La Guardia Community College

DATA 203
DATA VISUALIZATION USING TABLEAU

Class 7

LEARNING OBJECTIVES

BEST PRACTICES FOR VISUALIZATION

1. Types of Visualizations
2. Design Principles
3. Colors that Matter
4. Visual Perception

DESIGN PRINCIPLES

- These are building blocks that artist use to paint or create sculptures.
- The principles can apply to any medium including data visualization

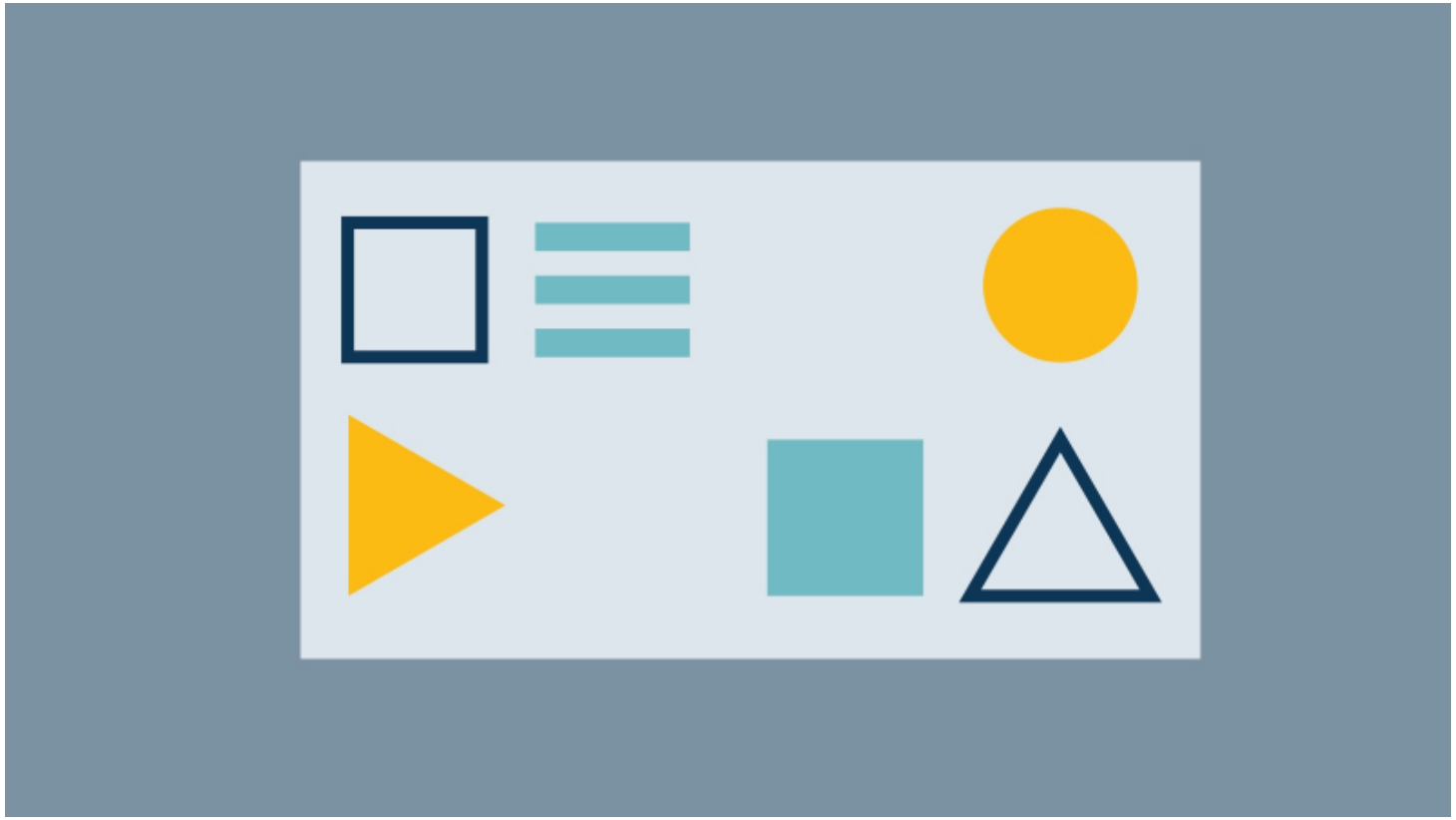
DESIGN PRINCIPLES

The principles that you use in your visualizations will depend on

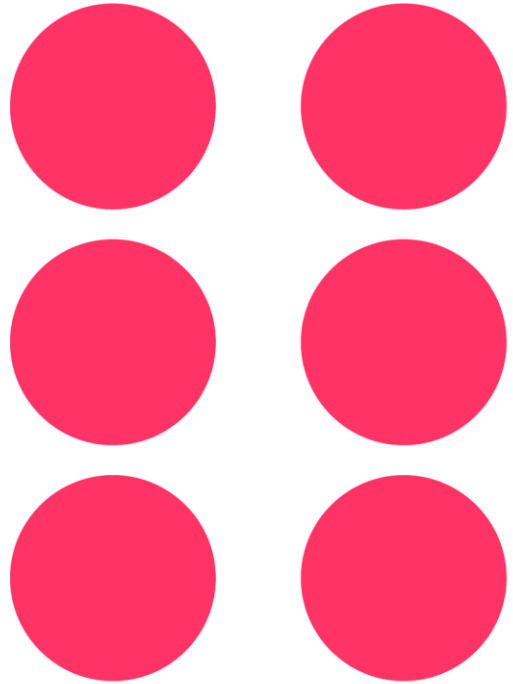
1. Dataset you are analyzing
2. Who your Audience is
3. Who you are as an Individual
    1. Bring your own creativity and personality to visualizations

DESIGN PRINCIPLES BALANCE

1. Distribution of colors, fonts, shapes, patterns, etc. throughout the design which can be displayed
   - Symmetrically
   - Asymmetrically

