Effective Data Visualisation Design

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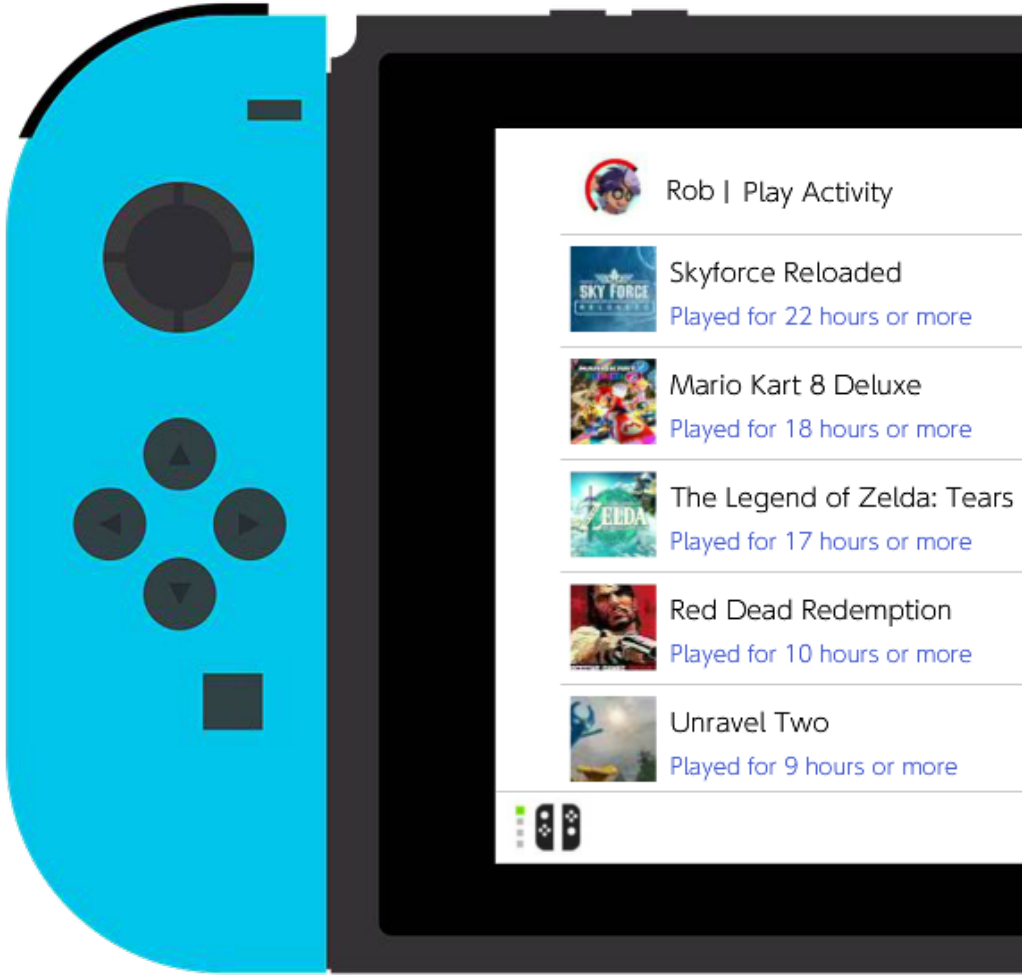
Absa Medium Articles

DATA IS EVERYWHERE

- In 2020 every person generated **1.7 megabytes** of data per second.
- Internet users generate about **2.5 quintillion bytes** of data a day.
- **97.2%** of organisations are investing in big data.
- **95%** of businesses say the need to extract insights is a problem.



WHAT IS DATA VISUALISATION DESIGN?

A set of techniques used to communicate data and information to an audience by use of visual objects.

WHAT IS DATA VISUALISATION DESIGN?

Wealth inequality has been increasing over the last 50 years.

DATA

MESSAGE

WEALTH INEQUALITY
1974 - 2024

PERC	1974	1984	1994	2004	2014	2024
01	-640	-755	-845	-980	-992	-999
02	-550	-640	-755	-845	-980	-992
03	-400	-550	-640	-755	-845	-980
04	-310	-399	-550	-640	-755	-845
05	-203	-202	-399	-550	-640	-755
06	-98	-87	-202	-399	-550	-640
07	-23	-19	-87	-202	-399	-550
08	0	0	0	0	0	0
09	55	58	59	62	66	68
10	69	55	58	59	62	66
11	180	69	55	58	59	62
12	235	180	69	55	58	59
13	399	235	180	69	55	58
14	605	399	235	180	69	55
15	954	605	399	235	180	69

WHAT IS DATA VISUALISATION DESIGN?

Wealth inequality has been increasing over the last 50 years.

DATA

MESSAGE

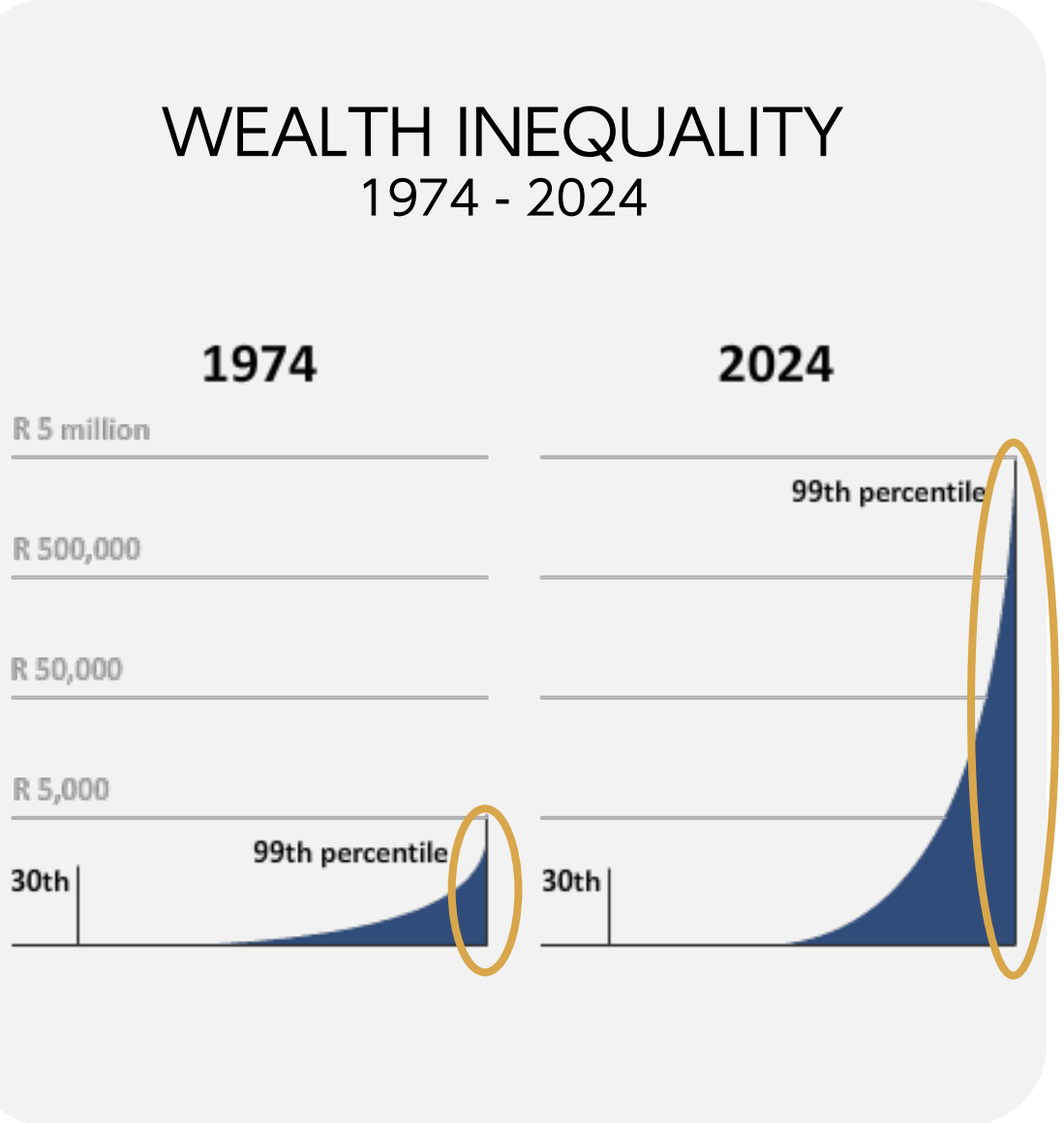
"Wealth inequality has risen by 7 times in the past 50 years"

WHAT IS DATA VISUALISATION DESIGN?

Wealth inequality has been increasing over the last 50 years.

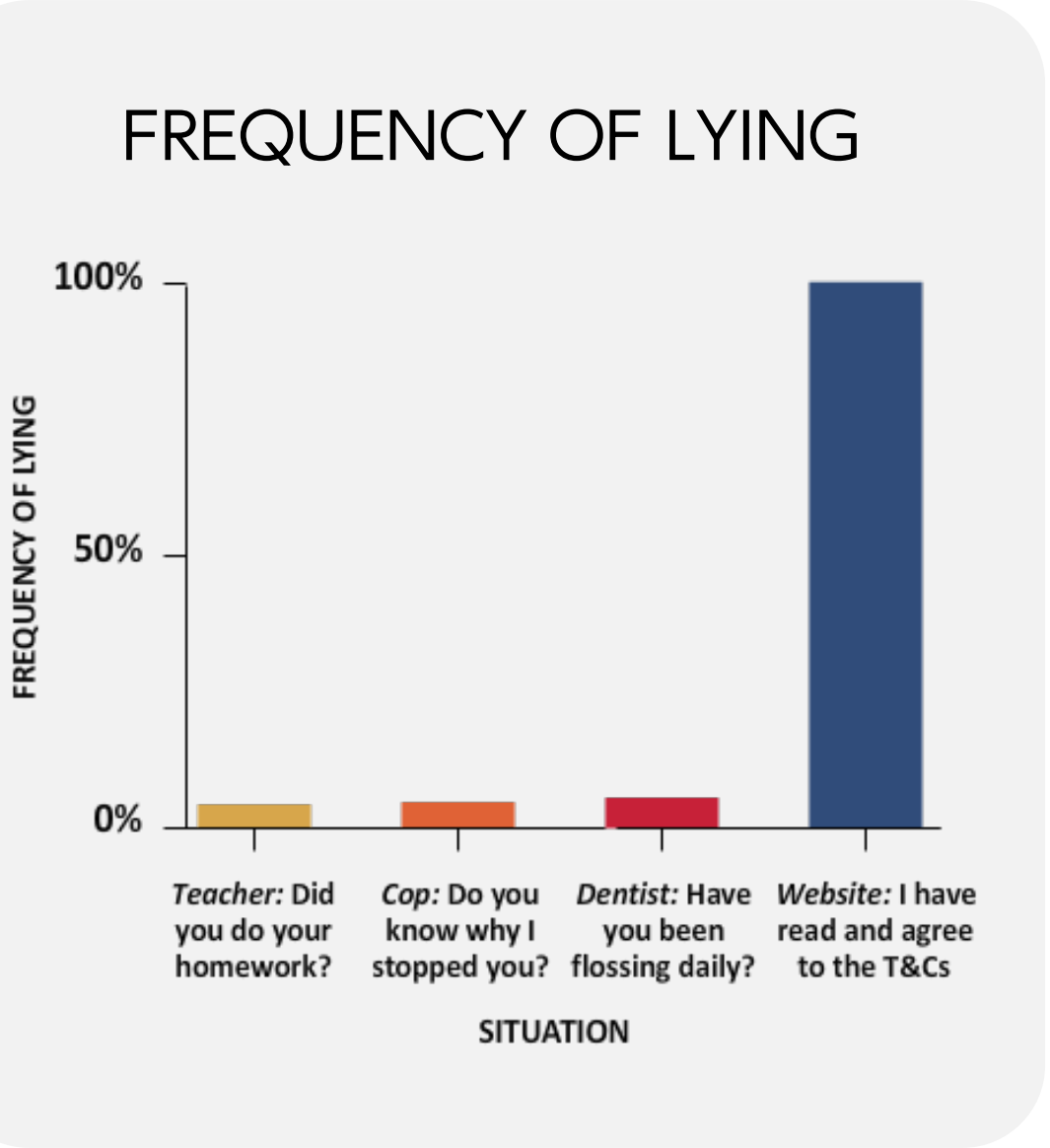
DATA

MESSAGE



WHAT IS DATA VISUALISATION DESIGN?

- A way to communicate data in a natural and effective way.
- A way to reveal information in a way that is impactful.
- A tool that helps the viewer to think about the content.
- A tool to lie about data and distort information – intentionally or unintentionally.



WHAT IS DATA VISUALISATION DESIGN?

