ADVANCED EXCEL

DASHBOARD DESIGN

FOR BUSINESS INTELLIGENCE

★★★★★ *With Certified Excel Expert* ***Enrique Ruiz***

MAVEN ANALYTICS

COURSE OUTLINE

1 Data Viz Best Practices

Review data visualization best practices for choosing and formatting visuals and telling data-driven stories

2 Dashboard Design Principles

Outline key dashboard design principles for creating effective dashboards, uncovering insights and driving smart decisions

3 Course Projects

MAVEN MUSIC
SINCE 1996

Create a visual showing the evolution of the music industry and the impact of digital formats

MAVEN CAREERS

Build a dashboard to explore salary and employment data across key industries in the US

MAVEN TOYS

Design a monthly KPI dashboard for sales managers to track regional performance

MHG

Visualize hotel booking data to show key cancellation patterns and business insights

4 Tips for Success

Reinforce the key takeaways for designing clear and impactful visualizations and dashboards

COURSE STRUCTURE

This is a **hands-on**, **project-based** course designed to help you apply data visualization and dashboard design principles to real-world cases

Course resources include:

- **Downloadable PDF ebook** to serve as a helpful reference when you're offline or on the go (*or just need a refresher!*)
- **Quizzes** and **Projects** to test and reinforce key concepts covered throughout the course, with detailed step-by-step solutions
- **Interactive demos** to keep you engaged, with **downloadable Excel files** that you can use to follow along from home

SETTING EXPECTATIONS

We'll be using **Excel** for **Office 365** on a **PC** for the course demos

- *What you see on your screen may not always match what you see on mine, especially if you are running a different operating system or following along with an older version of Excel*

This course focuses on **data visualization** and **dashboard design**

- *We'll cover some formulas, charts, and PivotTables within the scope of the dashboard design process, but recommend our other Maven Analytics courses for comprehensive deep dives*

The key concepts you'll learn in this course **are not specific to Excel**

- *Although we'll focus on Excel-specific tips and techniques, the data visualization and dashboard design principles we teach can be applied universally (Power BI, Tableau, etc.)*

We **WON'T** focus on extracting, transforming, and loading source data (ETL)

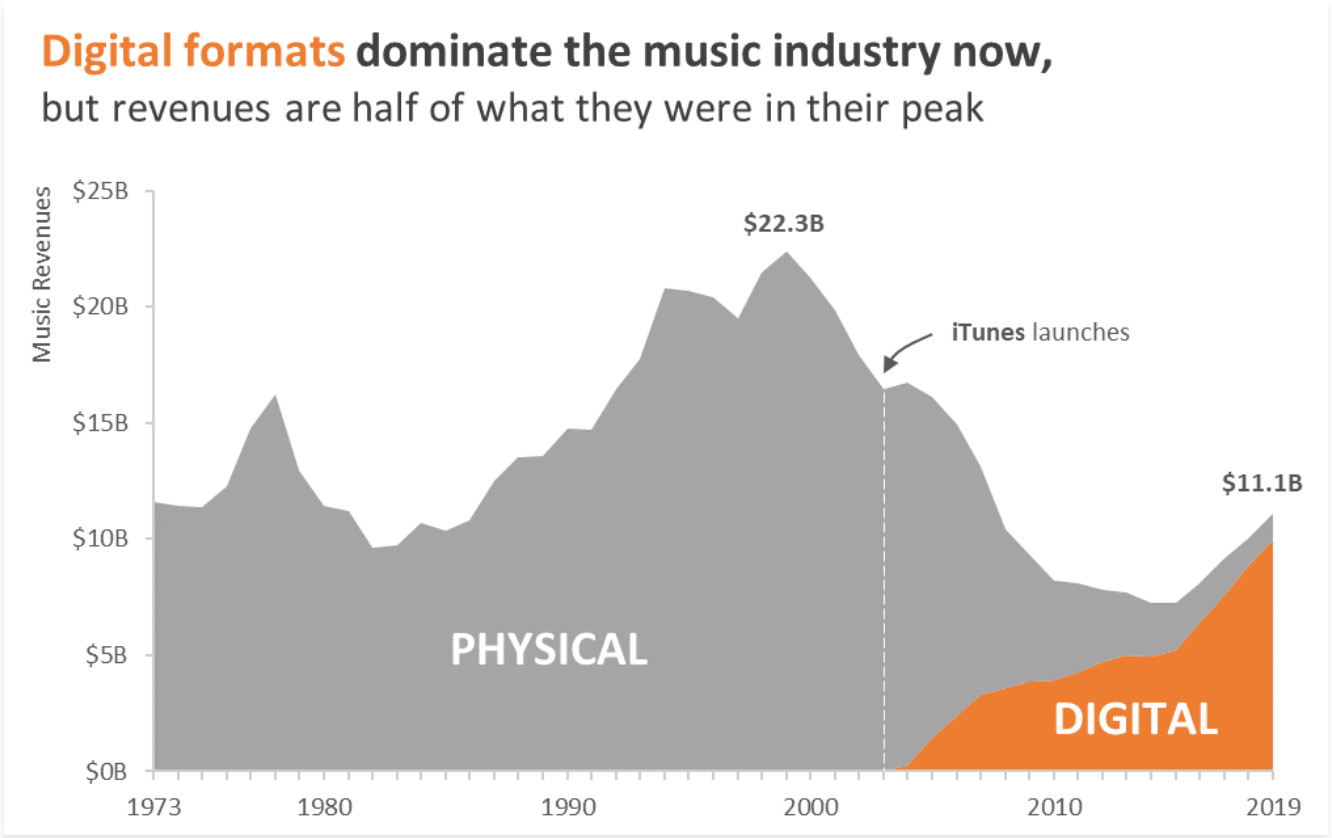
- *This course isn't about data prep or QA, so we'll start with the source data pre-loaded into Excel and focus on bringing it to life through visualization*

THE COURSE PROJECTS

MAVEN MUSIC
SINCE 1996

PROJECT #1:

Single Visual *(Maven Music)*

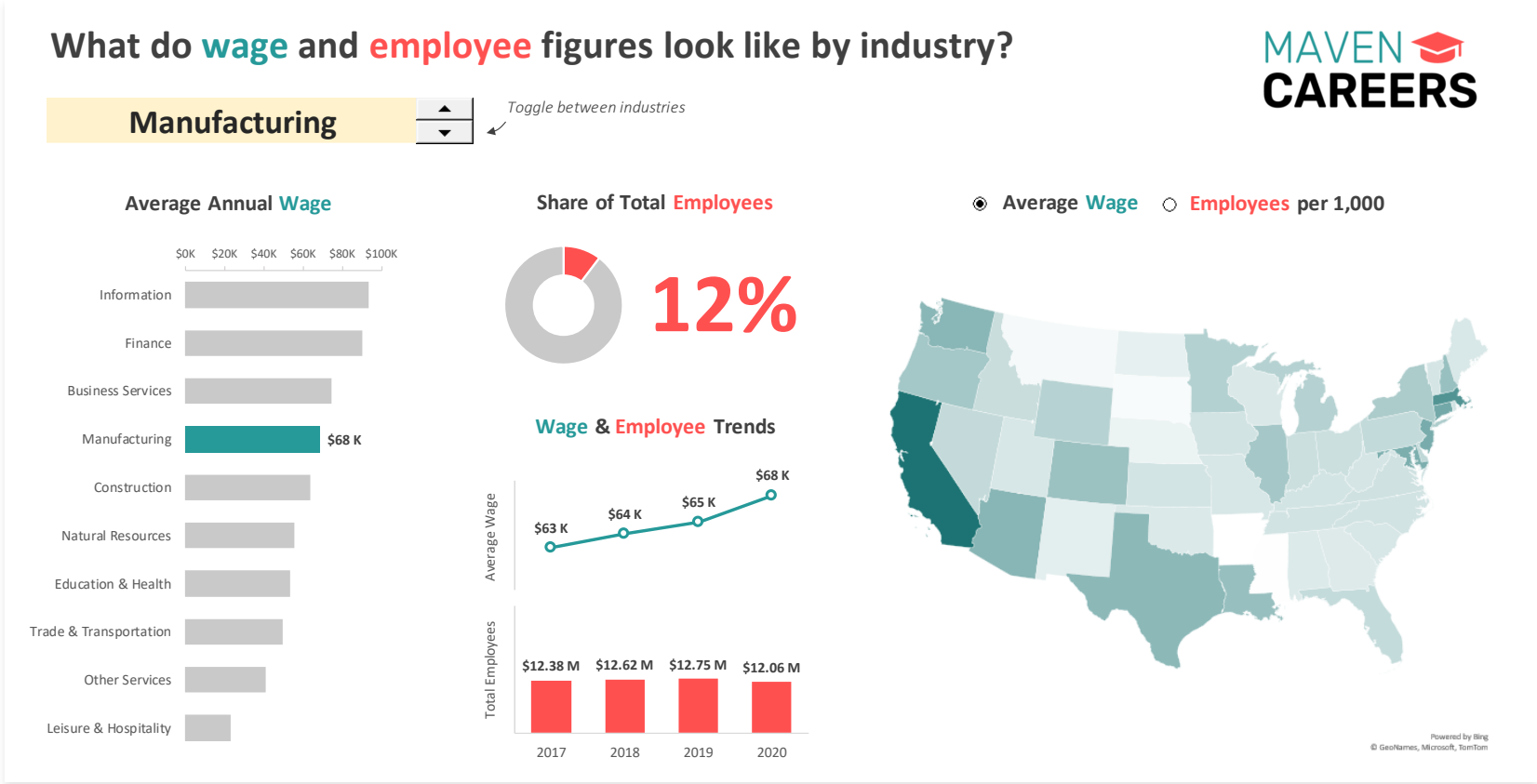


THE COURSE PROJECTS

MAVEN CAREERS

PROJECT #2:

