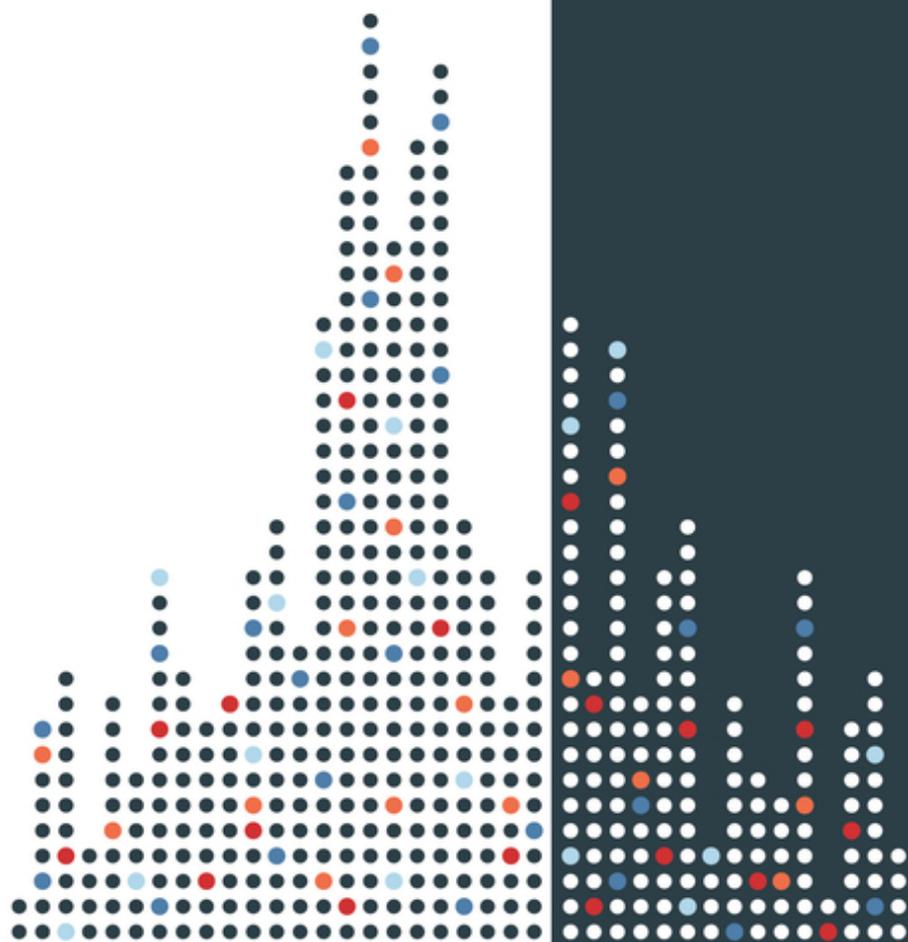


Andy Kriebel • Eva Murray



# #Makeover Monday

Improving How We Visualize and Analyze Data,  
One Chart at a Time

WILEY



#MakeoverMonday



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Data, One Chart at a Time

**Andy Kriebel**

*Head Coach, The Information Lab Data School*

**Eva Murray**

*Head of Business Intelligence, Exasol*

**WILEY**

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# Foreword

The world of data is changing rapidly. We can talk about machine learning, artificial intelligence, and automation as much as we want, but what will always be needed is the ability to communicate insights. Only a creative being, a human, fluent in the language of data, can do this effectively. Only a human can combine the skills of data wrangler, communicator, designer, and artist to create visualizations that convey emotion, create an impact, and influence opinions.

Learning to be that kind of person is more vital today than ever.

There are hundreds of books about the principles of data literacy, packed full of examples. From those, you will learn the theory and principles of data literacy. What this book shows is how to build a framework for you to practice. To be an expert in any field requires practice, and this book, along with all the weekly Makeover Monday projects, gives you the framework you need to become one.

In this book you will find hundreds of examples of makeovers, made by people like you: everyday data warriors, trying to make sense of the world through data. You will learn how to develop your own skills and become as fluent as some of the most advanced authors featured in the book.

The Makeover Monday project began its growth as an experiment between Andy and me in 2016. After a year, I stepped back, and Eva Murray stepped in. Together, the two of them expanded the project greatly, and this book is the culmination of their efforts. Now everybody—even those not partaking every week—gets to benefit. Watching the project grow over the years has been truly inspiring; Eva, Andy, and I had no idea Makeover Monday could become so popular. To see the impact on individual people as they develop a portfolio, get involved in a community, and even get new jobs has been a great honor.

