



Telling Stories with Data

Creating Concise, Impactful, and Compelling Presentations



Corporate Education Group
Learning That Powers Performance



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Consultant and Trainer
Corporate Education Group since 2004

- Project Management, Time Management, and Telling Stories with Data courses
- DiSC® Assessment, Lumina Learning, and Coach U Certifications
- Franklin Covey – 10 years
- Learning & Development Manager – 5 years
- MBA University of Redlands, Redlands, CA
- BA University of Massachusetts, Amherst, MA



Create the Story

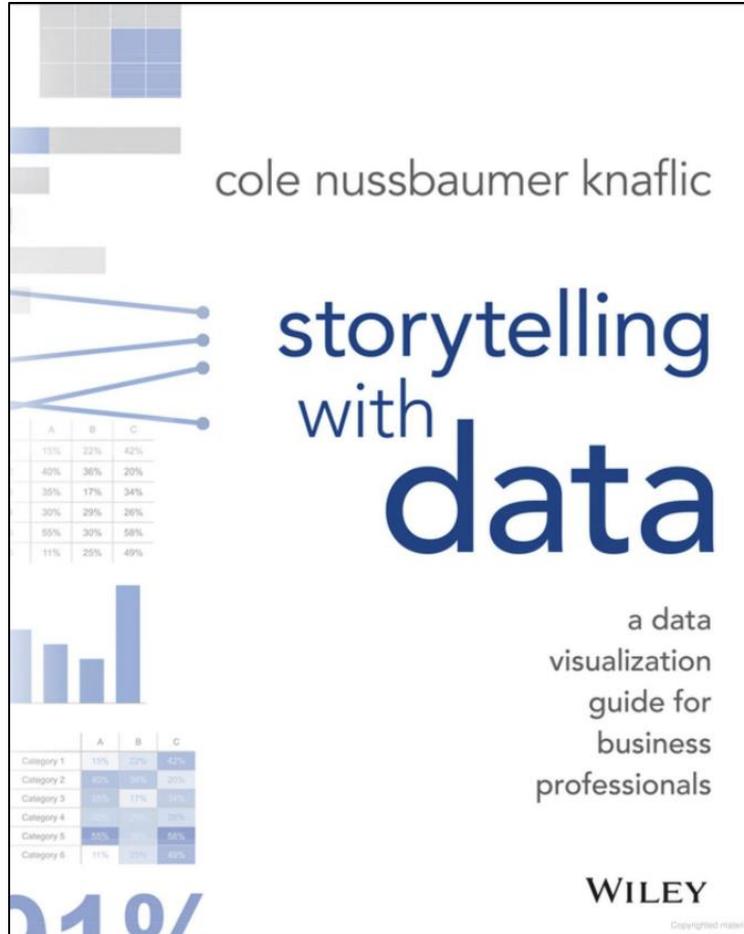
Choose the Right Visuals

Create Effective Visuals

At the end of the session, you will be able to:

- Build presentation stories and narratives
- Summarize the story through talking points
- Recognize poorly designed visuals
- Leverage white space, color, and fonts to craft actionable visuals





Exploratory vs. Explanatory Analysis

Exploratory vs. Explanatory Analysis

Exploratory – what can I **learn** about data

- Gather data
- Verify accuracy
- Look for highlights and trends
- Understand what the data tells you

Why do we care?

Meredith	Quality	40	30	20	40	30
Michael	Management	40	20	70	80	20
Oscar	Accounting	80	90	80	80	90
Pam	Customer Service	80	70	60	90	100
Phyllis	Sales	70	50	60	70	80
Roy	Warehouse	40	40	30	40	60
Stanley	Sales	40	30	10	10	10
Toby	Human Resources	70	80	40	80	60

Exploratory vs. **Explanatory** Analysis

Explanatory – what do I want **to tell my audience** about the data

- Create the story
- Figure out how you will tell the story
- Think about how your audience will understand data
- Create effective graphs

How do I explain it to others?

Meredith	Quality	40	30	20	40	30
Michael	Management	40	20	70	80	20
Oscar	Accounting	80	90	80	80	90
Pam	Customer Service	80	70	60	90	100
Phyllis	Sales	70	50	60	70	80
Roy	Warehouse	40	40	30	40	60
Stanley	Sales	40	30	10	10	10
Toby	Human Resources	70	80	40	80	60

Exploratory vs. Explanatory Analysis

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Explanatory – what do I want to **tell my audience** about the data

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The main focus of this session is on **explanatory** analysis

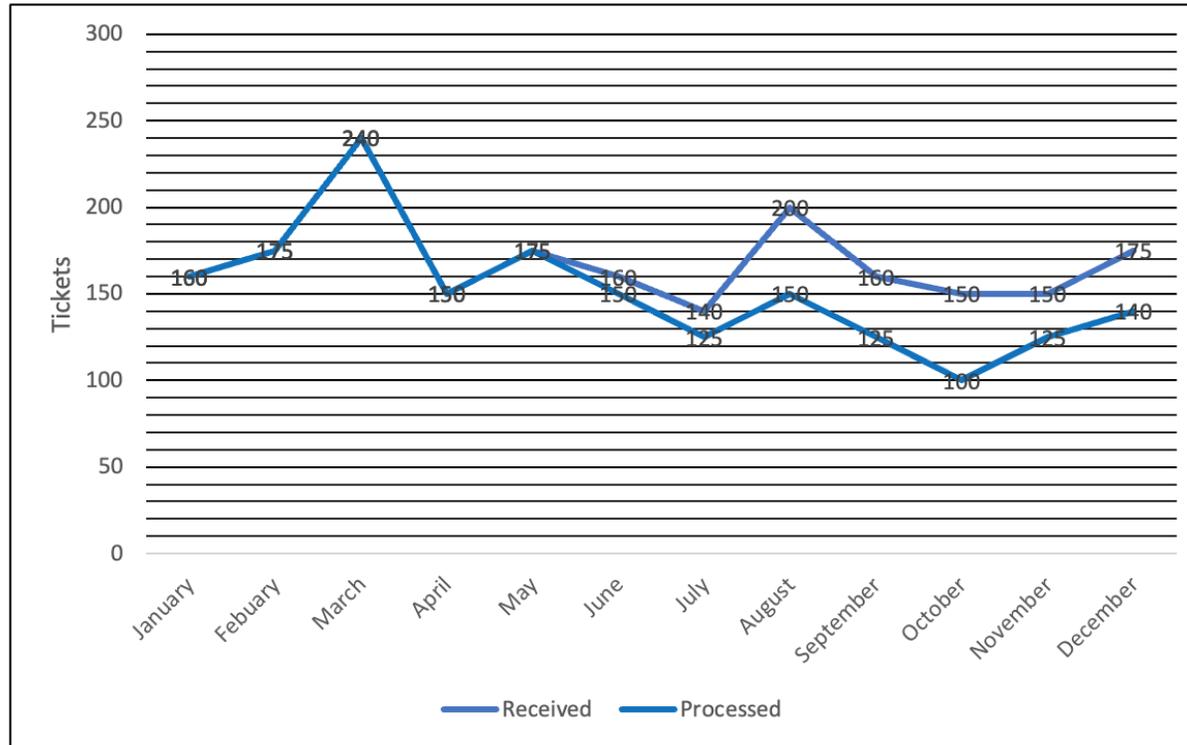


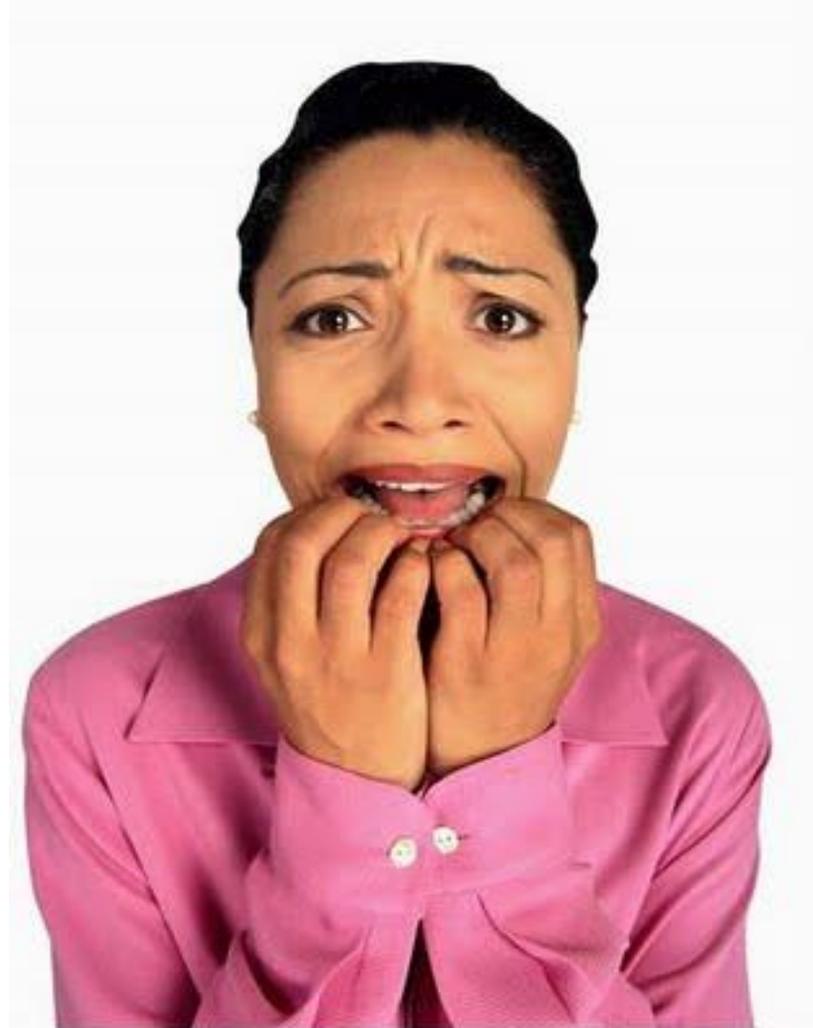
Create the Story

Choose the Right Visuals

Create Effective Visuals

What is your reaction to this visual?

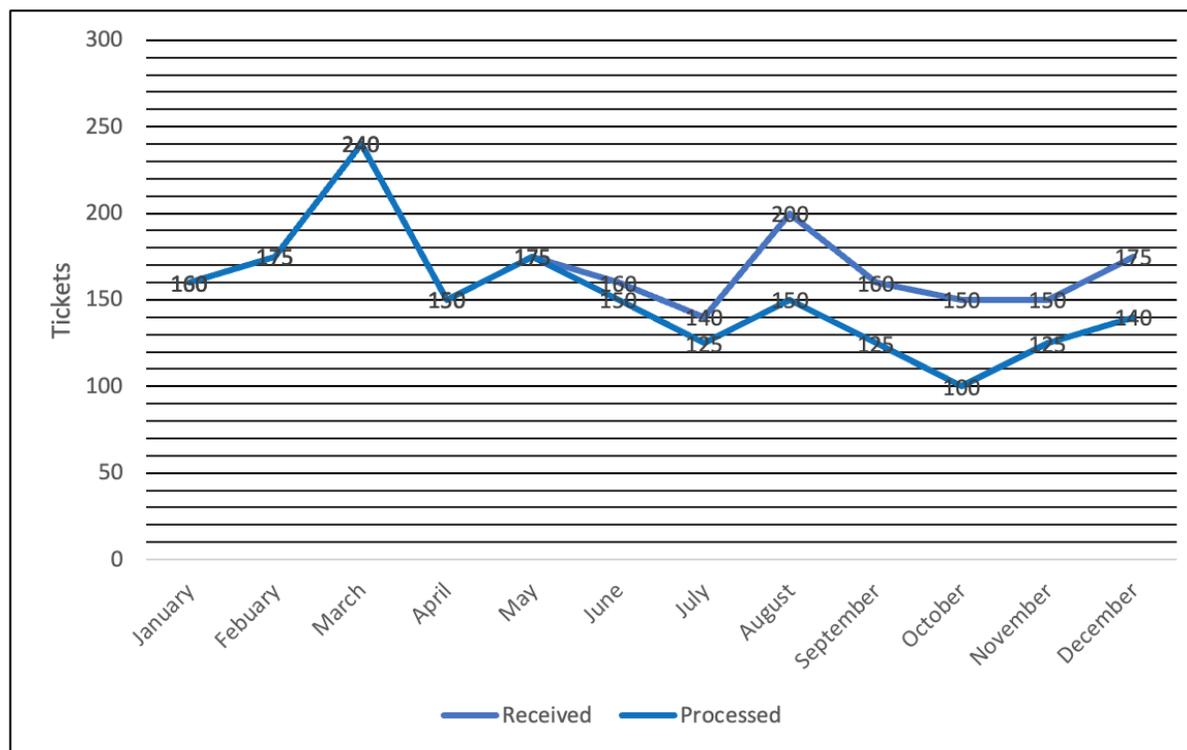




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What **story** does this visual tell you?

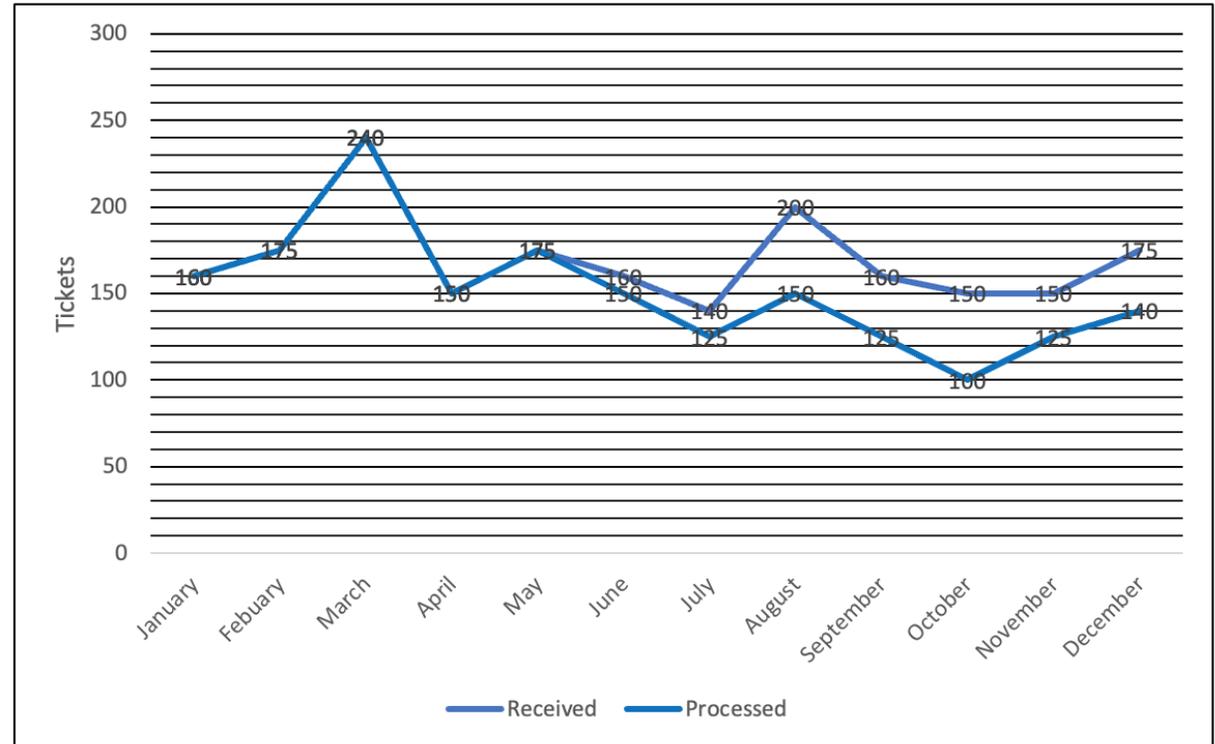
How much **effort** is it to understand the point of this visual?