> “Designers often fail to achieve a balance between design and function, creating gorgeous data visualisations which fail to serve their main purpose - to communicate information”

DATA VISUALISATION GONE WRONG

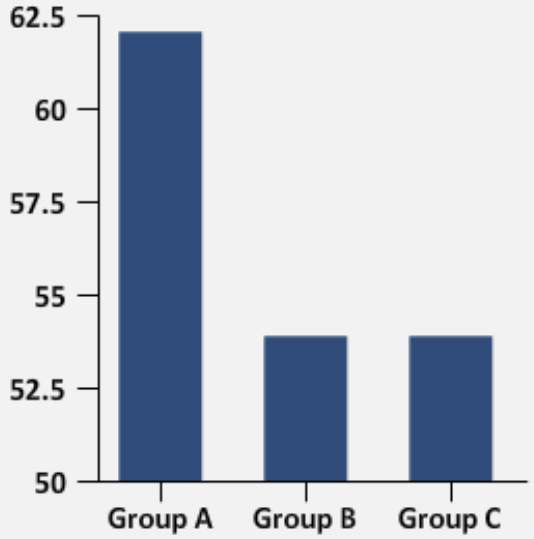
Leaving out the baseline

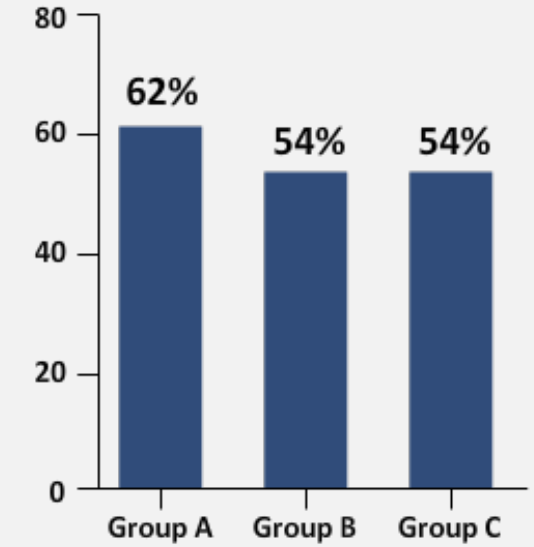
Manipulating the y axis

Cherry-picking data

Using the wrong graph

Going against conventions





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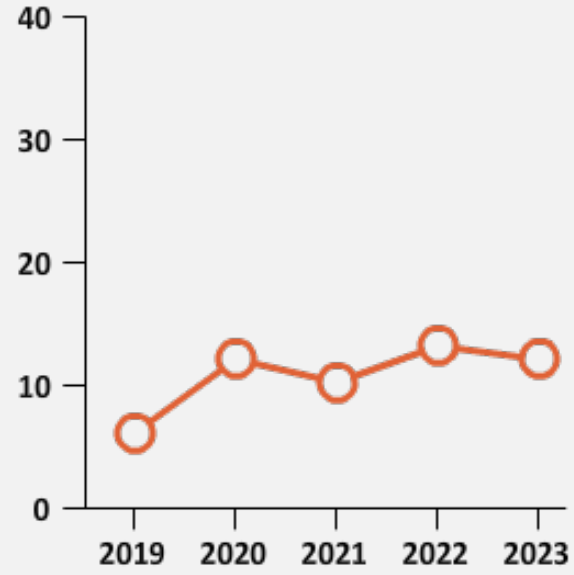

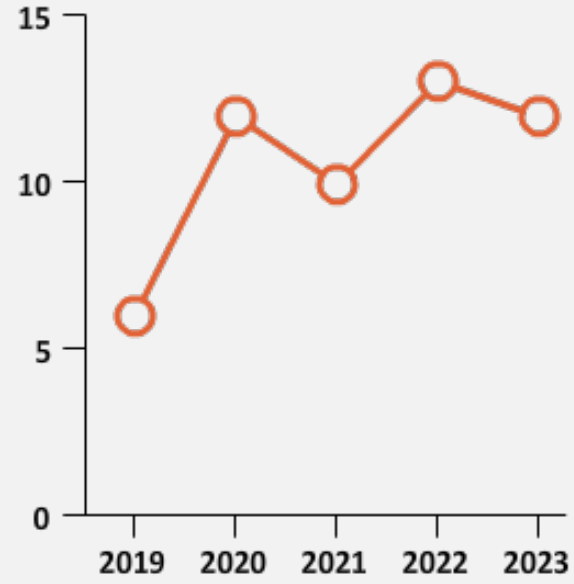

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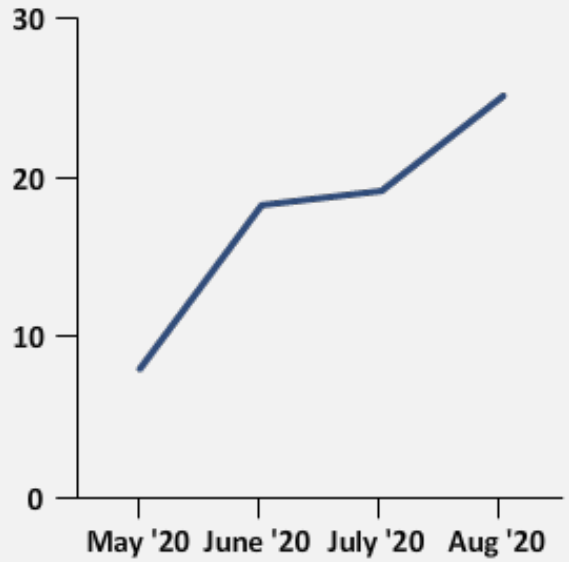

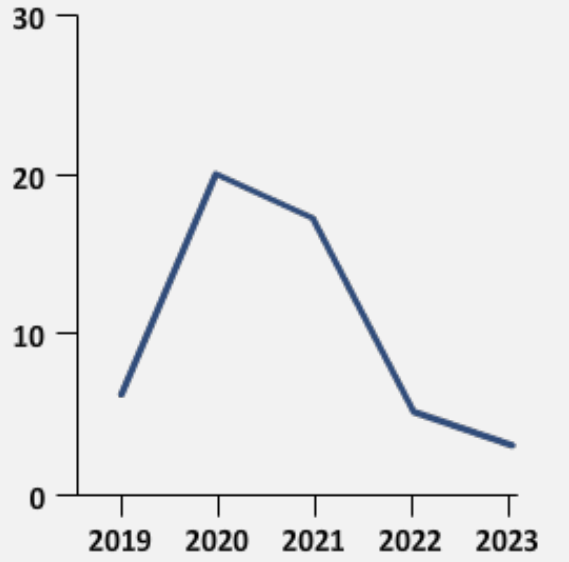

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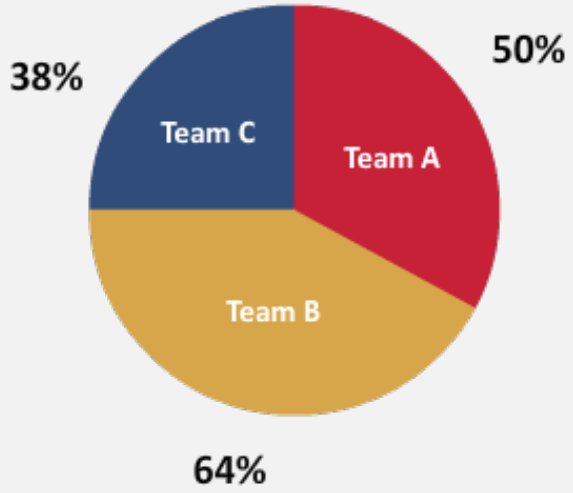

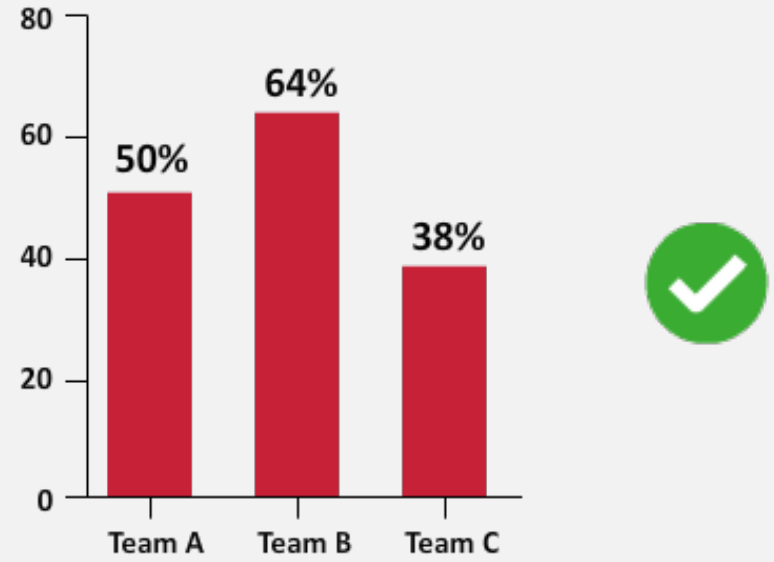

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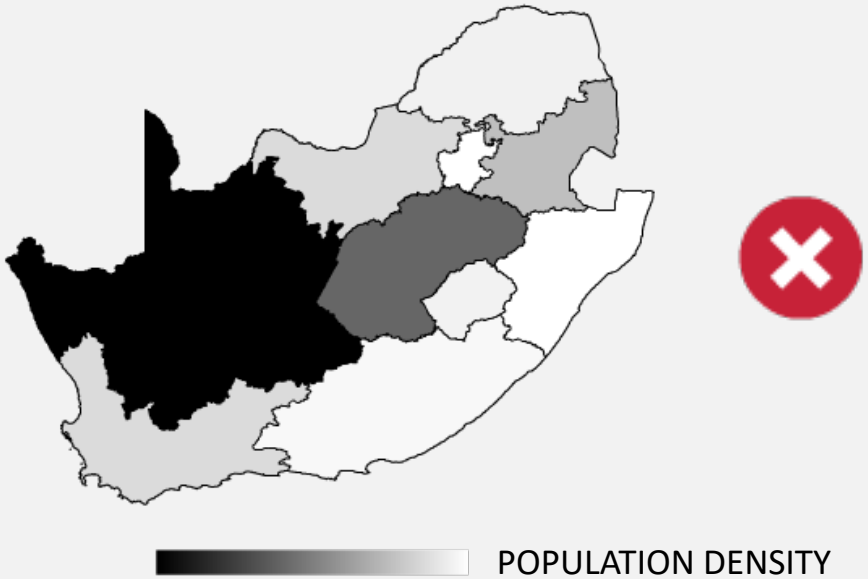
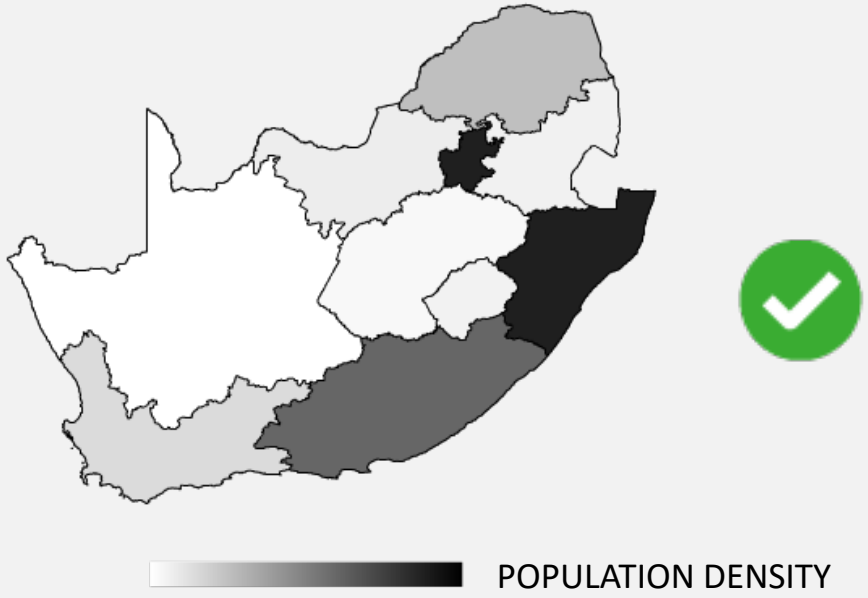