I can think of no better guides to help you on your journey than Andy and Eva, two people who are experts in the field, superb teachers, and true community builders.

I hope this book inspires you as it has the thousands of people who have been involved in Makeover Monday so far.

Andy Cotgreave  
Brill, England  
June 2018

# Acknowledgments

## From Andy and Eva

First and foremost, we must thank the Makeover Monday Community. Without all of you, the project and this book would not exist. Your constant participation and enthusiasm keeps us going. We enjoy seeing you evolve in your development and watching your careers flourish.

We'd like to thank Tableau Software, and specifically the Tableau Public team, for their support in helping the project grow and for providing a free sharing platform. We'd also like to thank [data.world](#) for providing a platform for sharing the data and creating an excellent discussion forum. While Tableau has been the most prominent tool used for Makeover Monday, we're very excited to see more and more visualizations from Power BI, Yellowfin, Google Data Studio, and R. The more tools we are all exposed to, the better we will become as data analysts. Thank you also to Bright-TALK, who provided us with a webinar channel that gives us a direct connection to our community for sharing feedback, discussing visualizations, and presenting about various data-related topics.

We'd like to thank Bill Falloon and Purvi Patel from Wiley for taking a chance on us first-time authors and for helping us navigate the book-writing process. Without your continuous, positive support, we would have never gotten this across the finish line.

We also want to thank Andy Cotgreave for his support and advice throughout the book-writing process and for introducing us to Wiley. Andy's contributions in 2016 helped launch Makeover Monday into what it is today.

We'd like to thank Pablo Gomez and his team at iForIdeas for creating the Makeover Monday branding. The cover you created looks amazing! Thank you for all of your support, attention to detail, and recommendations throughout the process. This book looks great because of you!

In addition to those listed above, we would like to thank everyone who helped make this book possible: Adam Crahen, Ann Jackson, Carl Allchin, Carsten Weidmann, Charlie Hutcheson, Cole Knaflic, Deborah Thomas, Donna Coles, Emma Whyte, Jeff Shaffer, Luke Stoughton, Maureen Stone, Pablo Sáenz d Tejada, Pooja Ghandi, Ryan Sleeper, Sean Jackson, Tim Ngwena.

The cover design of this book is based on a visualization Andy created for a Makeover Monday challenge of the artwork from the Tate Collection.

Special thanks to the team at iForIdeas who turned Andy's visualization into a stunning cover image as well as a visual identity for Makeover Monday.

## From Andy

Thank you, Eva, for being an incredible partner on this journey. You've pushed me to grow in ways I never knew existed and have filled me with encouragement and positivity. You've brought so much to this project, pushed me to write this book, and you do an amazing job of keeping us both organized and keeping me in check.

I'd like to thank The Information Lab, The Data School, and Tom Brown for supporting my Makeover Monday hobby and giving me the time to help others grow. Your support has been incredibly influential in helping Makeover Monday flourish.

I'd like to thank Jonathan MacDonald and Craig Bloodworth from The Information Lab for supporting the Makeover Monday website infrastructure. Calling Jonathan while he's on holiday to fix a website I crashed tells you all you need to know about him as a person. Thank you, Craig, for using TIL resources to give Makeover Monday a reliable home on the internet.

I'd like to thank Tim Ngwena for his support in helping produce high-resolution images. Thank you for your wizardry and for being so patient with me.

Finally, and most importantly, I'd like to thank my wife, Beth, and our four amazing children, Michael, Oscar, Elizabeth, and Henry, for their support throughout the writing of this book. Thank you for giving me the time and space to get this done when I needed it most. We've sacrificed many nights and weekends together to get this done. It's been many years now that I've been addicted to data visualization and you have never wavered in your support.

## From Eva

Thank you, Andy, for taking a gamble and asking me to join you in running the Makeover Monday project. While I underestimated the impact it would have on my life and my career, I love being part of this and having a platform for helping others grow their skills and develop their careers. Thank you for encouraging me to tackle the things that scare me and for saying yes to almost all of my ideas, even if they result in more work for us initially. Makeover Monday has been transformational, not just for many of our community members, but for me as well.

I'd like to thank Exasol and Aaron Auld for supporting my involvement with the data visualization and analytics community and for encouraging me to do what I love doing. Thank you for also giving me the opportunity to host and travel for live Makeover Monday events, which have been a great way to connect with the participants of our project.