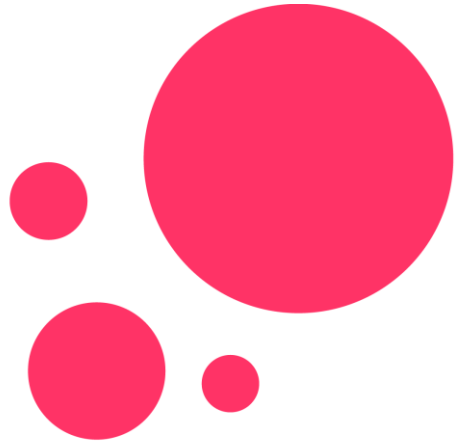


DESIGN PRINCIPLES
BALANCE



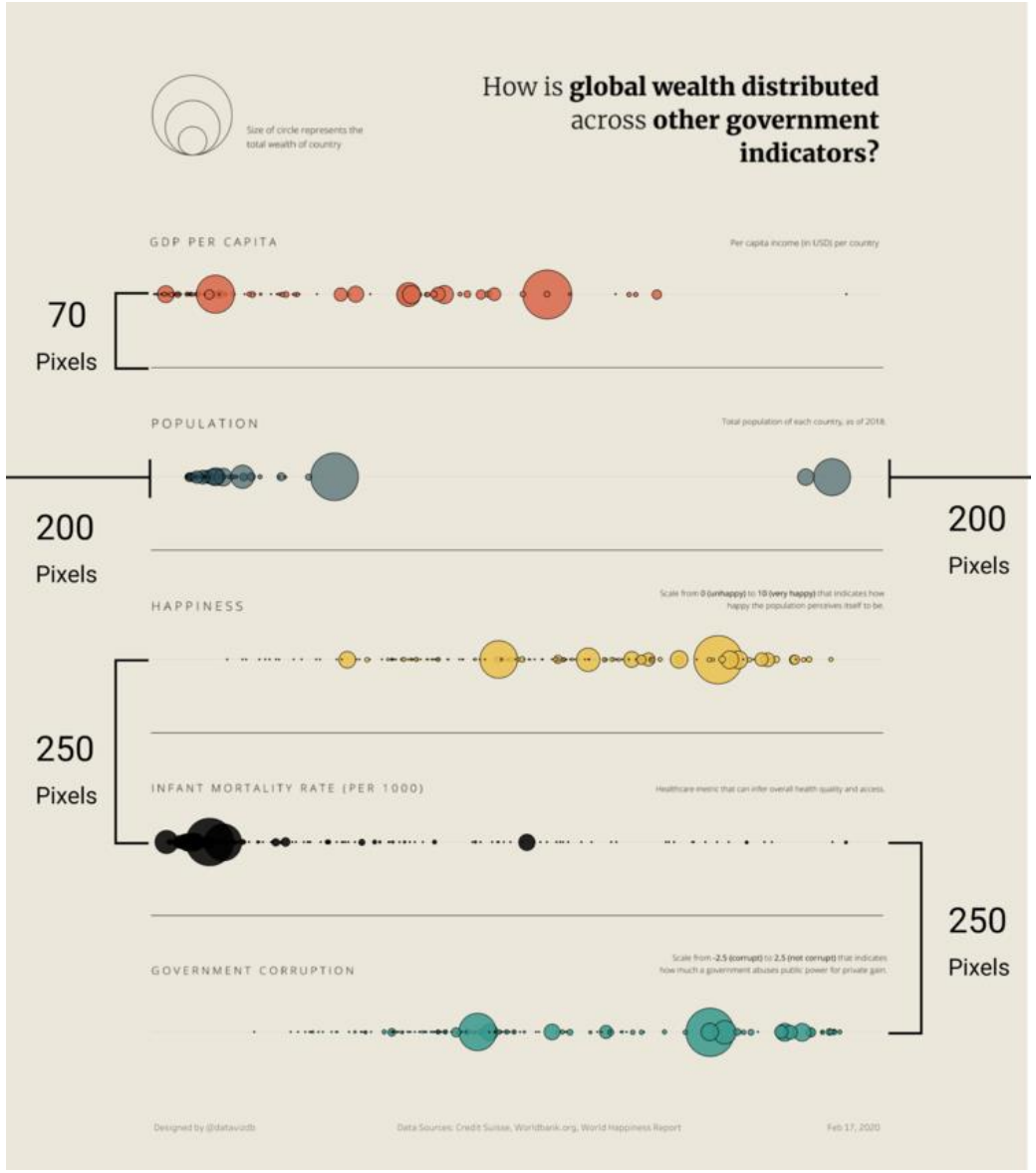
Two types of balance

1. **Symmetrical**
   - Equally distribute the weights of the graphical elements
   - Each side of the dashboard mimics the other.
   - Creates a sense of uniformity
   - Feels elegant, formal, and conservative.
2. **Asymmetrical**
   - Does not equally distribute the weights of the graphical elements
   - Both sides are unique.
   - Large charts jump out and offset smaller charts which recede
   - Feels casual, free, and energetic.



DESIGN PRINCIPLES
BALANCE

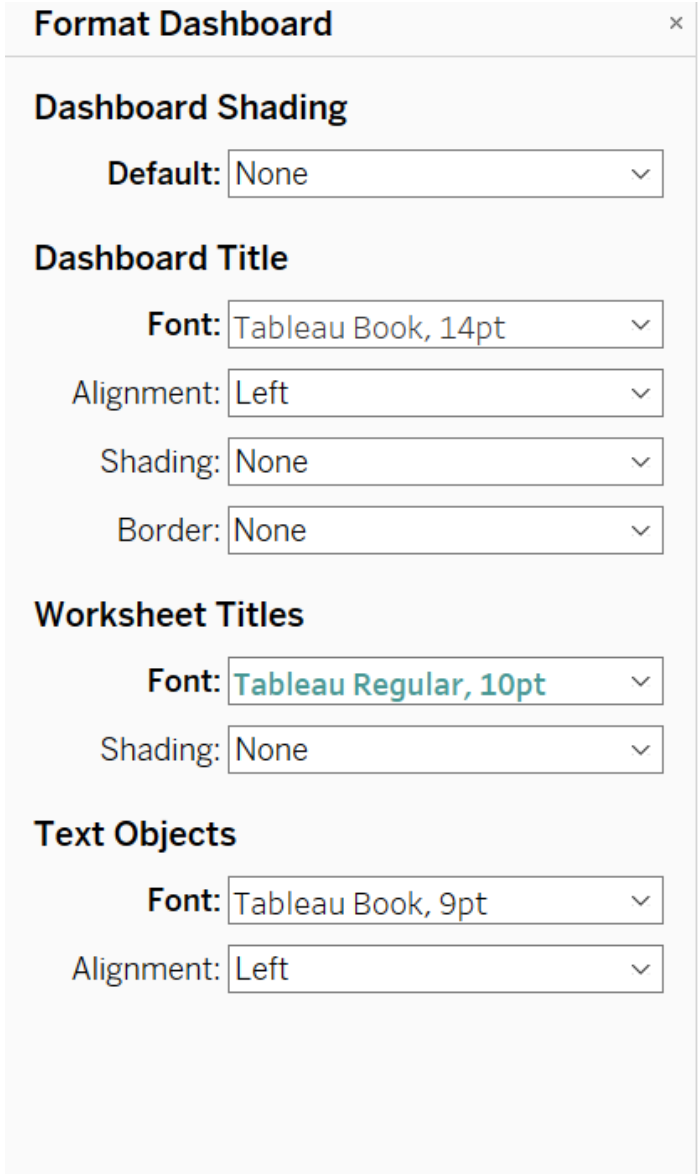
- All elements in the Dashboard is given equal attention.
- The header is distributed across 3 lines to balance the size and weight of the text to that of the legend.
  - Distributing the weight of type can lessen its weight, allowing for balance across a vertical axis
- All the spacing is proportional
  - 200 pixel of right and left padding
  - 250 pixels in between each indicator
  - 70 pixel between the horizontal line breaks.