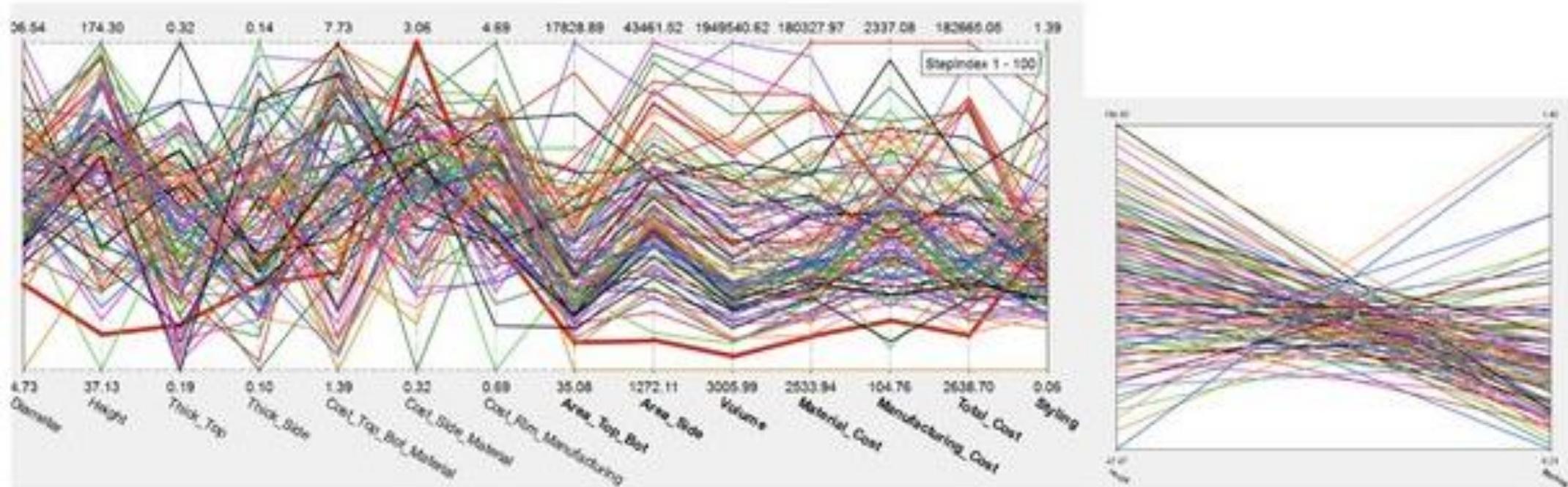
Telling the Story

It is **our job** to make it easy for the audience to understand the point of the presentation.

It is **not** their job to figure out the point of the presentation.



		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
incoming	<i>salaries</i>	3130	3134	3112	3130	3130	3150	3150	3160	3148	3137	3147	3138
	<i>family allowance</i>	227	227	227	498	498	498	498	498	498	498	498	498
	<i>other</i>						1870						1756
	TOTAL	3357	3361	3339	3628	3628	5518	3648	3658	3646	3635	3645	5392
outgoing	<i>mortgage</i>	1130	1130	1130	1130	1130	1130	1130	1130	1202	1202	1202	1202
	<i>food</i>	400	380	403	406	375	397	384	406	420	430	350	330
	<i>utilities</i>	187	98	175	89	183	84	201	94	184	91	173	1003
	<i>healthcare</i>	130	126	140	1330	200	210	160	140	135	132	110	140
	<i>childcare</i>	200	210	198	207	210	210	0	0	300	305	310	240
	<i>travel</i>	300	300	300	300	300	300	200	180	300	320	320	320
	<i>other</i>	700	750	737	670	802	709	2600	1800	730	700	698	1004
	TOTAL	3047	2994	3083	4132	3200	3040	4675	3750	3271	3180	3163	4239
	BALANCE	310	367	256	-504	428	2478	-1027	-92	375	455	482	1153
	transferred to savings	250	250	250	0	250	2500	0	250	250	250	250	1000
	current savings balance	7200	7450	7700	7200	7450	9950	8800	8800	9050	9300	9550	10550
	children 'a charge'	2	2	2	3	3	3	3	3	3	3	3	3



Good Graphics Save Lives

- **John Snow**



Good Graphics Save Lives

- **John Snow** – Doctor
- Cholera outbreak in 1854 in Soho, London
- 1850s – Believed cholera caused by bad air
- Dr. John Snow mapped the cases
- Many more cases around certain water pump
- Traced the origin to sewage from that pump



Good Graphics Save Lives

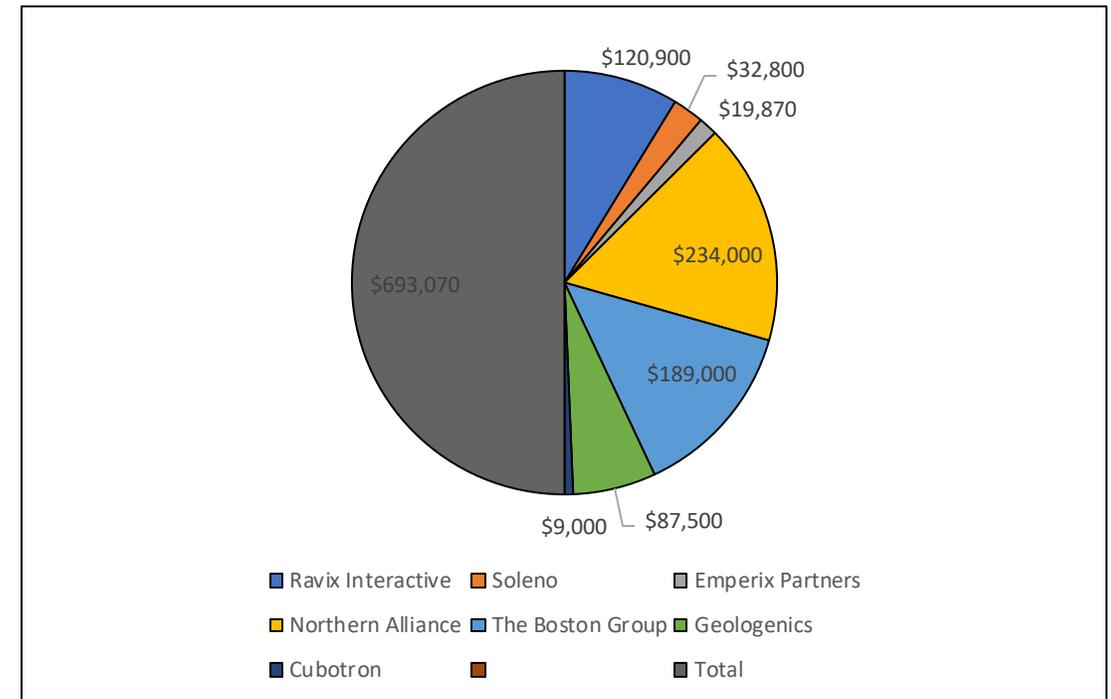
- **John Snow – Doctor**
- Changed how we see data visualizations

Why? **Simple, Clear**

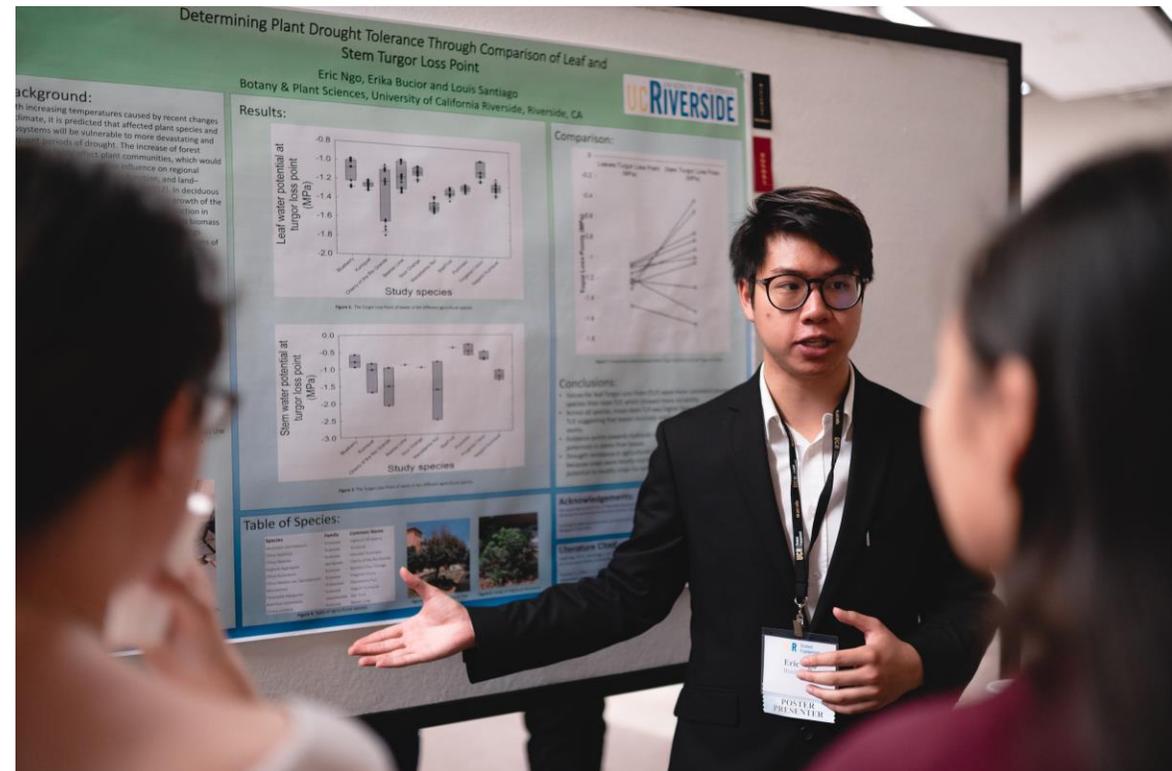


Presentations Need to Tell a Story

- A **chart doesn't** contain the story, the presenter must bring the story to life.
- The presenter **must know** the point of the story.
- The story needs to make a **point** and provide impetus for **action**.



Good preparation
is better than
hope for a miracle.



1. Audience Analysis

1. Who are they?
2. What do they want/need to know?
3. Are they supportive, resistant, a decision-maker?



1. Audience Analysis

We know this already, what's new?

This is very interesting.



This doesn't matter to my group.

1. Audience Analysis



Telling Stories with Data

Audience Analysis

Audience Analysis	
Audience members	<ol style="list-style-type: none"> 1. What do they want/need to know? 2. Objections, questions, concerns they might have 3. Biases, preferences, or assumptions that may exist 4. Are they S-supportive, R-resistant, D-decision maker
1.	
2.	
3.	
4.	
5.	
6.	

1. Audience Analysis



Audience Analysis	
Audience members	1. What do they want/need to know? 2. Objections, questions, concerns they might have 3. Biases, preferences, or assumptions that may exist 4. Are they S-supportive, R-resistant, D-decision maker
1. Sales team - S	Want data that is easy to read to show their clients Some might believe it is harder to sell virtual than F2F
2. Marketing	Want data that will justify the marketing budget to showcase more virtual classes
3. Clients - D	Easy to understand data Show big cost savings with same impact to their Senior Team Save money on rooms, food, travel
4. Finance	Data correct Don't have to have materials printed and shipped which saves our cost of doing business
5. Instructors- R	Want to teach more, want motivation to create more classes Some might be resistant to create more virtual, need data to show them the trends in virtual going up
6.	

