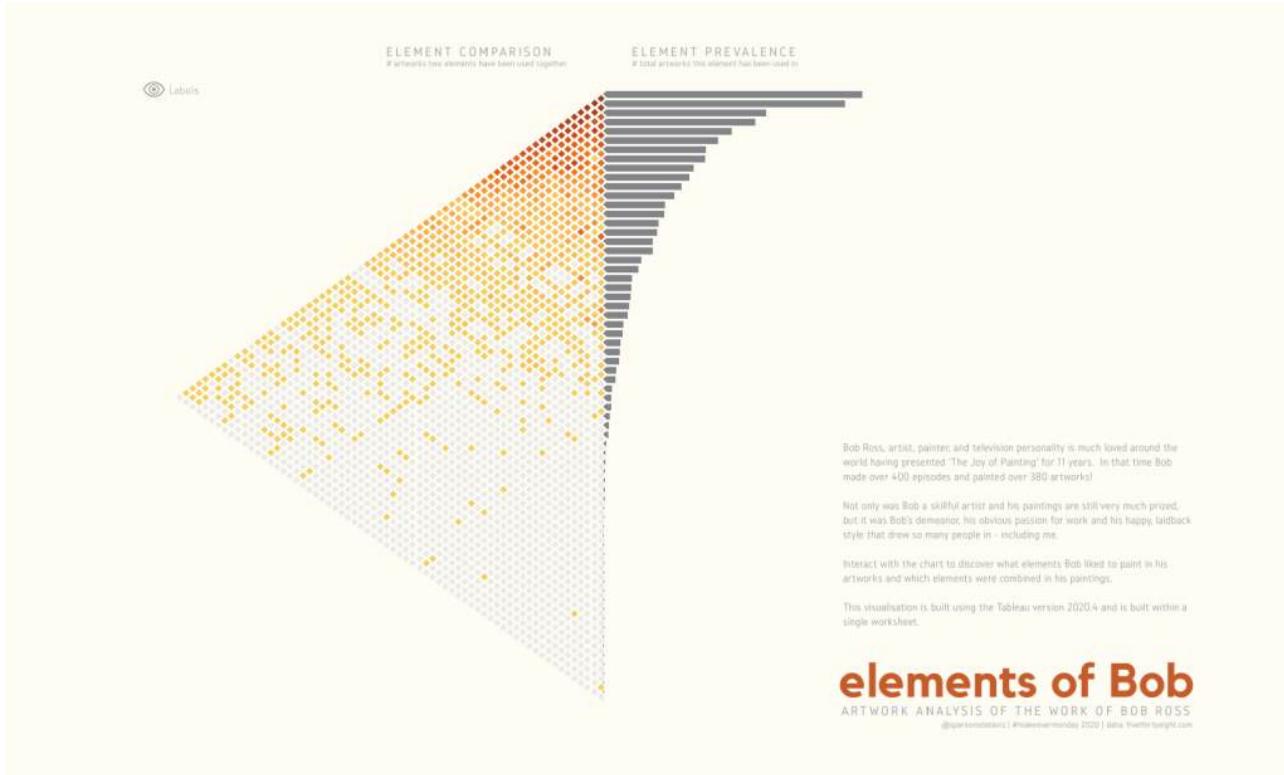


Sam: Very similar to my last point about experimentation and doing it for yourself. Early on I used my Tableau Public to accelerate my own

knowledge of the tool. I did this by trying new chart types (Jump Plots, Radial Charts, Stream Graphs), but I would achieve this by following a blog post rather than connecting to a ready made template & workbook.

I would force myself to try to understand what was happening in the chart build and then I would just have fun with it. In some ways I used the Makeover Monday project for my own goals and I'd also experiment with the designs and formatting etc. From there I decided that I wanted to try out other things. I played with Mapbox an awful lot (although not many vizzes made it to my profile). I then tried to simplify designs but layer on little details – example: **Remote Working | Tableau Public** where I used a waffle chart as the only chart, but then added in a connecting line for each dimension. It's a simple design, but one I customised and learnt something from. From each of these experiments, I was understanding how to present data, what little elements help and what hinder the reading of the data. I have also since done a few makeovers of my own vizzes, because I know now I could make a better attempt at showing that data.

CJ: Something that I think you've briefly alluded to in your episode on Data plus Love was the notion of having a sort of 'show stopper' visual with smaller if any other supplementary charts round the side. Is this something that's happened out of coincidence or do you think it plays a larger part within the context of story telling? ([link](#))



Sam: I loved speaking with **Zach Bowders** on his podcast and yes we spoke about 'Show Stoppers'. It is something I feel in the Tableau Public space is really useful to have to draw people into looking at your work. In a competition viz it creates a wonderful focal point to the viz. When you spend 60+ hours on a viz, the last thing you want is no one to look at it and comment on it. It's good to receive feedback, good or bad, but to receive silence can be annoying – this is slightly different than my previous point about not chasing the social media wins. When you spend a long time on something you want feedback. Competition vizzes are less about experimentation and more about putting your knowledge into action – that's why feedback is key and welcomed. I know from my own experience that if I'm looking through vizzes on Tableau Public Discover page, I'll stop and open the vizzes with the interesting visuals, chart types and eye-catching elements. Equally I'll probably not open those that look 'standard'. Not every viz can have a 'show stopper', but sometimes if you can create something that shows off the data and people haven't come across its type many times before, it will really draw them in to spend time on your viz.

CJ: You slowly transitioned to building dashboards of different lengths, layouts, colours and use of fonts in early 2020, alongside gaining

qualifications in Adobe products. How did completing certifications like these help you gain a better understanding of styles, framing, colour and layout? Did it play a part in a more design focussed phase?



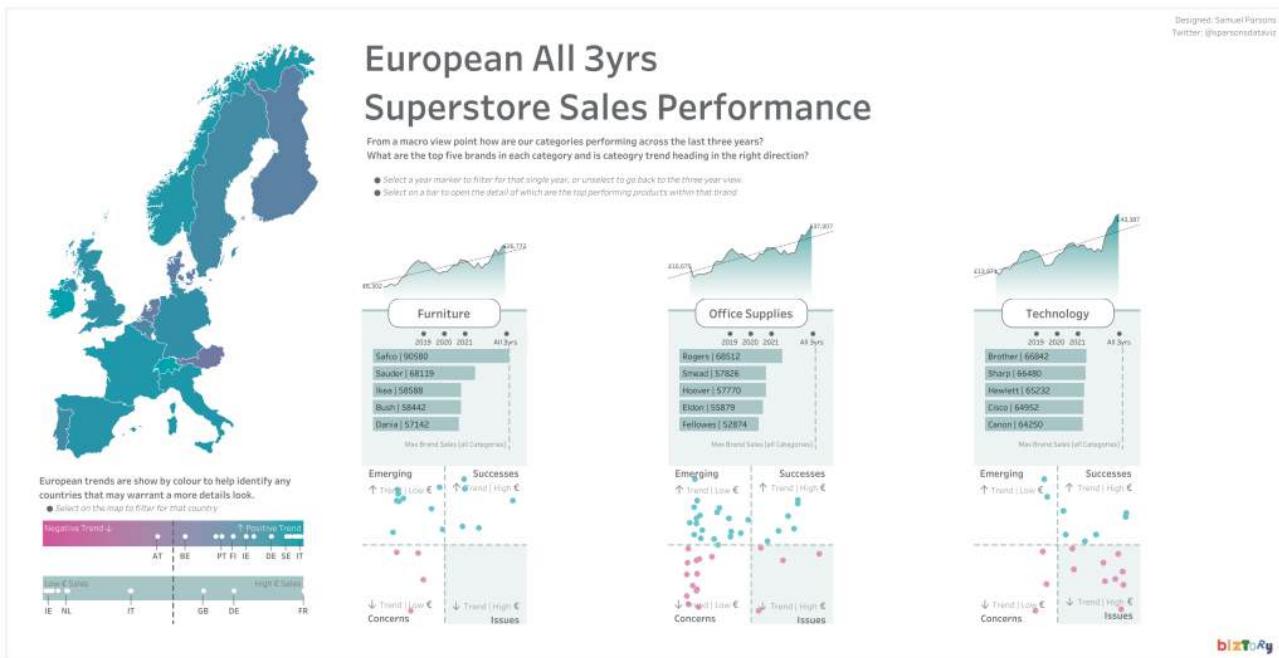
Some recent experimentation from Sam in Adobe

© Samuel Parsons  
**SAMUEL PARSONS**

Sam: 100% yes they did help in that aspect. Back in early 2020 saw an influx of new talent in the community that were supplementing their visualisation with the use of Adobe Illustrator and Figma (people such as **Judit Bekker, JR Copreros, Ghafar Shah and David Borczuk** and others). They brought a rich new feel to Tableau visualisations and in March 2020 I booked myself on a week-long course to learn Adobe Illustrator properly and become certified. The reason for that course was at the time in my visualisation role in Dyson we were creating Data Posters to put up internally and use at our Analytics Conference. I was stuck using PowerPoint for my design tool and quickly recognised the need to use something more attuned to the task. It was without a doubt one of the best things I have done. Taking inspiration from Judit and the others I was quickly able to use those new technical skills to wireframe my visualisation work outside of Tableau. I now had access to a package that I could alter the layout, dashboard styles quicker than I ever had before. This then led me to easily try different styles of data viz and make a more polished effort at them. Like anything though, I still

like to mix it up. Some vizzes will have a large Illustrator base and others none at all and will be 100% Tableau. Switching it around keeps it interesting for me and allows me to understand what is possible in both scenarios. For example, you wont really see me using Illustrator to create business dashboard backgrounds – because they are not scalable in a real business use case. They look great and give a nod to what should be possible within Tableau, but right now, Tableau isn't there yet with dealing with that level of design inside the tool.

The other element that Adobe Illustrator and After Effects (which I'm also certified in) provides from a learning perspective is the encouragement to think around a design issue with a 'designers mindset'. The Adobe Creative Cloud suite of apps are big on using Layers and there is a process you go through to understand how to properly use Layers to create the effects you are after. Transferring that into Tableau, you can create some fantastic visualisations by layer marks using Map Layers, or layering worksheets if you have a like for Floating objects. It is that mindset that allows you to think around a problem. For example, I recently published a Business Dashboard that I wanted to use gradient area charts (**European Superstore Sale Performance | Tableau Public**). I didn't want to densify my data (by adding rows to the data source) and potentially slow the workbook down. So I had to think about the issue. So I used a Background Image on the worksheet which made the gradient. Then I inverted an area chart to colour the area above the line white (to mask the gradient above the line). This worked, but then I found with filtering the data became sparse and I was left with the full gradient showing at either end of the area chart. So again I layered in some reference bands to cover those areas up in white – but only when certain criteria was met.



Branching out and broadening your skillset away from pure Tableau is something I highly encourage. Through my Illustrator training I became more aware of Typography and its component parts. I actively sought out LinkedIn Learning videos on the subject to learn even more about it. Typography is an art form in itself and choosing the write typeface can really help make or break a visualisation.

**CJ:** Besides perhaps certifications both Tableau, Adobe etc, what tips and tools helped you build out your current skill set? Is segmented attention and focus on specific types of learning, easier? Is limiting the number of learning sources (i.e tableau public / blogs / external sites / books) beneficial or constrictive?

**Sam:** I've always found stressing yourself a good way to build out your skill set. Taking yourself out of your comfort zone and experimenting. For example, when trying a new chart type, lets say for example – a Sunburst chart. You build the chart by following a blog post (don't connect to a Template). Then force yourself to understand the steps that were required to build the Sunburst. You'll more than likely find it fails the first time and that the author of the blog has left out the instructions on what to do with the Table Calculations – you then have to find and work those out to build the final chart. When you do that, don't necessarily stop there though! Give yourself a task, like "Turn the sunburst chart into a half circle" – that will mean you then need to find

that part of the calculations to instead wrap the chart round 360 degrees, but only 180 degrees. If you do that, you'll have made a bespoke visualisation. You could go further, maybe your half-circle sunburst is running from 12 o'clock to 6 o'clock, try rotating it by changing the maths, so it goes from 9 o'clock to 3 o'clock.

All of this is forcing yourself to understand more of the workings of Tableau and calculations and it's taking yourself out of your comfort zone from just following a blog post that has it all laid out for you. The more you do it, the more you gain and learn.

In terms of learning resources I have to confess I read very little. I don't have the attention span to read many visualisation books or read all the blog posts written by people I respect. I'm very much someone that will pick and choose, as if I was at a buffet! I'll search for a blog on a subject

I am particularly interested in at that time. Or I'll find the page of the visualisation book that I think will be helpful. I particularly learn from doing it myself being hands on – hence why I probably experiment so much on my profile. I do those experiments in buckets, one month I'll focus on business dashboards, another month on a new feature of Tableau. I do find for my own style of learning that helps. None of it is really planned though. I focus on whatever I feel inspired by at the time!

CJ: We then pivot again, with your work focussing a lot more on business dashboards. How did your collapsible container vizzes and multiple sales store vizzes help in your personal development technically? Did it change your thought process on how you approach analysis for work?

## Company Profitability v2



Sam: The focus on Business Dashboards was a conscious choice. I had previously put some thoughts down on chart design (**Finessing Bar Charts | Tableau Public** and **2020.4 Beautiful Business**

– **Pies & Doughnuts Edition | Tableau Public**) but I hadn't

tackled any business dashboards outside of my working life. So I set myself a task one day to create one that would include a fully collapsible filter panel (this was before tiled 'show and hide' came into the product),

I solved that problem in this viz: **Collapsible Control Pane | Superstore Insights v2 | Tableau Public** – but also in that viz

there was something new, that only a select few people noticed! I also ended up creating a single sheet that included a horizontal bar chart, a sparkline chart and a KPI value for each data dimension and was scrollable (vertically) – technically if you think about it, that should not be possible. It's these problem solving challenges that I love with Business Dashboards – it's being creative, but in a different way to the obvious.

Technically business dashboards are a great way to help your personal skill set development. These sorts of challenges force you to think around the problem technically. If you are then able to bring those solutions back into your everyday work easily then great, but even if the solutions are too complicated to deploy, you have still learnt something from the process.

Talking of collapsible containers (Show & Hide objects feature), we will really see these take off from a business perspective when they become

dynamic and controllable via parameters / parameter actions. I honestly cannot wait for that feature to land. We will see some really cool stuff from the Tableau community when it goes live.

CJ: More recently the past year or so I often sit and think... "Wow I couldn't make that!" I'm not saying this is the new phase.... But would you say a lot more of your content now explores ideas and concepts that are new, a stretch of the tools imagination, and things that haven't been done before?

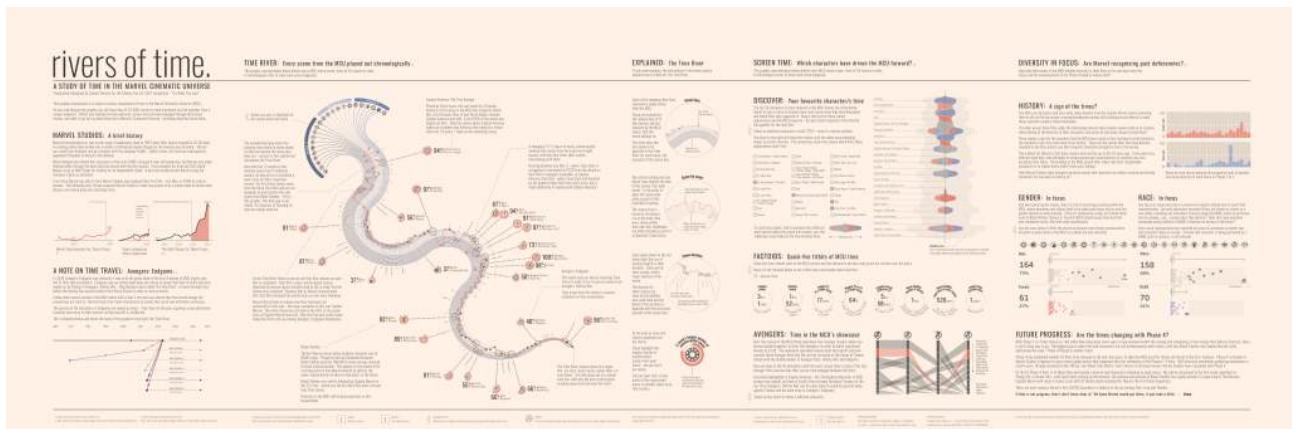
Sam: Thanks CJ – that's very kind of you to say! As you have gathered I enjoy pushing myself and playing with Tableau. I think as my technical skill set has increased both in Tableau and in other tools I have been keen to keep pushing myself to see what I can achieve. I am very much not a Maths person, I was never great at it, it really through my career has become a necessity to work with – Engineering, Finance, Business Analysis and now Tableau. What I have found is that I am quite brash with my approach, I look at other people's work and think, "if they can do it surely I can do it too?!" So, I try very hard and don't let myself be defeated before I start – not to be overawed at the task. The River of

Time viz (**Rivers of Time | Marvel Studios MCU | #Ironviz 2021 | Tableau Public** or the Viz for Social Good viz

**(#VizForSocialGood- Self Reflection 2017 to 2020 | Tableau Public)**) are both good examples of this. Technically, I had no idea how to do this when I started, but I forced myself to think around the problem logically. I took the lead from others such as Ludovic Tavernier (Weather Memories) and Luke Stanke (Circular Sankey) and tried to understand their approach and then adapt it to work for me. Logically I knew I could build the maths out a step at a time and that's what I did. Both of these vizzes were built in stages, when one stage was complete I looked to build on the next level of complexity. For the Rivers of Time it was altering a radial into a double length wave form, into a tilted wave that tapered at one end. For the VFSG, it was building a circular Sankey, then a radial bar at the next level, then the next level Sankey, then another bar, then dots and horizontal lines.

I really enjoy exploring where I can take my own skills and where I can take Tableau visualisations. I get a lot of pleasure from that. That said, I still enjoy making my business dashboards or working on a new feature or trying a different design choice!

CJ: A lot of individuals enjoy following tutorials of recreating charts. But, often this can be tough to do from scratch. Vizzes such as your Rivers of Time & Viz for social good will have required a lot of new learnings, alongside reverse engineering mathematical components from other vizzes. Do you have any tips for testing how curves work through data densification / bins? How about tips in general for reverse-engineering calculations?



Sam: I do tend to reverse engineer other peoples workbooks quite a lot and if I'm looking at a custom chart, I tend to track back from the fields placed on Rows and Columns first. Those tend to be the coordinate locations for the plot and so if the visual includes a radial element, then you can be sure it will end up in a trigonometry calculation at some point. What I like to do is intentionally break the calculations. By that I mean remove one part of the calculation and see how that impacts the visual. Sometimes I'll add a value to another part of the calculation and see what changes. Through experience I have noticed a lot of reverse engineering can end up with finding a calculation with a number of fields and then a random number included somewhere. Those random numbers are the most annoying parts, because they could legitimately be a good reason for being the value it is. Other times those random values that appear in the middle of a calculation can just be there because the creator wanted to adjust the final view to fit what they wanted. Trying to work out which one of the two they are is very

annoying and sometimes like finding a needle in a haystack. Quite often I don't always fully understand the reverse engineering part, but I understand enough as to how the creator was intending it to work. From there, if I wanted to do a similar view, I have a good basis to maybe approach my own work.

CJ: When would you say the biggest stretching phase, in terms of learning, has been within your Tableau Public work to date?

Sam: That's a really hard question to answer! My first year I was really exposing myself to a whole new world of visual analytics and trying to build and create content I was happy with. Learning concepts of LODs and Table Calculations was a stretch. I have never gone through the Desktop I, II and III official training. So initially I found it a stretch. In year two, I was finding my feet a little more and gaining real confidence over what I could create. But in the last year and a half I have really stretched myself technically. I have been pushing my technical side with some of my well known visualisations, but also behind the scenes I have been moving on my design understanding. I have also internally at work been working through a whole host of Workout Wednesday technical challenges. Those have really helped me understand Table Calculations even more than before. So, I'd say my most recent year has been the biggest stretch in my learning – but that's because I have pushed myself to try more difficult things.

CJ: Is there anything you'd like to share from a personal standpoint as we look to the future of 2022?

Sam: I have no grand plans for 2022 or any big announcements to tell. I'm just going to continue doing what I do and fit it around the family and daily life as best as I can. One area that I will be looking to improve is my coding ability. Currently I don't do any SQL, Python or else, and now I feel the time is right to start up-skilling in that area. I hope though that it will impact my ability to output more Tableau Public work.

Lastly, I really cannot wait for TC22. I am hoping to be there, my first US Conference and if anyone sees me, please stop and say hello! I would love to meet everyone!

CJ Round-up:

This blog is action packed with tips, thoughts and reflections that are so useful for development! The reason I don't put "TLDR's" on my blogs is because, well, blogs like these are art in themselves and deserve the time to read. I want to thank Sam for his authentic words, helpful advice and creative journey he took us on.

A few highlights for me included the personal branding element around experimentation and internal focus. This really resonated with me. I think it is such an admirable thing when someone wants to improve at something, every day becoming a better version of themselves – be it in technical grounding or other avenues of life. Sam rightly mentions not getting caught up in the social media echo chamber, which has paid dividend in some of the beautiful range of work he's produced.

The second highlight for me was watching the different ways of approaching a problem or creating an effect with different methods. I recommend anyone to go back and download the gradient line chart in his business dashboard. There are some treasures within it.

The final thing that sprang to mind was our similar pattern in reverse engineering workbooks and the pesky random numbers!

Looking forward to meeting Sam at the Tableau Conference in a few months. In the mean time, do connect with Sam on [Twitter](#) and [Tableau Public](#).

LOGGING OFF,  
CJ

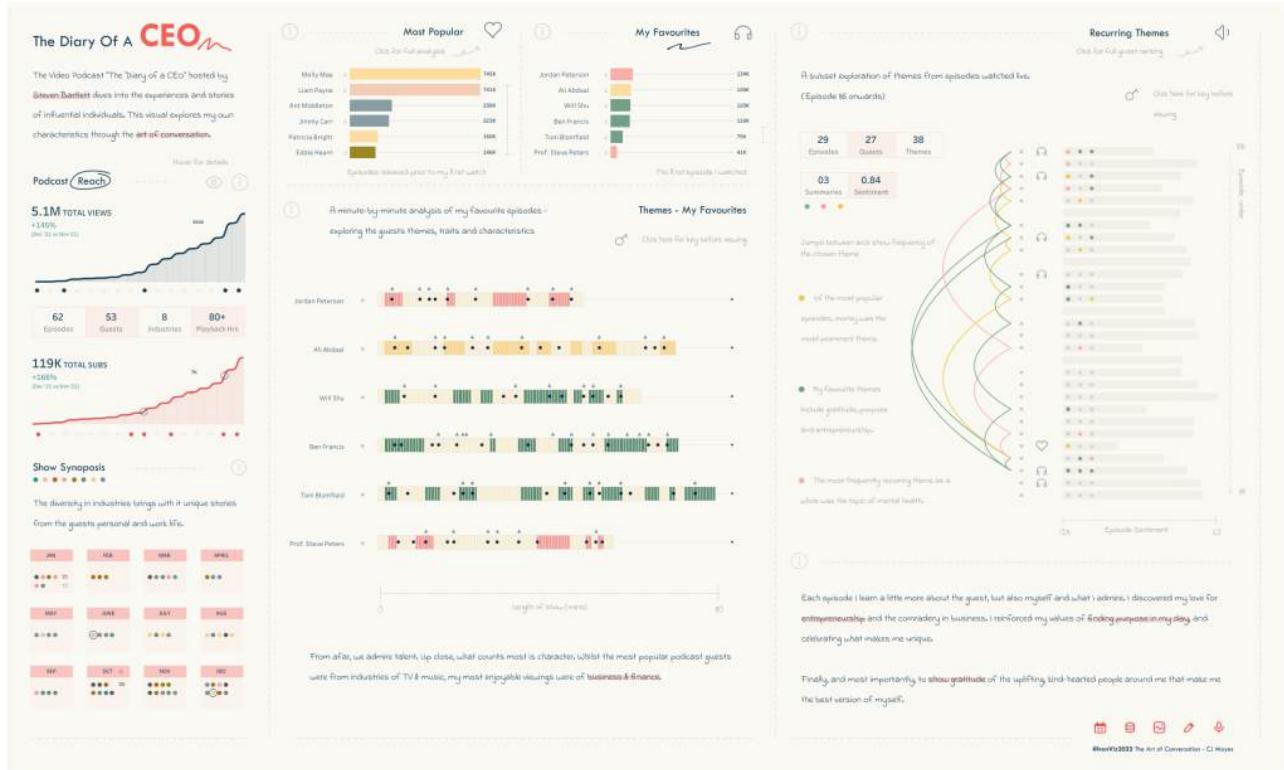
8 IRONVIZ FEEDER RESOURCES 2022

My 2nd time entering Iron Viz!

I'll keep it short and sweet for this blog, I do tend to ramble on a little.

What I hope to cover off are a few useful resources that directly or indirectly impacted my viz. I won't cover off anything in relation to the competition, the mark scheme, or any of that malarky, because well, it's not needed.

See, no rambling!