INTERNAL / EXTERNAL

Internal
Dashboards for the business

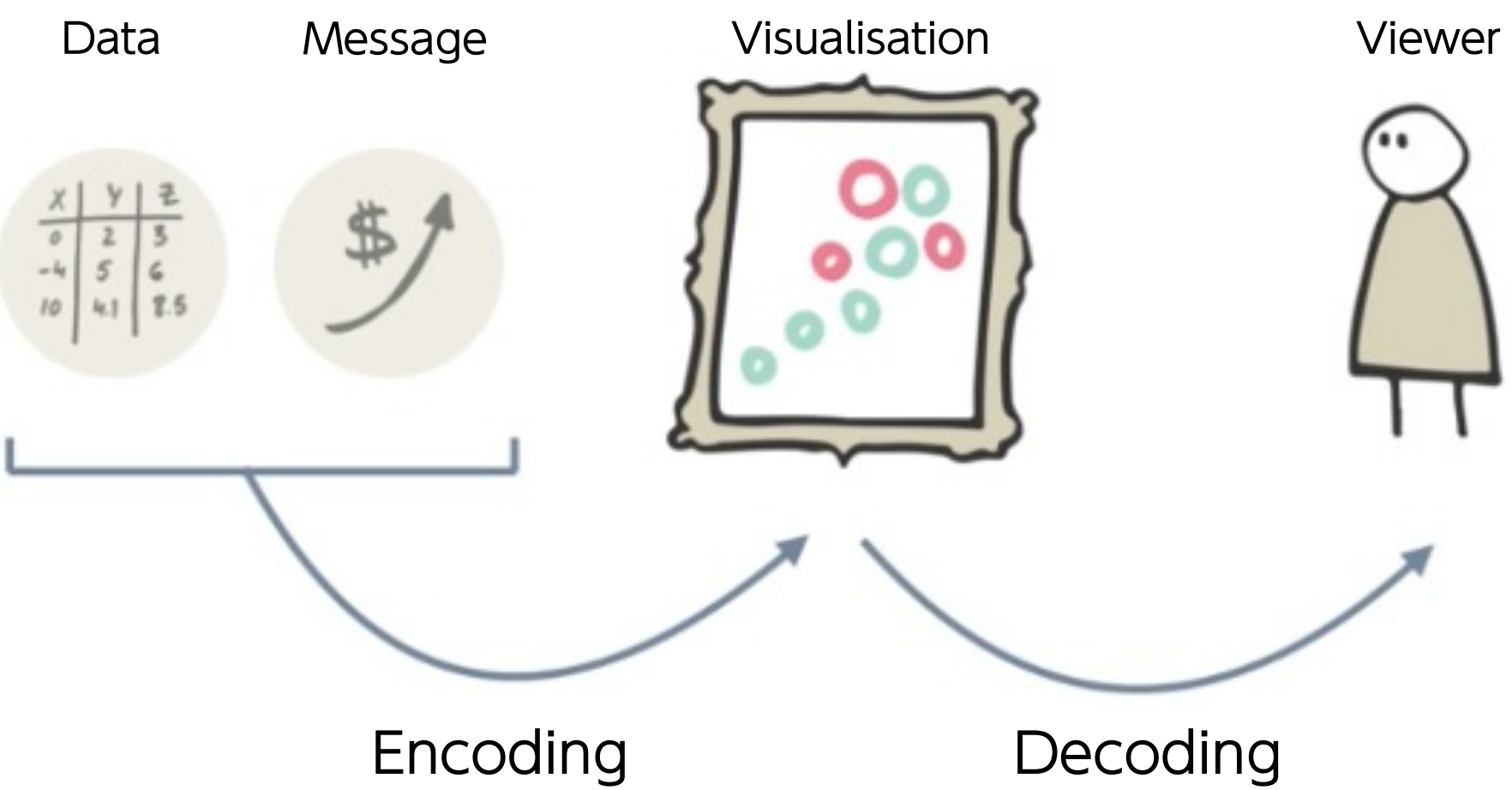
External
Dashboards for our customers

- Keep audiences engaged with the data so that we lay the foundation for successful decision-making.
- Convey information clearly and correctly to reduce the risk of error or misinterpretation.
- Present patterns and trends to enable informed decisions.

INTERNAL VIEWERS

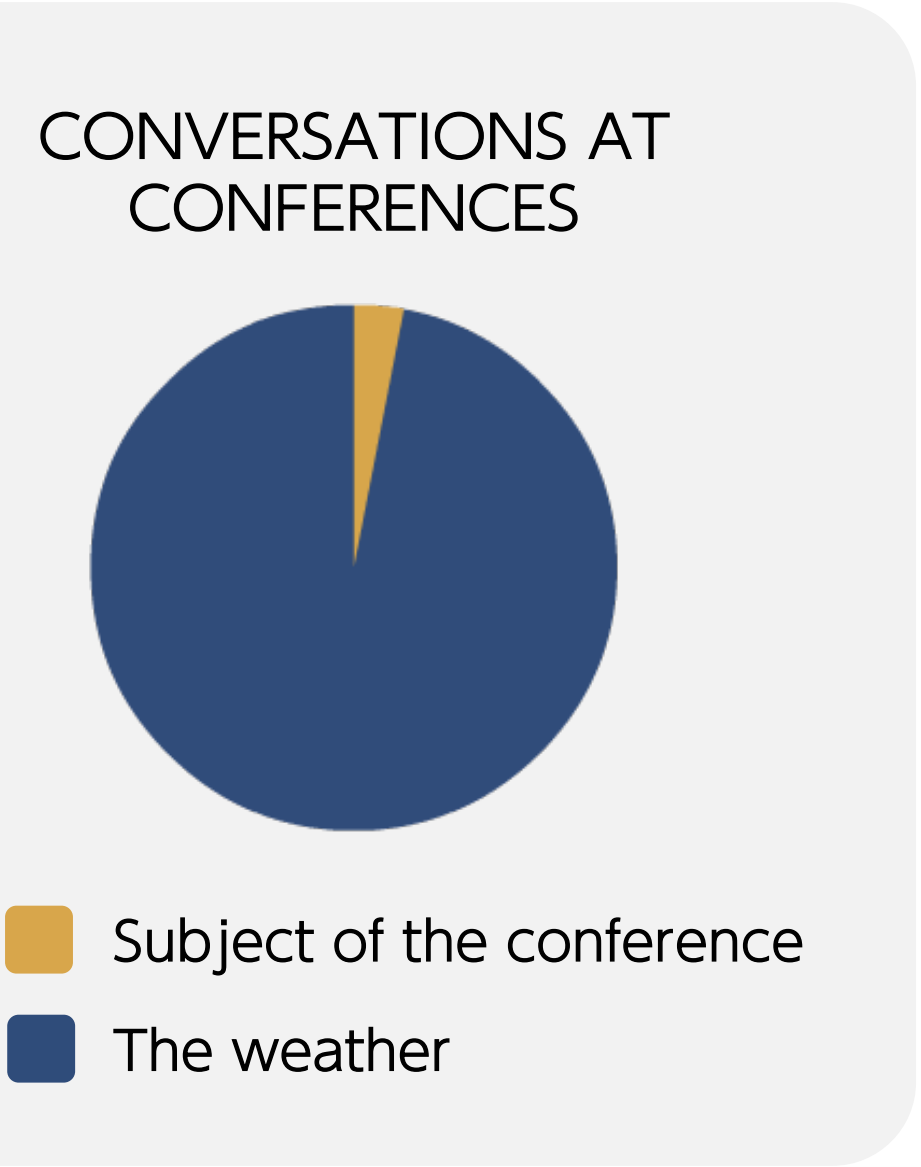
As designers our goal should be not just to deliver information, but to understand the context of the business so that we can deliver useful insights.

ENCODING / DECODING



FIVE QUESTIONS

1. What's the story?
2. Who is your audience?
3. How big is your data?
4. What is your data type?
5. How do elements relate?



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"...and this chart shows people clearly prefer bar graphs over pie charts."

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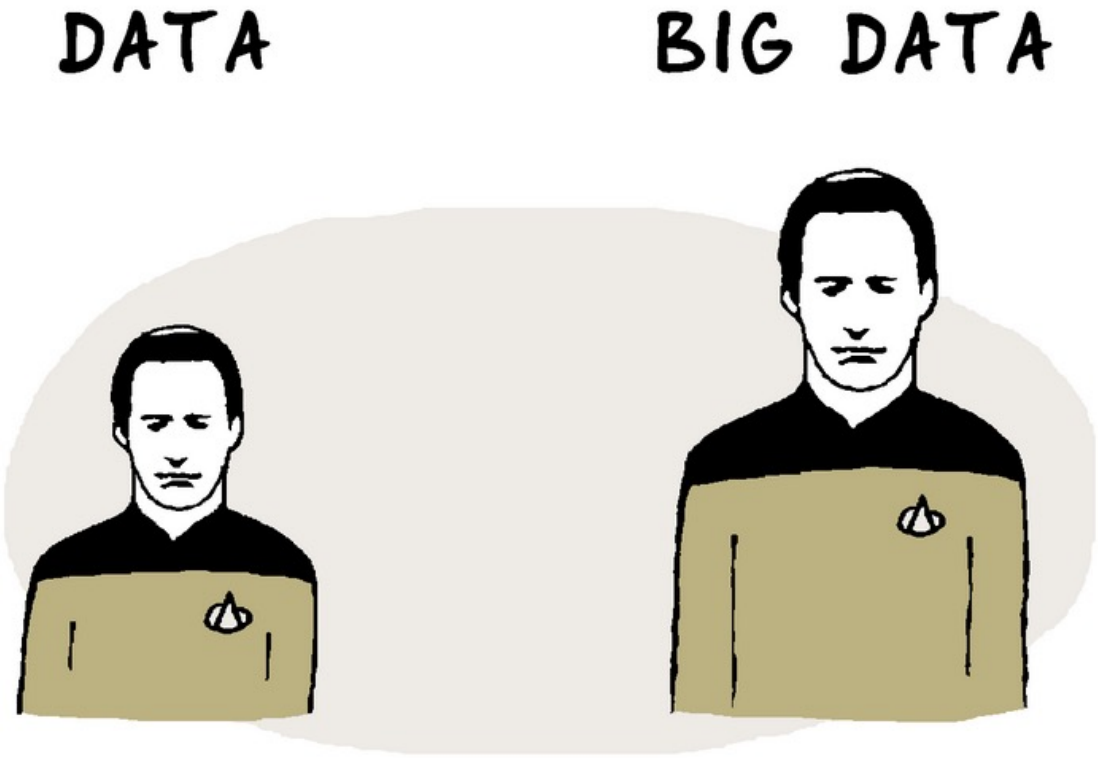

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ONE OF THE FEW GOOD REASONS TO USE A PIE CHART

Looks like Pac-Man

Does not look like Pac-Man

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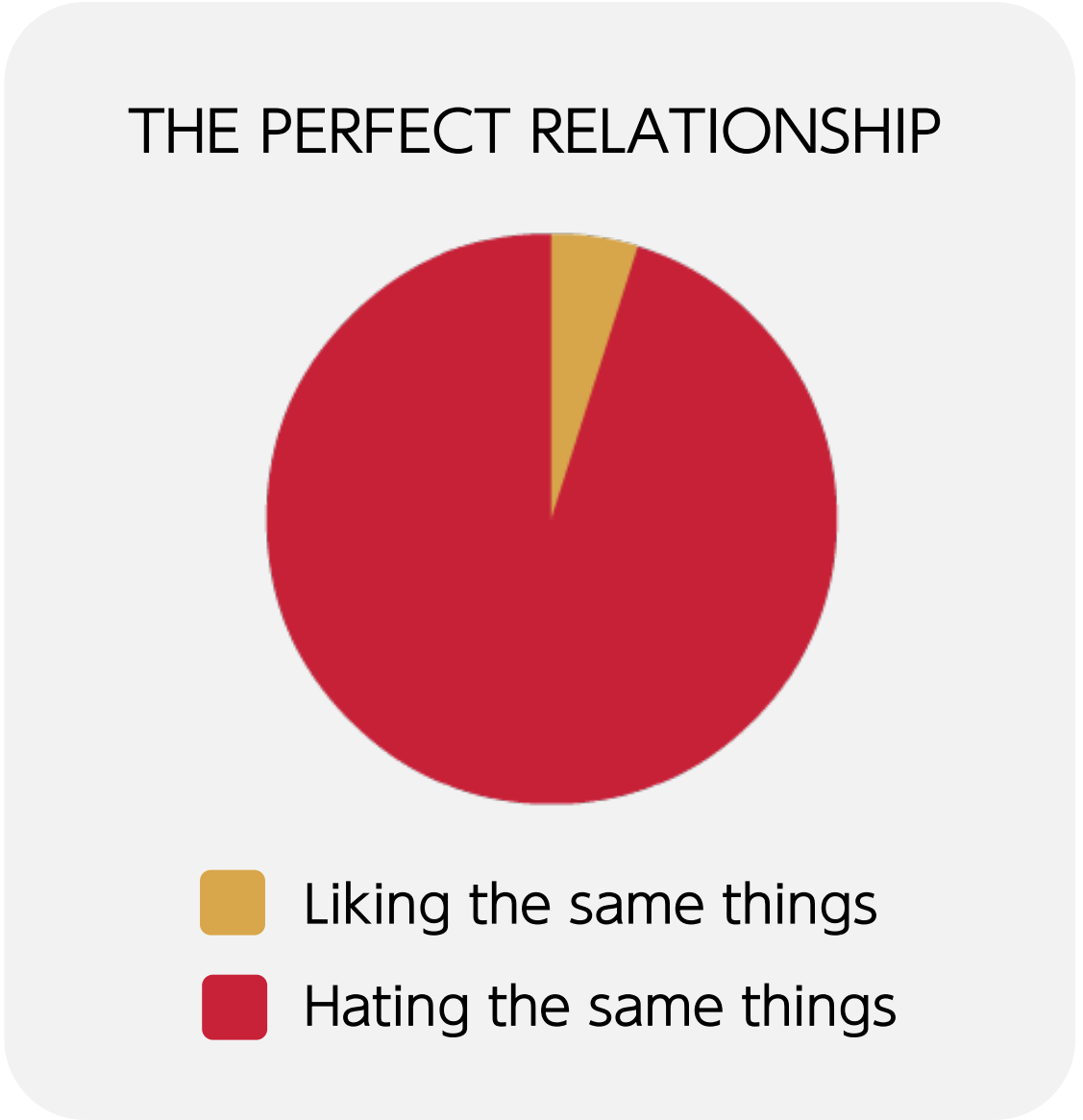