Don't Assume

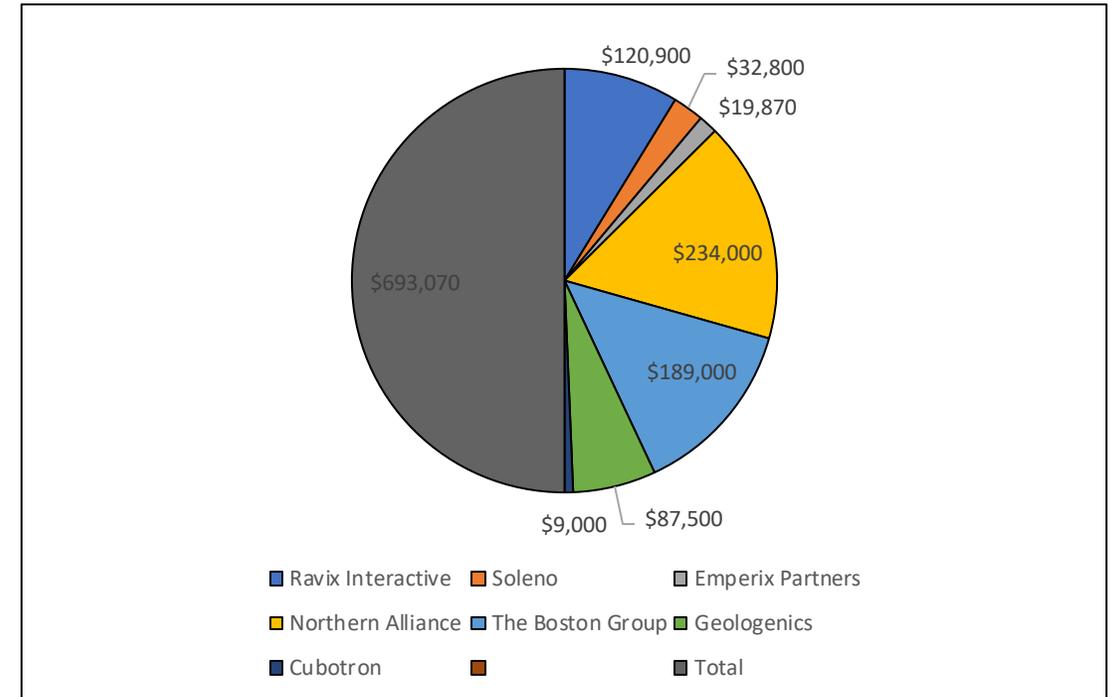
Audience Analysis Insights

- *There were more audience members than I thought.*
- *I hadn't looked at it from their point of view.*
- *I'm making a lot of assumptions about what's important to people.*
- *I really don't know what everyone wants out of this.*

Audience Analysis	
Audience members	1. What do they want/need to know? 2. Objections, questions, concerns they might have 3. Biases, preferences, or assumptions that may exist 4. Are they S-supportive, R-resistant, D-decision maker
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2. Brainstorm: Sticky Notes

ROI
\$\$
Travel, food

Scores drop at
beginning

Connection during
isolation

Easy to
understand

Continual learning
in new "at home"
environment

ROI
morale

Participants get
use to "new
normal"

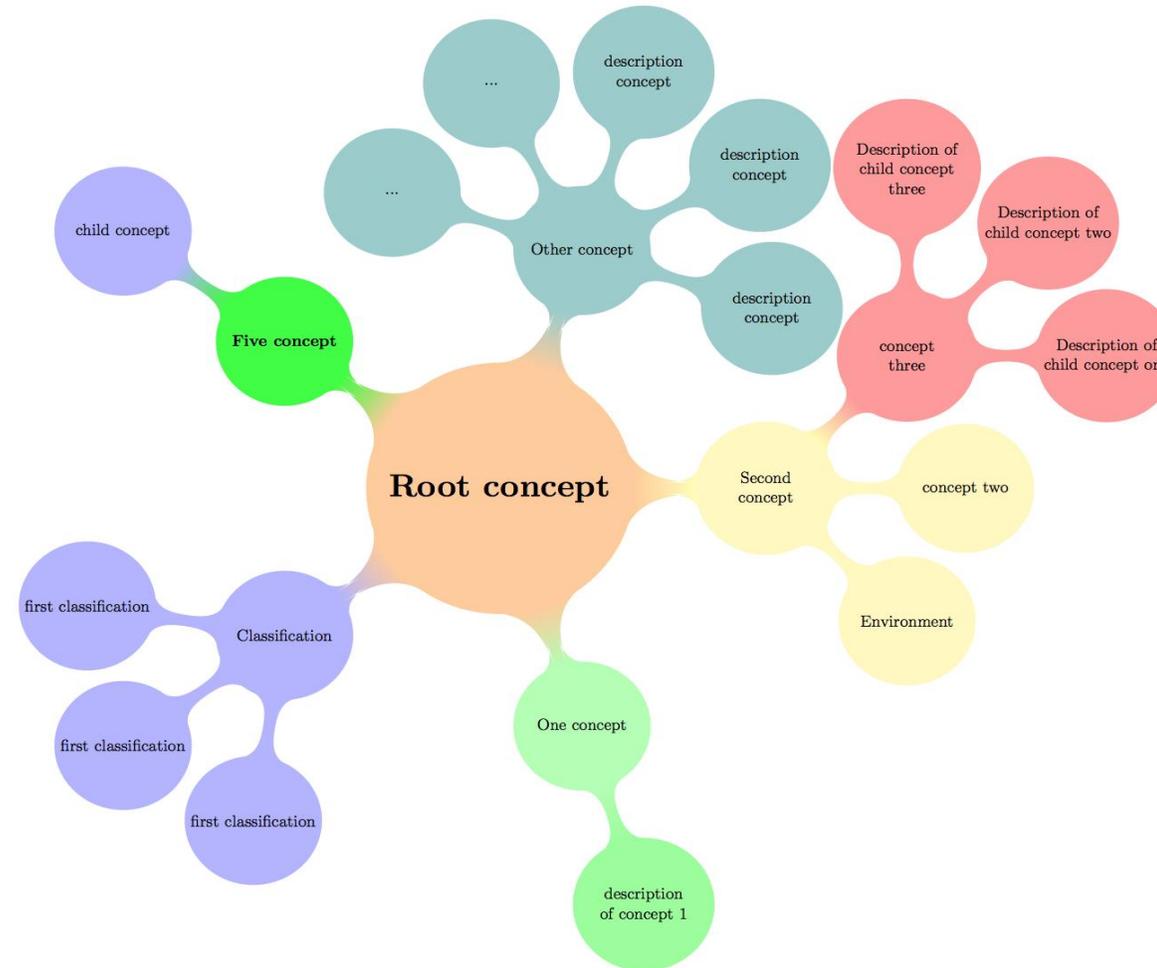
Instructors
improve virtual
facilitation skills

"would be better
in person"

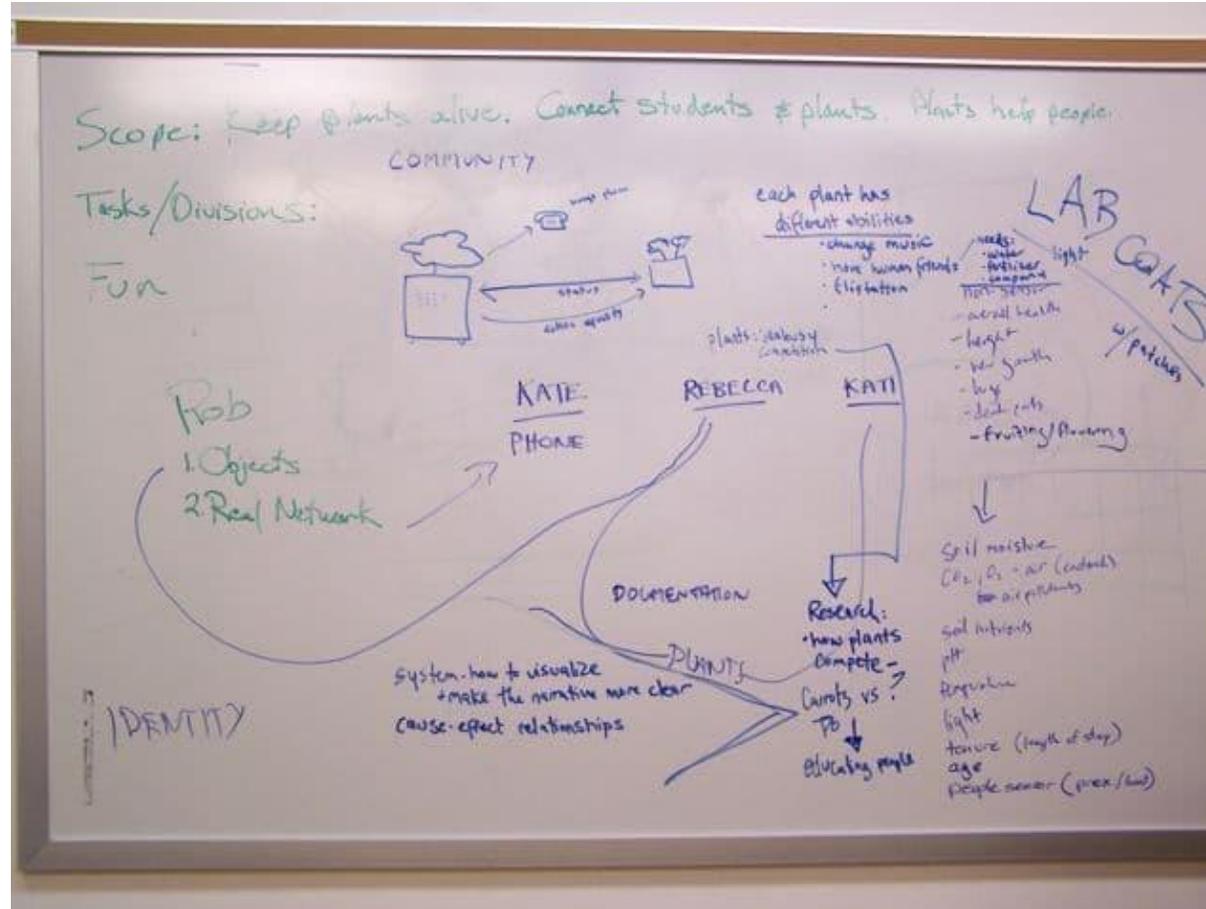
2. Brainstorm: Index Cards



2. Brainstorm: Mind Map



2. Brainstorm: Whiteboard



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Funnel Approach



Website Redesign Actual Cost by Category

Category	Percentage
BASICS	12%
SOFTWARE	12%
CONTENT & DESIGN	6%
TESTING	6%
MIGRATION	6%

ROI

Month	ROI
January	100
February	120
March	150
April	180
May	150
June	120
July	100
August	80
September	60
October	40
November	20
December	10



Amazing Data Graphics

Telling the Story

1. Plot

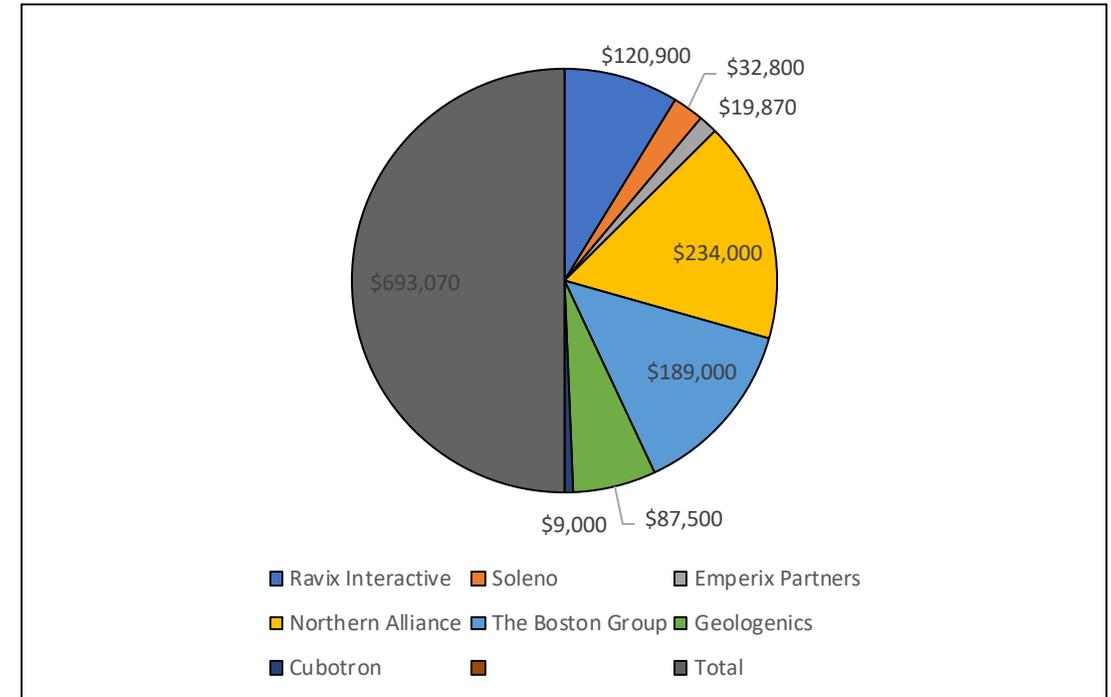
What **context** is essential?

2. Twists

What is **interesting** about the data?

3. Ending

What do you want your audience **to do**?