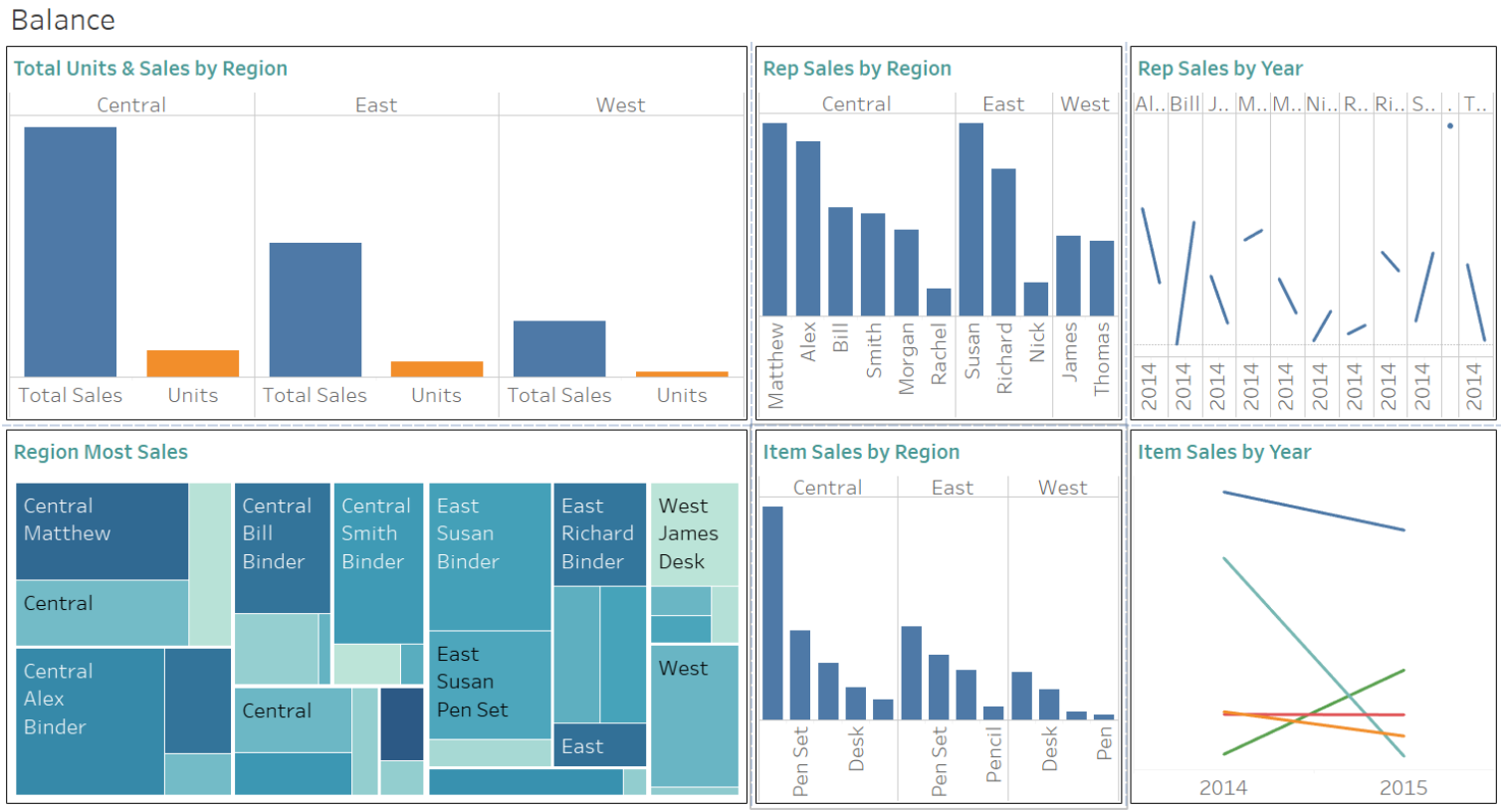
DESIGN PRINCIPLES
BALANCE

In Class Hands On Exercise – 10 min

- Open up your Tableau workbook for Office Supply
- Click on a new Dashboard and call it Balance
- Place worksheets Total Units and Sales by Region.
- Below #3 place Regions Most Sales worksheet.
- To the right of #3 place Rep Sales by Region
- To the right of #4 place Item Sales by Region
- To the right of #5 place Rep Sales by Year
- To the right of #6 place Item Sales by Year
- Go to Layout – add the following to each chart
  - Boundary
  - Outer Padding = 4 on all sides
  - Inner Padding = 2 on all sides
- Format > Dashboard and follow instructions on image



DESIGN PRINCIPLES BALANCE

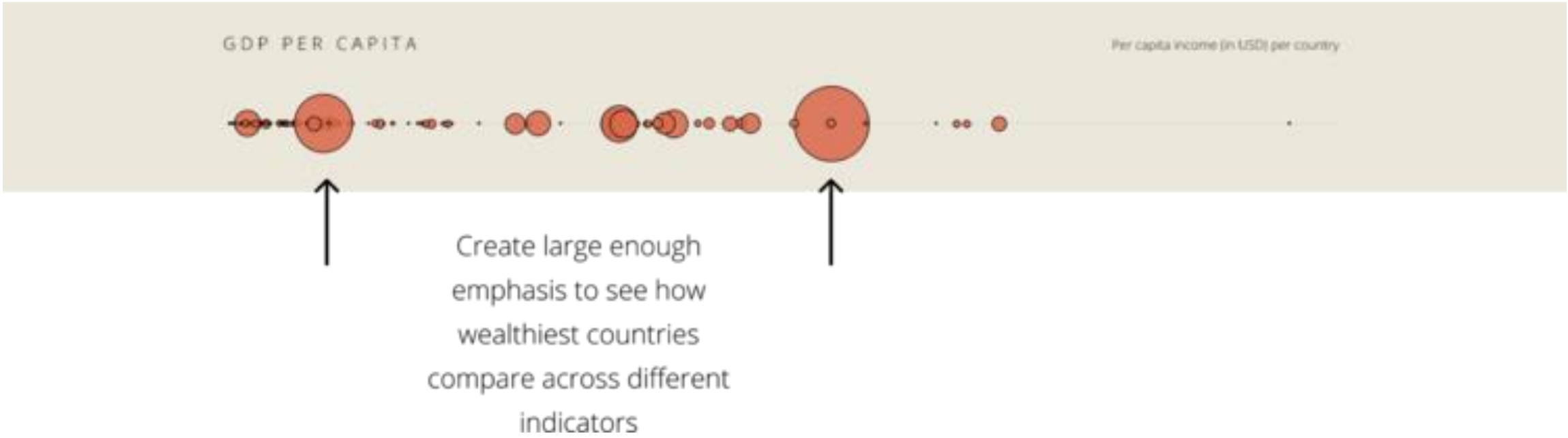


DESIGN PRINCIPLES EMPHASIS

- Attracting an element of the design through use of color, size, contrast and white space.
- The goal is for your audience to **see the most important data first**.
- We talked about how to "Layout" in the previous class.
  - If your audience reads Left to Right, the top left corner is where you want to place your most important data points.
  - Top right corner for those who read Right to Left.