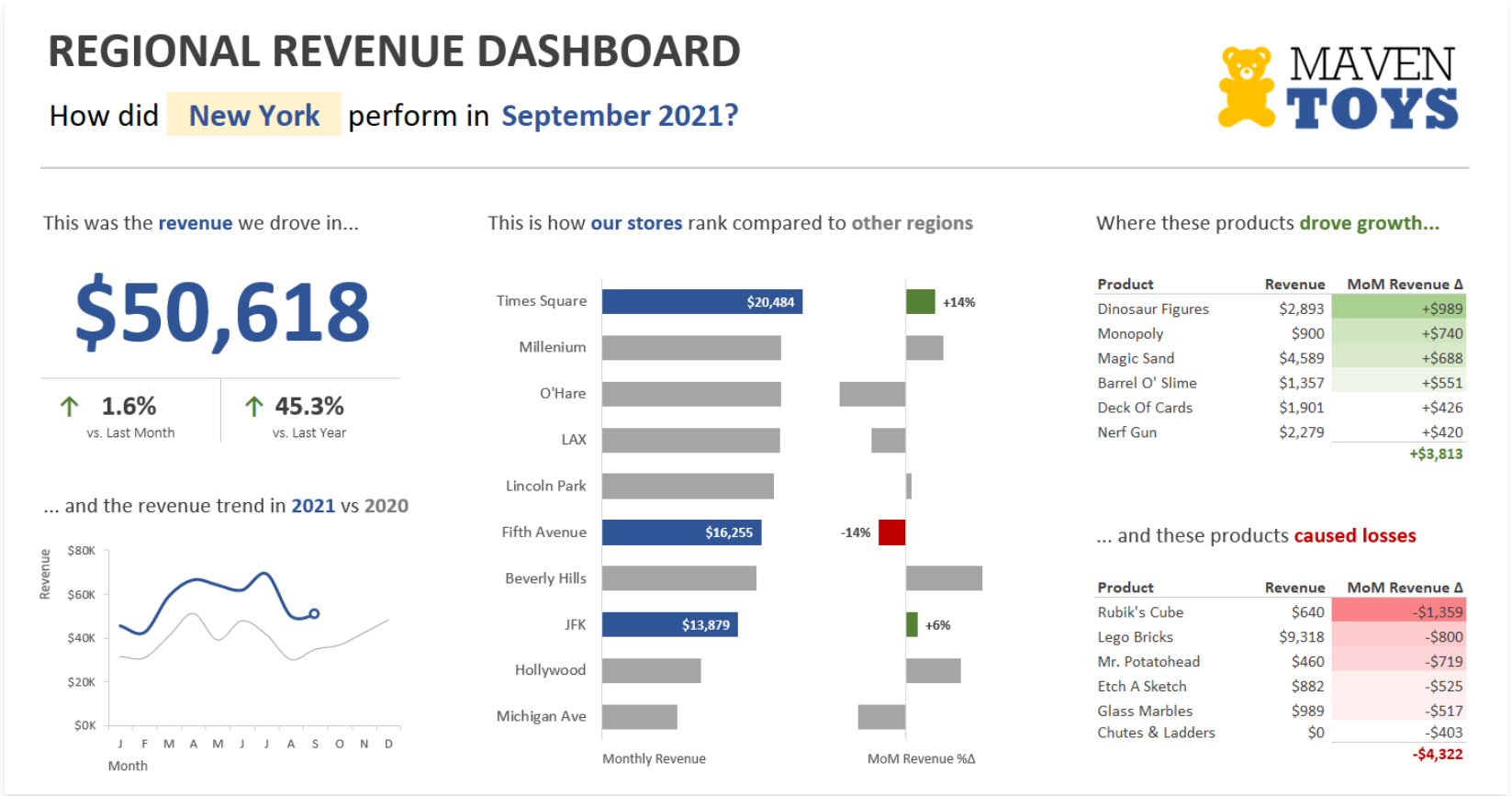
Exploratory Dashboard *(Maven Careers)*



THE COURSE PROJECTS

PROJECT #3:

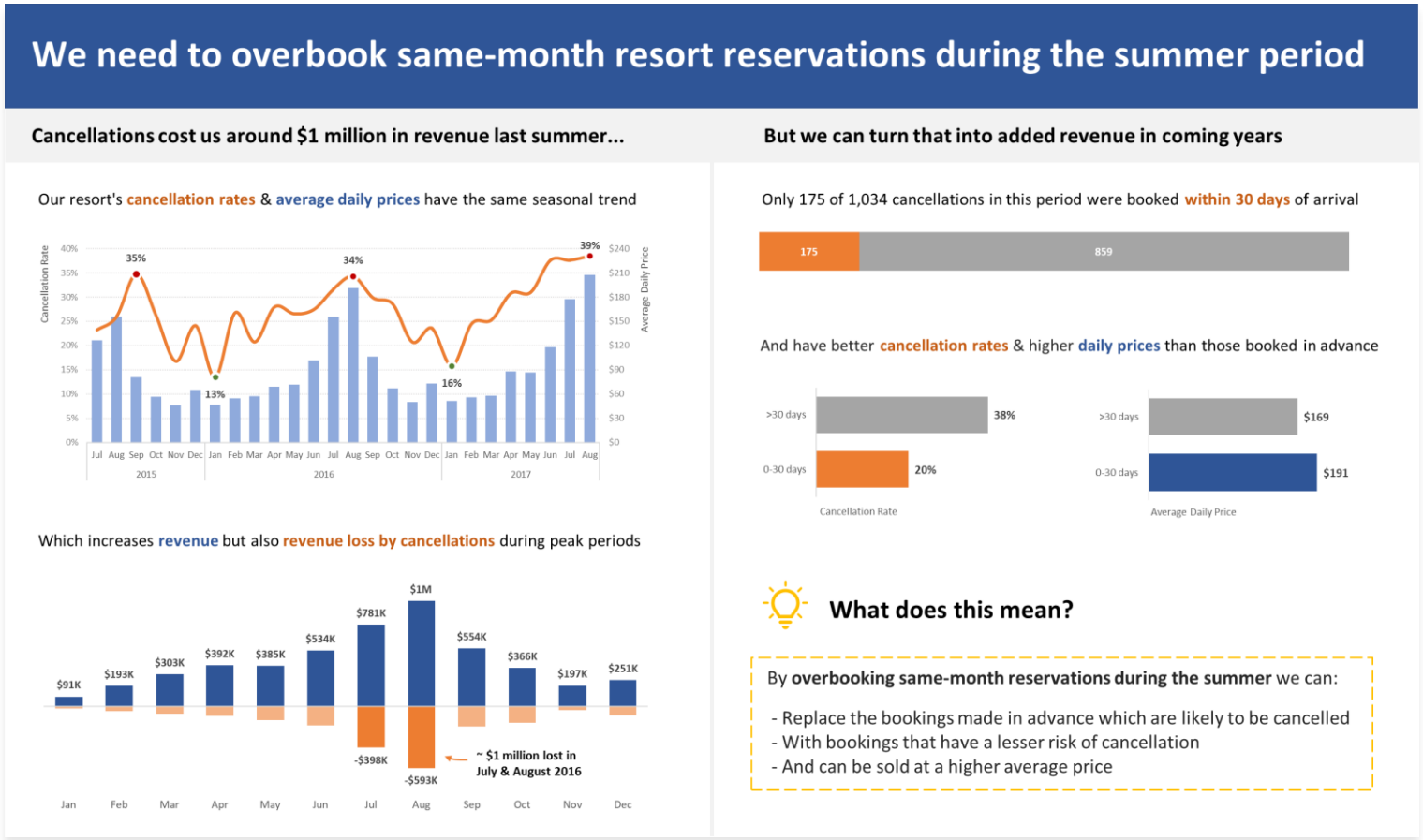
Interactive KPI Dashboard *(Maven Toys)*



THE COURSE PROJECTS

PROJECT #4:

Explanatory Dashboard *(Maven Hotel Group)*



DATA VIZ BEST PRACTICES

DATA VIZ BEST PRACTICES

In this section we'll cover **key data visualization best practices** for clear communication, including tips for selecting effective charts, eliminating noise, and facilitating understanding

TOPICS WE'LL COVER:

- **Data Viz 101**
- **3 Key Questions**
- **Essential Visuals**
- **Chart Formatting**
- **Storytelling**
- **Common Errors**

GOALS FOR THIS SECTION:

- *Understand the three key questions for choosing the most effective visuals*
- *Introduce several essential chart types, including line charts, bar charts, scatter plots and maps*
- *Review chart formatting tips to eliminate noise, improve clarity, and facilitate understanding*
- *Address common data visualization mistakes, and how to avoid them*

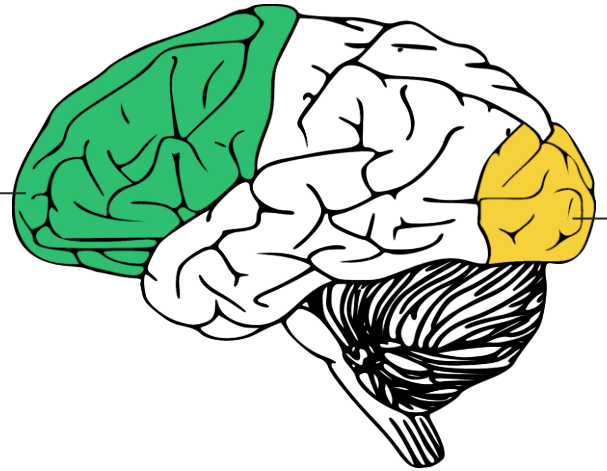
WHY VISUALIZE DATA?