1.

#### DATA PREP – CODE

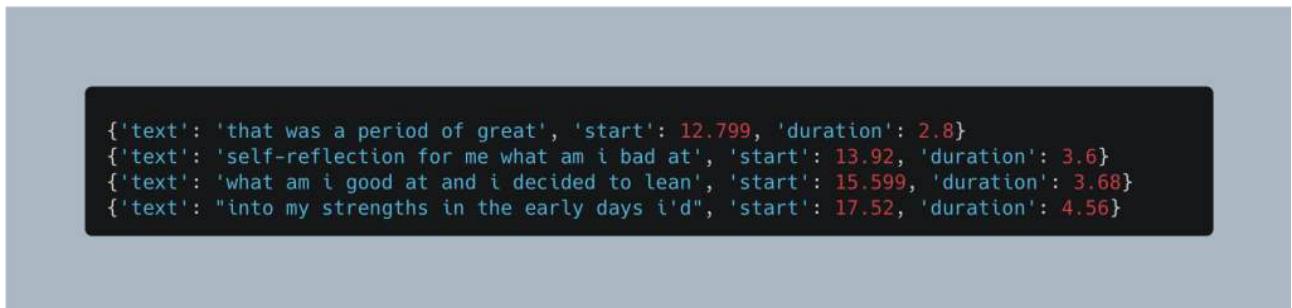
This year was a little different to last year. Last year, sure the data needed to be prepped in the right way but my viz mainly comprised of tennis stats that I had sitting waiting for me. This year required a lot of manual preparation! I needed to find some ways to cut this down. I've attached to my github a slice of code that will look to extract the Youtube Transcript. This made it a lot easier to find important quotes from each episode.

```
# importing modules
from youtube_transcript_api import YouTubeTranscriptApi

# using the srt variable with the list of dictionaries
# obtained by the .get_transcript() function
srt = YouTubeTranscriptApi.get_transcript("K8UgjzJTdHw")

# creating or overwriting a file "subtitles.txt" with
# the info inside the context manager
with open("subtitles.txt", "w") as f:
    # iterating through each element of list srt
    for i in srt:
        # writing each element of srt on a new line
        f.write("{}\n".format(i))
```

This is how the code formatted the transcript, each line with the voice note and timestamp. Here is the introductory snippet from the episode with Ben Francis.



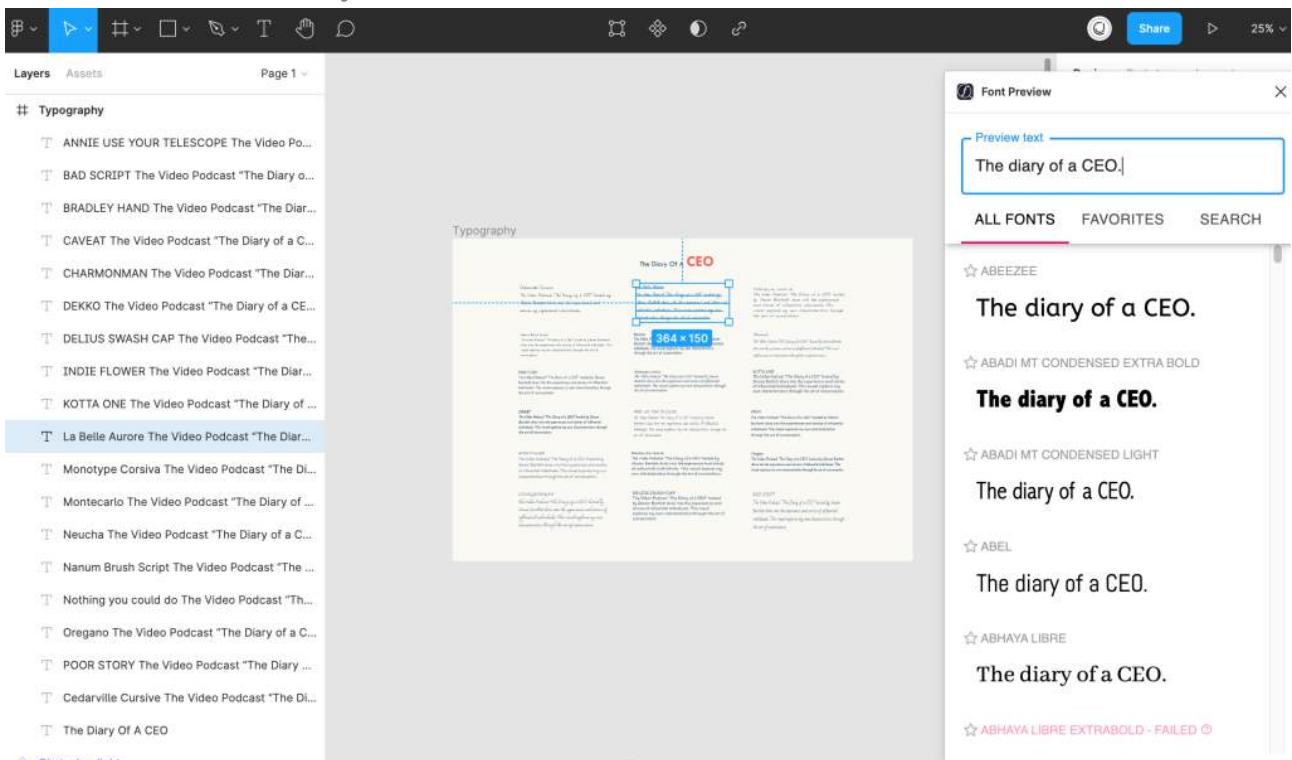
```
{'text': 'that was a period of great', 'start': 12.799, 'duration': 2.8}
{'text': 'self-reflection for me what am i bad at', 'start': 13.92, 'duration': 3.6}
{'text': 'what am i good at and i decided to lean', 'start': 15.599, 'duration': 3.68}
{'text': "into my strengths in the early days i'd", 'start': 17.52, 'duration': 4.56}
```

I imagine a lot of people this year found data prep more time consuming than previous years, but to use it to an advantage it really can make you understand it on a deeper level.

## 2. FIGMA FONTS

### Fonts Fonts Fonts

A handy trick I came across in Figma was a plug-in called “Font Preview”. You can download it [here](#). This was a saviour. The plugin allows you to scroll through all the different fonts on Figma. It quickly allows you too whittle it down to a few favourites.



I fell into the *too many cooks* trap asking a lot of people which font they preferred. Low and behold everyone picked different ones. Nightmare! Turns out Dekko came out on top in votes. I went with Indie Flower

anyway... gut feeling. Having created the wireframe it was fairly quick to swap fonts out and test what looked best.

	The Diary Of A CEO
CEDARVILLE CURIOSITY	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>
HUMAN TRUTH-SCRIPT	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>
POOR STORY	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>
CAVEAT	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>
WUDIE TUDIWER	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>
CHARMONIAN	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>
LA BELLE AUREOLE	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>
NOTHING YOU COULD DO	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>
MEMENTO	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>
KOTTA ONE	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>
DEKKO	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>
ORGANIC	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>
BAD SCRIPT	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>
DELUSIVE SWASH CAP	<i>The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.</i>

Adding a little spacing between lines helped too (see 35). I'm no typography pro, but felt this spacing really helped the viz breathe in the right way.



Above is the setting that was applied, you can see how this spacing really impacts the viz text layout.

## The Diary Of A **CEO**

The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.

Used (35)

The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.

Reduced (25)

The Video Podcast "The Diary of a CEO" hosted by Steven Bartlett dives into the experiences and stories of influential individuals. This visual explores my own characteristics through the art of conversation.

Very Reduced (15)

### 3. BLURRY OVERLAYS

Figma can be a little fuzzy at times. I use to be under the impression that if I was to export my Figma file as 4x and then apply the image with "Fit Image" and "Centre Image" then it would be the best resolution.

For background images, this is what I tend to do!

For overlays however it does come out blurry:

Viewers were receptive to Liam Payne, opening up about some of the darker moments in his career, when part of a band. Many commented on his sincerity, humbleness and authenticity. The comments had a sentiment score of 0.86

Viewers were less receptive to Molly Mae's episode. Many congratulated her for her business success, happiness and work ethic but felt disappointed with the episode due to lack of themes of gratitude and acknowledging privilege. The episode scored 0.66 in sentiment.

My recommendation would be not to use "Fit Image" for overlays.

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In fact, create the box shape in Tableau that your image will fit. In my case, this was a 847×222 image.

The important part is in Figma you will want to build it to the same size!

## Pop-Out Text

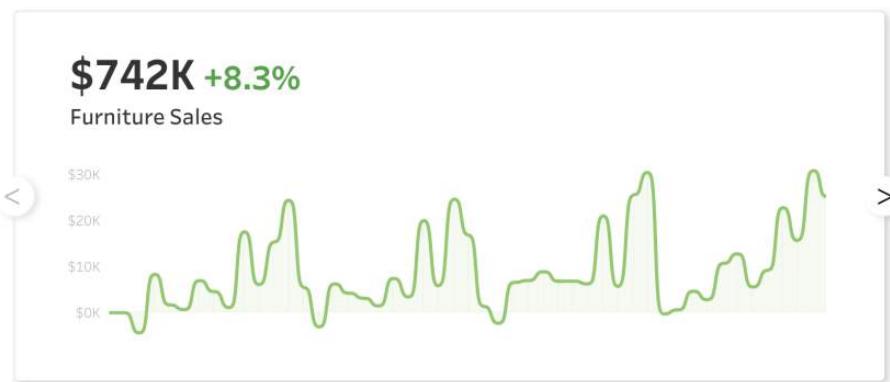
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## 4. LEVERAGE WORKBOOKS AND BLOGS

Where is **Zak Geis & Brian Moore** when you need them, ha! I went through every single one of Zak Geis' tableau tips and picked ones that I thought would be useful for my workbook to reverse engineer. I really liked **Zak's Design Card** used here. You will see I've pinched the aesthetic from it somewhat.

#TableauDesignTips - Cards



Designed by Zak Geis @ZaksViz

I actually used **Toan Hoang's blog** to recreate the line charts to smooth out the chart as felt this was a really easy blog to follow. There is something quite beautiful in being able to link different community members work and tap into different methods of creation.

Really, all of Zaks tips are pretty cool. My favourite, even though I didn't use it is, is this Table!

## #TableauDesignTips - Table UI

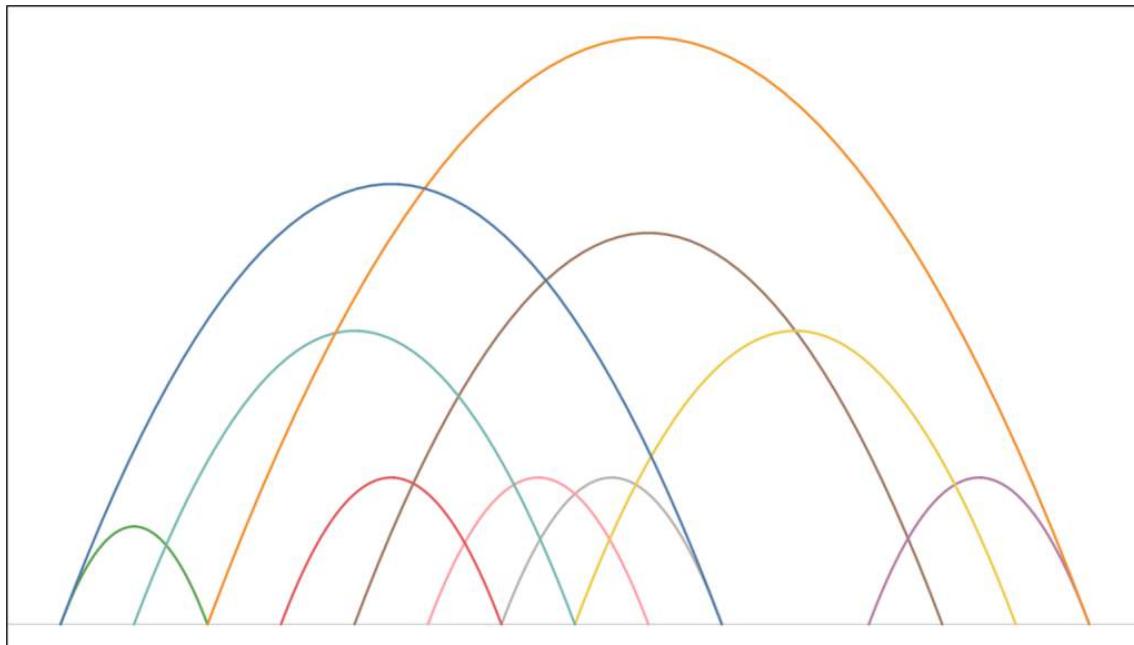
Sub-Category	Last Order	Sales	Profit ▼	Quantity	Customers	Returns
<input type="checkbox"/> Tables	25/12/2020	\$207.0K	(\$17.7K)	1,241	261	116
<input type="checkbox"/> Bookcases	30/12/2020	\$114.9K	(\$3.5K)	868	195	48
<input type="checkbox"/> Supplies	25/12/2020	\$46.7K	(\$1.2K)	647	160	69
<input type="checkbox"/> Machines	25/12/2020	\$189.2K	\$3.4K	440	99	55
<input type="checkbox"/> Art	29/12/2020	\$27.1K	\$6.5K	3,000	494	174
<input checked="" type="checkbox"/> Appliances	30/12/2020	\$107.5K	\$18.1K	1,729	356	177
<input type="checkbox"/> Storage	28/12/2020	\$223.8K	\$21.3K	3,158	514	216
<input checked="" type="checkbox"/> Chairs	29/12/2020	\$328.4K	\$26.6K	2,356	407	181
<input checked="" type="checkbox"/> Binders	30/12/2020	\$203.4K	\$30.2K	5,974	650	395
<input type="checkbox"/> Paper	29/12/2020	\$78.5K	\$34.1K	5,178	611	372
<input type="checkbox"/> Accessories	25/12/2020	\$167.4K	\$41.9K	2,976	474	185
<input type="checkbox"/> Phones	30/12/2020	\$330.0K	\$44.5K	3,289	511	271
<input type="checkbox"/> Copiers	24/12/2020	\$149.5K	\$55.6K	234	64	21

Designed by Zak Geis @ZaksViz

### Brian Moore

What a legend. He does some crazy stuff with curves. It didn't feel right not having a single curve in my viz. It felt bare without it. Having toyed with building a network diagram, it simply wasn't sitting right with me so chose to go down the arc diagram route.

Low and behold, the knight in shining armour. **Bezier curves!** I would recommend anyone to go give this tutorial a go, its really simple to follow and I actually built it with the original dataset first before applying it to my data. Thanks Brian.



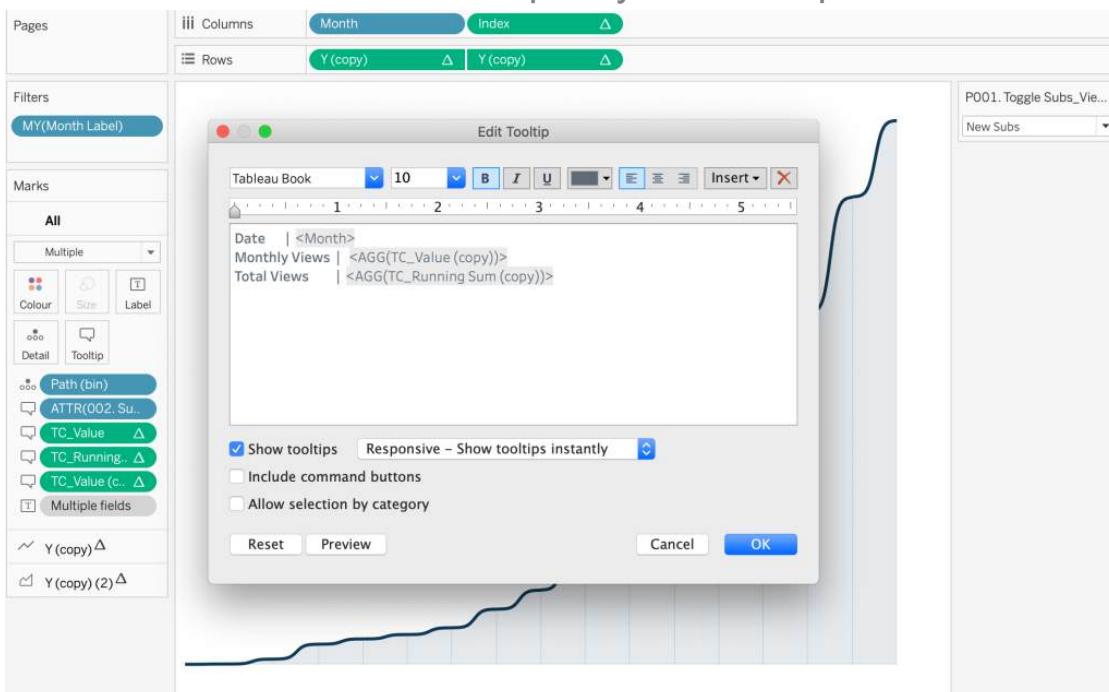
## 5. JLLDATAFAM

We've got some truly incredible talent here.

I had the pleasure of bumping heads with the likes of **Zach Bowders** and **Adam Green** around IronViz concepts.

Adam gave me a super useful suggestion on tooltips. He did this through breaking my viz when i posted it originally... awkward.

AG: "I wonder if you need to turn off the tick boxes in your tooltip setting to stop people filtering the dots. Blue line chart and red line chart dots both allow the keep only exclude option"



Example of clicking a chart when unticked tooltip response:



Vs when you leave command buttons and allow selection on:



Admittedly I need to go back and add this to a whole bunch of dashboards I've done.

Whilst you're here... If you'd like to hear more about all the great things going on here at JLL, do reach out.

## 6. WHO'S IN YOUR CORNER?

You don't need to necessarily hear too many opinions, just a select few who will take the time to give you honest feedback. For me, this years submission **Sarah Bartlett** really was a great support network. I am very appreciative of the time she gave me both for feedback as well as general support when about 3 weeks in I thought I might just scrap my viz. I'm grateful for her uplifting nature.

I had the delight of being both giving feedback and receiving feedback from the initiative Sarah set-up. Do feel free to read more on it [here](#), it was a major success. If i was to utilise the feedback sessions again, I'd recommend to myself using them early and going through multiple iterations.

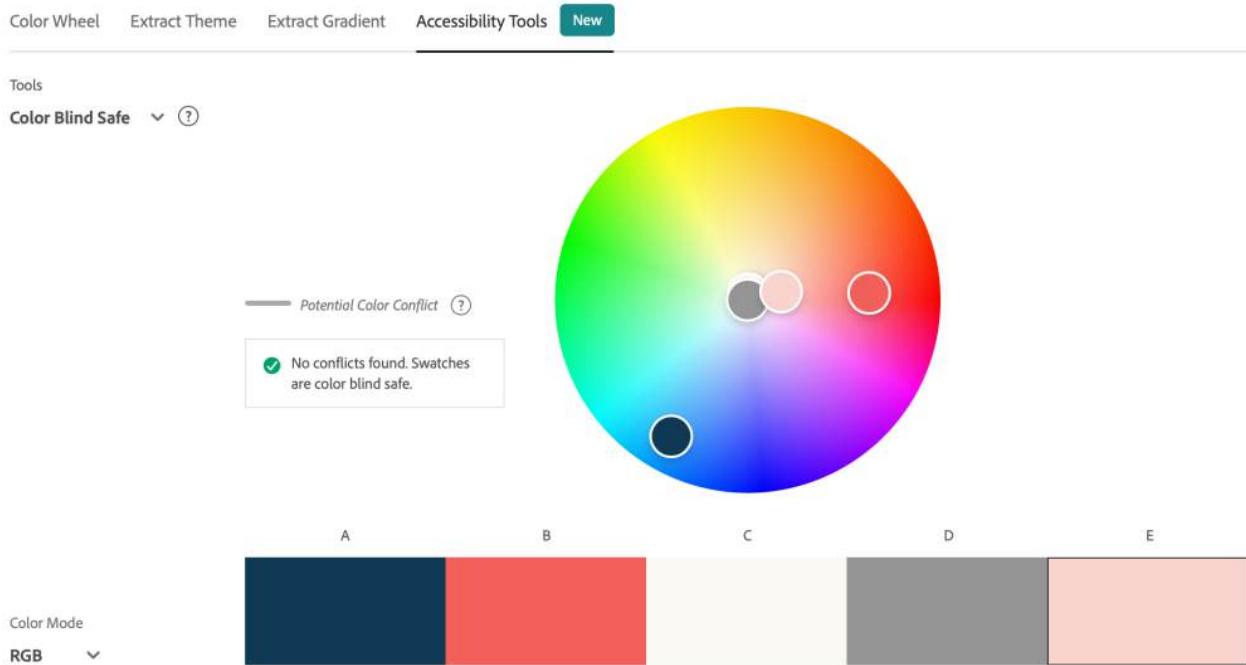
I ended up booking my own session towards the end, it was caveated with *please don't grill me too badly I only have two days left!*

Nonetheless both Sarah and **Emily Kund** gave some insightful commentary around accessibility, colour, sizing and pre-attentive attributes – which made all the difference for my final few days working on it.

## 7. ADOBE COLOUR

I played around with a colour tool on **Adobe**, where I also created my palette to try and make sure it was suitable for all eyesight's. You can put it through a colour blind simulator. The colours I aimed for was to

amplify the idea of a diary notebook (dark blue pen on cream paper) with complementary soft pastel colours.



My colour palette was a bit of mismatch of multiple palettes I had previously used. If you'd like to used some of the main colours they are as followed:



Although I didn't use them in this instance, I've heard good things about **Coolors** and **Dribble**.

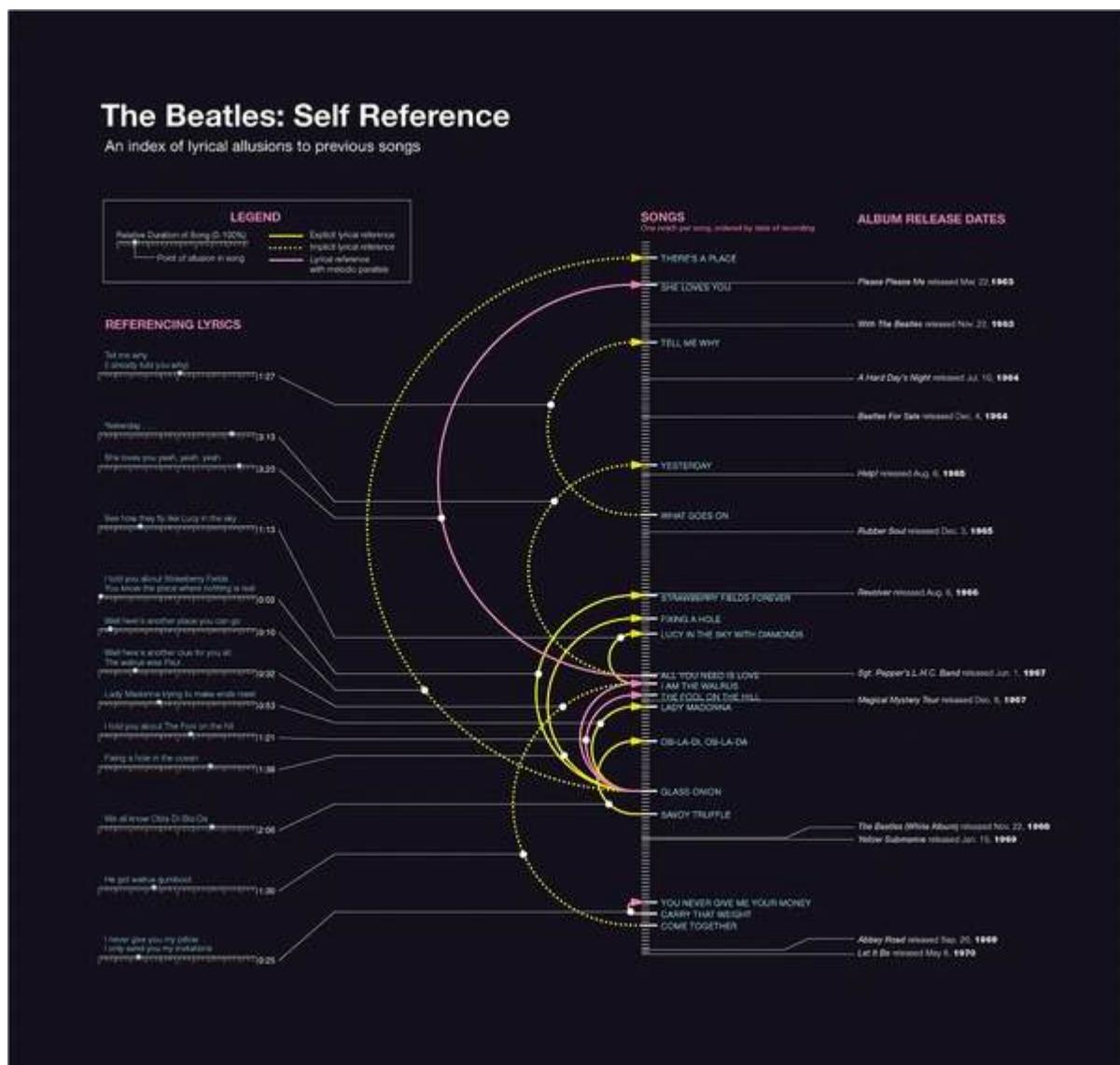
I'll have a follow up blog on colour coming out next month!