Presentations: The Power of Repetition

1. Tell them what you are going to tell them

2. Tell them

3. Tell them what you told them



Attention Span

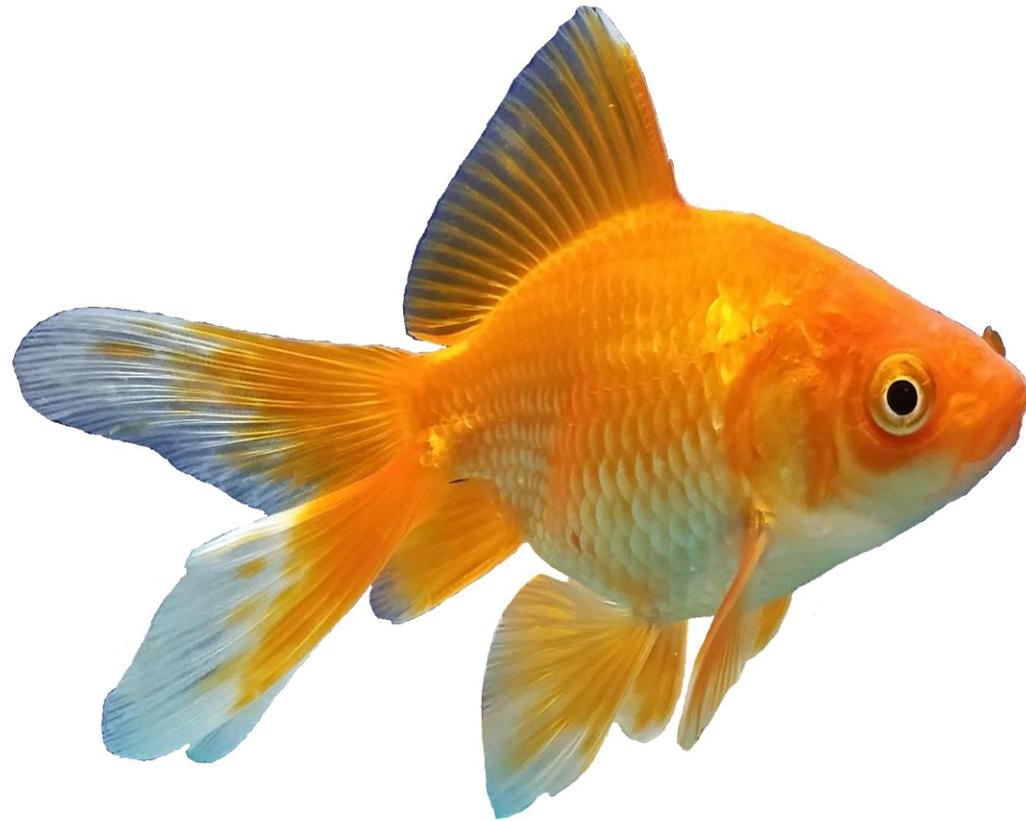


Attention span in 2008...
12 seconds

Attention span in 2015...
8 seconds

Associated Press via statisticbrain.com April 28, 2013

Attention Span



Goldfish 9 seconds

Associated Press via statisticbrain.com April 28, 2013

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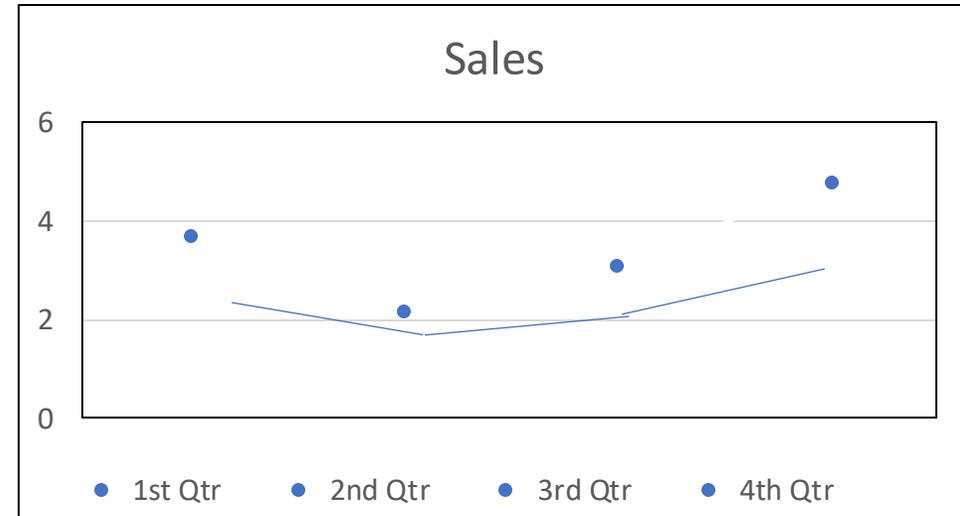
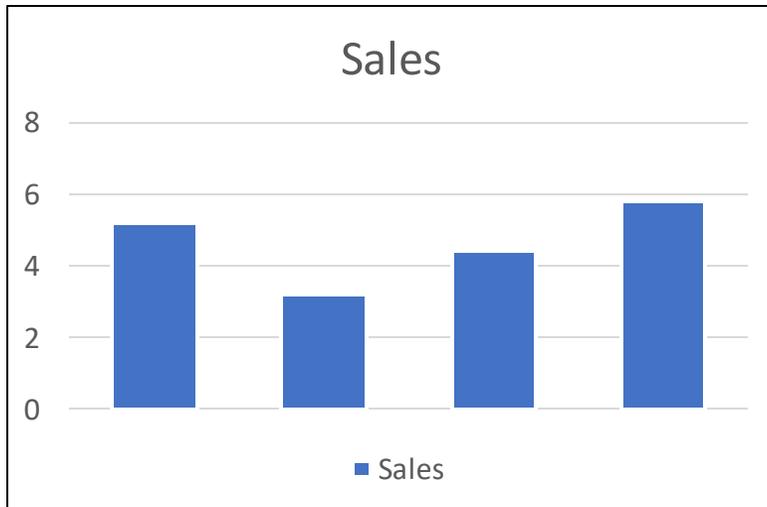
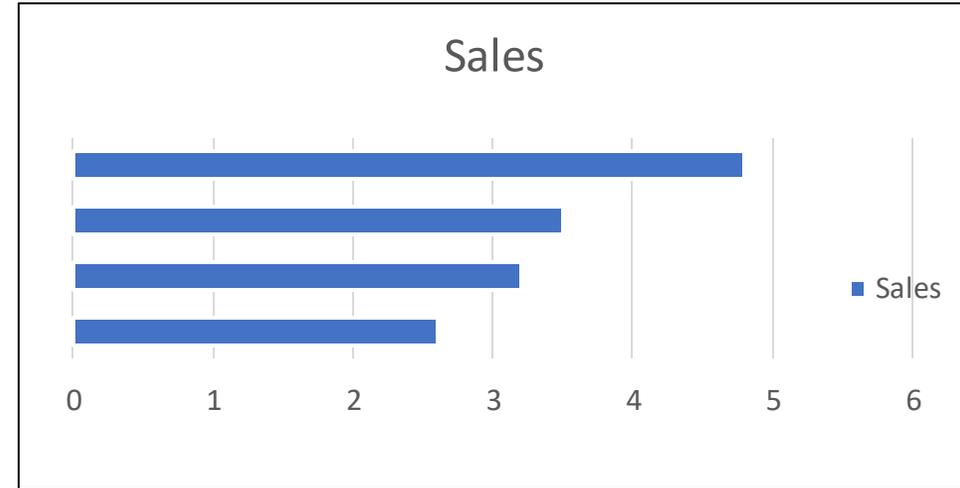
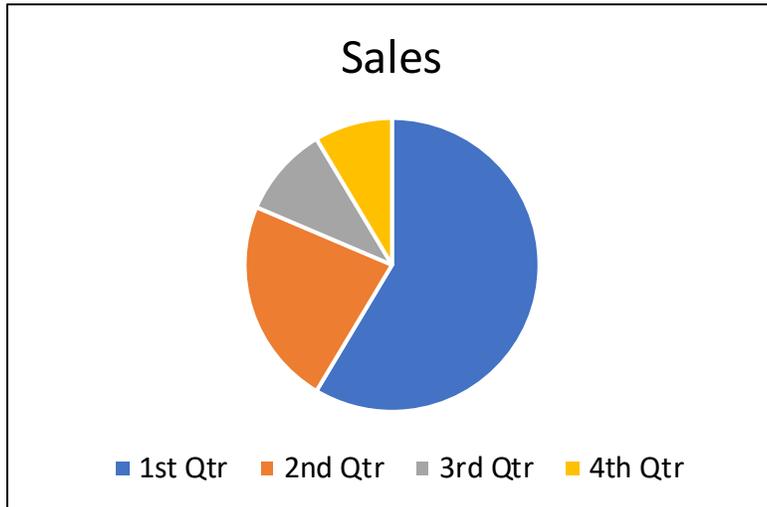


Create the Story

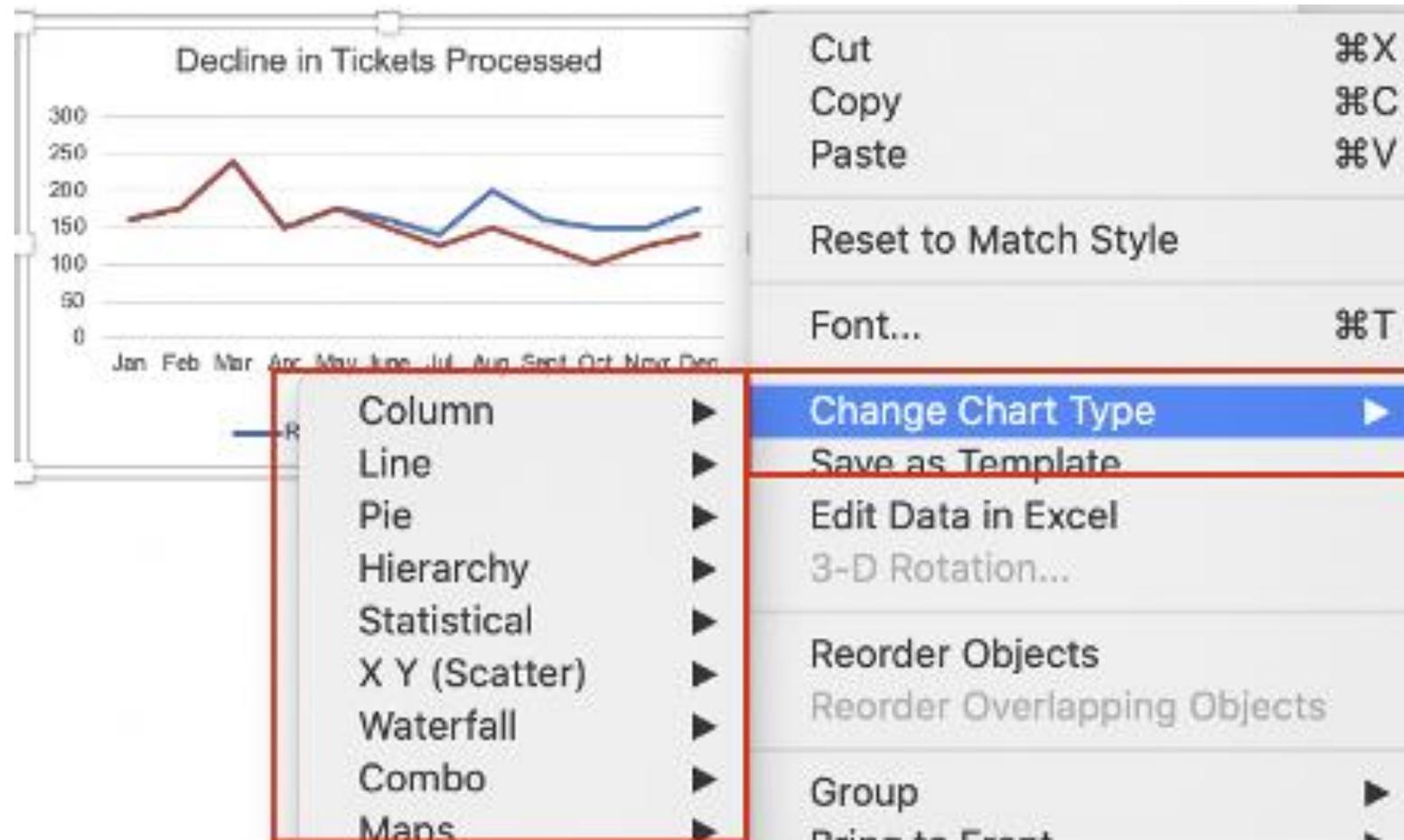
Choose the Right Visuals

Create Effective Visuals

Which graphs do you use most often? Why?



Quickly See Various Graphs by Right-Clicking



	X	Y
A	76	45
B	109	68
C	66	38
D	23	19

Number of Variables: Many
Arrangement: Tabular

A table is a simple way to quickly compare data. They are two-dimensional layout of numbers and text. It is not a useful visual communication tool as it **must be read carefully**. Best to use in reports rather than presentations.