Data visualization allows you to **bring your data to life**

- The human brain isn't built to interpret raw data; we need **clear patterns** and **visual cues** to help us quickly make sense of complex information

Prefrontal Cortex

- *Located in the frontal lobe*
- *Responsible for cognitive functioning & problem solving*
- *Helps us make sense of non-visual information (like raw data)*
- *Slow & conscious*



Visual Cortex

- *Located in the occipital lobe*
- *Responsible for visual perception & understanding*
- *Helps us make sense of colors, patterns, shapes, sizes, etc.*
- *Instantaneous & subconscious*

Data visualization puts both our prefrontal and visual cortex to work, combining the power of **cognition** *(slow and conscious)* and **perception** *(instantaneous)*

THE 10 SECOND RULE

- Data Viz 101
- 3 Key Questions
- Essential Visuals
- Formatting
- Storytelling
- Common Errors

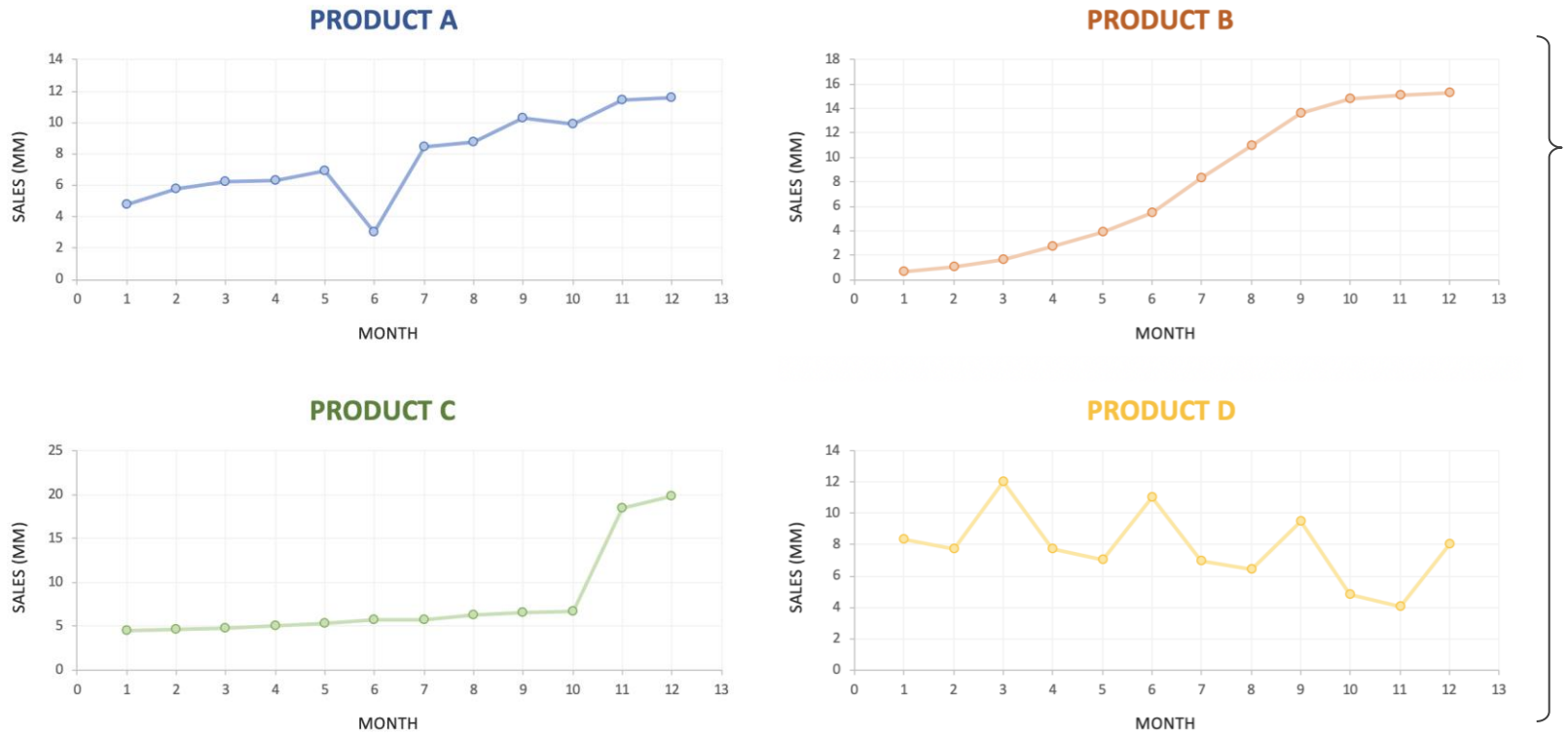
In **10 seconds**, what can you learn from the data below?

Product A		Product B		Product C		Product D	
Month	Sales (MM)	Month	Sales (MM)	Month	Sales (MM)	Month	Sales (MM)
1	4.80	1	0.67	1	4.53	1	8.35
2	5.78	2	1.05	2	4.61	2	7.72
3	6.24	3	1.62	3	4.74	3	12.05
4	6.34	4	2.67	4	5.10	4	7.70
5	6.95	5	3.91	5	5.32	5	7.05
6	3.02	6	5.49	6	5.70	6	11.05
7	8.45	7	8.36	7	5.77	7	6.95
8	8.79	8	10.99	8	6.32	8	6.39
9	10.30	9	13.58	9	6.56	9	9.50
10	9.93	10	14.81	10	6.64	10	4.83
11	11.40	11	15.13	11	18.50	11	4.03
12	11.56	12	15.26	12	19.80	12	8.03

THE 10 SECOND RULE

- Data Viz 101
- 3 Key Questions
- Essential Visuals
- Formatting
- Storytelling
- Common Errors

How about now?



This is a variation of ***Anscombe's Quartet***

Despite sharing similar descriptive stats, each series tells a very different visual story

THE 3 KEY QUESTIONS

When selecting a chart type, always ask yourself the following **3 KEY QUESTIONS**:

1 What **type of data** are you visualizing?

Time-series

Data that spans across continuous time periods

Categorical

Data that can be split up into groups or categories

Geospatial

Data with geographical properties like country, state, and zip code

Hierarchical

Data with natural groups and sub-groups

2 What do you want to **communicate**?

Comparison

Compares values over time or across categories

Composition

Breaks down the component parts of a whole

Distribution

Shows the frequency of values within a series

Relationship

Shows the correlation between multiple variables

3 Who is the **end user** and what do they need?

Analyst

Likes to see details and understand what's happening at a granular level

Manager

Wants summarized information with clear, actionable insights

Executive

Needs high-level, clear KPIs to track business health and performance

General Public

Requires engaging visuals and a clear story to follow

ESSENTIAL VISUALS

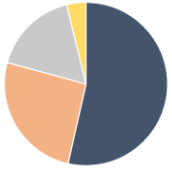
- Data Viz 101
- 3 Key Questions
- **Essential Visuals**
- Formatting
- Storytelling
- Common Errors

KPI CARD

96%

Sometimes simple text works best

PIE CHART



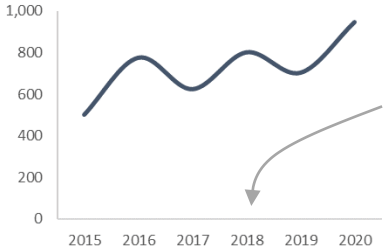
Sort the slices, keep them under 5, and focus on one

TABLE

	A	B	C
Category 1	89%	14%	31%
Category 2	96%	52%	7%
Category 3	99%	68%	47%
Category 4	52%	69%	98%

Add a color scale to highlight patterns in the data

LINE CHART

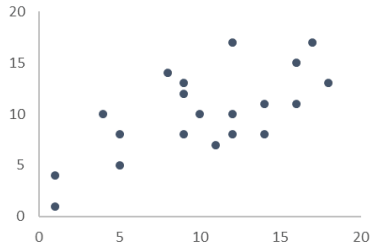


The dates must be continuous

BAR CHART

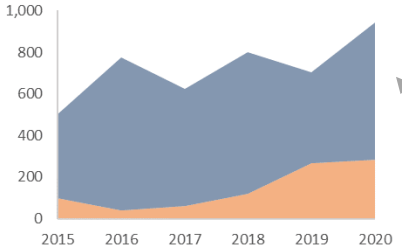
Baseline must start at zero

SCATTER PLOT



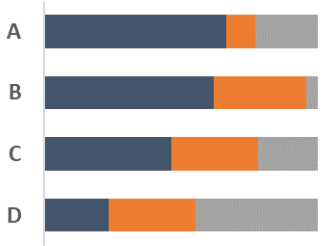
Remember that correlation does not imply causation