DESIGN PRINCIPLES EMPHASIS

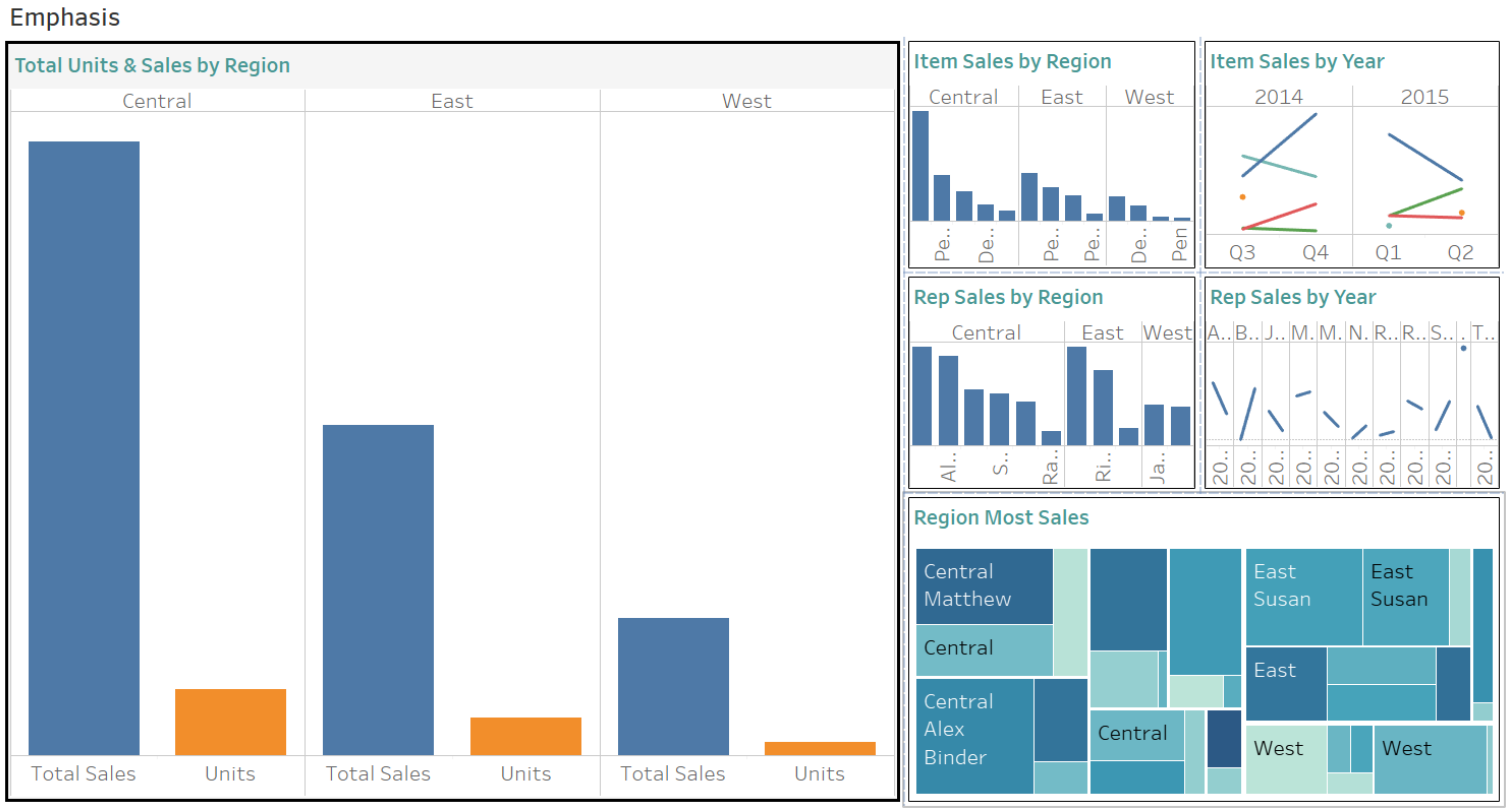
1. Sizing is used to effectively emphasize the variations between countries
2. Increasing the size of the wealthier countries so that they stood out consistently throughout each global indicator on the visualization.
3. Do not introduce bias into your visualization.



DESIGN PRINCIPLES EMPHASIS

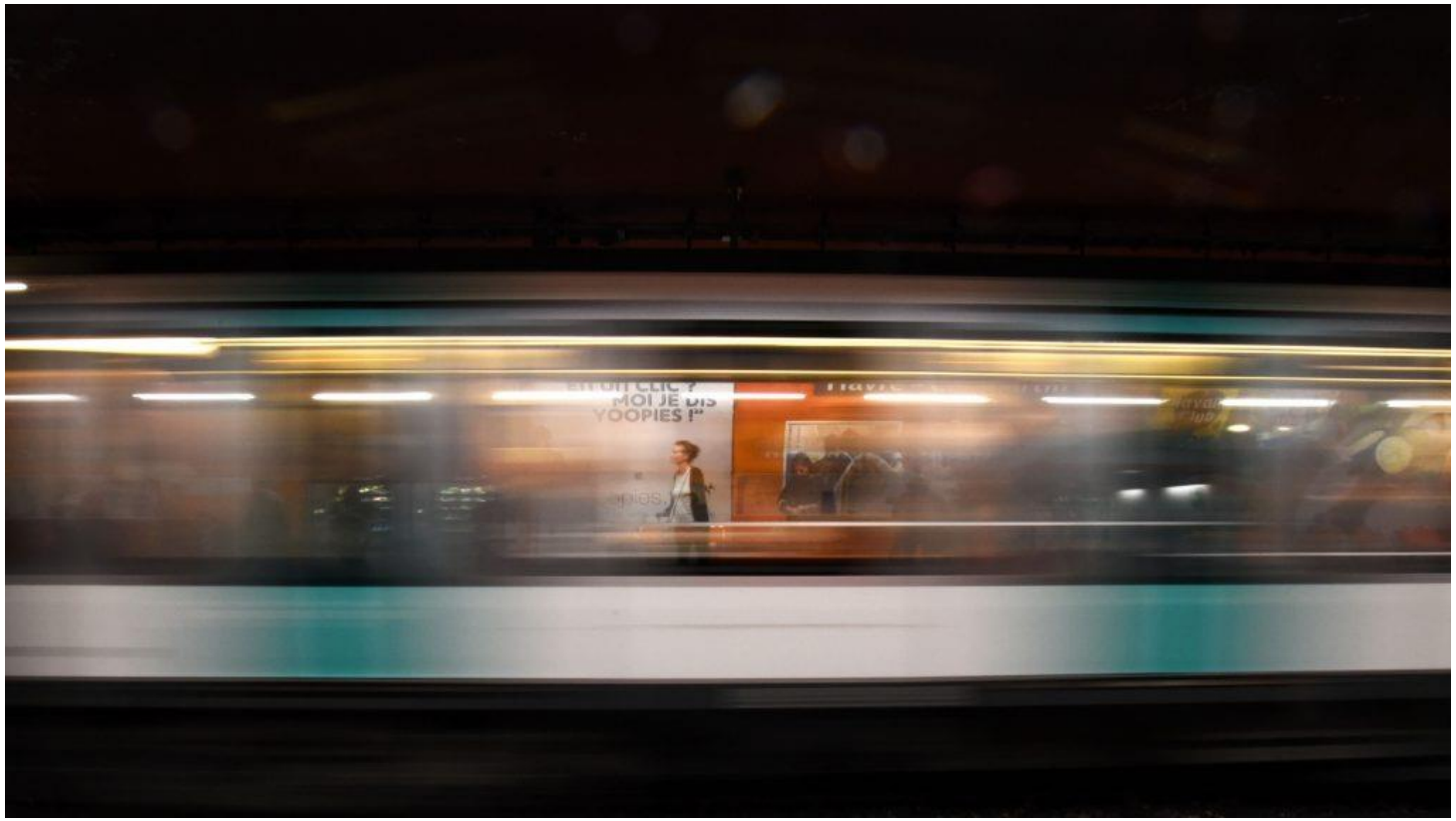
1. Duplicate Dashboard “Office Supply Performance” and rename it as “Emphasis”.
2. Total Units & Sales by Region stands out in the dashboard due to its size.
3. We will make #2 the focal point of the Dashboard
4. Click on Layout
    1. Increase size of the chart
    2. Add a thick border around the chart
    3. Background – Add a gray background
    4. Add Outer Padding = 4
    5. Add Inner Padding = 2
5. Add a thin border across all the other four charts.