## 8. WIDER INSPIRATION

Nothing too new here, but when I figured out my network chart wasn't going to work I hit the drawing board again. Where else to go other than

**Pinterest and Behance.** I tend to use behance for overall graphic design ideas and pinterest for more chart inspiration, but that's just me. I particularly think **this beatles viz** was well designed so started exploring arc charts.

I quite like that the arcs have dotted lines, I think I will play around with that idea in Tableau soon. I've briefly covered the dashed line in full circles before in previous blogs, but this has acted as a reminder I could use it for arcs too.



That's it for the IV resources. Told you it was a short one!

### CJ Round-Up:

I just want to end on how amazing it's been to look through the 200 entries this year, I am constantly learning from the community and can't

wait to cheer 3 of you on stage in May.  
LOGGING OFF,  
CJ

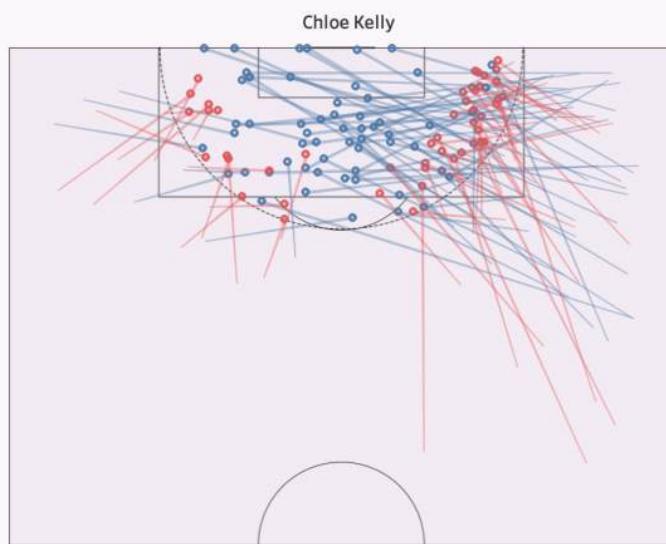
#### DEEP COMPLETIONS CHART IN TABLEAU (PT.2)

Hi all,

A really quick one today. You may have read last's months guest tutorial from **Yash** on how to create a deep completions chart in Python using StatsBomb data like the example seen below in python.

#### DEEP PROGRESSION TUTORIAL

A Completed Pass or **Carry** that ends in the highlighted zone | FA WSL 20-21 | Data: StatsBomb | Inspo: @Odriozolite



The python tutorial can be found at <https://cj-mayes.com/2022/01/05/deep-progression-chart-yash-t/>

You can check out the full tutorial [here](#), if you missed it previously. I would recommend familiarising yourself with that tutorial as this acts as complimentary to that, and uses the same base code.

Today we will take these learnings from the notebook and recreate the chart within Tableau. I've attached the data we will be using alongside an images in the repo found at the top of the page. I will also briefly cover off how I made a few quick transformations to the data to export the material we needed.

Quick recap!

## What is meant by deep completions?

Deep completions is defined as the completed passes or carries that end inside the semi-circle with the centre at the mid point of the goal and a diameter equal to the width of the penalty box while originating outside this region.

### Python

So the data we use is already in the repo, but if you want the full e2e, i've added my code snippet to be appended to Yash's previous work.

You can find the script in the Github Repo.

You will want to follow Yash's work up until ln14: #Plotting the pitch,  
where the pitch is created.

In short my further transformations were:

1. We apply the restrictions of what is considered a deep progression to our dataset.
2. We then only pick relevant columns of data that we want to take through to Tableau.
3. We rename a few columns to make them easier to understand.
4. We glue the carry and pass co-ordinates into a singular column.

```
# We glue the pass and carry co-ordinates into a single column
df2['End_X'] = df2.Pass_X.combine_first(df2.Carry_X)
df2['End_Y'] = df2.Pass_Y.combine_first(df2.Carry_Y)
```

With our data exported, found in the repo (deep\_progression.csv) is what it looks like.

here's a snippet of the important columns:

U	V	W	X	Y	Z	AA	AB	AC
Start_X	Start_Y	Pass_Y	Pass_X	Carry_Y	Carry_X	deepComple	End_X	End_Y
106.8	11.3			20.5	112.4	TRUE	112.4	20.5
109.1	20.9			23	112.6	TRUE	112.6	23
92.7	30			32.7	99.6	TRUE	99.6	32.7
98.2	63.9	47.2	100.4			TRUE	100.4	47.2
97.6	69.9	27.3	116.2			TRUE	116.2	27.3
116.6	66	41.9	105.3			TRUE	105.3	41.9
106	72.9	41.9	104.3			TRUE	104.3	41.9
103.1	3.6			20.6	114.5	TRUE	114.5	20.6
87.9	77.1	28.2	116.6			TRUE	116.6	28.2
101.4	8.1			23	113.3	TRUE	113.3	23
113.9	6.9	26.2	109.8			TRUE	109.8	26.2
101.1	23			32.6	101.3	TRUE	101.3	32.6
105.9	20.3			30.8	105.4	TRUE	105.4	30.8
111	3.1	22.2	108.1			TRUE	108.1	22.2
96.3	19.4			27.2	102.3	TRUE	102.3	27.2
117	70.4	43.4	114			TRUE	114	43.4
104.9	57.2	47.4	102.4			TRUE	102.4	47.4
92	70.4			58.4	108.8	TRUE	108.8	58.4
105	56	35.4	102.8			TRUE	102.8	35.4
98.7	54.3	42.6	109.1			TRUE	109.1	42.6
104	64.8	35.7	120			TRUE	120	35.7
111.7	63.7	39.5	113.4			TRUE	113.4	39.5
109.8	62.6			51.5	108.6	TRUE	108.6	51.5
112.6	8.5			22.6	107	TRUE	107	22.6
95.1	34	33.1	106.4			TRUE	106.4	33.1
111.4	67.5			59.8	117.4	TRUE	117.4	59.8
116.8	67.1	34.9	111			TRUE	111	34.9
100.2	64.7			56.7	112.4	TRUE	112.4	56.7
111.5	74.1	40.5	104.5			TRUE	104.5	40.5
106.6	62.2			59.8	115.9	TRUE	115.9	59.8
100.2	57.2			57.9	111.8	TRUE	111.8	57.9

Now into Tableau!

Load our dataset into Tableau.

We will need to union our data on itself.

Why? Because we want to create start and end points for our lines.

deep\_progression.csv is made of 2 tables. ⓘ

deep\_progression.csv+ ⌂

Next we need three calculations.

003.X

X

```
IF [Table Name] = "deep_progression.csv1"  
then [End X]  
ELSE null  
END
```



The calculation is valid.

2 Dependencies ▾

Apply

OK

002.Y

X

```
IF [Table Name] = "deep_progression.csv"  
then [Start Y]  
ELSE [End Y]  
END
```



The calculation is valid.

2 Dependencies ▾

Apply

OK

001.X

X

```
IF [Table Name] = "deep_progression.csv"  
then [Start X]  
ELSE [End X]  
END
```



The calculation is valid.

2 Dependencies ▾

Apply

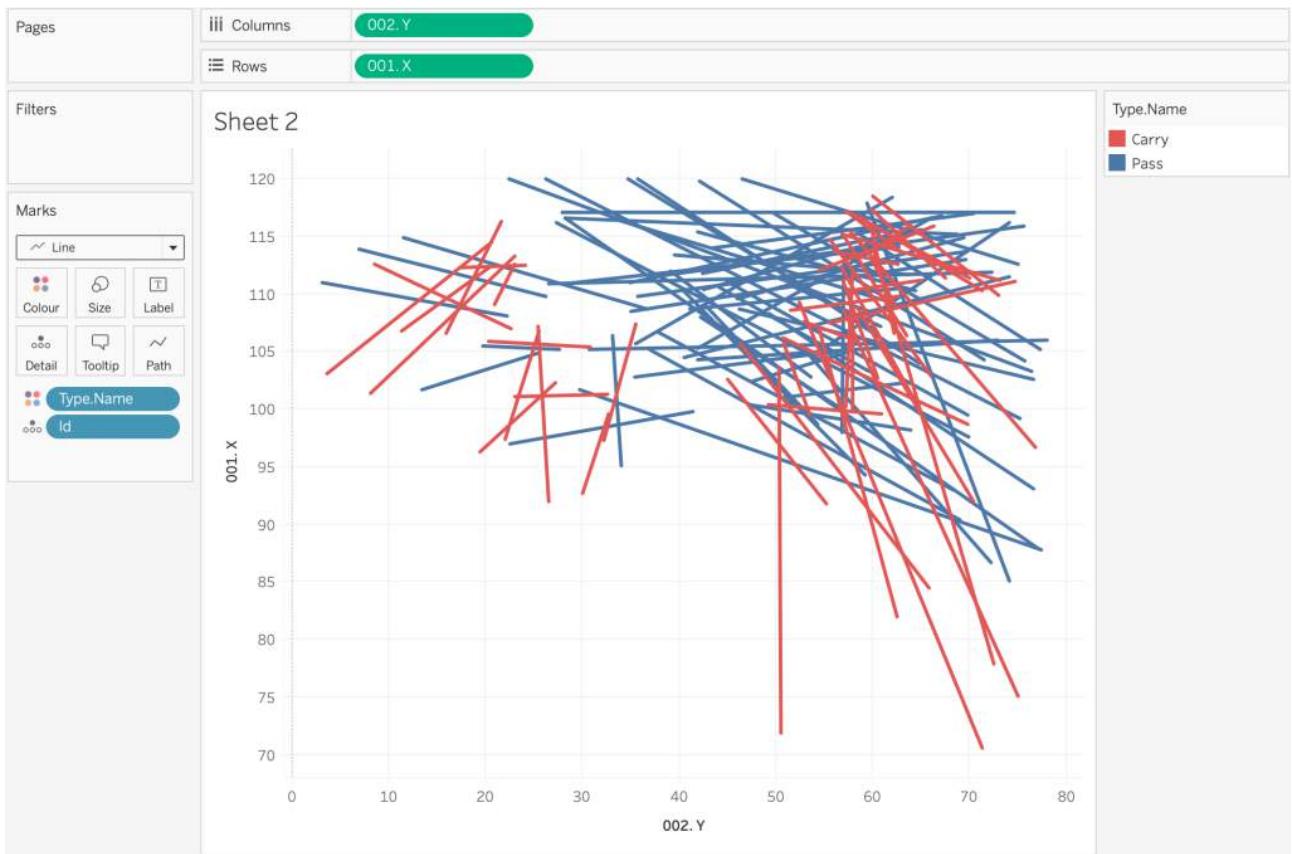
OK

We are saying for Calculation 1 & 2:

If the first table then use the start X (where the action started) else use  
our End X (where the pass or carry finished within the area)

Calculation 3 is a bit of a cheat method to mark the end of the line for  
aesthetics!

- The really important part to note here is, in our calculation we refer to the start point coming from the first dataset, and the end point from the second dataset "deep\_progression.csv" which was created in our union.
- Drag **001.X** onto rows and **002.Y** onto columns and make them dimensions.  
Drag **ID** onto detail
- Drag **Type.Name** onto colour



Next we will want to add some circles at the end of the carries.

Drag 003. X onto rows and make it a dimension.



Dual axis and synchronise the axis.

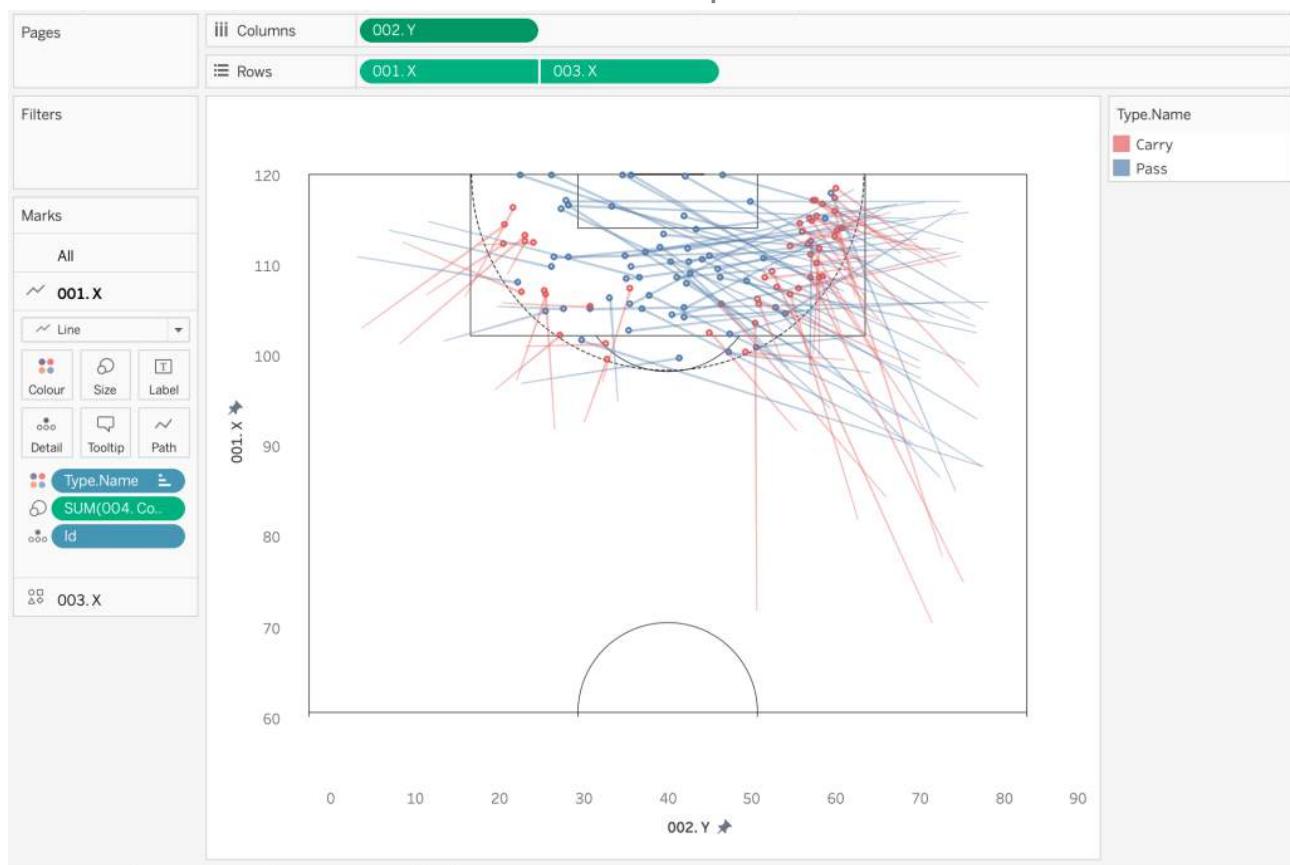
Remove measure names from colour.

Next we will want to add the background image which you can find in the repo.

Go to Map -> Background maps and add the picture of the pitch.

One small tip is to fix your axis.

You can use the co-ordinates similar to mine found in my workbook stored at the top of the blog If you get stuck please use this workbook as a reference point.



& There we have it, a simple method of taking our dataset and creating our deep progression chart in Python. It follows similar methods if you want to create passmaps too.

### GOING FURTHER

Try finding your own data using the statsbomb api or MPLSoccer python package

Try creating small multiples of the top 10 players that have created the most deep completions

Try using map layers to create the visualisation.

As always let me know how you got on with this one @\_CJMayes  
LOGGING OFF,

CJ

## WEB-SCRAPING WITH BEAUTIFULSOUP (PYTHON)

Hi all,

This blog has the aims of teaching the basics of python packages, inspecting html, as well as a few functions seen within the code. It will include a bunch of resources for those just starting out. In fact, those who followed me long enough on Twitter may have remembered a few of us from the Tableau community started #100DaysOfCode together.

This is the [updated course](#) by Angela if you fancy taking a look.

Python has been a grey area for me, one over the last year or so I've started to learn by doing, and one that I know will serve great purpose if I keep developing these skills. So this tutorial is aimed at beginners, vaguely like me. Those that have a basic understanding of python functions but wants to start with their own passion project.

### WHAT IS WEB SCRAPING?

Think of web scraping as scanning a site for information based on the pre-existing structure of the code that sits behind the website. Site's structures can vary, so web scraping is not the most efficient long term method of retrieving data. It's useful to try see if an API already exists. Due to copyright some websites will not allow web-scraping so be sure to check prior!

Warning: Always be mindful if the data you are trying to access is allowed by the website. One way of checking is looking at the robots.txt file. For example look at Facebooks website file [here](#). In any case I would be against individuals trying to scrape data to then use commercially, and I would look to only use data that is in the public domain. For example, where you don't need login credentials.

```
# Notice: Collection of data on Facebook through automated means is
# prohibited unless you have express written permission from Facebook
# and may only be conducted for the limited purpose contained in said
# permission.
# See: http://www.facebook.com/apps/site_scraping_tos_terms.php

User-agent: Applebot
Disallow: /ajax/
Disallow: /album.php
Disallow: /checkpoint/
Disallow: /contact_importer/
Disallow: /dialog/
Disallow: /fbml/ajax/dialog/
Disallow: /feeds/
Disallow: /file_download.php
Disallow: /job_application/
Disallow: /l.php
Disallow: /moments_app/
Disallow: /p.php
Disallow: /photo.php
Disallow: /photos.php
Disallow: /share.php
Disallow: /share/
Disallow: /sharer.php
Disallow: /sharer/
Disallow: /tr/
Disallow: /tr?
```

## SO WHERE TO START?

Step 1 is find a passion project. I used to love and play field hockey in my younger years. So where better to start than looking at the league table for the best division in England.

You can find the link, [here](#).

Men's Premier Division:

Name	Fixtures		Results					Table		
	Played	Won	Draw	Lost	For	Against	Difference	Points	Form	
Wimbledon M1	9	8	0	1	36	9	27	24	WWWWWW	
Surbiton M1	8	7	0	1	42	11	31	21	WWWWWL	
Old Georgians M1	8	7	0	1	34	5	29	21	WWLWWW	
Hampstead & Westminster M1	8	5	2	1	21	17	4	17	DDLWWW	
Holcombe M1	8	4	1	3	25	17	8	13	LDWWWW	
Oxted M1	8	3	1	4	15	27	-12	10	LWLDDL	
Brooklands Manchester University M1	7	1	3	3	14	29	-15	6	DDLDLL	
Durham University M1	8	2	0	6	7	30	-23	6	LLLWLL	
Beeston M1	8	1	2	5	15	26	-11	5	DWLLLL	
East Grinstead M1	8	1	1	6	13	30	-17	4	LELLLW	
University of Exeter M1	8	0	0	8	11	32	-21	0	LELLLL	

This is the table we want to scrape.  
Positive things to note about the data:

1. The headers and rows are organised structurally in a way that will be easy to interpret.
2. There are no gaps in the data.
3. The 'form' column (WWWWLW) is written as strings not images which helps with interpreting the result.

## WEB PAGES

I won't go into the finer details, but when you're clicking around on a site it sends an HTTP request to the server which retrieves a response message. This message is in HTML format which is then converted and

displayed on screen. What we will want to do is retrieve this response message and save it down. We then go through the response to find the information we need through our python code.

Fixtures			Results					Table		
Name	Played	Won	Draw	Lost	For	Against	Difference	Points	Form	
Wimbledon M1	Back			1	36	9	27	24	WWWWWW	
Surbiton M1	Forward			1	42	11	31	21	WWWWWL	
Old Georgians M1	Reload			1	34	5	29	21	WWLWWW	
Hampstead & Westminster M1	Save As...			1	21	17	4	17	DDLWWW	
Holcombe M1	Print...			3	25	17	8	13	LDWWWW	
Oxted M1	Cast...			4	15	27	-12	10	LWLDDL	
Brooklands Manchester University M1	Create QR code for this page			3	14	29	-15	6	DDLDL	
Durham University M1	Block element...			6	7	30	-23	6	LLWL	
Beeston M1	View Page Source			5	15	26	-11	5	DWLLLL	
East Grinstead M1	Inspect	8	1	1	6	13	-17	4	LLLLW	
University of Exeter M1		8	0	0	8	11	-21	0	LLLLL	

We will cover some of these concepts shortly. For now, right click on the table and click inspect.

Men's Premier Division:										
table#ehLeagueTable	705.61 x 544	Results			Table					
Name	Played	Won	Draw	Lost	For	Against	Difference	Points	Form	
Wimbledon M1	9	8	0	1	36	9	27	24	WWWWWW	
Surbiton M1	8	7	0	1	42	11	31	21	WWWWWL	
Old Georgians M1	8	7	0	1	34	5	29	21	WWLWWW	
Hampstead & Westminster M1	8	5	2	1	21	17	4	17	DDLWWW	
Holcombe M1	8	4	1	3	25	17	8	13	LDWWWW	
Oxted M1	8	3	1	4	15	27	-12	10	LWLDDL	
Brooklands Manchester									DWLLLL	

## WHAT IS A BEAUTIFUL SOUP?

“Beautiful Soup is a Python library that is used for web scraping purposes to pull the data out of HTML and XML files. It creates a parse tree from page source code that can be used to extract data in a hierarchical and more readable manner.” – **Quote from Analytics Mag.** Okay that kind of makes sense... right? We take the web page code, dig through the different levels and take the data from that, in which we need. For example – we will want to look within the overall table on the page, find the column headers of the table and then look within each row data and find each associated value. The beautiful soup package helps take the HTML code and gives functions that allows us to dig through it.

## HOW DO WE KNOW WHAT INFORMATION WE NEED?

HTML is broken into various sections. Try familiarise yourself with the inspected page. This hierarchy becomes increasingly important when we write the python code.

You will see a bunch of code pop up when we inspect the page. Try hovering over the different elements to see which part refers to which section of the website.

As a general overview you will see the Table within the HTML code here is listed as #ehLeagueTable.

Within the headers outlined under </thead> are the different column names we will want to refer to.

You will see within the above printscreens there are two closed arrows of <tr>.

These refer to closed trees, of each table row, or in this case rows of data, which would refer to Wimbledon and Surbitons results.

Within the body there are the various values associated to the column in order. For example following these two trees is:

```
<td>Old Georgians M1</td>
```

Fixtures		Results						Table		
Name	Played	Won	Draw	Lost	For	Against	Difference	Points	Form	
Wimbledon M1	9	8	0	1	36	9	27	24	WWWW	
Surbiton M1	8	7	0	1	46	34	12	21	WWWWL	
Old Georgians M1	8	7	0	1	34	5	29	21	WWWLWW	
Hampstead & Westminster M1	8	5	2	1	21	17	4	17	DDLDWW	
Holcombe M1	8	4	1	3	25	17	8	13	LDDWW	
Oxted M1	8	3	1	4	15	27	-12	10	LWLDDL	

```
<tr>
</tr>
<thead>
<tr>
<th>Name</th>
<th>Played</th>
<th>Won</th>
<th>Draw</th>
<th>Lost</th>
<th>For</th>
<th>Against</th>
<th>Difference</th>
<th>Points</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wimbledon M1</td>
<td>9</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>36</td>
<td>9</td>
<td>27</td>
<td>24</td>
<td>WWWW</td>
</tr>
<tr>
<td>Surbiton M1</td>
<td>8</td>
<td>7</td>
<td>0</td>
<td>1</td>
<td>46</td>
<td>34</td>
<td>12</td>
<td>21</td>
<td>WWWWL</td>
</tr>
<tr>
<td>Old Georgians M1</td>
<td>8</td>
<td>7</td>
<td>0</td>
<td>1</td>
<td>34</td>
<td>5</td>
<td>29</td>
<td>21</td>
<td>WWWLWW</td>
</tr>
<tr>
<td>Hampstead & Westminster M1</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>21</td>
<td>17</td>
<td>4</td>
<td>17</td>
<td>DDLDWW</td>
</tr>
<tr>
<td>Holcombe M1</td>
<td>8</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>25</td>
<td>17</td>
<td>8</td>
<td>13</td>
<td>LDDWW</td>
</tr>
<tr>
<td>Oxted M1</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>15</td>
<td>27</td>
<td>-12</td>
<td>10</td>
<td>LWLDDL</td>
</tr>
</tbody>
</table>
```

If you expand the tree out to find the td value you can see that the '1' is associated to the one loss Old Georgians M1 have had.

In Summary:

Within each table tag, there are TR, TH and TD tags.

TR is the table row tags of the table rows.

TH is the table headings tags holding the headers, or the column names.

TD is the table data which holds some of the granular detail.

If you'd like to learn more about HTML, a great starting point is a coding tutorial website by W3Schools. I would recommend reading about HTML Tables [here](#).

## HOW DOES THE CODE WORK?

So, the fun bit. Feel free to download the code from my repository at the top of the page.

