



MASTERING THE ART OF DATA VISUALIZATION

YOUR INSTRUCTOR

*Joshua Brindley is an **Analytics Translator** who is passionately engaging with non-experts to harness the power of data analytics. He set-up and facilitate analytics coaching sessions.*

These are a series of workshops and sessions I lead that rotate around the enterprise aimed at raising awareness of analytics and provide an opportunity for anyone to get expert analytics advice on current analytics initiatives.

*He **founded** an internal analytics talent identification scheme that, through a series of exercises, tests and psychometric feedback supports the business in identifying hidden analytics capability in their department and provides a framework for restructuring to a self-service BI model.*

WHAT'S INSIDE?

Section 2: COMMUNICATING WITH DATA

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- Analytics Value Chain
- Consulting for Context
- Data Narratives
- Turning a Visualization into a Story

Section 8: BRINGING IT ALL TOGETHER

- Steps to Creating Visualization

CASE STUDIES 1 & 2

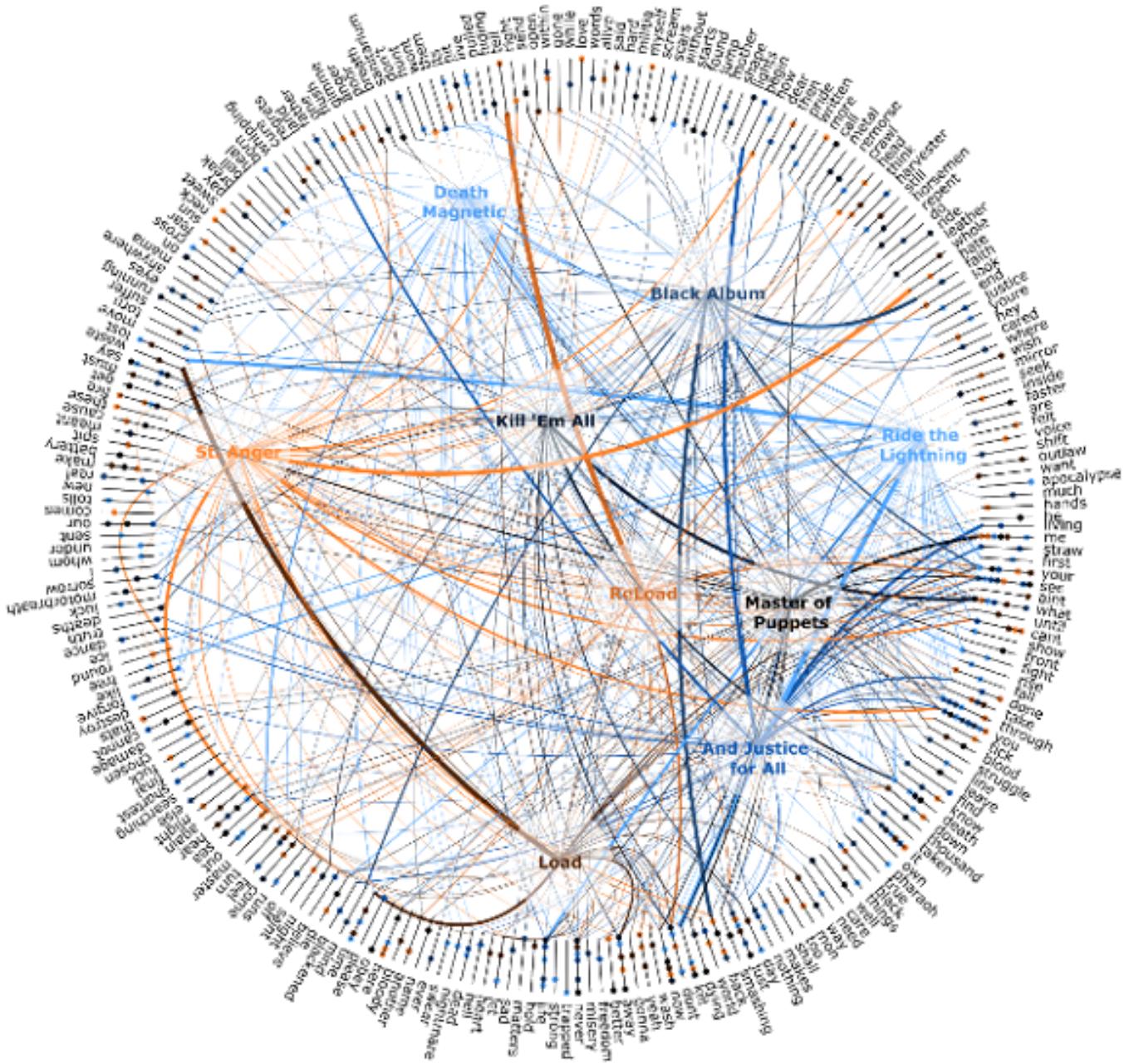
YOUR NOTES

SECTION 2: COMMUNICATING WITH DATA

THE LANGUAGE OF DATA

SECTION 2

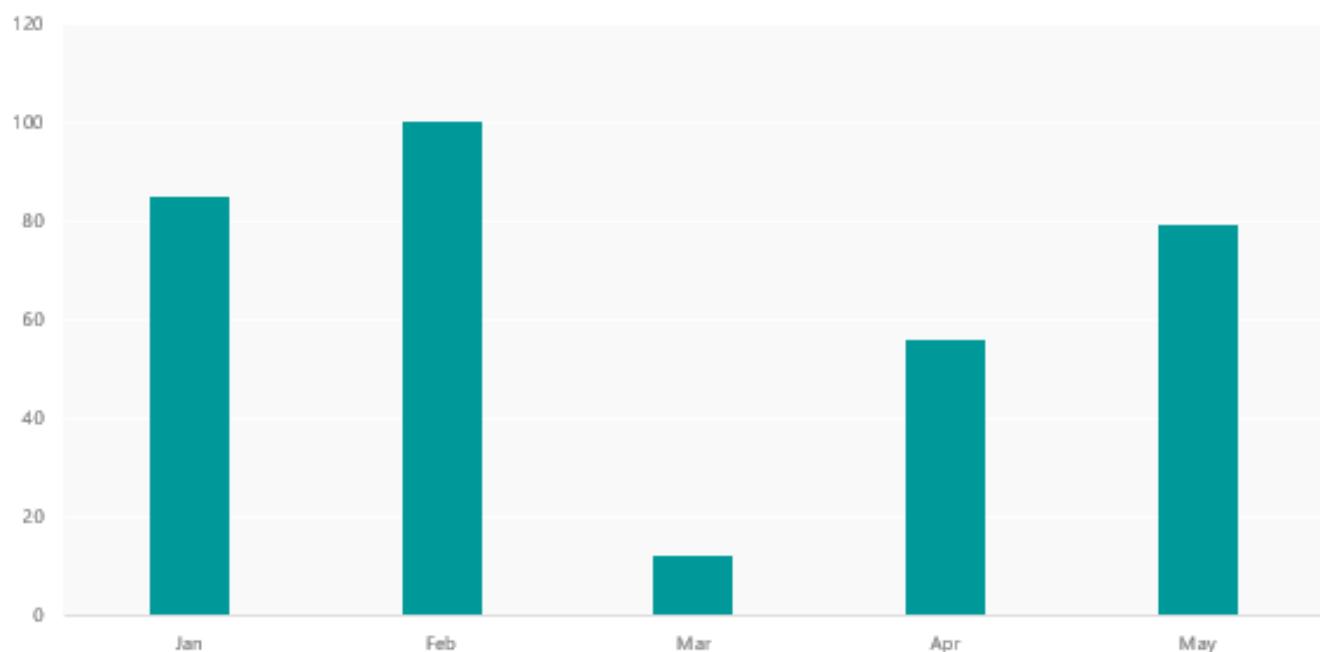
DEEP COMPLEX GRAPH



SECTION 2

SIMPLE GRAPH

Unseasonal Dip in Sales in Mar



Edward Tufte - 1983

'Striking the right balance is key.'

Graphical displays should:

- show the data
- induce the viewer to think about the substance rather than about methodology, graphic design, the technology of graphic production or something else
- avoid distorting what the data has to say
- present many numbers in a small space
- make large data sets coherent
- encourage the eye to compare different pieces of data
- reveal the data at several levels of detail, from a broad overview to the fine structure
- serve a reasonably clear purpose: description, exploration, tabulation or decoration
- be closely integrated with the statistical and verbal descriptions of a data set.

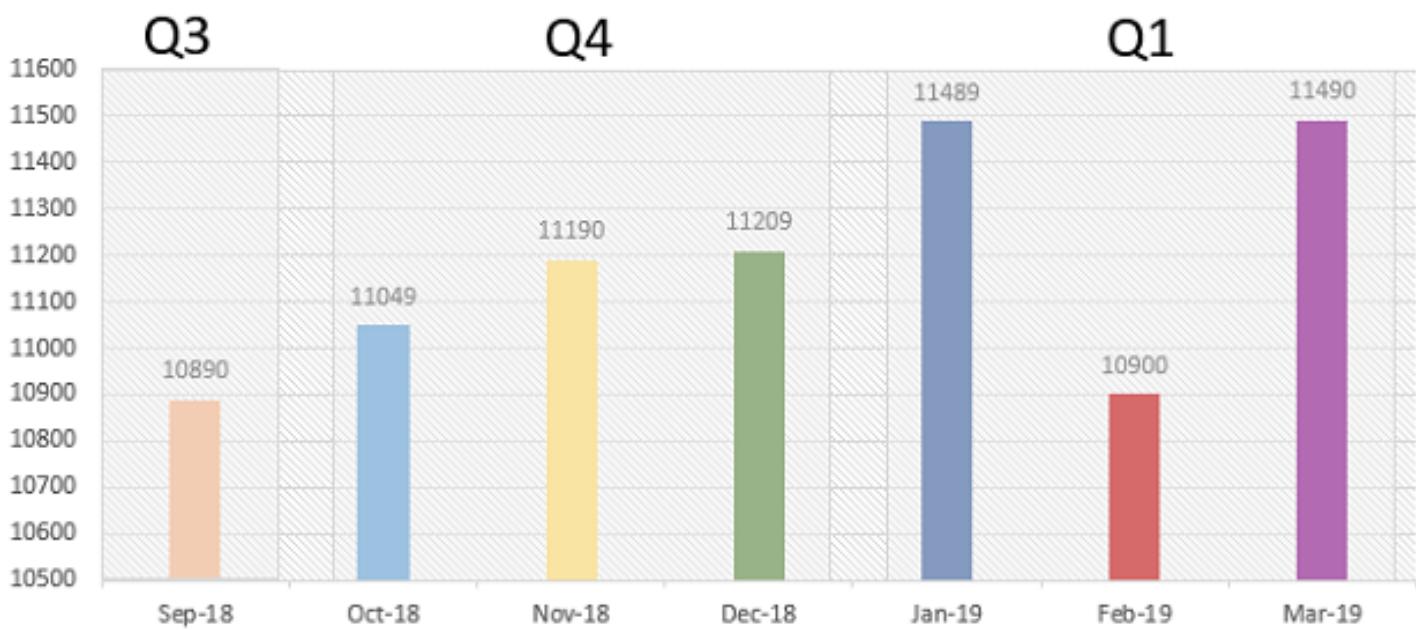
SECTION 2: COMMUNICATING WITH DATA

WHAT IS DATA COMMUNICATION

SECTION 3

GOOD AND BAD DATA VISUALIZATIONS: WHAT MAKES AN EFFECTIVE DATA COMMUNICATION?

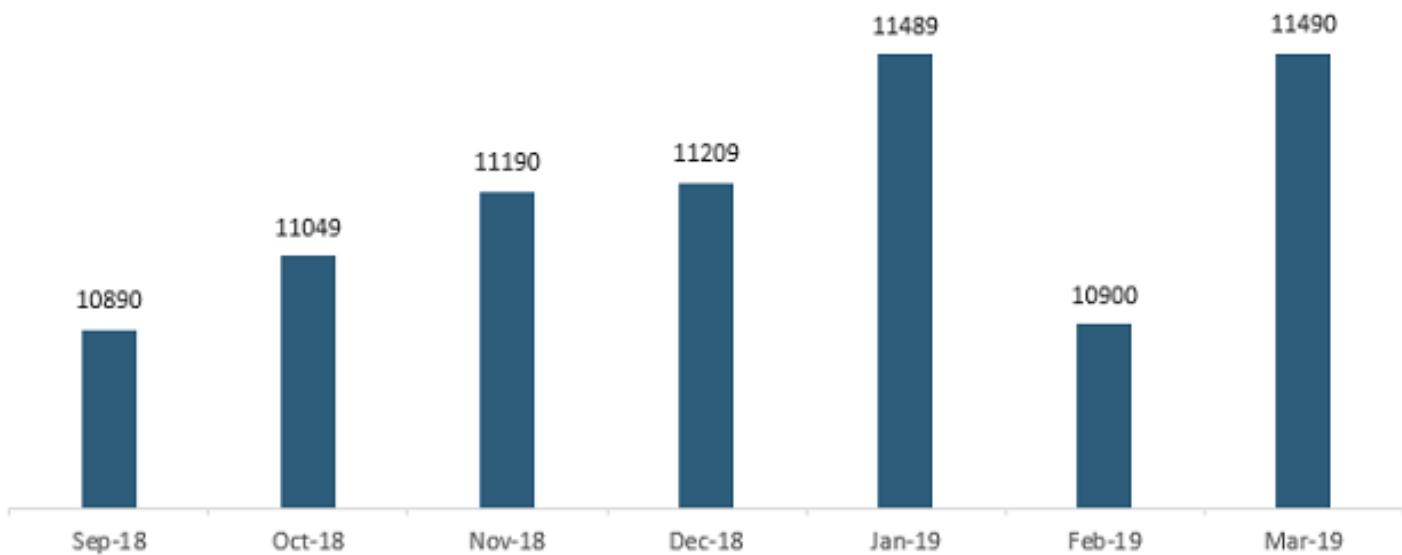
Monthly Sales



A TYPICAL DATA GRAPH, IT'S CLUTTERED

SECTION 3

Monthly Sales



A TYPICAL DATA GRAPH, CLUTTER HAS BEEN REMOVED, BUT IT DOESN'T SAY ANYTHING

SECTION 3

Huge Dip in Sales After Period of Continued Growth



THE REVISED VERSION - THE FORMATTING IS SUCH THAT IT TELLS A COMPELLING NARRATIVE. YOU DON'T NEED TO BE PART OF THIS COMPANY, BUT YOU CAN STILL UNDERSTAND THE STORY

SECTION 3: GOOD AND BAD DATA VISUALIZATIONS

WHAT MAKES AN EFFECTIVE DATA COMMUNICATION

SECTION 3

GOOD AND BAD DATA VISUALIZATIONS: EFFECTIVE COMMUNICATION EXAMPLES

EXAMPLE 1

In this example, the manager of a call centre has approached HR to make the case to hire additional staff.

Month	Calls Received	Avg Feedback Rating (1 - 10)
Jan-18	10435	9.5
Feb-18	11495	8.7
Mar-18	11405	9.2
Apr-18	10443	9.1
May-18	10886	8.8
Jun-18	11399	9.2
Jul-18	10490	9.5
Aug-18	11345	8.9
Sep-18	10890	9
Oct-18	11049	9.2
Nov-18	11190	9.4
Dec-18	11209	9.4
Jan-19	11489	9
Feb-19	10900	8.9
Mar-19	11490	9.3
Apr-19	11489	9.2
May-19	10322	9.5
Jun-19	11789	8.9
Jul-19	11665	8.9
Aug-19	11890	9.2
Sep-19	13334	8.4
Oct-19	13394	7.9
Nov-19	13440	8
Dec-19	13480	8.2

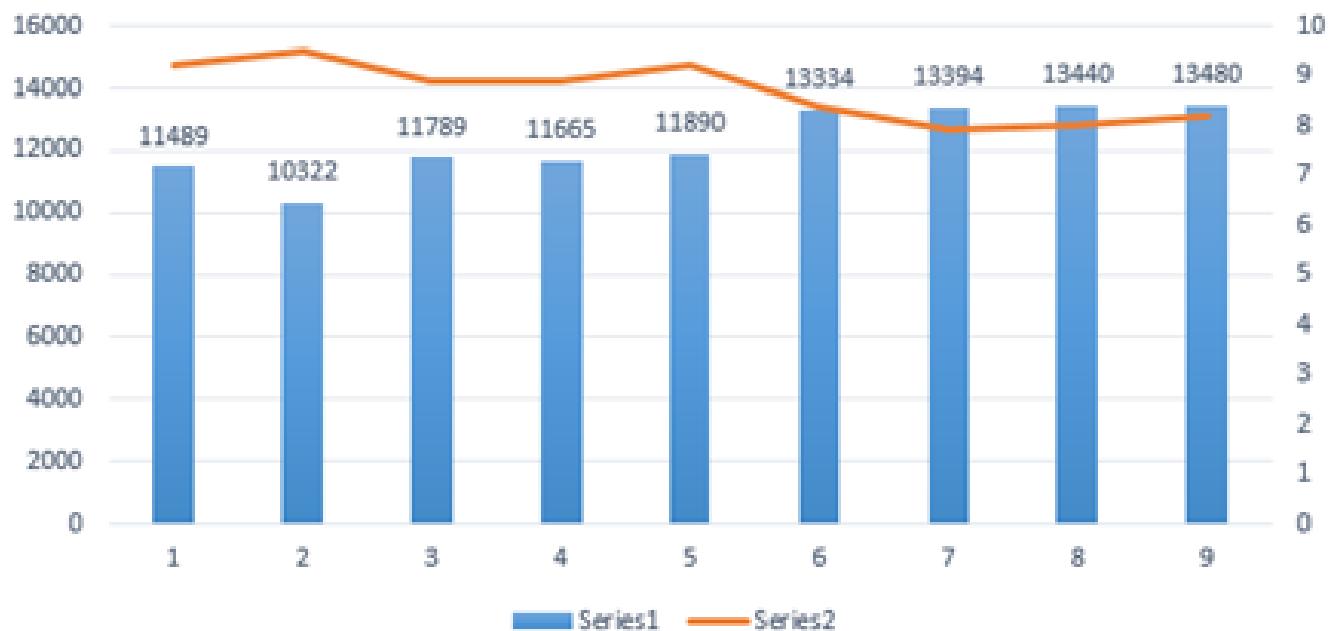
Need additional staff

- As number of calls increase, customer feedback decreases
- Had an increase in calls from Sept-19
- Need additional staff to maintain high customer feedback

Month	Calls Received	Avg Feedback Rating (1 - 10)
Apr-19	11489	9.2
May-19	10322	9.5
Jun-19	11789	8.9
Jul-19	11665	8.9
Aug-19	11890	9.2
Sep-19	13334	8.4
Oct-19	13394	7.9
Nov-19	13440	8
Dec-19	13480	8.2

SECTION 3

Number of Calls and Feedback Rating Monthly



As **number of calls** increases **average rating** decreases

The tipping point is at 13000 calls



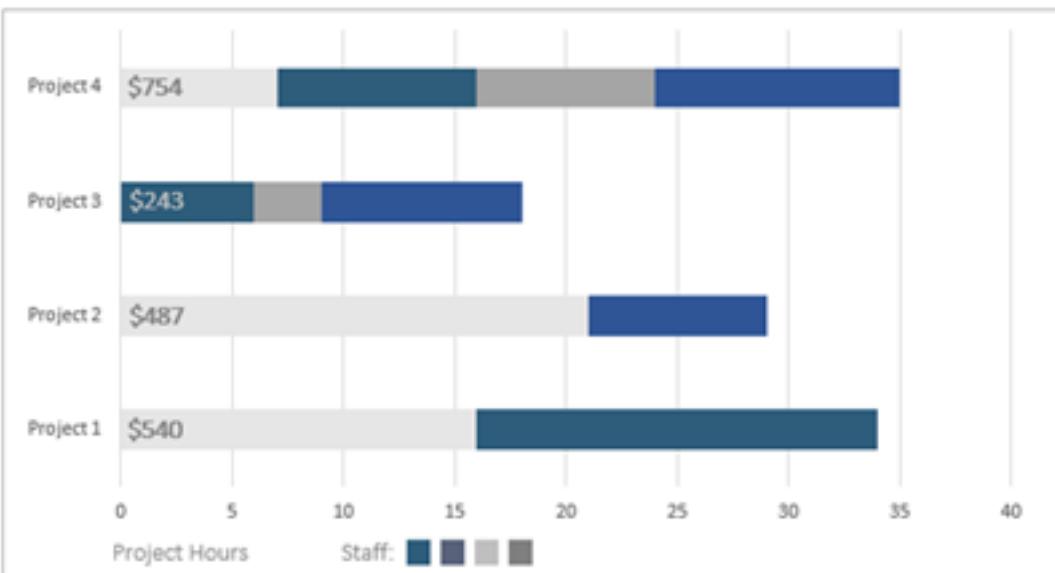
SECTION 3

GOOD AND BAD DATA VISUALIZATIONS: EFFECTIVE COMMUNICATION EXAMPLES

EXAMPLE 2

An IT Manager works for a large organisation that mainly works on internal projects. The projects the IT team works on, recharges the resources back to the organisation. The past couple of months, his team have worked on 4 projects, and the Finance Department are confused as to why projects 4 and 1, despite having virtually the same amount of chargeable hours are being charged at such different amounts. The IT manager uses this communication to explain why.

Hours Spent on Projects



Project 1
\$540

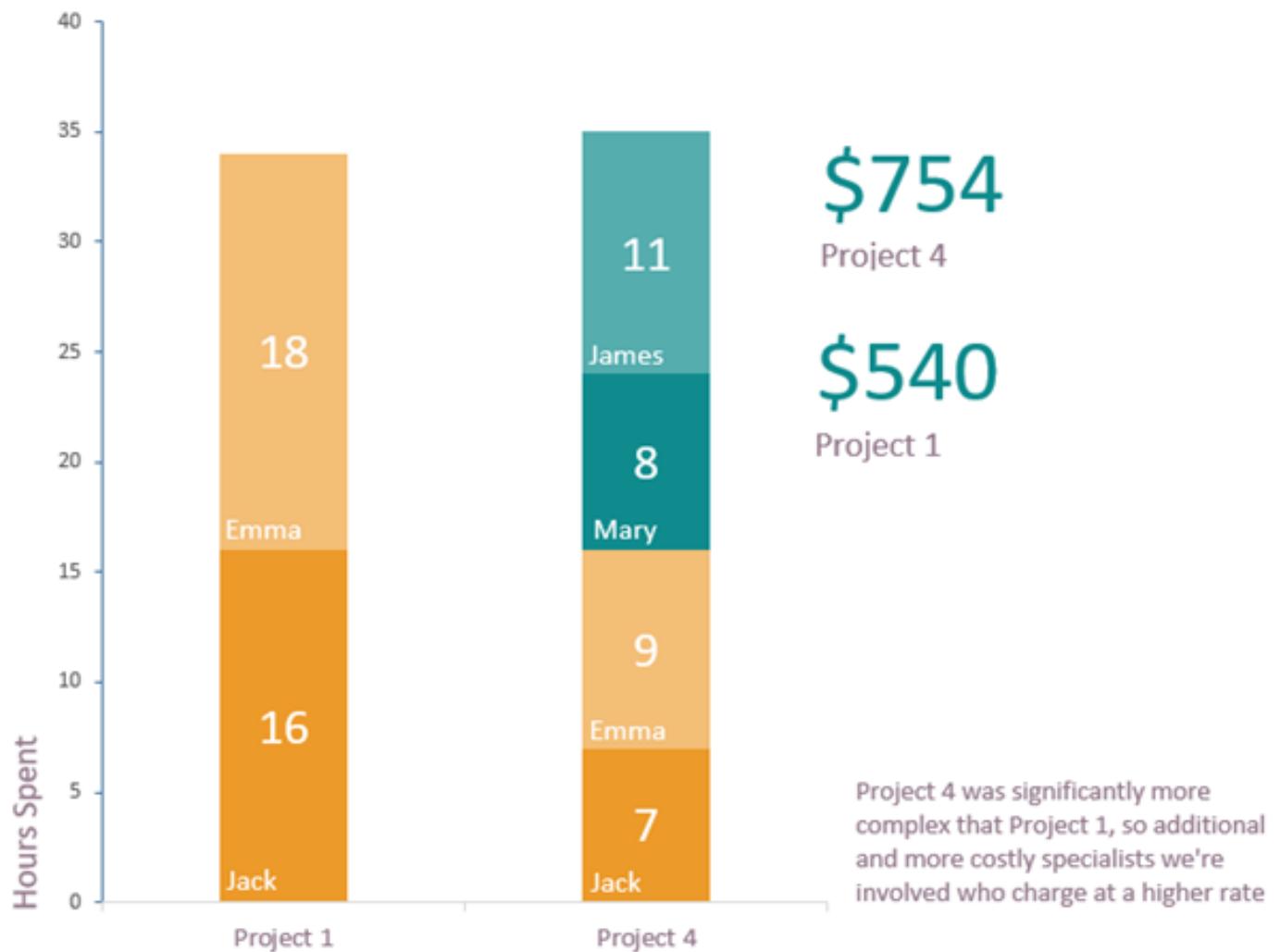
Project 2
\$487

Project 3
\$243

Project 4
\$754

Project 4 Used More Expensive Resources

Specialists | Regular



YOUR NOTES

GOOD AND BAD DATA VISUALIZATIONS: EFFECTIVE COMMUNICATION EXAMPLES

SECTION 4

COMMUNICATING VISUALLY

VISUAL PERCEPTION - ORDER

-Communicating visually in the language of data is a lot like cooking. Anyone can eat a meal and form an opinion about it, without ever having taking a course in food science. We can eat a meal and know whether or not we liked it. We may even be able to describe certain aspects of the meal we enjoyed, such as it has a 'richness' or 'texture' that we liked, without knowing you're describing the Maillard reaction of the amino acids.

Similarly, with data visualisation, you can see a graph or data communication and just sense if it was effective or if it resonated with you. You could possibly even describe components that you liked, such as it was 'insightful' or informative – without having a degree in visual perception.

If you wanted to pursue a career as a chef, you'd have to have a functional knowledge of Food Science. Equally, if you wish to create data communications that drive decisions and impress an audience, you should know something about visual perception.

Pg.34

C v a A m o w t f c k w e
o a n e p i a o a n e v
m s n l y a i t k o n o e
m u g p o l n h i d w l n
u a u t n i o n e i
n a e a o u g s a w k b
i g l n n t c t e e e
c y e i c d a i a d
e k a a e e a t a
t i o a n f b v c n h i b
n F o o e o c m e t l
n c e r u r u e e r . e
g : d o a m t r . a
↓ n s o t h s l o w t
e t k a i a e W f e o
a i a n t v e a
n , i i n n m
i g n n d o a
s . g t y

SECTION 4

EXERCISE

I want you to write down the objects of the visualization in the order you looked at them.

Book Sales by Genre

Jan to Apr



YOUR NOTES

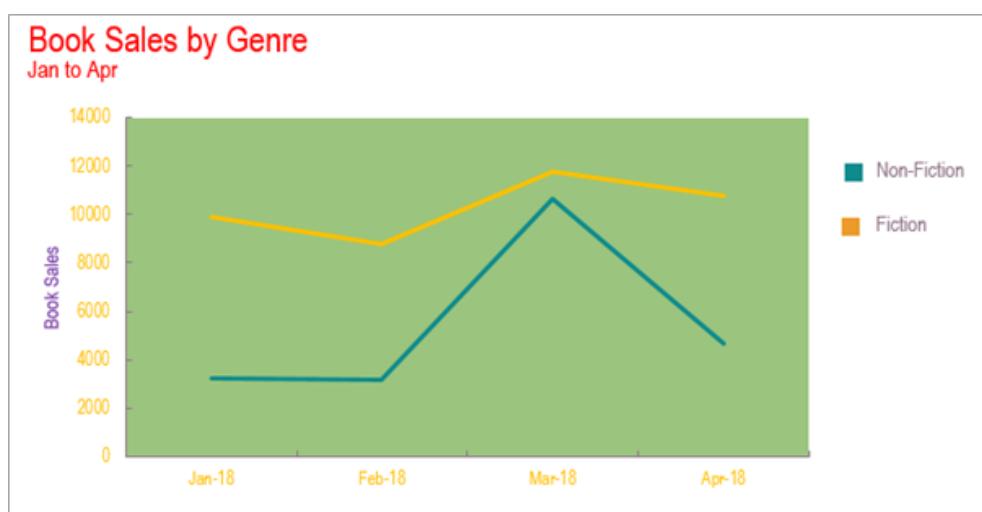
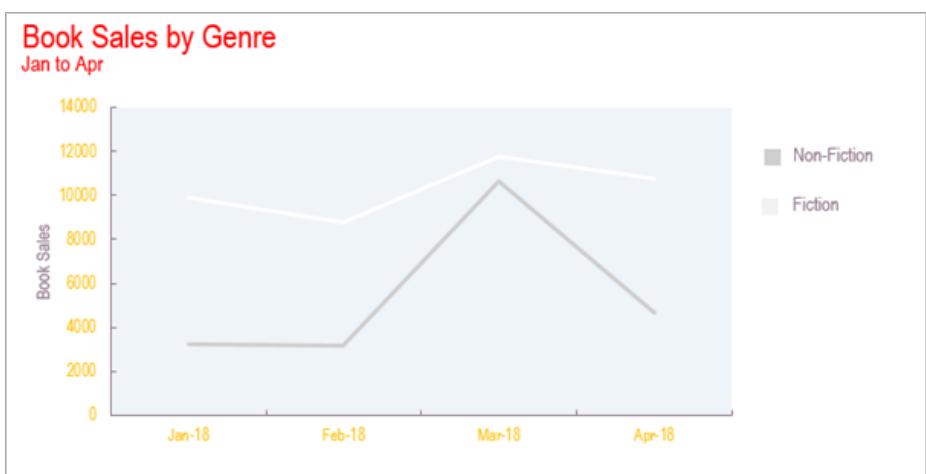
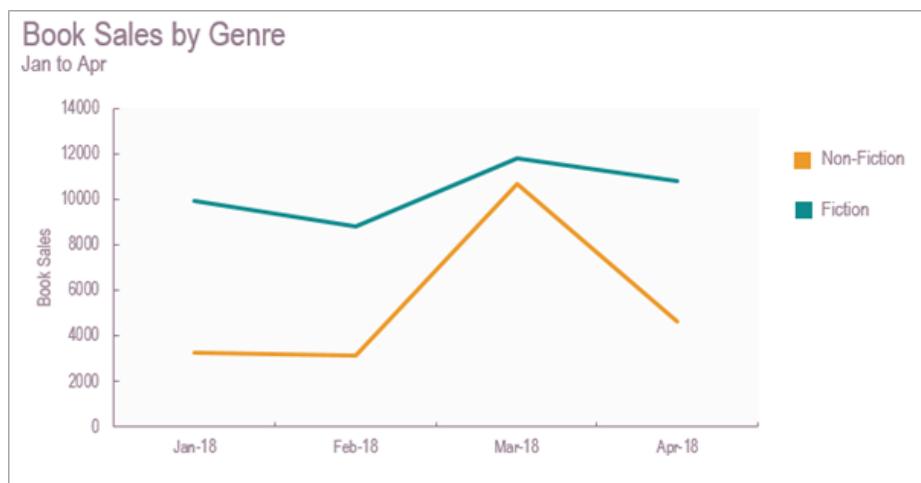
SECTION 4: COMMUNICATING VISUALLY