AREA CHART

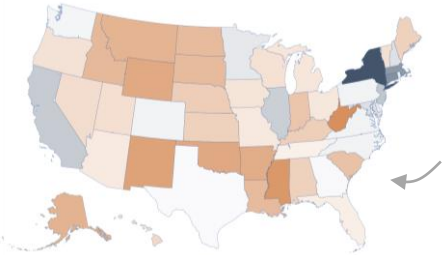


Comparison & composition

100% STACKED



MAP

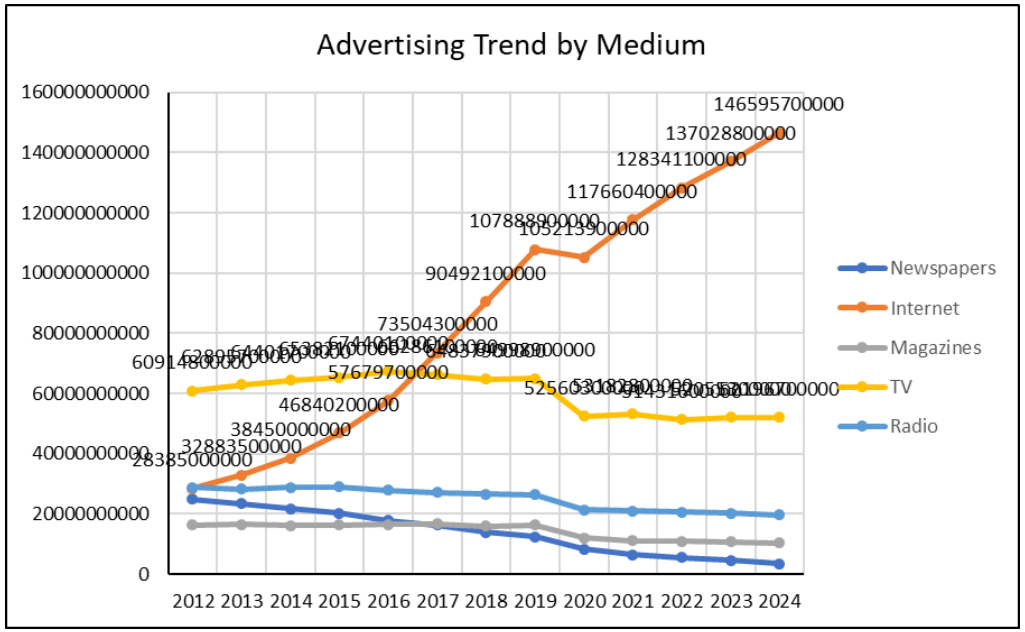


Use diverging color scales to compare against a baseline

CHART FORMATTING

Chart formatting should be used to eliminate noise & facilitate understanding

BEFORE: *Cluttered chart*



This is the right chart type… so why is it so hard to understand the visual?

- × The chart border and gridlines are more distracting than useful
- × The vertical axis labels are hard to read and lack context
- × The data labels on every point make it impossible to focus
- × The legend forces you to look back and forth from the chart
- × The years on the horizontal axis go into the future without explanation

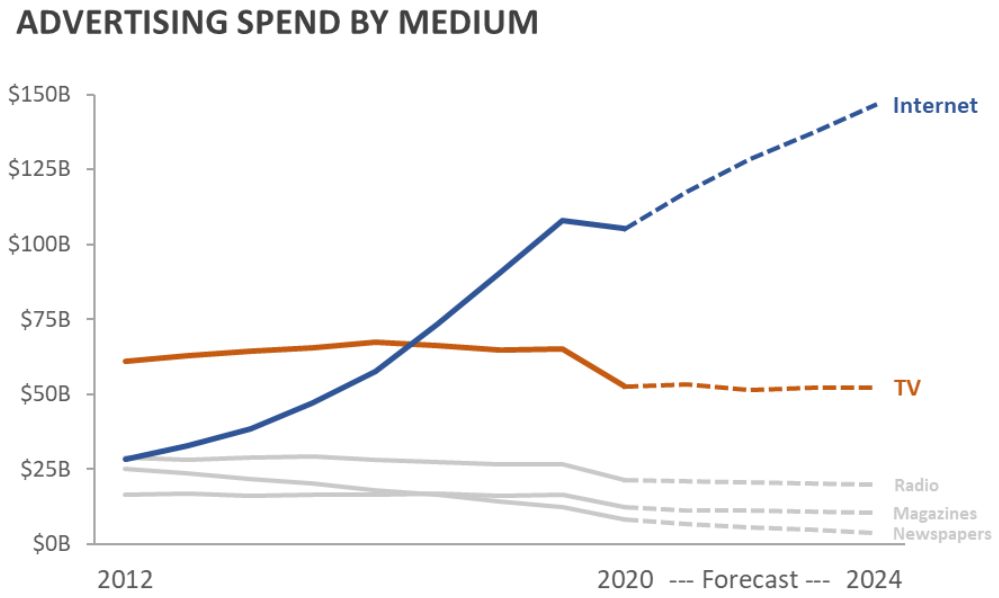
PRO TIP: Format charts manually instead of using Excel's preset chart styles and quick layouts

*DATA SOURCE: Group M
(modified slightly for educational purposes)

CHART FORMATTING

Chart formatting should be used to eliminate noise & facilitate understanding

AFTER: *Clear chart*



PRO TIPS:

- ✓ Remove the chart border & gridlines
- ✓ Format the axis labels clearly
- ✓ Add context with the chart title
- ✓ Use color & labels strategically
- ✓ Create a visual order
- ✓ Make sure the story is clear

"Perfection is achieved not when there is nothing more to add, ***but when there is nothing left to take away****"*

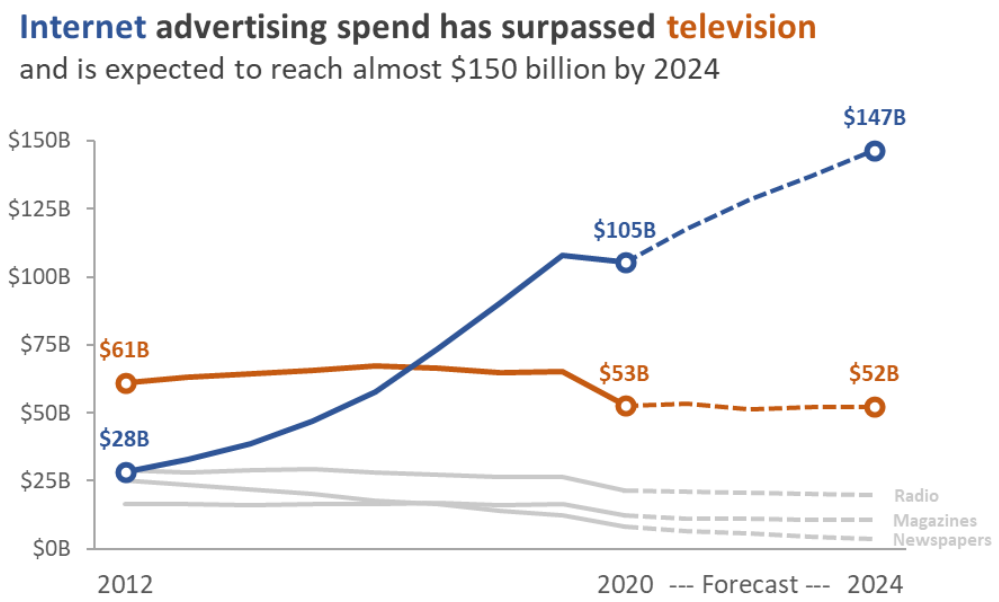
Antoine de Saint-Exupery

**DATA SOURCE: Group M*
(modified slightly for educational purposes)

STORYTELLING WITH DATA

Descriptive titles and data labels can be used to **tell a clear story** within your visuals

***AFTER:** Compelling story*



PRO TIPS:

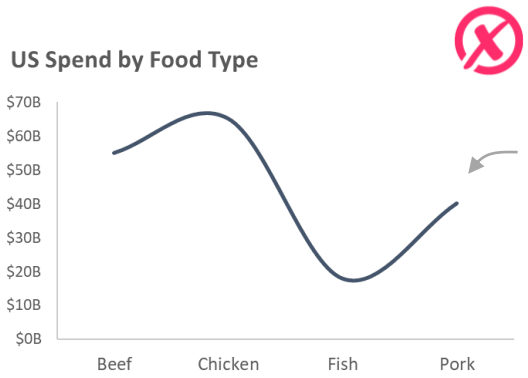
- ✓ Leverage the chart title to clearly call out the most important insights
- ✓ Emphasize key points using bold text and deliberate use of color
- ✓ Use shapes & text boxes to customize the format or chart layout
- ✓ Use markers and data labels to draw attention to meaningful data points

*DATA SOURCE: Group M
(modified slightly for educational purposes)

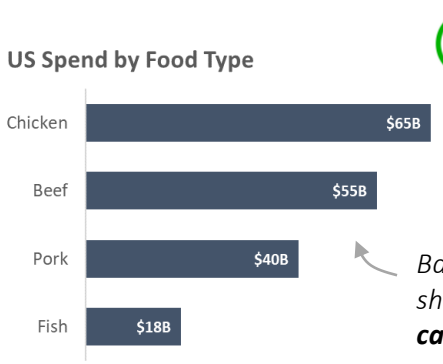
COMMON ERRORS

- Data Viz 101
- 3 Key Questions
- Essential Charts
- Formatting
- Storytelling
- **Common Errors**

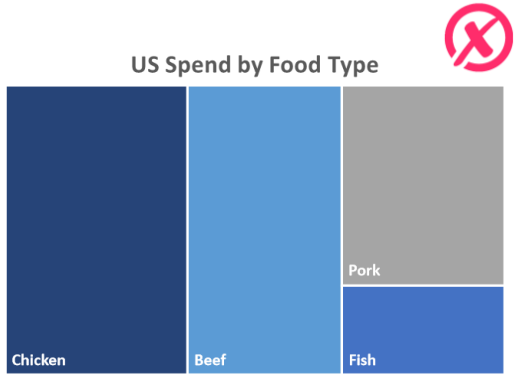
1 Choosing the **wrong chart type** for the data you're visualizing



*Using a line chart, which is meant for **time series** data, with categorical data gives the false sense of a trend*



*Bar charts are great for showing **comparison** with **categorical** data*



While a tree map can work, comparisons and compositions are harder to make than with a bar or pie chart

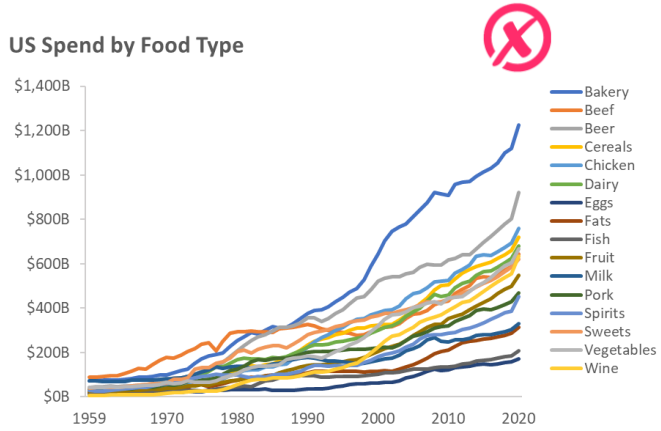
*It's best to use them with **hierarchical** data*

PRO TIP: Don't prioritize *variety* over clarity; choose the right chart for the job!