I'd like to thank the local community and user group leaders who invited us to meet their people through Makeover Monday live events. What you do in your communities and organizations extends the work we do and takes the resources to many more people than we can reach by ourselves. Thank you for being such advocates for Makeover Monday and for helping others to grow, learn, and develop their skills. We appreciate all you do, Fiona Gordon, Josh Tapley, Kai-Ming Cheah, Michael Mixon, Neil Richards, Sarah Bartlett, Simon Beaumont.

Last but not least, thanks to my family and friends for being supportive and understanding and for patiently accepting that my availability between work, book writing, and cycling was much less than usual. Having you cheer me on along the way helped me through this writing process and on my path of becoming an author.

# About the Authors

## Andy Kriebel

Head Coach, The Information Lab Data School

Andy, a member of the Tableau Zen Master Hall of Fame, began using Tableau in April 2007. Since then, it has been Andy's mission to help as many people as possible to see and understand their data with Tableau, which is the focus of his role as Head Coach at The Information Lab's Data School. In August 2009, he launched [vizwiz.com](http://vizwiz.com), which is credited as the first ever Tableau-related blog and provides examples of data visualization best practices, methods for improving existing work, and tips and tricks with Tableau. He writes or has written three weekly series: Makeover Monday (along with Eva Murray), Tableau Tip Tuesday, and Workout Wednesday (along with Emma Whyte).

Andy writes every week about great data visualizations he finds around the web on his other website Data Viz Done Right ([datavizdoneright.com](http://datavizdoneright.com)) and he is one-half of the Dear Data Two project along with Jeffrey Shaffer ([dear-data-two.com](http://dear-data-two.com)).

In addition to his recognized expertise in data visualization and Tableau, Andy is frequently invited to speak at conferences around the world. Prior to his role at The Information Lab, Andy ran the Tableau Center of Excellence at Facebook, providing data visualization and data analysis training at Facebook offices globally. Andy

was also the first Tableau user at Coca-Cola before he was recruited to Facebook.

Websites: [vizwiz.com](http://vizwiz.com) [makeovermonday.co.uk](http://makeovermonday.co.uk)

Twitter: [@VizWizBI](https://twitter.com/VizWizBI)

Facebook: [facebook.com/vizwiz/](https://facebook.com/vizwiz/)

YouTube: [youtube.com/user/kriebela/](https://youtube.com/user/kriebela/)

Tableau: [public.tableau.com/profile/andy.kriebel](https://public.tableau.com/profile/andy.kriebel)

## Eva Murray

Head of Business Intelligence, Exasol

Eva joined the field of Business Intelligence and Data Visualization in 2013 while living and working in Australia. After moving to Germany in 2016, she is now part of Exasol's management team, responsible for executing the company's data-driven strategy and developing an Analytics Center of Excellence. Eva is passionate about bringing data to more people and creating educational content and collaboration opportunities for data analysts across the world to build a community of like-minded professionals who drive action and change.

Eva is a Tableau Ambassador and 2018 Tableau Zen Master, has co-hosted the popular social data project Makeover Monday since January 2017, and blogs at [trimydata.com](http://trimydata.com), where she writes about her three passions: Tableau, Travel, and Triathlon.

Eva has successfully built her profile in the data visualization and Tableau community, starting in Australia, where she worked as a Tableau trainer and consultant, helping large organizations improve their analytics environments. Since moving to Europe, Eva has spoken at a number of international conferences and analytics events and was a judge for Tableau's inaugural Iron Viz Europe contest.

Websites: [trimydata.com](http://trimydata.com) [makeovermonday.co.uk](http://makeovermonday.co.uk)

Twitter: [@TriMyData](https://twitter.com/TriMyData)

Tableau Public: [public.tableau.com/profile/eva.murray](https://public.tableau.com/profile/eva.murray)

# Part I



# Introduction

“Practice makes perfect.” Our parents, teachers and coaches have said this simple phrase ever since we were old enough to think for ourselves. And we all know now that if you want to be great at anything, you have to practice, over and over and over again. Whether it is data visualization, golf, or underwater basket weaving, in order to be great you have to dedicate time to perfecting your craft. On top of practice, you need to engage with a community that can help you learn, provide you with feedback, and inspire you. This is what Makeover Monday is all about. Makeover Monday will help you go from good to great at data visualization, data analysis, communication, and storytelling, as long as you make the effort, week after week.