VISUAL PERCEPTION - ORDER

SECTION 4

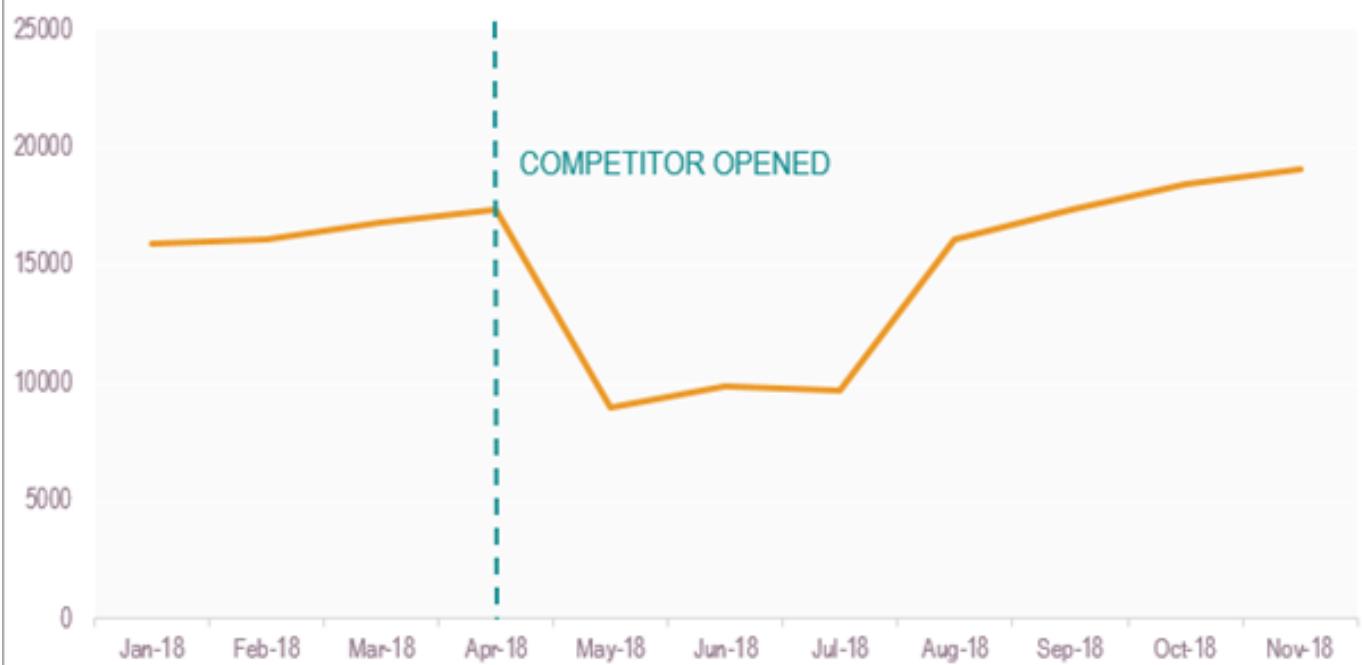
COMMUNICATING VISUALLY

VISUAL PERCEPTION - HIERARCHY

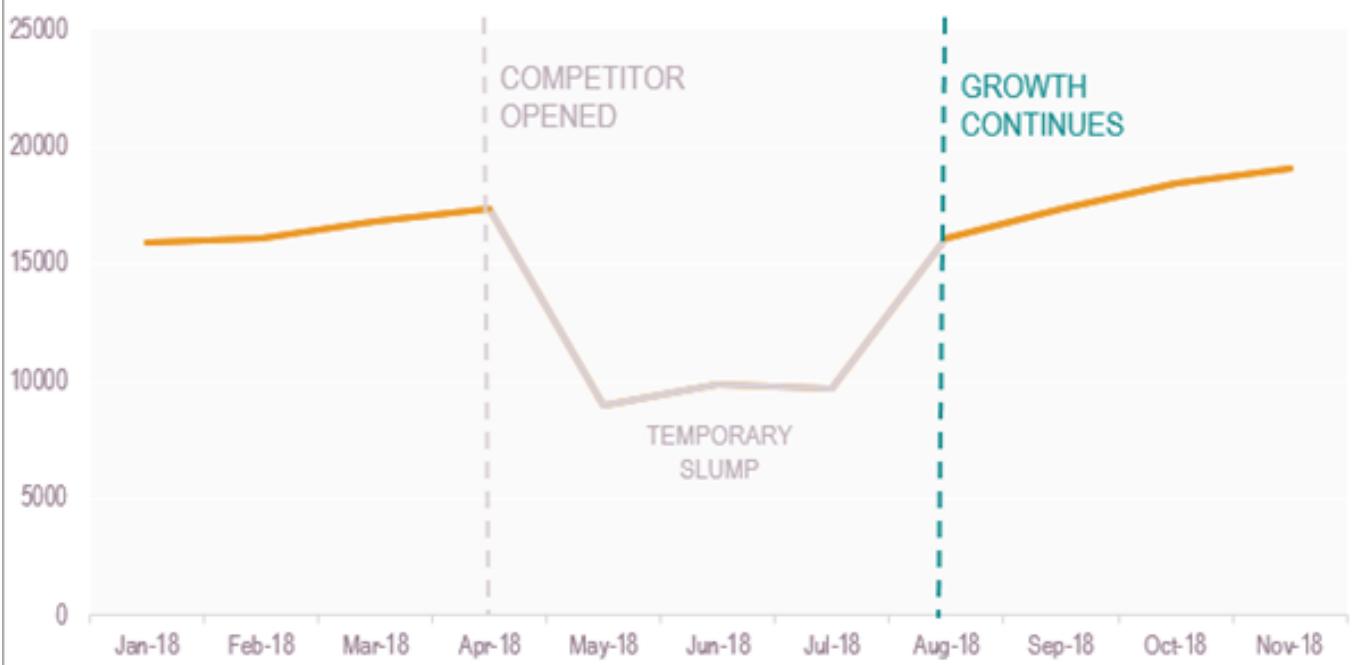


SECTION 4

REVENUE GENERATED OVER THE PAST 11 MONTHS



REVENUE GROWTH OVER THE PAST 11 MONTHS



SECTION 4: COMMUNICATING VISUALLY

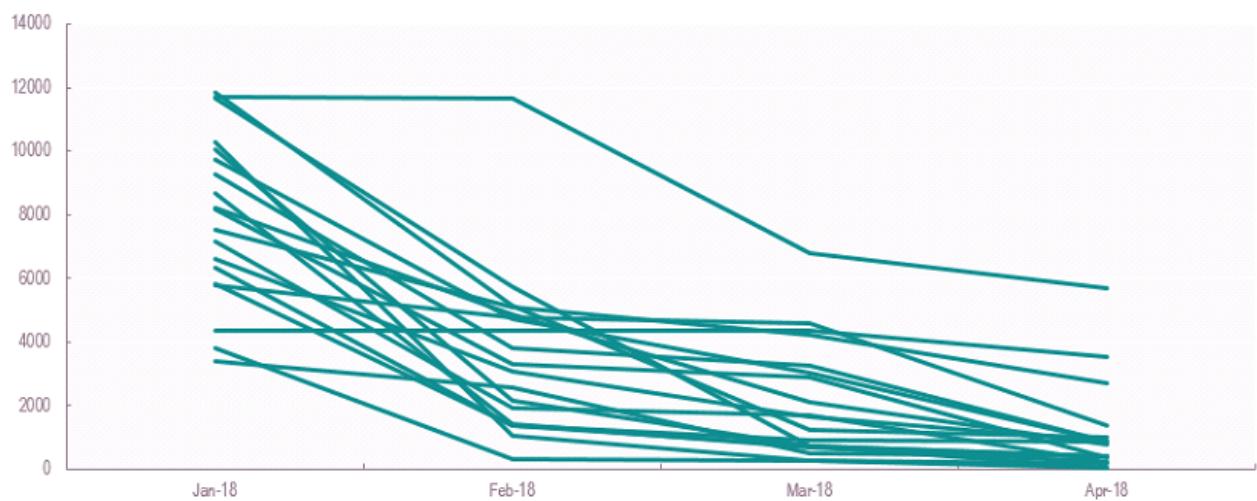
VISUAL PERCEPTION - HIERARCHY

SECTION 4

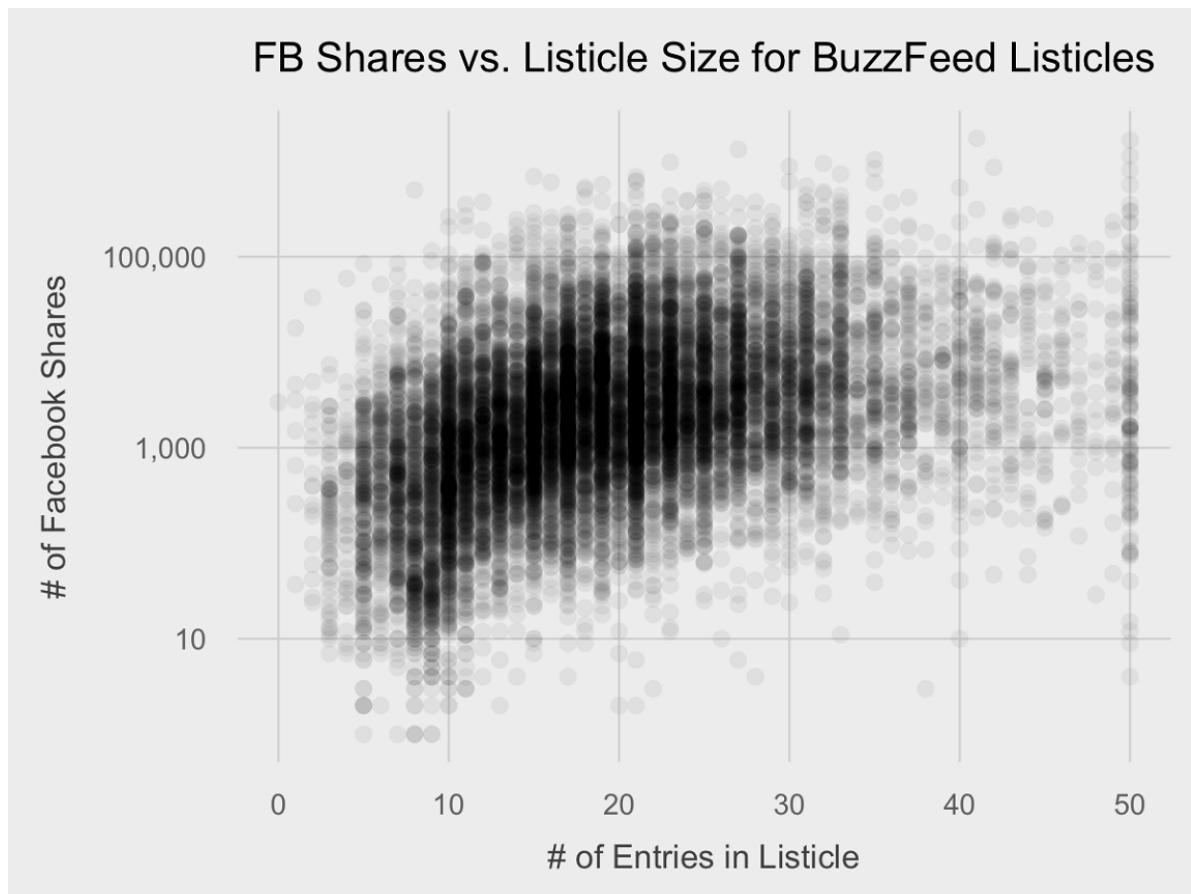
COMMUNICATING VISUALLY

VISUAL PERCEPTION - CLARITY

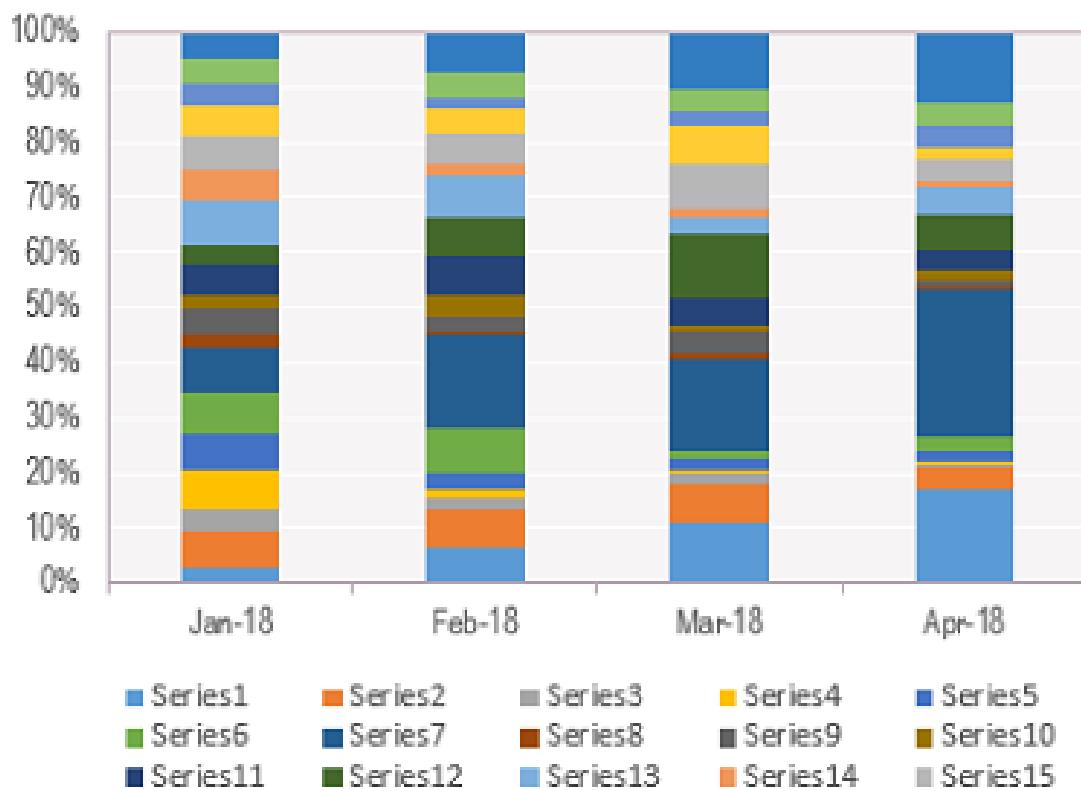
BOOK SALES JAN TO APR



SECTION 4



BOOK SALES JAN TO APR



YOUR NOTES

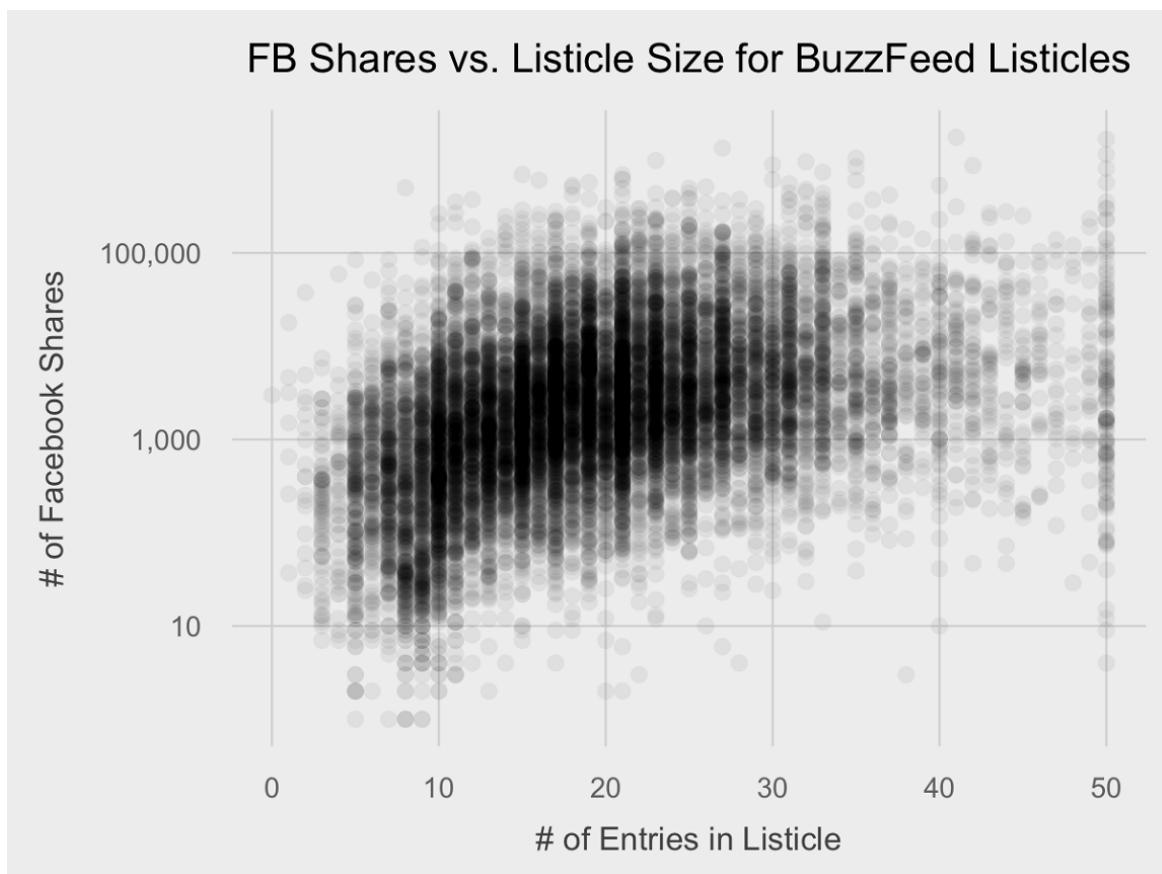
SECTION 4: COMMUNICATING VISUALLY

VISUAL PERCEPTION - CLARITY

SECTION 4

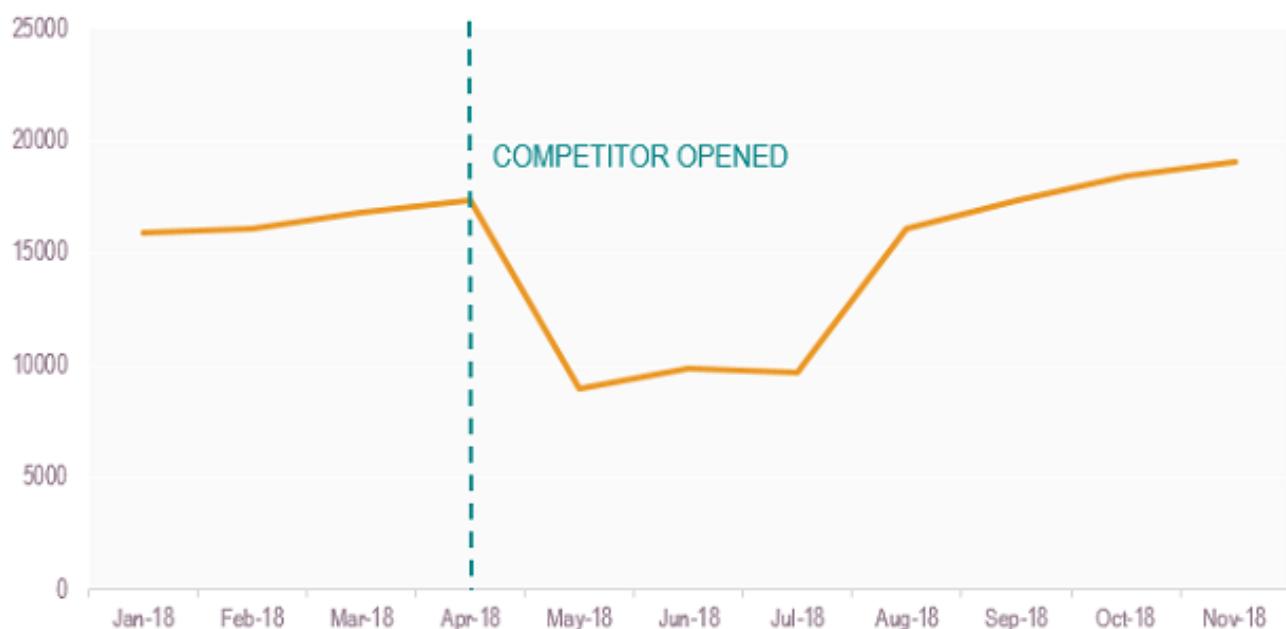
COMMUNICATING VISUALLY

VISUAL PERCEPTION - RELATIONSHIP

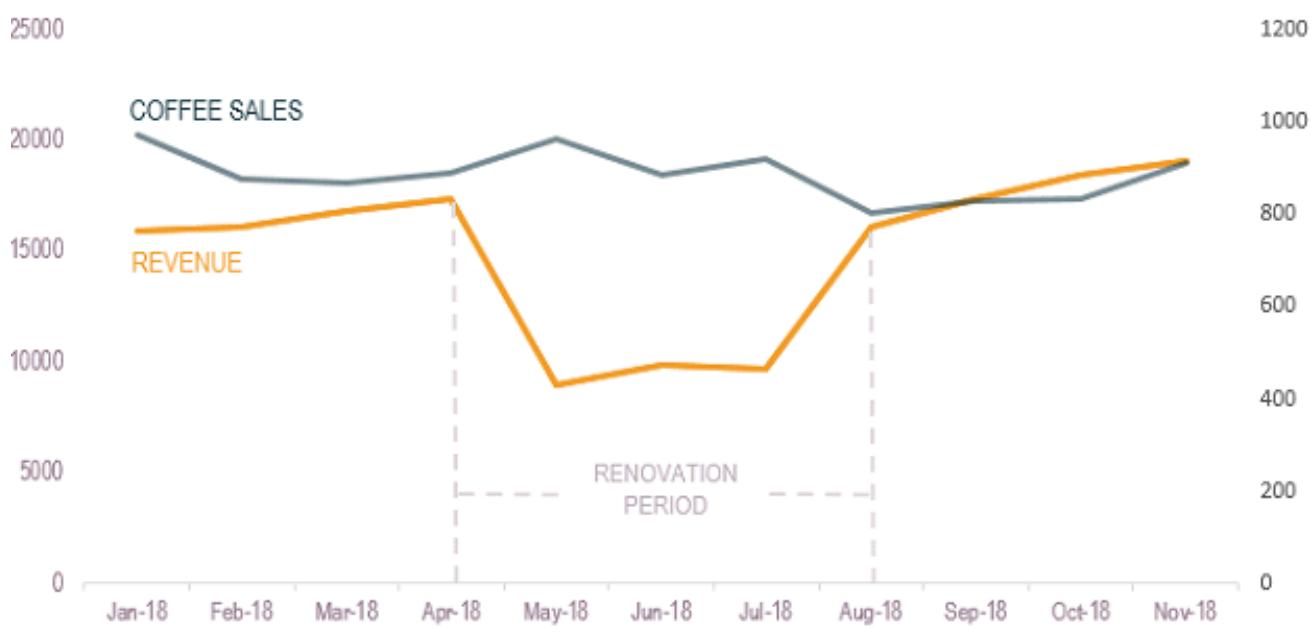


SECTION 4

REVENUE GENERATED OVER THE PAST 11 MONTHS



REVENUE GROWTH OVER THE PAST 11 MONTHS



YOUR NOTES

SECTION 4: COMMUNICATING VISUALLY

VISUAL PERCEPTION - RELATIONSHIPS

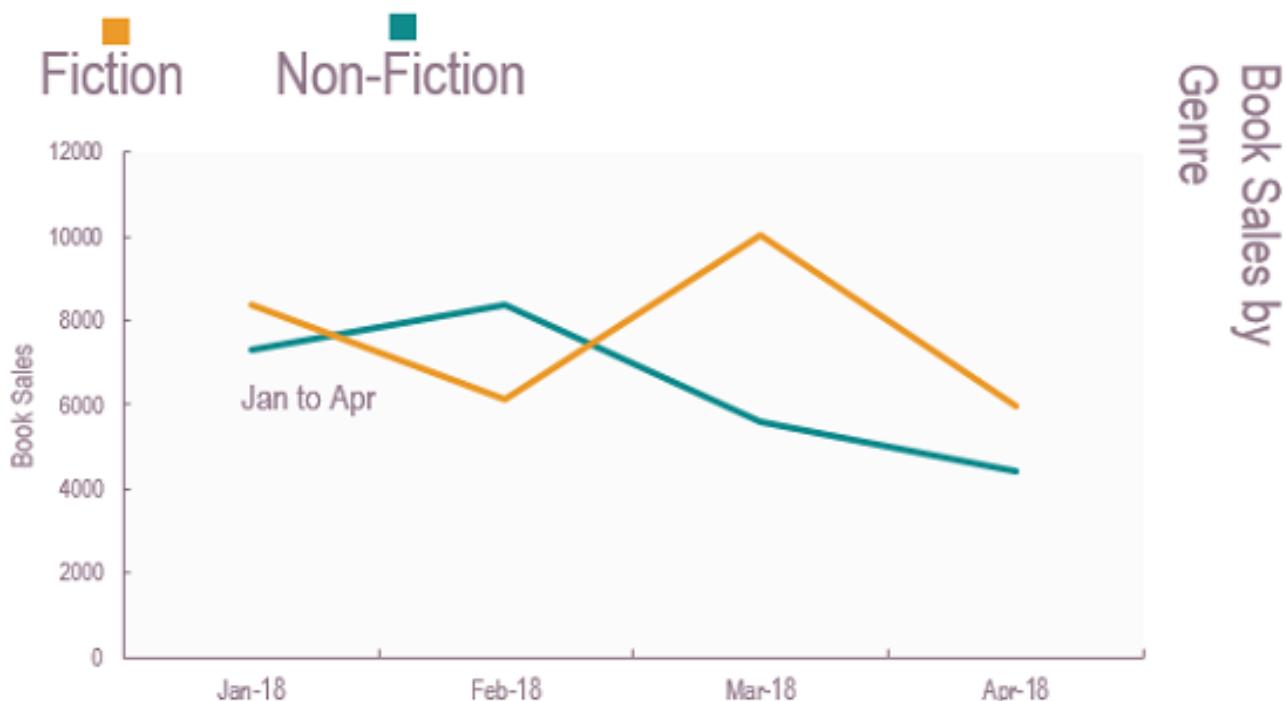
SECTION 4

COMMUNICATING VISUALLY

VISUAL PERCEPTION - CONVENTION



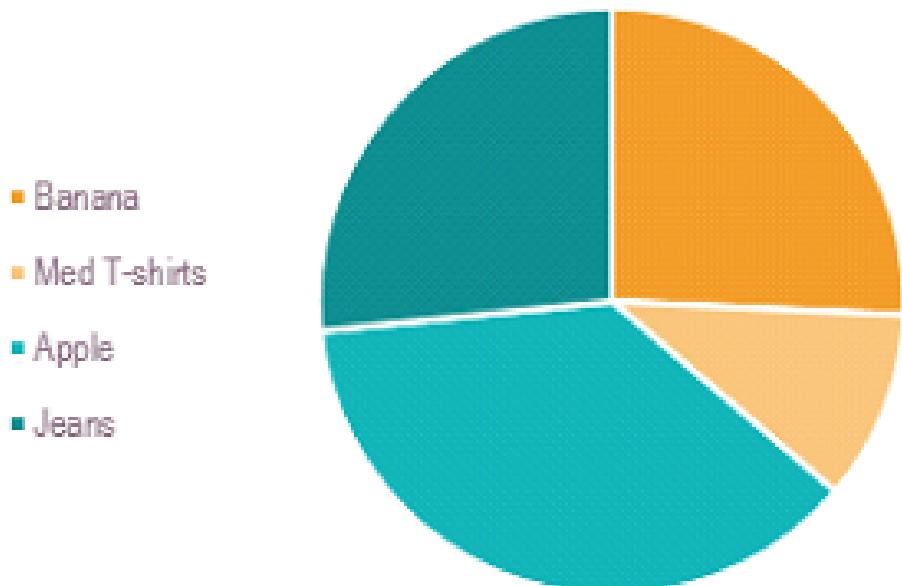
SECTION 4



UNIT SALES ACROSS STORES



ITEM SALES



YOUR NOTES

SECTION 4: COMMUNICATING VISUALLY

VISUAL PERCEPTION - CONVENTION

SECTION 4

COMMUNICATING VISUALLY

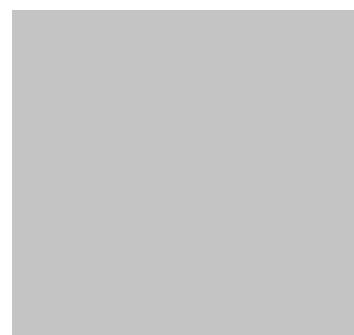
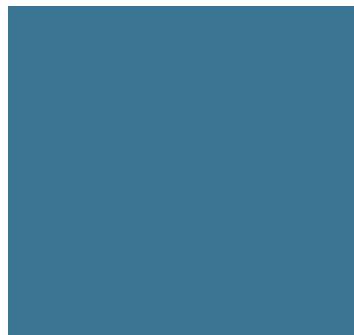
VISUAL DESIGN



AN EXAMPLE OF A STORY TOLD THROUGH JUST A PICTURE

SECTION 4

SIMILARITY EXAMPLE:

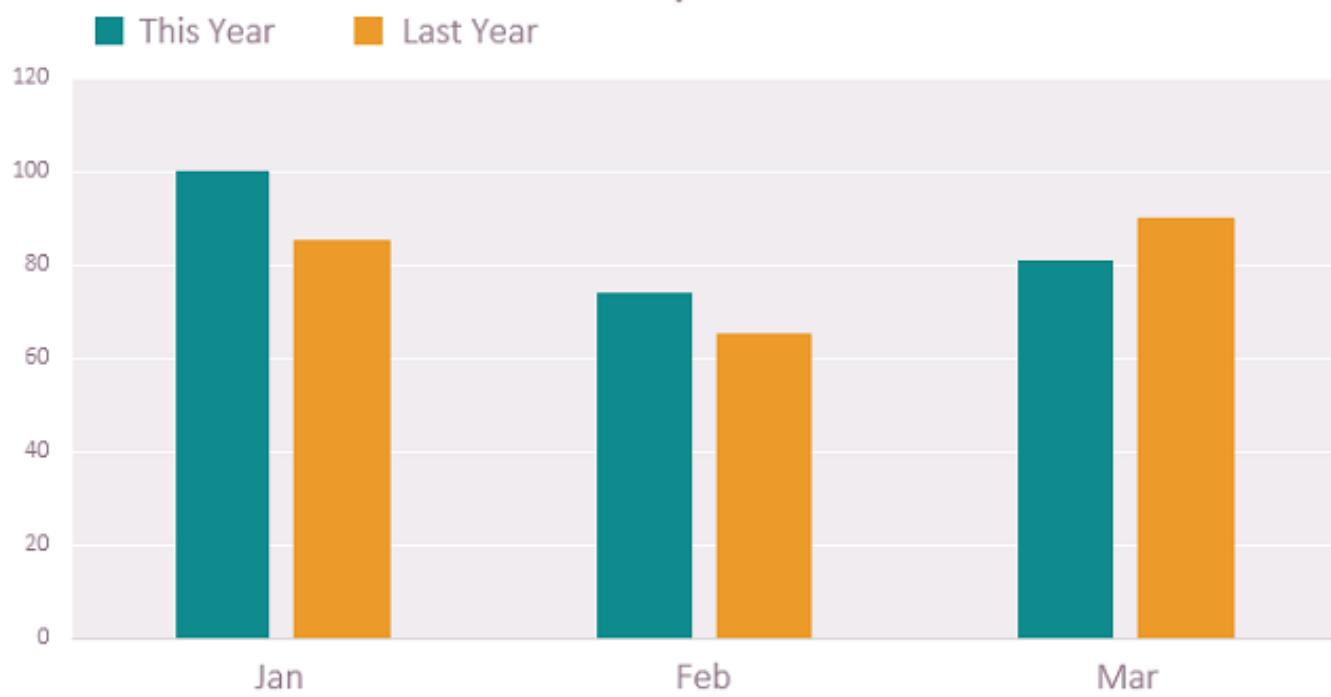


EVEN WITHOUT ANY REASON IN THEIR PLACEMENT, YOU GROUP OBJECTS TOGETHER WITH COLOUR, SIZE OR SHAPE

SECTION 4

THE COLOURING INDICATES WHAT TO COMPARE

Monthly Revenue Compared to Last Year

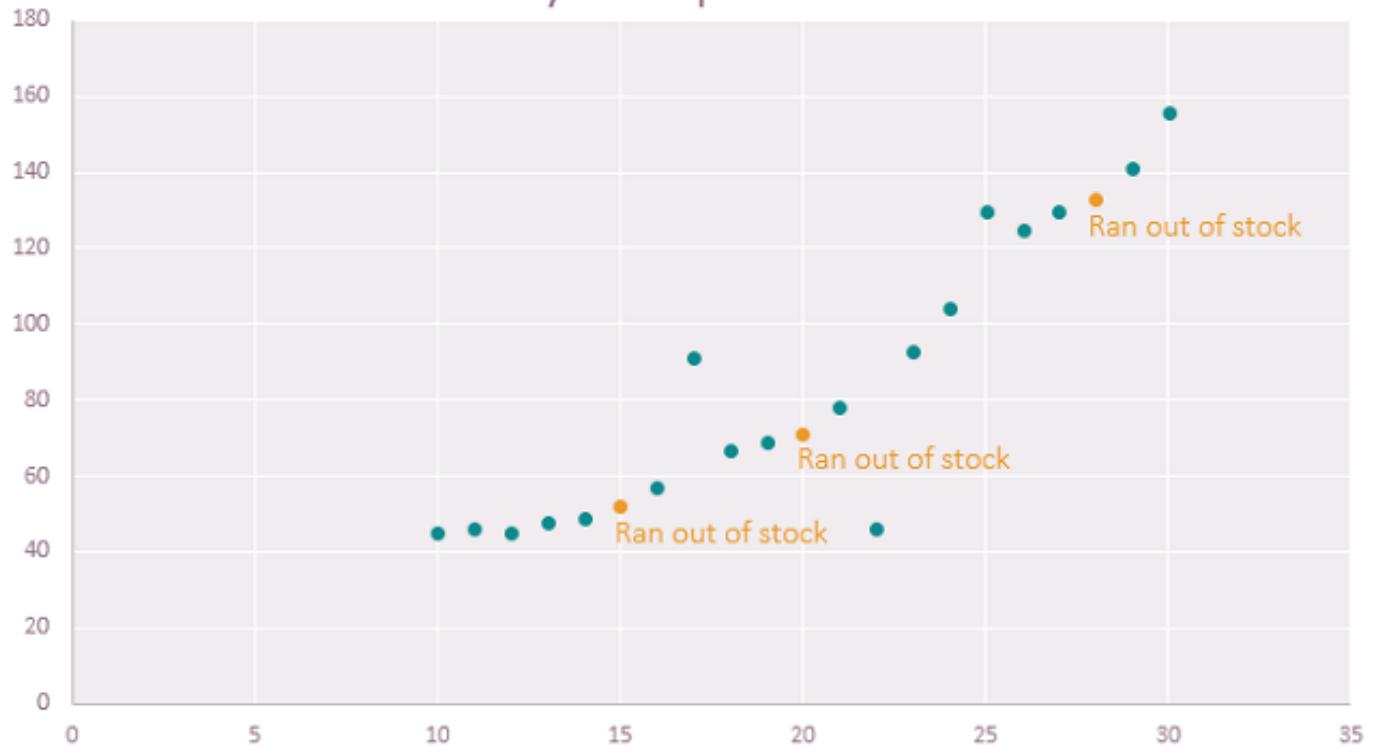


Monthly Revenue Compared to Last Year



SECTION 4

Ice Cream Sales by Temperature

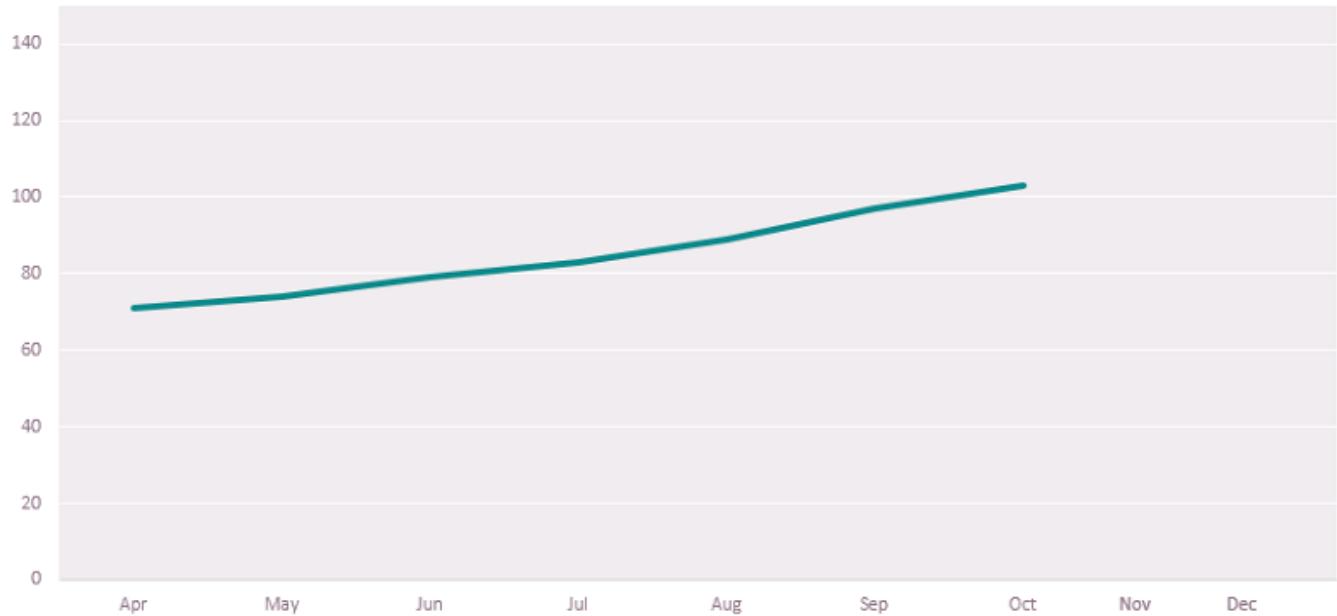


WE WANT TO FOLLOW THE SMOOTHEST PATH, DESPITE THE COLOUR

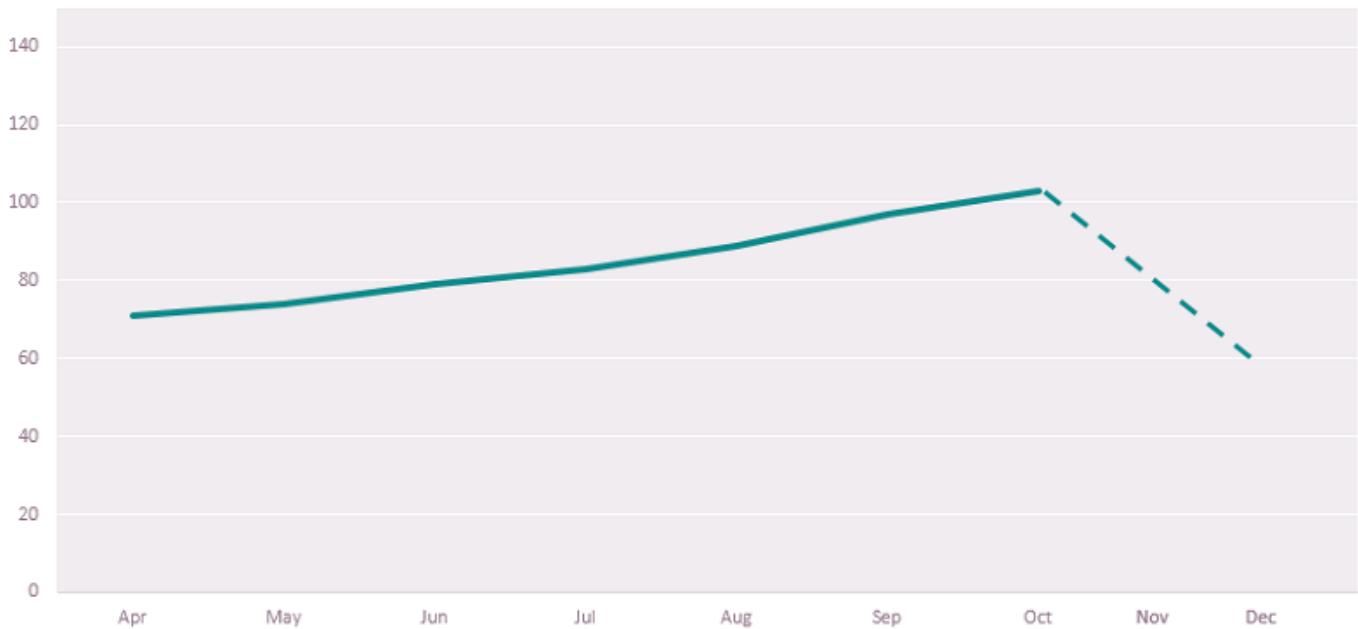


SECTION 4

Employee Growth by Month



Employee Growth by Month



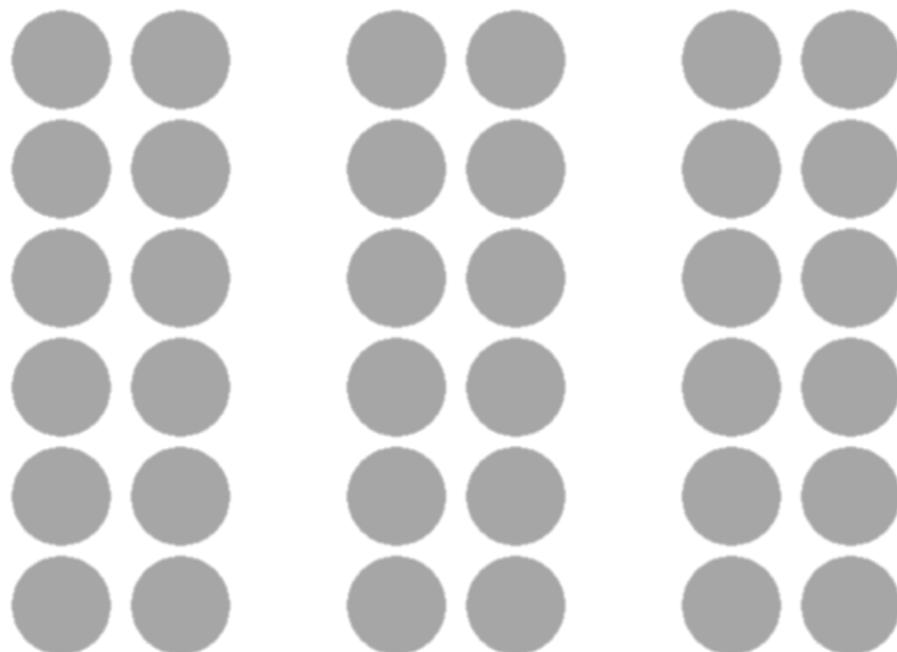
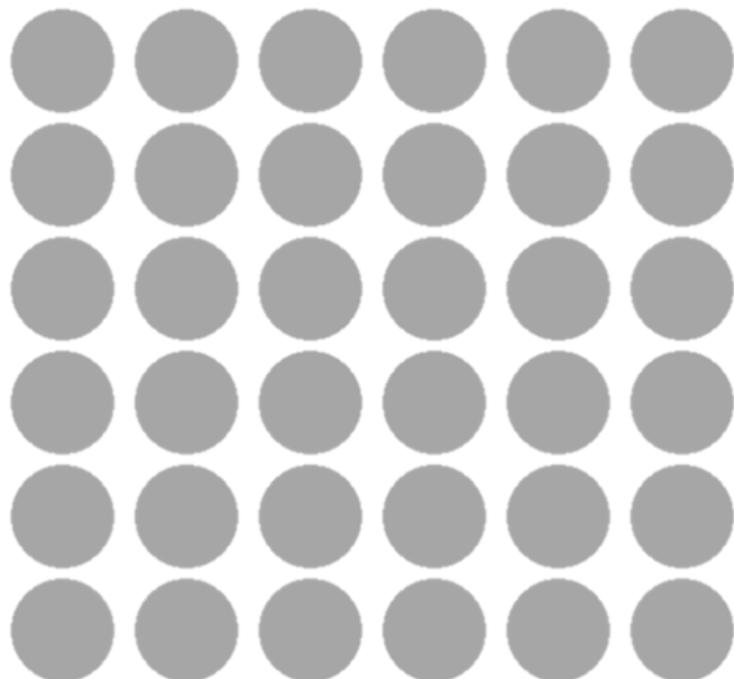
SECTION 4