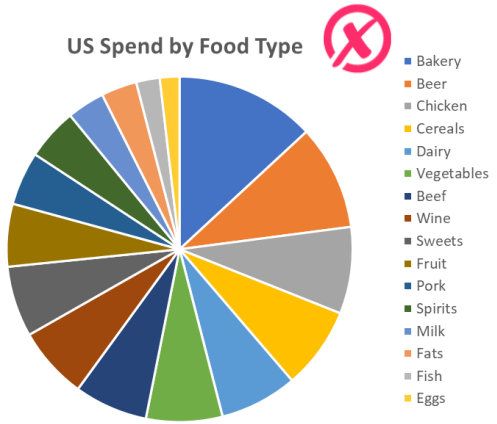
*DATA SOURCE: Bureau of Economic Analysis

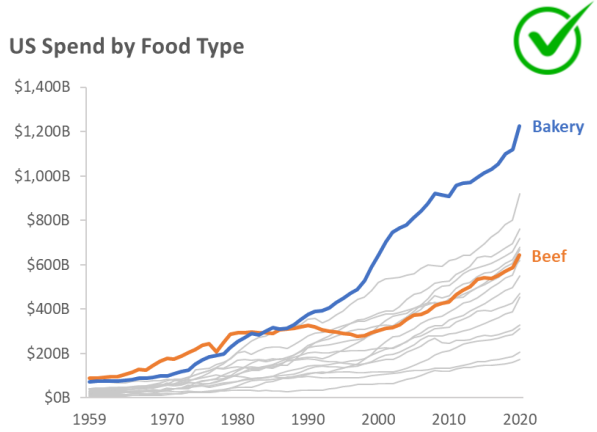
COMMON ERRORS

2 Showing **too many series** within a single visual



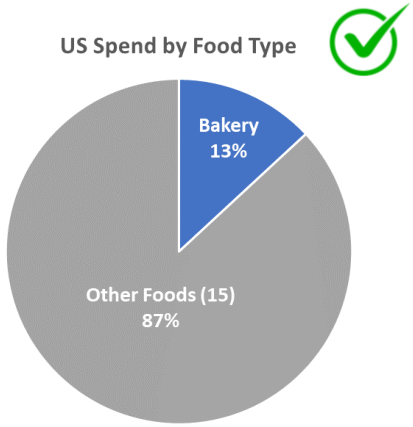
It's hard to focus or extract any valuable information





*Try **highlighting** the series you want to focus on...*

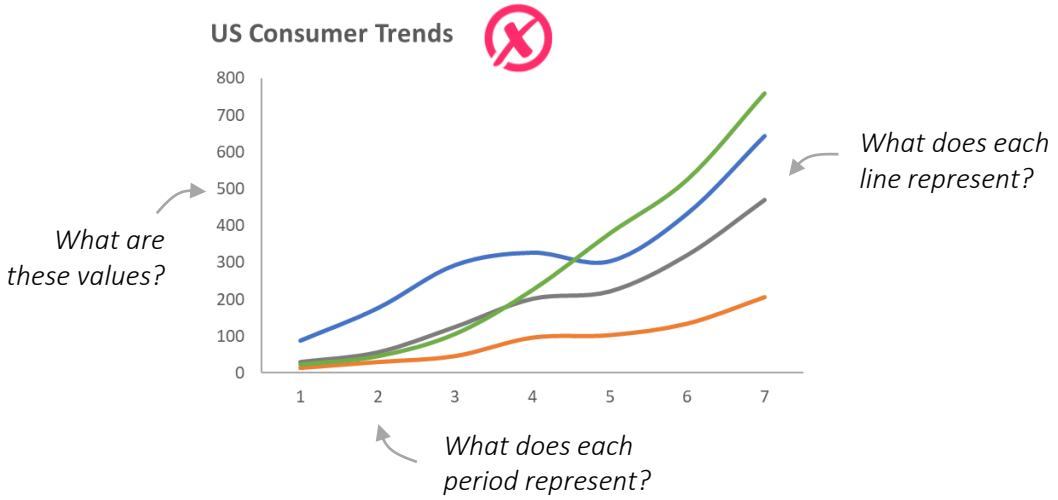
*...or **grouping** the other categories into a single series*

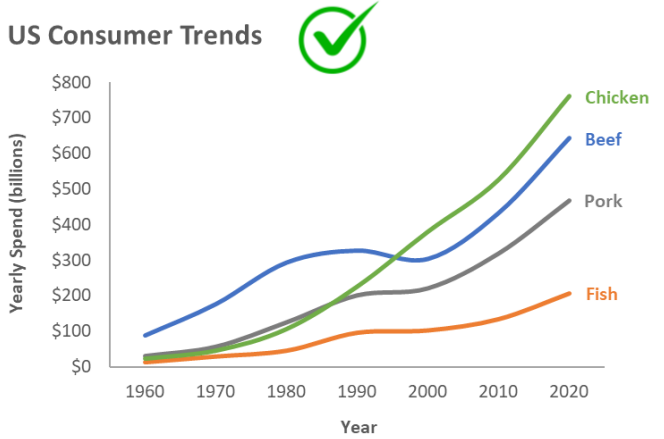


*DATA SOURCE: Bureau of Economic Analysis

COMMON ERRORS

3 Failing to provide **meaningful context** or **clear labels**





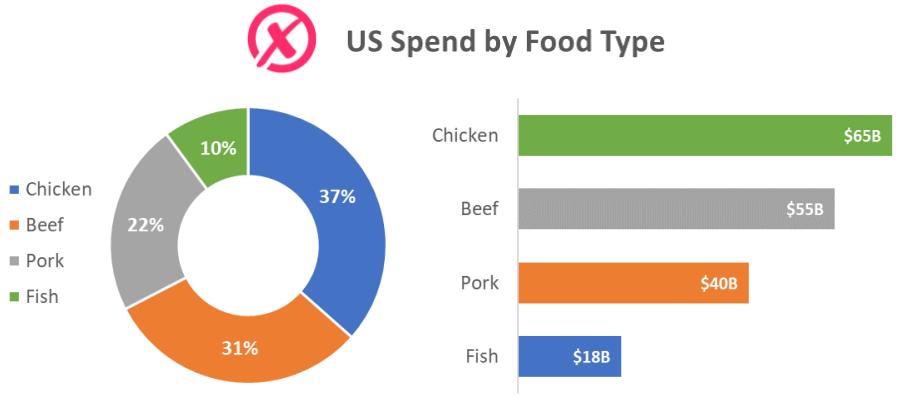
HEY THIS IS IMPORTANT!

While it's important to reduce clutter and noise, remember to **preserve any elements which aid visual understanding** *(axis labels, titles, etc.)*

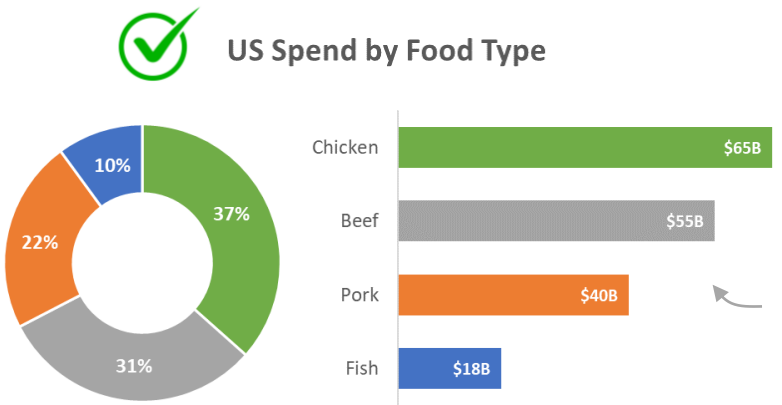
*DATA SOURCE: Bureau of Economic Analysis

COMMON ERRORS

4 Using **inconsistent colors** between related visuals



*Using **different colors for the same series** makes it difficult to associate them visually*



*Using **the same colors consistently** allows you to remove the legend and still understand the charts*

HEY THIS IS IMPORTANT!