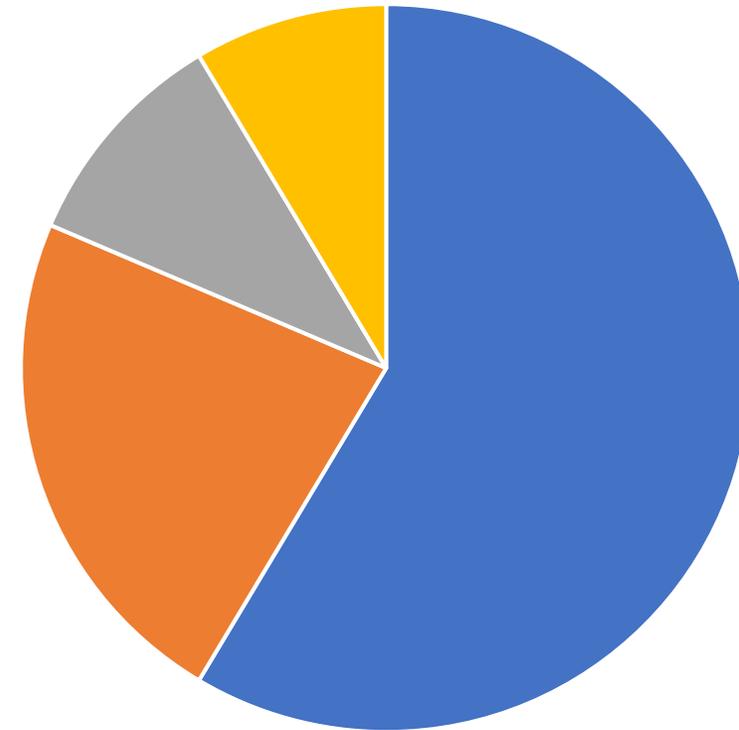
Pie Chart

Sales



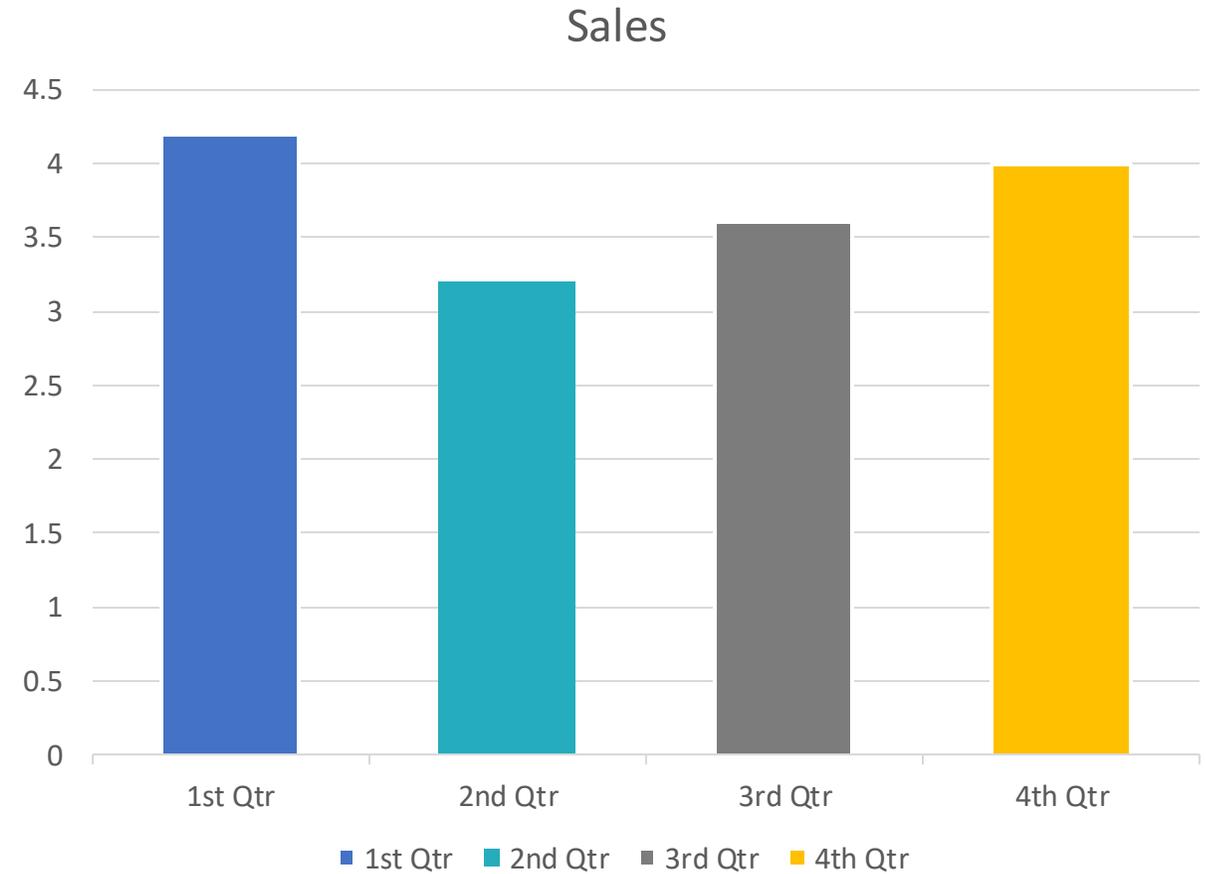
■ 1st Qtr ■ 2nd Qtr ■ 3rd Qtr ■ 4th Qtr

Sales

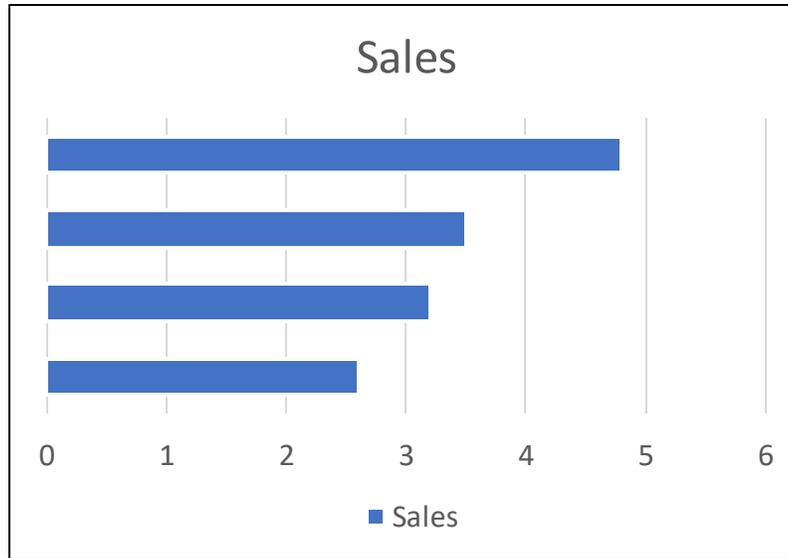


■ 1st Qtr ■ 2nd Qtr ■ 3rd Qtr ■ 4th Qtr

Pie Chart



Horizontal Bar & Stacked Horizontal Bar Charts

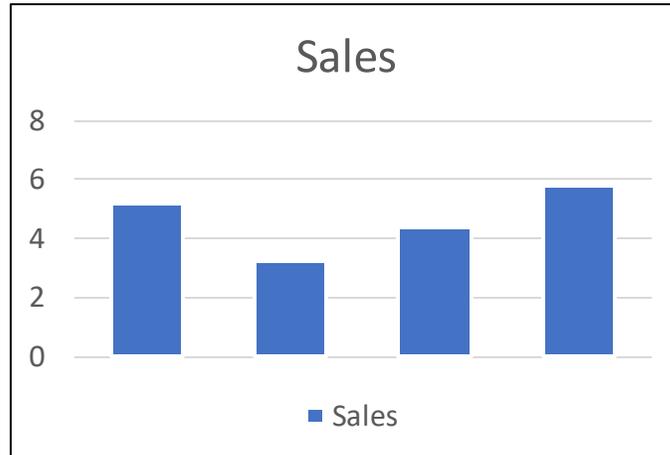


Number of Variables: Many
Arrangement: Bars

Bar charts are very versatile, they are best used to show change over time, compare different categories or compare parts of a whole. Careful not to show too many variables as it gets cluttered easily.

Horizontal graphs are good when showing **nominal variables**, information that can be **arranged in any order** such as favorite ice cream flavors.

Vertical Bar & Stacked Vertical Bar Charts



Number of Variables: Many
Arrangement: Bars

Bar charts are useful for comparison. Careful not to show too many variables as it gets cluttered easily. Vertical charts are good for ordinal or **sequential variables** because the subcategories have a **logical natural sequence**. Such as age ranges.



Create the Story

Choose the Right Visuals

Create Effective Visuals

How many 3s?

4937850198364696

0439174953197502

3649362850385639

How many 3s?

49**3**7850198**3**64696

04**3**917495**3**197502

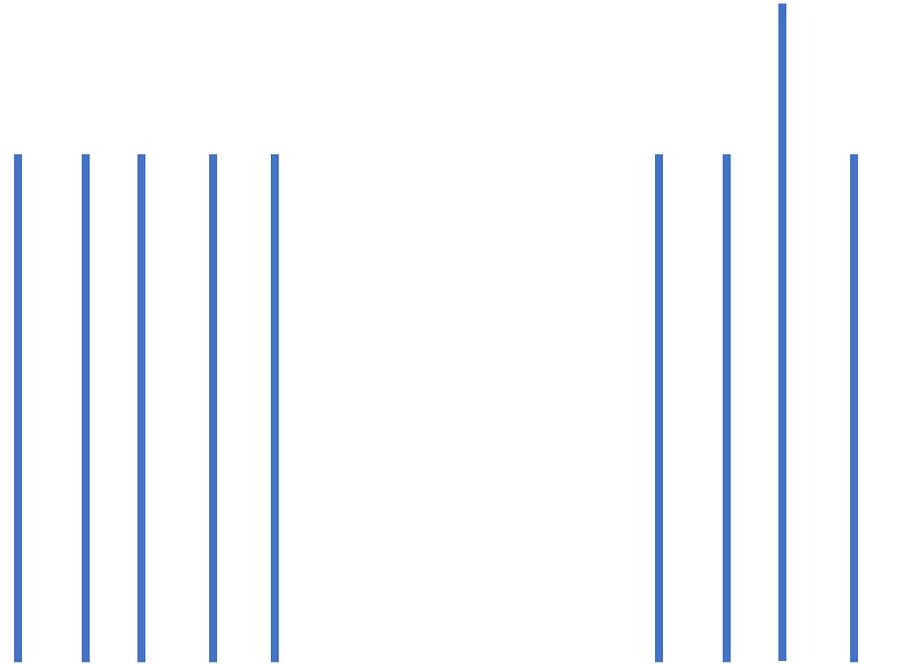
3649**3**62850**3**856**3**9

Pre-Attentive Attributes

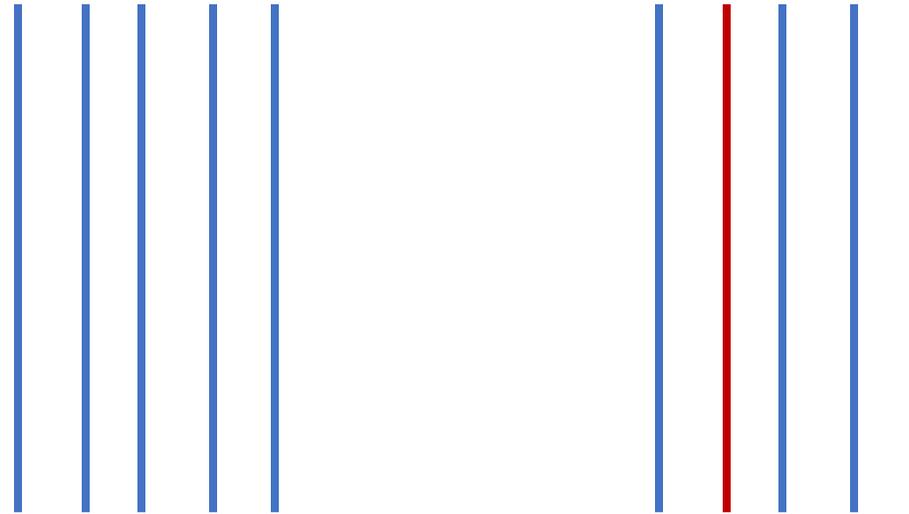
One of these things is not like the other.



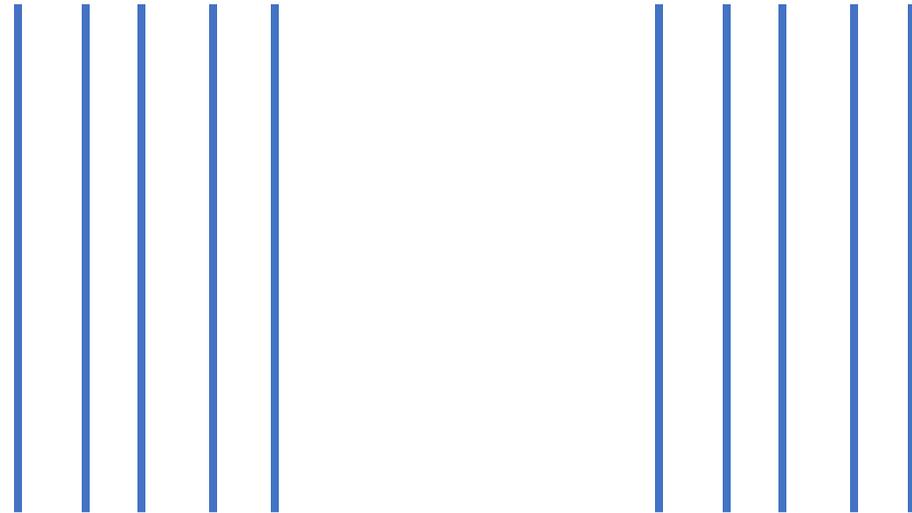
Pre-Attentive Attributes



Pre-Attentive Attributes



Pre-Attentive Attributes



- Visual properties that we notice **without using conscious** effort to do so
- Processing take place within **200ms** after exposure to a visual stimulus
- They are a very powerful tool in your data visualization tool box – they determine what your **audience notices first**

Pre-Attentive Attributes



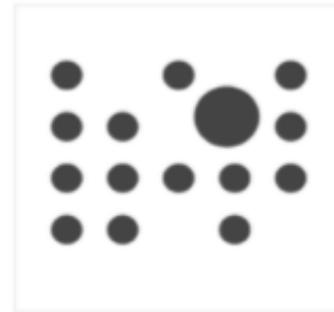
Length



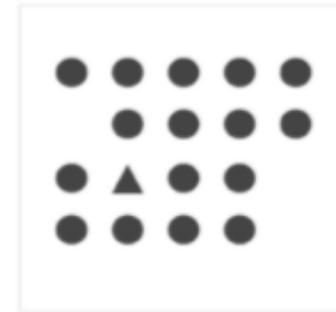
Width



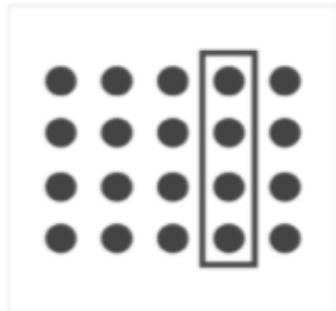
Orientation



Size



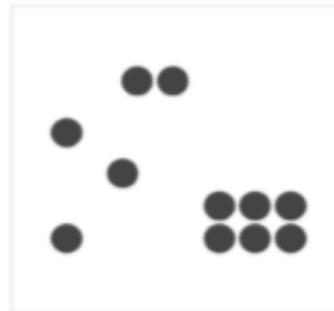
Shape



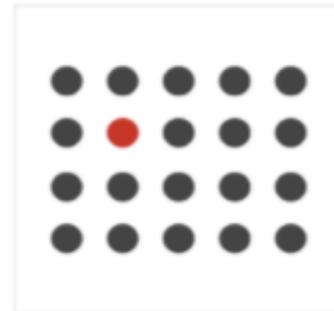
Enclosure



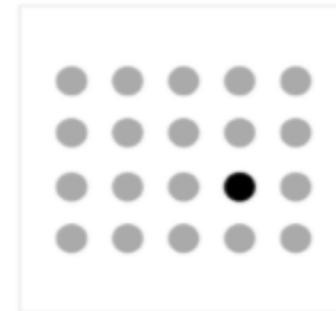
Position



Grouping



Color Hue



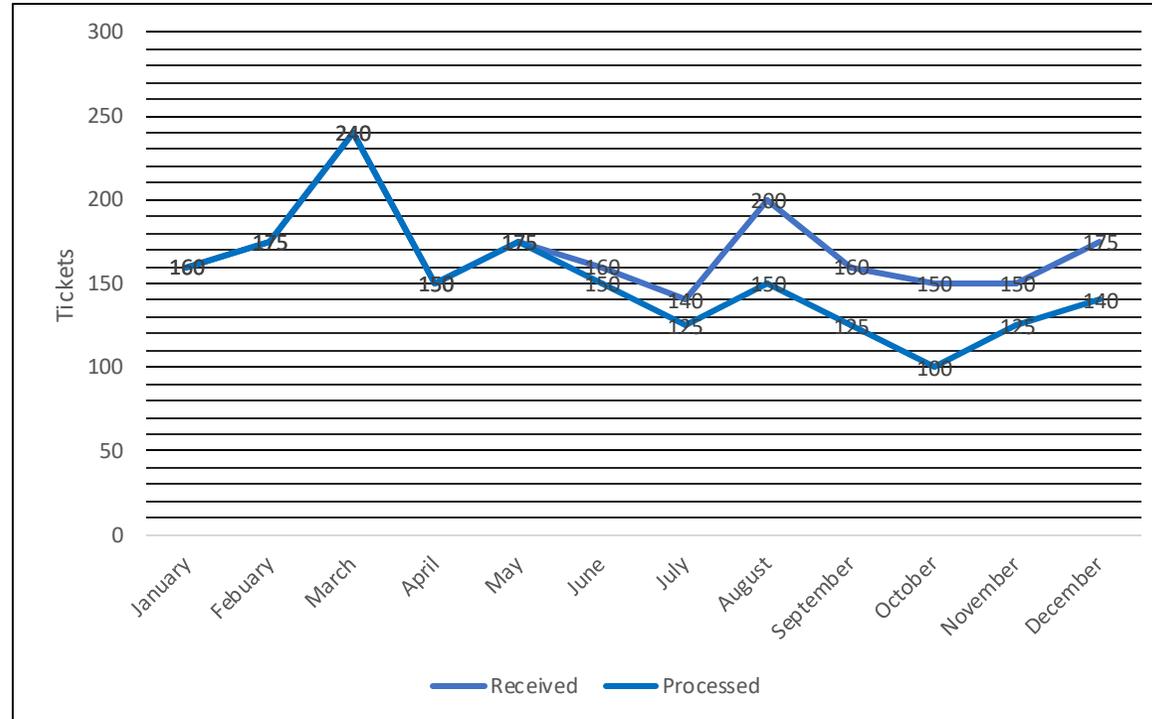
Color Intensity

We need to get our audience to see what we want them to see before they even know they are seeing it.