WE CAN FILL IN THE GAPS TO SEE THE PANDA

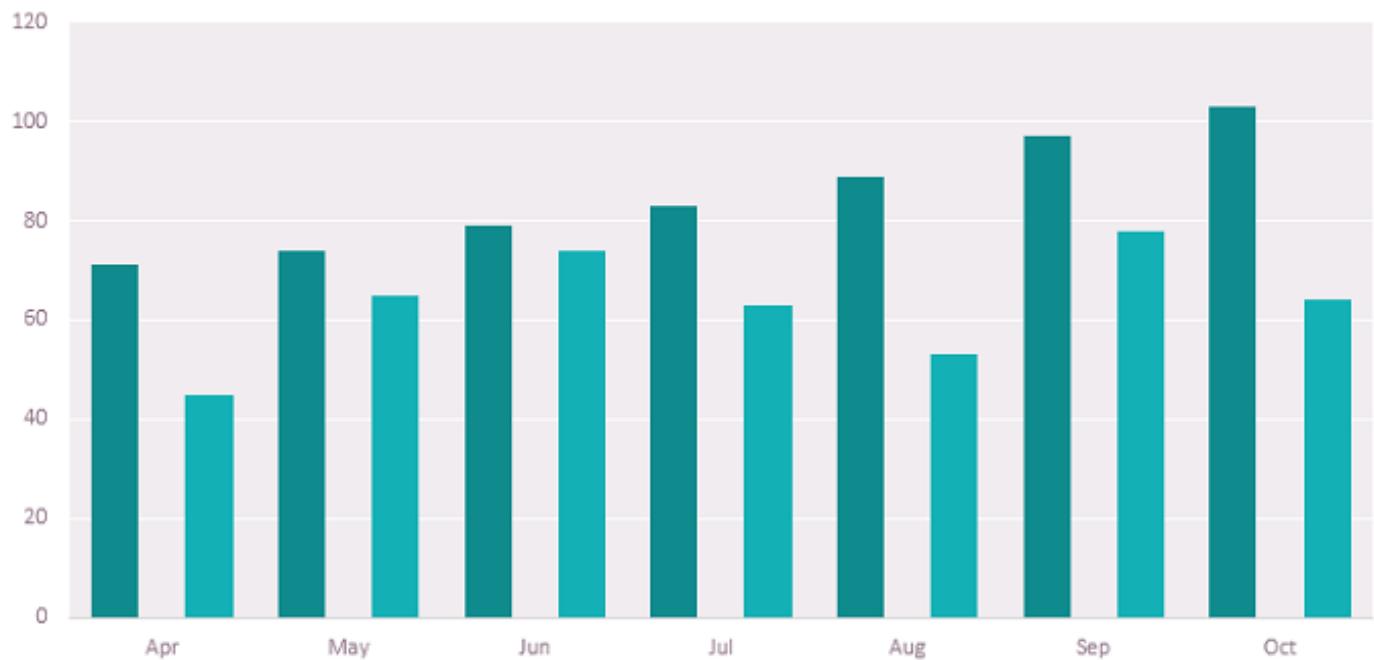
SECTION 4

DEPENDING ON SPACING, WE SEE EITHER 1 OR 3 OBJECTS

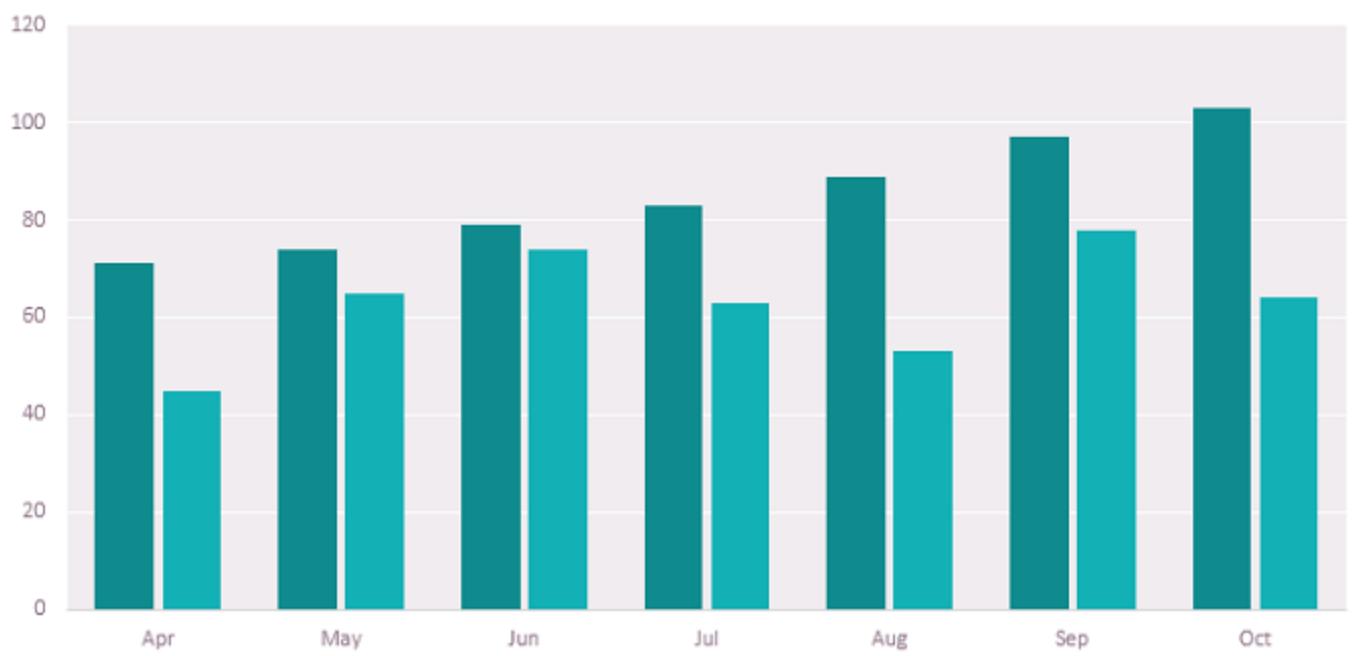


SECTION 4

Doughnut & Coffee Sales

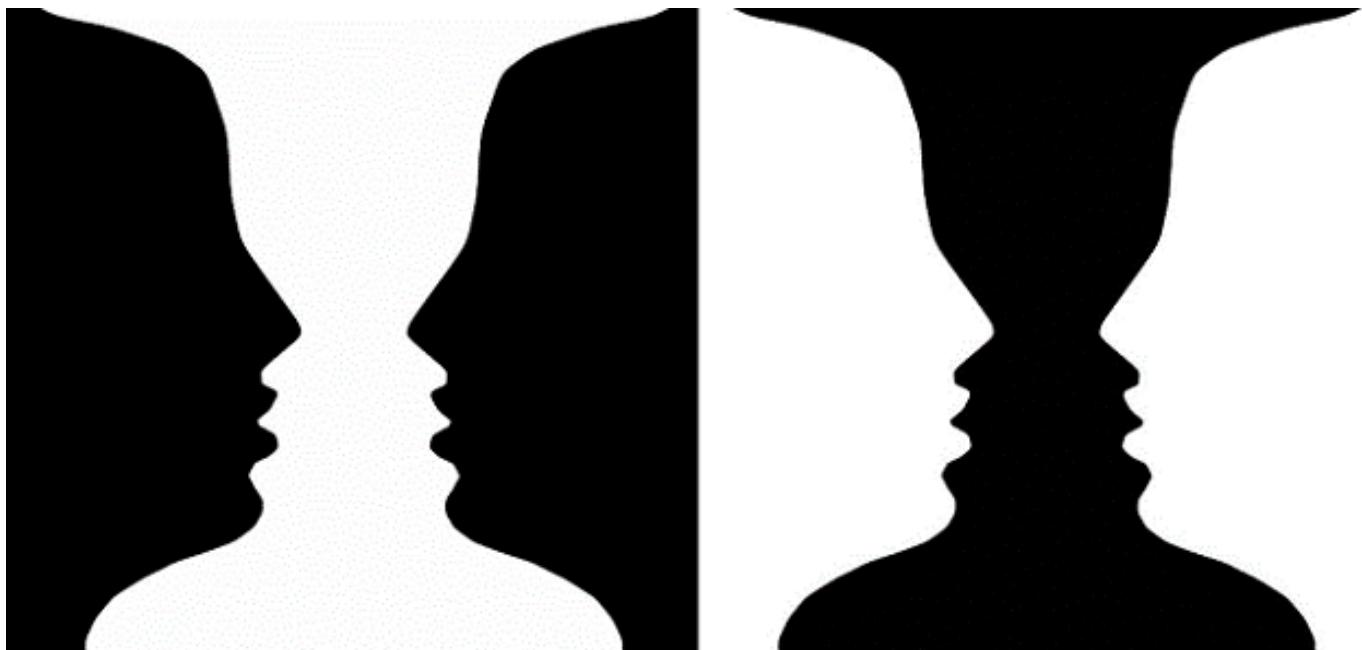


Doughnut & Coffee Sales



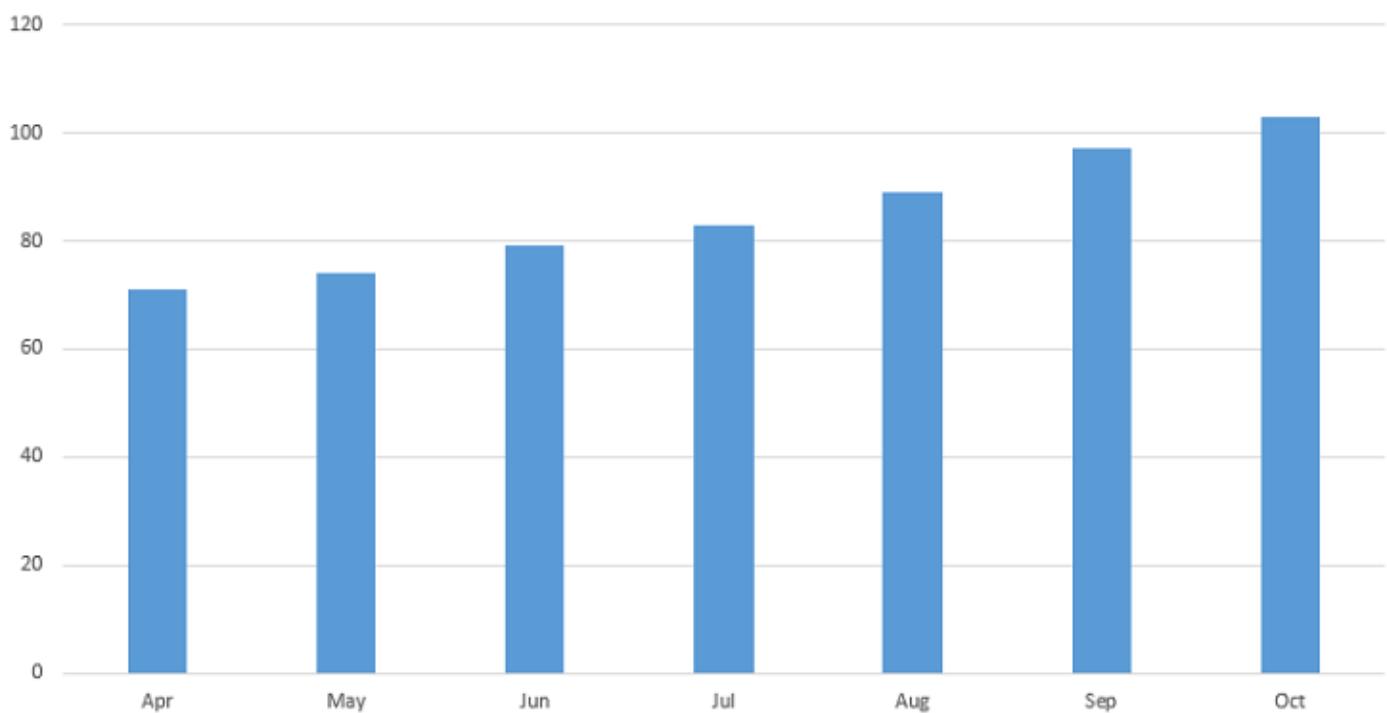
SECTION 4

IDENTIFIABLE FOREGROUND AND BACKGROUND

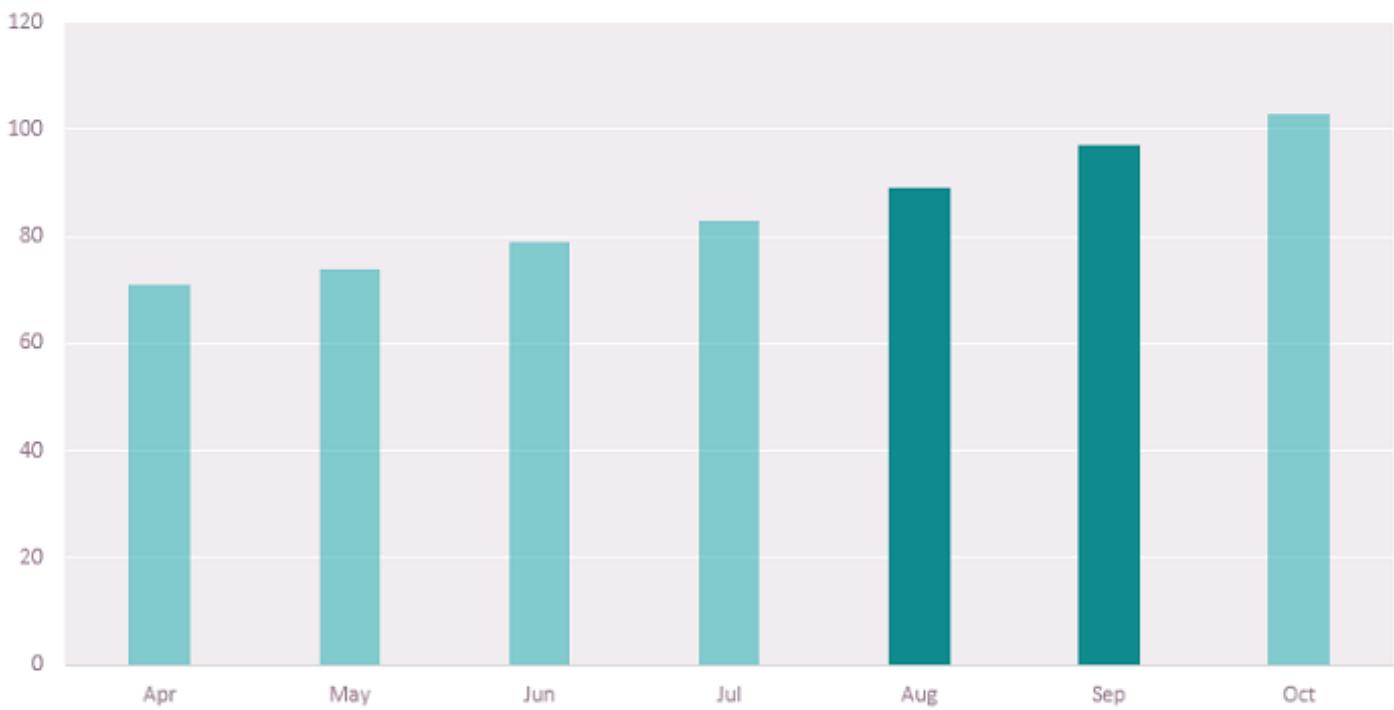


SECTION 4

New Contracts



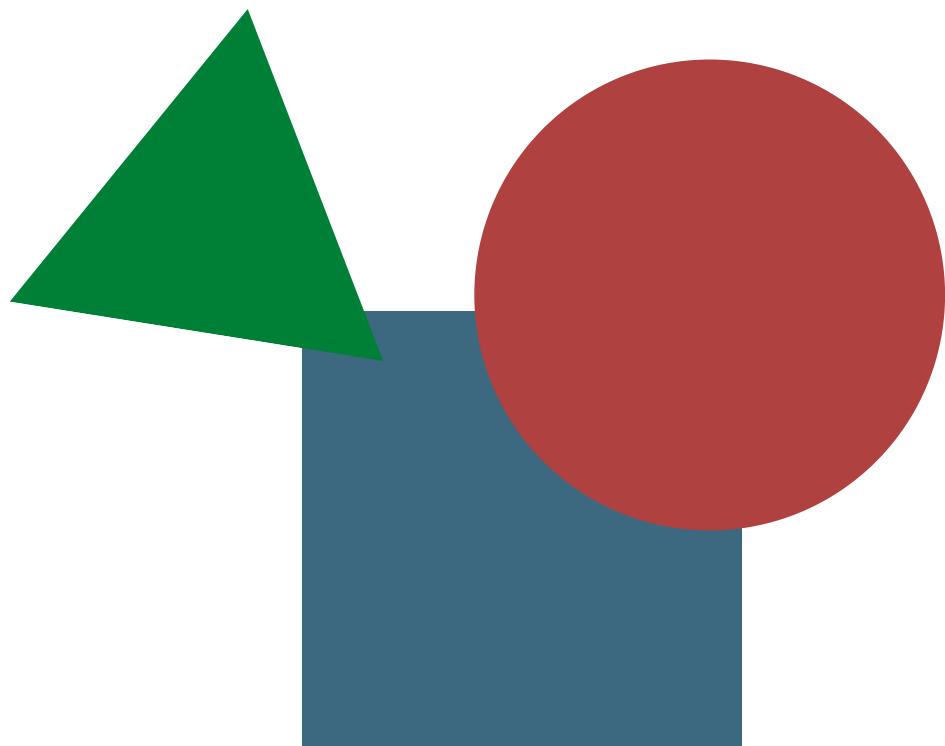
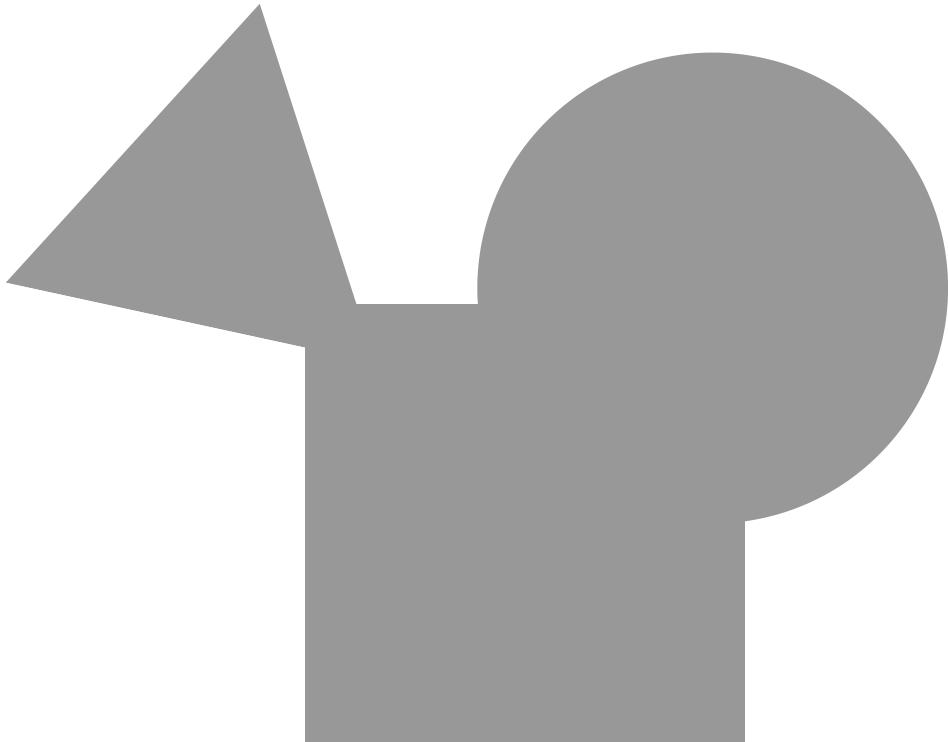
New Contracts



SECTION 4

SYMMETRY AND ORDER

WE SEE 3 SHAPES, NOT ONE



YOUR NOTES

SECTION 4: COMMUNICATING VISUALLY

VISUAL DESIGN

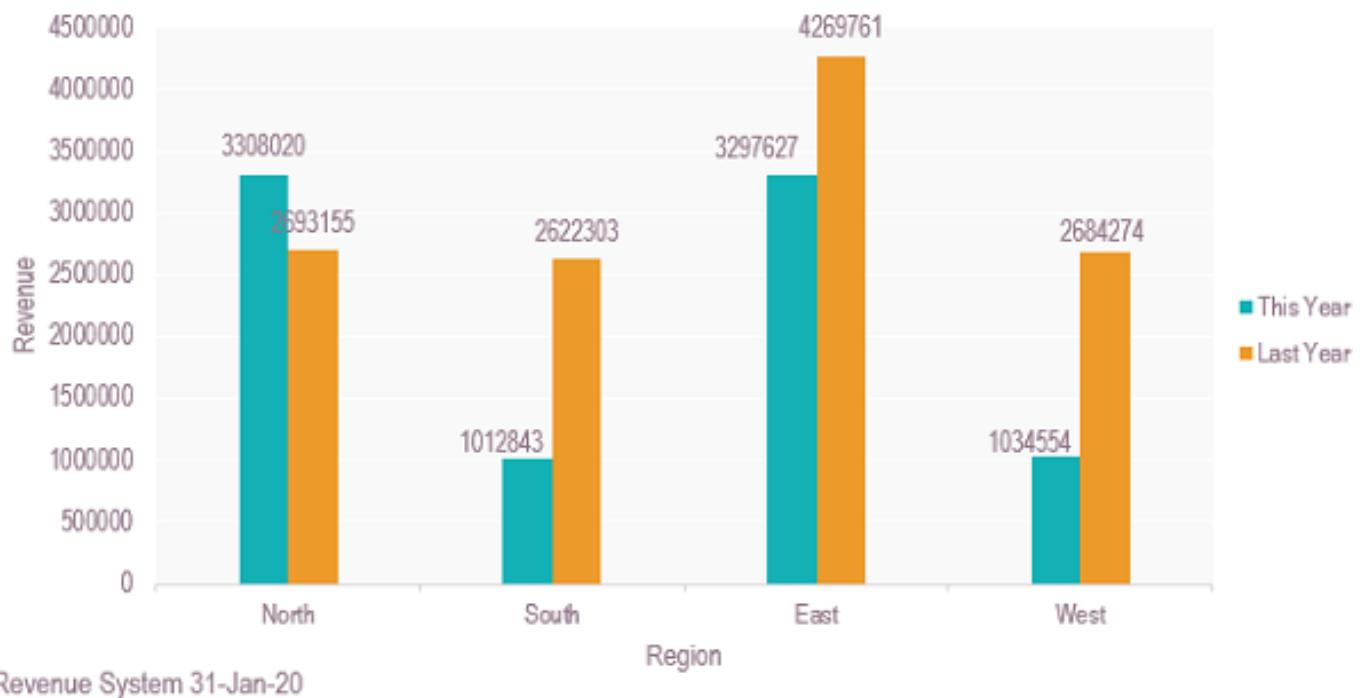
SECTION 5

SECTION 5: THE RIGHT GRAPH FOR THE RIGHT DATA

COMPONENTS OF A DATA VISUALIZATION

Revenue by Region

This Year and Last Year



YOUR NOTES

SECTION 5: THE RIGHT GRAPH FOR THE RIGHT DATA

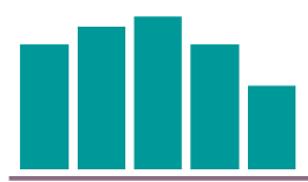
COMPONENTS OF A DATA VISUALIZATION

SECTION 5

SECTION 5: THE RIGHT GRAPH FOR THE RIGHT DATA

DIFFERENT TYPES OF GRAPH

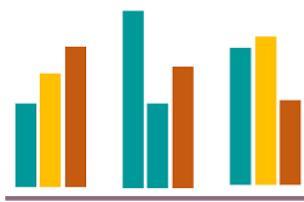
COMPARISON BETWEEN VALUES



Column:



Bar:

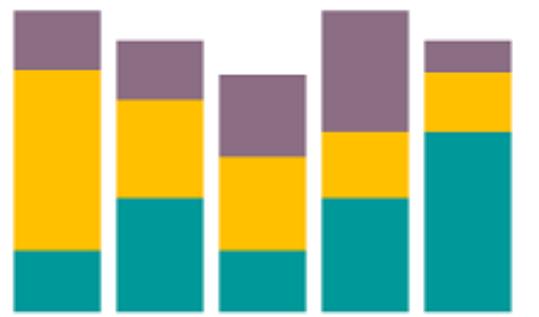


Grouped Column:



Grouped Column:

COMPARISON TO WHOLE



Stacked Column:



Treemap Column:

SECTION 5

TIME SERIES



Line:



Area:



Column:



Slope:

CORRELATION



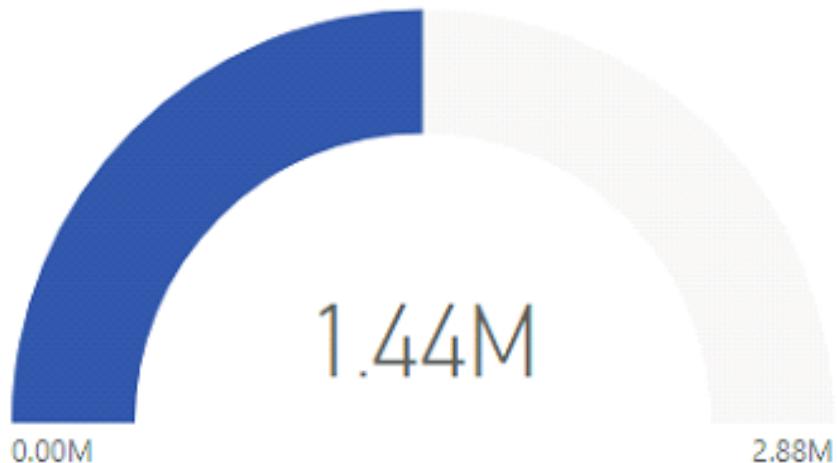
Plot:



Bubble:

SECTION 5

SIMPLE GAUGE



TABLE

	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
Store 1	9	8	8	7	7	9	8	3	7	9	8	7
Store 2	7	7	7	2	8	9	7	6	9	8	7	9
Store 3	8	9	9	7	8	7	9	3	7	9	8	8
Store 4	9	8	9	9	8	9	8	3	10	9	8	2
Store 5	2	8	8	7	8	8	8	4	8	8	8	8
Store 6	9	7	8	8	7	9	7	3	7	9	8	9
Store 7	8	8	8	8	9	9	10	6	7	7	9	8
Store 8	9	9	6	9	9	9	9	3	9	7	10	10
Store 9	7	9	7	7	7	6	7	3	7	7	7	10
Store 10	8	7	8	8	8	8	7	6	7	7	8	7
Store 11	9	8	8	9	7	7	8	4	9	9	7	8
Store 12	10	7	9	7	9	8	6	6	9	9	9	8
Store 13	7	7	7	8	7	8	5	3	7	9	9	8
Store 14	8	7	8	8	6	8	8	3	7	9	7	9
Store 15	8	8	2	8	8	7	6	3	9	8	9	9

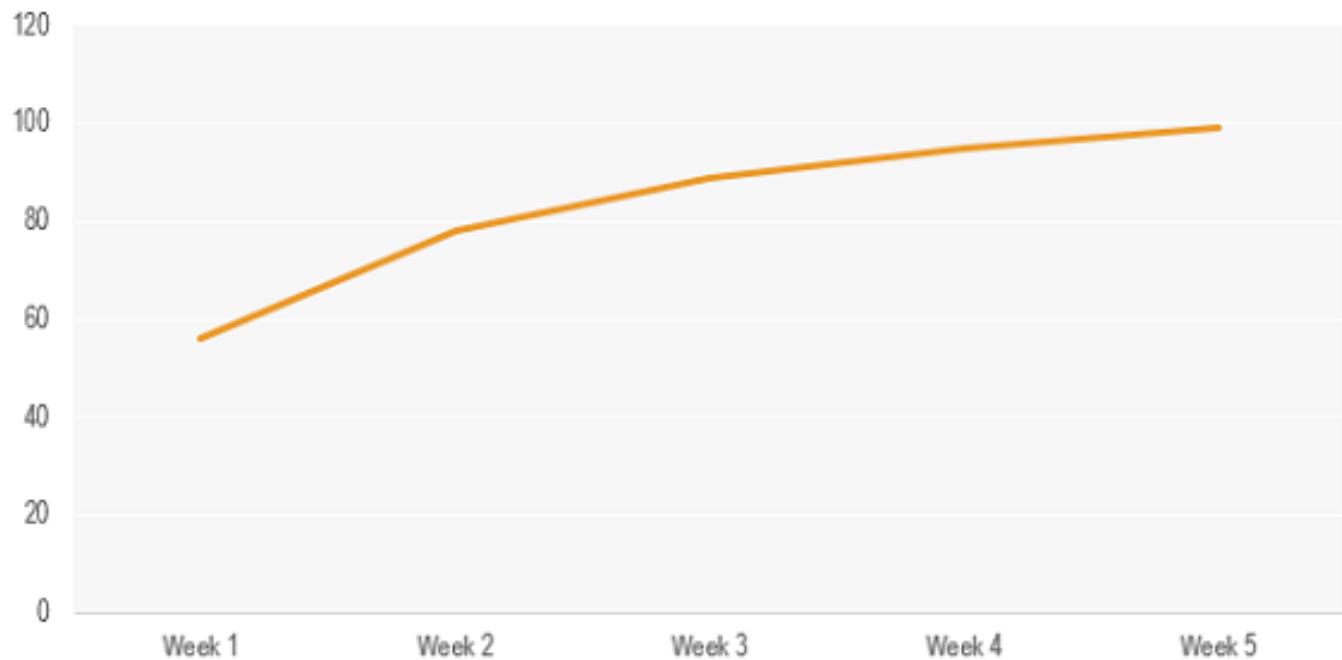
SECTION 5

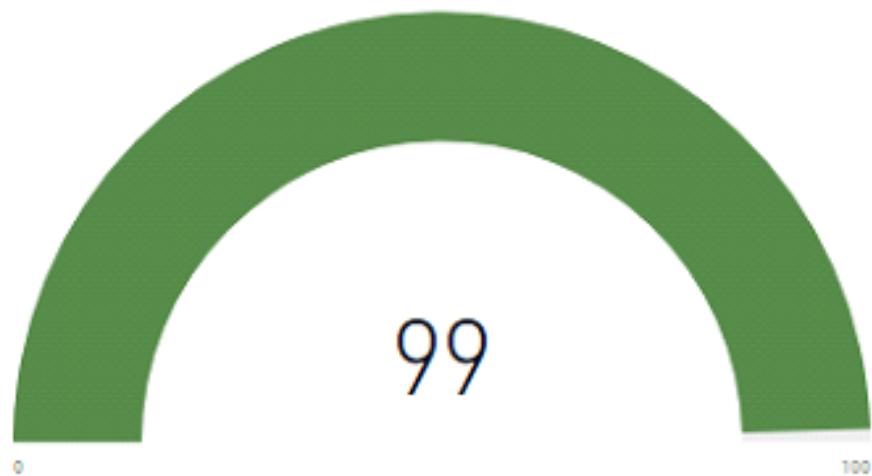


SECTION 5

Suppose you work at an organisation that has rolled out a new health and safety compliance training – you've been asked to update senior management on the progress of the compliance training. They want to know what the level of compliance is, and what the action plan is to ensure non-compliant individuals take the training. You review the numbers over the days and you actually have 99% compliance, a great success. But over 1000 different members of staff to measure the compliance, so how best can you communicate this with impact, without getting lost in the detail.