The important things to note with beautiful soup is that you need the url of the page. You then send a request to that page and parse it through html. The data is in the text content of response, which is req.text, and is the HTML. We can use the html.parser from BeautifulSoup to parse it, saving us a lot of time when web scraping in Python.

We then save that parsed request down as the table body.

Within the table body we search for the specific drop down of the table.

If we want to extract a single tag, we can instead use the find\_all method, which will find all the instances of a tag on a page.

You can use the find method, which will return a single beautifulSoup object.

```

from bs4 import BeautifulSoup
import requests
import pandas as pd

url = 'https://gms.englandhockey.co.uk/fixtures-and-results/competitions.php?comp=4100605'
req = requests.get(url)

soup = BeautifulSoup(req.text, "html.parser")
table_body = soup.find(id="ehLeagueTable")

df_rows = []

rows = table_body.find_all('tr')
for row in rows:
    row_all = row.find_all('td')
    row_clean = [x.text.strip() for x in row_all]
    if len(row_clean) == 0:
        print('the list is empty')
    else:
        df_rows.append(row_clean)

header = table_body.find_all('tr')
header_clean = [x.text.strip() for x in header[0]]
print(header_clean)

df = pd.DataFrame.from_records(df_rows, columns=header_clean)
print(df)

df.to_csv('Table.csv', index=False)

```

We use a dataframe to take each of the components in the element for each row of data and save it to our table.

We then export this information into a csv.

	A	B	C	D	E	F	G	H	I	J
1	Name	Played	Won	Draw	Lost	For	Against	Difference	Points	Form
2	Wimbledon M1	9	8	0	1	36	9	27	24	WWWWWW
3	Surbiton M1	8	7	0	1	42	11	31	21	WWWWWL
4	Old Georgians M1	8	7	0	1	34	5	29	21	WWLWW
5	Hampstead & Westminster M1	8	5	2	1	21	17	4	17	DDLWW
6	Holcombe M1	8	4	1	3	25	17	8	13	LDWWW
7	Oxted M1	8	3	1	4	15	27	-12	10	LWLDL
8	Brooklands Manchester University M1	7	1	3	3	14	29	-15	6	DDLDL
9	Durham University M1	8	2	0	6	7	30	-23	6	LLLWL
10	Beeston M1	8	1	2	5	15	26	-11	5	DWLLL
11	East Grinstead M1	8	1	1	6	13	30	-17	4	LLLLW
12	University of Exeter M1	8	0	0	8	11	32	-21	0	LLLLL

## WHAT SHOULD I BE AWARE OF?

It can be fairly difficult to navigate through the different hierarchy of trees. As a beginner, I found printing everything as I go and watching the errors was the best way for me to learn. I hope this somewhat rings true with others. You will find Priyanka does a wonderful explanation of the tags and attributes in a recent [HerData guest blog](#).

Depending on your table structure you may have to lean on your python experience a little more. Check out this previous guest collaboration with Anmol where we looked to [create a football event timeline](#).

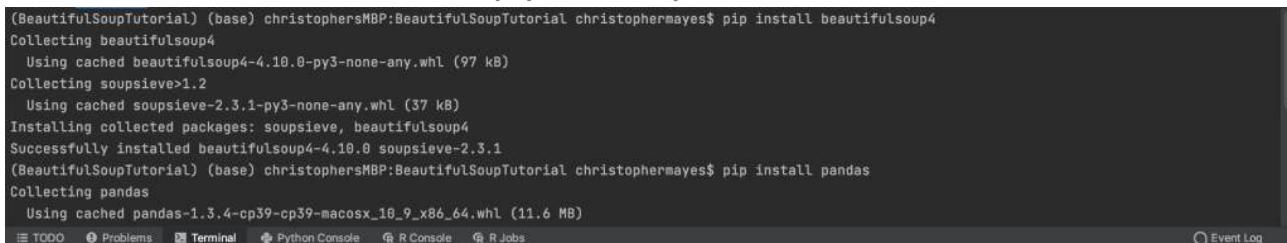
## WHAT IF I WANT TO RUN THE CODE MYSELF?

As another reminder, the code can be downloaded from the repo at the top of the page.

I tend to run my code in Pycharm but understand others may have their own preference. If you're fairly new to python, fear not. The code should run when you open a new project, however you will have to install in the terminal the packages used:

```
pip install beautifulsoup4
```

```
pip install pandas
```



```
(BeautifulSoupTutorial) (base) christophersMBP:BeautifulSoupTutorial christophermayes$ pip install beautifulsoup4
Collecting beautifulsoup4
  Using cached beautifulsoup4-4.10.0-py3-none-any.whl (97 kB)
Collecting soupsieve>1.2
  Using cached soupsieve-2.3.1-py3-none-any.whl (37 kB)
Installing collected packages: soupsieve, beautifulsoup4
Successfully installed beautifulsoup4-4.10.0 soupsieve-2.3.1
(BeautifulSoupTutorial) (base) christophersMBP:BeautifulSoupTutorial christophermayes$ pip install pandas
Collecting pandas
  Using cached pandas-1.3.4-cp39-cp39-macosx_10_9_x86_64.whl (11.6 MB)

```

## TIPS FOR BEGINNERS

- 1.
- 2.

**Google Google Google.** It is your best friend. In most cases someone will have done similar.

**Use prettify.**

```
Print(soup.prettify())
```

This command will help print the HTML in the console in a readable format, which you can then navigate through.

3. **Don't be disheartened if your code is creating errors.** If in doubt. Print it out. I still write my code fairly sequentially compared to the correct way of building functions and classes that are referenced. Everyone is on their own journey. Don't be afraid to break stuff!

## RESOURCES

I found the following sites useful as a starting basis:

[Web scraping and parsing with Beautiful Soup 4 Introduction](#)

[A Simple Introduction to Web Scraping with Beautiful Soup](#)

[Beautiful Soup documentation](#)

[Priyanka – Her data](#)

[GOING FURTHER](#)

- Try web-scraping a different table such as the [womens league](#).
- Try scraping a table from a different sport.
- Try saving the file in a different format.
- Try building the table within Tableau.

**LOGGING OFF,**

**CJ**

Hi All,

I hope everyone has settled into the new year well? January seems to have been to a bit of organised chaos really, but the year has started strong and February looks to be even more fun.

Season 2 Blog 2 is here, and wow I'm excited for this one! This month's topic is on data accessibility. Data accessibility is a topic I have a vested interest in continuously learning more about, one that I can recognise in myself isn't as good as it should be.

With that in mind, I am delighted to have Tableau Ambassador **Emily Kund** join for this month to talk all things accessibility. I find Emily such an inspiring leader. You only have to follow her on social media to see the way she focuses on making informed decisions in a meaningful and accessible way. Only recently I found out Emily was behind the Tableau Fringe Festival celebrating data in the community through events. You can check out more [here](#).

*If you aren't already, please follow Emily on her socials. She can be found on Twitter, Tableau, and her blog site.*

CJ: Emily, thank you for joining! I'd love to hear a little more about your data journey so far? What is your primary focus whilst working at Red Hat?

E: Thanks CJ! I'm super excited to be here! I'll try to hit the highlights here, but I've been working for like a billion years, sooo....

My journey started as a bank examiner using bank performance reports to see what was happening at banks and then using that data to inform my questions and conversations with bankers. From there, I was a business system administrator for a data retrieval tool (that's where I learned that a space is a character!). Then I had the opportunity to lead a Reporting and Analytics team, which is where I really was able to start championing Tableau as a solution where it made sense. I wanted Tableau dashboards to be in the hands of the examiners we had spread

across the country so they could turn insights into actions or have them ask the next best question. Two years after going to conference (2013), I started falling in love with data visualization. After my time in the public sector, I trained junior consultants and corporate on Tableau and data visualization. And now, I get to do all the stuff I wish I could have been paid for. I blog, I create training, and I get to help people create dashboards that facilitate data-informed decision making. Recently, I've been working a lot on our e-learning program we're putting in place called Viz City (I am BEYOND excited for it!!)

CJ: In your past you've tended to do a lot of work in the realm of instructor courses, volunteering, training and being an advocate of others. It brings with it a real sense of community. Would you say giving back and helping others is something you're hugely passionate about?

E: Yes!! Service is a big core value of mine. My dad was in the Lions Club when I was young, so I was always helping him with organizing paperwork (which wasn't fun), but the one moment where I saw impact was when I went with my dad to visit the Leader Dog School for the Blind. At 15 years old, I got to see how the money raised by the Lions supported this school. That evidence of giving back has stuck with me.

CJ: At TC21 you hosted a session on inclusive design, focusing on transforming dashboards promoting engagement and accessibility.

Thank you for sharing your personal and family story around data accessibility. You discuss your definition of accessibility vs Microsofts and the desire to design for as many people as possible. What do you consider the core fundamentals / the must haves in data visualisation design?

*"This data accessibility journey isn't just for others. It's for me too."*

# Inclusive Design: Making Dashboards Engaging, Informative, & Accessible

Emily Kund

Tableau Enablement Consultant

RedHat

#data21

YOU CAN ACCESS THIS SLIDE DECK AT: [BIT.LY/tc21inclusive](https://bit.ly/tc21inclusive)

E: Oooh, this is a great question! I think you start with **WCAG standards** for accessibility and then by truly knowing your audience, you make adjustments from there. I think there are some things that are a given, chief among them, contrast.

- Make sure everything in your visualization has a sufficient contrast ratio (WCAG provides specific guidance on this).
- Blank space (also called white space) is your friend.
- Use a legible typeface (be aware of mirroring and imposter letters).  
My favorite web-safe font is Verdana.
- Don't rely primarily on color.

There are a couple of other major points that WCAG talks about including keyboard navigation and being screen reader friendly (my words, not theirs).

Here's why this is a challenge and a tricky question. Let's say the perfect chart type for the data is a scatterplot that I can color encode (think clustering). On one hand, this is perfect because the audience can see the correlations in the data. But, the issue with a scatterplot is that the marks often overlap (which goes against the 'ensure sufficient blank space'). What's a dataviz developer to do? That's why I think knowing

your audience is so key. If I know my audience and I know they don't have an issue with a simple scatterplot, I'm more inclined to use it because my audience will comprehend the message the data is conveying pretty quickly and easily.

That's why I think this question is great. In my opinion, I think you have to start with accessibility and then adjust due to your audience (not you...unless you're developing a viz for yourself).

Sometimes you have to unlearn what you learned. For me, the aha moment was double-encoding. I learned early on that you don't need to double-encode. But for accessibility, double-encoding can actually be really helpful!

I feel like I've said too much for this question, but there's so much to learn and do!

CJ: Do you think companies should focus on building out a styling guide framework and design toolkit to be consistent with conventions and promote accessibility within it?

E: Yes!!! I think it's important to bake these guidelines in so that it

- 1) prioritizes accessibility from an organizational perspective and
- 2) helps people create more accessible data visualizations.

Having said that though, I think it's also important to train people on accessibility, so that the person understands why they're doing what they're doing. It's like the red/green color issue. On the surface, we know that red and green present a problem for a lot of people who have a color deficiency. However, there's a strong color association (at least in America) with red and green (bad/good, less/more). So if you think about one of the chief items a data visualization should have (contrast), then you could in fact use red and green, as long as there is sufficient contrast (I'm a fan of light green/dark red).

CJ: You share tips on building with awareness to sight, dexterity and comprehension. One thing I particularly liked was the thought process behind reducing the number of clicks to get to insight. Do you have any examples of how and where this is particularly done well?

## HOW SIGHT

- Ensure colors are distinguishable and have a high contrast
- Select a readable font
- Use space (aka white space)
- Use double-encoding (such as arrows and color)

## HOW DEXTERITY

- Make it accessible with a keyboard (and switch, if possible)
- Reduce the amount of clicks needed to get to the insights

# HOW COMPREHENSION

- If it works for the data, use a highlight color instead of a full color palette
- Focus on the most important metrics
- Create space...don't have a dense dashboard
- Focus on one story, one question...don't try to tell multiple stories or answer multiple questions in one dashboard
- Keep it simple and consistent

# HOW CONSIDERATIONS AND HOW TO SOLVE FOR THEM

Consideration	Ways to Solve
- Blindness (unable to see visual information)	Use of screen reader/voice over
Color-blindness (unable to reliably distinguish colors)	Use contrasting colors and/or double encoding (arrows/color)
- Limited vision (can see, but not well)	Select a readable font, contrast, use white space
- Deaf (cannot hear sounds reliably)	Visual display/don't rely on audio/captioning
- Low Dexterity (unable to use a pointing device and must use keyboard or switch)	Make it accessible with the keyboard
- Low Comprehension (having problems understanding content)	Annotation
- Low Reading (having problems reading text)	High contrast, font choice
- Epilepsy (may be subject to epileptic episodes like seizures)	Do not have more than 3 flashes in one second

E: Crikey! There's not one that comes to mind! And the reason why I struggle to give you a solid example is that it's so situational. In some of the public data vizes I see, it's an exploration of a story, and I'm engaged so it doesn't feel like there are unnecessary clicks. I know I sound like a broken record, but this is where knowing your audience definitely comes into play. And based on that, how quickly can I provide the necessary relevant information to get from point A to point B.

CJ: During your presentation you reflect on a previous data viz you made in terms of visual experience. There have been many

advancements in this area, with screen capture and eye-tracking software. Within the community we have seen a larger focus on wider design concepts especially in terms of user experience and readability. Have you seen any other examples of advancements in technology that have improved our knowledge of accessibility?

E: From where I sit, it's still a focus on the basics. We have \*got\* to get those right. Eye tracking or object-based interactions on a page is great for knowing how your users interact with a viz, but we still have to get the basics right. I will fully admit that I focus on the basics more than the tech because I strongly believe you need to be informed about the topic, then you can make short-cuts (or efficiencies with tech).

CJ: You share a number of resources in the slide deck for the session, covering things such as colour pickers. Are there any other resources you've come across since that you'd like to call out?

E: **Chartability!** I mentioned it in my presentation, but I've used it and the color picker that's mentioned in there for self-assessments/reviews of vizzes. Frank Elavsky has put a ton of work into it and it is such a good resource. In my opinion, everyone should take their visualizations through the POUR portion at least to see how accessible their data visualizations are.

## What is Chartability?

Chartability is a set of heuristics (testable questions) for ensuring that data visualizations, systems, and interfaces are accessible. Chartability is organized into principles with testable criteria and focused on creating an outcome that is an inclusive data experience for people with disabilities.

### What is Accessibility?

Accessibility (also sometimes abbreviated as *a11y*) is the practice of ensuring that as many people as possible can use, understand, and have access to a technology, infrastructure, tool, product, or service.

### What is Data Visualization?

Data Visualization (also sometimes abbreviated as *dataviz* or *datavis*) is presenting data in a structured, symbolic way. The structure and semantics go beyond the visual, however, so we prefer to call these **data experiences**.

With the massive rise in data-driven journalism, the ease and availability of charting and analytical solutions, and data's near-ubiquitous appearance in public life, more thorough and robust accessibility considerations are overdue.

CJ: Your presentation beautifully showcases ways as developers we can be more inclusive in terms of data accessibility and how we can apply it to the business setting. Do you have any tips on how we can improve accessibility through an organisation from a top-down approach too?

E: This is such a thoughtful question. I think it starts with how inclusive the culture is to begin with. One of the things I like about working at Red Hat is that they have communities built around inclusivity and accessibility. Having management support for this work is key! I am SUPER pumped for the Accessibility Day of Learning that's coming up at work!! That recognition that we all have value and that our differences provide perspective permeates through the company. So now, making our work more accessible has buy-in from management. I am a big believer in culture starts at the top.

As for a tip, 'squeeze the balloon at both ends' approach. Meaning, I'd try to effect change at the management level with an accessibility analysis (the costs/benefits including legal) to show why we should consider accessibility in our work. Then, I'd also look for the people interested in doing the work and go from there. As I'm writing this, I almost take for granted something that I've been doing for awhile, but isn't always available in organizations. And that is to share resources or blog about it internally. Give people resources they can use (this requires that management has set up the infrastructure to share this information).

CJ: Is there anyone in the data viz community that focuses particularly well on designing accessible dashboards? What do you particularly like about them?

E: This is actually a hard question because there are so many variables to it. I think accessibility is an emerging area of focus and in some cases you can't just look at viz and say, "Oh yeah, that's accessible" (because for one, you'd have to test it with a screen reader). Also, I'm not scouring Twitter or Tableau Public for accessible vizzes. Wouldn't it be great if we used the #accessibleviz when we want to show off a viz that we've made that we believe is accessible? Having said all that, the most accessible dashboards are those that are clean, simple, and have contrast.

CJ: I often see you use the hashtag #a11y on social media. What does this term mean to you?

E: To me, it means that I advocate for accessibility. I may not get it right, but I try. And I'm interested in learning more so others can have a similar experience as me, because why is \*my\* experience more important than someone else's?

## INTRO

### MY ACCESSIBILITY JOURNEY

- ▶ System administrator for 508 compliant custom built reporting system
- ▶ Believed red and green should never be used
- ▶ Shifted beliefs around color which led me to learn more about other aspects of formatting and how to make more accessible visualizations
- ▶ Advocacy lead for dataviz a11y group



CJ: Is there anyone you would like to call out that is a particularly good #a11y and actively promotes accessibility?

E: Frank Elavsky, Chris DeMartini, Amanda Makulec, and Amy Cesal are the first folks that come to mind. All of them champion and provide resources for accessibility.

CJ: Within the community sometimes there are some artistically creative designs that may not conform to what individuals typically see in the remit of data visualisation, where the work tends to lean more towards abstract graphic illustration compared to traditional data visualisation. Do you think this has come at a trade off for accessibility, and how can we ensure visualisations accommodate both design abstraction, readability and storytelling?

E: My short answer is yes. On one hand, I would say that something has to give and it's a matter of what and how much. I think there are some things that can be done regardless though, like using high contrast or a

good font, and alt-texting images. When I think accessibility, I think simplicity. I also think that perhaps there's a bit of a mindset shift for some; simple can be beautiful. Additionally, knowing your audience will help with the readability. Sometimes I see visualizations and I think: I have no idea where to start or how I'm supposed to engage. That little bit of direction (through text in the visualization), can be helpful and help guide the data experience. I think it would be amazing for someone who loves the abstract to create a visualization and then take steps to make it more accessible and see how the final results comes out. That would be a fantastic challenge!!

CJ: With this in mind, could you share some tips to help companies improve their division on accessibility that go beyond data visualisation builds? I particularly like one you re-shared on LinkedIn around Zoom and live transcription. How does having a good company culture impact fears of stigma around invisible disabilities?

E: Company culture is EVERYTHING! I felt supported and psychologically safe to make a public post about my depression and Fibromyalgia. It's about having employee resource/network/working groups for diversity of people, including invisible illnesses. I think there are examples of cases where there was a cost of not having a product be accessible (**Domino's** is one example). I think there are simple things which also correspond to data visualization tips:

- Don't use Arial in your Google docs. I know it's the default typeface. Verdana is a good alternative.
- Slide decks need to have a good color contrast and space to breathe. Don't give people a novel on your slides.
- Provide your slide deck to your audience. This allows audience members to zoom, read, and/or comprehend on their own, instead of relying on the presenter.

Close caption your videos, not just during Zoom meetings. If you're posting up tutorials, order a transcription. We have a service we use at Red Hat, but YouTube has this ability. You can even order transcripts at low cost from **Scribie**.

There are so many aspects to creating inclusive products, so this doesn't cover everything but it will definitely help take the first few steps towards an inclusive culture.

CJ: You host the vizzes each year during the Tableau conference to celebrate some memorable achievements of the Tableau community. Can you tell us how and why the vizzes originate? Are there any specific award topics that are special to you?



E: The Vizzies started because we wanted to celebrate the members of the community who were not Tableau Zen Masters because there were

(and are) a lot of people doing a lot of great work. I'll never forget gathering in a hallway and shouting out the awards! People who didn't follow us on Twitter or listen to the podcast thought we were crazy. It's crazy to me to see how we've grown and that we've been a part of the conference schedule and on a live (and virtual) stage. And I love seeing this little thing we started, which now people put on their social media profiles; it's amazing! I think the award that is most special to me is the

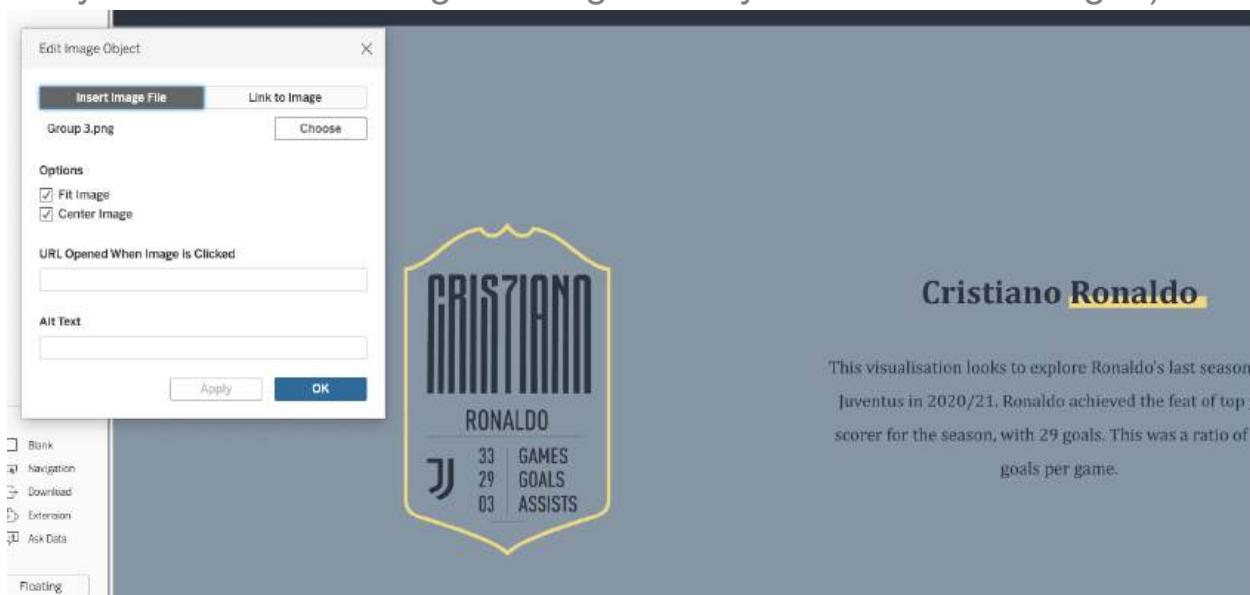
Michael W. Cristiani Community Leadership Award. A lot of people didn't know Michael, who passed away in 2018, but they have definitely felt the ripple of his impact. Michael was a quiet leader who always looked to connect and support people. I'll never forget going through some really rough times and Michael sending me messages of support.

When Michael passed, **Matt (Francis)** and I felt compelled to rename the award after him because this is our way of keeping new community members aware of Mike's impact.

CJ: As part of wanting to improve I have a bit of a strange question! If I was to ask you to pick one of my dashboards on my profile and asked for feedback in terms of some key components around building for sight, comprehension and dexterity what would you consider amending?

*CJ Note: Please note I've specifically asked Emily for this feedback and wouldn't advise doing this in the wider community without the permission of the person first as it may not come across as intended.*

E: I chose to look at your Cristiano Ronaldo viz. First, I love the design of it, it's so clean!! I'll just write a few observations on the areas where you could make it more accessible. One of the biggest issues is that the background image does not have alt-text. Considering that you are conveying information in the background, there should be text that repeats the text you've included in the image. Since that might get a little tricky with such a large background image, I'd explore having a few images for each section that you'd want the reader to read (in this case, your color blocks might be a great way to section the images).



The typeface for Cristiano in the shield is hard to read, but that's something that I think isn't a showstopper (because we know the viz is about Cristiano Ronaldo and we can read the word Ronaldo).

The Shot Map is a bit problematic for two reasons; 1) you're relying solely on color to convey information. Screen readers can't read color. I totally get why you used this scatterplot map because it's meant to look like part of the field with soccer balls/footballs. Double encoding would be my first piece of advice to make it more accessible, but at the end of the day, it may depend on your audience (if they aren't using a screen reader, then what you have looks pretty good). The second issue is that the marks are overlapping. This is just an issue with this type of graph.

WCAG guidelines recommends 1px white space (aka blank space) between data elements).

Another major issue I found is the data window. And this is most likely problematic for many infographic/highly stylized data visualizations or data art. This is what a screen reader would read.