## What Is Makeover Monday?

Makeover Monday, the social data project, started in January 2016 as a collaboration between me (Andy Kriebel) and Andy Cotgreave. Makeover Monday as a concept, however, had been around for several years as a weekly project I did by myself to advance my learning and practice my craft.

Makeover Monday is simple: take an existing chart and make it better. The goal is straightforward: improve how we visualize and analyze data, one chart at a time. Here is how it works:

1. Eva Murray (my partner from January 2017) and I find charts that we think do not communicate information as effectively as they could.

2. We prepare the necessary data for each chart so that people can focus on visualizing and analyzing the data (without the need to prepare it first), thus eliminating a big barrier to participation.
3. The original visualization and data, along with the source article, are posted on our website on Sundays.
4. Throughout the week, participants create their own chart, dashboard, or story, publish it to the web, and share it via our data.world page ([data.world](https://data.world)) and Twitter.
5. In addition to members of the community giving one another feedback, Eva and I run a weekly webinar to provide live feedback.
6. People iterate on the feedback and republish.
7. Each week we identify our favorite visualizations, a few lessons learned, and summarize the week in a blog post on Friday.
8. It starts all over again two days later.

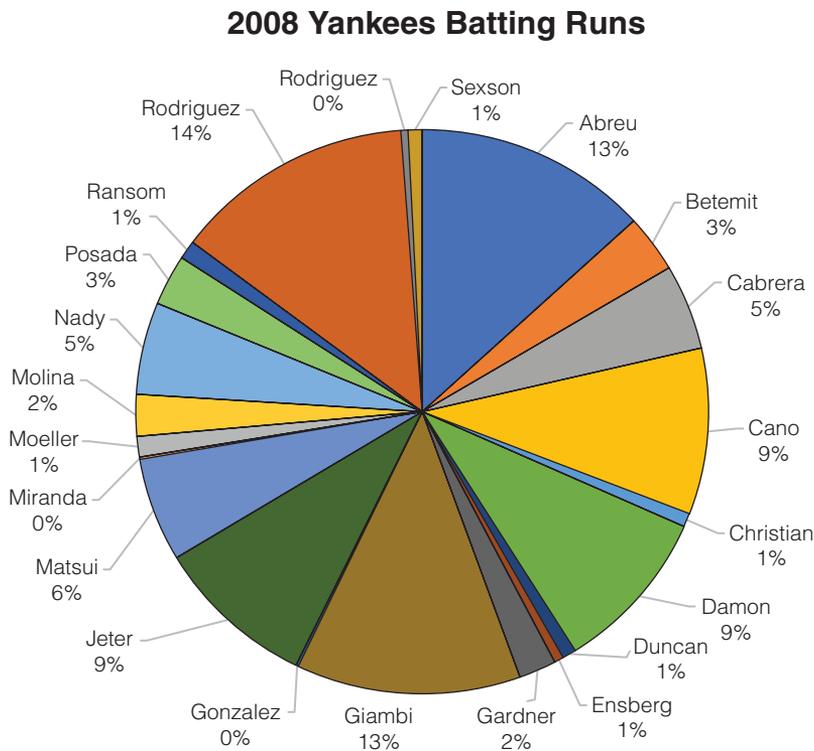
Makeover Monday is open to everyone. Maybe you are just getting started and need a place to practice data visualization or basic data analysis. Maybe you have years of experience and want to improve your storytelling, communication skills, or learn advanced techniques. Wherever you are in your career as a data analyst, Makeover Monday has a place for you.

## How Did Makeover Monday Start?

I started using Tableau Software on 11 April 2007 and immediately began reading all I could to understand the fundamental data visualization principles that Tableau was built upon. Based on a recommendation, the first book I read was Stephen Few's *Information Dashboard Design: The Effective Visual Communication of Data* (O'Reilly Media, 2006). The idea that really stuck with me was how Stephen would teach his readers by reviewing poorly designed charts, indicating what did not work and how he would visualize it differently.

I read the book cover to cover in a day and was blown away that I had not heard anything about data visualization before. I knew at this moment that my world had changed. This was the work I wanted to do.