%Compliance





Compliance Goal Met

99%

6 people remaining
Team Leaders will address

SECTION

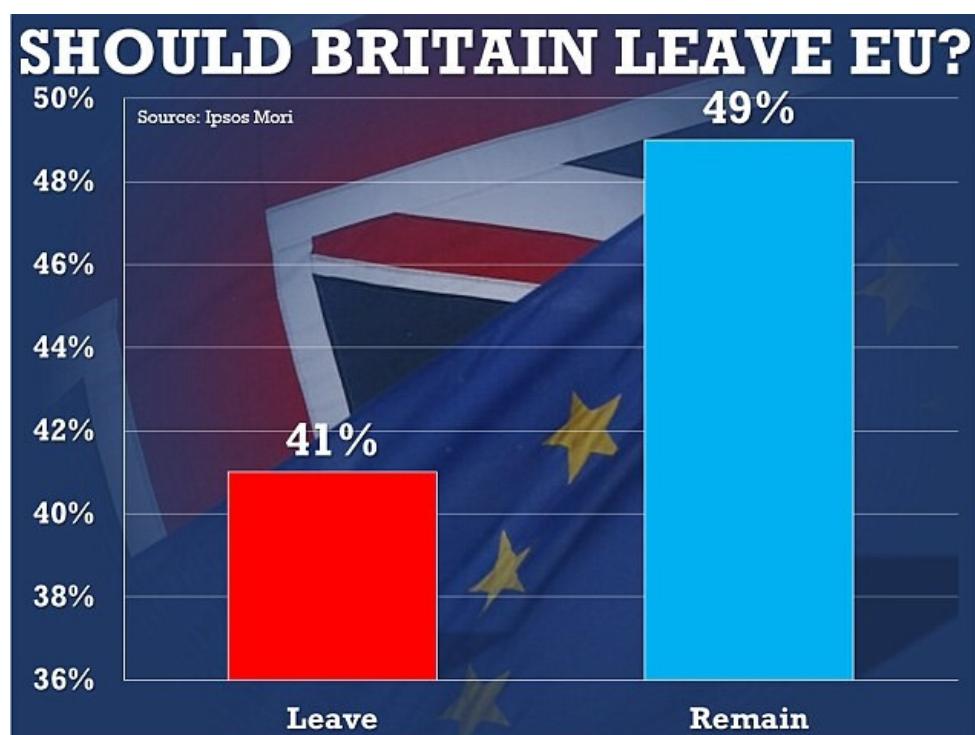
SECTION 5: THE RIGHT GRAPH FOR THE RIGHT DATA

DIFFERENT TYPES OF GRAPH

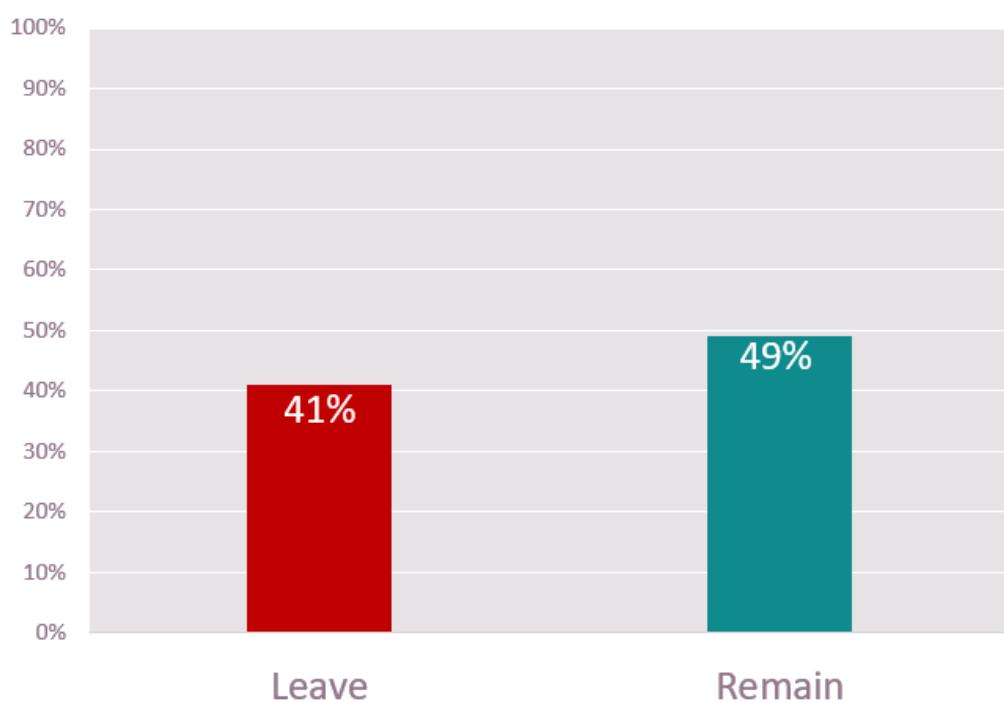
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SECTION 5: THE RIGHT GRAPH FOR THE RIGHT DATA

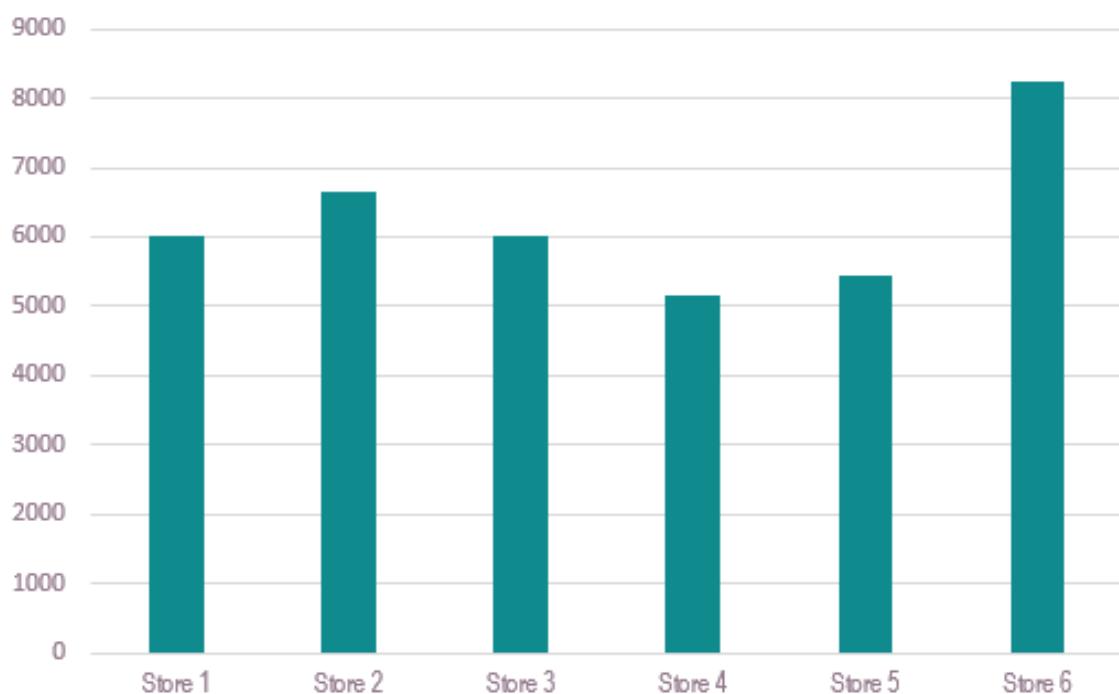
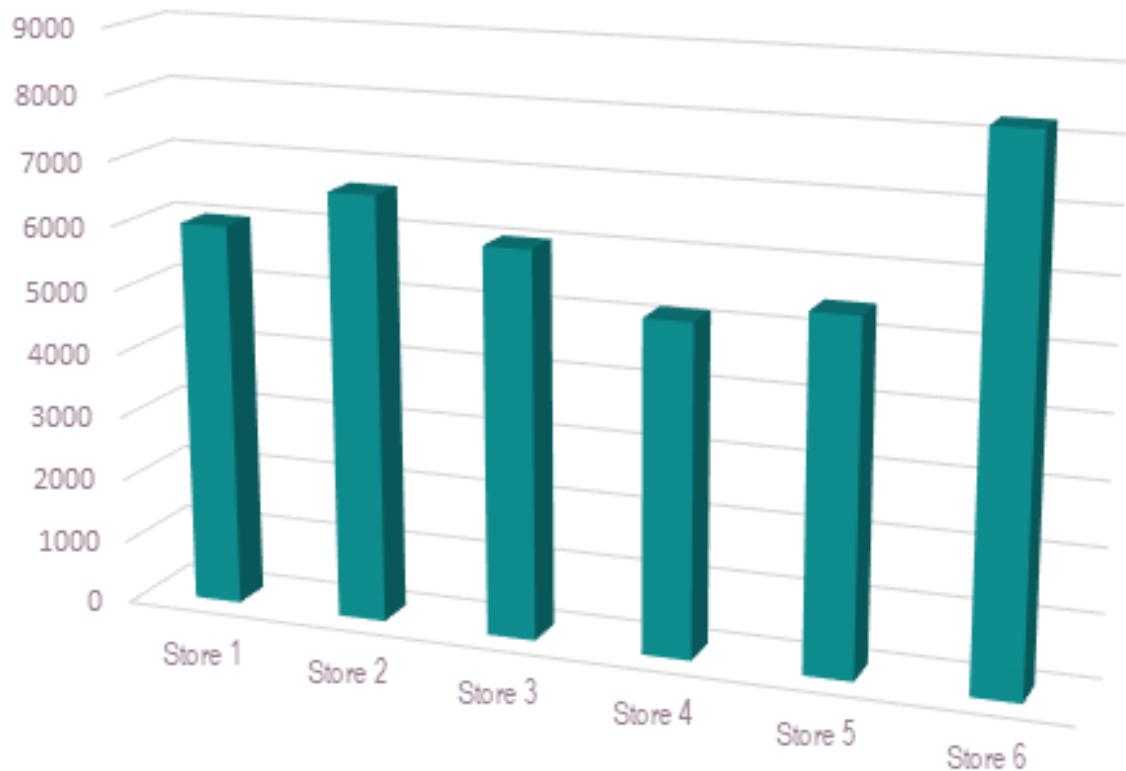
DEADLY SINS OF GRAPH



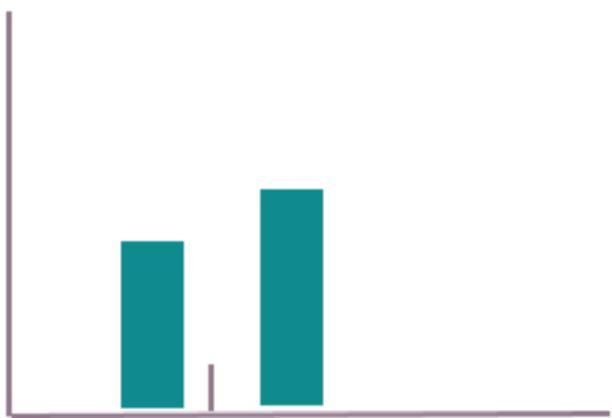
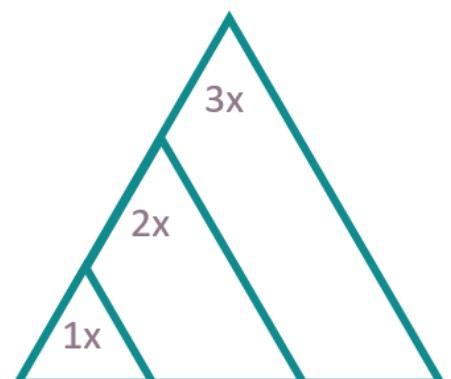
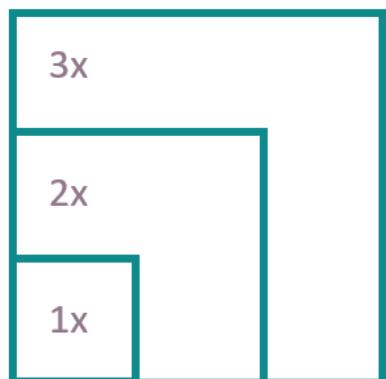
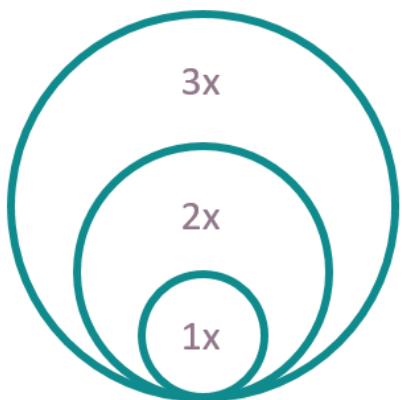
Should Britain Leave The EU?



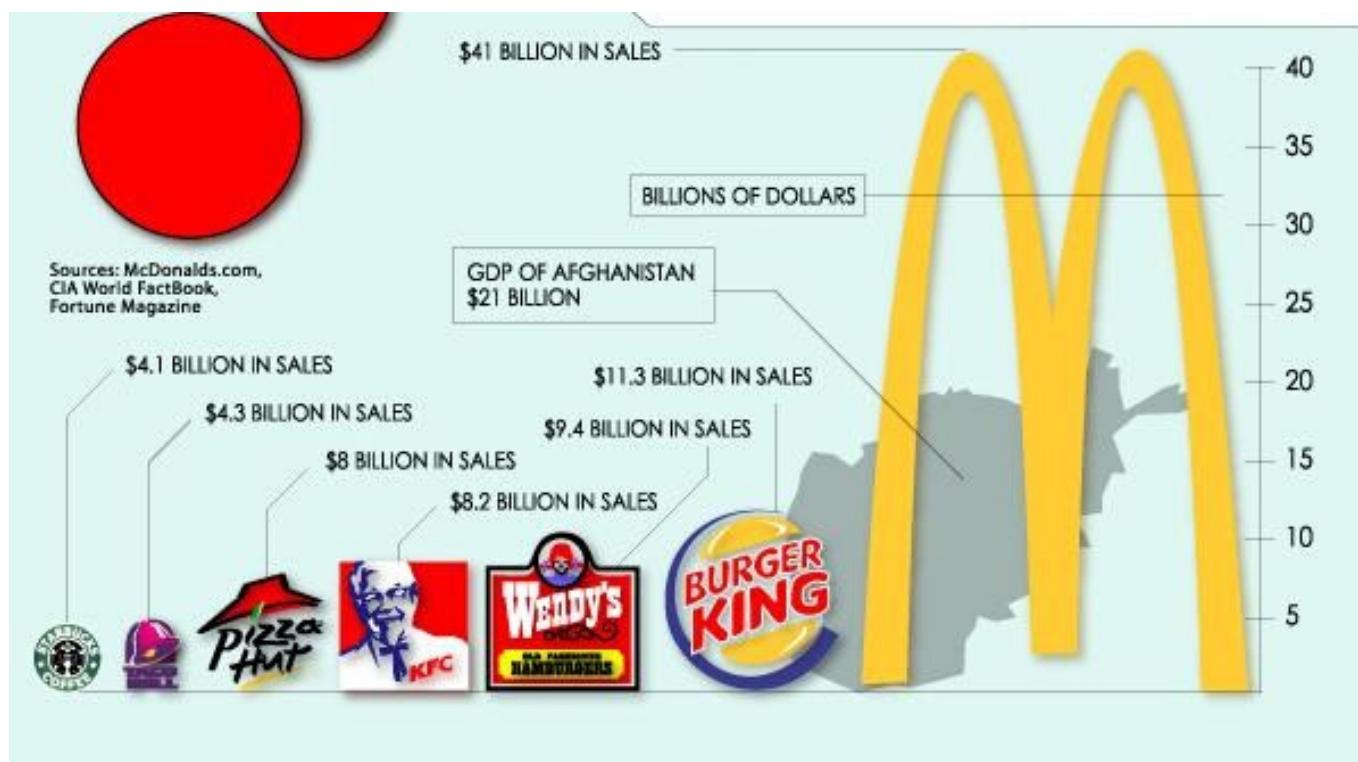
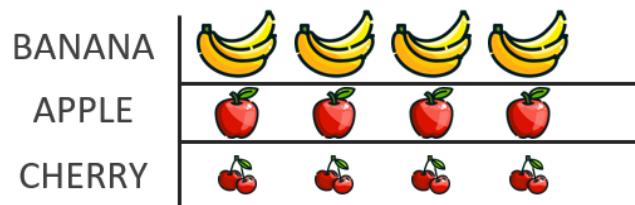
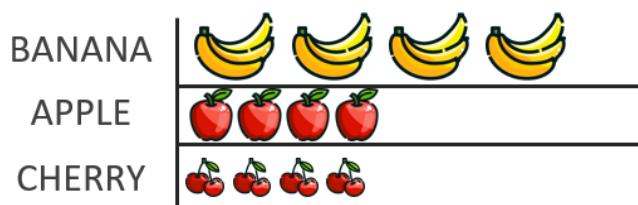
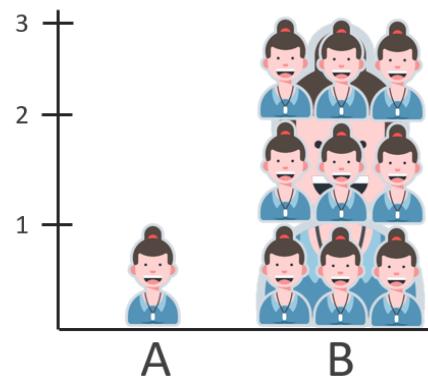
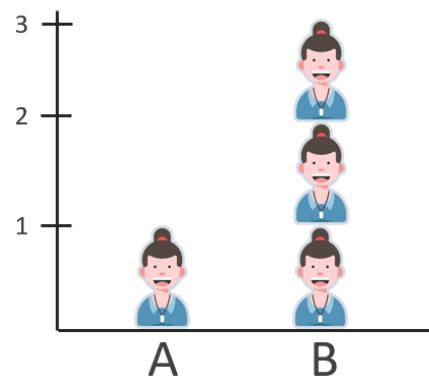
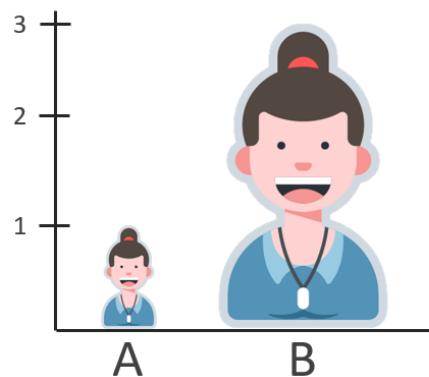
SECTION 5



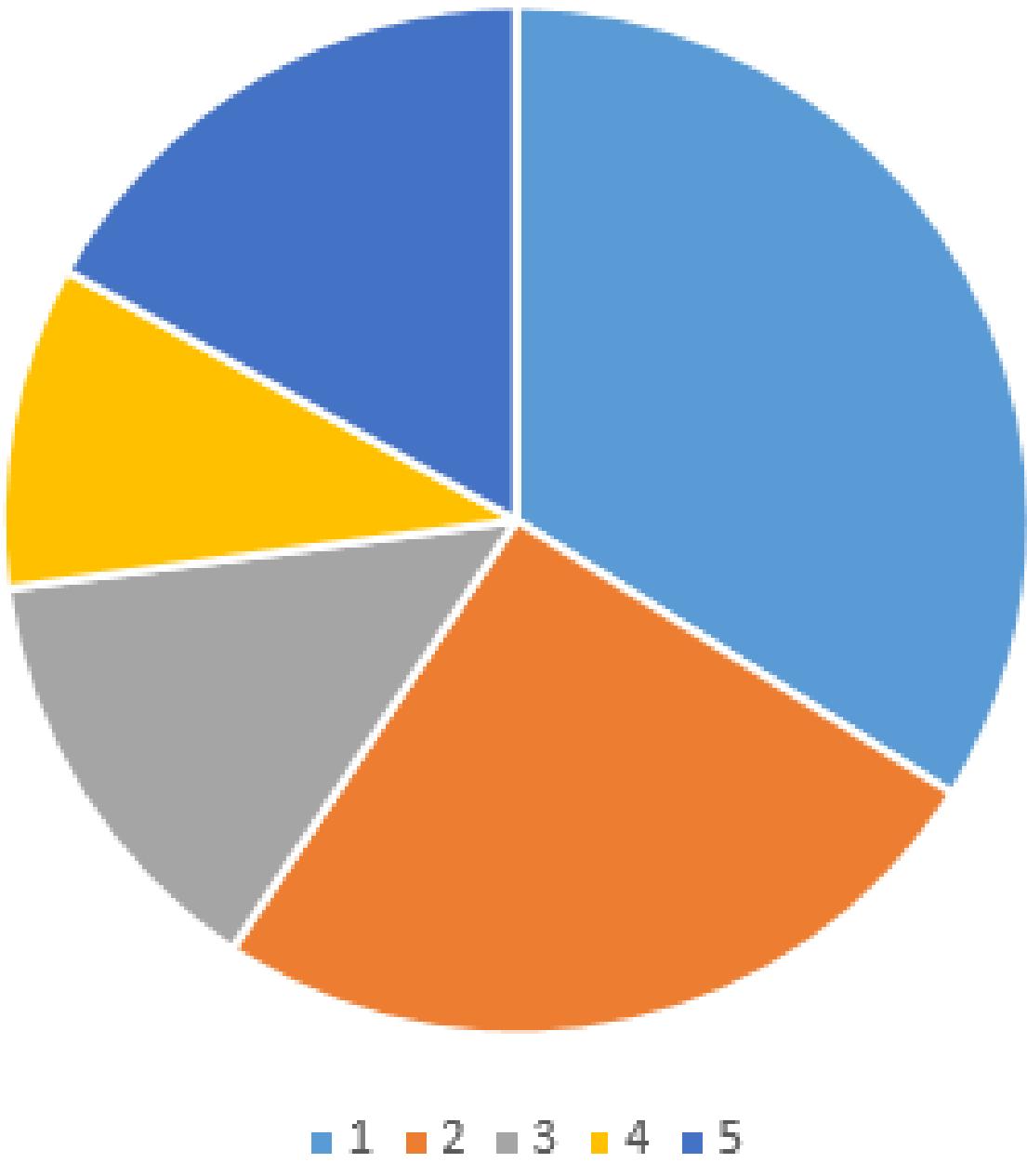
SECTION 5



SECTION 5

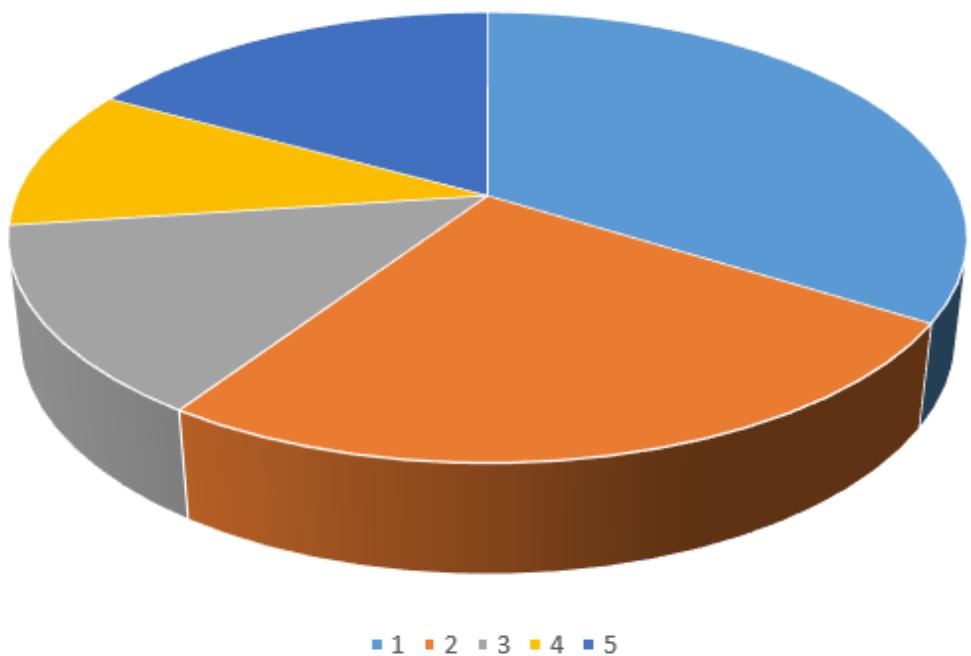


Pie Charts Stink

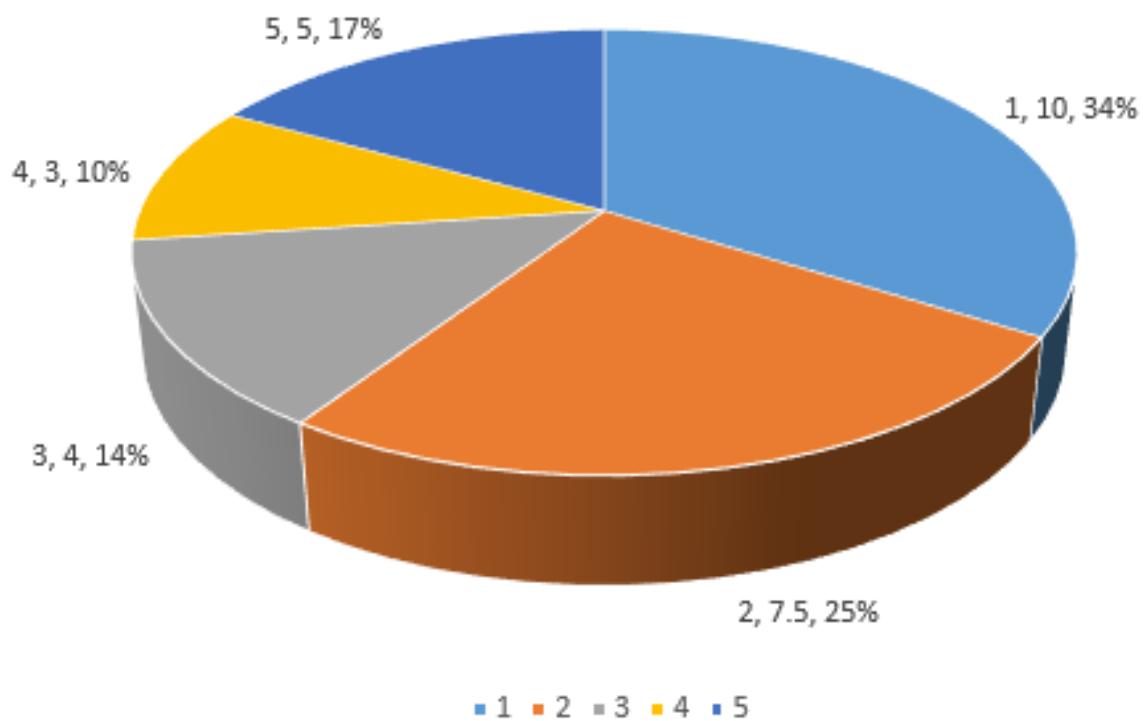


SECTION 5

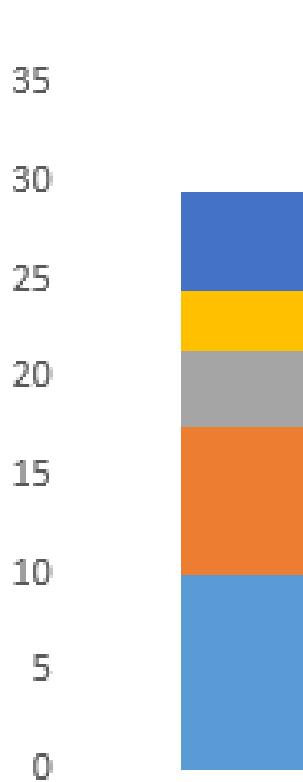
Pie Charts Stink



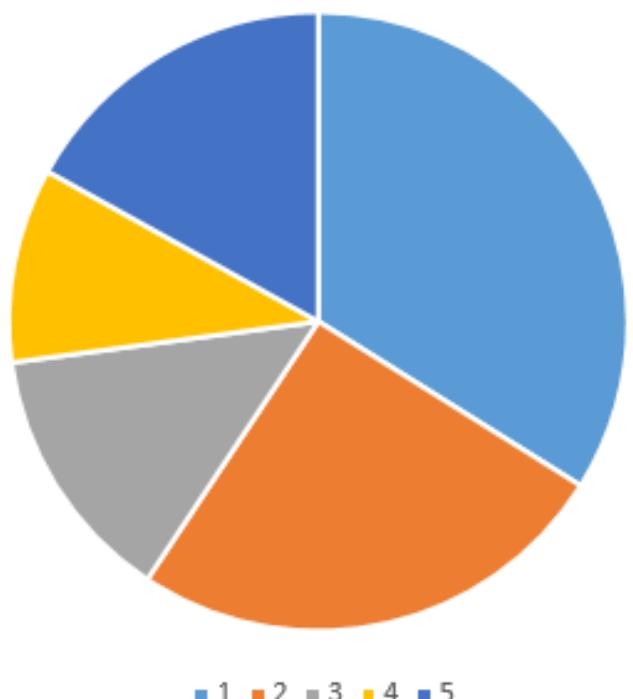
Pie Charts Stink



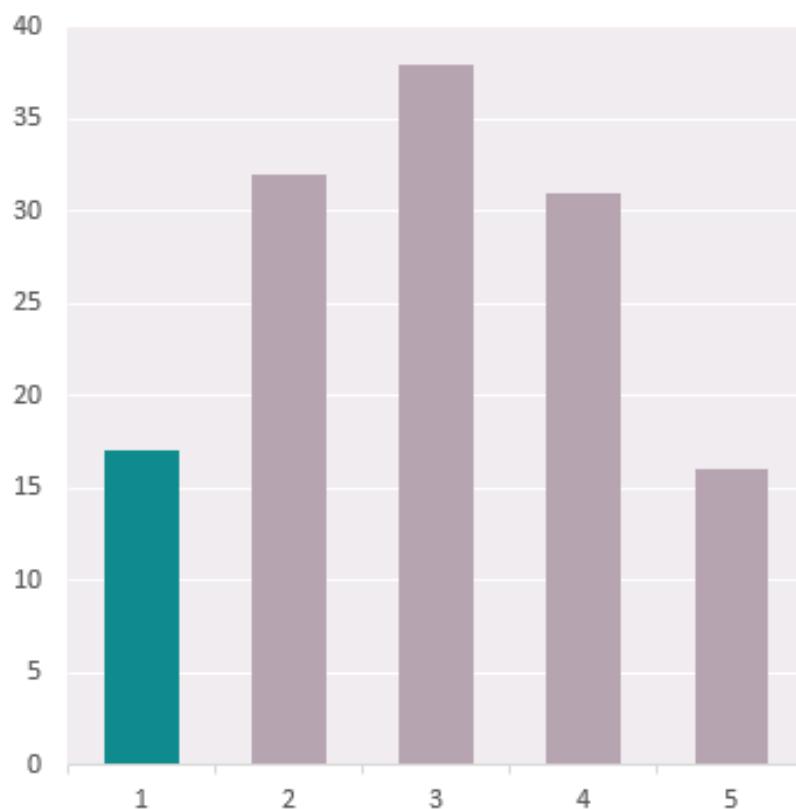
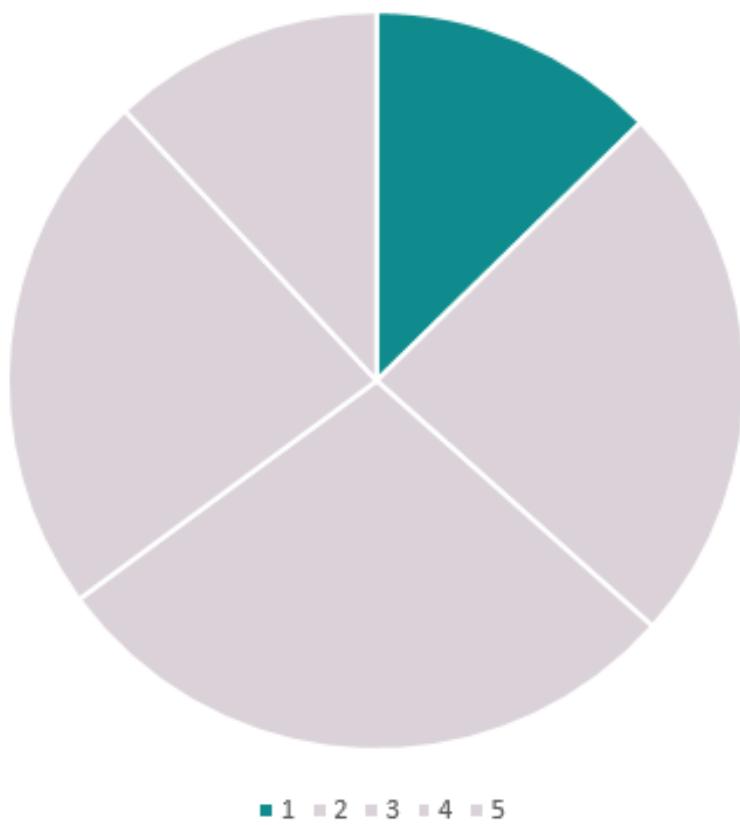
SECTION 5