DESIGN PRINCIPLES - EMPHASIS



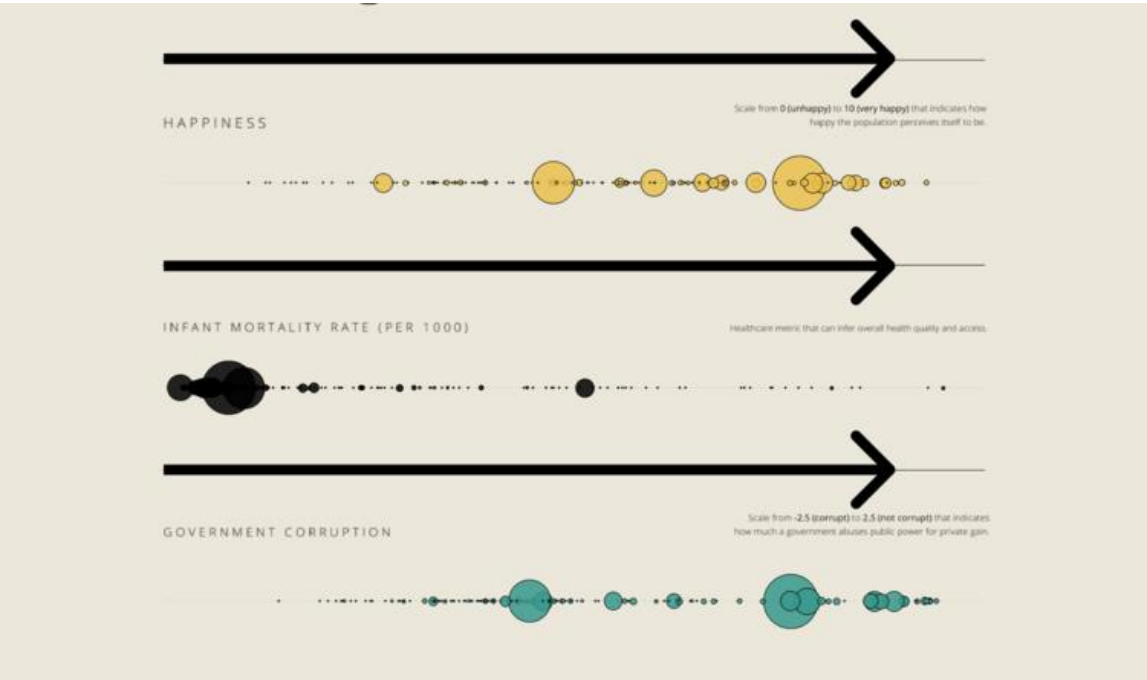
DESIGN PRINCIPLES - MOVEMENT

- How the viewer’s attention traves across the graphical elements.
- Design should **mimic the way people read**, in a "F" pattern
  - Most of the one’s attention is captured across the header and the navigation bar.
  - Focus rapidly declines further down the page.
- To create movement by **using complimentary colors** to pull your audience's gaze across the page.

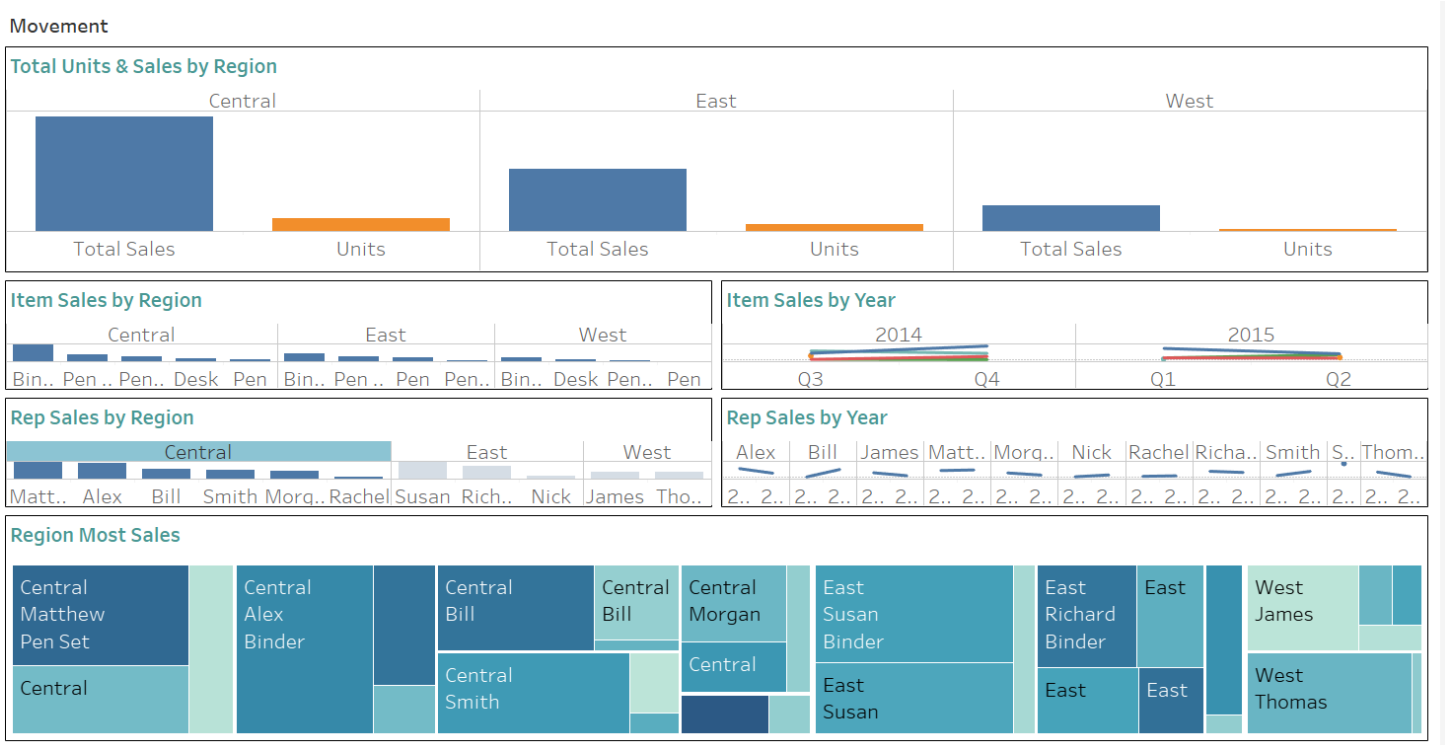


DESIGN PRINCIPLES MOVEMENT

- Consistent left-to-right ‘directionality’ of the visualizations create consistent movement throughout the design.
- The numbers for the global indicators get larger from left to right.
- The left to right direction increases user experience too.