VISUALISATION GOALS

Inform

Compare

Show Relationships

Show Composition

Show Distribution

Allow Exploration

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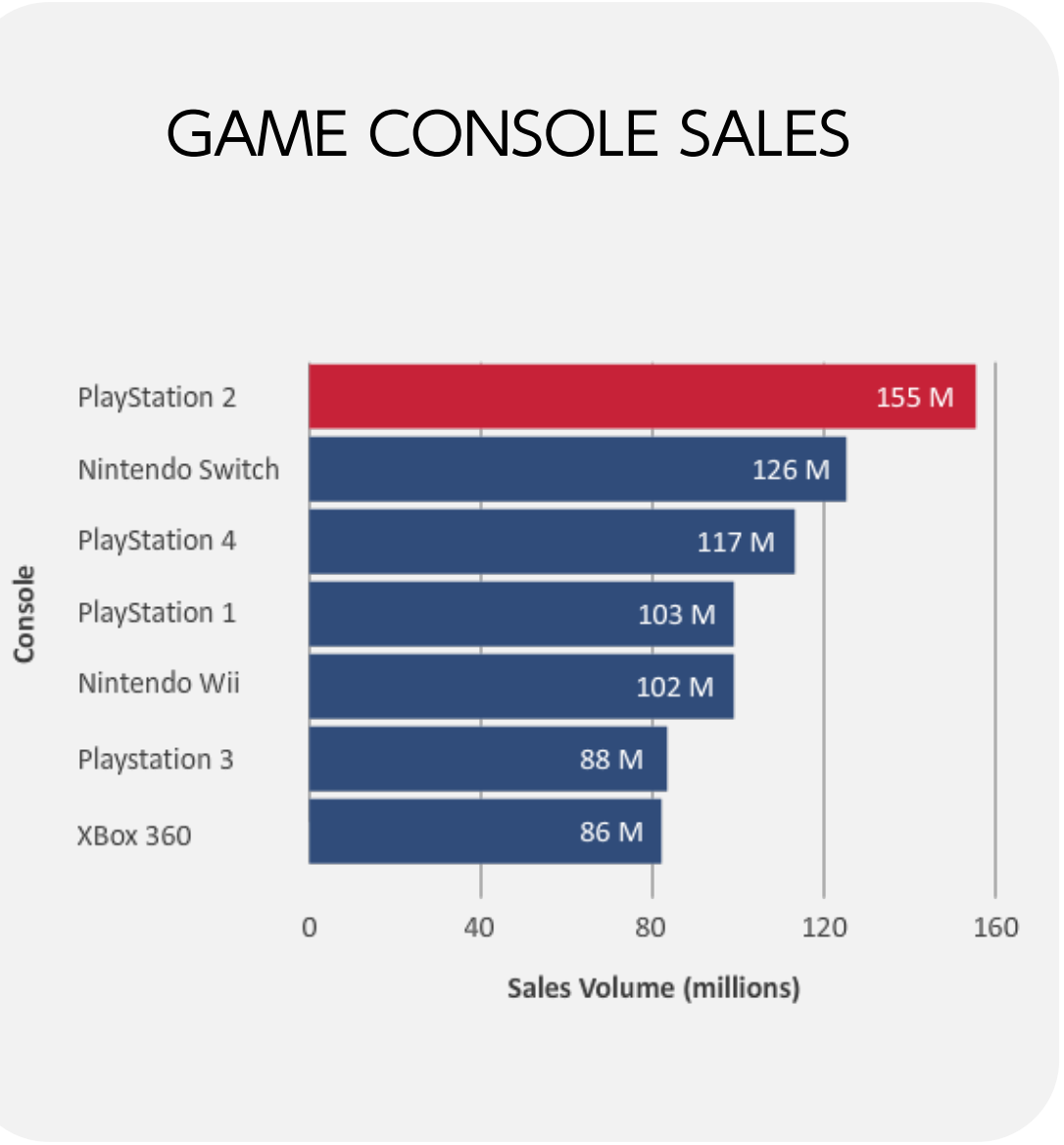

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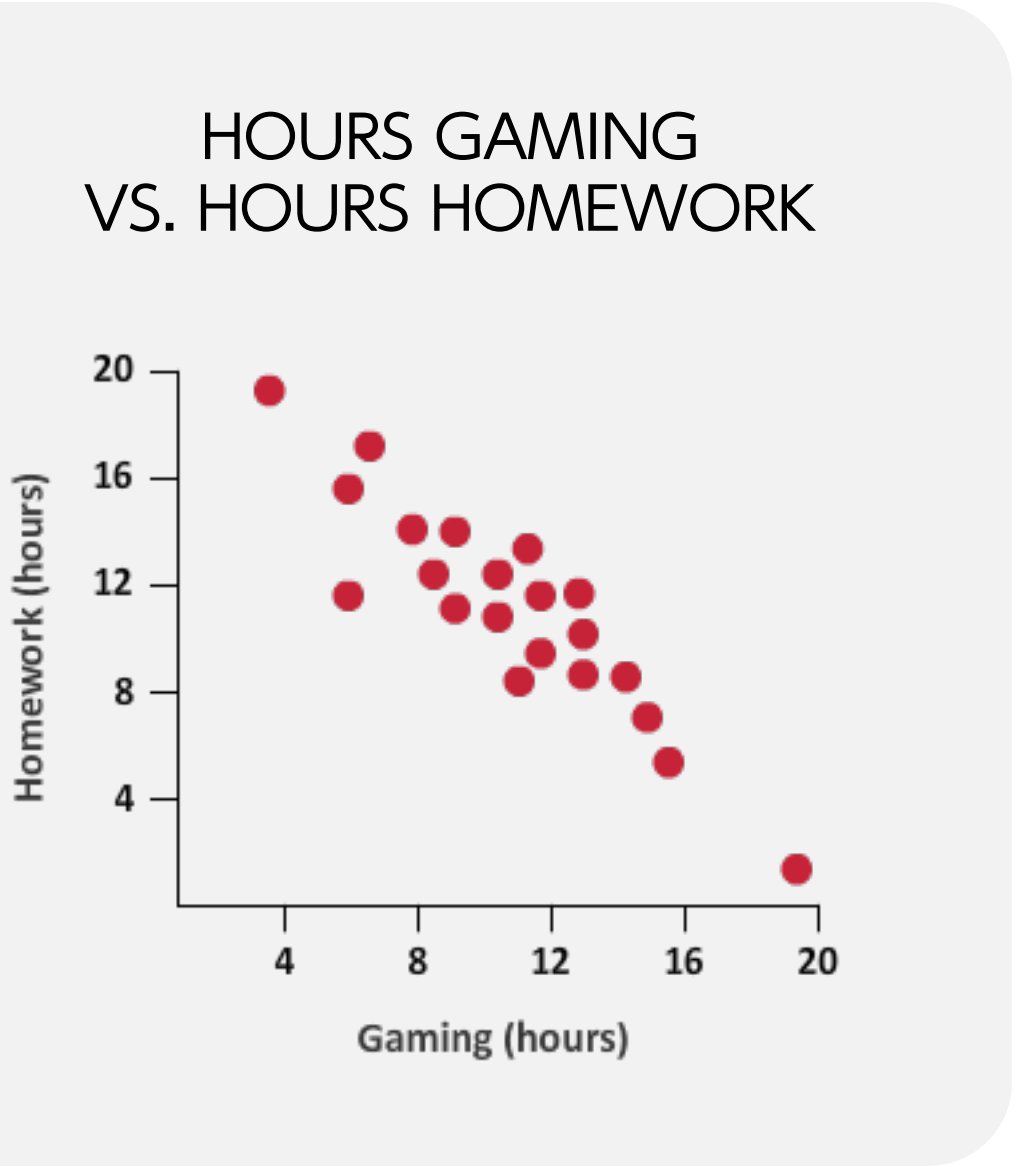

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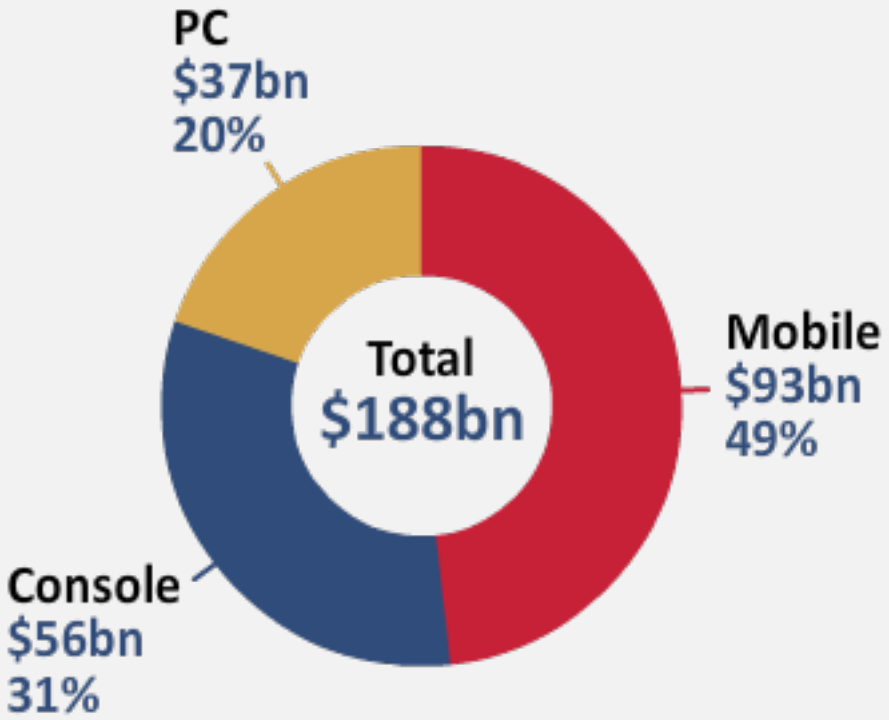
2023 GLOBAL GAMING REVENUE BY PLATFORM



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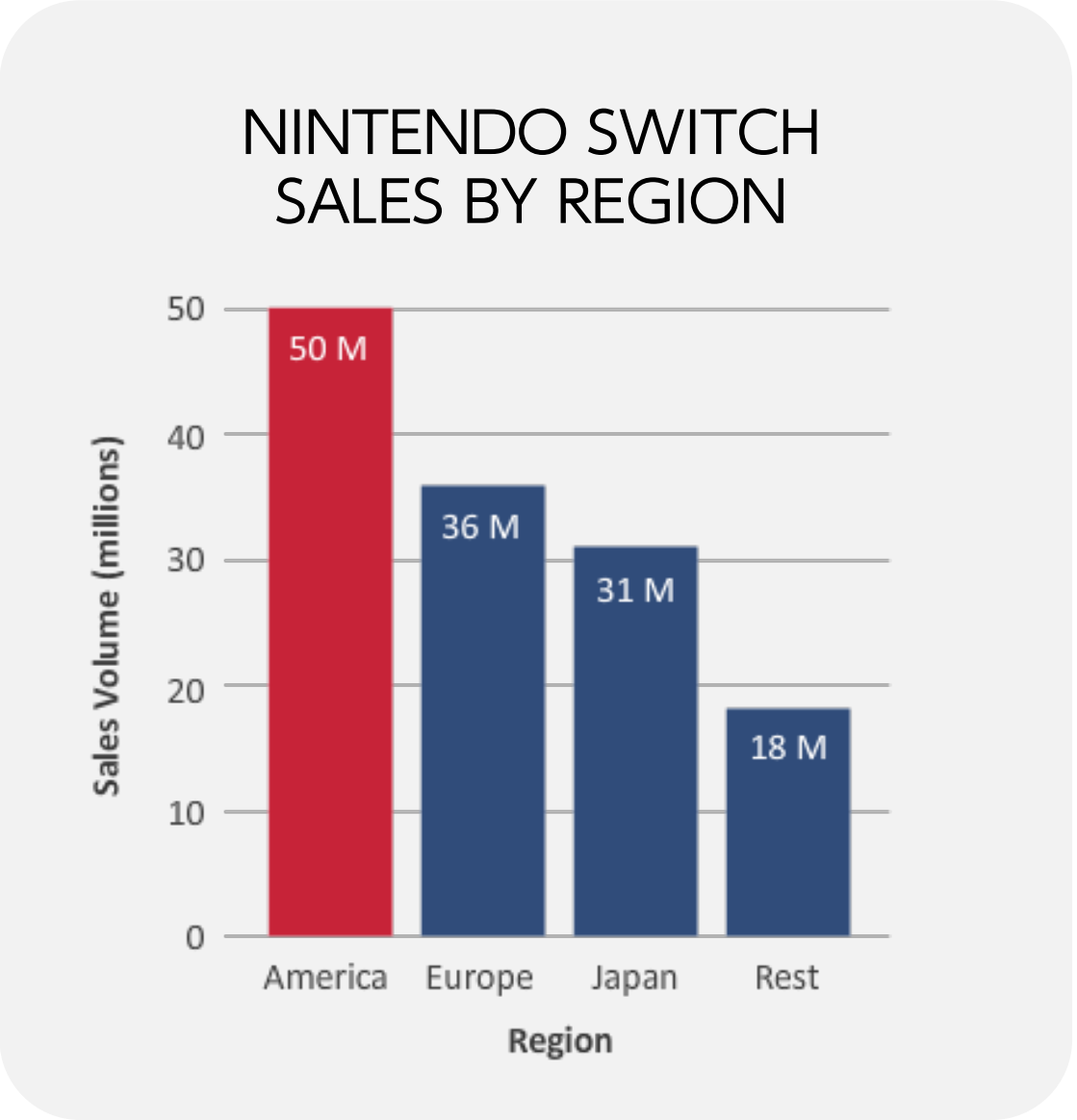