Pie Charts Stink

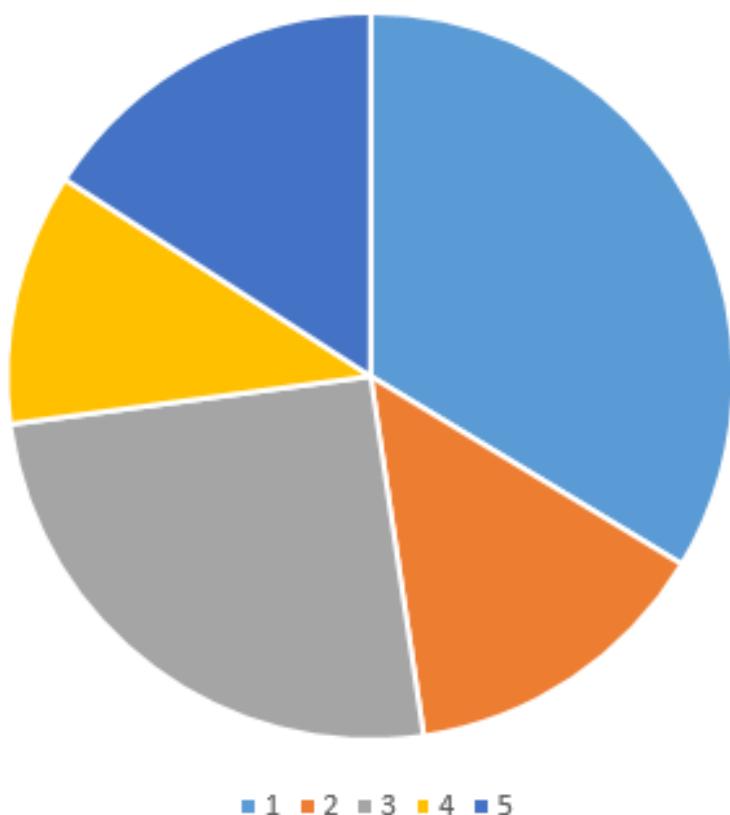


SECTION 5

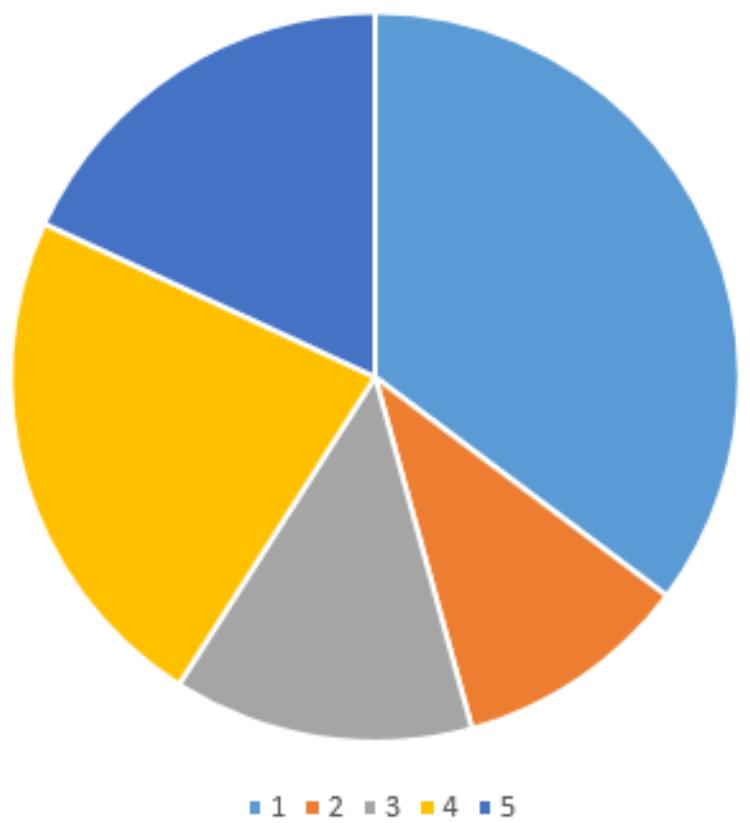


SECTION 5

Book Sales Feb

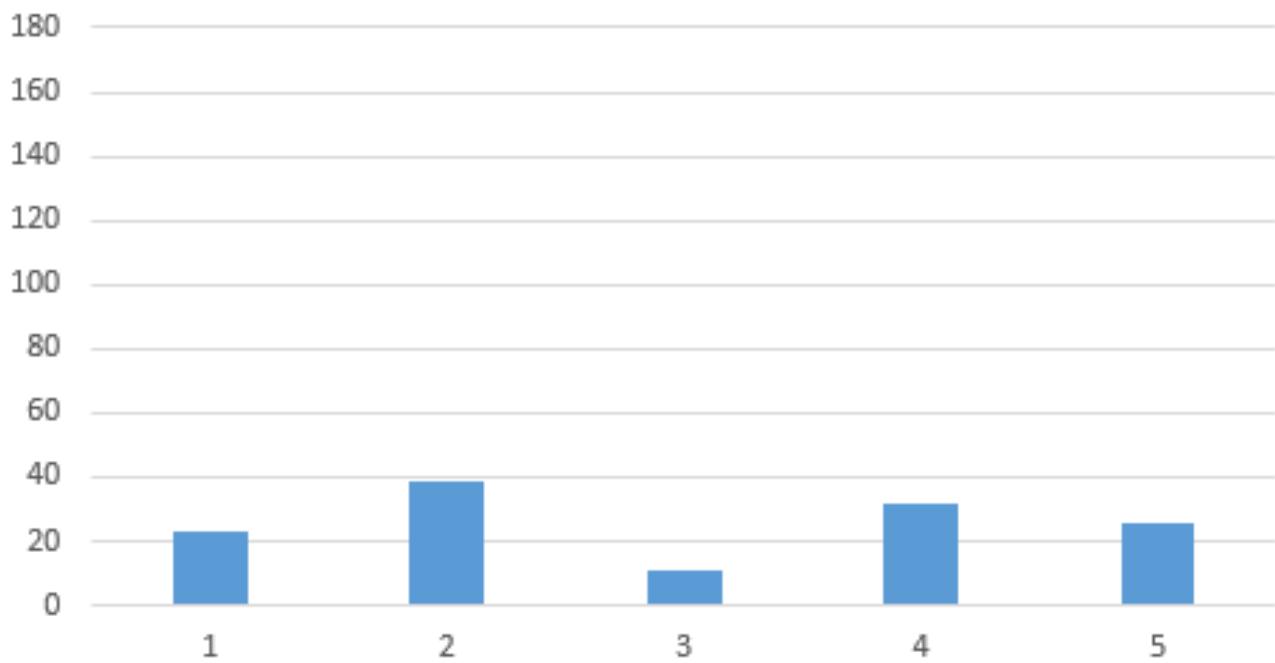


Book Sales Mar

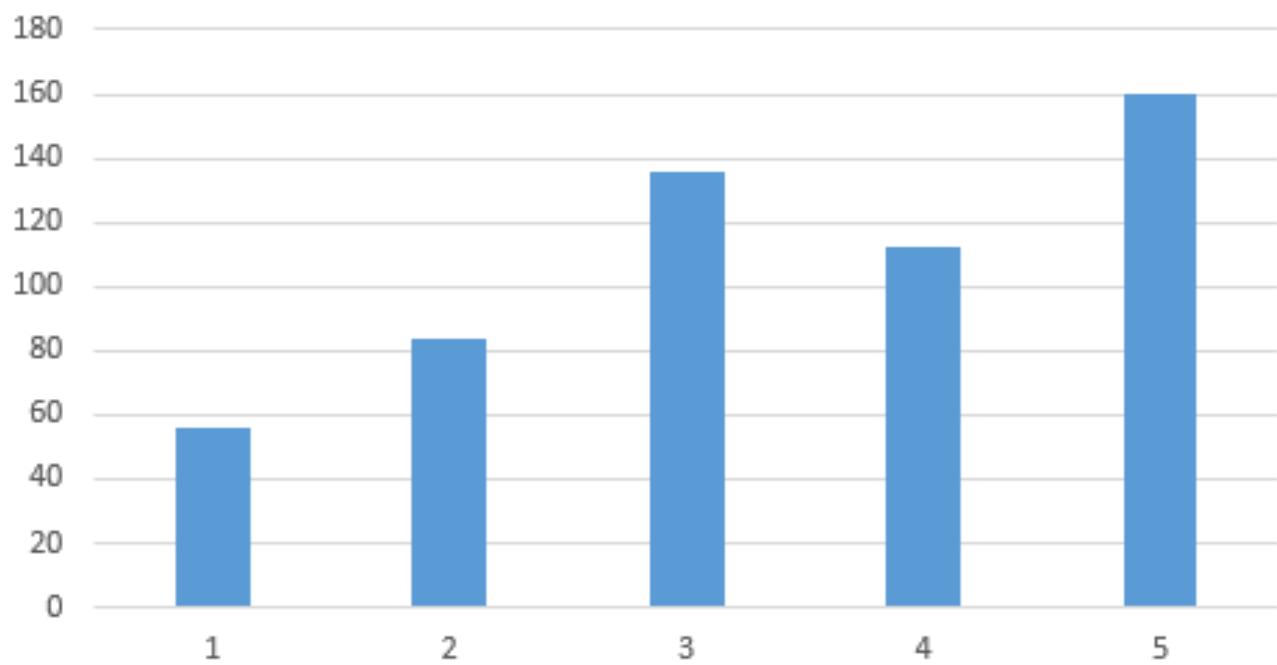


SECTION 5

Feb



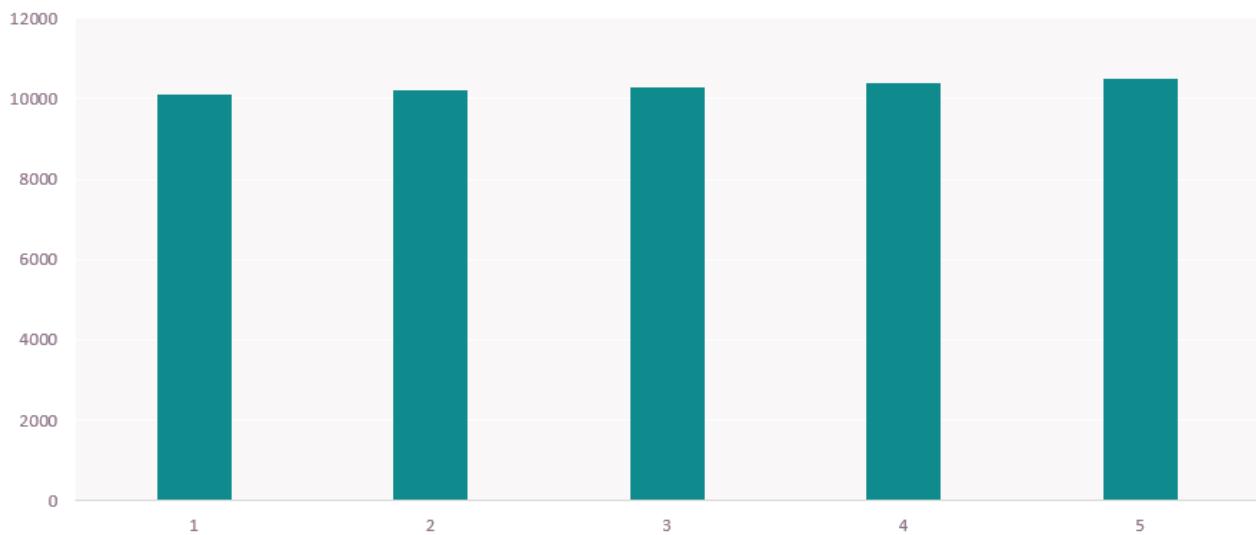
Mar



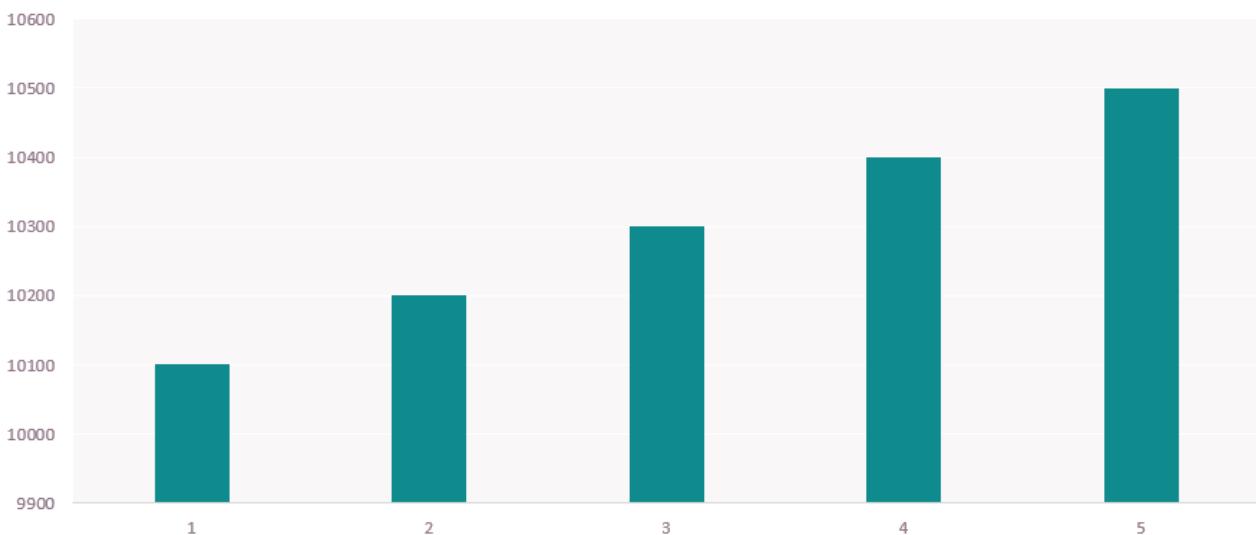
SECTION 5

TRUNCATED GRAPHS

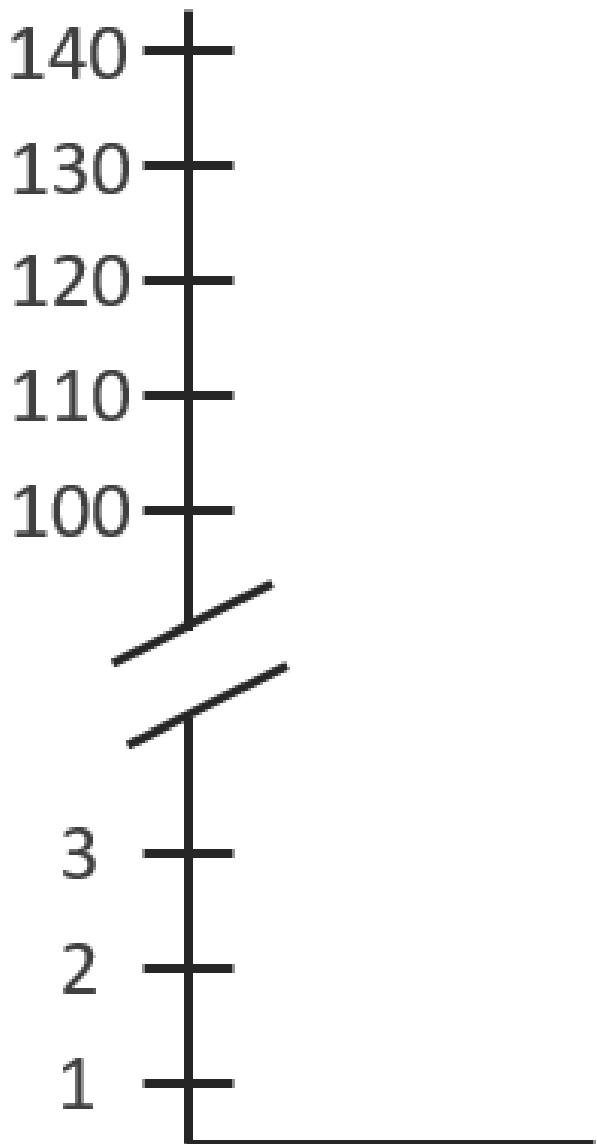
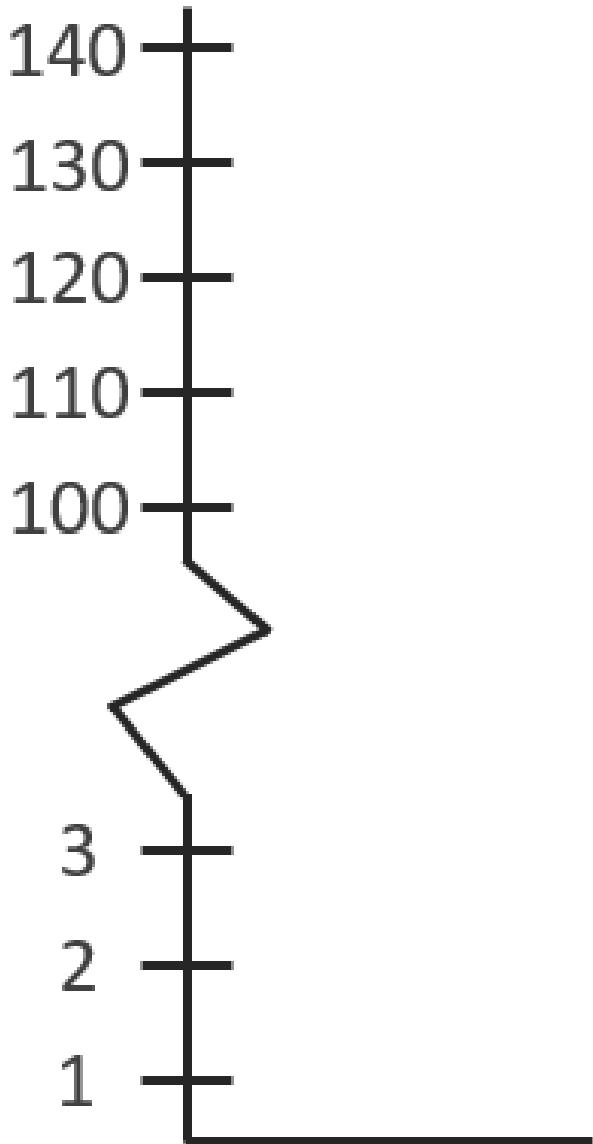
Normal Graph



Truncated Graph



SECTION 5



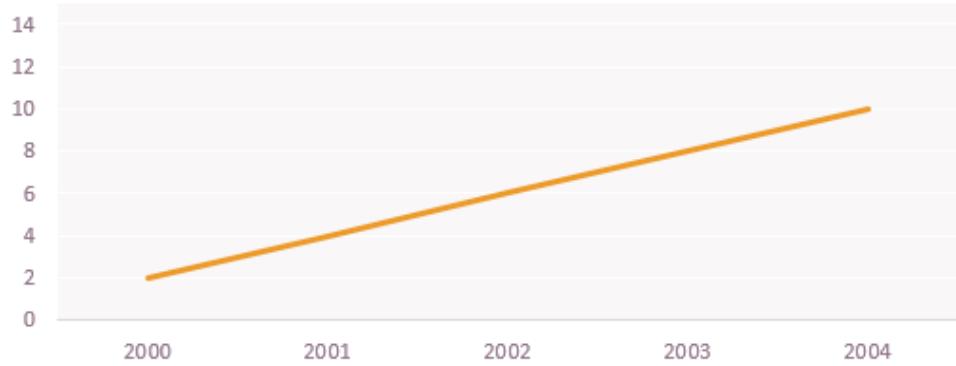
STUDY SHOWING WE EXAGGERATE VALUES EVEN IF WE KNOW A GRAPH HAS BEEN TRUNCATED:

Hanel, Paul H.P.; Maio, Gregory R.; Manstead, Antony S. R. (2019). "A New Way to Look at the Data: Similarities Between Groups of People Are Large and Important". *Journal of Personality and Social Psychology*. 116 (4): 541–562. doi:10.1037/pspi0000154. PMC 6428189. PMID 30596430.

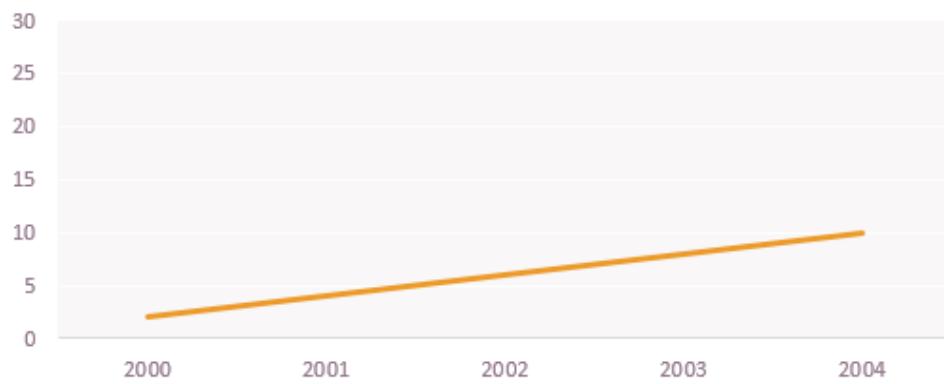
SECTION 5

AXIS SCALE

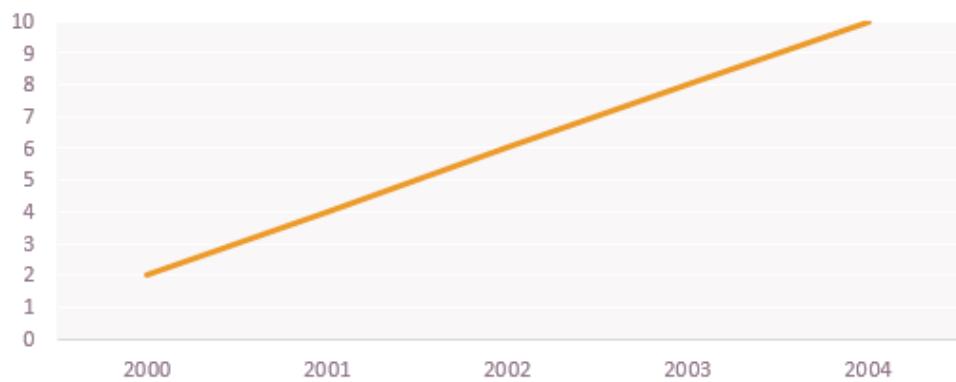
Original Graph



Larger Maximum



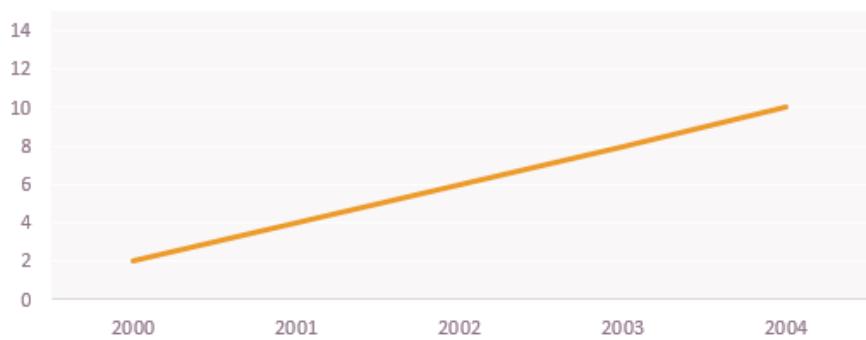
Smaller Maximum



SECTION 5

AXIS SCALE

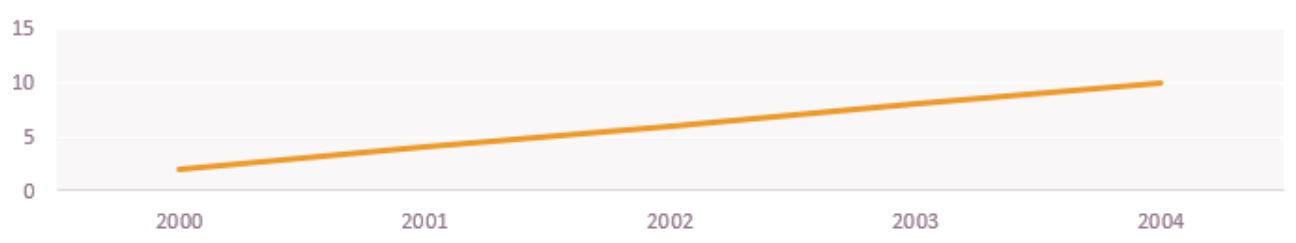
Original Graph



Adjusted Graph

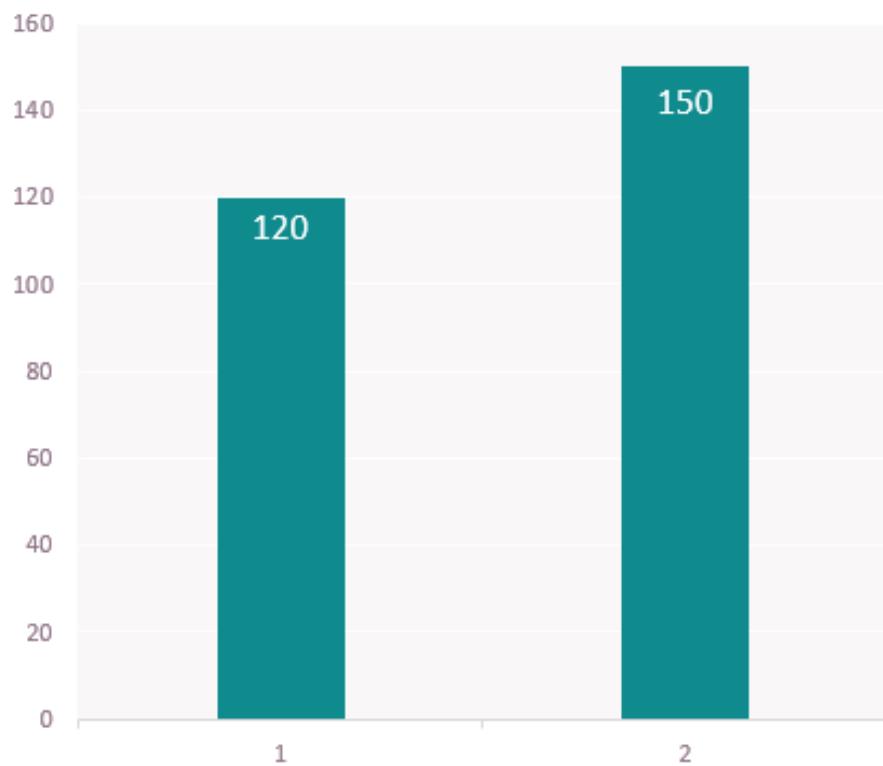


Adjusted Graph

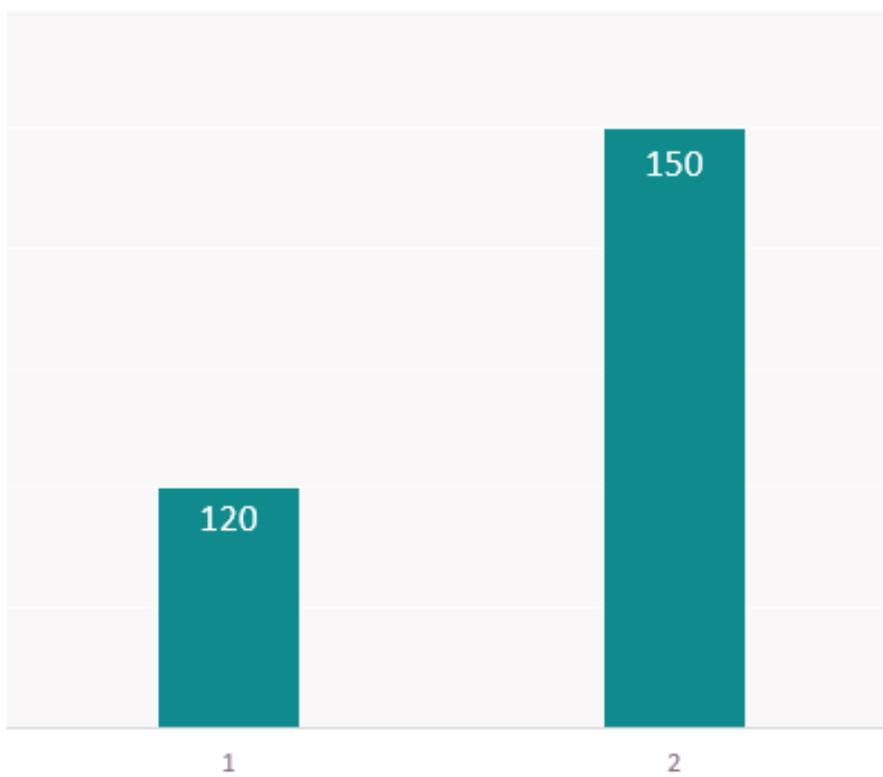


SECTION 5

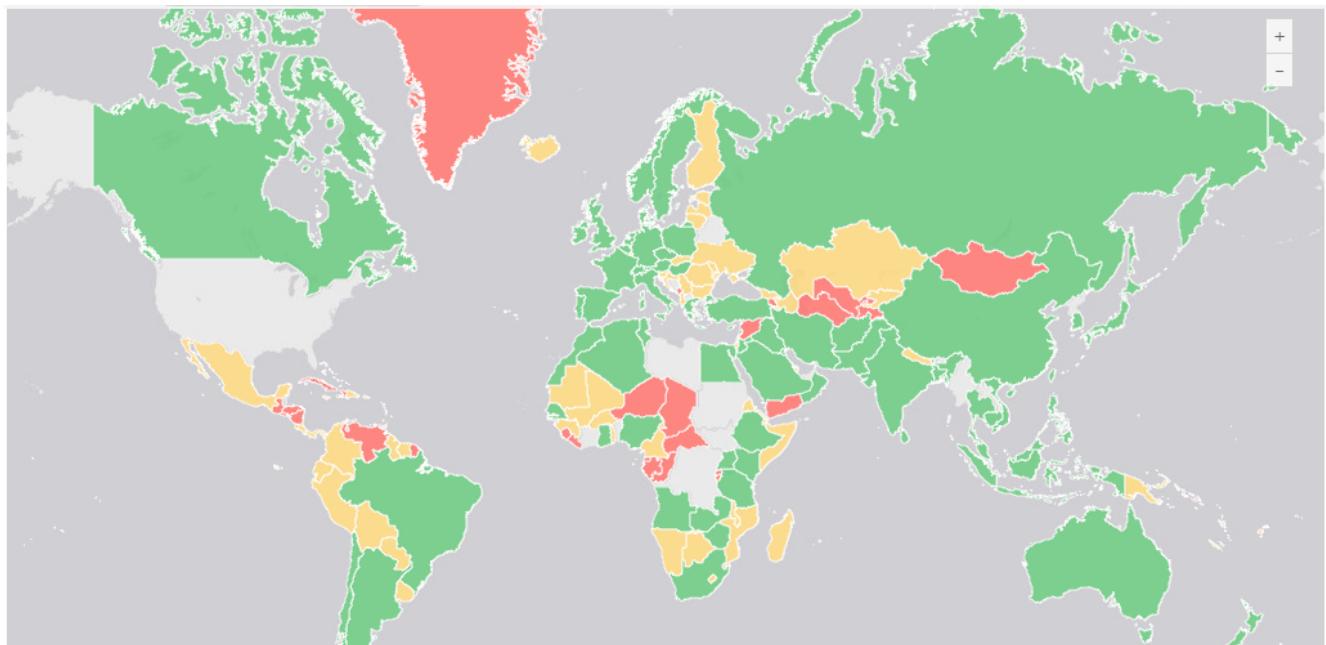
Regular Scale Graph



No Scaling Graph



SECTION 5



SECTION 5

SECTION 5: THE RIGHT GRAPH FOR THE RIGHT DATA

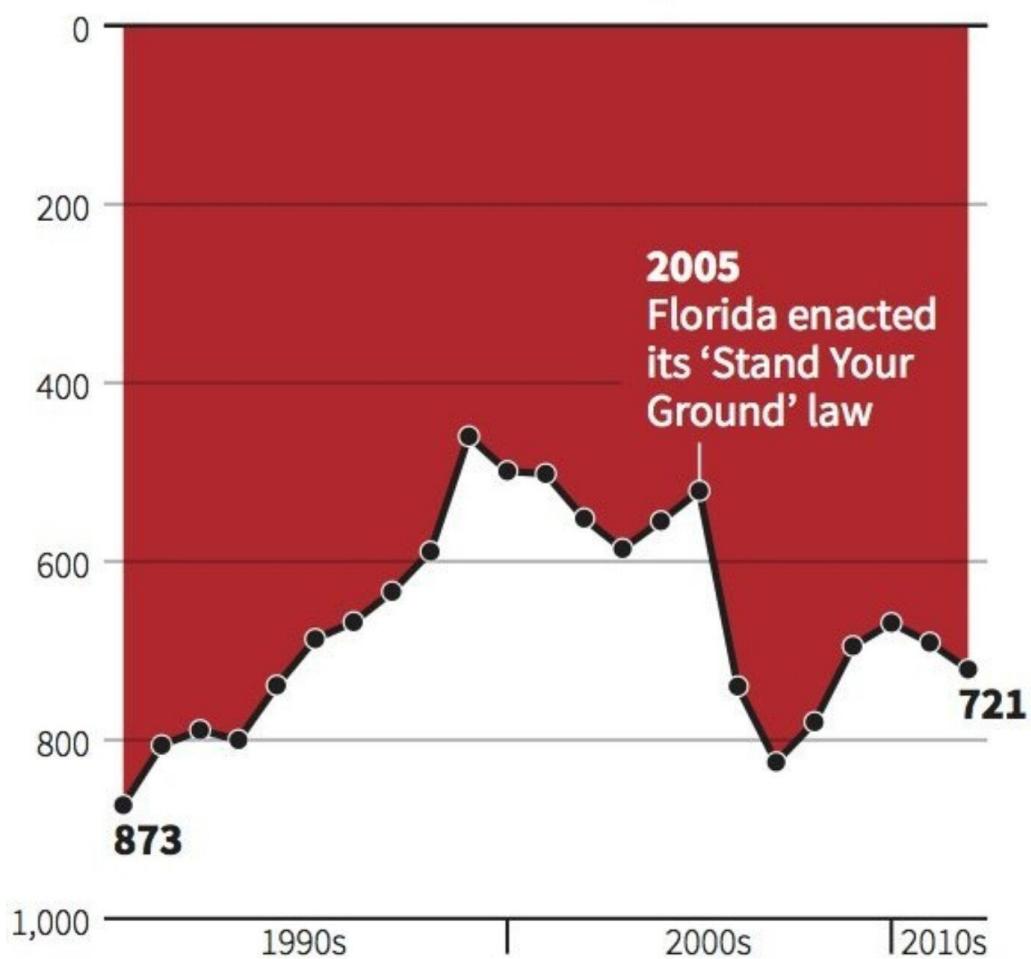
DEADLY SINS OF GRAPH

SECTION 5: THE RIGHT GRAPH FOR THE RIGHT DATA

HOW TO AVOID BEING MISLEAD BY DATA

Gun deaths in Florida

Number of murders committed using firearms



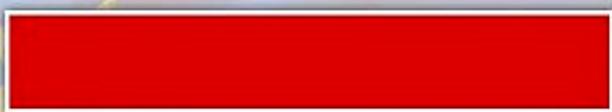
Source: Florida Department of Law Enforcement

C. Chan 16/02/2014

 REUTERS

WHAT THE EU IS DEMANDING ITS MEMBERS PAY

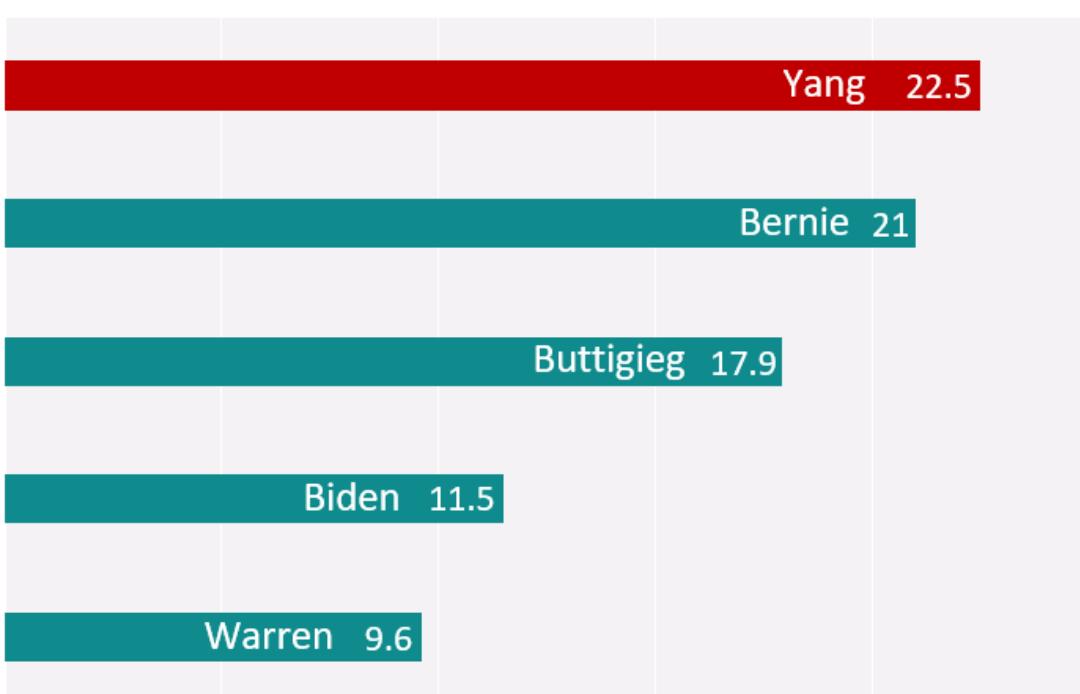
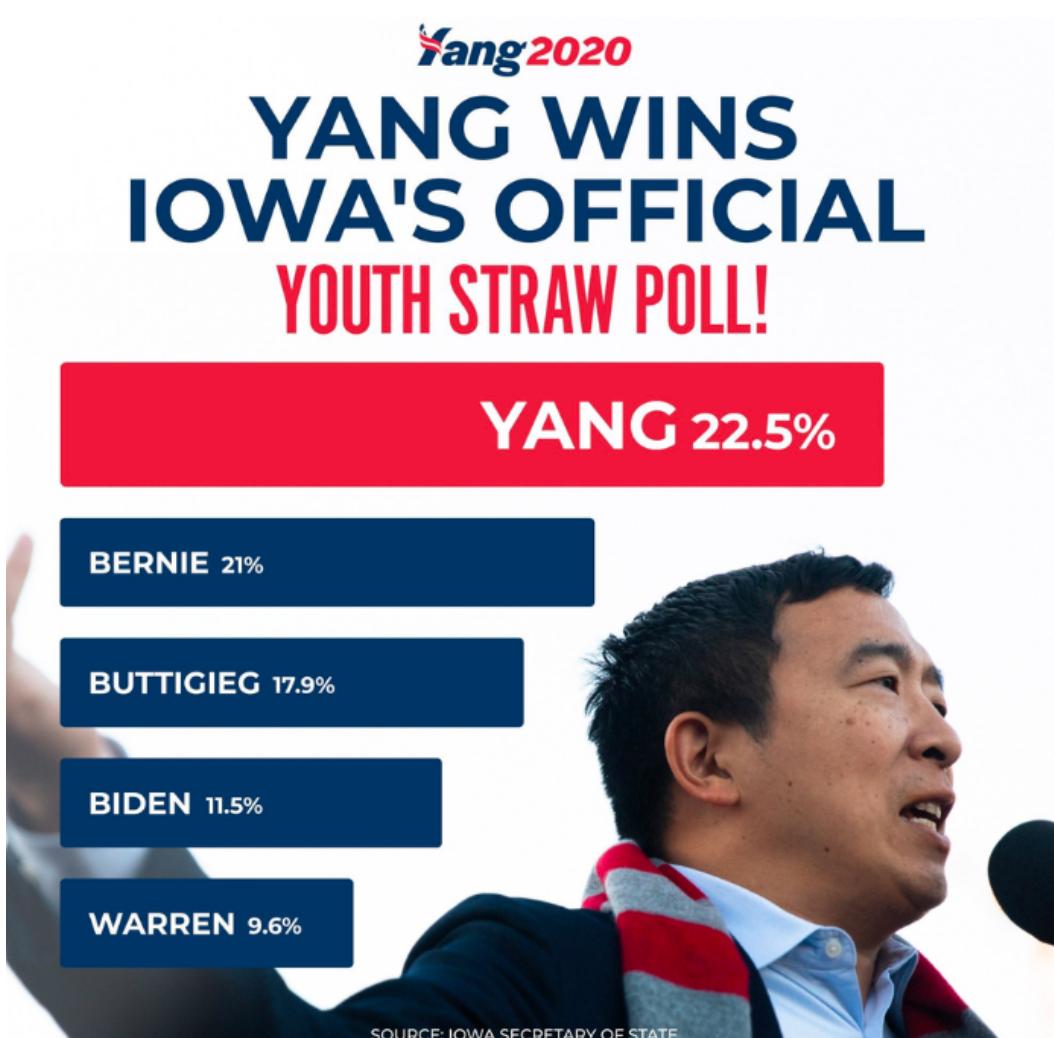
Current contribution 1% of GDP