Consistency becomes more important as the number of visuals increases, making it critical for effective dashboard design

*DATA SOURCE: Bureau of Economic Analysis

BEST PRACTICES: DATA VISUALIZATION

Always answer the **3 key questions** to choose the right visual

- *What type of data are you working with? What do you want to communicate? Who is the end user?*

Do **NOT** prioritize variety over effectiveness

- *Choose chart types based on how clearly they communicate the story you're trying to tell*

Eliminate clutter and noise to **facilitate understanding**

- *"Perfection is achieved not when there is nothing more to add, but when there is nothing left to take away"*

Focus on **telling a clear story** and highlighting key insights

- *Use descriptive text and formatting to create a data-driven narrative (don't make the user connect the dots!)*

MAVEN MUSIC VISUALIZATION

MAVEN MUSIC | PROJECT BRIEF

MAVEN MUSIC
SINCE 1996

You are the Data Visualization Specialist at **Maven Music**, and just received a project request from the magazine's Chief Editor

From: **Betty Bass** *(Chief Editor)*

Subject: **Need a visual for a new article**

Good morning!

We've got an article coming out in next month's edition on how the launch of the iTunes Music Store in 2003 impacted the evolution of the music industry.

Can you use the data attached from the RIAA to visualize how the composition of the music market has changed over the last 40 years for physical and digital formats?

Thank you!

US_Music_Revenues.xlsx

Reply Forward

Key Objectives

1. Select an effective chart type
2. Create the chart in Excel
3. Use formatting to eliminate noise
4. Add context to help tell the story

MAVEN MUSIC | PROJECT BRIEF

Dataset Summary:

- *US music revenues by format, from 1973 to 2019*

Dimensions & Measures:

- ***Dimensions:*** *Year*
- ***Measures:*** *Revenue (Physical vs. Digital formats)*

Excel Concepts Covered:

- *Inserting Charts*
- *Modifying Chart Elements*
- *Customizing Axis Labels*
- *Inserting Shapes*
- *Saving a Chart as a Picture*

	A	B	C
1		Revenue (MM)	
2	Year	Physical	Digital
3	1973	$11,612	$0
4	1974	$11,407	$0
5	1975	$11,350	$0
6	1976	$12,298	$0
7	1977	$14,769	$0
8	1978	$16,200	$0
9	1979	$12,943	$0
10	1980	$11,424	$0
11	1981	$11,177	$0
12	1982	$9,613	$0
13	1983	$9,719	$0
14	1984	$10,666	$0
15	1985	$10,365	$0
16	1986	$10,825	$0
17	1987	$12,522	$0
18	1988	$13,517	$0
19	1989	$13,565	$0
20	1990	$14,751	$0
21	1991	$14,705	$0
22	1992	$16,444	$0
23	1993	$17,775	$0
24	1994	$20,818	$0

	A	B	C
25	1995	$20,668	$0
26	1996	$20,423	$0
27	1997	$19,492	$0
28	1998	$21,505	$0
29	1999	$22,381	$0
30	2000	$21,266	$0
31	2001	$19,836	$0
32	2002	$17,926	$0
33	2003	$16,471	$0
34	2004	$16,450	$258
35	2005	$14,655	$1,433
36	2006	$12,515	$2,398
37	2007	$9,849	$3,287
38	2008	$6,848	$3,574
39	2009	$5,484	$3,848
40	2010	$4,295	$3,928
41	2011	$3,843	$4,267
42	2012	$3,087	$4,725
43	2013	$2,704	$5,016
44	2014	$2,291	$4,938
45	2015	$2,009	$5,230
46	2016	$1,654	$6,419
47	2017	$1,560	$7,615
48	2018	$1,176	$8,849
49	2019	$1,148	$9,963

n=47

*DATA SOURCE: RIAA (Recording Industry Association of America)

DASHBOARD DESIGN PRINCIPLES

DASHBOARD DESIGN PRINCIPLES

In this section we'll cover key **dashboard design principles**, and review best practices for selecting visual elements, adding context, leveraging effective layouts, and more

TOPICS WE'LL COVER:

- **Dashboards 101**
- **Defining a Purpose**
- **Visual Elements**
- **Adding Context**
- **Dashboard Layouts**

GOALS FOR THIS SECTION:

- *Explore the difference between exploratory and explanatory dashboards*
- *Review tips for selecting the right visual elements, including charts, metrics, and filters*
- *Understand the importance of adding context to visuals and key metrics*
- *Learn how to leverage layouts and reading patterns to create effective and engaging dashboards*

DASHBOARDS 101

DASHBOARD [**dash**-bawrd]

noun

1. ~~A user interface that gives a current summary, usually in graphic, easy-to-read form, of key information relating to progress and performance of a business*~~

A group of visuals to help you understand the data and make decisions

*SOURCE: Dictionary.com

TYPES OF DASHBOARDS

Dashboards can be used for both **exploratory** and **explanatory** analysis

EXPLORATORY

- Goal is to **explore and profile** the data to see what insights emerge
- Helps you understand the data and identify interesting patterns & trends

EXPLANATORY

- Goal is to **tell a specific story** or explain what happened and why
- Identifies key business drivers and delivers insights & recommendations

PRO TIP: To allow for *both* exploratory and explanatory analysis, design the dashboard in a way that tells a clear story, but includes interactive elements to encourage exploration

DEFINING A PURPOSE

Dashboards 101

Purpose

Elements

Context

Layouts

A dashboard should be built to serve a single, **clearly defined purpose**

- A perfect "one size fits all" dashboard does not exist *(nor should it)*
- Each dashboard should be tailored to a **specific audience**, and address their **specific needs**

ASK YOURSELF:

WHO IS THE END USER? → **WHAT** DO THEY NEED? → **HOW** CAN DATA HELP?

PRO TIP: Think like a **business owner** before you think like an analyst; before you begin the design process, take time to understand the outcomes you are trying to impact, the key stakeholders and their motivations, and the specific purpose your dashboard will serve

VISUAL ELEMENTS

Every **metric** and **visual element** should directly align with the dashboard's purpose

1. Identify the **right metrics** to include
   - Which metrics/KPIs can be used to measure the desired business outcomes?
   - What level of detail is appropriate, based on the audience and dashboard purpose?

2. Choose an **effective visual** for each metric
   - What type of data are you working with?
   - What are you trying to communicate?

3. Determine the **filters** & **interactivity** required
   - Will users need to see specific, filtered views?
   - Will users need to drill up or down to different levels of detail or granularity?

HEY THIS IS IMPORTANT!

This is typically an evolving, iterative process, so don't expect to come up with an exhaustive set of filters, metrics and visuals off the top of your head!

ADDING CONTEXT

Dashboards 101

Purpose

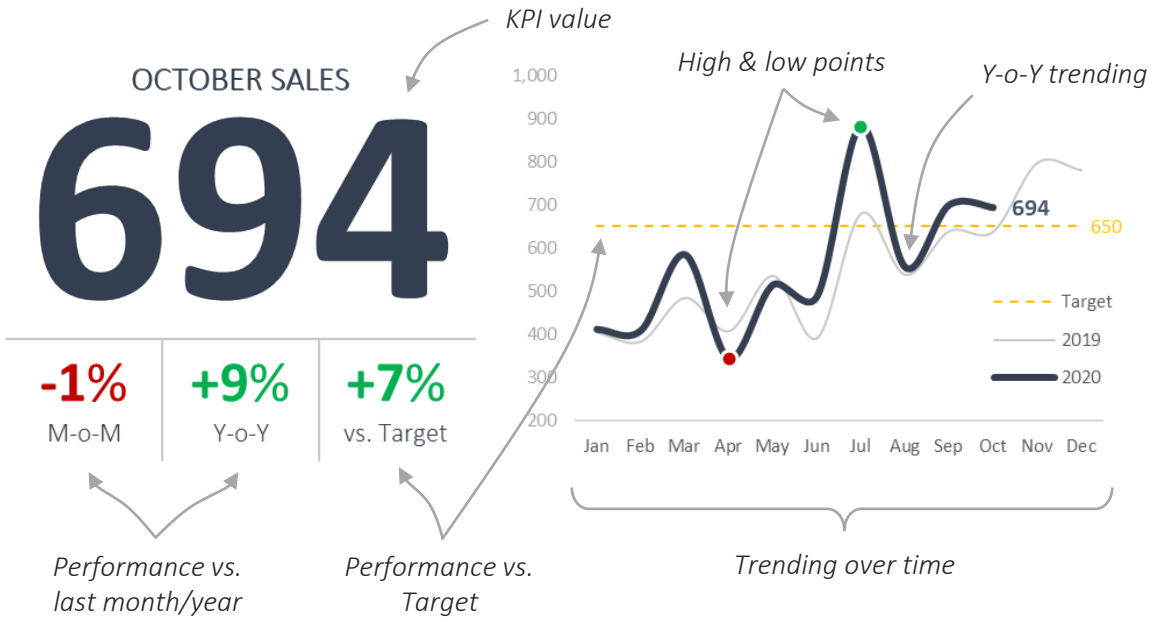
Elements

Context

Layouts

Context is what gives numbers meaning, and helps users interpret them accurately

- You can add context by visualizing trends over time, highlighting high/low points, comparing performance against forecasts or benchmarks, comparing values against similar time periods, etc.