Fast-forward to August 2009. I noticed that not many people were writing about data visualization and I believed that writing about what I was learning would help make the concepts stick and help me improve faster. [VizWiz.com](http://VizWiz.com) was born and I started doing “makeovers.” The first blog post I wrote was a makeover of a pie chart similar to the one in Figure I.1 about the RBIs (runs batted in; baseball) contributed by New York Yankees players:

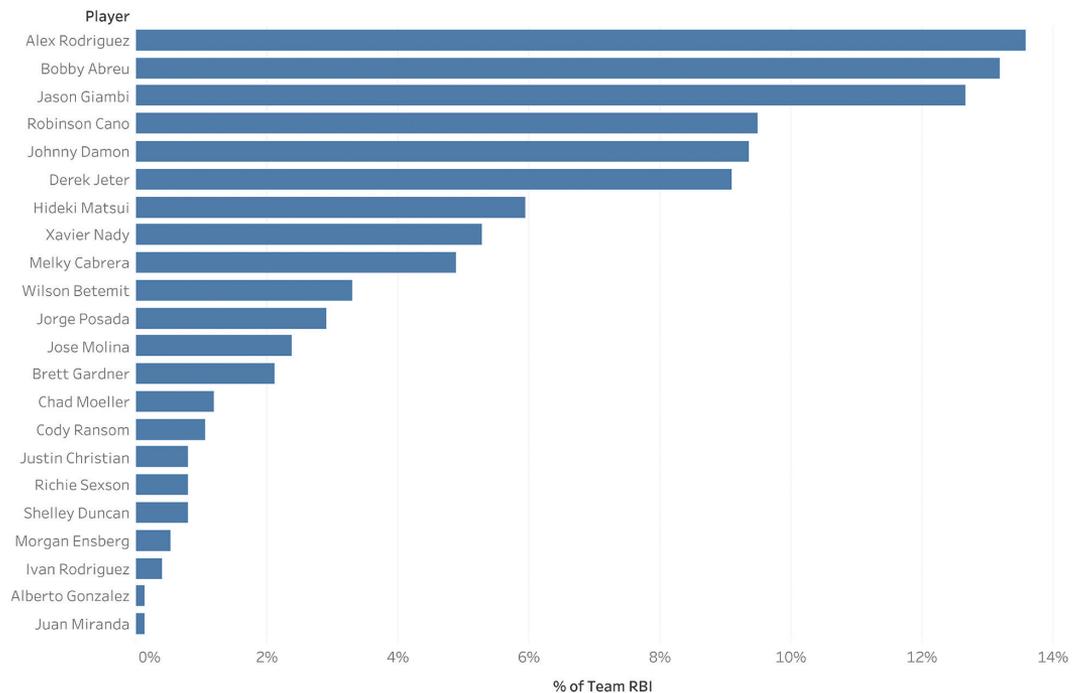


**FIGURE I.1** The alphabetical sorting of the pie chart makes ranking the players difficult.

Following Few's style, I asked a simple question:

Which player had the fifth most RBIs?

Given the design of this chart, particularly with its alphabetical sort order, finding the fifth-highest player takes too long. When visualizing data, I wanted to aim for simplicity and make it easy for my audience to understand the data. With that in mind, I created the simple bar chart in Figure I.2 as my first makeover.



**FIGURE I.2** A bar chart is much better for representing the ranking of the players.

I explained how displaying the data as a bar chart, sorted by the team RBI percentage from highest to lowest, makes answering the same question much easier. All the reader needs to do is scan down to the fifth bar and see that Johnny Damon had the fifth most RBIs for the Yankees in 2008.

The core principle I was following was to make the charts as simple as possible, as quickly as possible, often timeboxing the makeovers to 60 minutes. Giving myself an hour to create a better, more effective chart for a specific topic forced me to make quick design decisions and to be satisfied with charts that were not “perfect” when it came to advanced design.

## The Community Project

Six years and hundreds of makeovers later, my friend Emily Kund noticed that nearly all of the makeovers that I had been posting were on Mondays. Emily is a huge fan of alliterations and suggested that I start calling the weekly series “Makeover Monday.” On 28 April 2014, Makeover Monday officially became a project, even though it was still a one-man show.

### The Andys: Makeover Monday 2016

I continued creating these makeovers week after week until November 2015, when Andy Cotgreave, Technical Evangelist at Tableau and author of *The Big Book of Dashboards*, reached out and asked if he could join me each week. Andy C found that, although he was a Tableau employee, he was not exploring data as much as he used to. He committed to do every weekly makeover with me throughout 2016.

Here is how it worked. I posted a data set every week and Andy and I would each visualize the data and post it on our blogs (Andy C’s is at [gravyanecdote.com](http://gravyanecdote.com)). We followed the three-part review format that I had been using:

1. What works with the original chart?
2. What could be improved?
3. What did we do to make it better?

This format helped with consistency, conciseness, and focus. It also helped us each understand the thought process of the other. Andy Cotgreave then had the idea to open it up to the “Tableau Community” by setting up a website ([makeovermonday.co.uk](http://makeovermonday.co.uk)), posting the data sets there each week, along with a link to the original visualization to make over, then sharing the details on Twitter (Figure I.3).