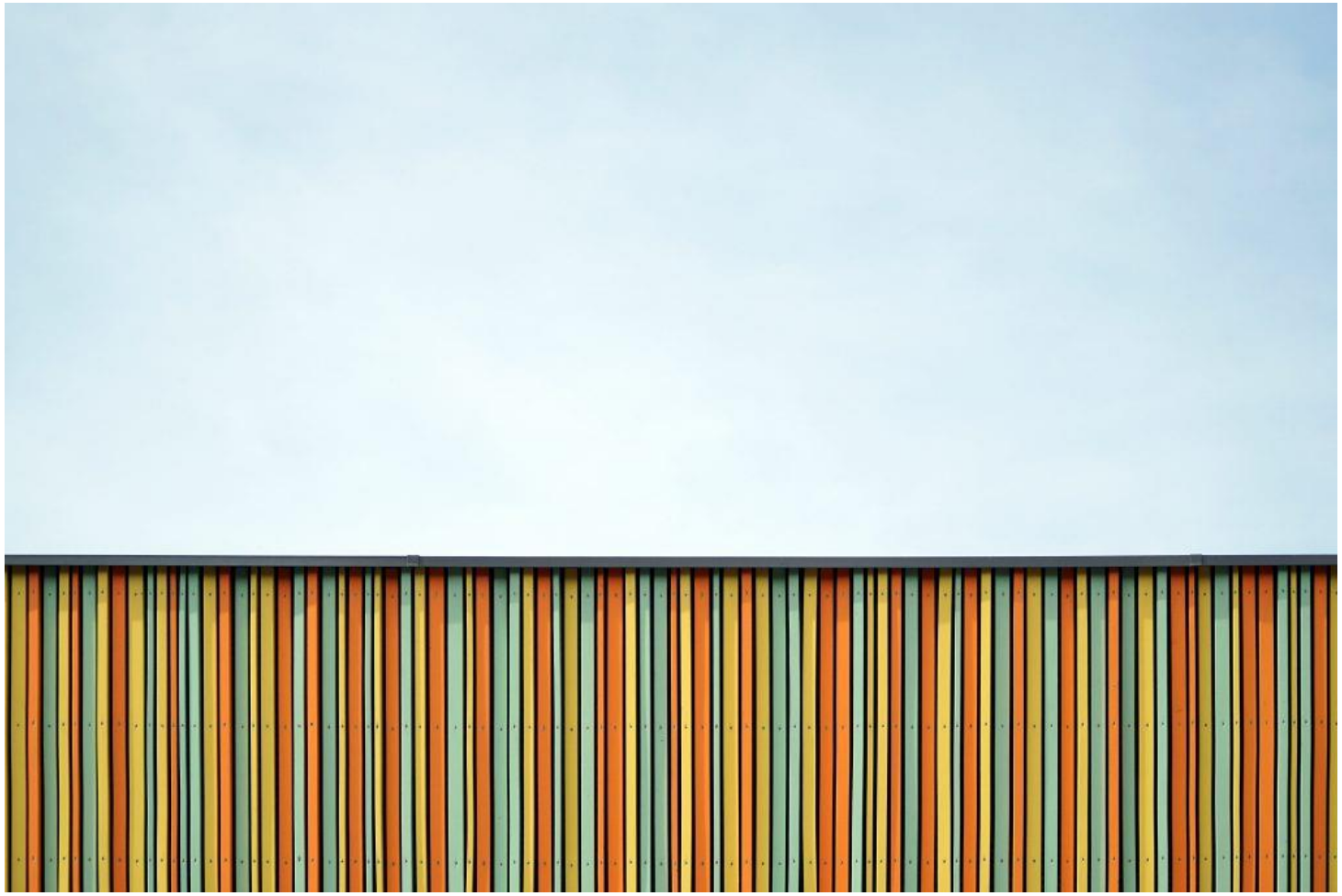
DESIGN PRINCIPLES - MOVEMENT



Recreate the following dashboard - 15 min

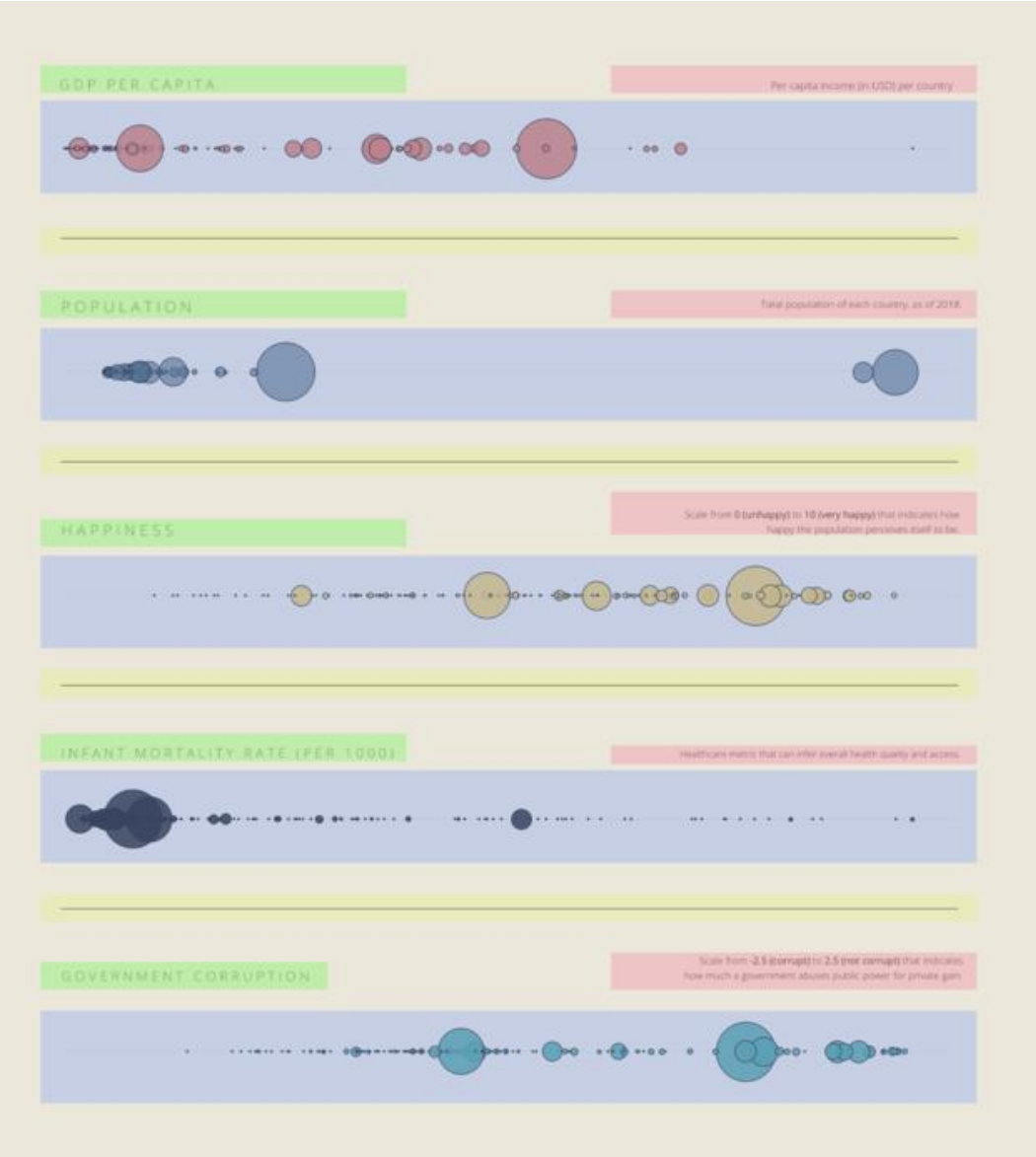
DESIGN PRINCIPLES- PATTERN

- Repetitive use of design elements.
- In a Dashboard, we use pattern to display similar sets of information, or multiple sets of data that equal in value.
- If you have sets of similar data and do not want to emphasize one over the other, create patterns using color, chart types to display the information.
- Disrupting the pattern is also effective – it will draw your audience's attention and curiosity.



DESIGN PRINCIPLES - PATTERN