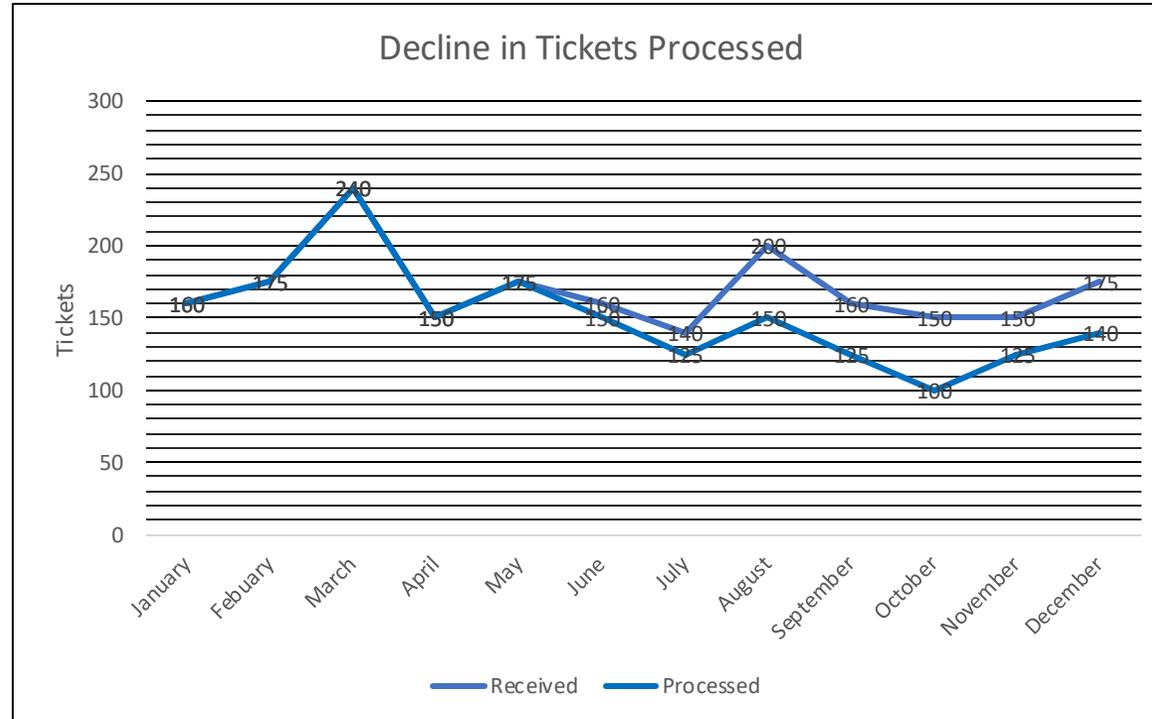
Cole Nussbaumer Knaflic



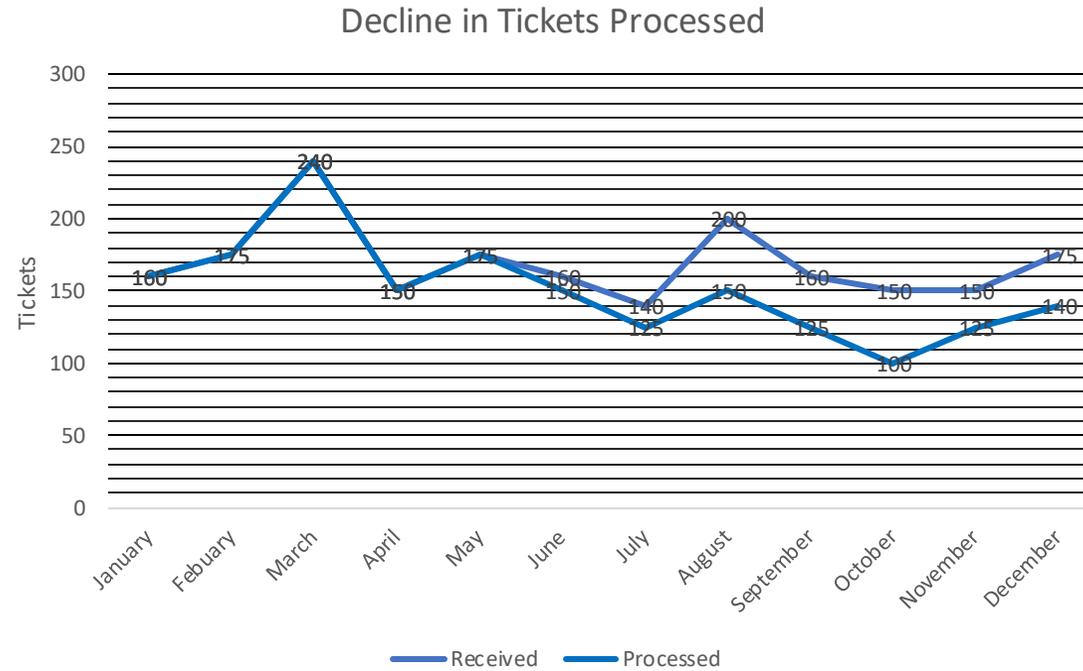
What is wrong with this graph?



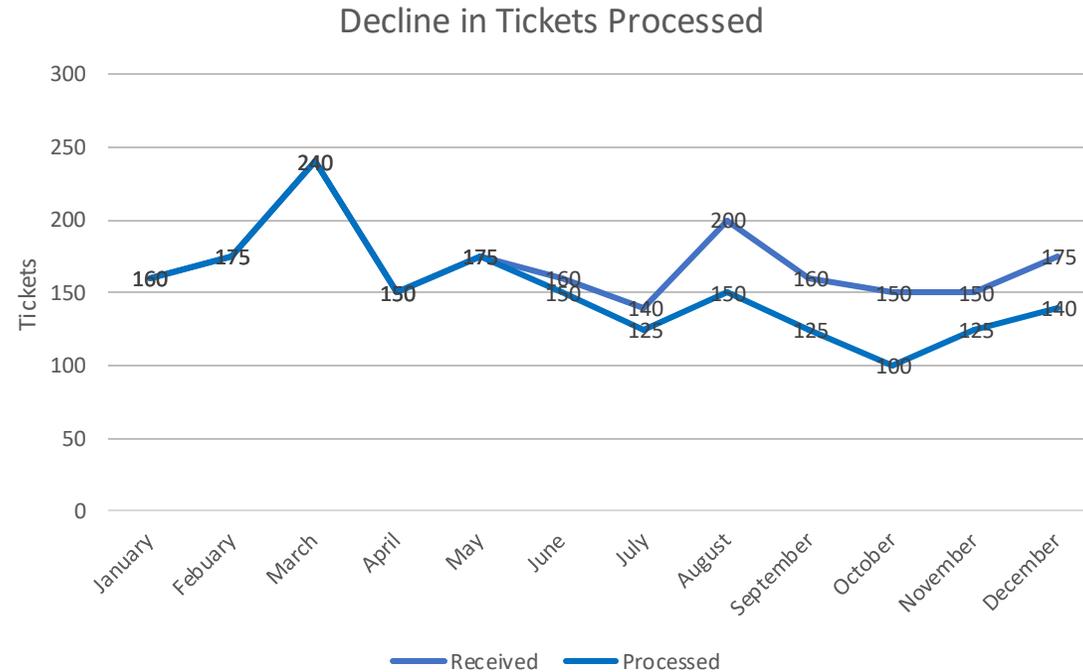
1. Title the Visual



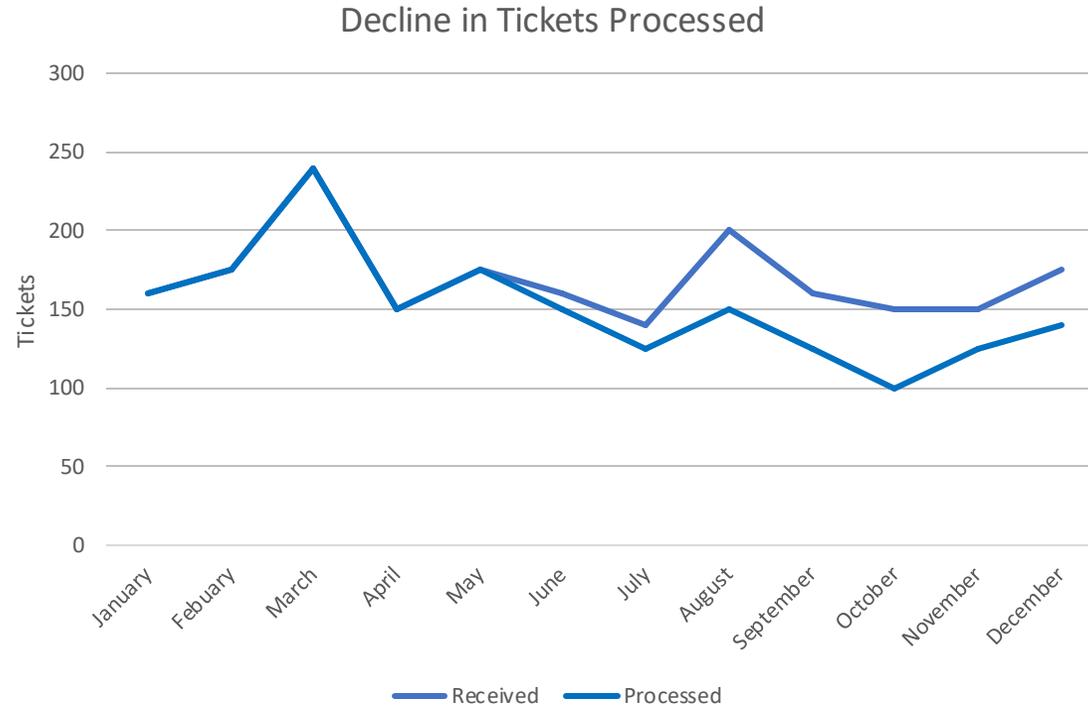
2. Remove the Chart Border



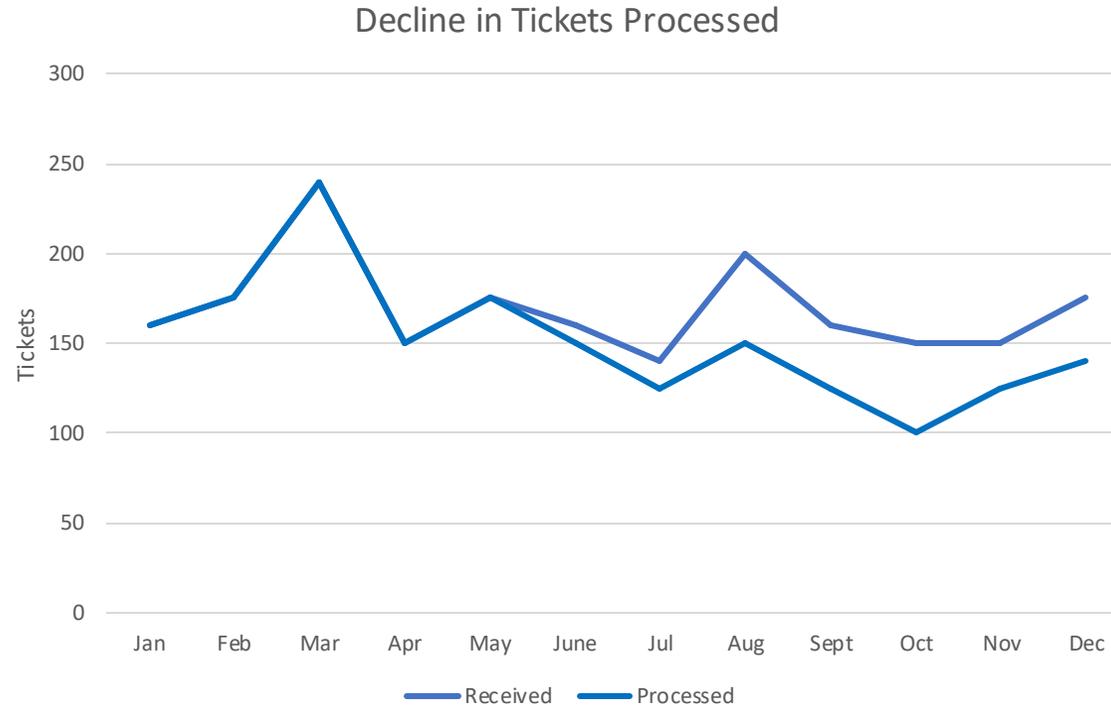
3. Remove Gridlines (or Make Them Lighter)