#### **View Data**

Summary																						
Y	Base	X	Axle	Color	HA Goal	event	Minute	Minute Since Last Goal	Player	X	Base	ATTR(Date1)	ATTR(Minute Since Last Goal)	ATTR(Opponent)	COLLECT(MP, Area)	COLLECT(MP, HA Goal)	COLLECT(MP, Opponent)	Latitude (generated)	Longitude (generated)	MAX(Opponent)	MAX(Score)	SUM(player size)
1	-2	0.0000	Null	1	Null	Null	-2	9:28/2020 6:45:00 PM	12	Null	Point	Null	Null	0.133333	0.000000	Null	Null	Null	Null	Null		
1	-2	1.0000	Null	1	Null	Null	-2	9:28/2020 6:45:00 PM	0	Null	Point	Null	Null	0.000000	1.000000	Null	Null	Null	Null	Null		
1	-2	0.0000	Null	2	Null	Null	-2	9:28/2020 6:45:00 PM	65	Null	Point	Null	Null	0.722222	0.000000	Null	Null	Null	Null	Null		
1	-2	1.0000	Null	2	Null	Null	-2	9:28/2020 6:45:00 PM	0	Null	Point	Null	Null	0.000000	1.000000	Null	Null	Null	Null	Null		
1	-2	0.0000	Null	3	Null	Null	-2	9:28/2020 6:45:00 PM	10	Null	Point	Null	Null	0.111111	0.000000	Null	Null	Null	Null	Null		
1	-2	1.0000	Null	3	Null	Null	-2	9:28/2020 6:45:00 PM	0	Null	Point	Null	Null	0.000000	1.000000	Null	Null	Null	Null	Null		
1	3	Null	Null	Null	Null	Null	0	Null	Null	Null	Point	Null	Null	Null	Null	Null	Null	Null	Null	Null		
1	2	0.0000	Null	4	Null	Null	1	9:27/2020 6:45:00 PM	30	Null	Point	Null	Null	0.333333	0.000000	Null	Null	Null	Null	Null		
1	1	1.0000	Null	4	Null	Null	1	9:27/2020 6:45:00 PM	0	Null	Point	Null	Null	0.000000	1.000000	Null	Null	Null	Null	Null		
1	1	0.0000	Null	5	Null	Null	1	9:27/2020 6:45:00 PM	0	Null	Point	Null	Null	0.000000	0.000000	Null	Null	Null	Null	Null		
1	1	1.0000	Null	5	Null	Null	1	9:27/2020 6:45:00 PM	-43	Null	Point	Null	Null	0.47778	1.000000	Null	Null	Null	Null	Null		
1	1	0.0000	Null	6	Null	Null	1	9:27/2020 6:45:00 PM	15	Null	Point	Null	Null	0.166667	0.000000	Null	Null	Null	Null	Null		
1	1	1.0000	Null	6	Null	Null	1	9:27/2020 6:45:00 PM	0	Null	Point	Null	Null	0.000000	1.000000	Null	Null	Null	Null	Null		
1	1	0.0000	Null	7	Null	Null	1	9:27/2020 6:45:00 PM	0	Null	Point	Null	Null	0.000000	0.000000	Null	Null	Null	Null	Null		
1	1	1.0000	Null	7	Null	Null	1	9:27/2020 6:45:00 PM	-23	Null	Point	Null	Null	0.255556	1.000000	Null	Null	Null	Null	Null		
2	-2	0.0000	Null	8	Null	Null	1	9:27/2020 7:45:00 PM	15	Null	Point	Null	Null	0.166667	0.000000	Null	Null	Null	Null	Null		
2	-2	1.0000	Null	8	Null	Null	1	9:27/2020 7:45:00 PM	0	Null	Point	Null	Null	0.000000	1.000000	Null	Null	Null	Null	Null		
2	-2	0.0000	Null	9	Null	Null	1	9:27/2020 7:45:00 PM	0	Null	Point	Null	Null	0.000000	0.000000	Null	Null	Null	Null	Null		
2	-2	1.0000	Null	9	Null	Null	1	9:27/2020 7:45:00 PM	-23	Null	Point	Null	Null	0.255556	1.000000	Null	Null	Null	Null	Null		
2	-2	0.0000	Null	10	Null	Null	-2	18/25/2020 7:45:00 PM	0	Null	Point	Null	Null	0.000000	0.000000	Null	Null	Null	Null	Null		
2	-2	1.0000	Null	10	Null	Null	-2	18/25/2020 7:45:00 PM	59	Null	Point	Null	Null	0.655556	1.000000	Null	Null	Null	Null	Null		
2	-2	0.0000	Null	11	Null	Null	-2	18/25/2020 7:45:00 PM	76	Null	Point	Null	Null	0.844444	0.000000	Null	Null	Null	Null	Null		
2	-2	1.0000	Null	11	Null	Null	-2	18/25/2020 7:45:00 PM	0	Null	Point	Null	Null	0.000000	1.000000	Null	Null	Null	Null	Null		
2	-2	0.0000	Null	12	Null	Null	-2	18/25/2020 7:45:00 PM	13	Null	Point	Null	Null	0.133333	0.000000	Null	Null	Null	Null	Null		

All of those calcs to make the viz work will be read by a screen reader.

That doesn't seem like a good experience to me.

Finally, and this is another reason why alt-text is so important for this (type of) visualization. Because you have a novel/unconventional chart (the polygons), even though you've explained how to read it for sighted readers, the screen reader can't read it without alt-text, so it makes it even more challenging to read.

I didn't do a full review but those are the things that stand out to me.

CJ: Thanks for that. I am hoping in future visualisations you see a real change in how I build my experimental public work. I see from your site you have a vested interest in entrepreneurship as well as blogging and podcasting. What a plethora and range of skills. What's coming up in 2022 that you're particularly excited for?

E: From a dataviz perspective, I'm excited to learn more about human-computer interaction, UX, and accessibility. From a life perspective, I'm looking forward to walking in a New York Fashion Week event later this month, competing in a few pageants...such as the All American Pageant system), and hopefully getting into Quantic School of Business and Technology for my Executive MBA and hopefully passing the two courses I'm taking this year for my Micromasters in Analytics from Georgia Tech/EdX. I'm looking forward to earning my red belt in Tang Soo Do, and being happy and healthy.

CJ Round-up:

I really admire Emily not just for her knowledge and skill set but her ability to open up conversations on social media that used to either not happen or be shied away from, especially in respect to health, well-being, accessibility and invisible disabilities. It really pays testament to her honesty and openness, it is very refreshing to see.

I'd like to see the hashtag of #accessibleviz to come alive.

I recently had the pleasure of sharing feedback to some IronViz entrants, and really admired some of the thoughtful commentary Emily gave around accessible design tips. Major thanks goes to Sarah Bartlett for organising these sessions, the effort she put in behind the scenes made for what was quite the flawless structure covering all timezones.

Good luck with the micro masters Emily, and thanks for joining!

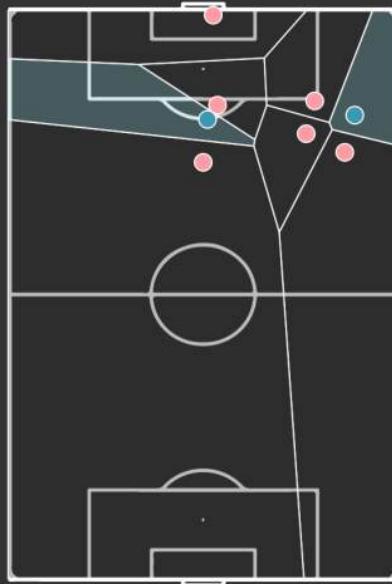
LOGGING OFF,

CJ

SOCER VORONOI IN TABLEAU

Hi all,

A quick tutorial today for soccer fans that want to shift their visualisations away from being built in python/R and build the output in Tableau!



We will be tackling the voronoi chart. Before we dive in here are some useful resources to help get started:

**Using Voronoi Diagrams in Football** – Ricardo Tavares – This is useful context on voronoi diagrams in regards to football theory.

**How to create Football Pitches/Goals as Backgrounds in Tableau** – James Smith – We will need some of the learnings from this to be able to ‘snap on’ our football pitch background!

**MPLSoccer Voronoi** – Andy Rowlinson – The original source code I used where you can follow the steps to get your own event data using the MPLSoccer package. We will be looking to recreate the voronoi shown here but within Tableau.

**Voronoi Diagram in Python** – Mckay Johns

What is a voronoi chart?

*“In mathematics, a Voronoi diagram is a partition of a plane into regions close to each of a given set of objects. In the simplest case, these objects are just finitely many points in the plane (called seeds, sites, or generators). For each seed there is a corresponding region, called a Voronoi cell, consisting of all points of the plane closer to that seed*

*than to any other. The Voronoi diagram of a set of points is dual to its Delaunay triangulation.” – Wikipedia.*

Yeah, I'm still not sure after reading that either. So, you have a bunch of points. Each point has a surrounding area that will be closer to that point than others. That is what creates the area of the Voronoi. The lines therefore are created where two points are equidistant. The corners (nodes) will be created where three or more points are equidistant.

Why are they useful for soccer / football?

The Voronoi diagram is useful as it can be used to take a freeze frame of a match for example at the time a shot is taken, to present the space around each player. The border will therefore reflect the mid-point between one player and another player around them. There have been some really cool video analysis of showing this during a game.

#### SOURCE THE DATA

The data I used can be found in my Git Repo at the top of the page. The code also can be found there. Please familiarise yourself with the code in a console before proceeding!

So firstly, if you want to follow the tutorial, lets see which parts of the python code are important.

```
In [25]: print(team1)
[[[ 96.40322581,  65.83870968],
  [120.        ,  74.6875   ],
  [120.        ,  80.        ],
  [ 91.5       ,  80.        ],
  [ 94.88888889,  66.44444444]],
 [[ 92.77272727,  50.59090909],
  [108.67073171,  26.74390244],
  [109.88636364,  0.        ],
  [ 97.        ,  0.        ],
  [ 91.40163934,  50.3852459 ]]]
```

So to find the different polygon (voronoi shapes) for each team we will want to print team1 and team2 out in the console. You will see that they are captured in arrays.

These are our x and y values that we will plot in Tableau. How does this translate into our excel document? We split each array out. Path is really important here, and it something we manually create based off of the order they are shown in the array. We must make sure that the coordinates are joined up in the correct order!

We follow these steps for team2.

A	B	C	D	E
Y	X	Path	Shape	Team
96.40322581	65.83870968		1	1 Team1
120	74.6875		2	1 Team1
120	80		3	1 Team1
91.5	80		4	1 Team1
94.88888889	66.44444444		5	1 Team1
92.77272727	50.59090909		1	2 Team1
108.6707317	26.74390244		2	2 Team1
109.8863636	0		3	2 Team1
97	0		4	2 Team1
91.40163934	50.3852459		5	2 Team1
108.6707317	26.74390244		1	3 Team2
109.8863636	0		2	3 Team2
120	0		3	3 Team2
120	61.07142857		4	3 Team2
110.0275591	52.52362205		5	3 Team2
96.40322581	65.83870968		1	4 Team2

So now we know each block/shape is made up of co-ordinates that are joined up in an order using a path. But then we must include an ID for each block/shape, because otherwise Tableau will not know that they are their own distinct shape and will try aggregating the values. This is why you will see a shape column. The final column I have added is Team which will be used within the calculations as well as for colour! We're now in a position where we could build the Voronoi visualisation.

However if we want to go one step further and include the player positions we need to add these co-ordinates to the dataset.

You will see these appended at the bottom of the dataset. These values come from the sample code again, but this time are the x and y values of the player positions, not the voronoi shape! Again, they are currently stored in an array.

```
In [27]: x
Out[27]: array([ 98., 119., 101., 97., 100., 88., 94., 90.])

In [28]: y
Out[28]: array([71., 42., 63., 41., 43., 40., 61., 69.])
```

Heres how the data will need to be prepped in excel.

Y	X	Path	Shape	Team
98	71			Player1
119	42			Player2
101	63			Player2
97	41			Player1
100	43			Player2
88	40			Player2
94	61			Player2
90	69			Player2

Each set of co-ordinates in this case represent a Player. In this case we have split them again by team using a 1 or 2 notation.

## CALCULATIONS

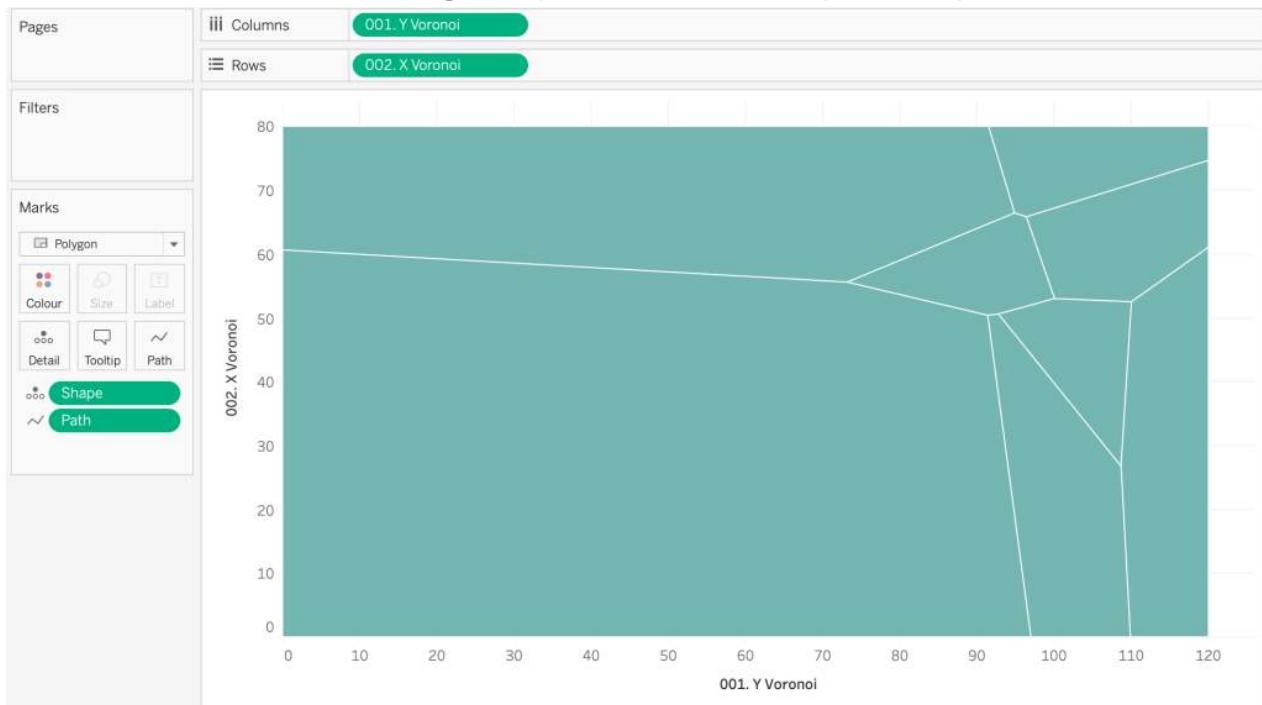
You can find a link to the viz that is downloadable using the links at the top of the page.

There are 5 calculations you will need. Here is an explanation of them.

001. Y Voronoi – We are just separating our voronoi Y points from our player dot Y points to be able to distinguish between the two.

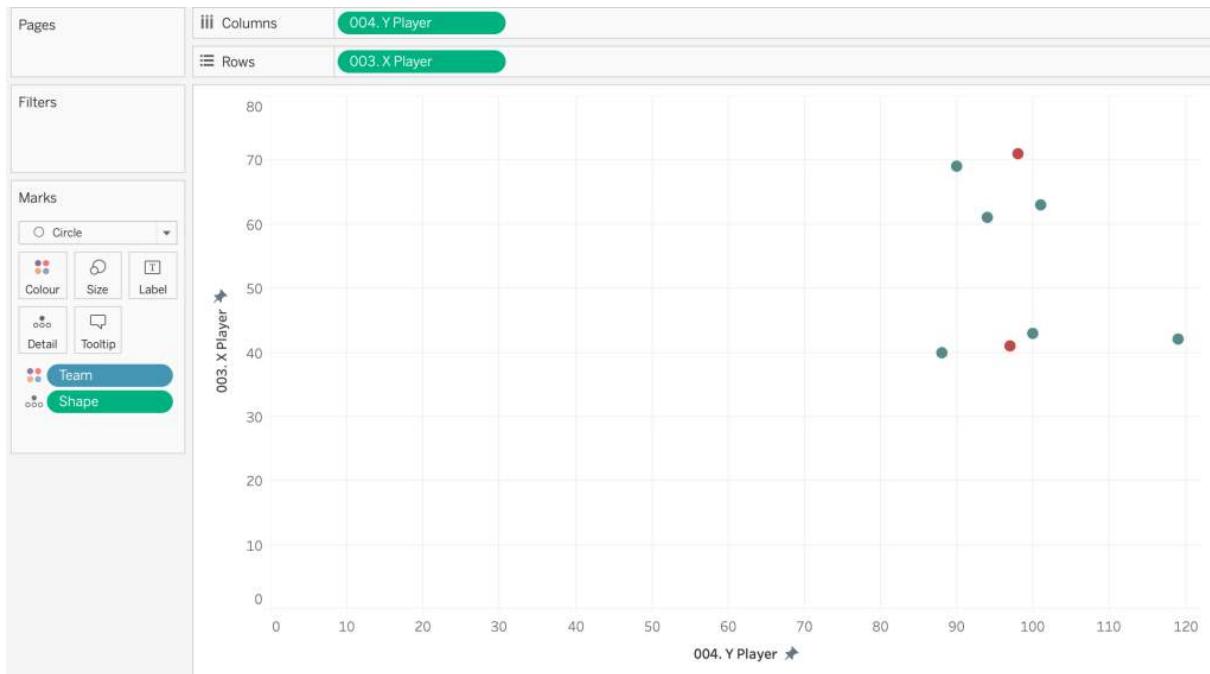
002. X Voronoi – Repeating the same process for our X points to only pick the ones that are going to be included in our voronoi chart.

We can check these calculations work by plotting them against each other, adding shape to detail and path to path.



003. X Player – Just like separating the Voronoi points out we must do the same for the player dots.

004. Y Player – Much the same as the co-ordinates for the x player but separating out the Y co-ordinate.  
Again, we can sense check this.

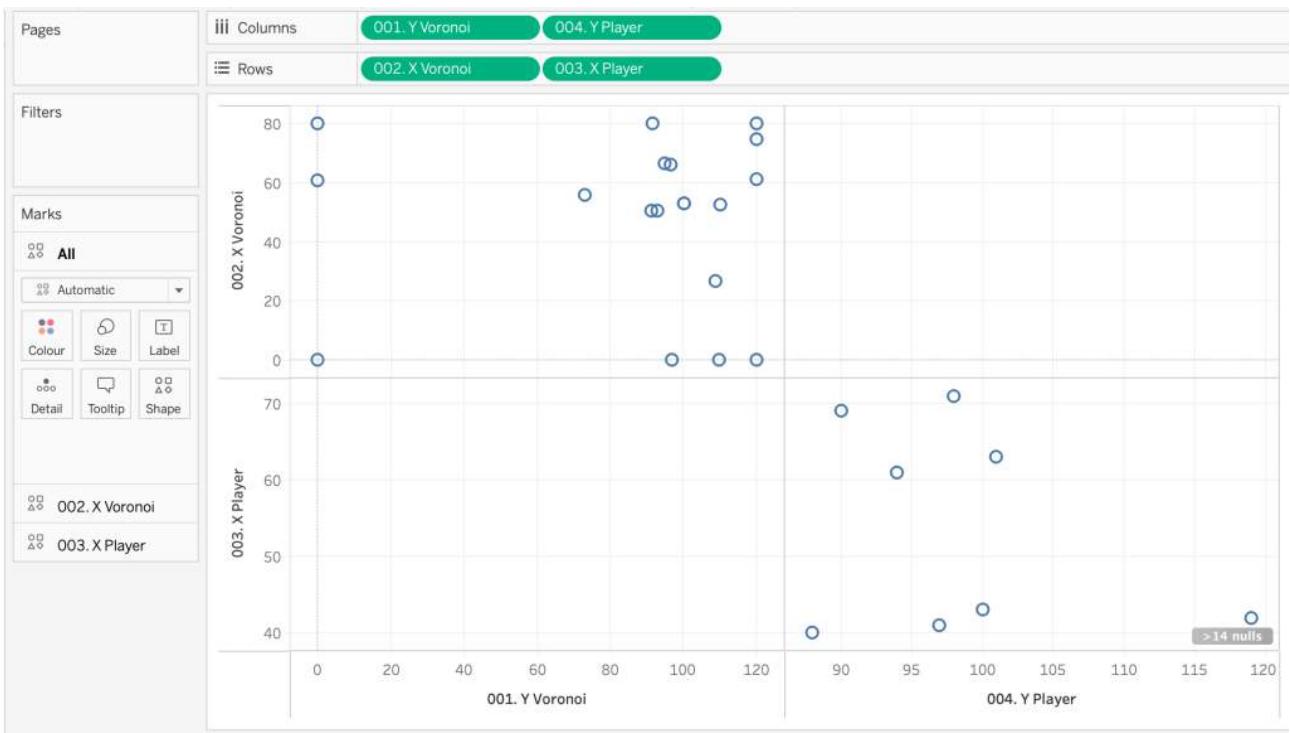


If you do use these sense checks, remember to look at the axis. I tend to fix mine to be able to the same size to see any transformations.

Lastly we will want to layer the circles over the top of voronoi, as well as add a football pitch background. There are two methods of doing this. In truth map layers I find is easier, but for the sake of the tutorial I will show the old fashioned dual axis! If you'd like to look at my map layer alternative approach, see calculations 006 and 007.

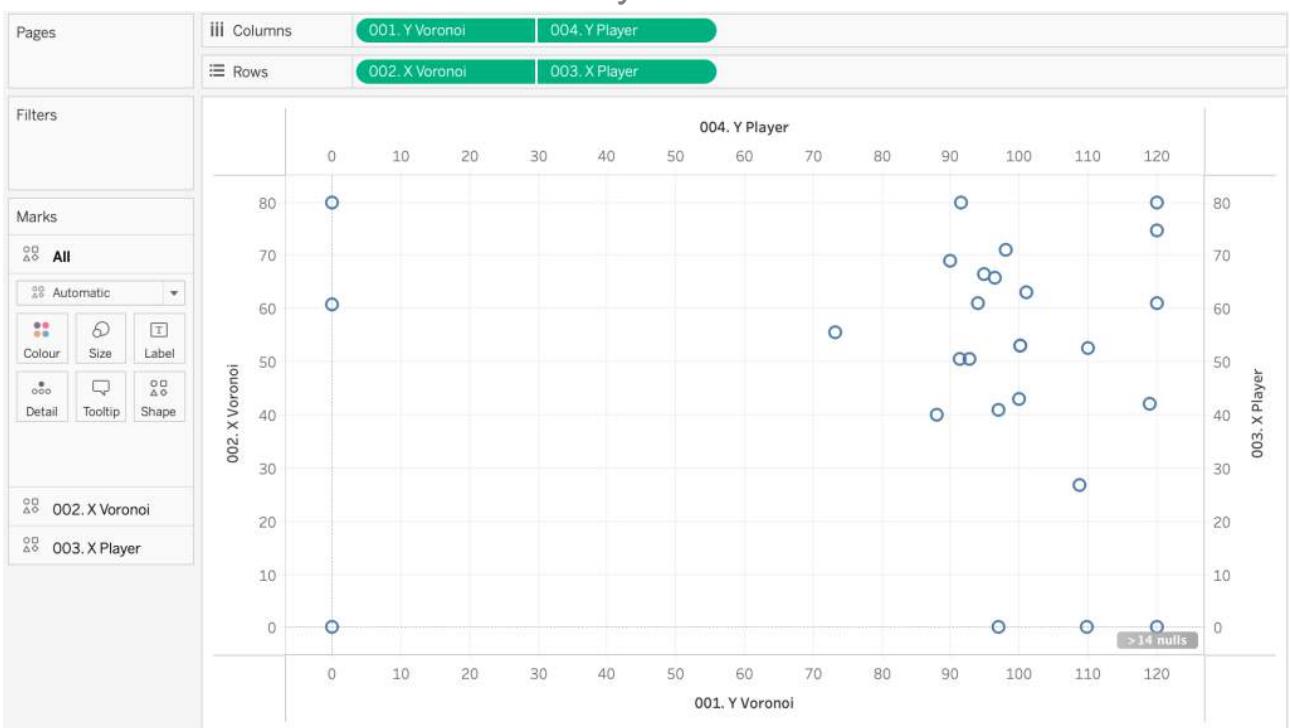
## BUILD THE VIZ

Data prepped, calculations made and sense checks done, finally time to build the final viz.