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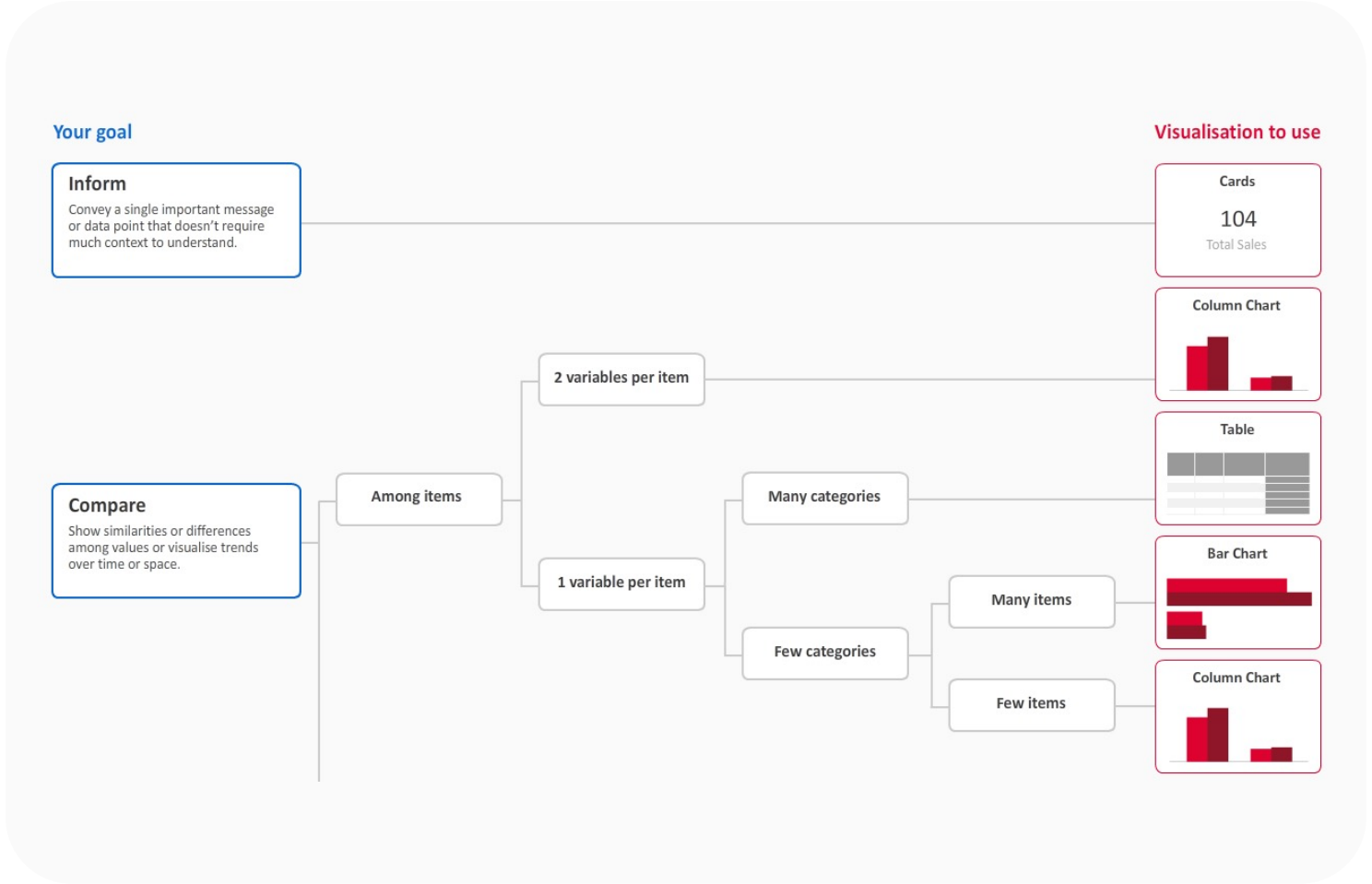
NINTENDO ALL-TIME CONSOLE SALES

Console	All-time rank	Sales
DS	2	154,020,000
Switch	3	125,790,000
Game Boy	4	118,690,000
Wii	7	101,630,000
GBA	10	81,510,000
3DS	12	75,940,000
NES	13	61,910,000
SNES	15	49,100,000
N64	18	32,930,000
Gamecube	22	21,740,000
Wii U	25	13,560,000

VISUALISATION FINDER



Get the Visualisation Finder

DECODING

“No matter how clever the choice of the information, and no matter how technically impressive the encoding, a visualisation fails if the decoding fails”

VISUAL PERCEPTUAL TASKS

Position in Common Scale

Position in Non-aligned Scale

Length

Direction

Angle

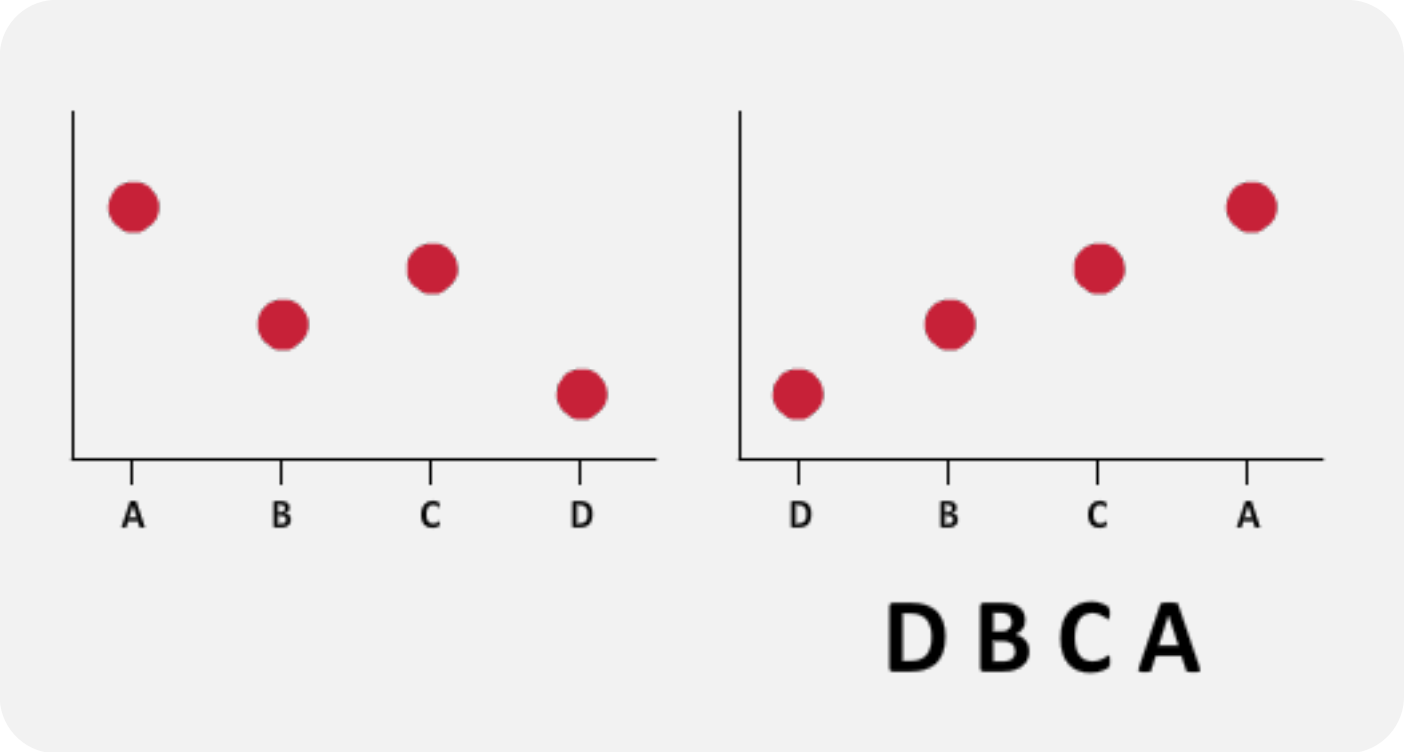
Area

Volume

Curvature

Shading

Colour



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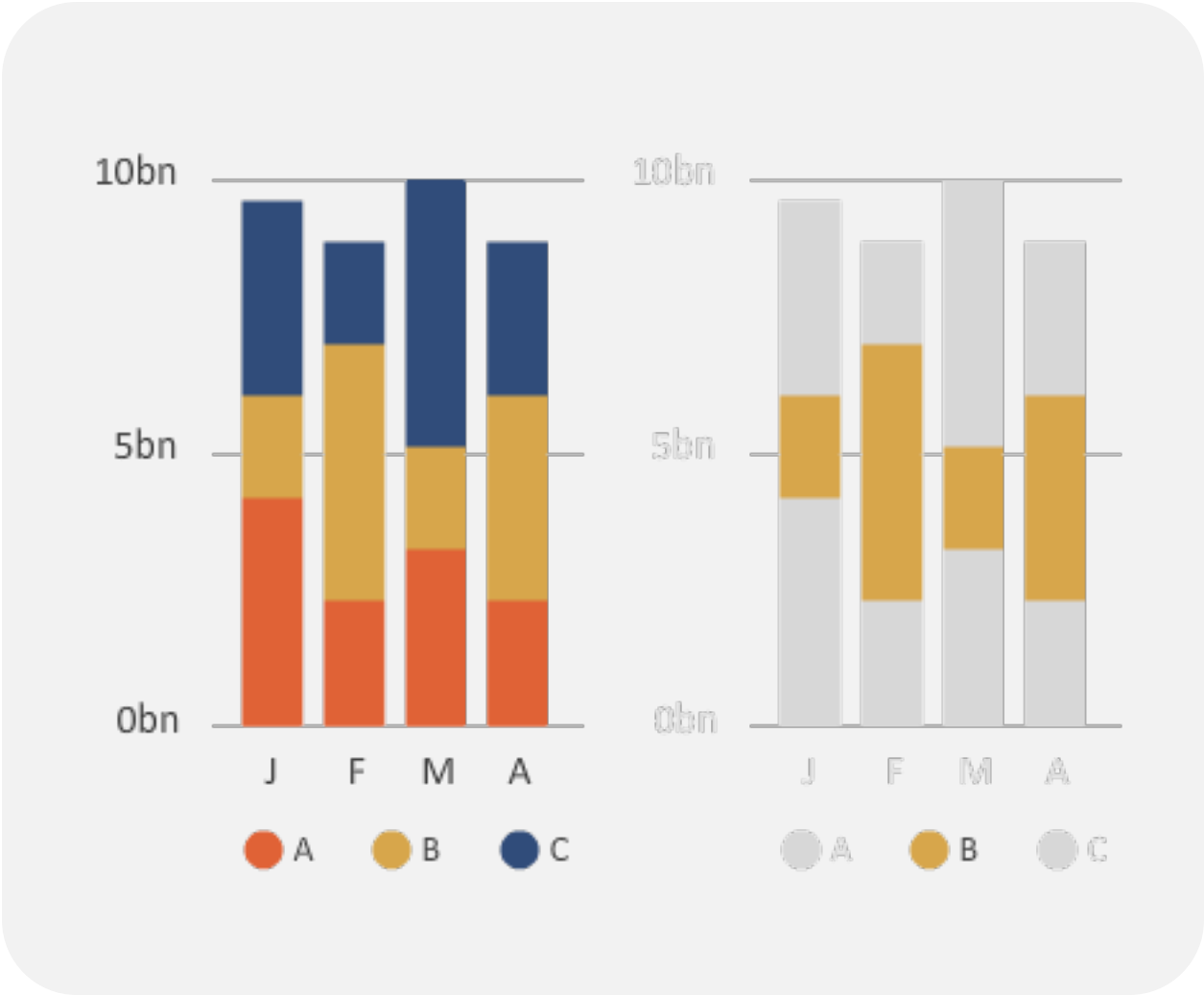