- Five visualizations depicting the global distribution of wealth using the same chart type, but with different categories.
- Keeping the design consistent across visualizations make its easy for the user to process information.
- Color is used to indicate elements of the same pattern
  - Green color – Visualization titles
  - Yellow color - horizontal line breaks
  - Red color - descriptions of each global indicator
  - Blue - indicators



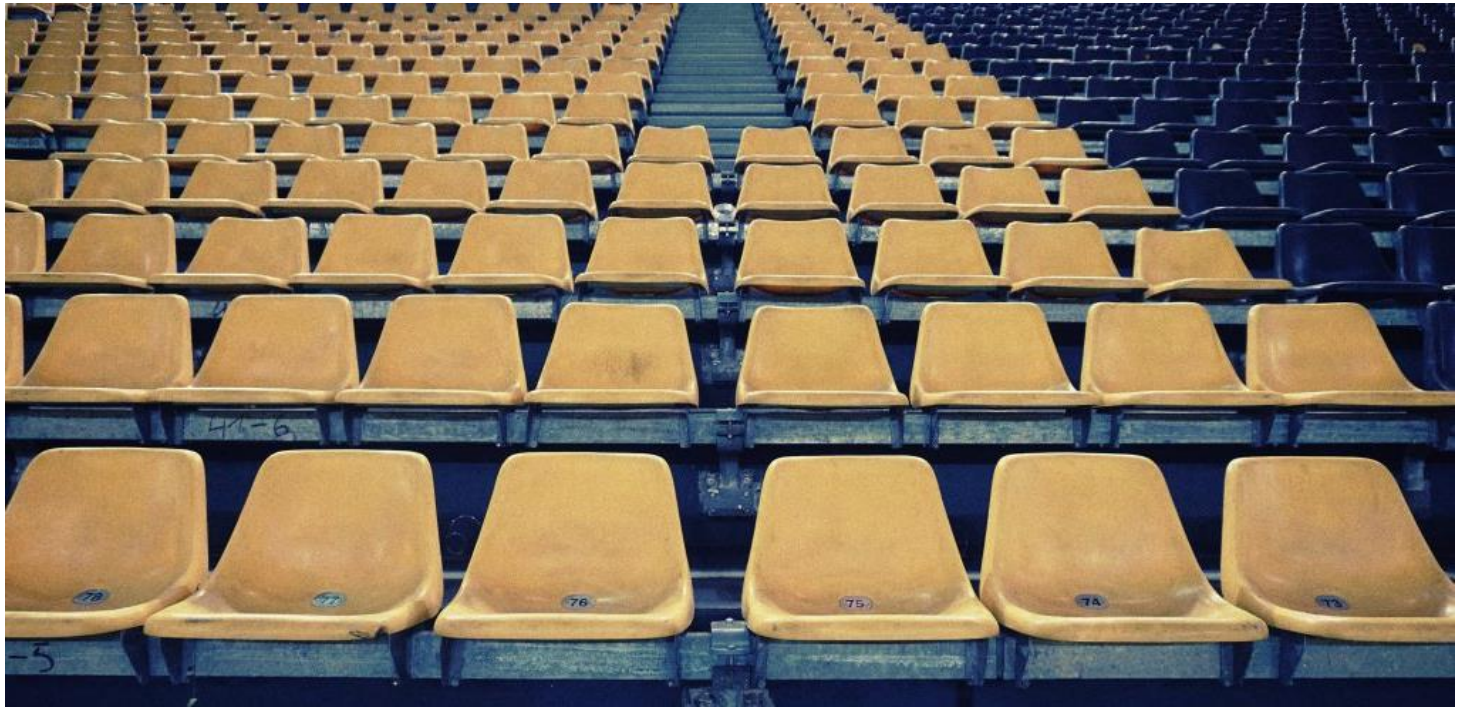
DESIGN PRINCIPLES- PATTERN

1. Use your Office Supply Performance Dashboard
2. Create a dashboard to reflect what the design principle Pattern means to you.