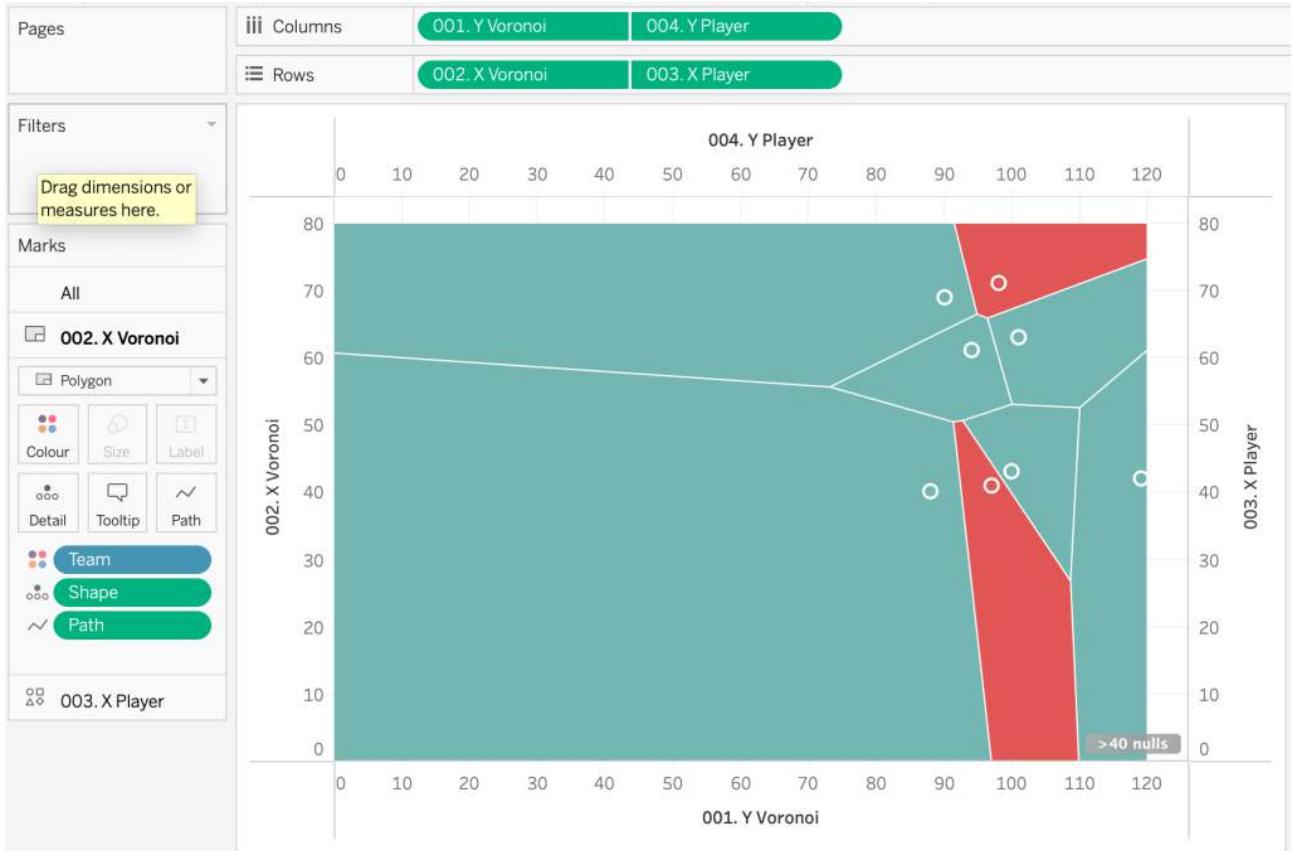
Drag X Voronoi and X Player onto Rows.

Make sure they are dimensions.



Dual and synchronise the axis.

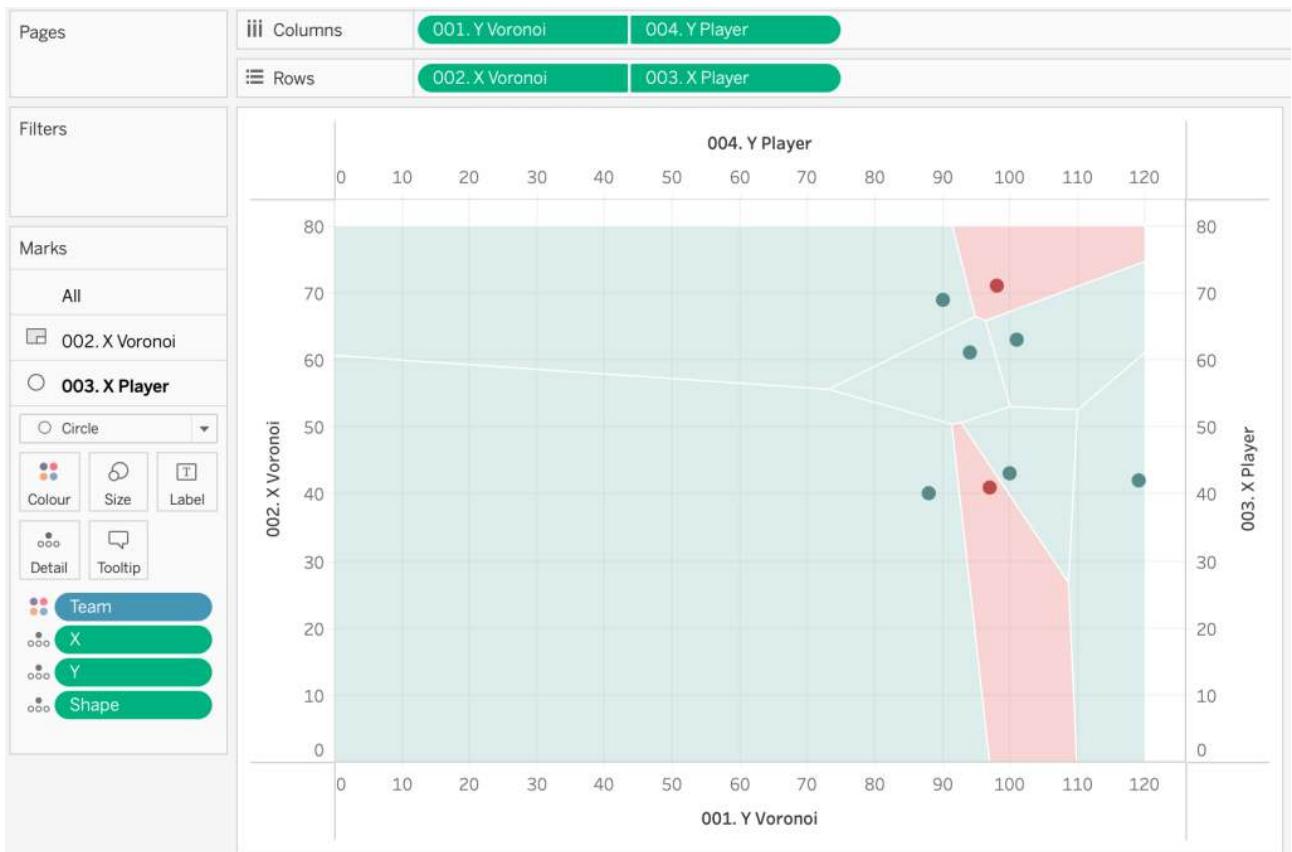
Now let's start with the Voronoi on the marks card (on the left under all)



Change the mark to polygon, add shape to detail, team to colour and path to path. You will want to make sure shape and path are dimensions.

Amend the colours transparency.

Starting to look a bit more reasonable. We can at least see the pitch shape a bit more clearly!



Lets click into the Player on the marks card.

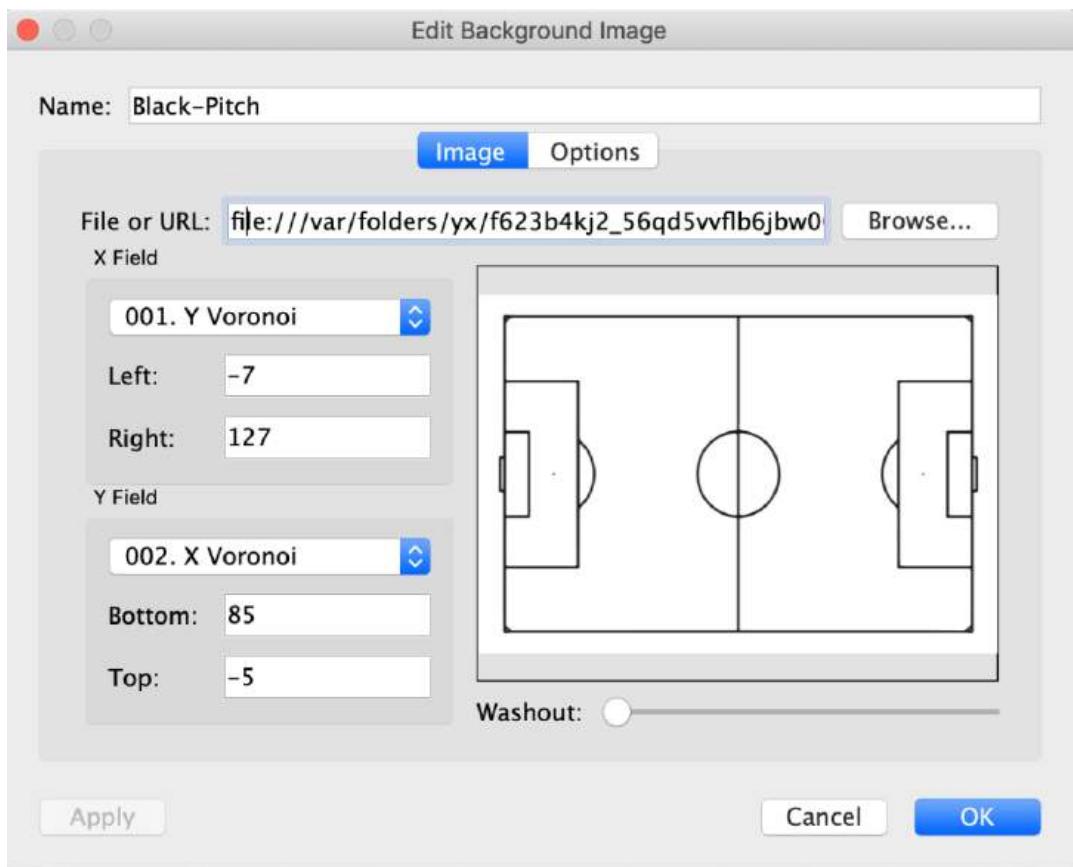
Add X and Y onto detail and team onto colour. Make sure the marks is a circle. These are our player points.

Finally let's add the background football pitch. This is where **James' blog** comes in handy.

Whilst on the sheet click map, background map.

Go to add image.

Locate your file of the pitch, you can find a copy of the pitch in both black and white, within the repo.



Use the above co-ordinates for now, however these are open to slight amendments.

You will see that I use the fields within my column and row bar of the sheet as the X and Y field! It is important to get these the right way round. In options lock the aspect ratio and always show the entire image.

Click apply and ok.

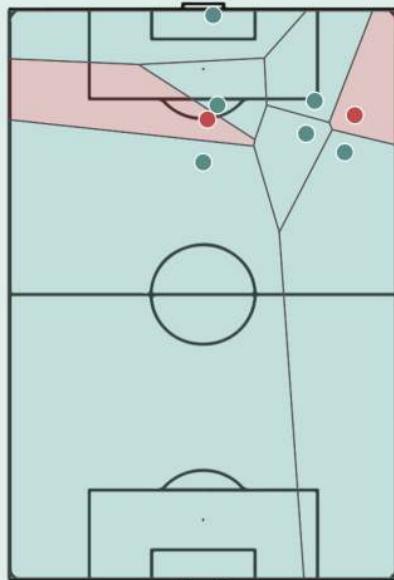


Finally it is a case of cosmetics, hiding the axis and removing the map movement control.

Go to map, Map options, uncheck the boxes of show layer control, toolbar and pan and zoom.

This removes zoom ability.

& There we have it! Our voronoi soccer viz.



### SOME ERRORS THAT CAN OCCUR

I think one of the main difficulties will be with prepping the data, the path is really important to get right for polygons. So the path shows the order in which the co-ordinates are joined up.

I would recommend building your voronoi and players charts separately before trying to merge them together in a dual axis, as it will help with troubleshooting.

Snapping the pitch onto the chart can be a bit fiddly. Sometimes it doesn't always apply correctly and save my values when I do it, make sure to go back and check your numbers and X/Y field is correct! One REALLY important thing i've noticed is when using dual axis, is when you want to add a pitch background you have to use the first metric that is seen in your column and row header! Otherwise the pitch will not appear. I.e in my case it was the voronoi x and voronoi y fields.

### GOING FURTHER

Try finding your own data using the statsbomb api or MPLSoccer python package

Try adding in the position of the ball in the freeze frame.

Try making the polygon into a line path to allow for the football pitch to show more easily. (Hint, no further data prep is required, It is just using the marks card!)

Try using a combination of colour and polygon/line to only highlight the spacing of the defending team.

Try using map layers to create the visualisation.

As always let me know how you got on with this one @\_CJMayes  
LOGGING OFF,  
CJ

#### INCLUSION WITH ADAM MICO

Welcome to “*What’s Good?*” Season 2!

Hi all,

Welcome back to a new year, new content, and new guests.

Conventionally individuals tend to reflect on their life in January in terms of setting goals and aims for the year. When it comes to this, a little secret of mine is making sure I’m surrounded by good friends, talent and positive influences. They say you are the combination of the 5 people closest to you in life.

With this in mind, there has been one person in the community that has stood out to me for the way they motivate others, shine a light on initiatives, dashboards and community work – all whilst bringing their own personality, good qualities and personal values to the community.

That person is **Adam Mico**. Adam is a Tableau Ambassador and a recent Vizzie award winner. This years opening blog will be on inclusion in the community and finding your tribe.

If you aren’t already, please follow him on his socials. He can be found on Twitter, Tableau and his own blog site.

CJ: Thanks for joining Adam at what is especially a busy time moving place for you! You've had quite a career so far, and it seems like you have made a big impact at your current role. Tell us a little about your background to this point.

First of all, thank you CJ for including me on "What's Good" & congratulations on winning Best Blog along with two other vizzes at the Tableau Conference.

My 1st career in data began in 2005. I was hired to work on a two-year systems re-engineering business analyst to modernize antiquated systems. Tableau was introduced to me in 2014 via a demo at a state leadership conference. Our goal was to use and test new tools to enhance metrics for staff and unemployment data collection. My role grew more into the data side and became the principal designer and business side project manager to develop the next iteration.

In 2019, I progressed to a senior data analyst / business automation specialist. Performing more project work, tool enablement and enhancement (with ~20% Tableau use). The work was very important, but I did not experience career growth although I had significant role changes, so I was ready early in 2021 to consider a career change at

45.

Fortunately through developing an extensive network on LinkedIn and Tableau Public, aided extensively by those in our #DataFam, recruiters were sending me interview offers 1-2 times per week. None of the potential opportunities sparked interest enough for me to consider leaving, until I received notification for Keyrus' Tableau Evangelist role.

CJ: You have been publishing some great content with respect to blogs and dashboards. For those that don't know what is the role of a Tableau evangelist? ([LINK](#))

A: Thank you so much, CJ. I have a number of responsibilities with Keyrus. Besides administering our global Tableau Public portfolio, blogging, partnering with Tableau on webinars, I am responsible for staying ahead of the curve on Tableau's (and related) offerings, sharing knowledge internally, marketing our content on social media, co-leading our Tableau user group, provide pre-sales support, training for and

receiving certifications, develop, project manage, or project supervise short-term engagements for our US' go-to-market team.

With a consulting firm, the role of a Tableau Evangelist, at least in my experience, is a hybrid Tableau Evangelism internally and externally, problem-solving complex queries, development/development-leading, and business development.

It's incredible to be a part of something new with a company that strives to move forward and lead curves rather than following them. Our team is transparent and loaded with new ideas. It's motivating to work with so many specialists and multi-tool experts to help spark excitement with our clients and build long-term relationships. Although I enjoyed much of my work with the State of Wisconsin, I couldn't believe how great work can be when there are no team silos while knowledge transfer and upskilling is encouraged.

CJ: When we spoke last you mentioned the phrase "finding your tribe" – what does that mean to you?

A: For many years, I was unhappy. Much of that unhappiness was that I never felt fully accepted or had the ability to contribute to a community.

The #DataFam not only accepted me, they engaged with me, and inspired me. There was no place like our community for having a constant pipeline of motivating work, and making dear friends who share my common interest.

When I joined in 2019, I did so only to give back and get motivated again. I had no idea if I would stay or have any following. Shortly after joining, you learn the biggest stars and personal inspirations are engaged and even better, kinder, and more supportive than imaginable. I'm still here and never plan on leaving; they have given me so much, it's impossible to give back as much as I received.

CJ: I really enjoyed your talk with Hunter Hansen, where you share your thoughts on neurodiversity and how others can feel settled within the community. You talk about some common myths and your own experiences. What personal things have you seen in particular that makes the community autism-friendly? ([LINK](#))

## *WHAT MAKES THE #DATAFAM AUTISM-FRIENDLY?*

- The community focuses on a topic many people with autism can appreciate
- The datafam focuses on inclusion and de-stigmatizes autism
- There are many ways to make an impact and find purpose
- Through shared interests, people with autism can more readily find friendships and social purpose



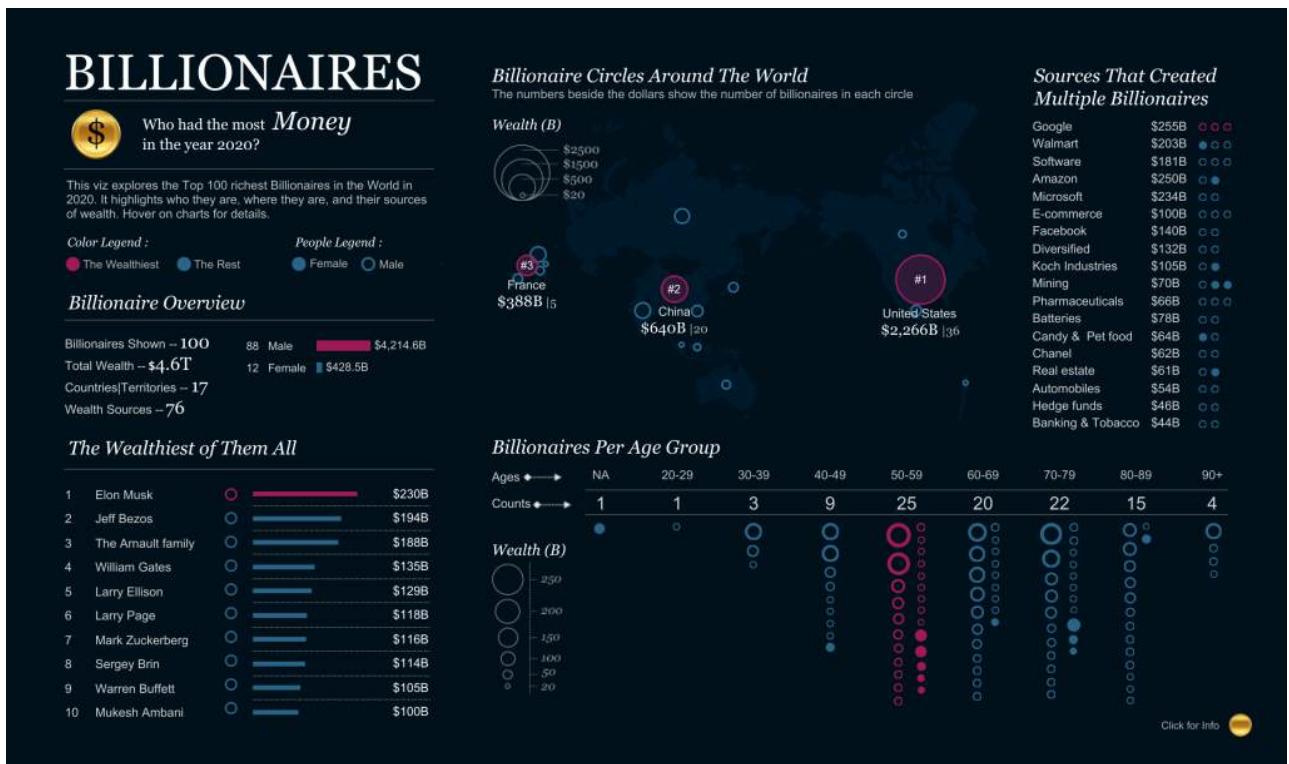
A: Thank you so much, CJ. It was an incredible honor to work with Hunter on this talk. His work encouraged me to un-mask publicly. Prior to sharing it with the community, I only shared it with a handful of people in real-life. For me to be fully me and genuine with the community, I decided to be open with it. It helped me so much that Hunter paved the way and helped destigmatize it. The community's response, although not specifically Tableau-focused, helped me have a pseudo-courageous moment. Without that, I couldn't have been part of the community long-term or be as open as I am on blogs and whatnot.

Getting back to the question... the community is autism friendly because it's proven itself diverse and inclusive. People who don't encourage that inclusion aren't people that would want to stick around here. We're global, colorful, and amplify those that bring in new ideas. We are not perfect, but strive to be better. Since 2019, it's incredible to see the growth in our community and Tableau's focus. It's the only way our community will continue to grow and get healthier.

CJ: Within the talk of neurodiversity, you briefly link it to your thoughts on design, the use of colour and confusing design elements. In particular you mention bold colours, not a lot of text and clean tooltips. Is there anything in the community recently that you think does this well?

A: I am a bit in-between two worlds. I love super functional and interactive dashboards that can be utilized for extensive exploration. In fact, I believe those examples are few and far between. However, there

is one profile that covers those elements extremely well with both personal and business-related vizzes and that is **Chimdi Nwosu**. His designs, although elaborate technically, are easy to follow, make great use of color, patterns, and clean design, so it's not overwhelming to a user.



CJ: What really touched me in the video is when you said “*As long as your heart is pure and as long as you want to contribute and work hard to be an impactful member of the community you could really be a part of something*” – Is there anyone in the community you’d like to call out for having an impact on either you, or in the wider community? ([LINK](#))

A: There are really so many. I have to start with those not mentioned explicitly, who ushered me in. My community story began before Twitter and that was **Toan Hoang**'s Tableau Magic Facebook Group. He helped

me understand I could have impact on a greater community and supported my work in his. Once I joined the community, **Zach Bowders** immediately be-friended me; he was my 1st community Tableau Public follow, Twitter follow, and collaborator. **Michelle Frayman** was a person

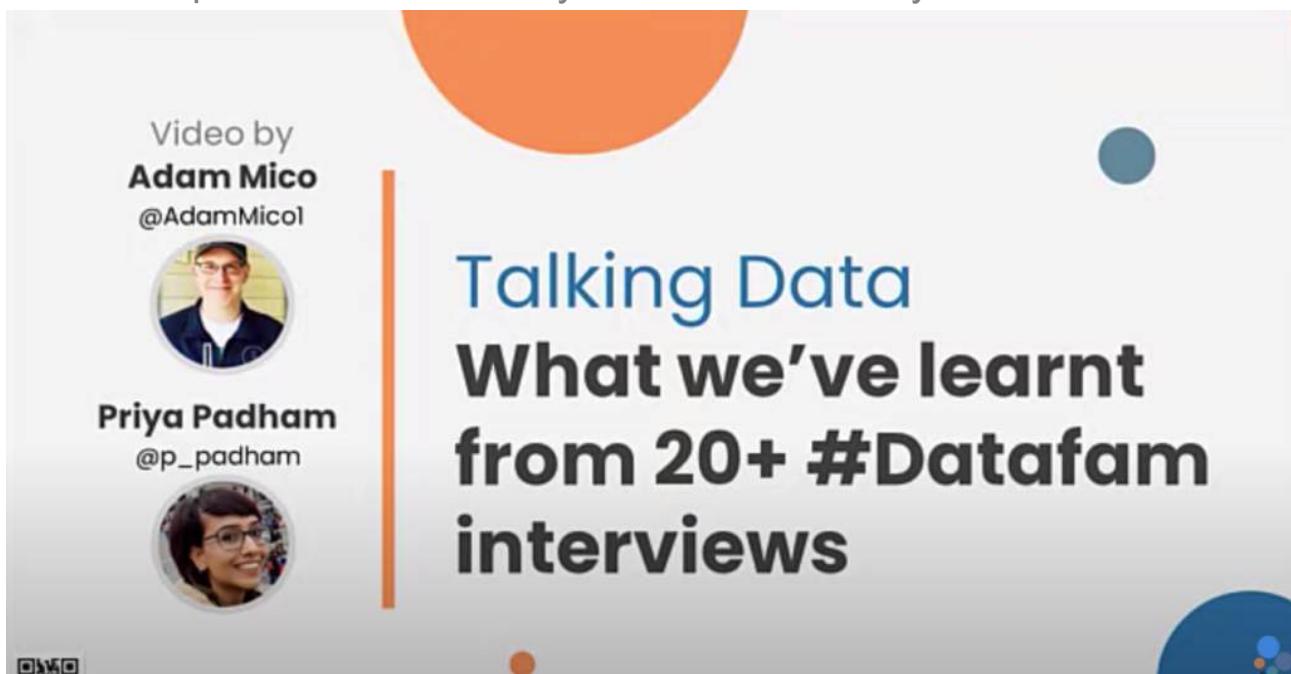
I could talk to in order for me to better understand the workings of it.

**Sarah Bartlett** and **Kevin Flerlage** were two community leaders who

encouraged me to contribute and were very generous with their time and friendship with me.

However, I cannot fail to mention my #DataFam partner for over a year and a half, and that is **Priya Padham** – not only was my 1st community mentee I got a chance to work with, she became my most frequent collaborator and one of my best friends. Seeing her growth and excellence in the face of challenge and self-doubt is so inspiring!

There are literally thousands more with hundreds having a life-altering impact. You know who you are and I thank you so much!



CJ: In recent years, whilst more to be done, there have been some genuine change in the workplace in relation to gender and racial discrimination, do you think the same can be said in regards to neurodiversity as a whole?