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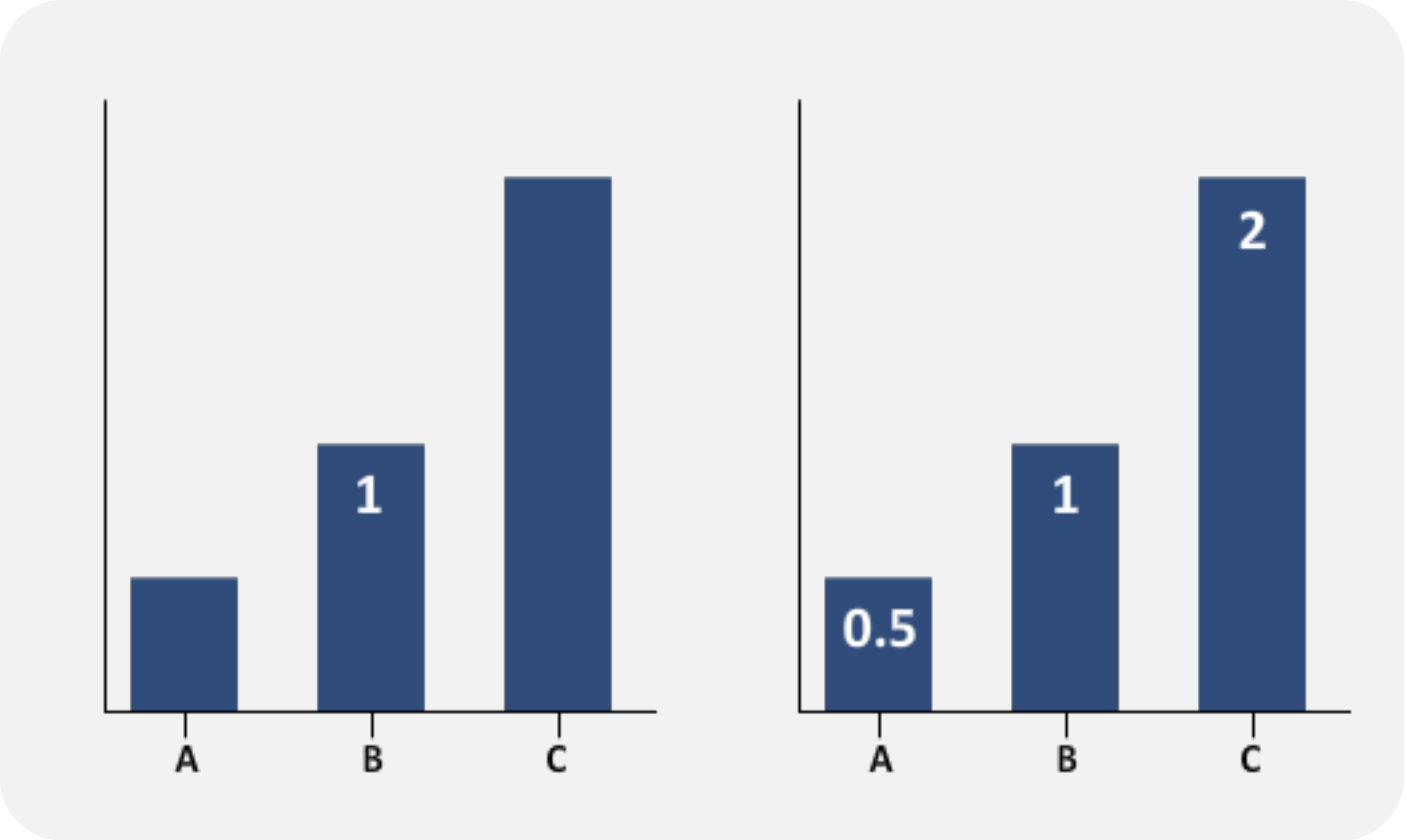

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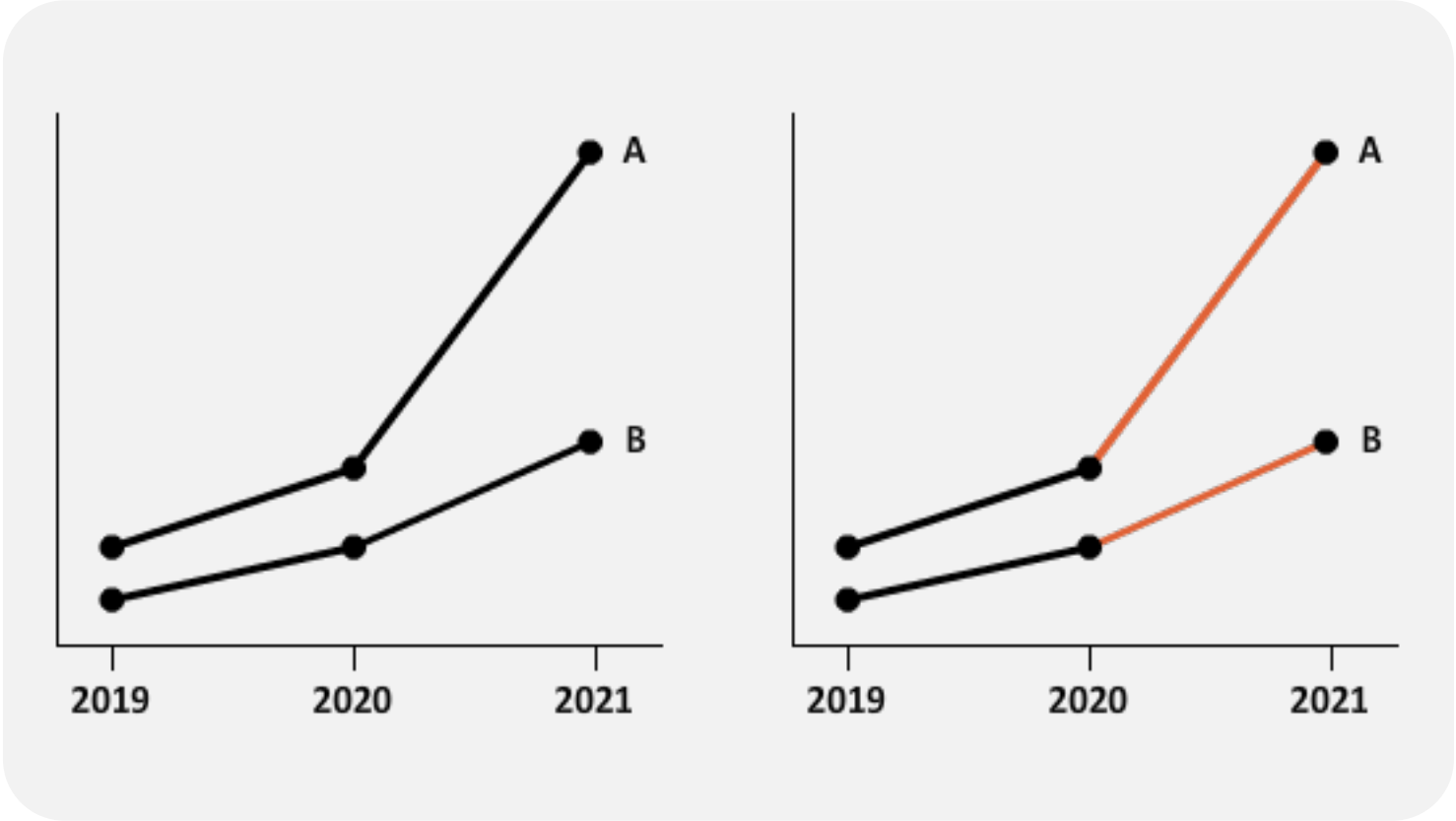

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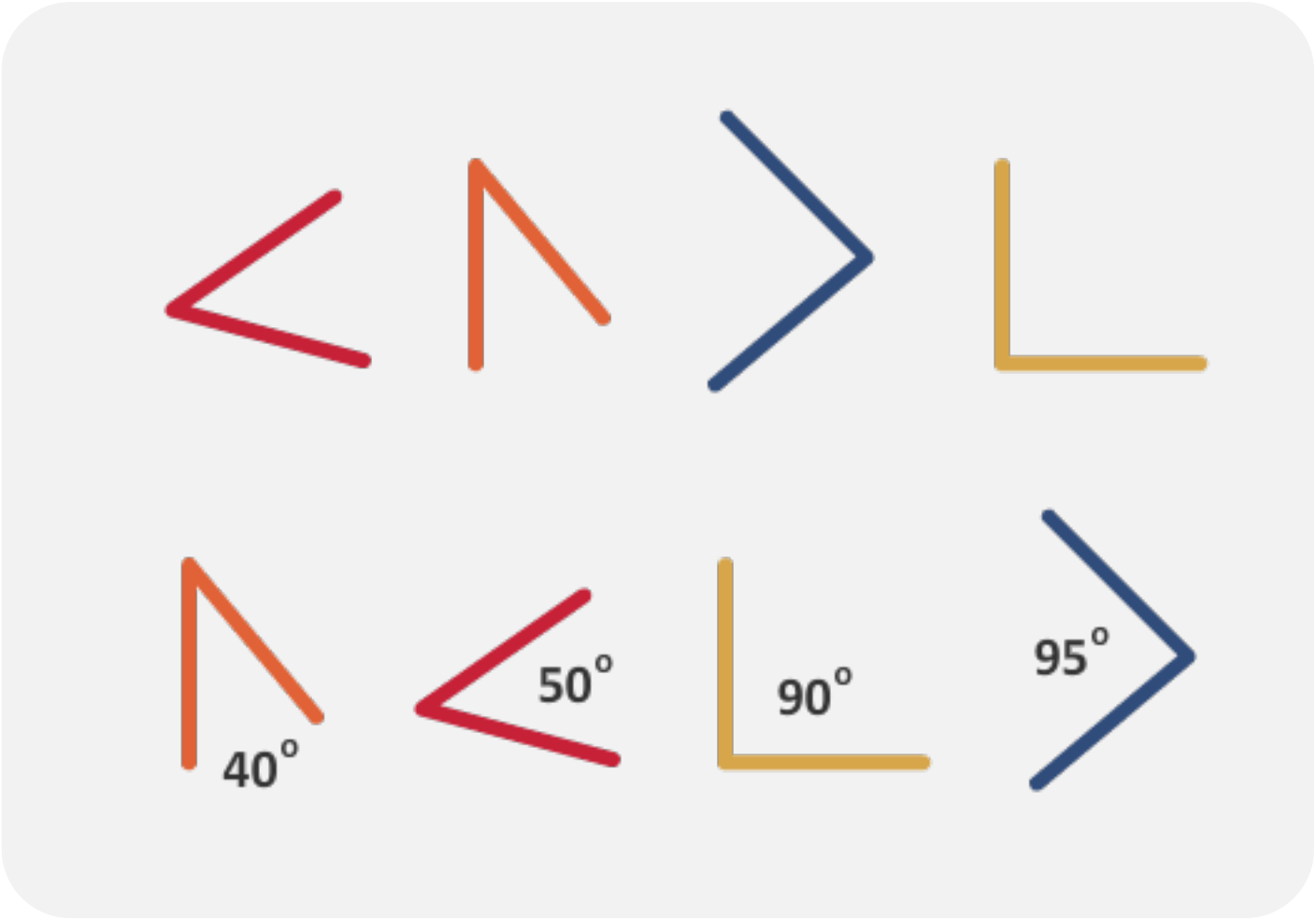

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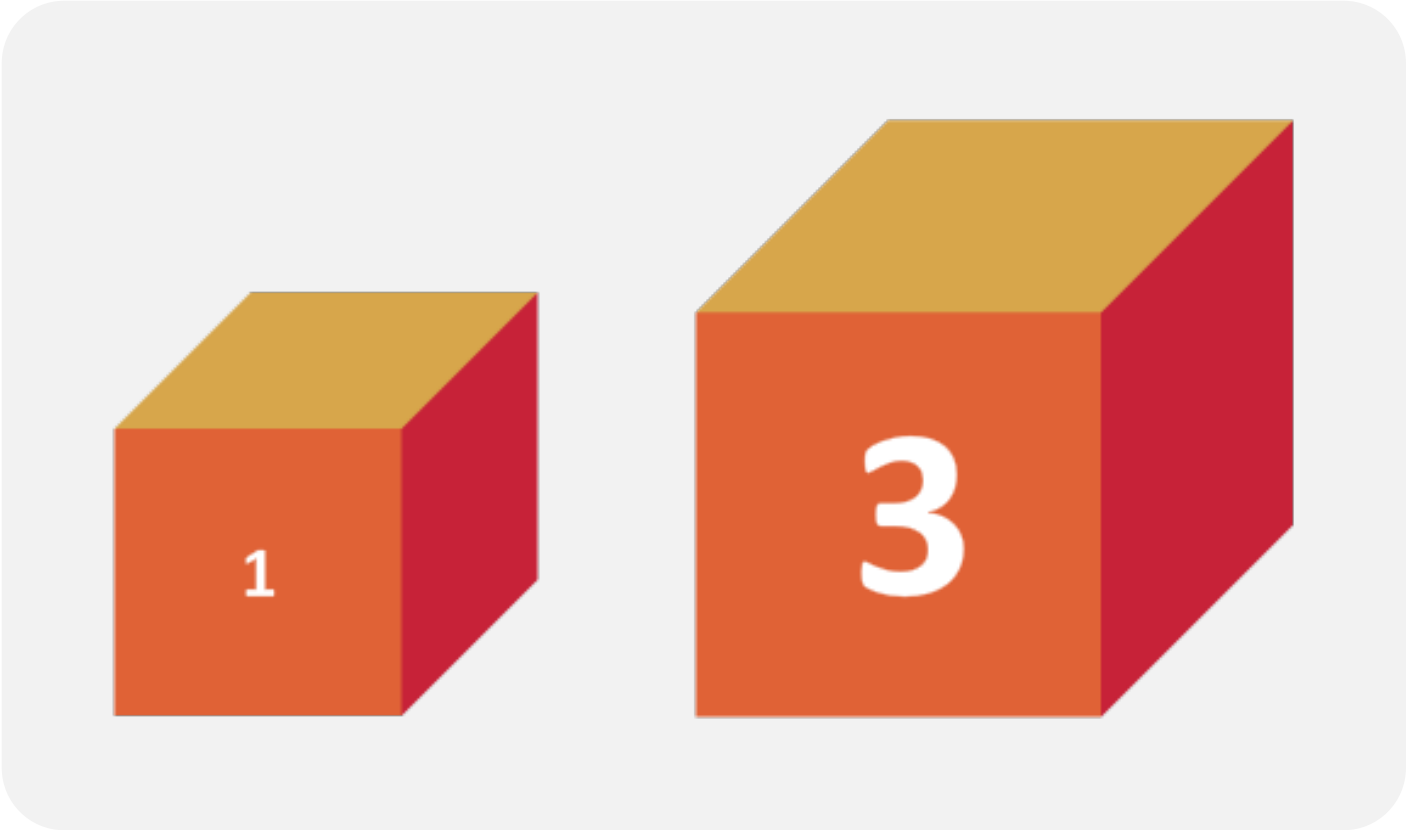