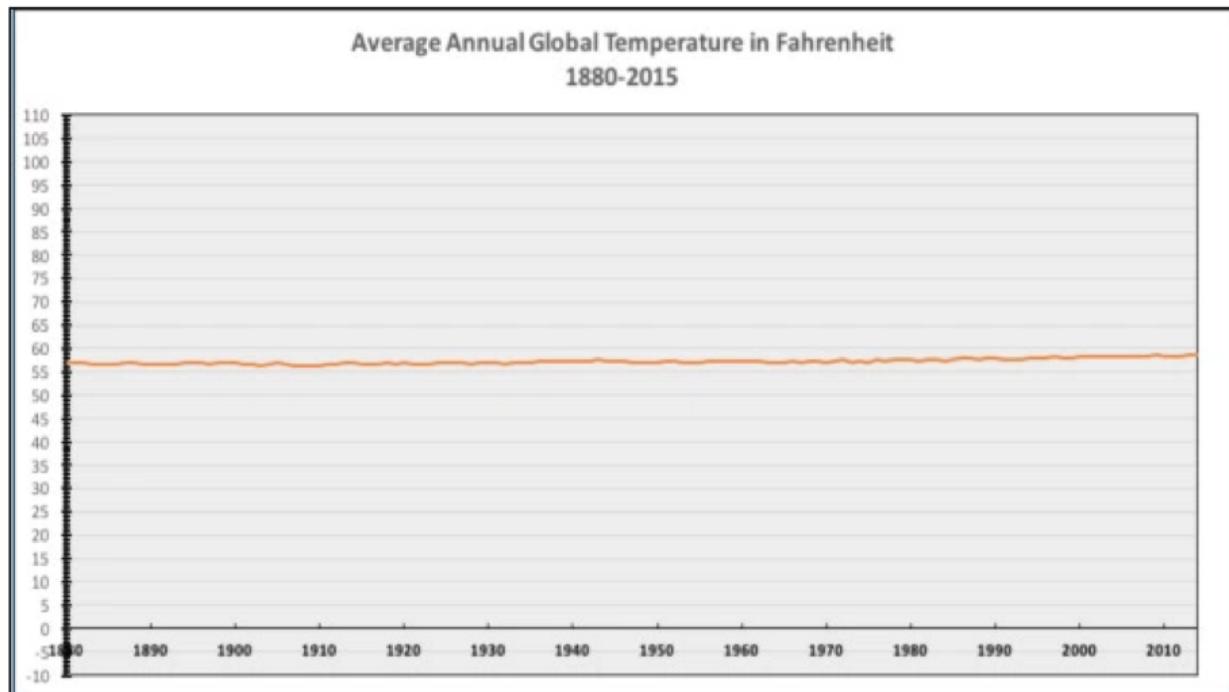
Future contribution 1.08% of GDP



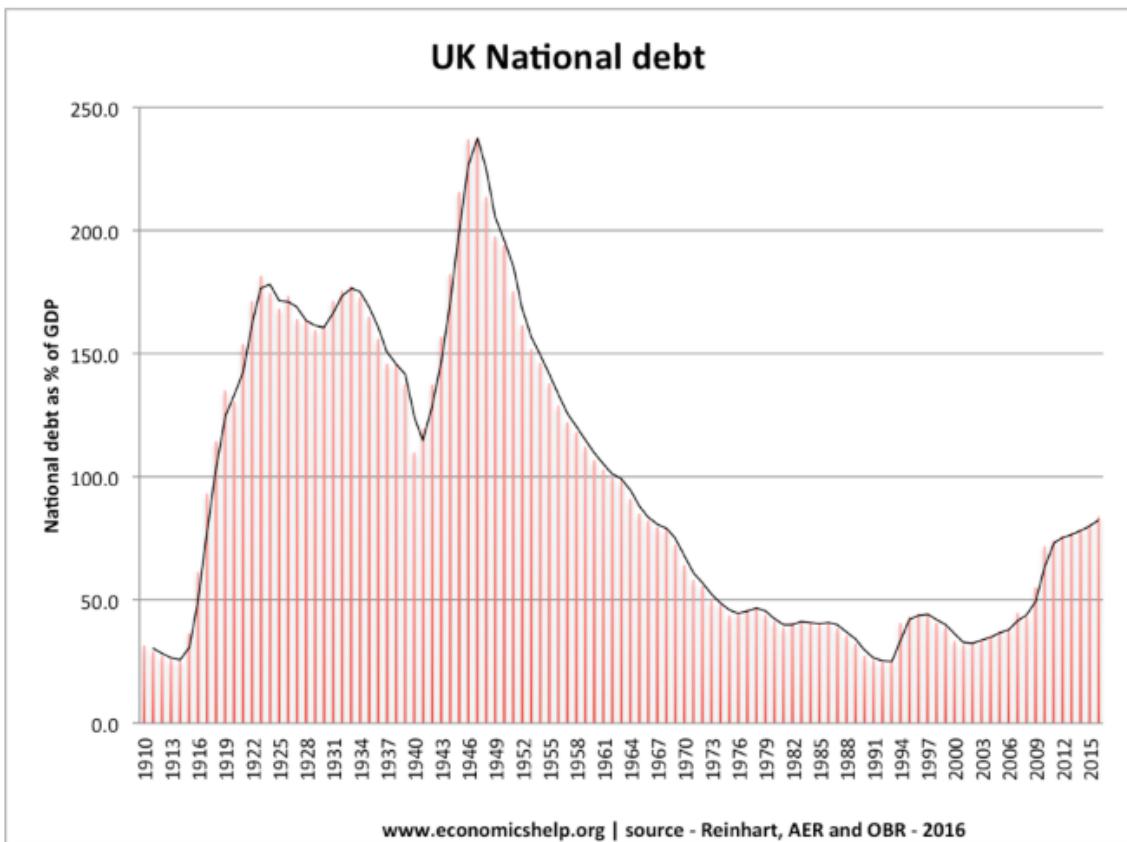
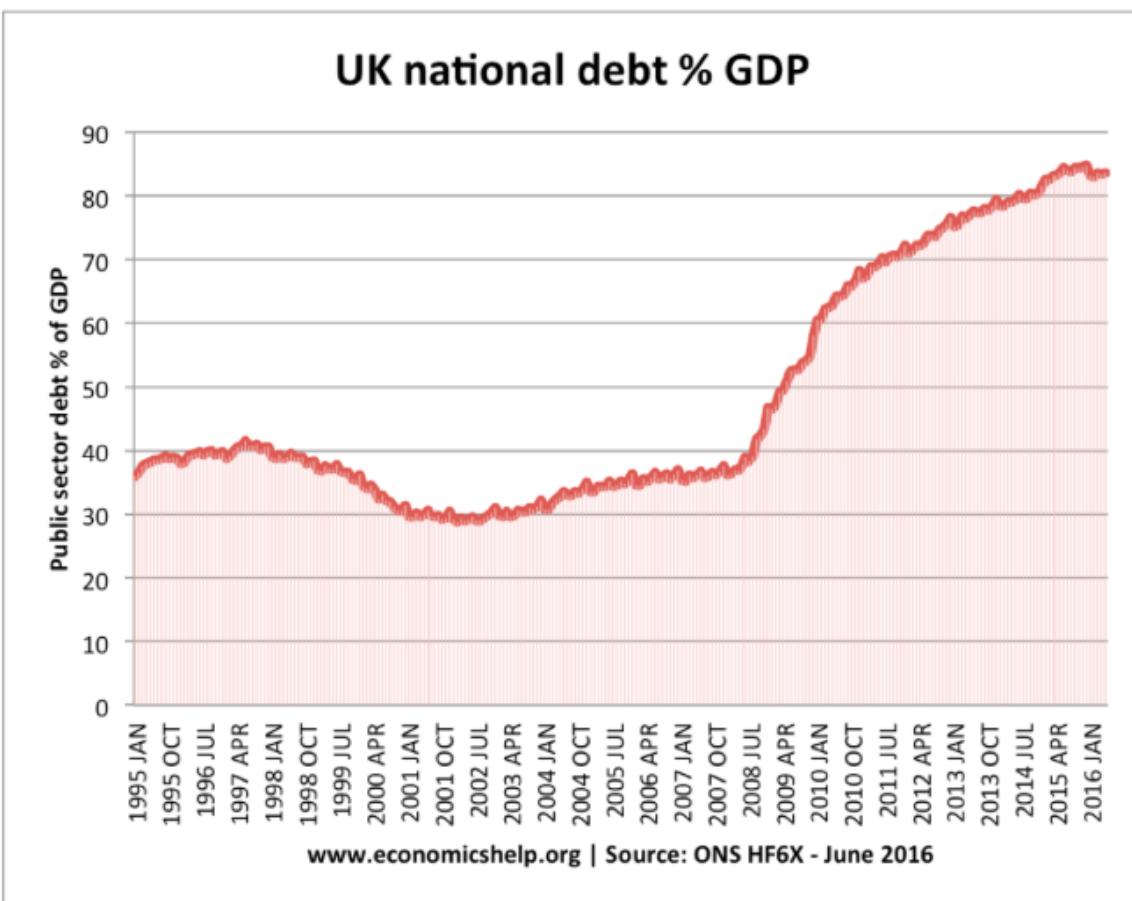
SECTION 5



SECTION 5

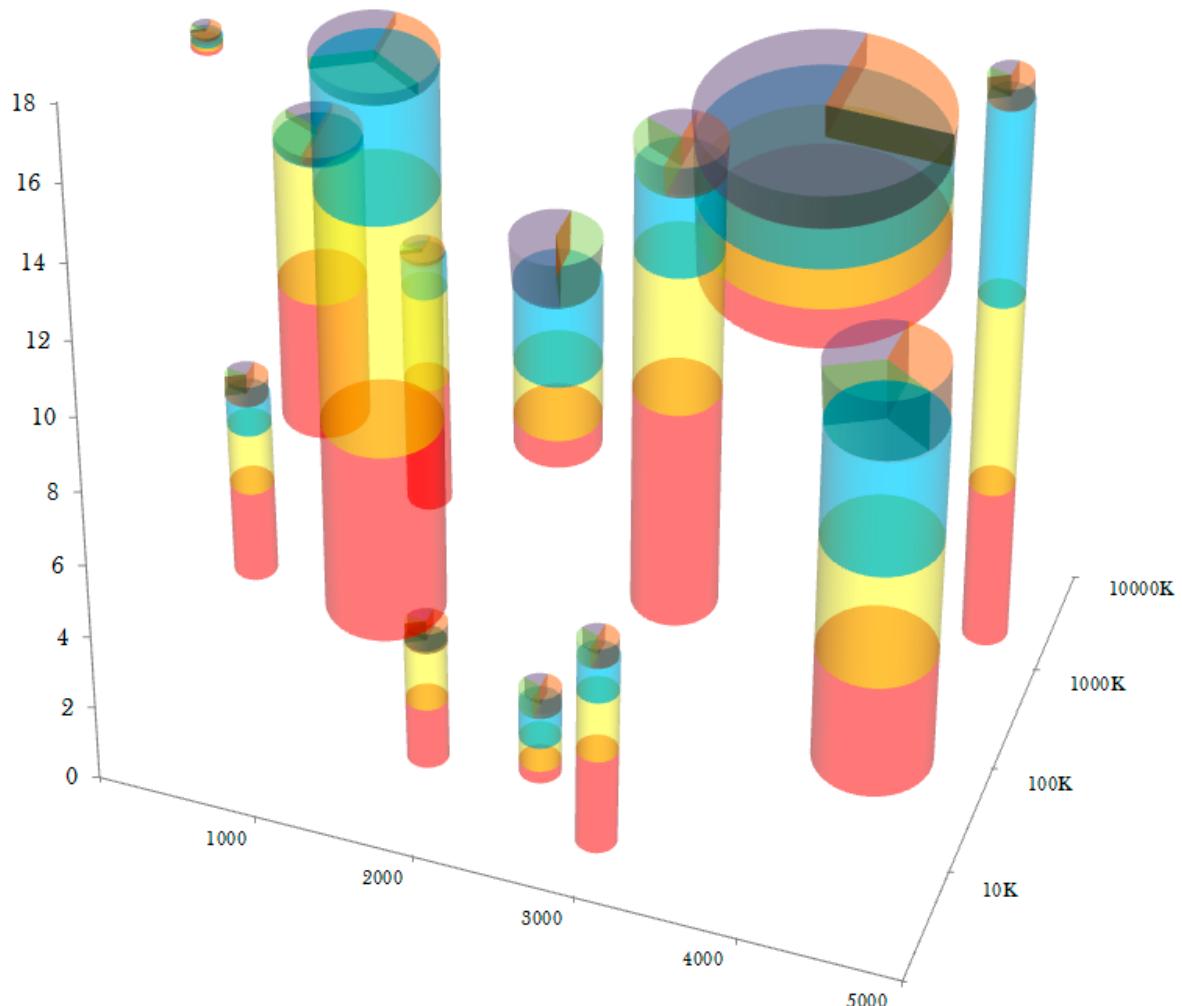


SECTION 5





SECTION 5



SECTION 5

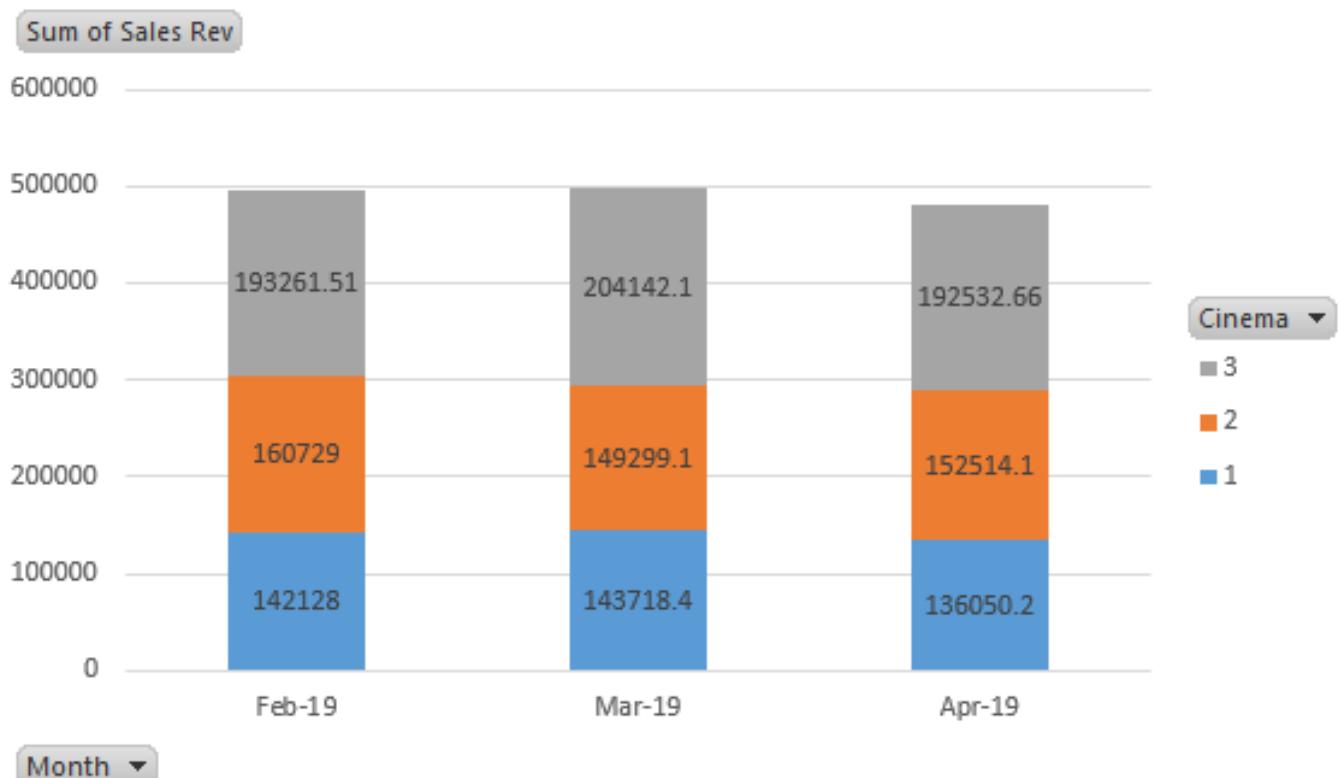
SECTION 5: THE RIGHT GRAPH FOR THE RIGHT DATA

HOW TO AVOID BEING MISLEAD BY DATA

SECTION 6

SECTION 6: DESIGNING YOUR GRAPH TO TELL A STORY

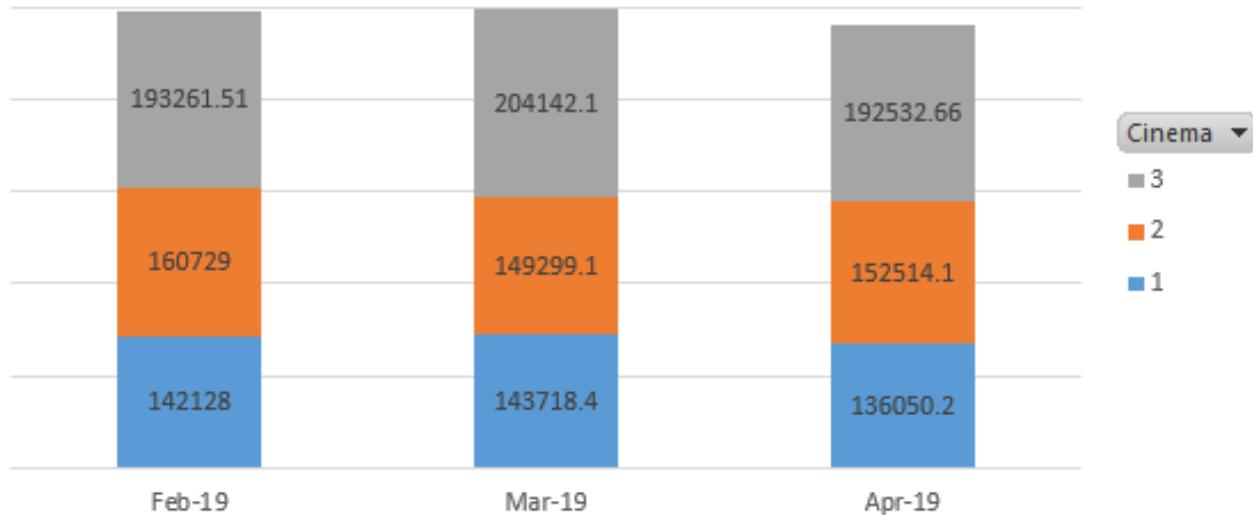
CLEARING THE CLUTTER



SECTION 6

AXIS LABELS

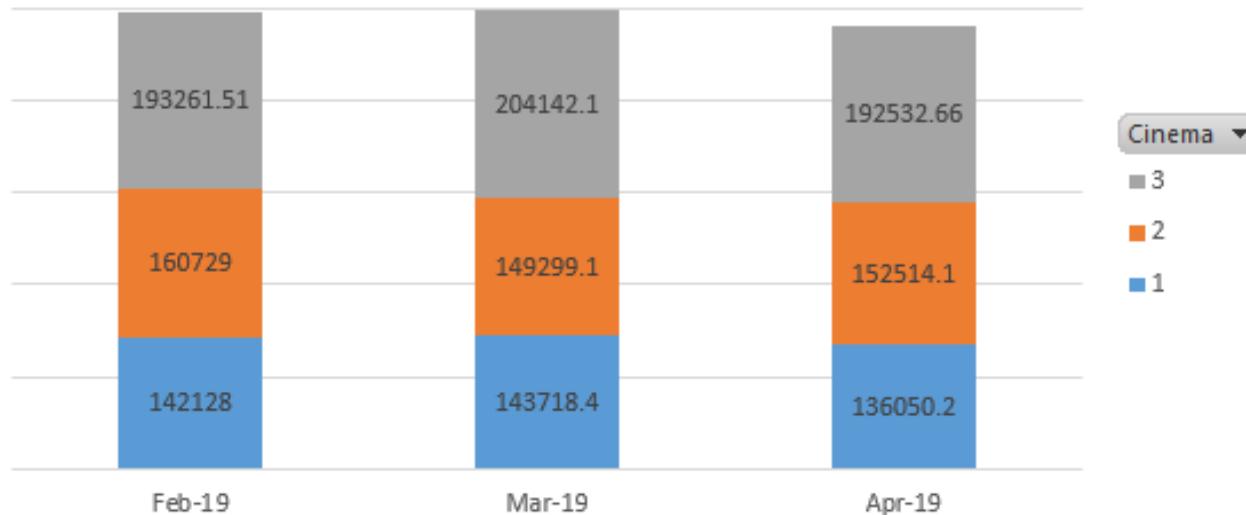
Sum of Sales Rev



Month ▾

KEY

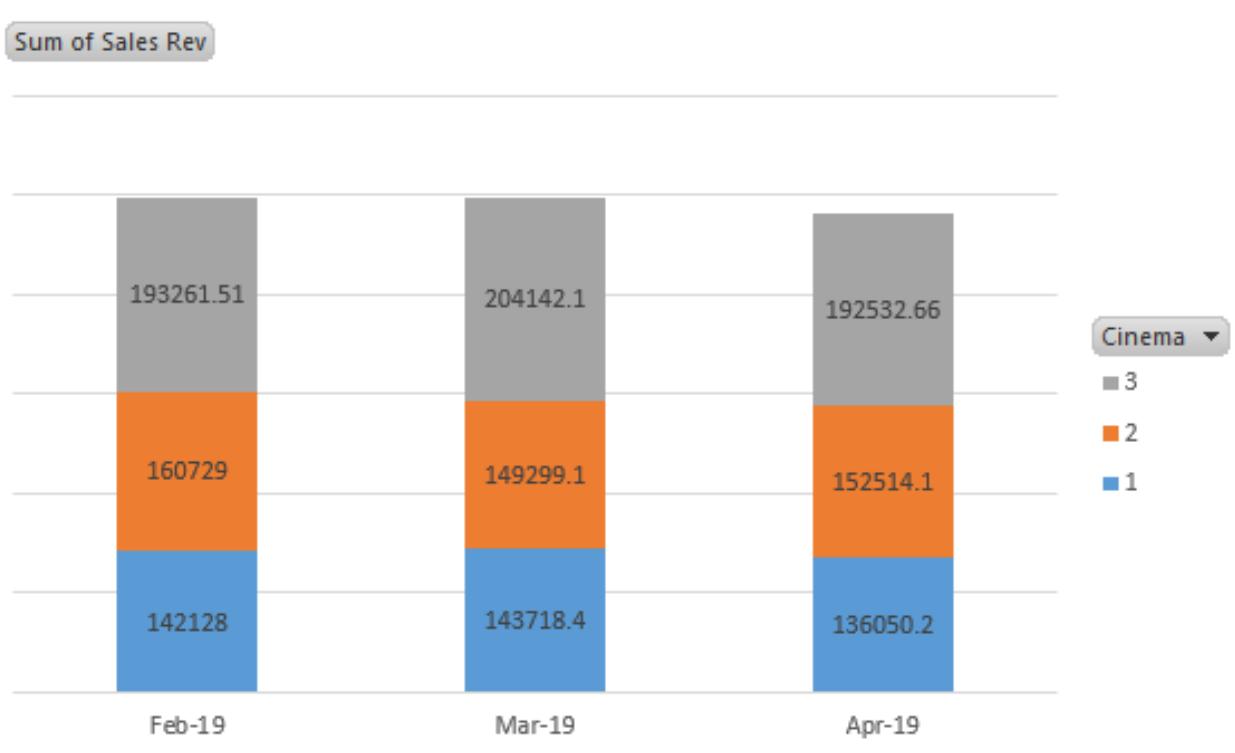
Sum of Sales Rev



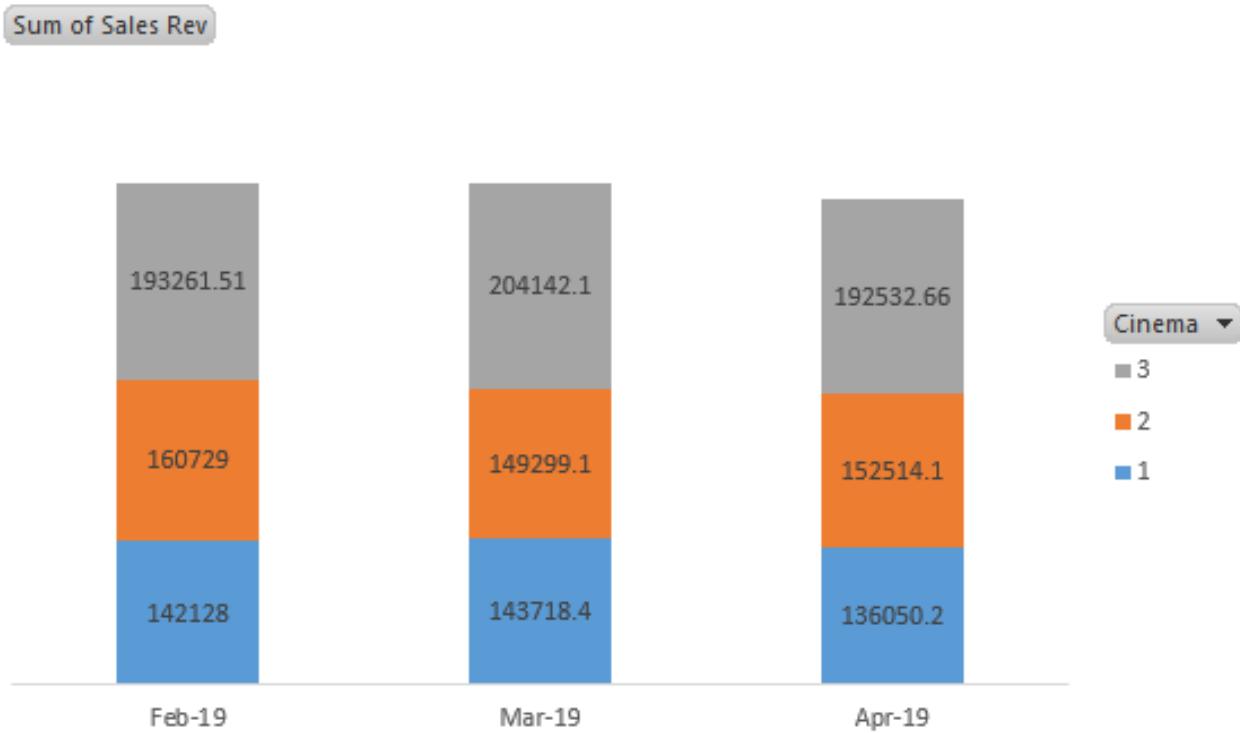
Month ▾

SECTION 6

DATA LABELS



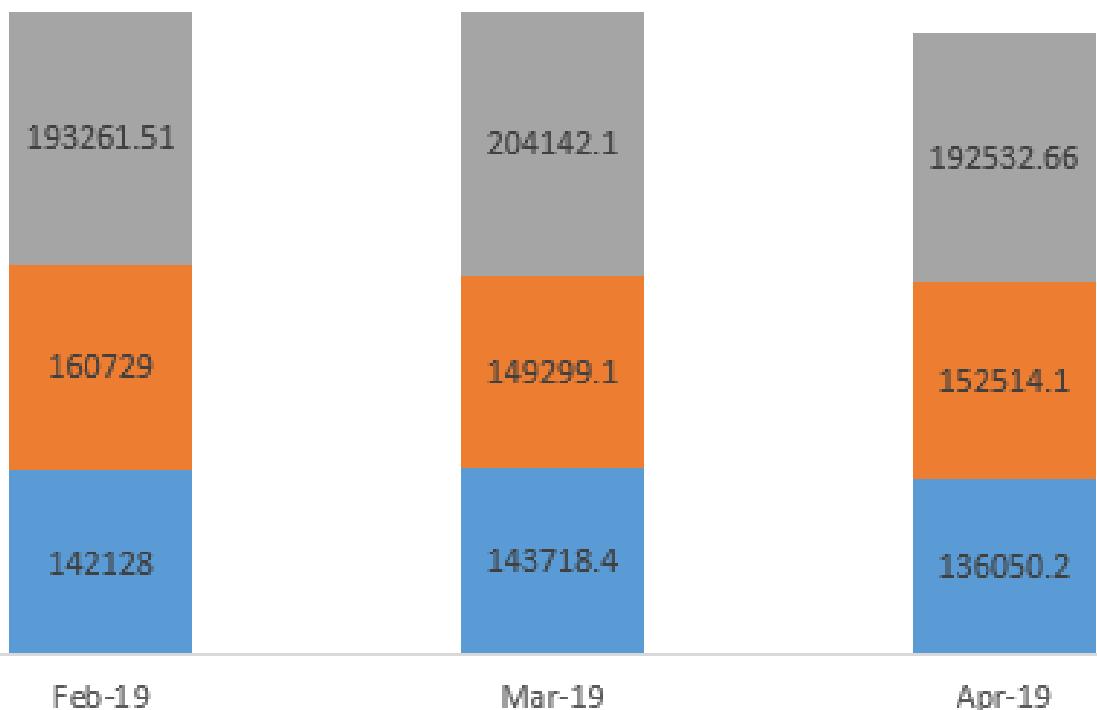
GRID LINES



SECTION 6

LEGEND

Sum of Sales Rev



SECTION 5

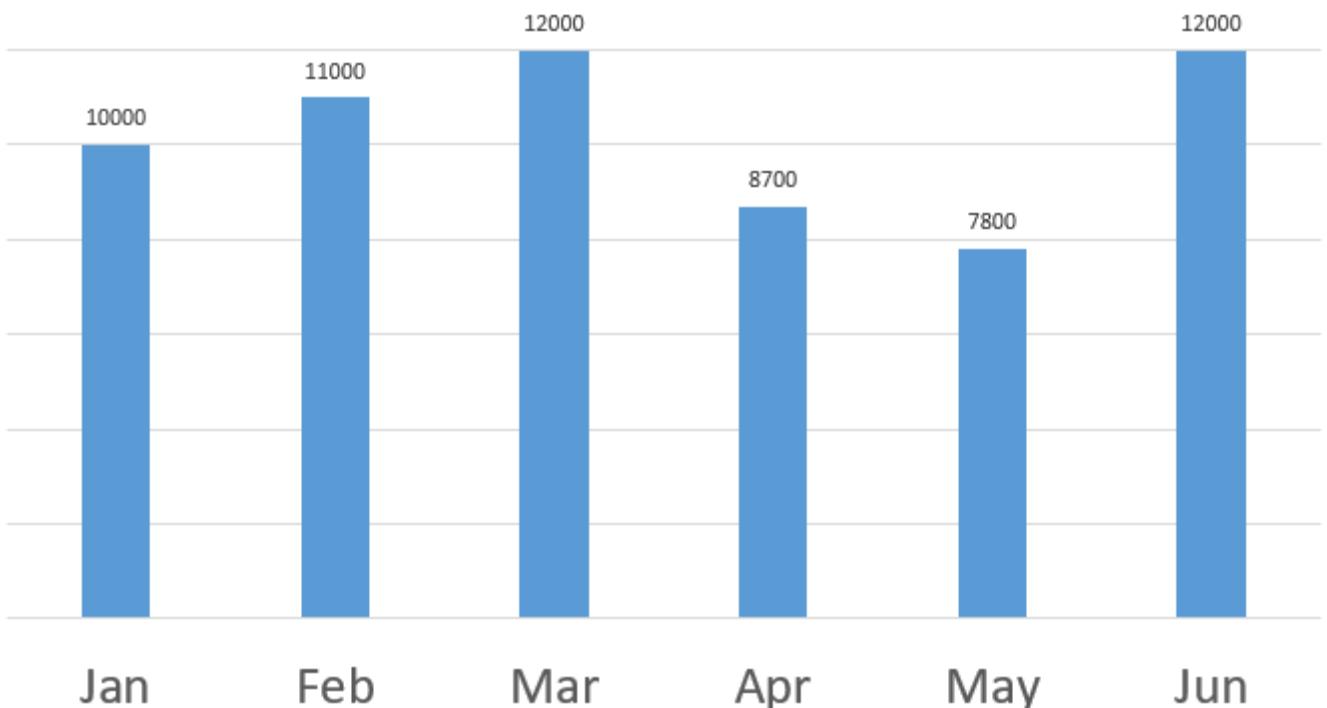
SECTION 6: THE RIGHT GRAPH FOR THE RIGHT DATA

CLEARING THE CLUTTER

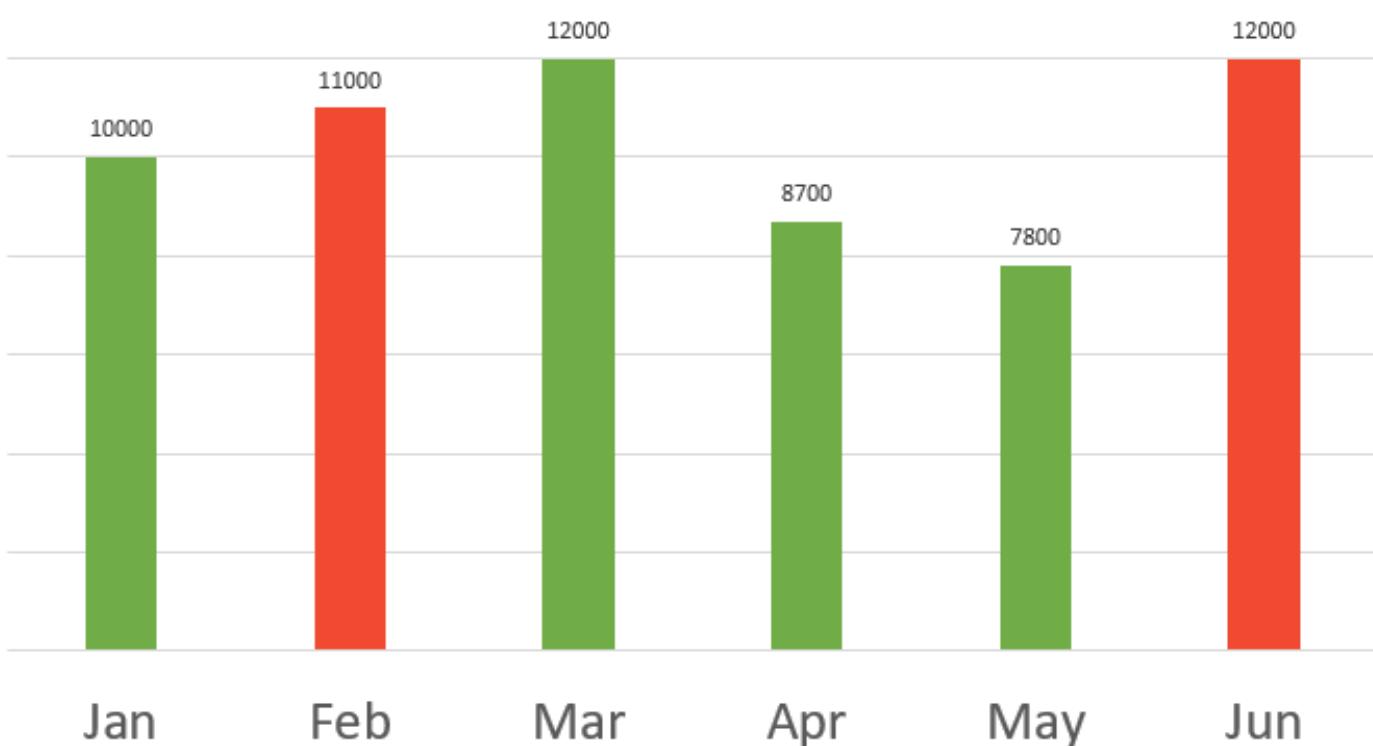
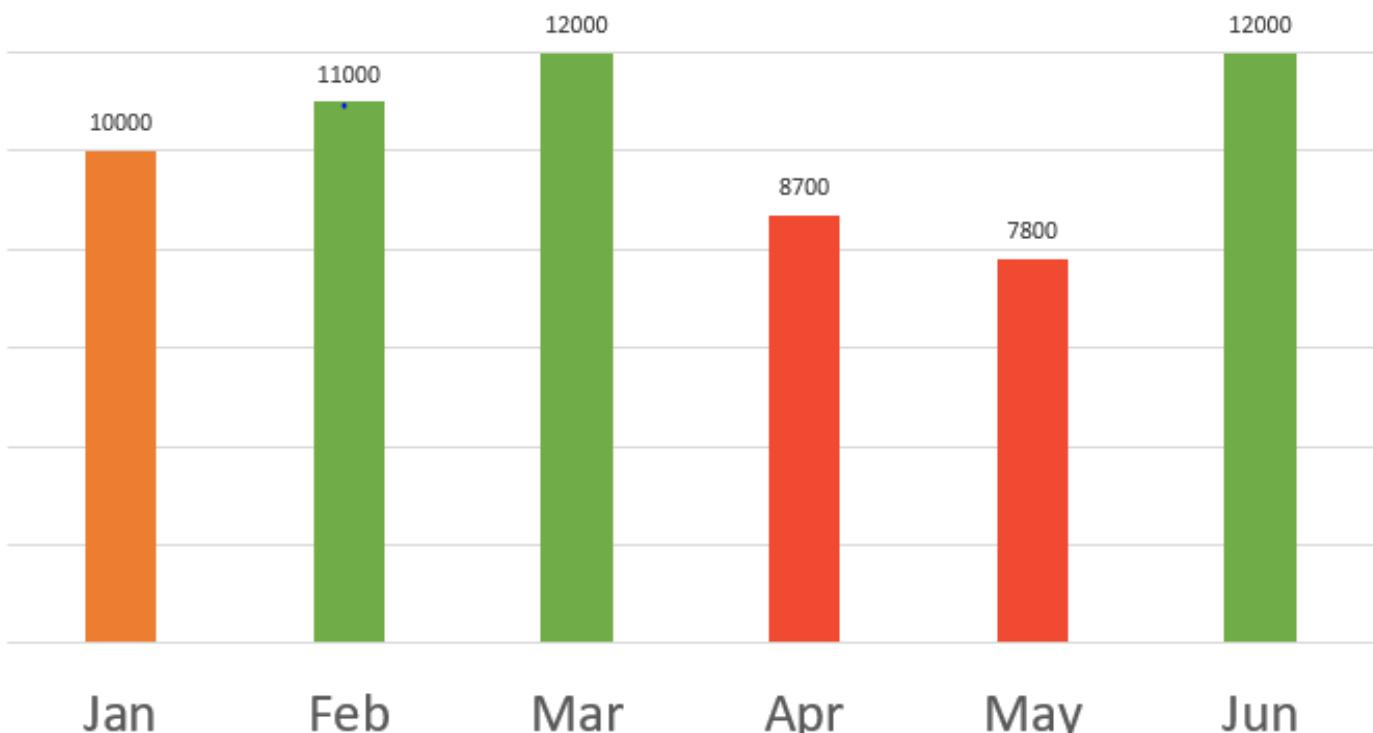
SECTION 6