**FIGURE I.3** Collection of the images created by Andy & Andy for Makeover Monday 2016.

And so, 3239 visualizations and 519 contributors later, year one of Makeover Monday was a huge success.

I could not believe it! How did my little way of learning each week go from just me to hundreds of people in a single year? I love how inspired everyone was, how willing they’ve been to help each other with their eagerness to learn and improve week after week.

So, what did Andy C think?

I was blown away. Andy K and I thought we might just be producing charts and nothing would happen, but within weeks we were seeing a bunch of people getting involved each week. As the year developed, more and more people got involved. The talent, passion, and dedication of the community was the most rewarding and surprising aspect of 2016.

To say we were blown away by the participation is a massive understatement. I actually saved every single visualization created to a Pinterest board. As the project grew, this became a bigger and bigger task. Just to keep track of “pinned” and “to be pinned” visualizations, I had to develop my own system of “liking” Tweets and saving to Pinterest as each week progressed.

By the end of 2016, 11 people had completed all 52 weeks: me, Andy C, Adam Crahen, Charlie Hutcheson, Michael Mixon, Neil Richards, Paul Rau, Pooja Gandhi, Rob Radburn, Shawn Levin, and Simona Loffredo (Figure I.4).

## Makeover Monday: A Social Data Experiment



FIGURE I.4 Summary of Makeover Monday 2016 with the 100% club.

While this is an amazing effort, I must admit that my favorite participant in the project was 8-year-old Joe Radburn. Joe completed 27 of 52 weeks alongside his dad, Rob. If anyone is set up for a great future in data analysis and visualization, it is Joe. As of this writing, Joe has a portfolio of 38 visualizations.

## The Murray/Cotgreave Swap: Makeover Monday 2017

As Makeover Monday 2016 was winding down, Andy C's year of involvement was coming to an end, so on 23 December 2016, I asked Eva Murray to join me on the project.

Having known Eva for a few years, I was well aware of her passion for Tableau and data visualization. We had a great rapport and, thankfully, she agreed to join me and brought along lots of new ideas and energy. This was the beginning of a great partnership that would see Makeover Monday grow even more in 2017.

How did Eva transition into the world of data? Here is a short description of how she realized that data and data visualization were the things she wanted to focus on in her career:

I started using Tableau in 2013 and had been fascinated by data visualization since my university years when I studied visual perception in psychology. Working with data, however, was something that remained limited to my day job until my first Tableau Conference in 2015. Suddenly I realized that data, visual analysis, and communicating information were topics I wanted to explore further, and I discovered a passion I shared with countless other data enthusiasts around the globe.

Very soon after my first few times of "playing with data" in Tableau, I realized that I wanted to make data the focus of my career and I never looked back. Today I am fortunate to be surrounded by colleagues, friends, and an ever-growing community of people who help organizations improve how they use data, share their knowledge freely, and improve how information is communicated.

The project changed a bit in 2017 because I was no longer to be the sole creator of the data sets: Eva and I agreed to alternate weeks (Figure I.5). Some of the ideas Eva brought to the project included the following.



FIGURE I.5 Collection of the images created by Andy & Eva for Makeover Monday 2017.

### *Weekly Summaries*

Eva suggested that whoever was responsible for a particular week's topic and data set should write a recap of how the week went and pick a few favorites. After settling into a rhythm, these weekly blog posts included lessons learned (which serve as the foundation for this book) and a list of favorites. There was no limit to the number of lessons learned; whatever we saw that required calling out, both good and bad, was summarized and examples provided. This has given the community another way to learn, supported by great examples from the community.

### *Makeover Monday Live*

Eva and I hosted live sessions around the world to introduce Makeover Monday to as many people as possible. The on-tour events proved extremely popular and culminated at the Tableau Conference in Las Vegas with more than 500 attendees in the room and 200+ having to be turned away because there was no more space to seat them. Five hundred people came just to visualize data (Figure I.6)—amazing!



**FIGURE I.6** 500 people attended Makeover Monday Live at Tableau Conference 2017.

During live sessions, we introduce Makeover Monday, show the chart to make over, provide access to the data, give the attendees an hour to visualize the data, and ask a few people to present their work.