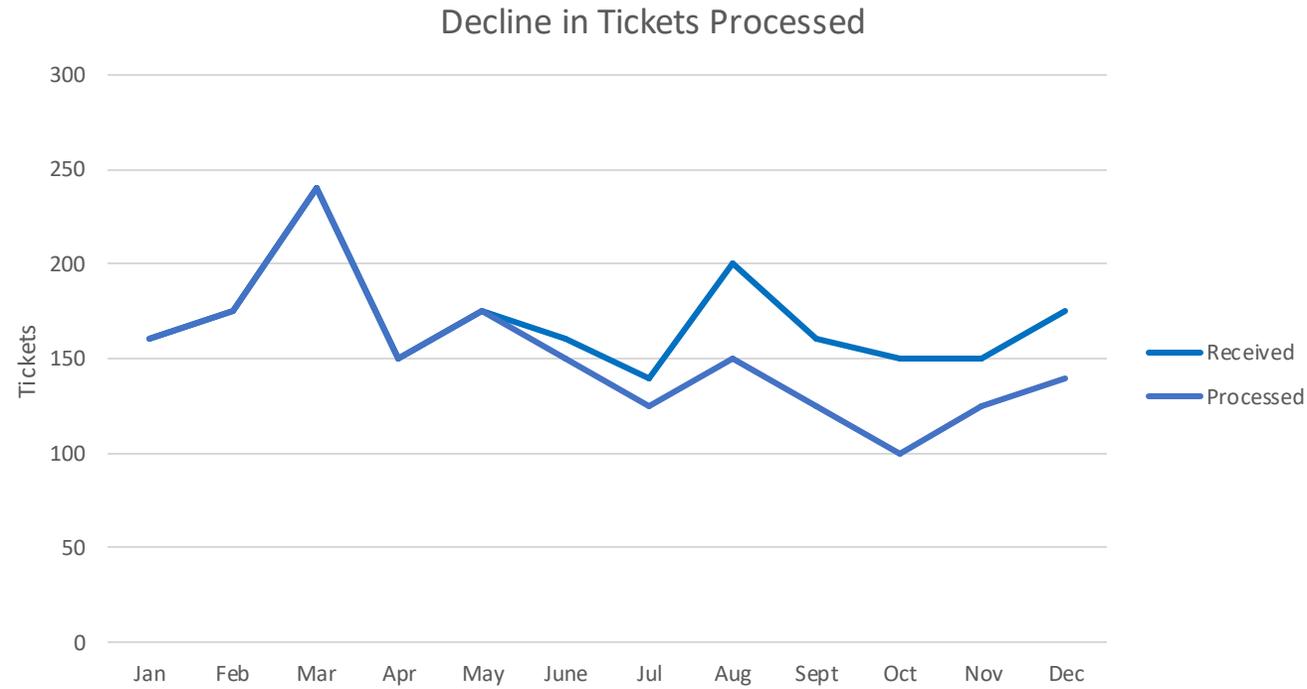
4. Remove Data Markers



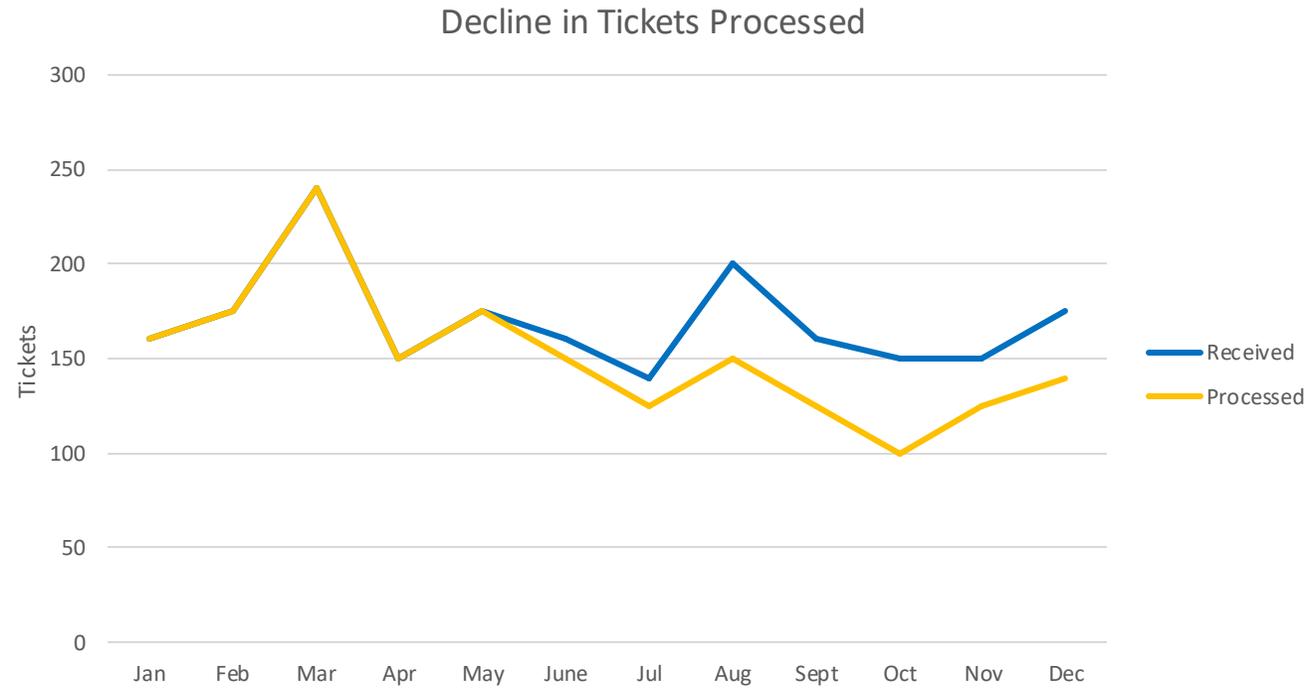
5. Keep Axis Labels Simple (Minimize)



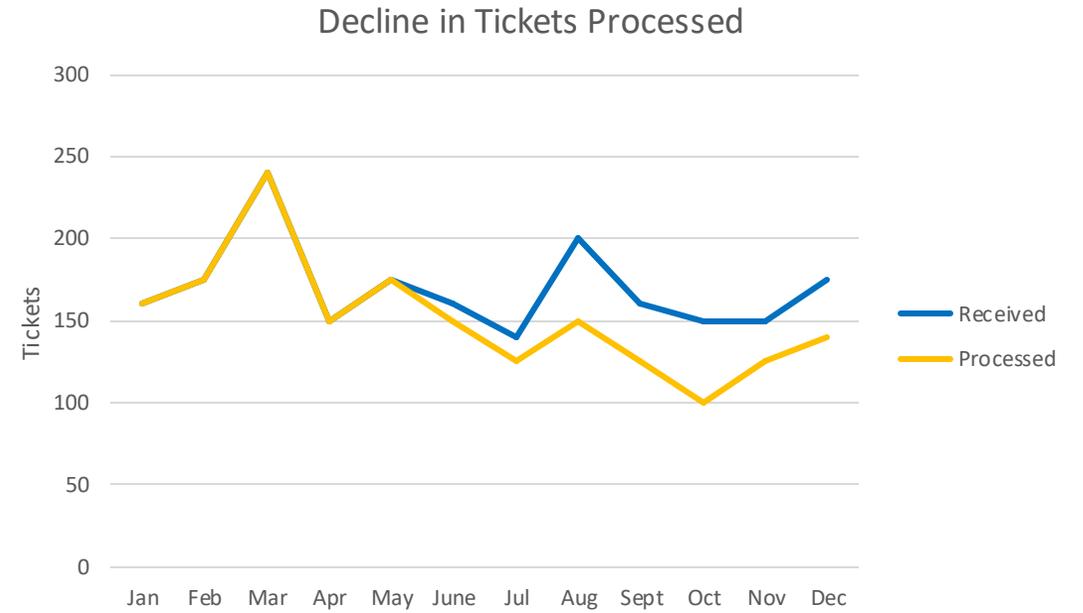
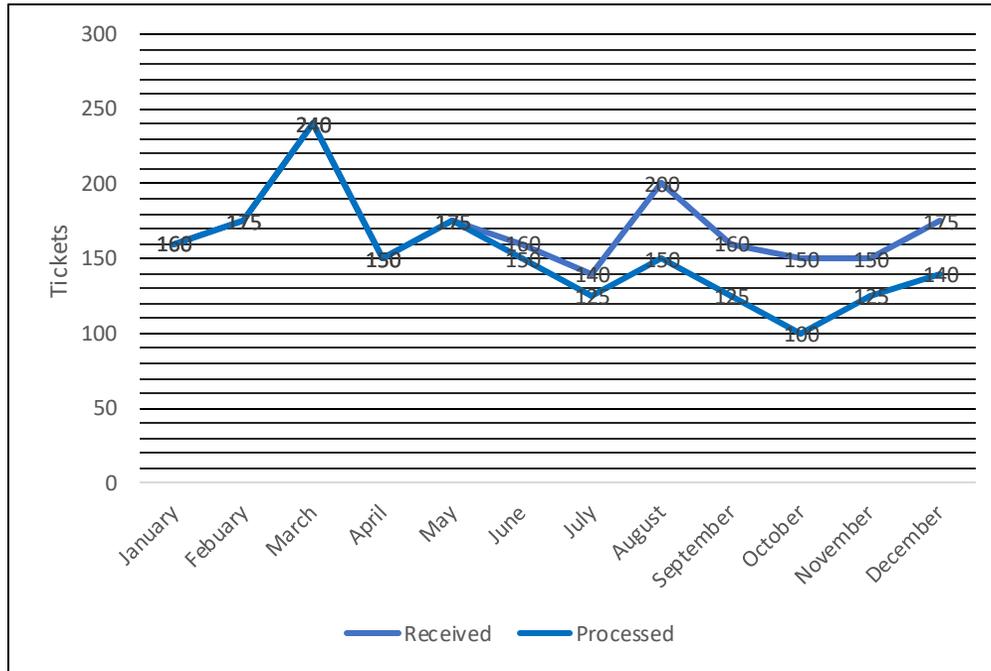
6. Label Data Directly



7. Add Color to Highlight



Which would you rather look at?



1. **COLOR**
2. White Space
3. **TEXT**
4. Reveal
5. Decluttering

White Space

White Space Improves Readability & Retention

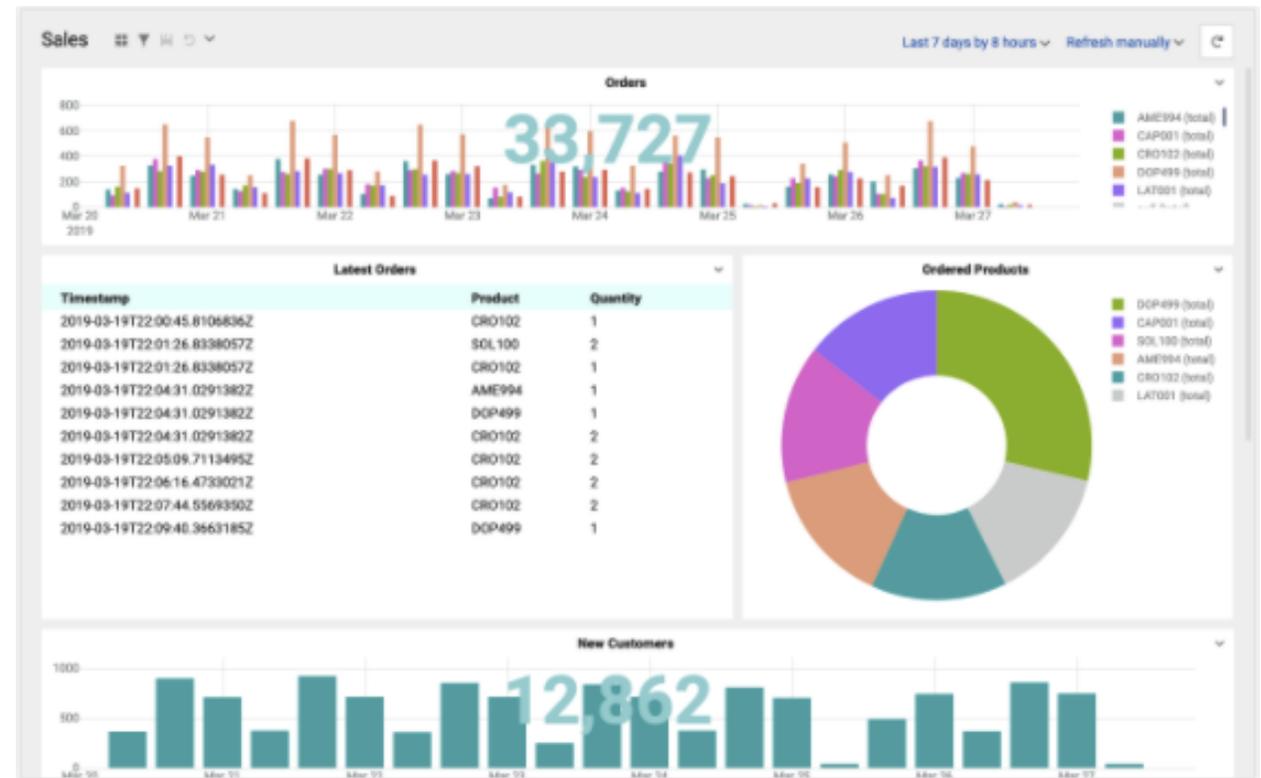
can you read me now? can you
read me now? can you read
me now? can you read me
now? can you read me now?
can you read me now? can you
read me now? can you read
me now? can you read me
now? can you read me now?

White Space Improves Readability & Retention

can you read me now? can you
read me now? can you read
me now? can you read me
now? can you read me now?
can you read me now? can you
read me now? can you read
me now? can you read me
now? can you read me now?

can you read me now?
can you read me now?
can you read me now?
can you read me now?
can you read me now?
can you read me now?

How can you incorporate the concept of “white space” into a dashboard?



Reveal

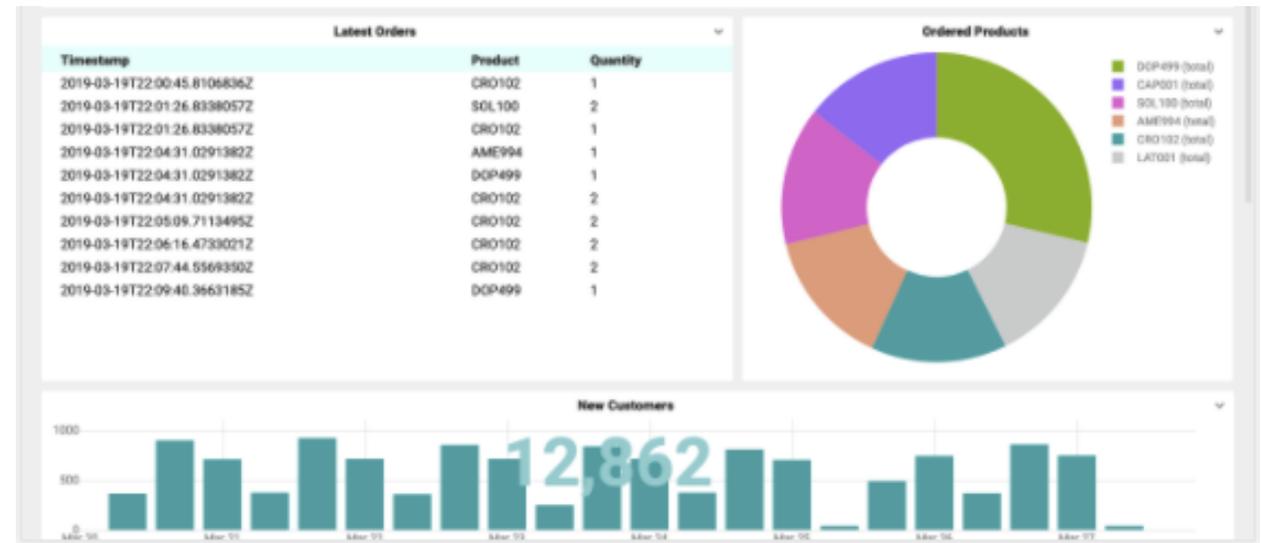
How can you incorporate the concept of “white space” into a dashboard?