SECTION 6: DESIGNING YOUR GRAPH TO TELL A STORY

BRINGING OUT THE STORY WITH COLOUR

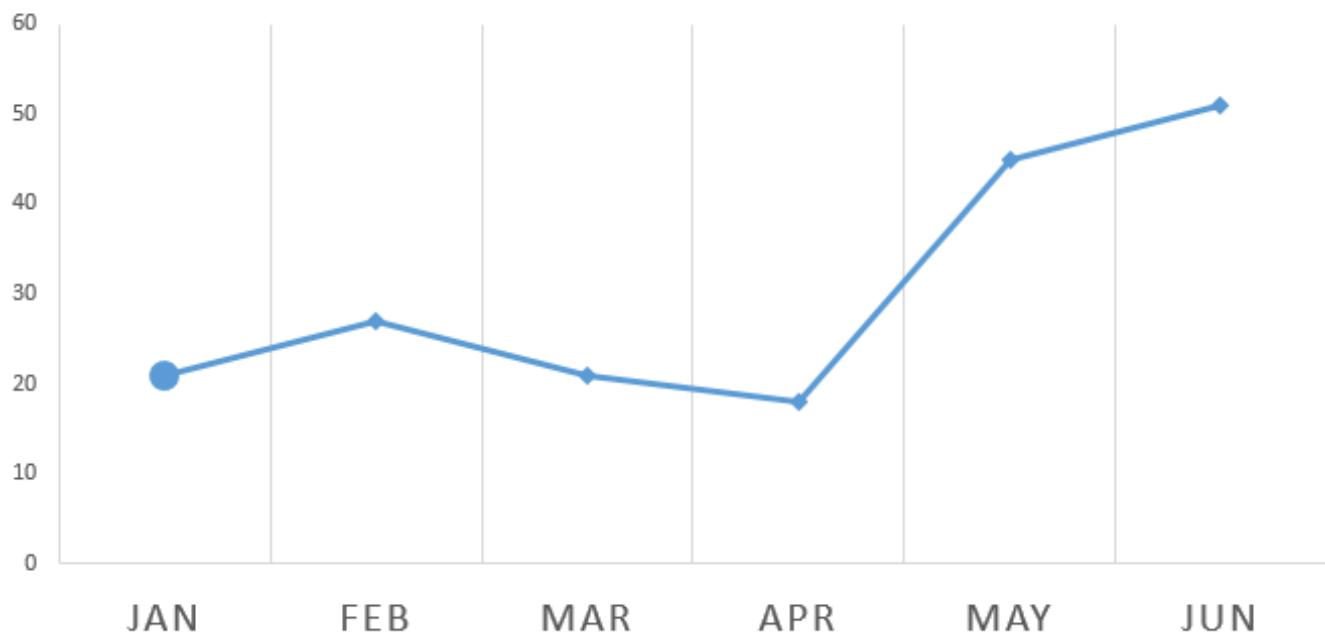


SECTION 6

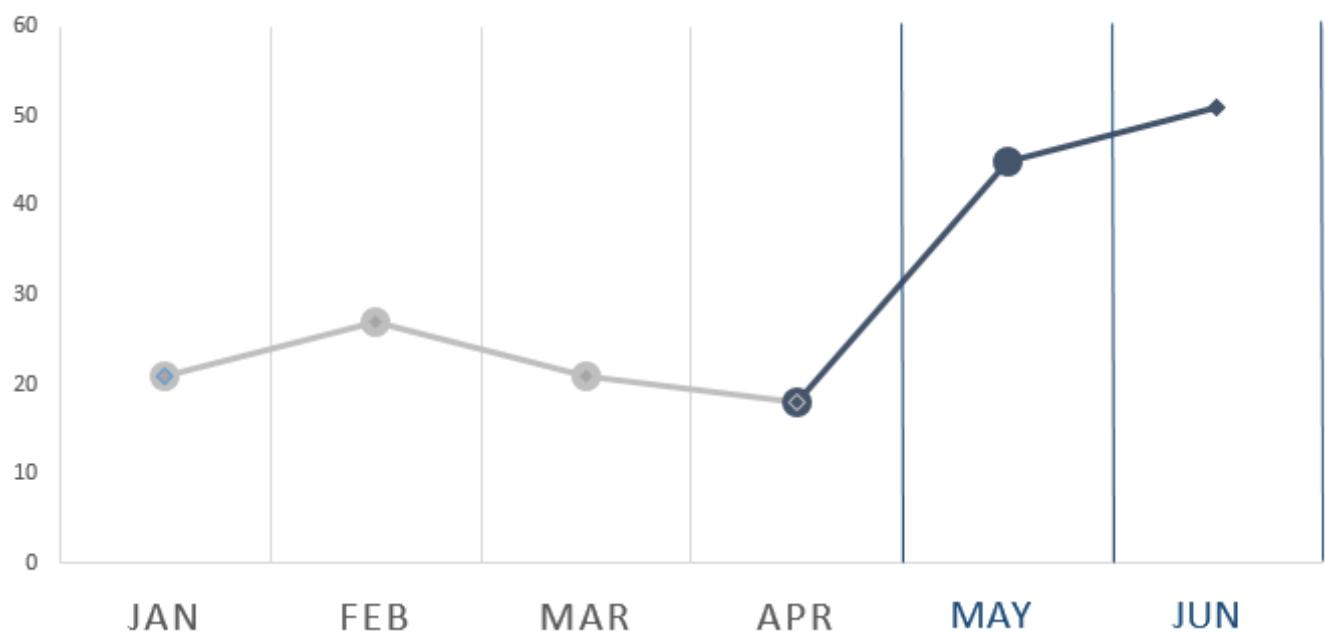


SECTION 6

ATTRITION RATES

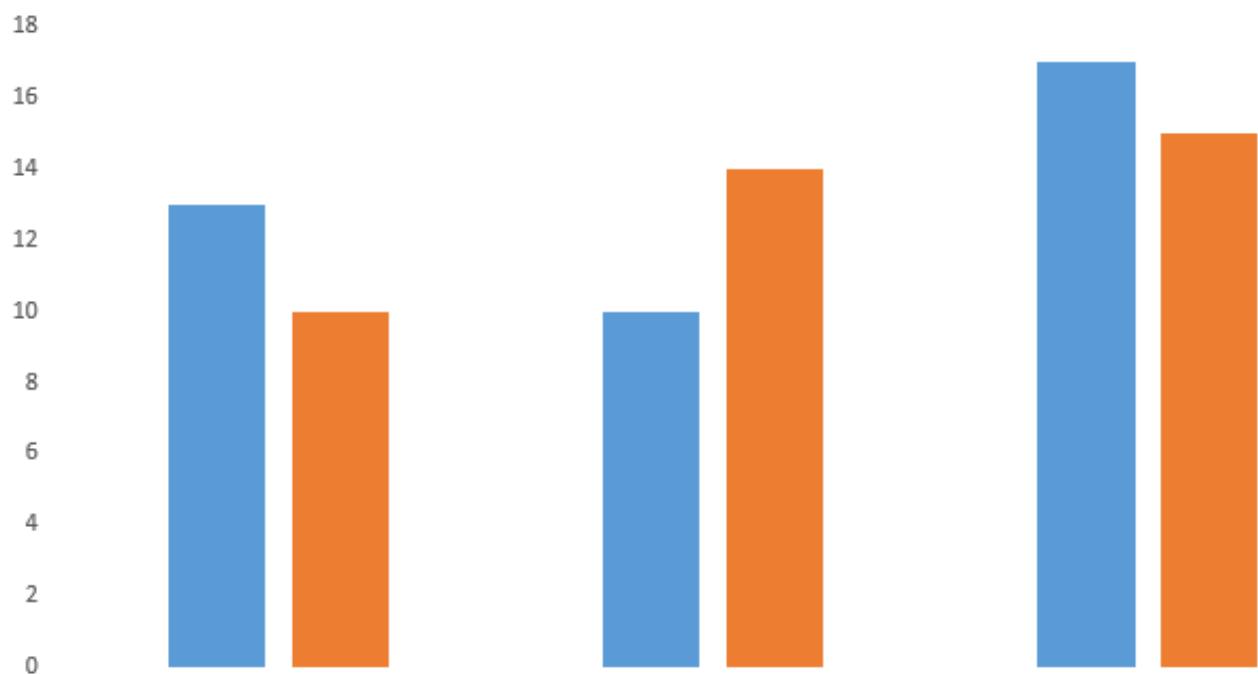


ATTRITION RATES



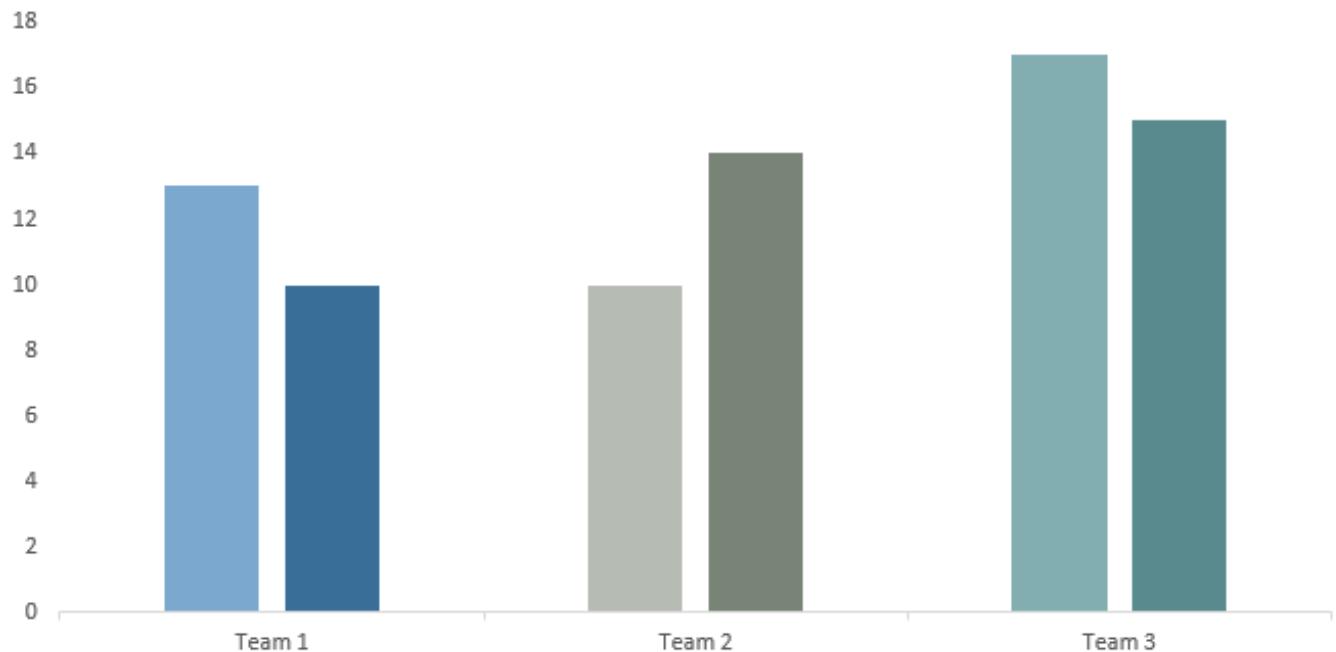
SECTION 6

Recruitment Activity

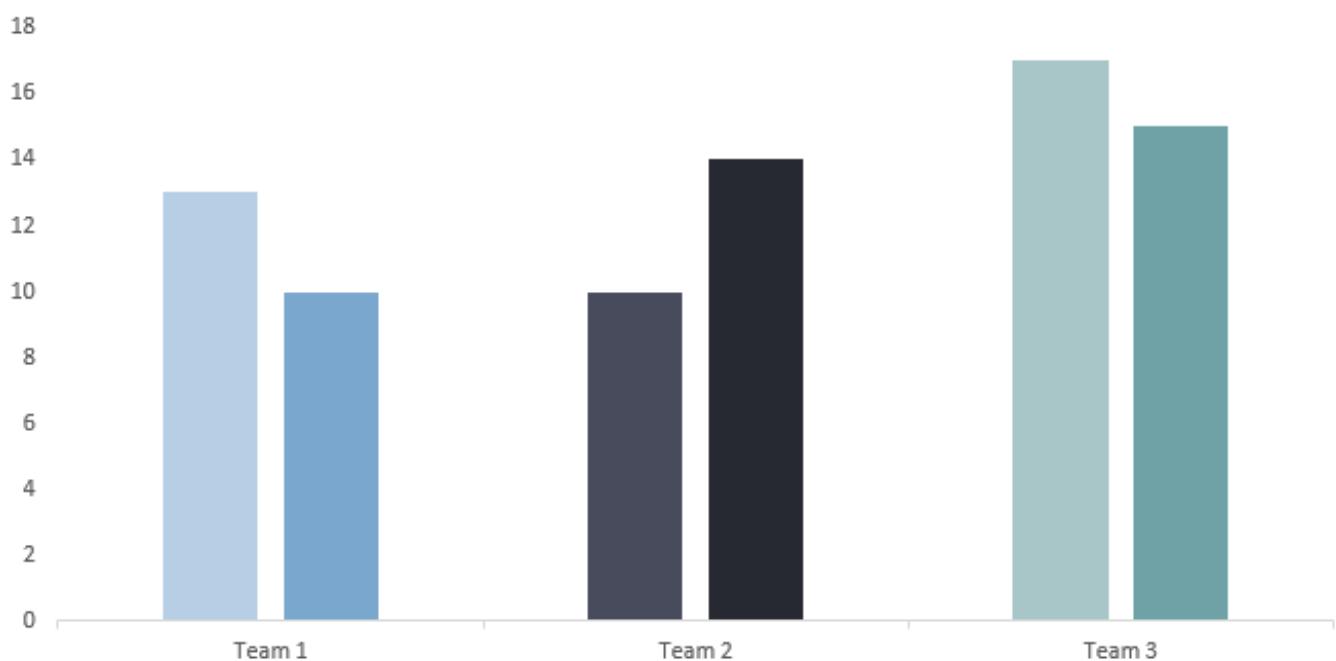


SECTION 6

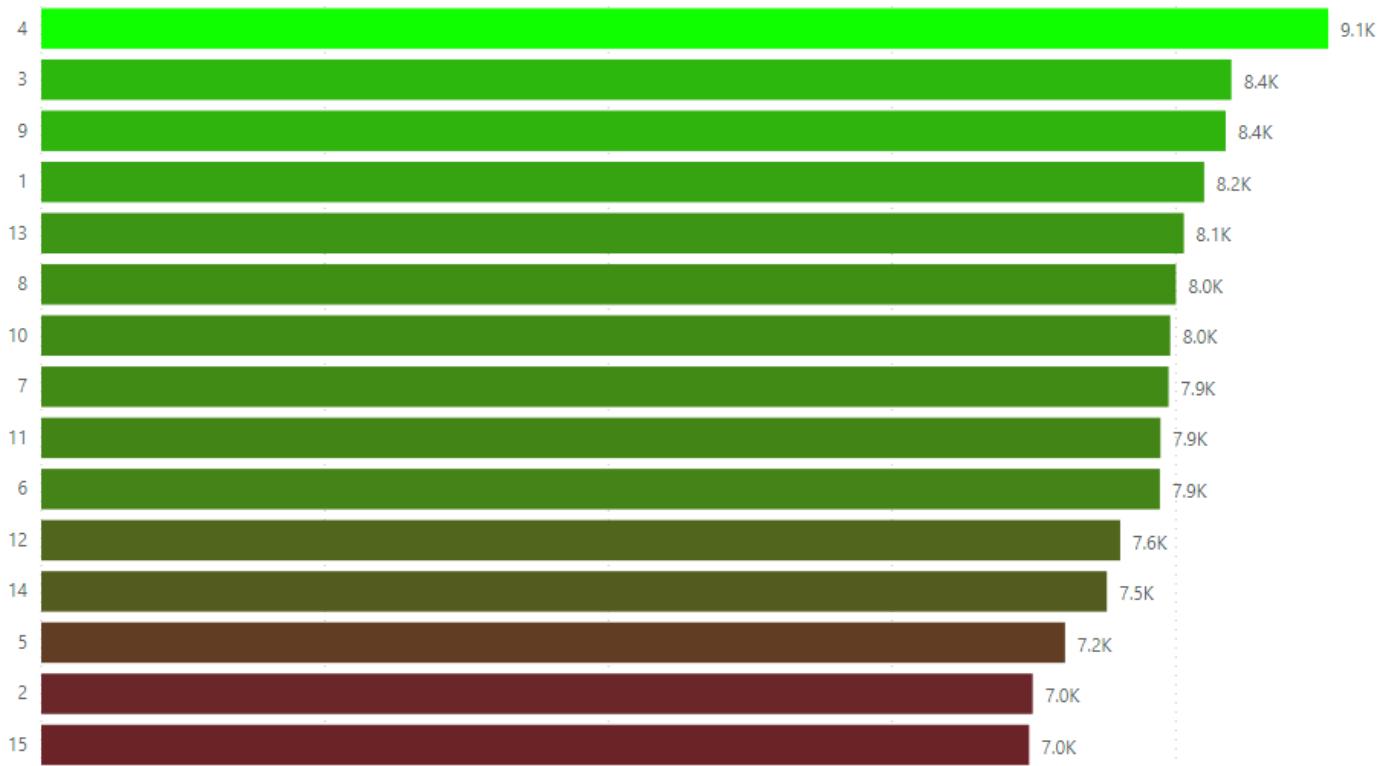
Recruitment Activity



Recruitment Activity



SECTION 6



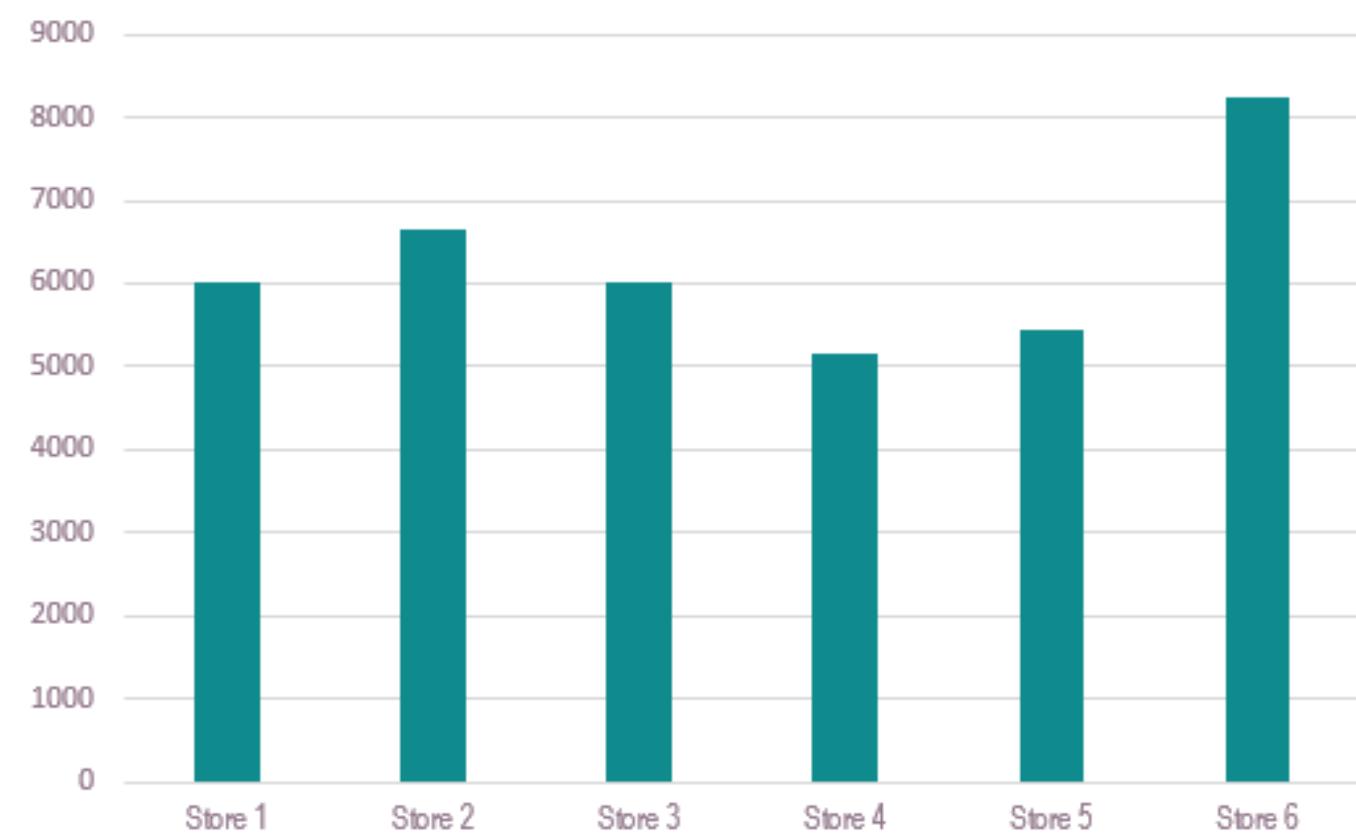
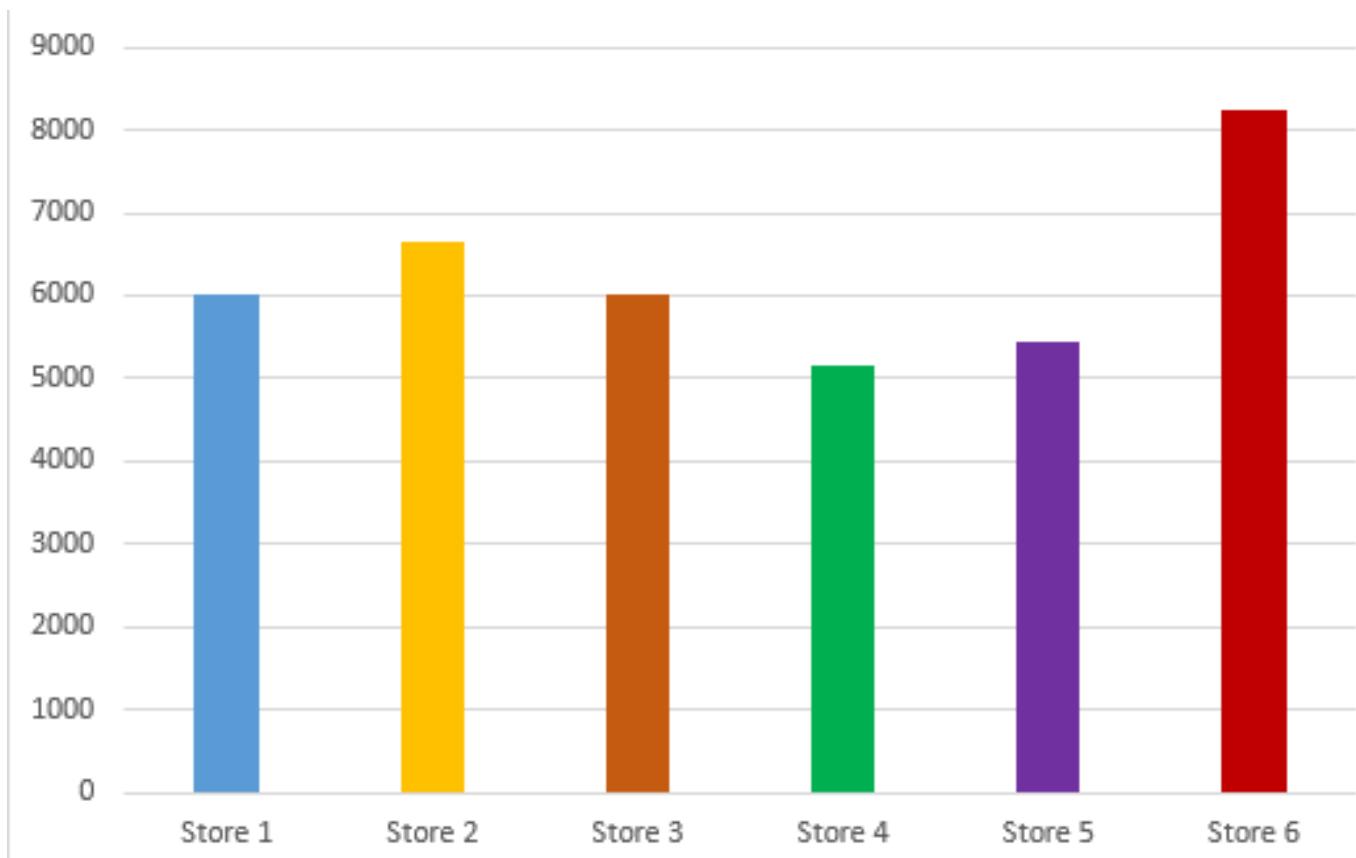
SECTION 6

	Received Calls	Missed Calls
Jan	2345	204
Feb	2554	181
Mar	1995	235
Apr	2755	184
May	2409	199
Jun	2344	199

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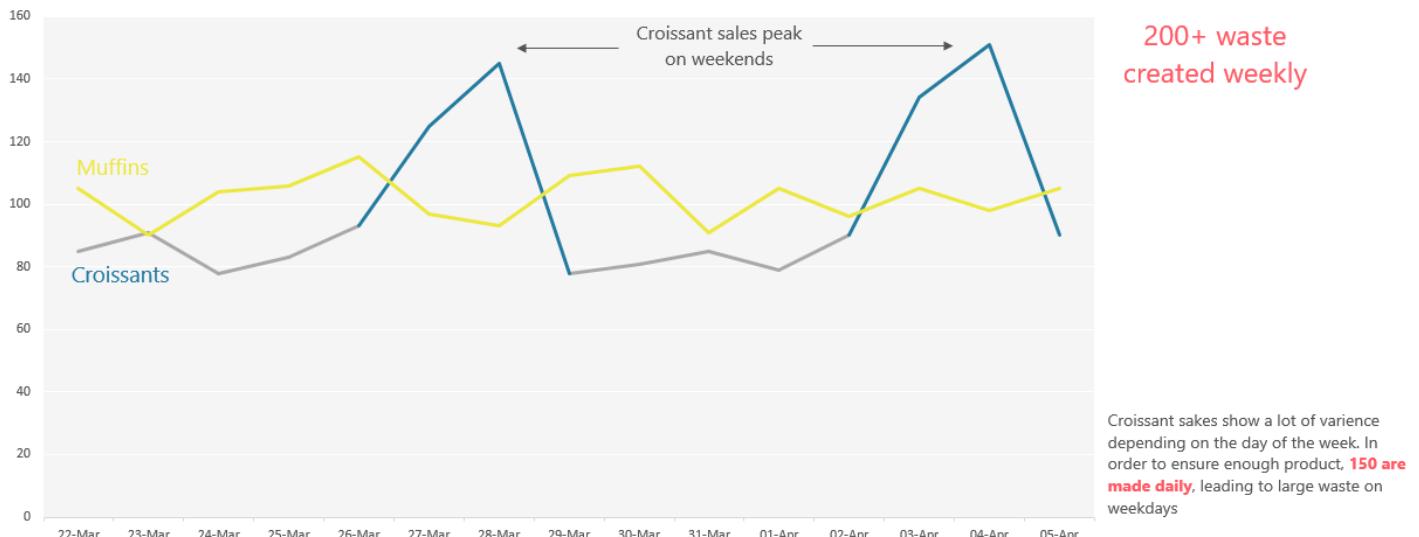
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SECTION 6



SECTION 6

High waste product as Croissant sales vary



SECTION 6: THE RIGHT GRAPH FOR THE RIGHT DATA

BRINGING OUT THE STORY WITH COLOUR

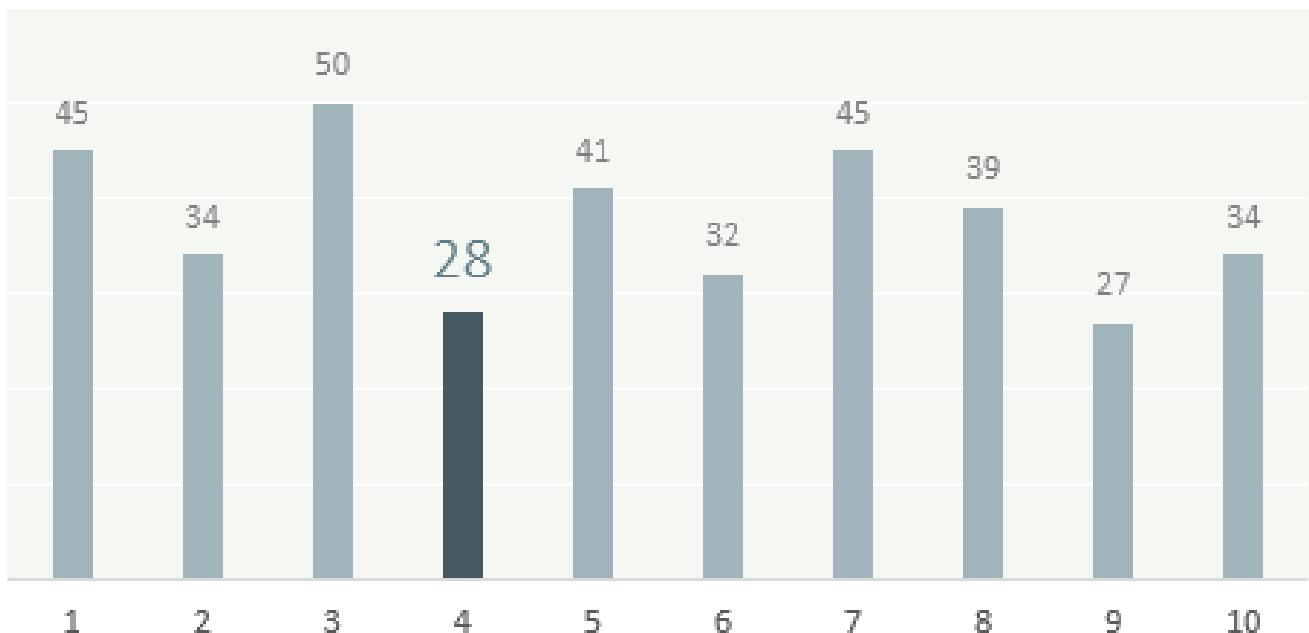
SECTION 7

SECTION 7: CRAFT AN IMPACTFUL NARRATIVE

ANALYTICS VALUE CHAIN

Store	Sales	Revenue
1	2900	130500
2	3950	134300
3	4559	227950
4	2788	78064
5	2417	99097
6	3062	97984
7	4925	221625
8	4917	191763
9	4164	112428
10	4047	137598

Store 4 Selling Units for \$28



YOUR NOTES

SECTION 7: CRAFT AN IMPACTFUL NARRATIVE

ANALYTICS VALUE CHAIN

SECTION 7

SECTION 7: CRAFT AN IMPACTFUL NARRATIVE

DATA NARRATIVES

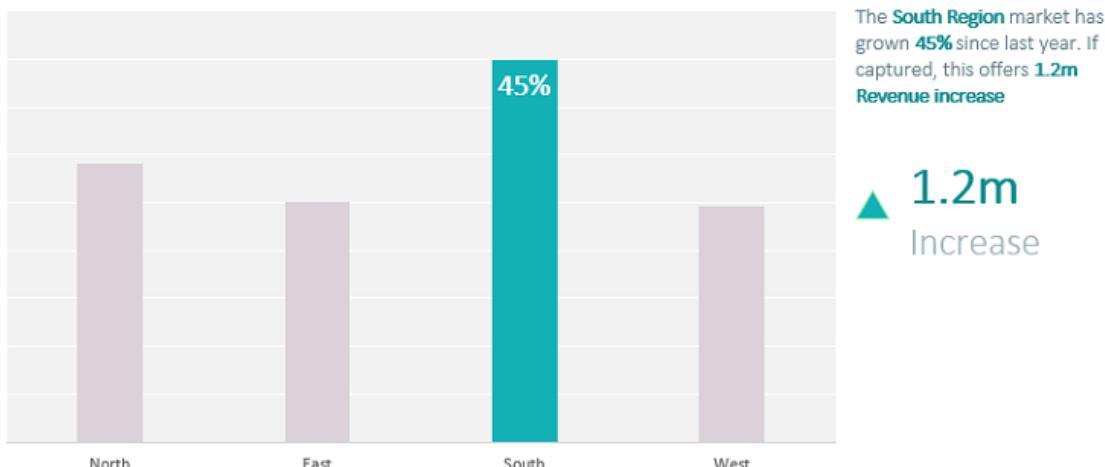
THE UNDERDOG

New Campaign Beats Seasonal Slump



REDEMPTION

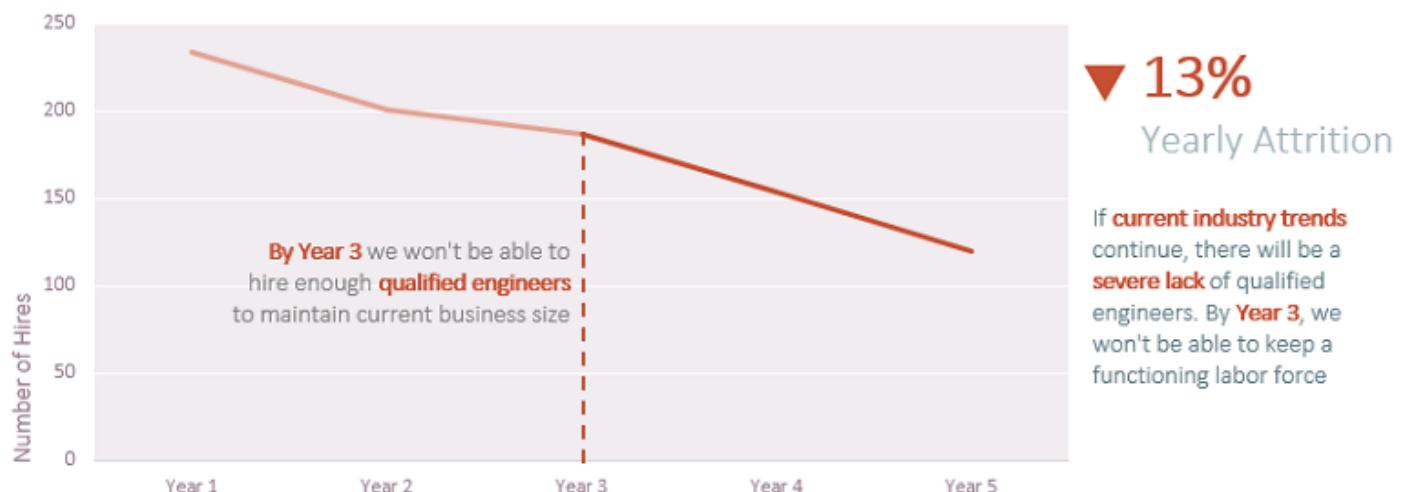
South Region Offers Big Potential for Growth



SECTION 7

BETRAYAL

Lack of Qualified Engineers Impacts Business



VICTORY

Compliance Rate

1.4%

2.6%
Above Target

1.3%
Above Last Year

TRAGEDY

Online Registrations
against last month

51%

63%

Below Target

12.3%

Decrease in
Customer Base

YOUR NOTES

SECTION 7: CRAFT AN IMPACTFUL NARRATIVE

DATA NARRATIVES

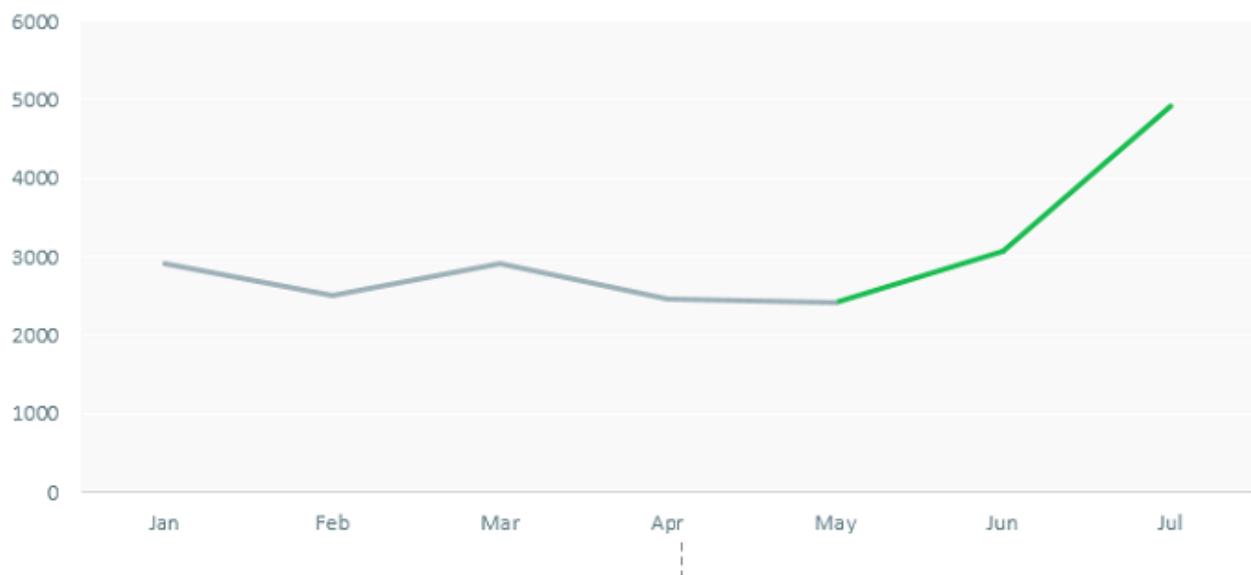
SECTION 7

SECTION 7: CRAFT AN IMPACTFUL NARRATIVE

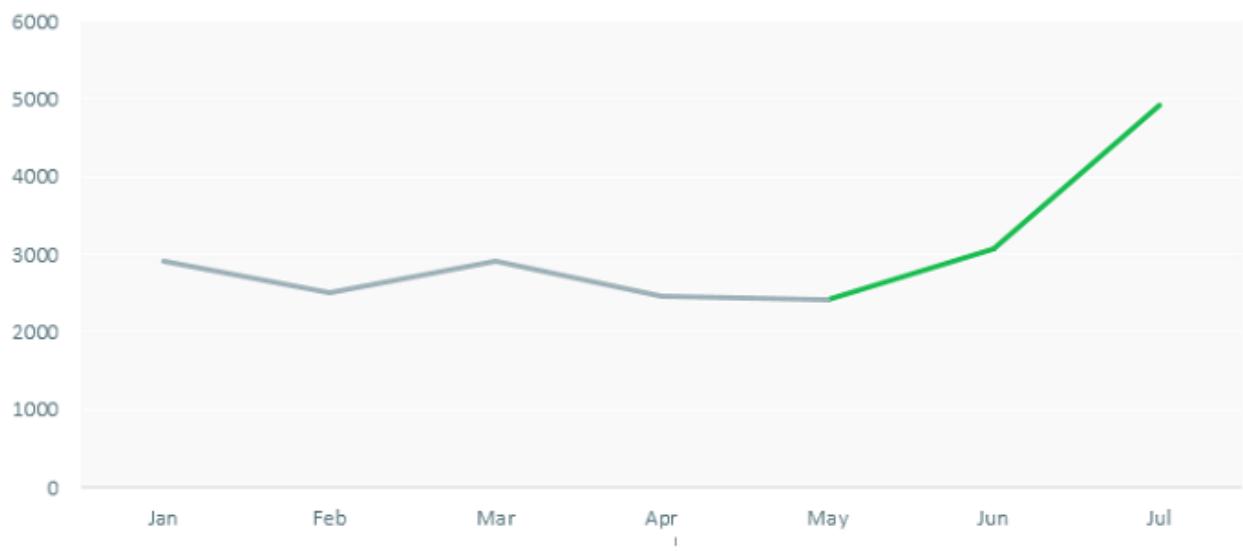
TURNING YOUR VISUALISATION INTO A STORY

TITLES

New Campaign Beats Seasonal Slump



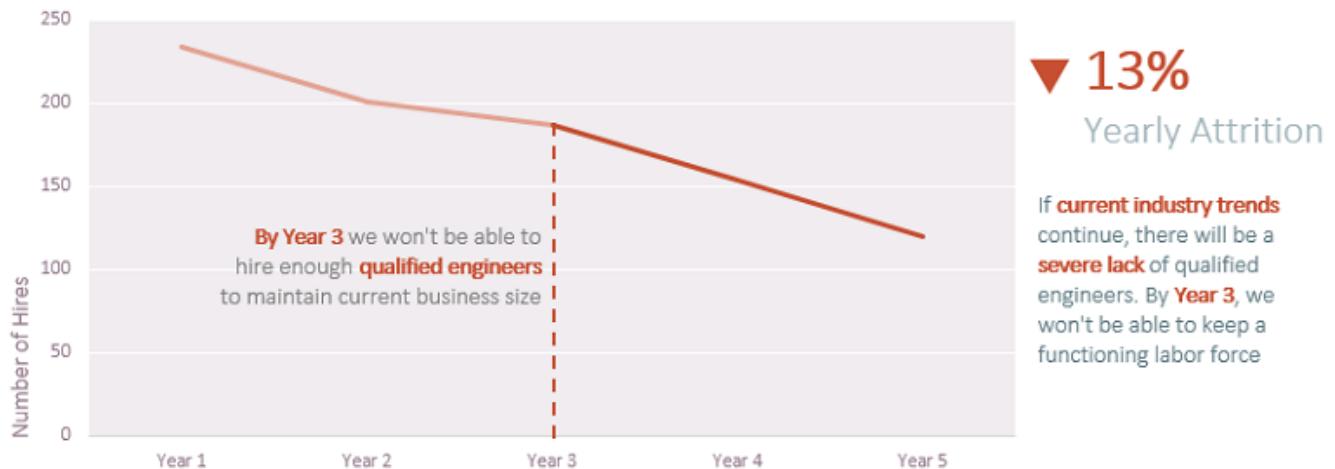
Sales per month from Jan to Jul



SECTION 7

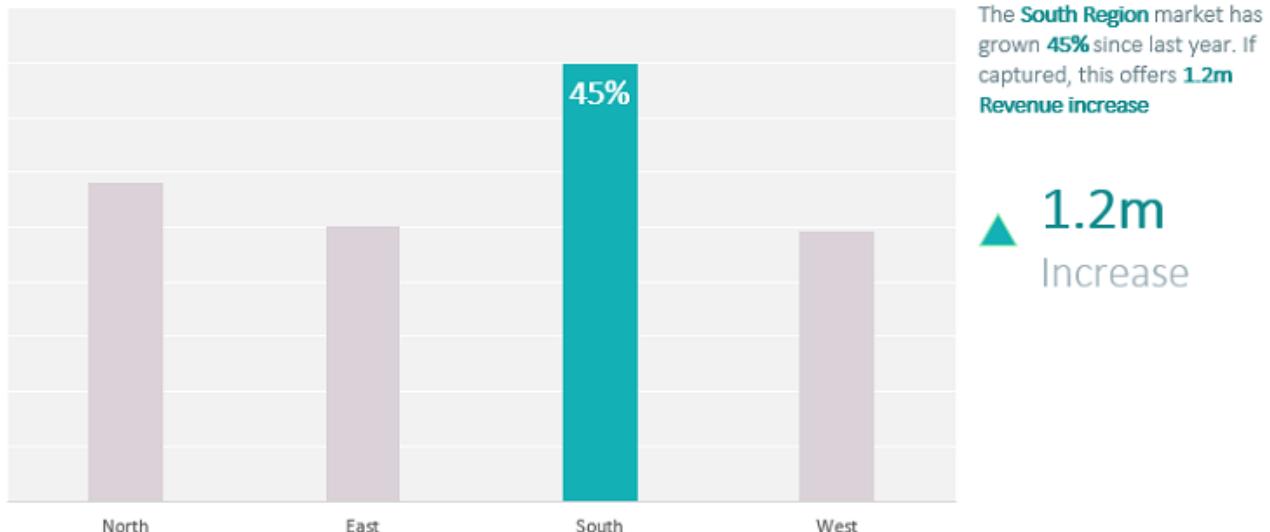
CALLOUTS

Lack of Qualified Engineers Impacts Business



INDICATORS

South Region Offers Big Potential for Growth



SECTION 7

SECTION 7: CRAFT AN IMPACTFUL NARRATIVE

TURNING YOUR VISUALISATION INTO A STORY

SECTION 8

SECTION 8: BRINGING IT ALL TOGETHER

6 STEPS TO CREATING VISUALIZATION

WHAT'S YOUR POINT?