A: That's an interesting question. I would love to say, "yeah, totally", but that's not honest. I talk to people all the time afraid to share being neurodiverse because there is still a stigma attached to it. In diversity and inclusion talks, it's often disregarded in that umbrella and is considered its own thing. I believe it will help when people stop considering neurodiverse a handicap. I believe the conversation really begins when people are better educated on neurodiversity and consider the positive influence neurodiversity has on their work and life-enrichment.

As for employers, they can help out neurodiverse staff by:

- Educating themselves on neurodiversity. I would suggest subscribing to Hunter Hansen's **YouTube Channel** as he provides insightful and well-organized videos to help better understand the autistic experiences in life and work.
- Do not try to force someone to come out to you as a neurodiverse person. If one does, realize it is likely very difficult for them to do and it's important for them to share. It's imperative that they know you support them, will listen to them, and make sure you will make sure to accommodate needs. On a related note, and should go without saying, but if the person shared this information with you privately, do not share with others.
- Allow for people to be themselves. There are unwritten rules of etiquette that do not make sense to many neurodiverse people. If something needs to be corrected, make sure it's done privately.
- Reduce ad-hoc pop-ins. Many neurodiverse people need to have time to prepare for meetings, tasks and so forth. It's understandable when things are urgent, but try to allow for as much buffer as possible for preparation purposes. Even if people do not need to create material for meetings – mentally adjusting to neurotypical environments is taxing and having time to mentally prepare helps reduce anxiety (and allows for stronger contributions).
- Optional events that require a lot of social interaction should not be quasi-required – meaning that if people do not need to show up, they may not because it's not comfortable to them – confronted them with sarcasm or inquiring about whereabouts (even in jest) can make the person feel even more uncomfortable. A specific related example is videoconferencing meetings – people may choose to put on their cameras or leave them off – if there is no requirement for a camera to be on, then it does not challenge a person for not having a camera on (even if private) because it impacts their ability to be comfortable and contribute.

With those notes and since the pandemic, remote work has helped those reduce the number of unwritten rules. Employees have flexibility in

correspondence and attire with less in-person requirements and pop-ins.

This environment, overall, in many cases have helped many neurodiverse people to feel they have space and a little comfort being their genuine selves and contributors.

CJ: You are constantly uplifting others in the community, and were recently chosen (for the second year running!) for The Michael W. Cristiani Community Leadership Award, alongside **Michelle Frayman**. Is being uplifting of others one of your most important values?

A: My most important values are being genuine and humble, contributing value, and amplifying others. Until 2021, I rarely shared anything that was just me. It was about working with others, amplifying voices, and creating visualization while building friendships. I wanted to make sure people were heard, supported, and wanted to feel like they were part of the greatest community in the world. Although my content has changed significantly in 2021, those still hold true.

CJ: Whilst Data21 Tableau Conference must feel like so long ago now, you had written a blog as part of the data leadership collaborative on why brain dates are awesome. Was this your favourite part of TC21 this year? What advice would you give community members that are maybe a little too nervous to reach out to members of the community? ([LINK](#))

A: This year, my highlight was definitely hanging out with some amazing #DataFam at #TC21CabinEdition. As for the conference itself, Braindates remain my favorite thing; particularly one-on-one braindates. It gives you an opportunity to connect and really assist people in a comfortable environment.

I encourage anyone to dive in when available. The topics are incredible and give you an opportunity to meet selfless people who want to share knowledge. You will learn quickly that the people offering the braindates do not care about your followers and is not an inconvenience to them as they opened up time to chat about the topic they want. I would have been nervous to meet anyone in this way before 2019 and talked to many who were initially nervous, but the experiences I have had or talked to others about have been immeasurably valuable.

CJ: You give back to the community in many ways, one of which is helping facilitate the mentoring program. In fact, I had the pleasure of first meeting Kate Brown because of it. What prompted you to start the mentoring program?

A: Other people started the program or various versions of it long before I did. When I contributed, I just understood there wasn't a structure in place to last beyond an initial pairing. It takes a lot of time to do it well and there will always be hiccups. This iterations involved people mentioned **here** and **Brian Moore** joined a little later.

In 2022, we plan to relaunch to touch on some of those spots, while trying to help support it. Please look out for it!

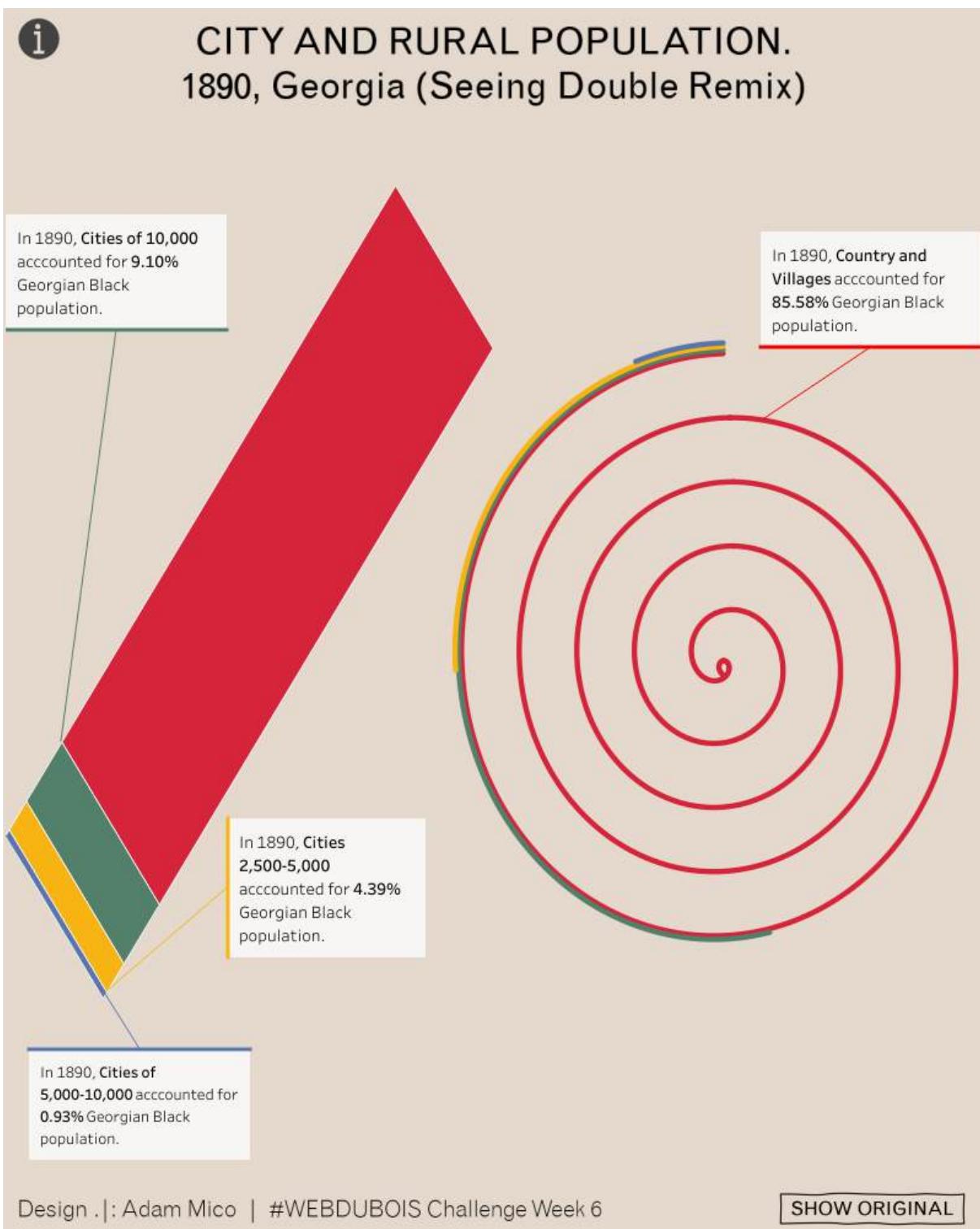
CJ: Your piece on overcoming imposter syndrome that was featured on towards data science particularly resonated with me. I really enjoyed hearing your own tips and thought management around the topic. When you mention that the community can be overwhelming at times due to the amount of content and learning opportunities, have you found any ways to help navigate this sense of constant reading, practicing and learning? ([LINK](#))

A: I am a bit of a different case and just search my feed for a lot of this, but the easiest way to do this is to review the weekly and **monthly round-ups**. The monthly version usually is published within a week of the month's closure. **Ateken Abla** is a community content specialist with Tableau and curates a weekly list (usually published on Fridays) of content that provides a user many opportunities to read and review different types of content (even in non-English). It pairs down the content a little while giving you the best to work with.

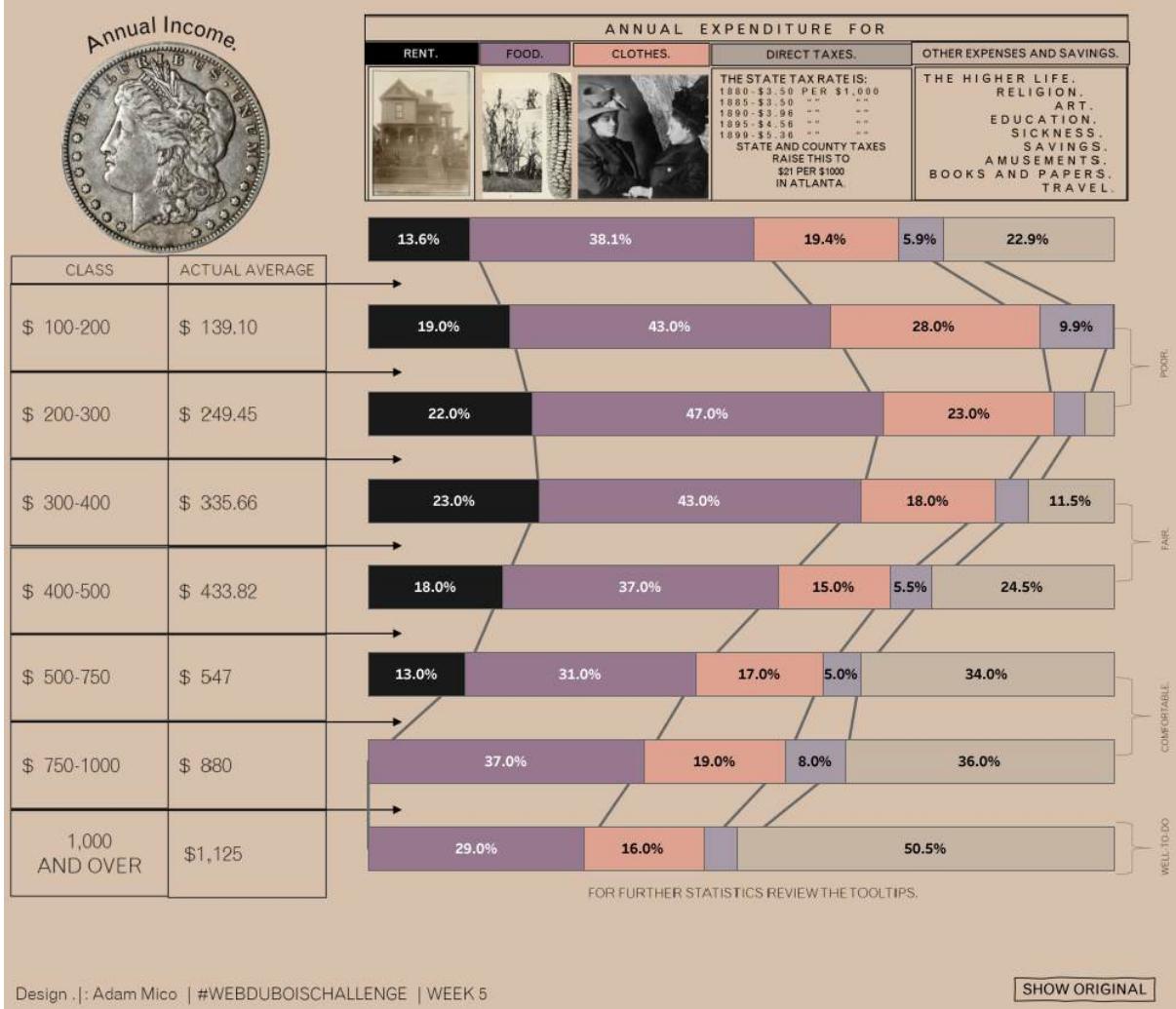
Mainly, you need to set learning and content goals while allowing yourself some breaks when life gets in the way. It's best to consider learning a lifetime path that doesn't let up because you are a certain age. Making that commitment to yourself not only helps you reach goals otherwise unimaginable, but helps so many others along your journey.

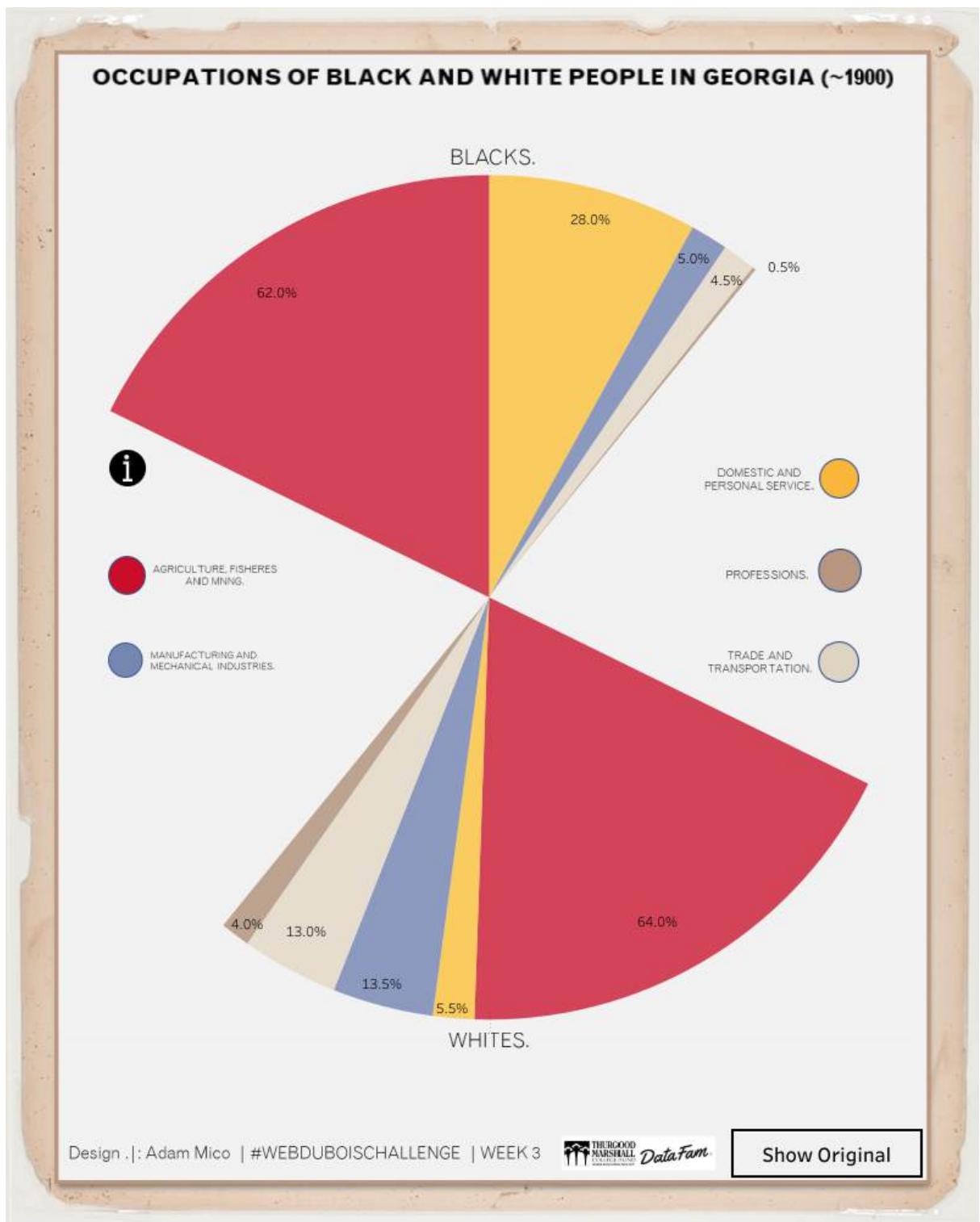
CJ: You took part in many of the WebDuBois' challenges on Tableau Public. What made you want to get involved? They look very technically

challenging! Was there anything particular that stood out from completing them?



● INCOME AND EXPENDITURE OF 150 BLACK FAMILIES IN ATLANTA, GA., U.S.A. (~1900)





A: I loved the infographics. In addition, I love history. Combining both, while challenging myself in Tableau was an experience I could not pass up. The more involved I got, the more I could see the world through DuBois' lense. It made really consider how he visualized it in his head, how novel it was, and deeper thinking about the challenges it was to gather this data. I shared this and learned more when I interviewed the

project leaders: **Allen Hillery**, **Sekou Tyler**, and **Anthony Starks** about the initiative.

CJ: You've been doing more content around Salesforce and Tableau CRM. Congratulations on becoming a TCRM / Einstein Analytics Consultant. Can you give us a little detail as to what it is and how it works? ([LINK](#))

A: Tableau CRM is an AI-driven analytics tool in the Salesforce family (as Tableau is). However, it's its own platform and tool. It helps end users make predictions on items based on learning its data and generates models based on it. It can connect to Salesforce or Tableau.

In Salesforce, it's effective for helping determine predictions and improvements of a primary question as it relates to a specific question. For example if you want to maximize the likelihood of a person signing a contract. It looks at the fields, reviews correlations, and other items to determine it. At the record level, you can utilize parameters to help maximize it (or to determine if it's an opportunity you would like to commit).

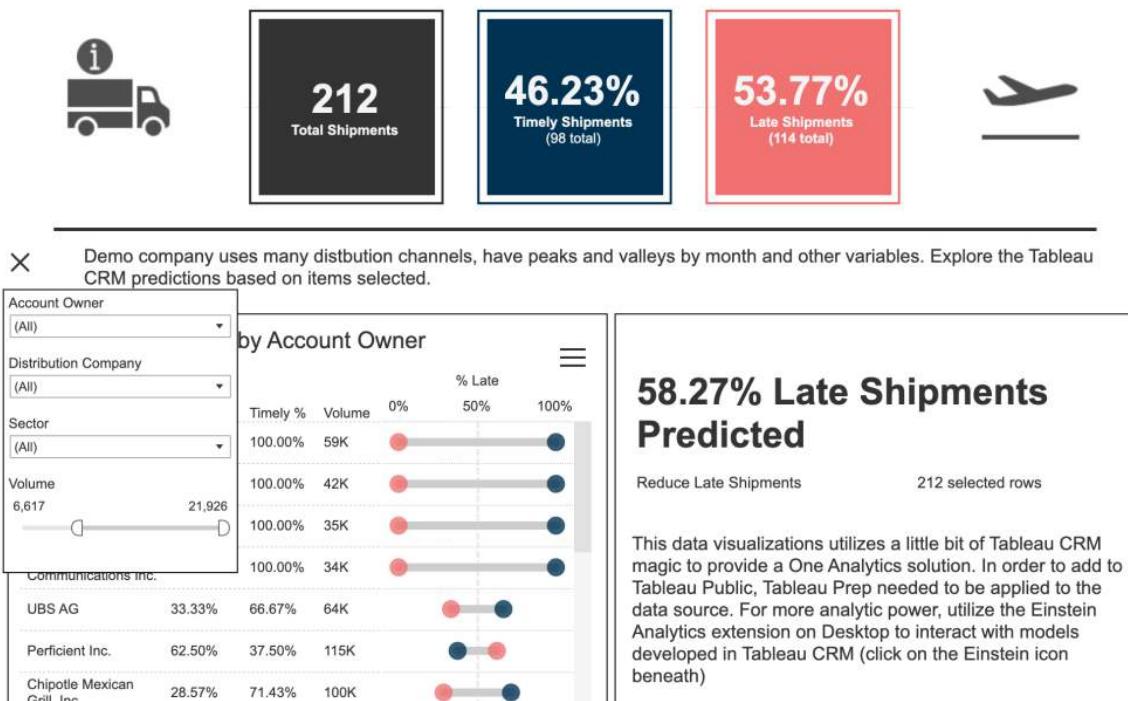
In Tableau, you can use Tableau, with the use of the Extension object, to look at the predictions and improvements of many rows of data to gather more exploratory opportunities.

Another example would be consider you are working with thousands of records. You are looking for ways to minimize late shipments during the holidays. You can filter to specific dates, review filters of shipping companies and etc. to determine the best overall balance to reduce late shipments of many orders.

## How Does Demo Company Minimize Late Shipments? (Timely | Late)

KEYRUS

Since 2020, Demo Company has had a significant percentage of late shipment. No problem, let Tableau CRM come to the rescue to find and minimize the likelihood of a late shipment.



CJ: You can view a working example of Adam's dashboard [here](#). I think for me, Tableau CRM is seen as a fairly new concept to many of us in the community but it's great to shed light on it. What I do like is the idea of creating models integrated within Tableau. Often we see data scientists create their models outside of Tableau (in code somewhere) and end up having to re run them a number of times over to show different scenarios to then have data visualisation as an end point or 'nice to have', bringing these two features closer together in a more harmonious way is great. If you'd like to see more about Tableau CRM check out [this link](#). This is definitely an area I would like to learn more so would be good to see if there are any working groups around it!

CJ: In the interest of upskilling, do you have any pointers or learning areas for those that are new to these tools? ([LINK](#))

A: Yes. Besides the tools mentioned earlier, I want to give a shout-out to **Trailhead**. Most of the learning is free, well-designed to help you learn with a combination of text, hands-on, and video with excellent pacing. They are also beginning to share Tableau content too!



CJ: Is there any exciting plans you want to share for what this year has in store?

A: Besides what I mentioned above with MentoringMeetup, Priya and I will relaunch DataFam interviews in 2022. I will also work with KT on a secret huge project in 2022!

CJ Round-up:

I really enjoyed sitting down and learning more about neurodiversity with Adam in this months blog, especially watching some of the co-presented youtube videos with Hunter. Accessibility in general is something we should all make a conscious effort to think about more.

Adam shares some great learning resources in terms of those wanting to kickstart either there Tableau public work through the **weekly round up** by **Ateken** (I personally LOVE these!) as well as some more formal training when it comes to Tableau CRM and salesforce learning. Do make sure to check them out! Thanks Adam, wishing you a successful 2022 – looking forward to the new dataFam interviews of newcomers to the community.