Timestamp	Product	Quantity
2019-03-19T22:00:45.8106836Z	CRO102	1
2019-03-19T22:01:26.8338057Z	SOL100	2
2019-03-19T22:01:26.8338057Z	CRO102	1
2019-03-19T22:04:31.0291382Z	AME994	1
2019-03-19T22:04:31.0291382Z	DOP499	1
2019-03-19T22:04:31.0291382Z	CRO102	2
2019-03-19T22:05:09.7113495Z	CRO102	2
2019-03-19T22:06:16.4733021Z	CRO102	2
2019-03-19T22:07:44.5569350Z	CRO102	2
2019-03-19T22:09:40.3663185Z	DOP499	1

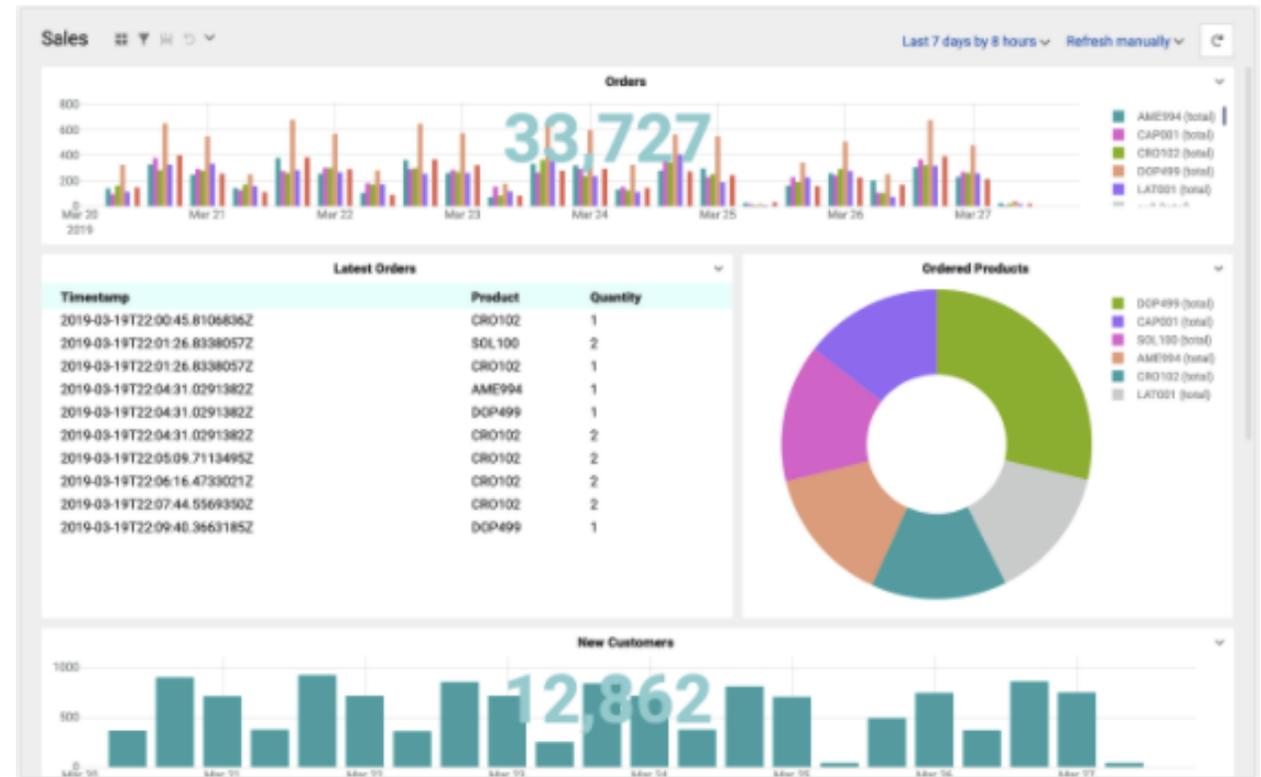
How can you incorporate the concept of “white space” into a dashboard?



How can you incorporate the concept of “white space” into a dashboard?



How can you incorporate the concept of “white space” into a dashboard?



Beware of jumping graphs

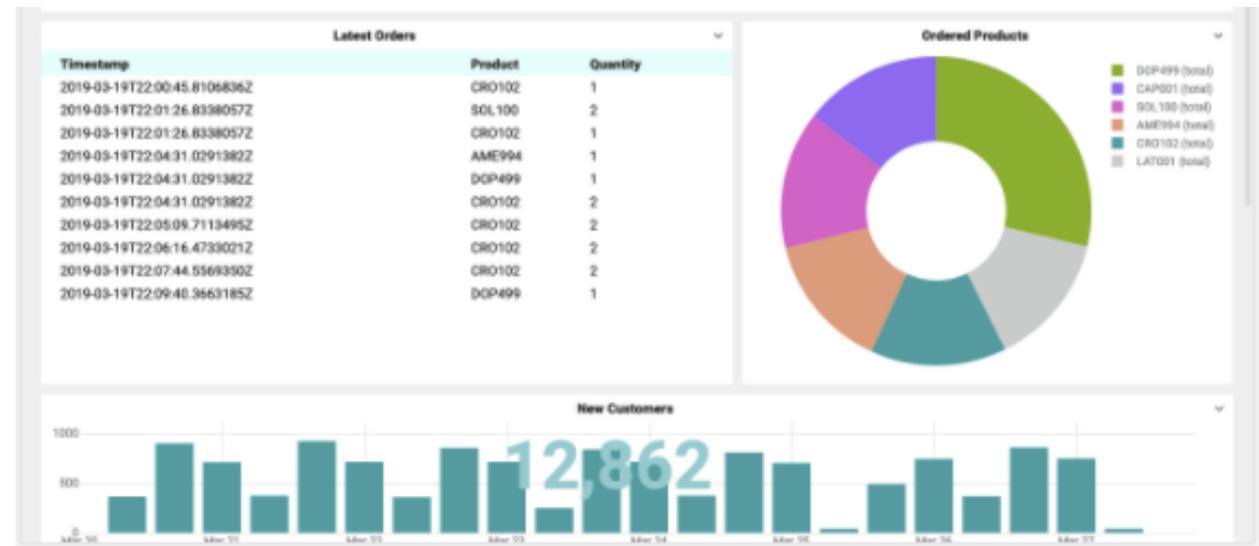
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2019-03-19T22:00:45.8106836Z	CRO102	1
2019-03-19T22:01:26.8338057Z	SOL100	2
2019-03-19T22:01:26.8338057Z	CRO102	1
2019-03-19T22:04:31.0291382Z	AME994	1
2019-03-19T22:04:31.0291382Z	DOP499	1
2019-03-19T22:04:31.0291382Z	CRO102	2
2019-03-19T22:05:09.7113495Z	CRO102	2
2019-03-19T22:06:16.4733021Z	CRO102	2
2019-03-19T22:07:44.5569350Z	CRO102	2
2019-03-19T22:09:40.3663185Z	DOP499	1

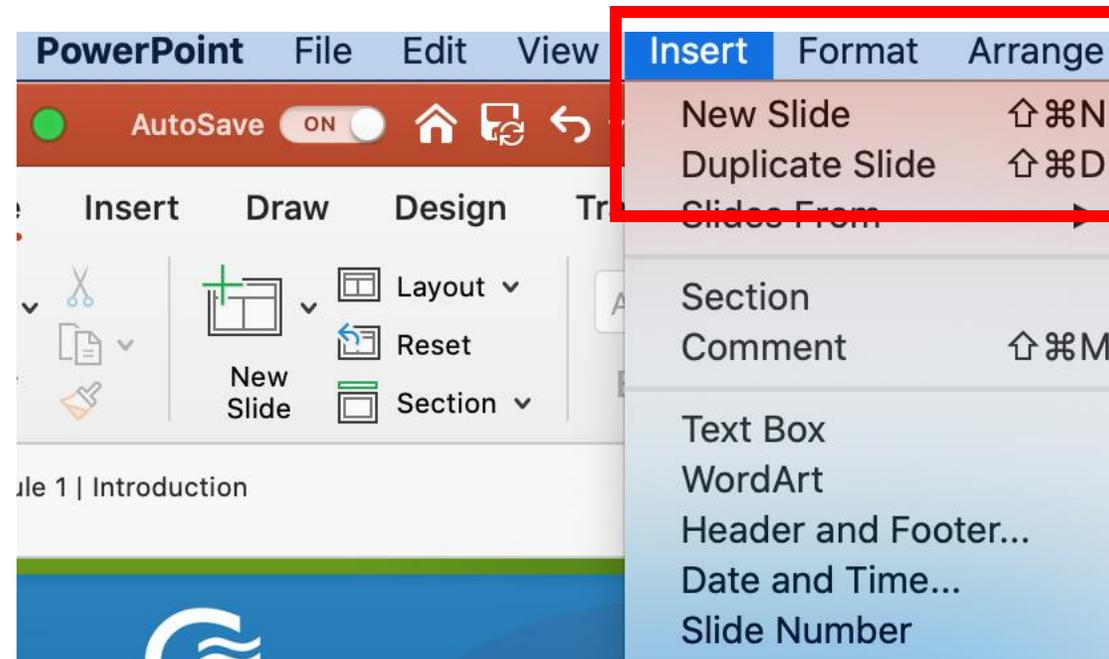
How can you incorporate the concept of “white space” into a dashboard?



How can you incorporate the concept of “white space” into a dashboard?



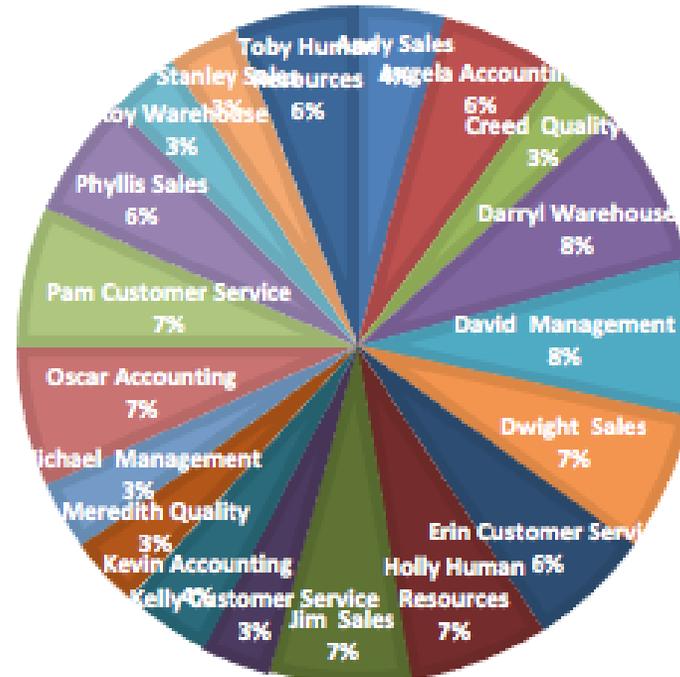
Beware of Jumping Graphs



Just because we can, doesn't mean we should

GRAPH

- Andy Sales
- Angela Accounting
- Creed Quality
- Darryl Warehouse
- David Management
- Dwight Sales
- Erin Customer Service
- Holly Human Resources
- Jim Sales
- Kelly Customer Service
- Kevin Accounting
- Meredith Quality
- Michael Management
- Oscar Accounting
- Pam Customer Service
- Phyllis Sales
- Roy Warehouse
- Stanley Sales
- Toby Human Resources

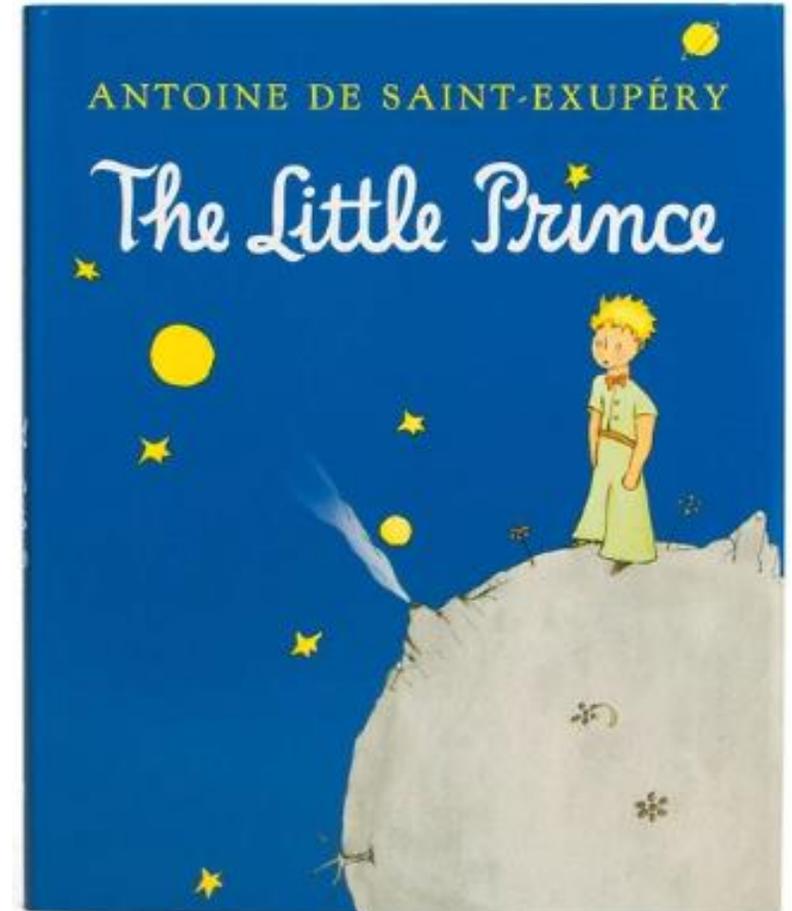


Just because we can, doesn't mean we should



*You know you've achieved perfection,
not when you have nothing more to add,
but when you have nothing to take
away.*

Antoine de Saint-Exupery



What Questions Do You Have?