- ✓ We drove **694 sales** in October
- ✓ Sales are **down 1%** vs. last month, but **up 9%** year-over-year
- ✓ We **exceeded our target** in Sep/Oct after falling short in August
- ✓ We see an **upward trend** in 2020, with a significant **July peak**
- ✓ Based on seasonality, we can expect a **strong Nov/Dec**

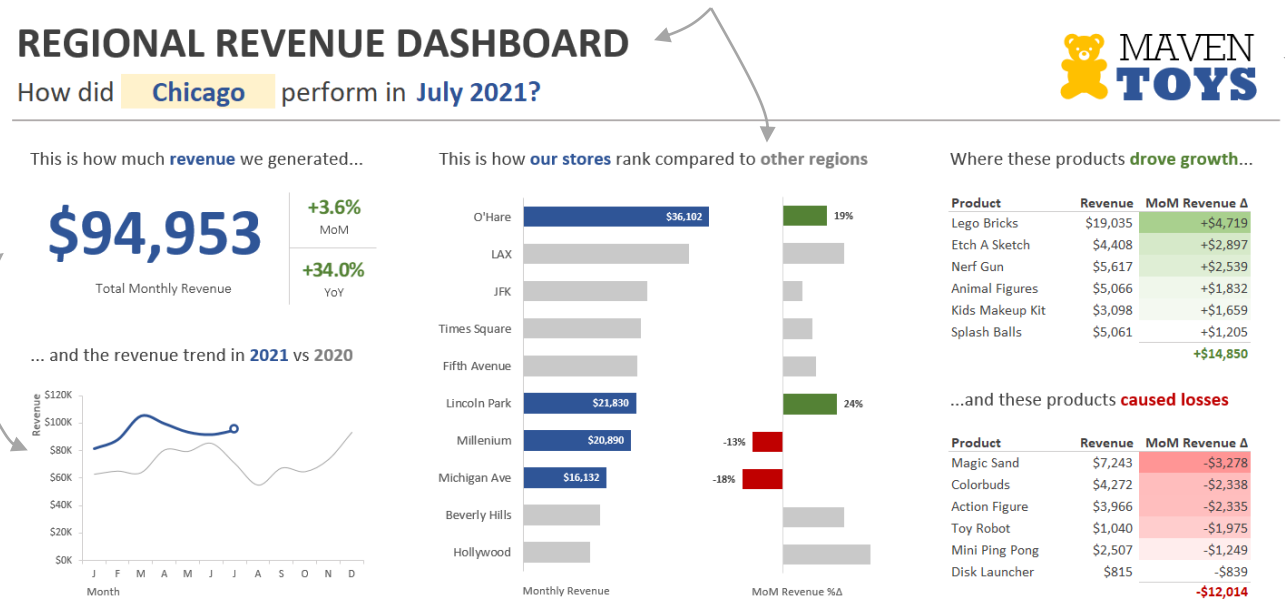
DASHBOARD LAYOUTS

- Dashboards 101
- Purpose
- Elements
- Context
- **Layouts**

A strong **dashboard layout** should draw attention to the most important metrics and insights, and thoughtfully guide the viewer through a logical story or visual progression

*Consider **common reading patterns** like Z or F patterns to guide the viewer*

*Write **descriptive titles & subtitles** to create narratives and establish a visual hierarchy*



*Use **pre-attentive attributes** like size & color to highlight key data points*

***PRO TIP:** Don't place the logo in the upper left corner; it's precious real estate!*

*Leverage **Gestalt principles** like continuity & proximity to group related visual elements and reduce clutter*

BEST PRACTICES: DASHBOARD DESIGN

Start by **defining a clear purpose** for the dashboard

- *Identify exactly who the end users are, what they need, and how the data will help them*

Focus on **metrics directly aligned** with the purpose

- *Remember that sometimes less is more; focus on the metrics that really matter!*

Provide **meaningful context** around key metrics

- *Numbers without context are meaningless; don't ask users to draw their own conclusions!*

Use **thoughtful layouts** to engage users and tell a clear story

- *Leverage reading patterns, preattentive attributes, and Gestalt principles to guide the viewer's attention*

MAVEN CAREERS DASHBOARD

MAVEN CAREERS | PROJECT BRIEF

MAVEN CAREERS

You are a Research Analyst and resident "Excel Guru" at **Maven Careers**, a non-profit organization helping high school seniors find career paths. Your boss needs a dashboard built for an upcoming round of school visits, and needs your help!

From: **Susy Salary** *(Head of Research)*

Subject: **I need your Excel skills for a dashboard!**

Good afternoon,

I just received the attached labor statistics data from 2017 to 2020. Just in time for our next round of high school visits!

Can you please create a dashboard that seniors can use to explore wage and employment trends, and compare them across industries?

Thanks!

P.S. A map showing differences across states would help a ton :)

US_Labor_Statistics.xlsx

Reply Forward

Key Objectives

1. Define the purpose for the dashboard
2. Choose the key metrics & interactivity
3. Prepare the data for visualization
4. Create primary & supporting visuals
5. Design the final dashboard layout
6. Configure the workbook for viewers

MAVEN CAREERS | PROJECT BRIEF

Dataset Summary:

- *US labor statistics by industry & state, from 2017 to 2020*

Dimensions & Measures:

- ***Dimensions:*** *Year, Industry, State*
- ***Measures:*** *Establishments, Employees, Avg Annual Wage*

Excel Concepts Covered:

- *Statistical & Lookup Formulas*
- *Inserting & Formatting Custom Charts*
- *Dynamically Highlighting Series*
- *Creating New Data with Data Types*
- *Adding Form Controls*
- *Protecting Workbooks & Worksheets*

	A	B	C	D	E	F
1	Year	Industry	State	Establishments	Employees	Avg Annual Wage
2	2020	Natural Resources	Alabama	1,829	18,051	$58,872
3	2020	Natural Resources	Arizona	1,354	35,607	$55,216
4	2020	Natural Resources	Arkansas	2,565	15,961	$49,909
5	2020	Natural Resources	California	17,651	425,665	$42,534
6	2020	Natural Resources	Colorado	3,312	41,633	$91,879
7	2020	Natural Resources	Connecticut	467	5,260	$43,142
8	2020	Natural Resources	Delaware	186	1,317	$43,290
9	2020	Natural Resources	Florida	5,394	71,107	$37,717
10	2020	Natural Resources	Georgia	2,794	29,309	$45,978
11	2020	Natural Resources	Hawaii	529	5,927	$43,246
12	2020	Natural Resources	Idaho	2,531	27,020	$42,820
13	2020	Natural Resources	Illinois	2,818	24,933	$52,259
14	2020	Natural Resources	Indiana	2,302	20,872	$50,732
15	2020	Natural Resources	Iowa	2,911	22,868	$45,588
16	2020	Natural Resources	Kansas	2,613	18,607	$47,721
17	2020	Natural Resources	Kentucky	1,632	16,061	$54,605
18	2020	Natural Resources	Louisiana	3,143	37,751	$86,727
19	2020	Natural Resources	Maine	1,581	7,787	$41,422
20	2020	Natural Resources	Maryland	720	7,112	$46,887
21	2020	Natural Resources	Massachusetts	999	11,134	$64,628
22	2020	Natural Resources	Michigan	3,574	34,897	$43,309
23	2020	Natural Resources	Minnesota	3,175	28,204	$51,276
24	2020	Natural Resources	Mississippi	2,070	14,561	$50,525
25	2020	Natural Resources	Missouri	2,123	16,963	$46,677
26	2020	Natural Resources	Montana	1,847	12,449	$65,945
27	2020	Natural Resources	Nebraska	2,469	16,054	$44,449
28	2020	Natural Resources	Nevada	598	19,509	$88,060
29	2020	Natural Resources	New Hampshire	350	2,671	$48,051
30	2020	Natural Resources	New Jersey	999	11,868	$44,634

n=1,918

*DATA SOURCE: US Bureau of Labor Statistics

MAVEN TOYS DASHBOARD

MAVEN TOYS | PROJECT BRIEF

MAVEN TOYS

You've just been hired as the Lead Business Intelligence Analyst for **Maven Toys**, a small toy store chain in the US. As one of your first tasks, the COO has asked you to prepare a new monthly dashboard for the company's Regional Sales Managers.

From: **Andy Davis** *(COO)*

Subject: **Regional Revenue Dashboard**

Good morning, and welcome aboard!

I have a monthly call with the Regional Sales Managers, but they each present their data in different ways and it's impossible to follow.

Could you build a dashboard that we can use to filter by region, track monthly revenue trends, and see performance year-over-year?

I'd also like to compare performance across stores, and identify which specific products drove the biggest gains and losses.

Thanks!

MavenToys_Monthly_Sales.xlsx

Reply Forward

Key Objectives

1. Define the purpose for the dashboard
2. Choose the key metrics & interactivity
3. Plan ahead for growing source data
4. Prepare the data for visualization
5. Create primary & supporting visuals
6. Design the final dashboard layout
7. Configure the workbook for sharing

MAVEN TOYS | PROJECT BRIEF

Dataset Summary:

- *Monthly sales figures, from January 2020 to July 2021*

Dimensions & Measures:

- ***Dimensions:*** *Year, Month, Store Name/Region/Type, Product Name/Category*
- ***Measures:*** *Units Sold, Revenue, Profit*

Excel Concepts Covered:

- *Top N Formulas*
- *Previous Period Calculations*
- *Automatic Sorting*
- *Conditional Formatting*
- *Sharing Online*