PICK YOUR VISUALIZATIONS

EDIT FOR CLARITY

SECTION 8

FORMAT FOR IMPACT

FORMAT FOR NARRATIVE

WHAT'S NEXT?

CASE STUDY 1

Company has 7 stores that sell a lot of different products and each month a report is put together for management to summarises the month and the main KPIs



Monthly Report - March

	Revenue Generated March
TOTAL	93.7
Store 1	12.9
Store 2	14.9
Store 3	17.1
Store 4	22.3
Store 5	14.3
Store 6	7.3
Store 7	4.9

	Revenue Generated Year to Date
TOTAL	280
Store 1	38.4
Store 2	43.7
Store 3	50.4
Store 4	67.4
Store 5	45.2
Store 6	18.9
Store 7	16

Highest Rev Store
Store 4

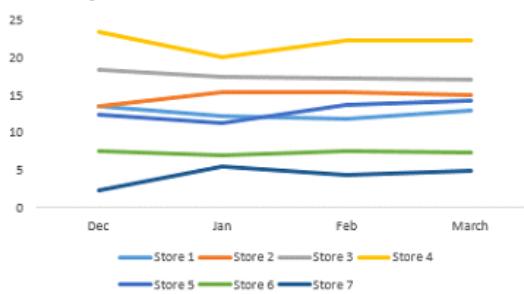
Lowest Rev Store
Store 7

Total Products
19102

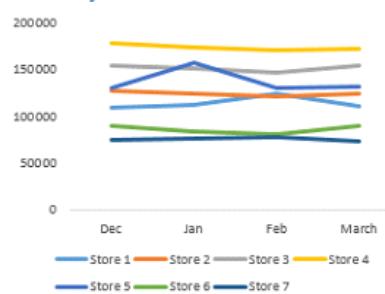
Total Loyalty Cus
27102

Sales (month)	Sales (year-to-date)	New Products	New Loyalty Customers	Customers (Month)	Customers (Year-to-Date)
854362	2563086	-	6651	402350	1207050
110493	331479	1304	1578	60434	181302
124498	373494	987	1194	72340	217020
154119	462357	1148	1389	80335	241005
172352	517056	834	1009	82334	247002
131045	393135	656	794	45933	137799
89044	267132	234	283	32569	97707
72811	218433	334	404	28405	85215

Monthly Revenue



Monthly Sales



Monthly Loyalty Customers



CASE STUDY 1

REVISION



Monthly Report
March

At a Glance

New monthly high for Loyalty Programme Sign-ups

Growth of Store 7 lacks momentum

Lowest Rev Store
Store 7

Total Products
19102

Highest Rev Store
Store 4

Total Loyalty Cus
27102

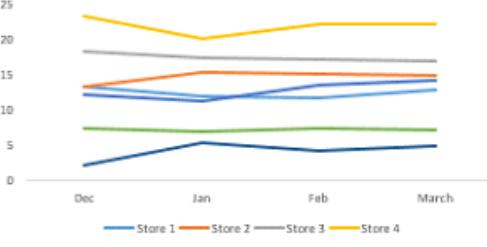
Store 7 Revenue remains low

6651 new Loyalty Customers

	Revenue Generated March	Revenue Generated Year-to-Date
TOTAL	93.7	280
Store 1	12.9	38.4
Store 2	14.9	43.7
Store 3	17.1	50.4
Store 4	22.3	67.4
Store 5	14.3	45.2
Store 6	7.3	18.9
Store 7	4.9	16

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854362	2563086	-	6651	402350	1207050	
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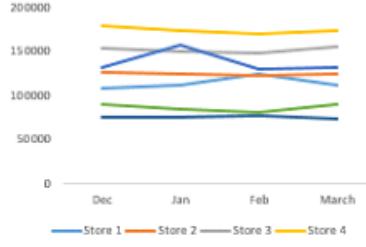
Monthly Revenue



Dec Jan Feb March

Store 1 — Store 2 — Store 3 — Store 4 —
Store 5 — Store 6 — Store 7 —

Monthly Sales



Dec Jan Feb March

Store 1 — Store 2 — Store 3 — Store 4 —
Store 5 — Store 6 — Store 7 —

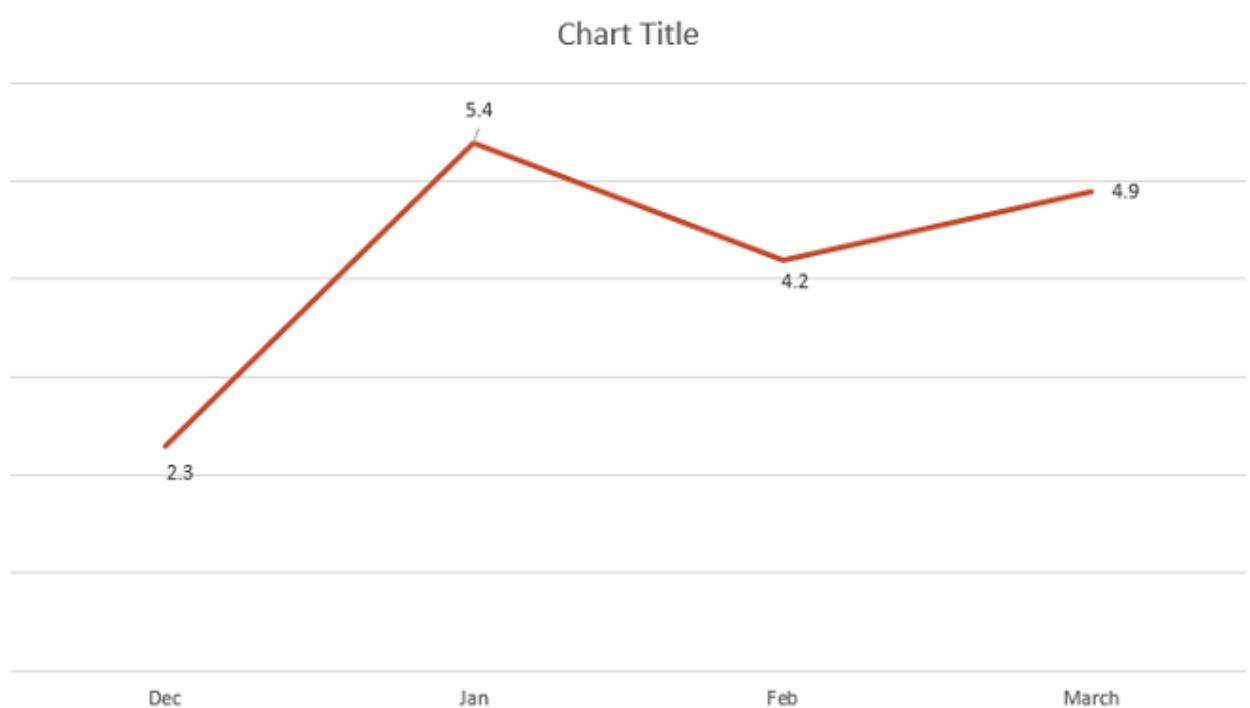
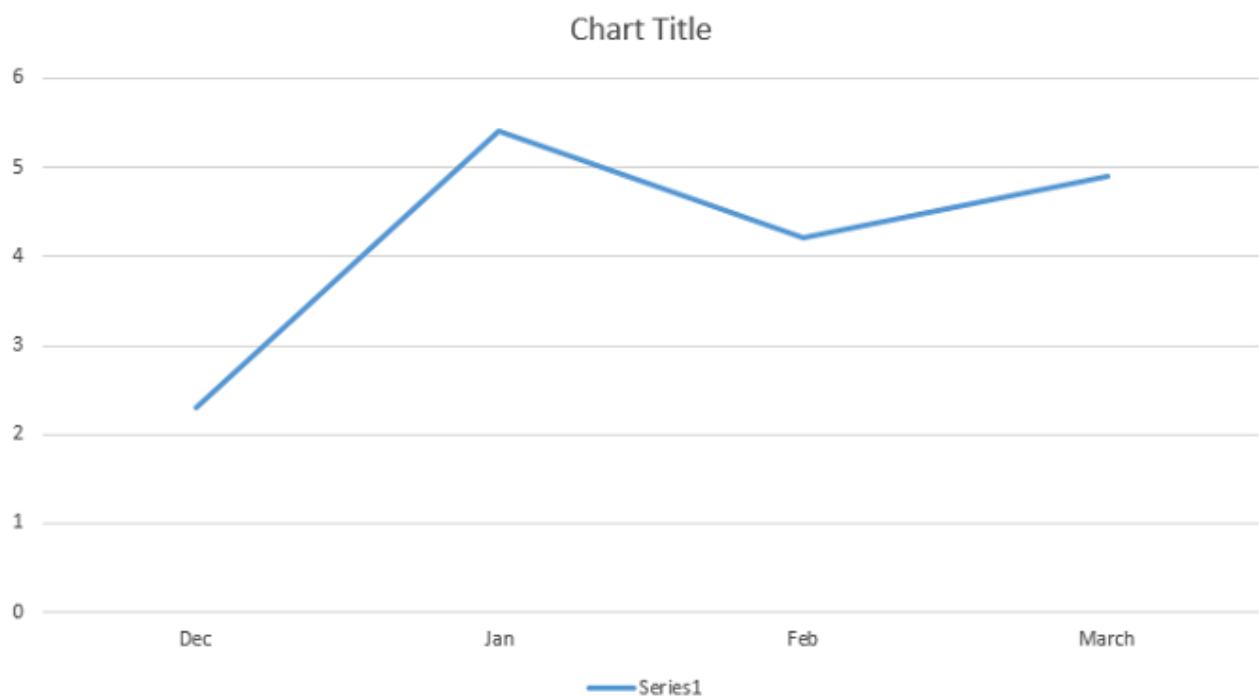
Monthly Loyalty Customers



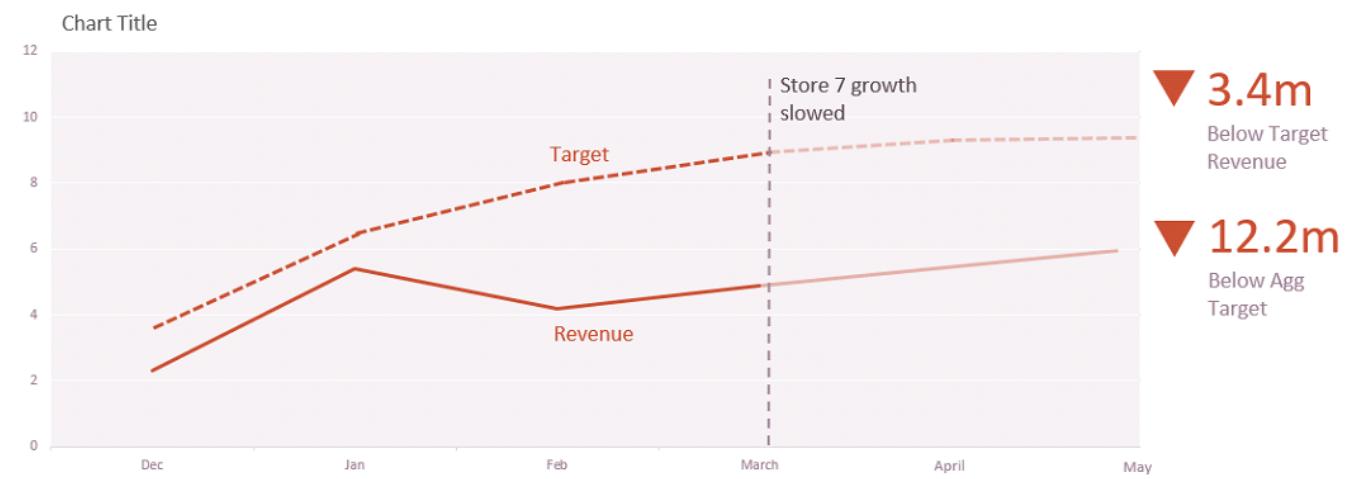
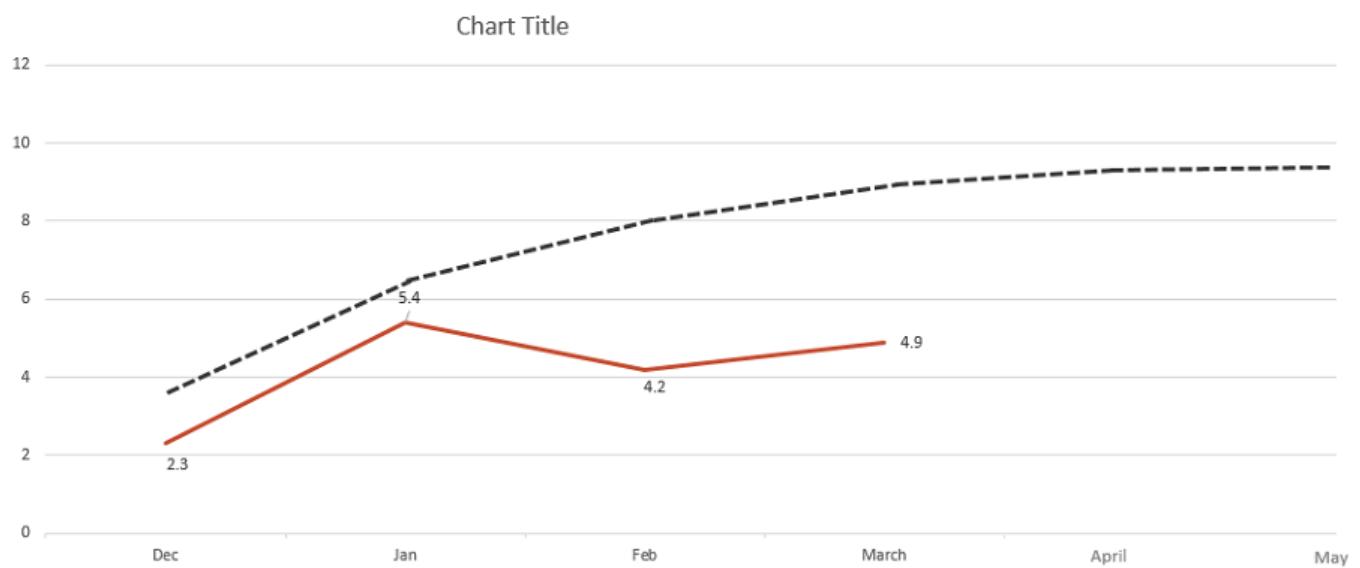
Dec Jan Feb March

Store 1 — Store 2 — Store 3 — Store 4 —
Store 5 — Store 6 — Store 7 —

CASE STUDY 1

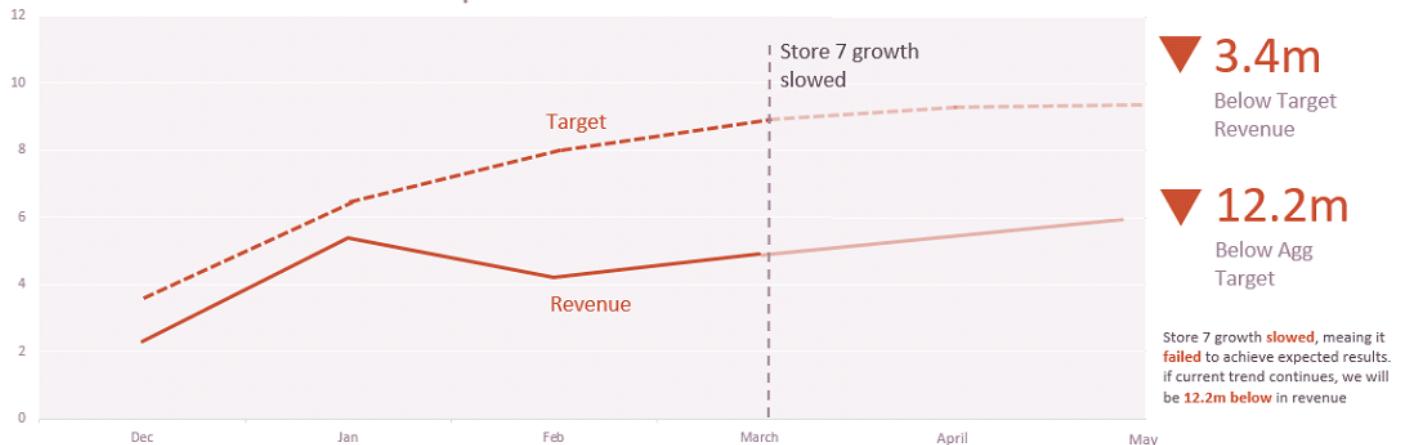


CASE STUDY 1



CASE STUDY 1

Store 7 Fails to Achieve Expected Results



Monhtly Record
New Loyalty Customers

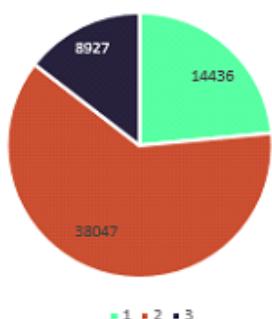
6651

27102
Total
3411
Monthly Average

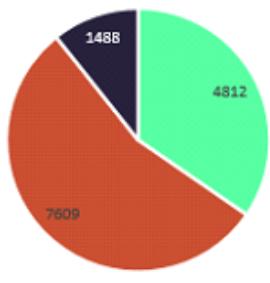
CASE STUDY 2

The organisation ran 3 new campaigns for 10 weeks. They wanted to review each of the campaigns, and select the best one to keep running for additional weeks. So they wanted to end two campaigns and just run with the best one. After they got the report from the media company – it had a clear recommendation, but the full dataset they got, made them second guess the report. So they turned to me to get to the bottom of it, and recommend the best campaign.

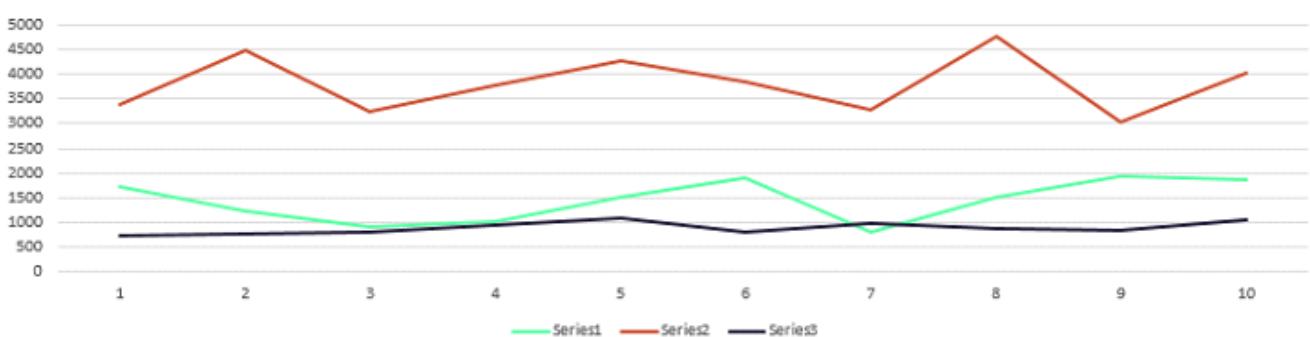
Views Per Campaign



Clicks Per Campaign



Views Per Week



Cost Per Click



Cost Per Campaign

Campaign 1 **125000**

Campaign 2 **135000**

Campaign 3 **155000**

CASE STUDY 2

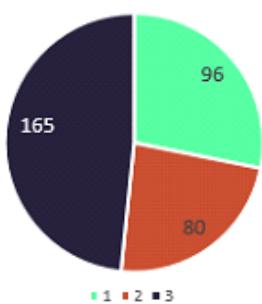
	Campaign 1			Campaign 2			Campaign 3		
	Views	Clicks	Applications	Views	Clicks	Applications	Views	Clicks	Applications
Week 1	1738	579	12	3376	675	7	749	125	14
Week 2	1222	407	8	4460	892	9	773	129	14
Week 3	914	305	6	3250	650	7	804	134	15
Week 4	1014	338	7	3761	752	8	958	160	18
Week 5	1509	503	10	4275	855	9	1099	183	20
Week 6	1910	637	13	3852	770	8	794	132	15
Week 7	790	263	5	3281	656	7	993	166	18
Week 8	1513	504	10	4757	951	10	883	147	16
Week 9	1946	649	13	3021	604	6	831	139	15
Week 10	1880	627	13	4014	803	8	1043	174	19

Cost	125000
Cost per Click	25.98

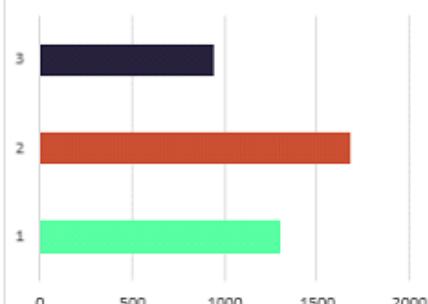
Cost	135000
Cost per Click	17.74

Cost	155000
Cost Per Click	104.18

Applicants Per Campaign



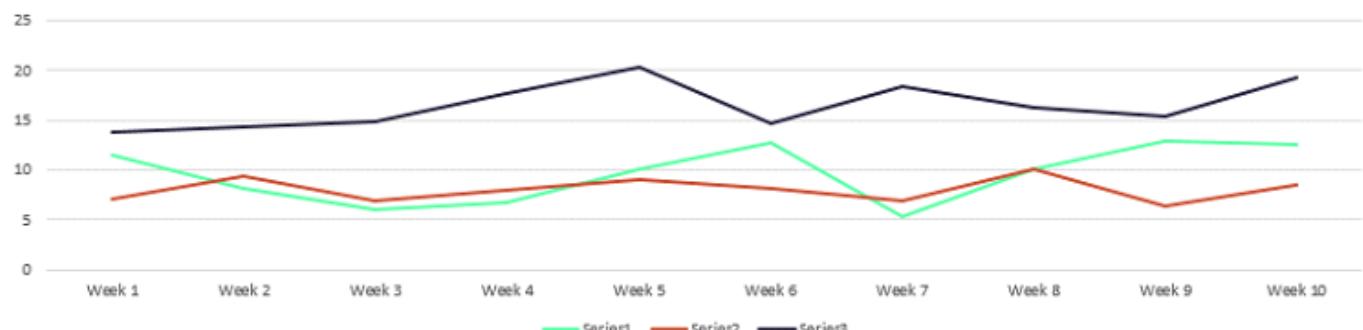
Cost Per Applicant



Cost Per Campaign

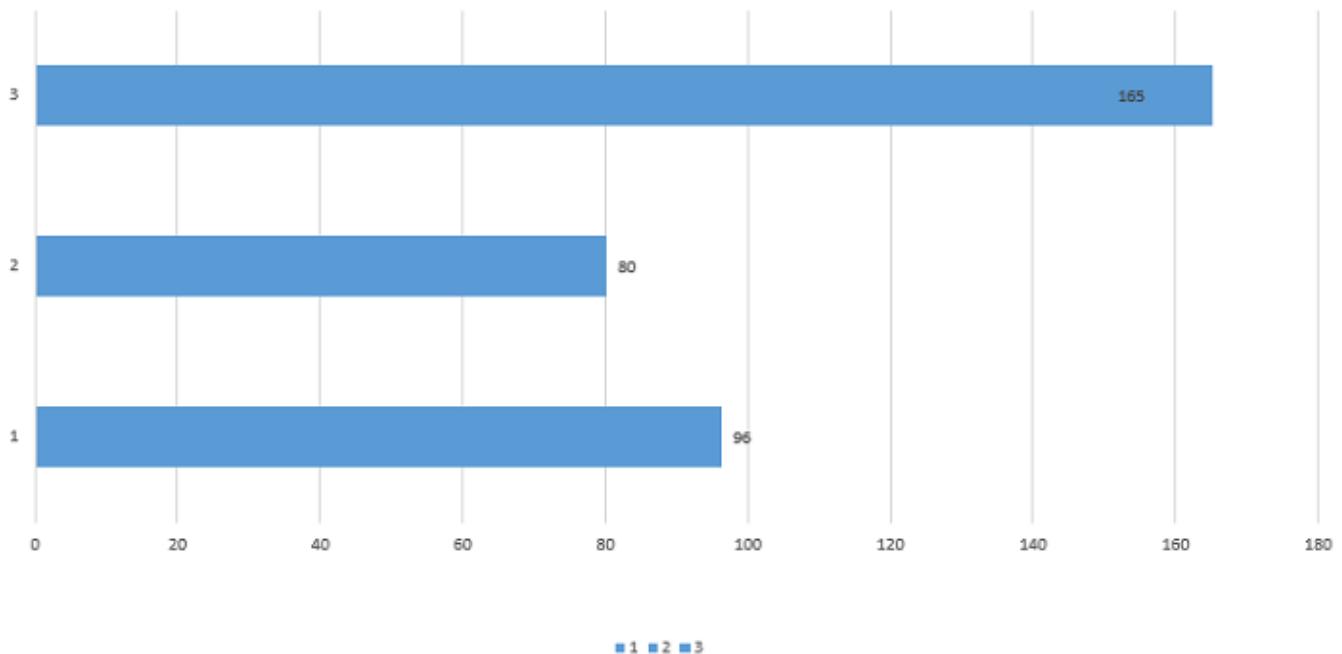
Campaign 1 **125000**
Campaign 2 **135000**
Campaign 3 **155000**

Applicants Per Week

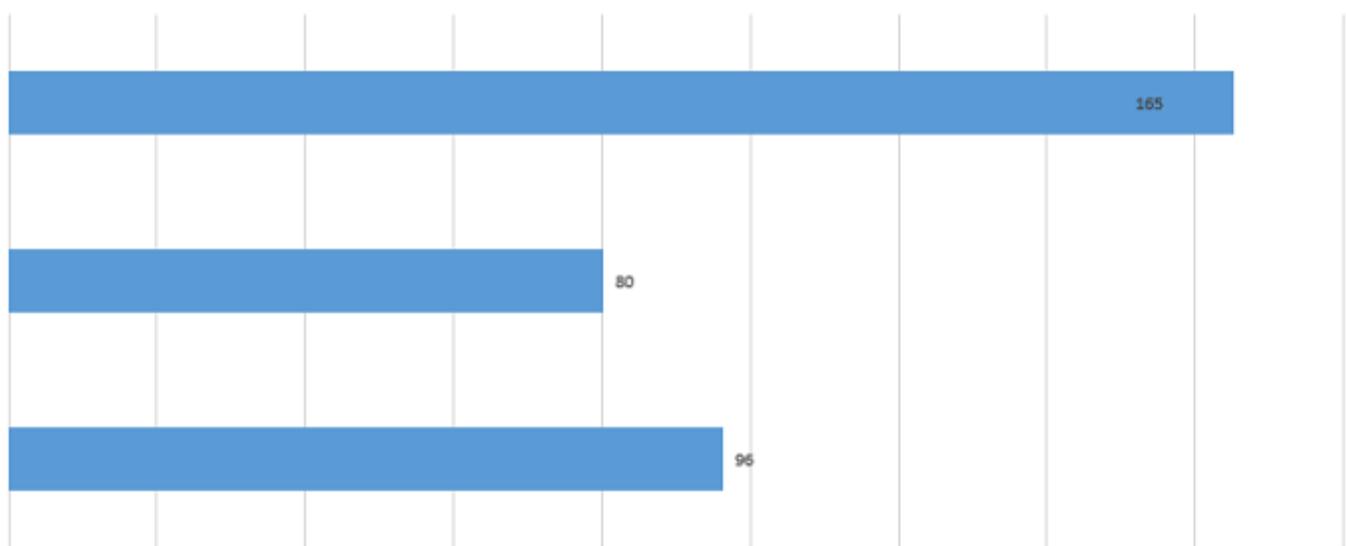


CASE STUDY 2

Applicants Per Campaign

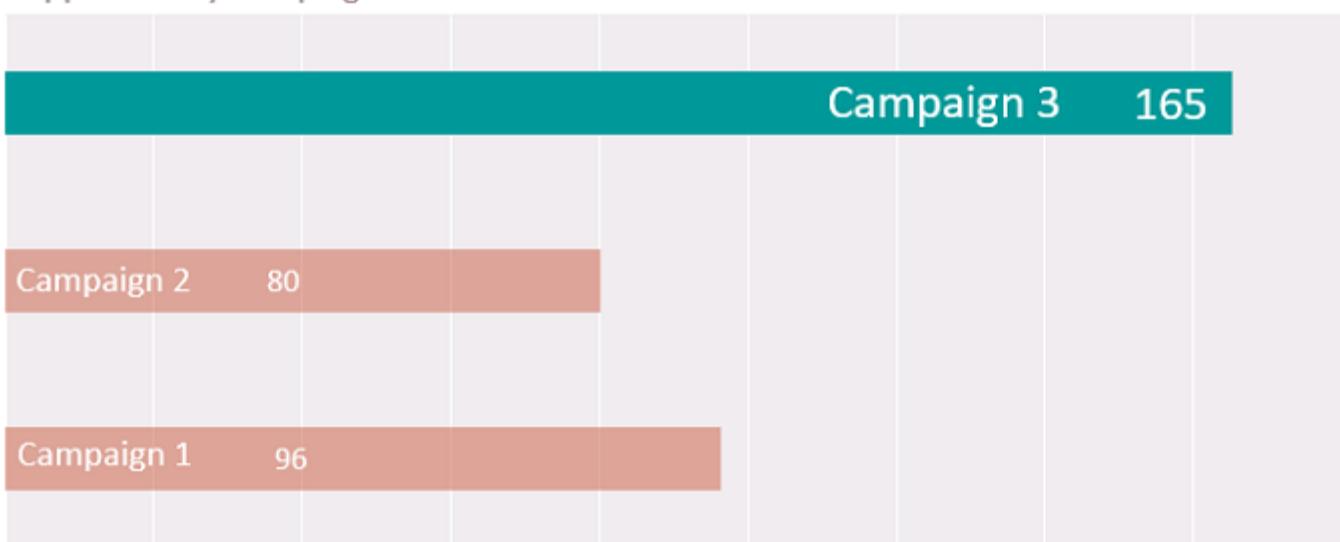


Applicants Per Campaign

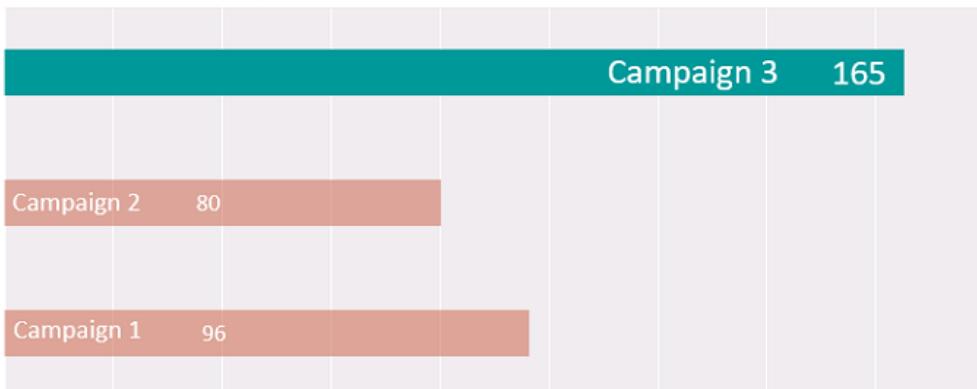


CASE STUDY 2

Applicants by Campaign



Applicants by Campaign



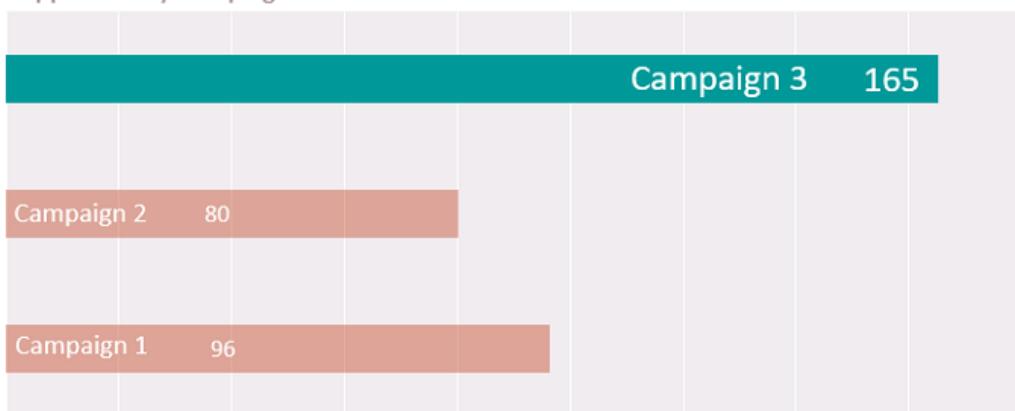
Cost-Per-Applicant

\$937 Campaign 3

\$1685 Campaign 2 **\$1298** Campaign 1

Continue with **Campaign 3**

Applicants by Campaign



Cost-Per-Applicant

\$937 Campaign 3

\$1685 Campaign 2 **\$1298** Campaign 1

Campaign 3 achieved the most success with **number** of applicants and did so at the **least cost**

END