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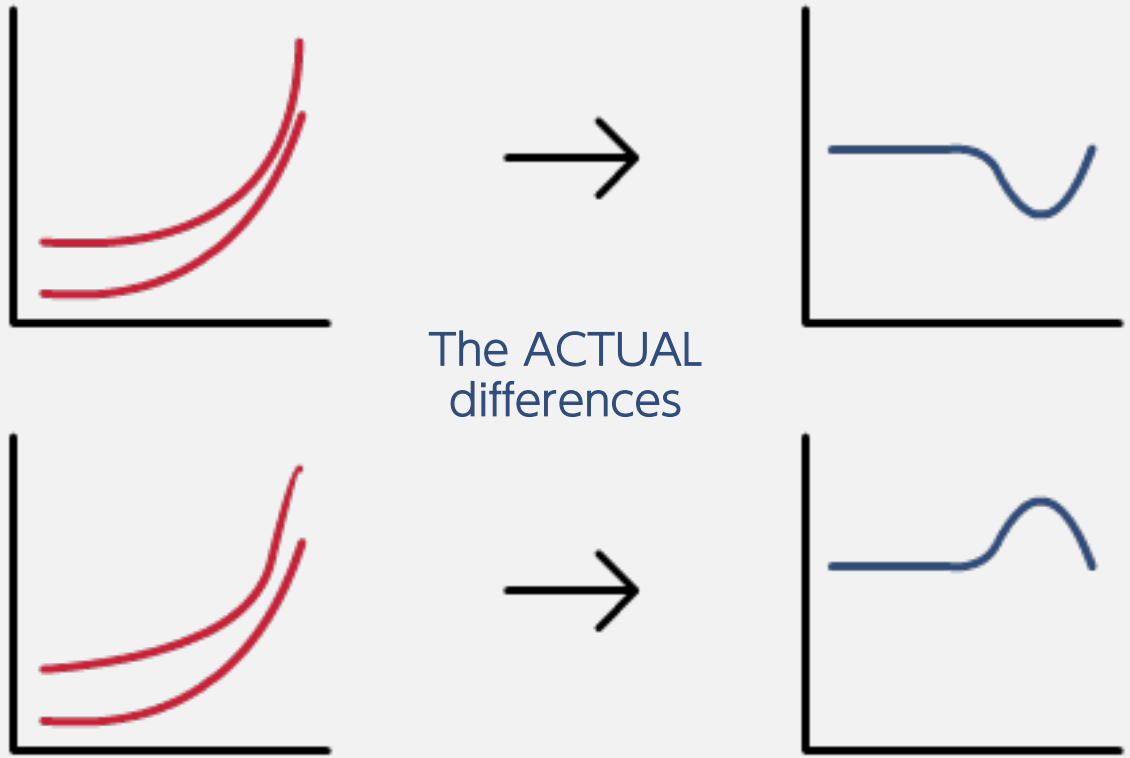

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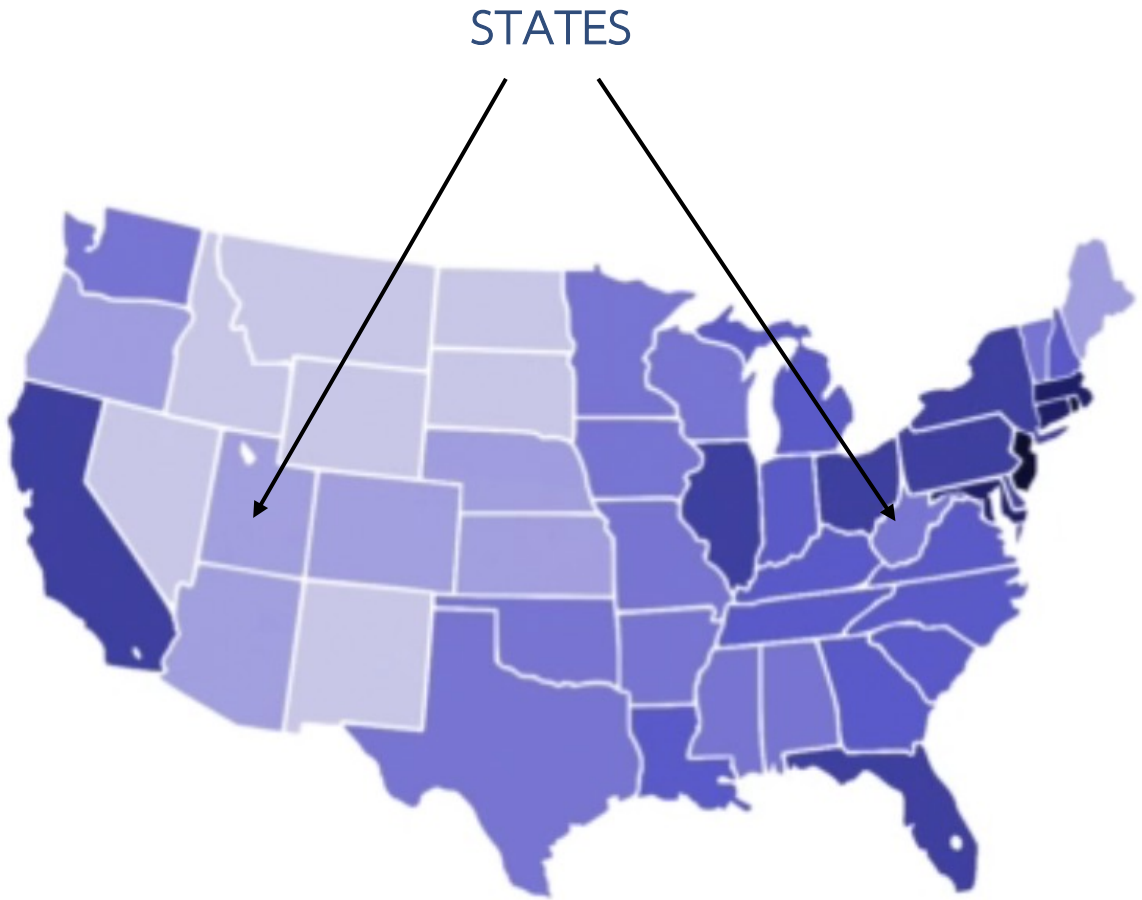


RANKING VISUAL PERCEPTUAL TASKS

Common Scale

1

Non-aligned Scale

2

Length

3

Direction

3

Angle

3

Area

4

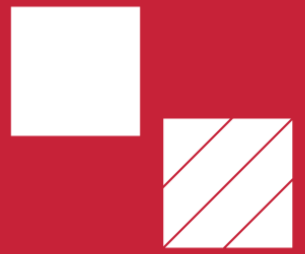
Volume

5

Curvature

5

Shading

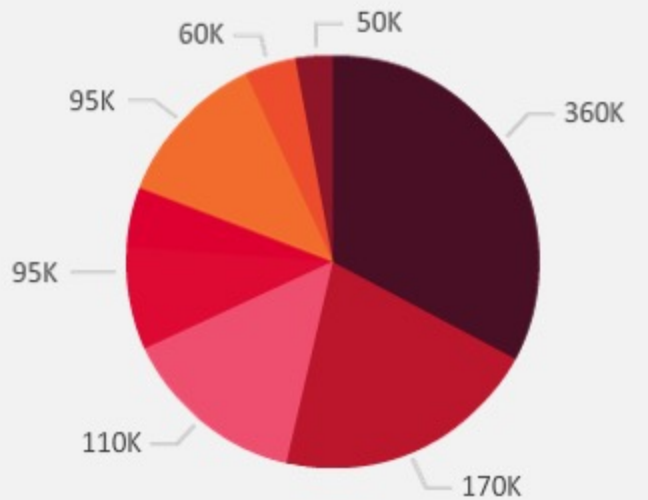


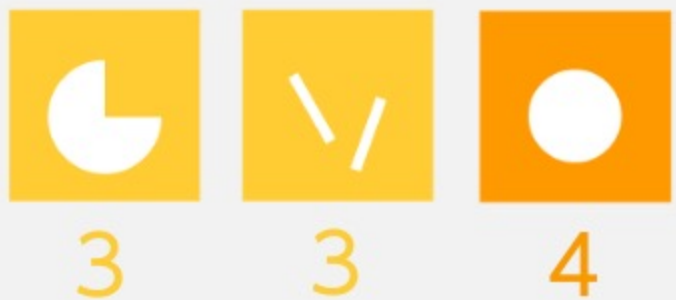
6

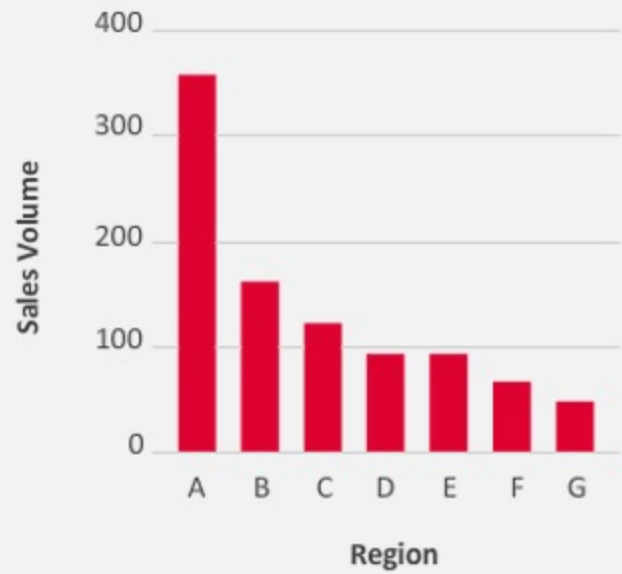
Colour

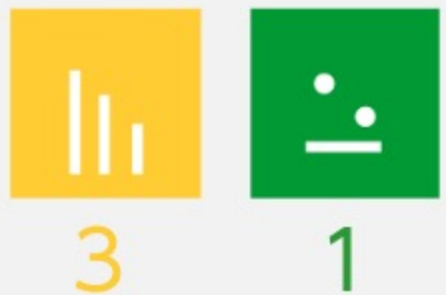
6

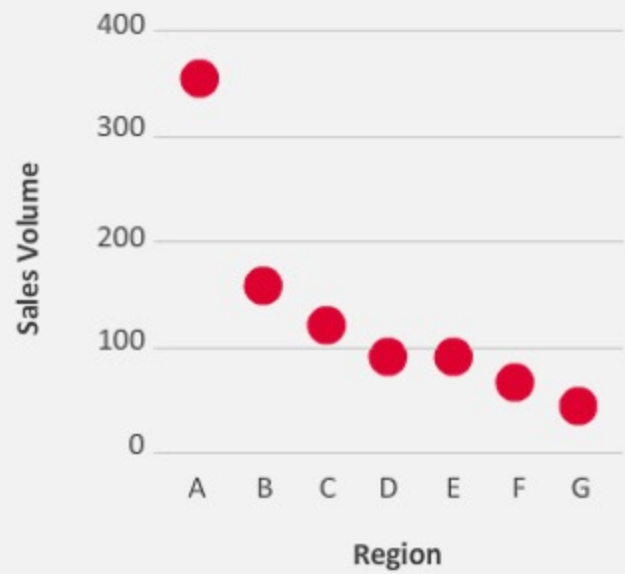
RELOOKING OUR DESIGN DECISIONS











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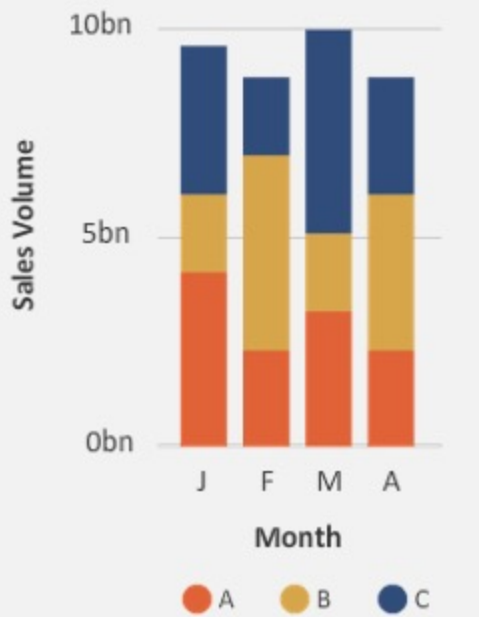