	A	B	C	D	E	F	G	H	I	J
1	Year	Month	Store Name	Region	Store Type	Product Name	Product Category	Units Sold	Revenue	Profit
2	2020	1	Beverly Hills	Los Angeles	Residential	Action Figure	Toys	63	$1,007	$378
3	2020	1	Beverly Hills	Los Angeles	Residential	Animal Figures	Toys	7	$91	$21
4	2020	1	Beverly Hills	Los Angeles	Residential	Chutes & Ladders	Games	5	$65	$15
5	2020	1	Beverly Hills	Los Angeles	Residential	Classic Dominoes	Games	11	$110	$22
6	2020	1	Beverly Hills	Los Angeles	Residential	Colorbuds	Electronics	5	$75	$40
7	2020	1	Beverly Hills	Los Angeles	Residential	Dart Gun	Sports & Outdoors	24	$384	$96
8	2020	1	Beverly Hills	Los Angeles	Residential	Deck Of Cards	Games	81	$566	$243
9	2020	1	Beverly Hills	Los Angeles	Residential	Dino Egg	Toys	18	$198	$18
10	2020	1	Beverly Hills	Los Angeles	Residential	Dinosaur Figures	Toys	52	$779	$208
11	2020	1	Beverly Hills	Los Angeles	Residential	Glass Marbles	Games	10	$110	$50
12	2020	1	Beverly Hills	Los Angeles	Residential	Kids Makeup Kit	Art & Crafts	2	$40	$12
13	2020	1	Beverly Hills	Los Angeles	Residential	Lego Bricks	Toys	71	$2,839	$355
14	2020	1	Beverly Hills	Los Angeles	Residential	Mini Ping Pong	Sports & Outdoors	96	$959	$288
15	2020	1	Beverly Hills	Los Angeles	Residential	Monopoly	Games	6	$120	$36
16	2020	1	Beverly Hills	Los Angeles	Residential	PlayDoh Can	Art & Crafts	8	$24	$8
17	2020	1	Beverly Hills	Los Angeles	Residential	PlayDoh Toolkit	Art & Crafts	31	$155	$31
18	2020	1	Beverly Hills	Los Angeles	Residential	Rubik's Cube	Games	26	$520	$52
19	2020	1	Beverly Hills	Los Angeles	Residential	Splash Balls	Sports & Outdoors	32	$288	$32
20	2020	1	Beverly Hills	Los Angeles	Residential	Teddy Bear	Toys	4	$52	$8
21	2020	1	Beverly Hills	Los Angeles	Residential	Toy Robot	Electronics	11	$286	$55
22	2020	1	Hollywood	Los Angeles	Commercial	Action Figure	Toys	85	$1,359	$510
23	2020	1	Hollywood	Los Angeles	Commercial	Animal Figures	Toys	47	$611	$141
24	2020	1	Hollywood	Los Angeles	Commercial	Colorbuds	Electronics	278	$4,167	$2,224
25	2020	1	Hollywood	Los Angeles	Commercial	Dart Gun	Sports & Outdoors	41	$656	$164
26	2020	1	Hollywood	Los Angeles	Commercial	Deck Of Cards	Games	45	$315	$135
27	2020	1	Hollywood	Los Angeles	Commercial	Dino Egg	Toys	142	$1,561	$142
28	2020	1	Hollywood	Los Angeles	Commercial	Dinosaur Figures	Toys	30	$450	$120
29	2020	1	Hollywood	Los Angeles	Commercial	Glass Marbles	Games	22	$242	$110
30	2020	1	Hollywood	Los Angeles	Commercial	Kids Makeup Kit	Art & Crafts	19	$380	$114
31	2020	1	Hollywood	Los Angeles	Commercial	Lego Bricks	Toys	17	$680	$85
32	2020	1	Hollywood	Los Angeles	Commercial	Nerf Gun	Sports & Outdoors	66	$1,319	$330
33	2020	1	Hollywood	Los Angeles	Commercial	PlayDoh Can	Art & Crafts	27	$81	$27
34	2020	1	Hollywood	Los Angeles	Commercial	PlayDoh Toolkit	Art & Crafts	35	$175	$35
35	2020	1	Hollywood	Los Angeles	Commercial	Rubik's Cube	Games	44	$880	$88
36	2020	1	Hollywood	Los Angeles	Commercial	Splash Balls	Sports & Outdoors	78	$701	$78
37	2020	1	Hollywood	Los Angeles	Commercial	Toy Robot	Electronics	17	$442	$85
38	2020	1	Times Square	New York	Downtown	Action Figure	Toys	59	$943	$354

n=4,265

*DATA SOURCE: Maven Analytics

MAVEN HOTEL DASHBOARD

MAVEN HOTEL GROUP | PROJECT BRIEF

You work as a Data Visualization Specialist for **Maven Hotel Group** (MHG), a Portuguese hotel chain with resorts in Lisbon and Algarve. One of your colleagues has identified some interesting insights, but needs your help bringing the data to life.

From: **Billy Booker** *(Business Analyst)*

Subject: **I need your help!**

Hey there!

I've been digging into the data, and came up with some interesting insights and recommendations I'd like to share with the leadership team. The problem is that all I have is a bunch of PivotTables in a workbook, and I'm concerned that my presentation will fall flat.

Any chance you could help me design a dashboard to communicate the insights clearly? I added notes on the file to help.

Thanks!

MHG_Booking_Data.xlsx

Reply Forward

Key Objectives

1. Visualize each insight effectively
2. Use color consistently & deliberately
3. Leverage dashboard layout & text to clearly communicate key insights and business recommendations

MAVEN HOTEL GROUP | PROJECT BRIEF

Dataset Summary:

- *Hotel booking data, from July 2015 to August 2017*

Dimensions & Measures:

- ***Dimensions:*** *Booking ID, Hotel, Booking/Arrival Date, Distribution Channel, Customer Type, Country, Deposit Type, Status, Status Update, Cancelled (0/1)*
- ***Measures:*** *Lead Time, Nights, Guests, Revenue, Loss*

Excel Concepts Covered:

- *Pivot Charts*
- *Partial Pivot Charts*
- *Conditional Number Formats*
- *Pasting as an Image*

	A	B	C	D	E	F	G	H	I
1	**Booking ID**	**Hotel**	**Booking Date**	**Arrival Date**	**Lead Time**	**Nights**	**Guests**	**Distribution Channel**	**Customer Type**
2	1	Resort	2014-07-24	2015-07-01	342	0	2	Direct	Transient
3	2	Resort	2013-06-24	2015-07-01	737	0	2	Direct	Transient
4	3	Resort	2015-06-24	2015-07-01	7	1	1	Direct	Transient
5	4	Resort	2015-06-18	2015-07-01	13	1	1	Corporate	Transient
6	5	Resort	2015-06-17	2015-07-01	14	2	2	Online Travel Agent	Transient
7	6	Resort	2015-06-17	2015-07-01	14	2	2	Online Travel Agent	Transient
8	7	Resort	2015-07-01	2015-07-01	0	2	2	Direct	Transient
9	8	Resort	2015-06-22	2015-07-01	9	2	2	Direct	Transient
10	9	Resort	2015-04-07	2015-07-01	85	3	2	Online Travel Agent	Transient
11	10	Resort	2015-04-17	2015-07-01	75	3	2	Offline Travel Agent	Transient
12	11	Resort	2015-06-08	2015-07-01	23	4	2	Online Travel Agent	Transient
13	12	Resort	2015-05-27	2015-07-01	35	4	2	Online Travel Agent	Transient
14	13	Resort	2015-04-24	2015-07-01	68	4	2	Online Travel Agent	Transient

J	K	L	M	N	O	P	Q
Country	**Deposit Type**	**Avg Daily Rate**	**Status**	**Status Update**	**Cancelled (0/1)**	**Revenue**	**Revenue Loss**
Portugal	No Deposit	$0.00	Check-Out	2015-07-01	0	$0.00	$0.00
Portugal	No Deposit	$0.00	Check-Out	2015-07-01	0	$0.00	$0.00
United Kingdom	No Deposit	$75.00	Check-Out	2015-07-02	0	$75.00	$0.00
United Kingdom	No Deposit	$75.00	Check-Out	2015-07-02	0	$75.00	$0.00
United Kingdom	No Deposit	$98.00	Check-Out	2015-07-03	0	$196.00	$0.00
United Kingdom	No Deposit	$98.00	Check-Out	2015-07-03	0	$196.00	$0.00
Portugal	No Deposit	$107.00	Check-Out	2015-07-03	0	$214.00	$0.00
Portugal	No Deposit	$103.00	Check-Out	2015-07-03	0	$206.00	$0.00
Portugal	No Deposit	$82.00	Canceled	2015-05-06	1	$0.00	-$246.00
Portugal	No Deposit	$105.50	Canceled	2015-04-22	1	$0.00	-$316.50
Portugal	No Deposit	$123.00	Canceled	2015-06-23	1	$0.00	-$492.00
Portugal	No Deposit	$145.00	Check-Out	2015-07-05	0	$580.00	$0.00
United States	No Deposit	$97.00	Check-Out	2015-07-05	0	$388.00	$0.00

n=119,390

*DATA SOURCE: Hotel Booking Demand, written by Nuno Antonio, Ana Almeida, and Luis Nunes for Data in Brief, Volume 22, February 2019

TIPS FOR SUCCESS

TIPS FOR SUCCESS

Define the
PURPOSE

Use the right
METRICS

Use effective
VISUALS

Eliminate
CLUTTER

Leverage
LAYOUTS

Tell a clear
STORY

HELPFUL RESOURCES

Learn

Maven Analytics

- *mavenanalytics.io*

Books

- *Storytelling with Data*
- *The Big Book of Dashboards*
- *The Big Picture*

Practice

Data Playground

- *mavenanalytics.io/data-playground*

Data Viz Practice

- *makeovermonday.co.uk*

Competitions & Datasets

- *kaggle.com/datasets*
- *data.world*
- *Google Dataset Search*

Other Fun Stuff

Color Palette Designer

- *paletton.com*

Color Blindness Viewer

- *colororacle.org*

Free & Paid Icon Libraries

- *fontawesome.com*
- *icons8.com*

Stock Images & Graphics

- *elements.envato.com*