LOGGING OFF,  
CJ

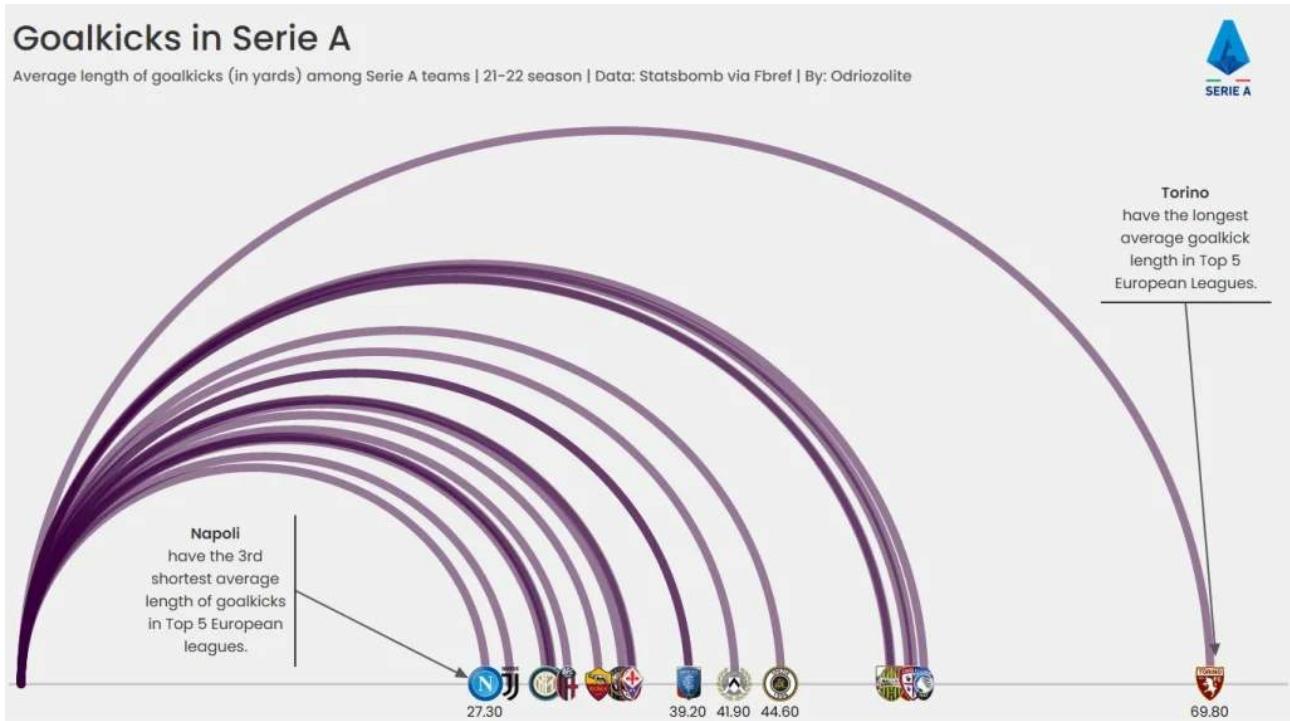
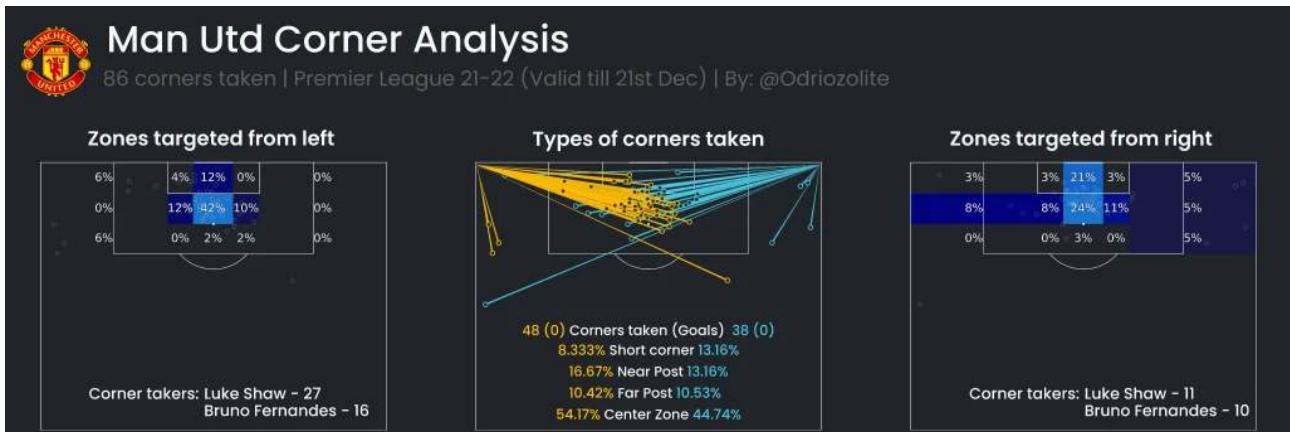
CREATING A DEEP PROGRESSION CHART WITH YASH T (PYTHON GUEST BLOG)

Hi All,

I'm super excited to be able to host a guest blog for #SportsVizSunday this week. The soccer community is one that is ever increasing and I

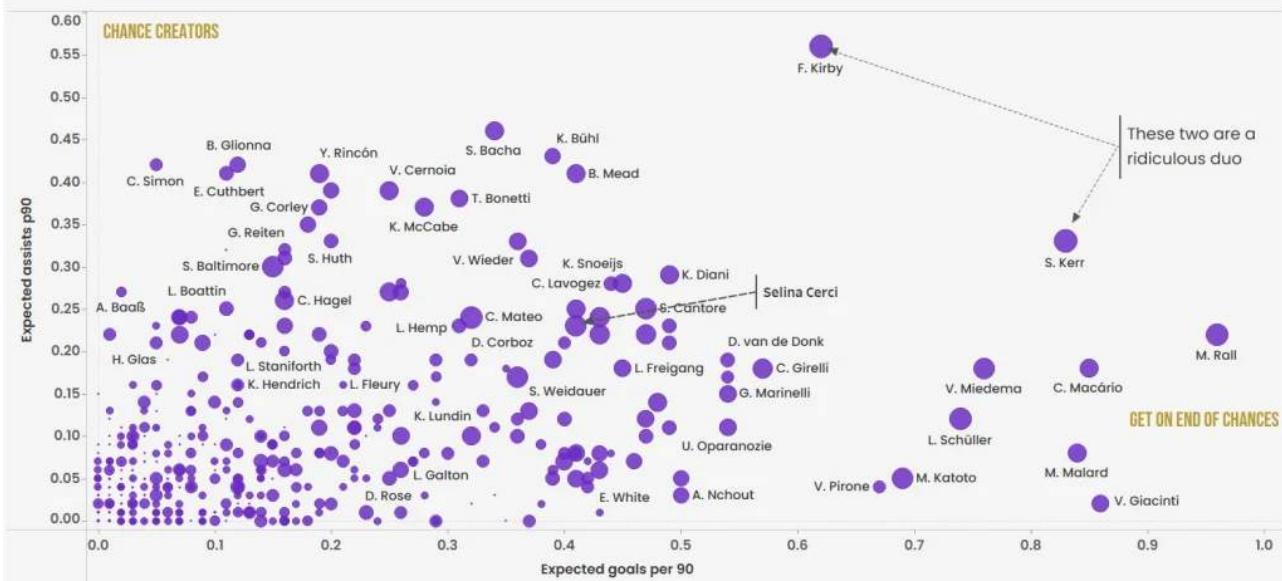
keep coming across more and more individuals that share their passion for sports online.

One individual who particularly stood out was **Yash**. What I particularly love about their work is the focus not only on men's soccer, but women's leagues too. Not only this, but Yash's talent in designing good visuals is supported by great analysis. Check out some of highlights below!



## EXPECTED GOAL CONTRIBUTIONS IN WOSO

Size indicates the number of non-penalty goal contributions | All outfield players with minimum 500 mins played | 2021-22 | Data: Wyscout | By: @Odriozolite



Today's guest blog will look to outline a few tips and tricks for creating soccer maps using python. It will predominantly focus on the free Statsbomb data that is publicly available, and the walk through will look at deep progressions (completed passes or carrys) in the FA WSL 2020-21 season.

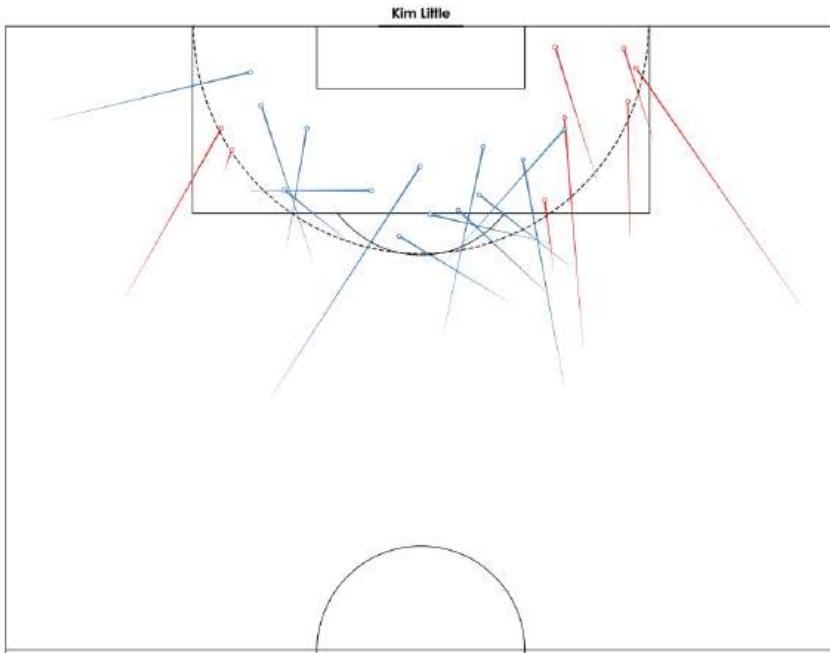
Before we start, What is meant by deep completions?

Deep completions is defined as the completed passes or carries that end inside the semi-circle with the center at the mid point of the goal and a diameter equal to the width of the penalty box while originating outside this region.

Check out this example output which will be showcased!

## Deep Progression

A Completed pass or Carry that ends in the highlighted zone | FA WSL 20-21 | Data: Statsbomb | Created by: @Odrizzolite



This blog will be aimed at those who feel fairly comfortable with basic python syntax but want to elevate their skills applying it to sports data. So if you are new to either tool, please do not be disheartened and feel free to reach out if you have any questions to Yash or myself.

Jump to the repo at the top of the page to follow the tutorial!

In future blogs, we will replicate some of these ideas in Tableau, so stay tuned!

CJ: Yash, for those who are unaware how did you get into football analytics?

Y: It was something I actively started pursuing when the pandemic began. I always read a lot of analysis before that and it always piqued my interest about how the use of data can help us draw meaningful insights about the game. When I started out I had no idea where to get the data and anything like that, I started asking questions, searching through the mighty internet and stumbled upon a couple of resources online to get started. I started out by making a scatter plot of defensive duels and their success rate for defenders in La Liga and that's how it all began really. The next step was to learn languages and get started with free event data that was available and that's what I did. I asked a lot of questions on everything and I still do cause I still know very little.

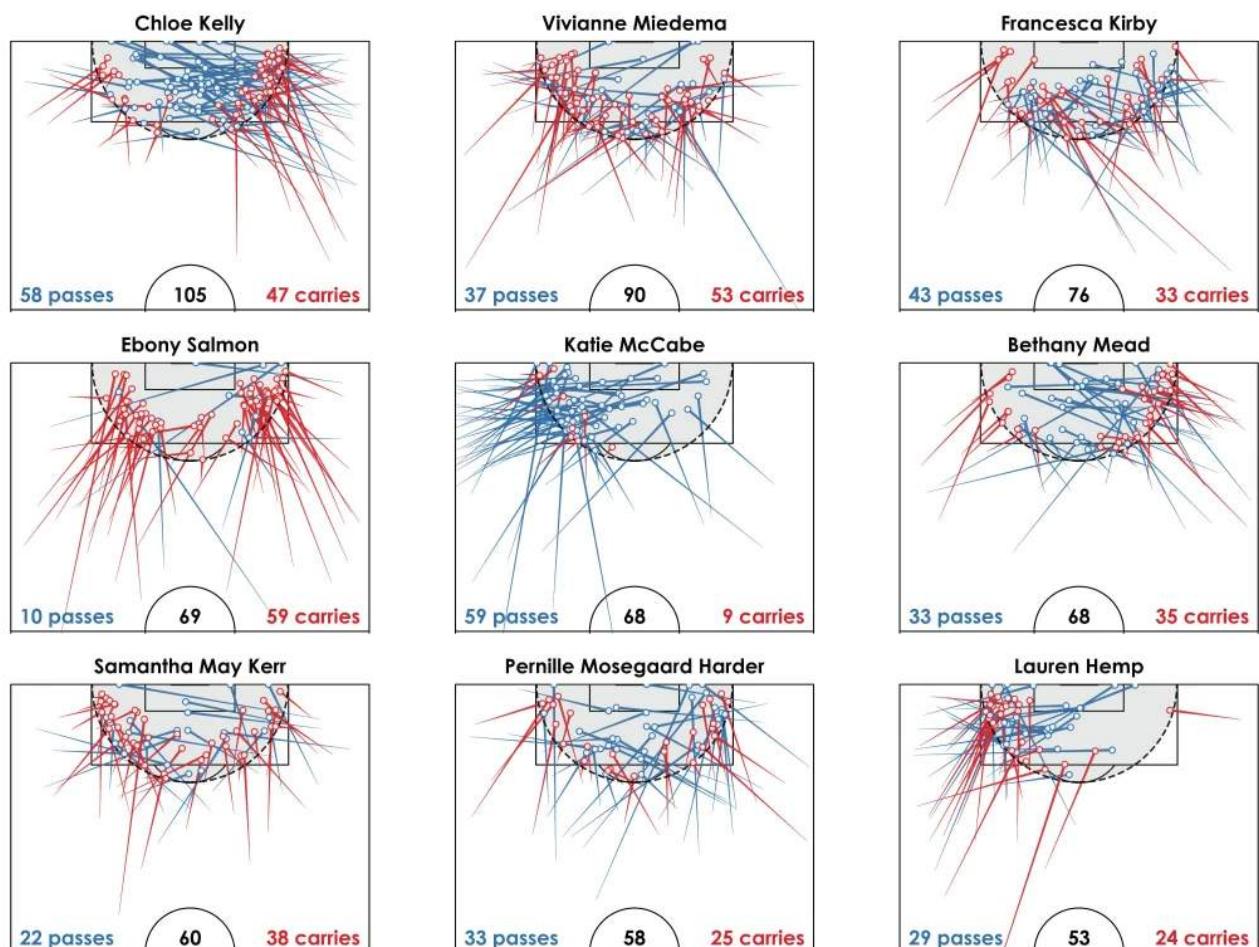
One thing I have always maintained is to first try and understand what the metrics I am using indicate and what are the pitfalls, I feel it's important to understand that before I draw out conclusions based on it.

CJ: I Love your piece on completed pass and carries. Could you share the raw dataset for this, and give a run-through how you were able to format the different pitches for each player?

You can access the script and data in the repo. The script is stored in a jupyter notebook. The code is written so that you can run each block separately and follow along with the tutorial without having to make adjustments. It is a great starting point for those that are new to learning python.

## Deep Progression

A Completed pass or Carry that ends in the highlighted zone | FA WSL 20-21 | Data: Statsbomb | Created by: @Odriozolite



Y: In order to recreate this we will be using the mplsoccer library which is a great place to dive straight into visualizing your data. First step is to install and load packages, we will use pandas and numpy for basic data analysis and mplsoccer to plot it onto the pitch. Highlight-text is another

package that allows you to customize your annotations and headings very easily.

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from mplsoccer import Pitch, VerticalPitch, add_image, FontManager
from matplotlib.colors import LinearSegmentedColormap
import math
import ipywidgets as widgets
from highlight_text import ax_text, fig_text
import matplotlib.patches as patches
import warnings
from pandas.core.common import SettingWithCopyWarning
from IPython.display import display, Math, Latex

warnings.simplefilter(action="ignore", category=SettingWithCopyWarning)
```

Next step would be to do some manipulation on our data to obtain deep completions. The basic idea for this is to filter out our dataset for all the passes and carries that end outside of the highlighted region.

This can be done using Euclidean distance formula to calculate the distance of the end points of our passes and carries from the center of the goal post (this is also the center of our highlighted region)

The reason behind this, is the football pitch in Statsbomb is measured as 120 x 80.

```
df['initialDistancefromgoal'] = np.sqrt(((120 - df['location.x'])**2) + ((40 - df['location.y'])**2))
df['finalDistancefromgoal'] = np.sqrt(((120 - df['pass.end_location.x'])**2) + ((40 - df['pass.end_location.y'])**2))

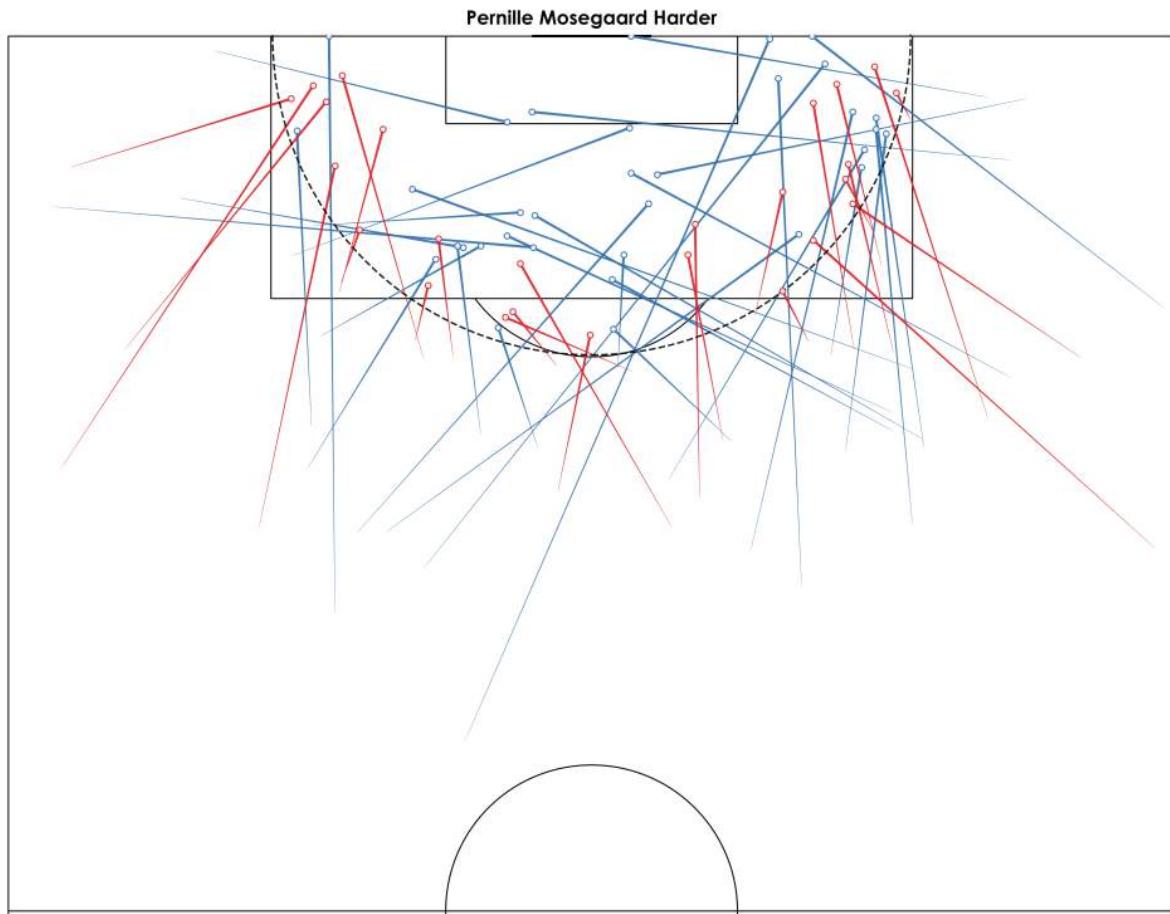
df['finalDistancefromgoalcarry'] = np.sqrt(((120 - df['carry.end_location.x'])**2) + ((40 - df['carry.end_location.y'])**2))
```

Setting up the pitch and plotting on it is made so much easier with the help of mplsoccer here. They have predefined functions for making pitches for different data providers, plotting lines and scatter.

Adding a scatter point at the end of the passing line is a stylistic choice, you can change this and go with an arrow or without anything as well.

## Deep Progression

A Completed pass or Carry that ends in the highlighted zone | FA WSL 20-21 | Data: Statsbomb | Created by: @Odriozolite

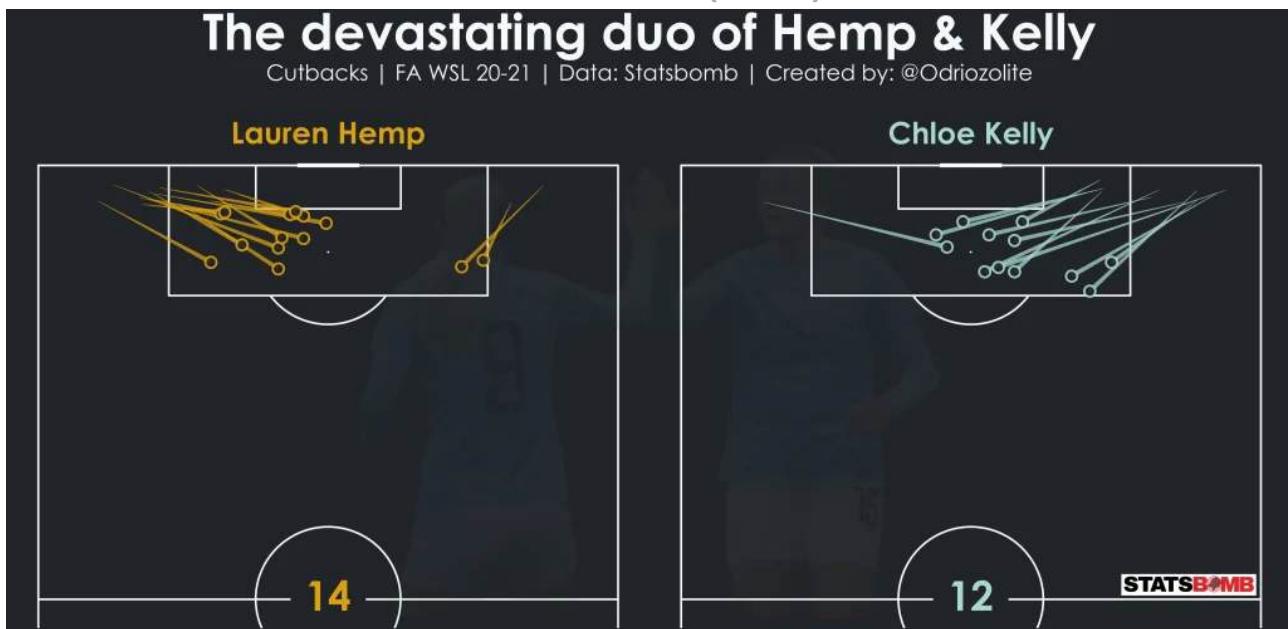


Be sure to check out the full walkthrough code to create your own!  
CJ: Why is this type of analysis important? What insights can we find from this on their individuals style of play?

Y: Football at its very basic is about scoring goals and maximizing your team's chances of scoring goals and to that you have to get the ball in areas that aid in that. Looking at deep completions helps us in that. The players highlighted in the chart are the ones that help do that via their passing or ball carrying. Looking deeper at it we can further break it down to see what mode do players tend to use when doing that i.e. passing, carrying or crossing and that can help us understand the playstyle of the players a little bit better.

CJ: I love how you have made some great design tweaks for this visualisation on Lauren Hemp & Chloe Kelly, could you share tips

around this? ([LINK](#))



Y: Yeah the attacking duo of Hemp & Kelly is one of my favorite duos in women's football and I think it's one of the most dangerous duos as well. After having watched both of them all season I just wanted to highlight a couple of things both excelled at.

In order to create this viz the primary thing was the definition of a cutback. Luckily for us Statsbomb dataset already categorizes passes into cutbacks for us but if the dataset you are using doesn't do so, you'll have to do a little bit of math and filter the dataset according to the pitch coordinates of the data provider.

One design element I added here is the inclusion of a picture of Hemp and Kelly. This only takes about 3 lines of code to do and if done right makes your viz look cool I feel.

```

from PIL import Image
image = Image.open(r'Lauren-Hemp-Chloe-Kelly.png')

pitch = VerticalPitch(pitch_type='statsbomb', figsize = (14,12),
                      pitch_color=pitchColor, line_color=lineColor,half = True,
                      constrained_layout=True, tight_layout=True, line_zorder=1, linewidth=4.5,
                      spot_scale=0.001)

fig, ax = pitch.grid(nrows=1, ncols=2, figheight=20,
                      endnote_height=0.001, endnote_space=0,
                      # Turn off the endnote/title axis. I usually do this after
                      # I am happy with the chart layout and text placement
                      axis=False,
                      title_height=0.17, grid_height=0.75, space=0.01)

fig.set_facecolor(pitchColor)

fig.suptitle("The devastating duo of Hemp & Kelly", fontsize=110, color=lineColor,
             fontfamily = "Century Gothic", fontweight = "bold",y=0.975, ha = 'center')

SUB_TEXT = ('Cutbacks | FA WSL 20-21 | Data: Statsbomb | Created by: @Driozolite')
ax['title'].text(0.5, 0.5, SUB_TEXT, fontsize=48, fontfamily = "Century Gothic",
                 va='center', ha='center', color=lineColor)

#Make sure you import add_image module from mplsoccer package while doing the imports
#You can adjust the location of your image using the left and bottom parameters and the size of your
#image by using width.
#The transparency can be controlled using alpha value.

ax_image = add_image(image, fig, left=0.25, bottom=0.05, width=0.5,
                     alpha=0.045, interpolation='hanning')

```

CJ: What were some of the challenges faced when creating this visualisation, and tips you would give those just starting out with python and Statsbomb data?

Y: Primary challenge was in assembling various elements of the viz and presenting them in a manner that isn't overwhelming for the reader.

My tip for those starting out would be; to be consistent in their approach and read a lot of others work, to learn and get inspired. It's all cliche advice probably but don't be afraid to ask questions that you might think are "*stupid*". It'll help you learn and understand concepts a tad bit more.

One of my biggest tips for anyone coding is to learn and read the documentations to gain a better understanding. Finally, make Stackoverflow your best friend – because you'll probably be spending a lot of time there!

Going Further:

After becoming familiar with the workbook.

Why not try and follow the tutorial to complete a grid of 3×3?

Try recreating the chart for a different player

Try recreating the chart in Tableau using the original dataset

#### CJ Round Up:

Wow. I'm blown away by the efforts Yash went to for this guest blog. I've certainly learnt a lot and I hope you have too! The football community in general is huge, in both size and talent. For me, the passion in Yash's guest blog really comes across through uniting both love of the game, interpretation of the game, and with some pretty fire coding skills.

From a personal perspective I would like to host an environment that causes greater blend of tools. Through introducing more analysts to the visualisation side (namely Tableau) where they have pre-existing sport knowledge or coding skills. Yash's blog has set the level of standard for that.

As always, let us know how you get on with this one. I can be reached on Twitter, **@\_CJMayes**, as can Yash at **@Odriozolite**. Do tag Yash in your creations if you found these tips and tricks useful!

LOGGING OFF,

CJ