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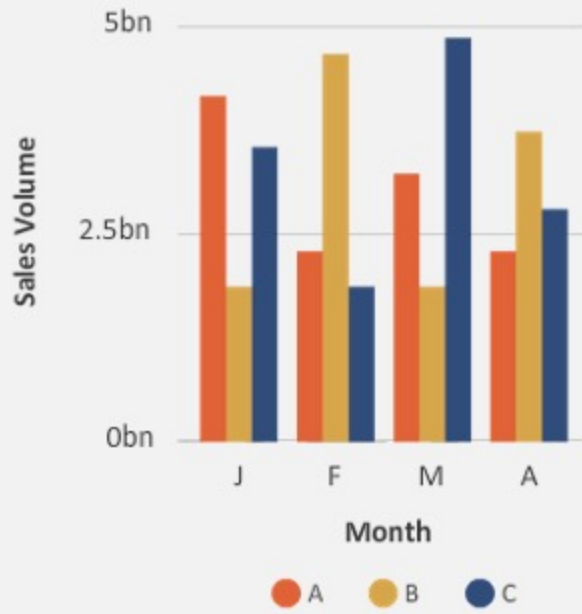

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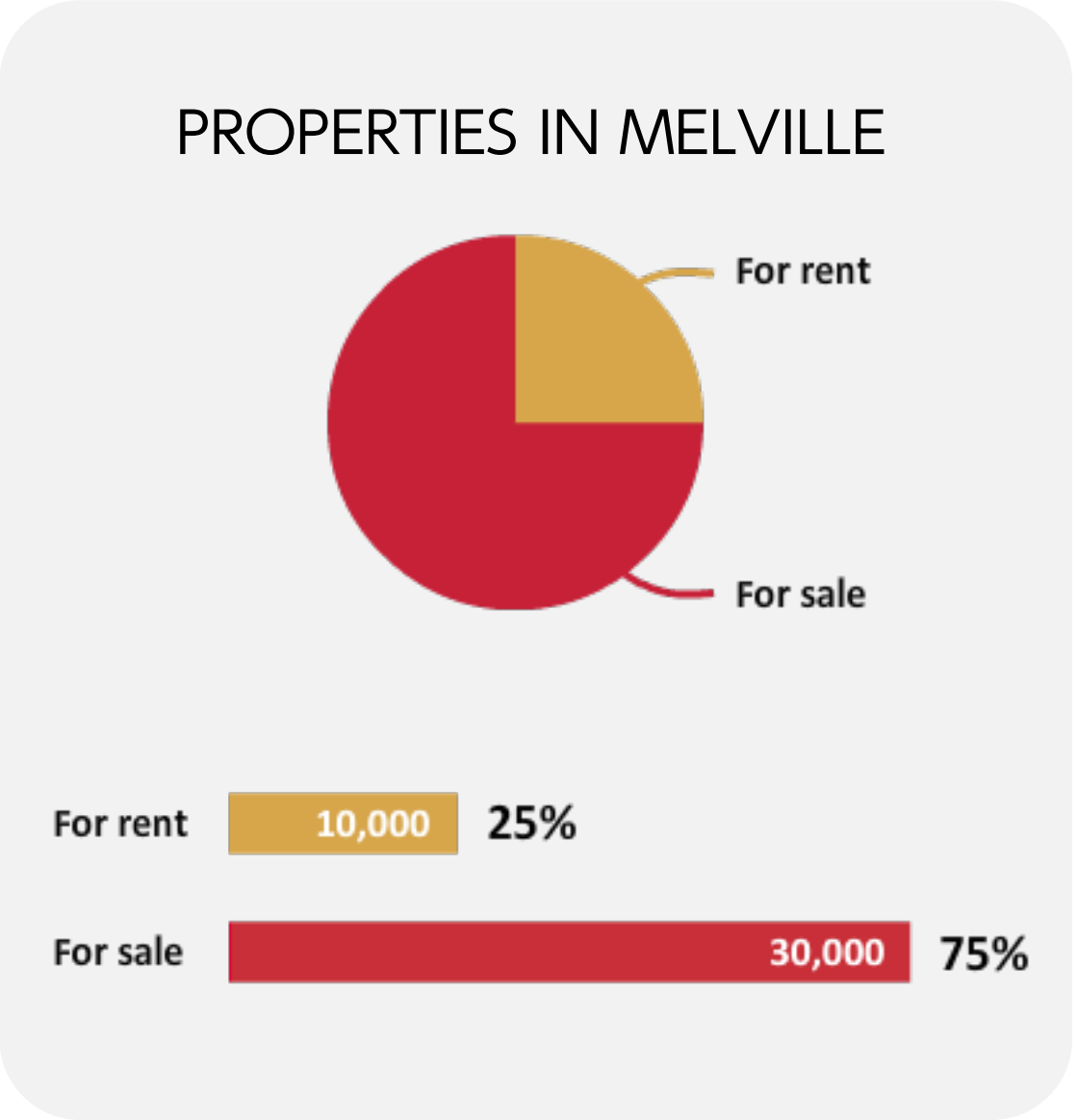
RULES OF GRAPHICAL EXCELLENCE

- Show the data
- Induce the viewer to think about the findings
- Present many numbers efficiently
- Encourage the eye to compare different pieces of data



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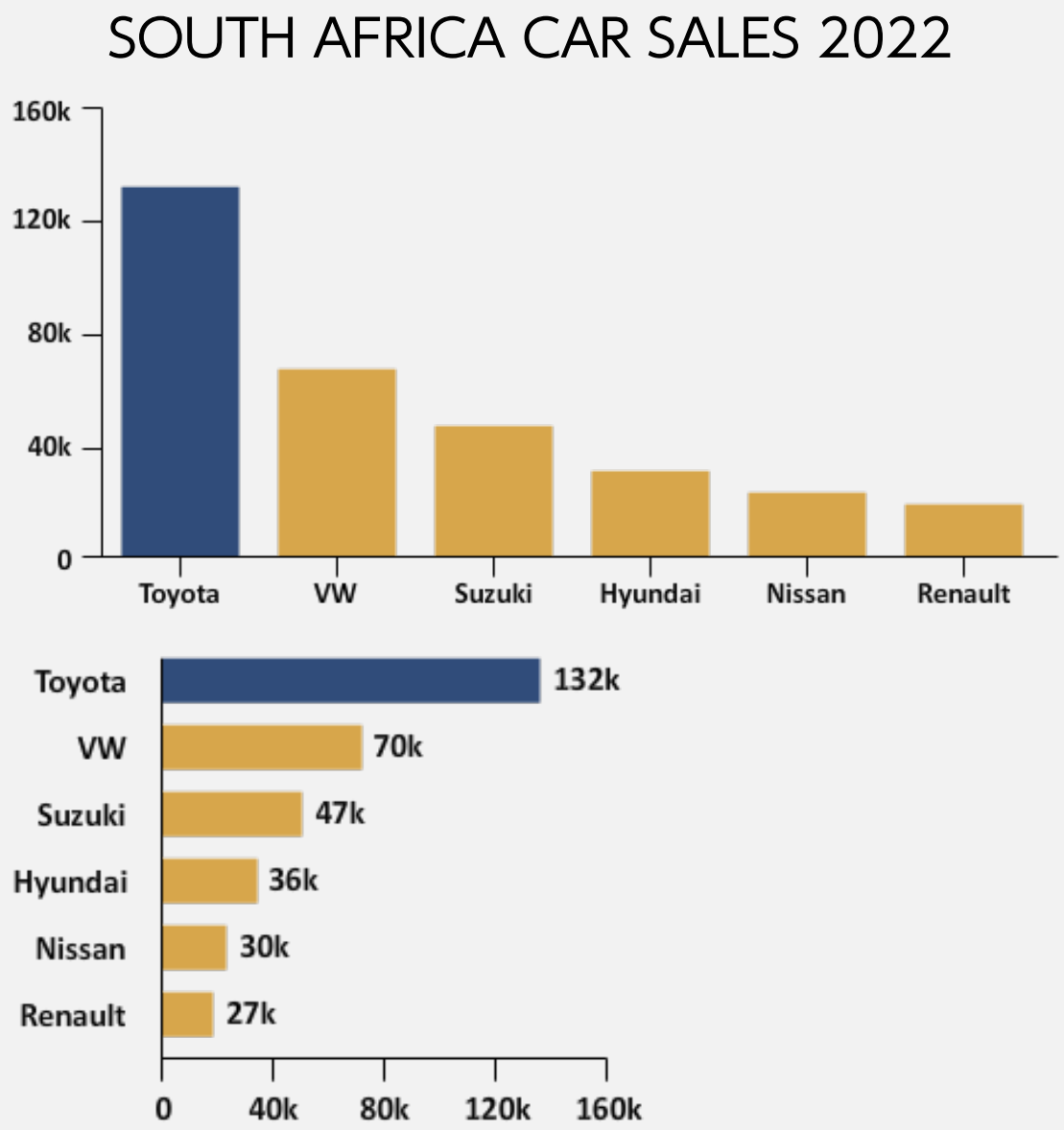
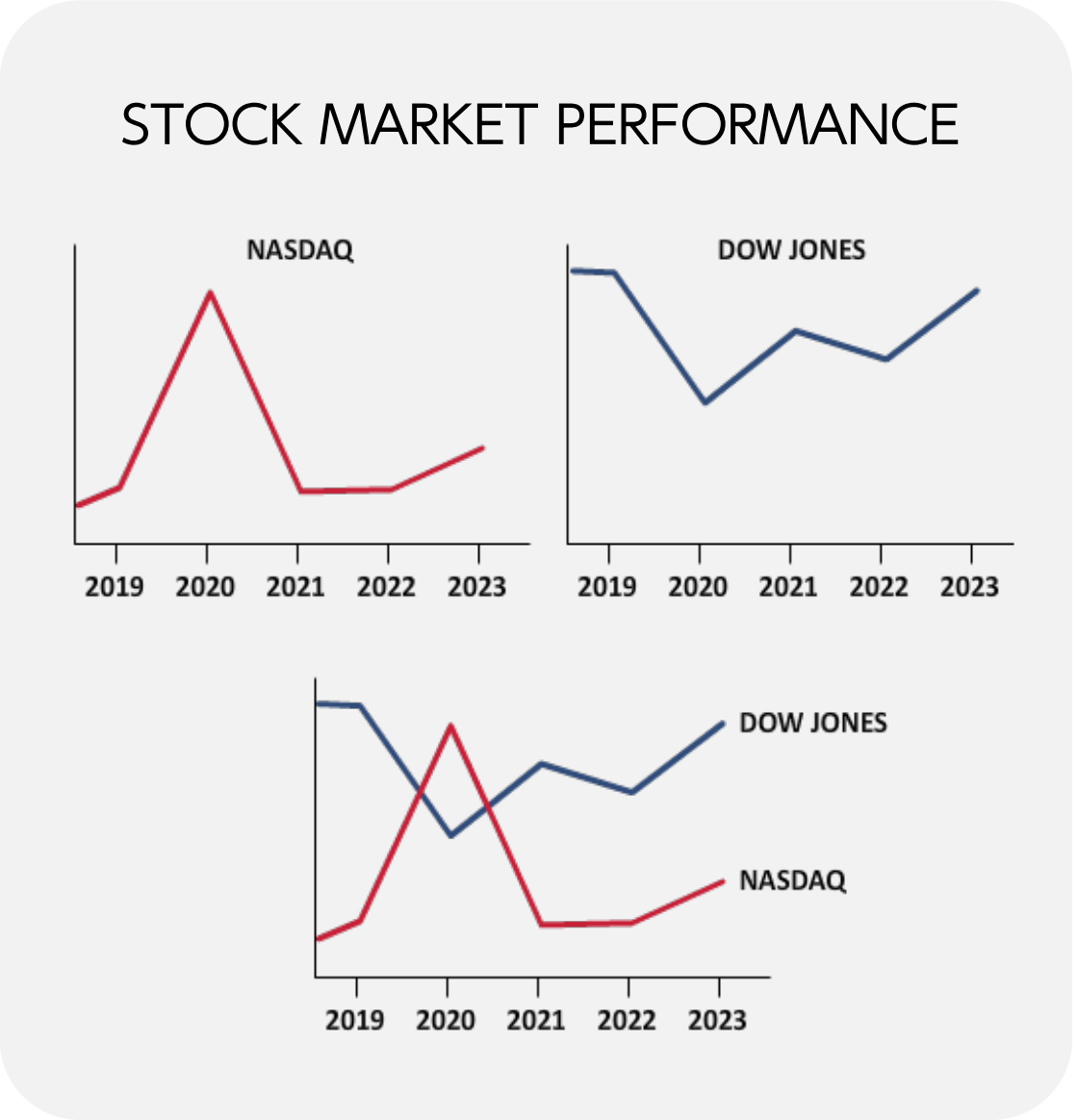


RULES OF GRAPHICAL EXCELLENCE

- Show the data
- Induce the viewer to think about the findings
- Present many numbers efficiently
- Encourage the eye to compare different pieces of data



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Created by Rob Cowie

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