Time – 10 mins

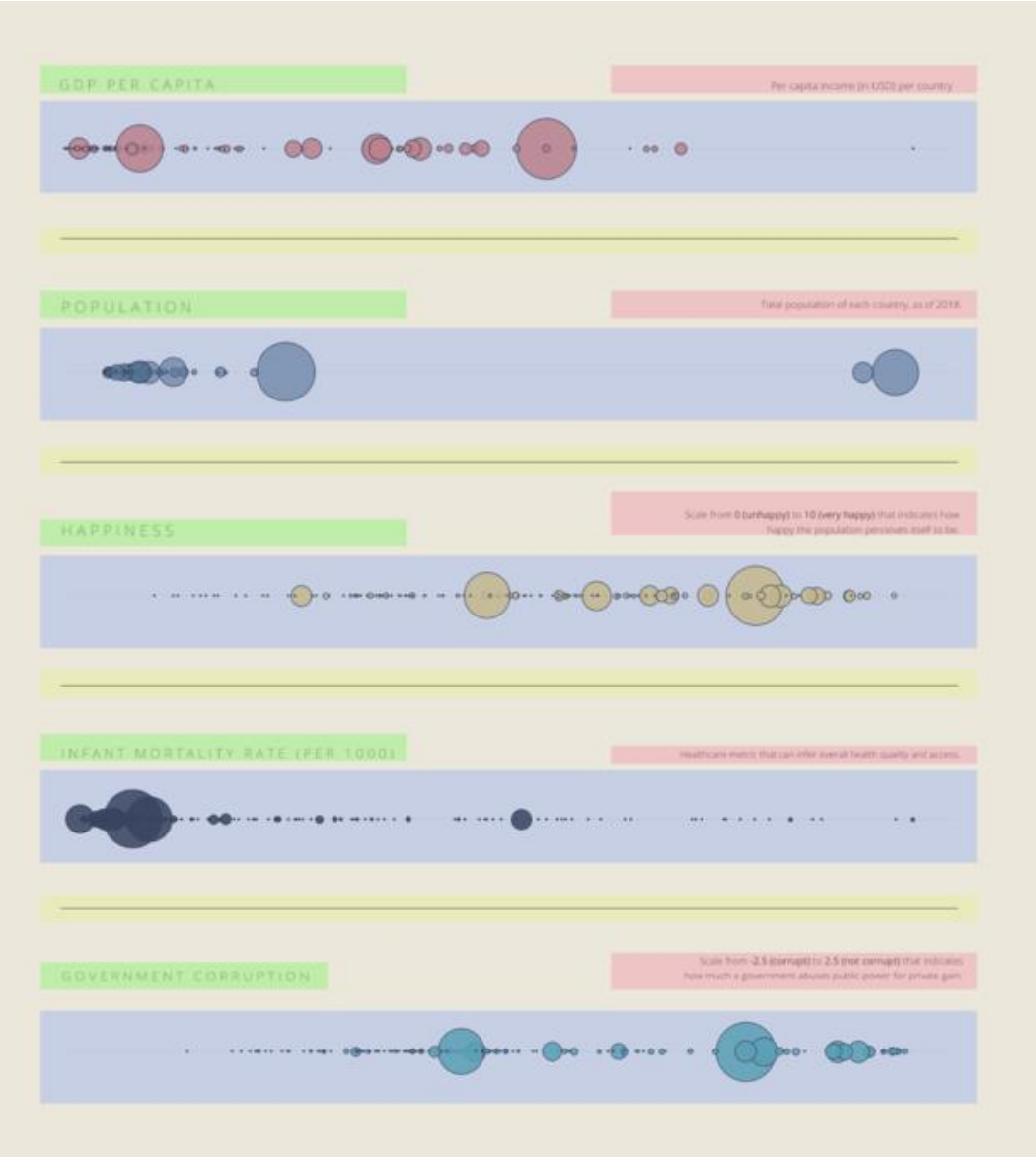
DESIGN PRINCIPLES - REPETITION

- Artists use repetition to make their work look “active.”
- You can communicate relationships between sets of data by repeating chart types, shapes, or colors.
- Tells your audience that two things have something in common.
- Make sure that your dashboard does not appear too busy, and you do not overwhelm your audience.



DESIGN PRINCIPLES REPETITION

- The chart design for the five visualization is consistent creating a repetitive pattern



DESIGN PRINCIPLES REPETITION

1. Use your Office Supply Performance Dashboard
2. Create a dashboard to reflect what the design principle Repetition means to you.

Time – 10 mins

DESIGN PRINCIPLES - PROPORTION

- In art, proportion involves the size of each object.
- If you're drawing a person next to a house, the house is going to be bigger than the person.
- Size also affects Balance
- What message are you trying to convey to your audience
  - If you want to emphasize the importance of a specific data set, make it bigger.
  - Show the actual relationship between numbers

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- If you're drawing a person next to a house, the house is going to be bigger than the person.
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DESIGN PRINCIPLES
PROPORTION

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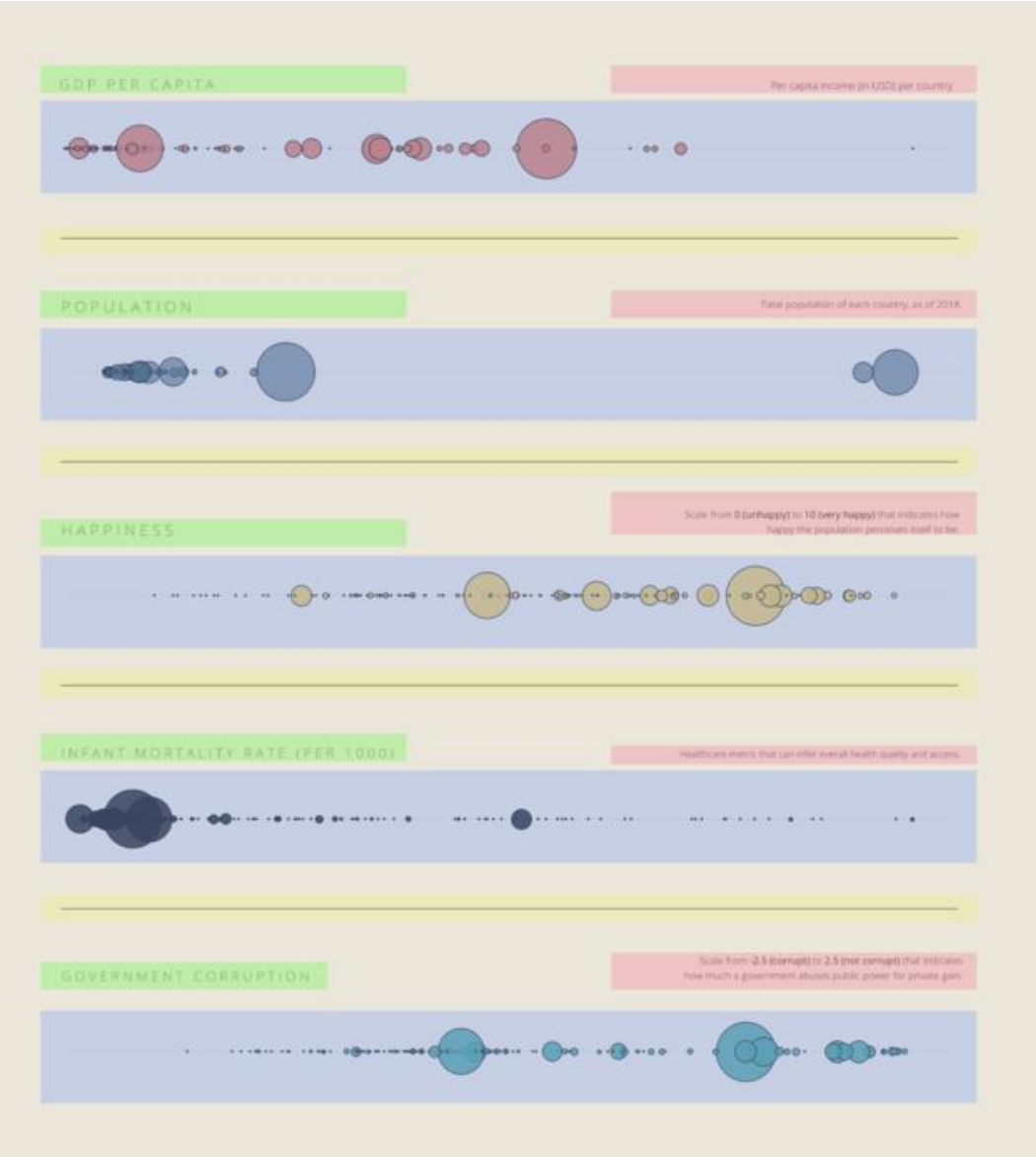


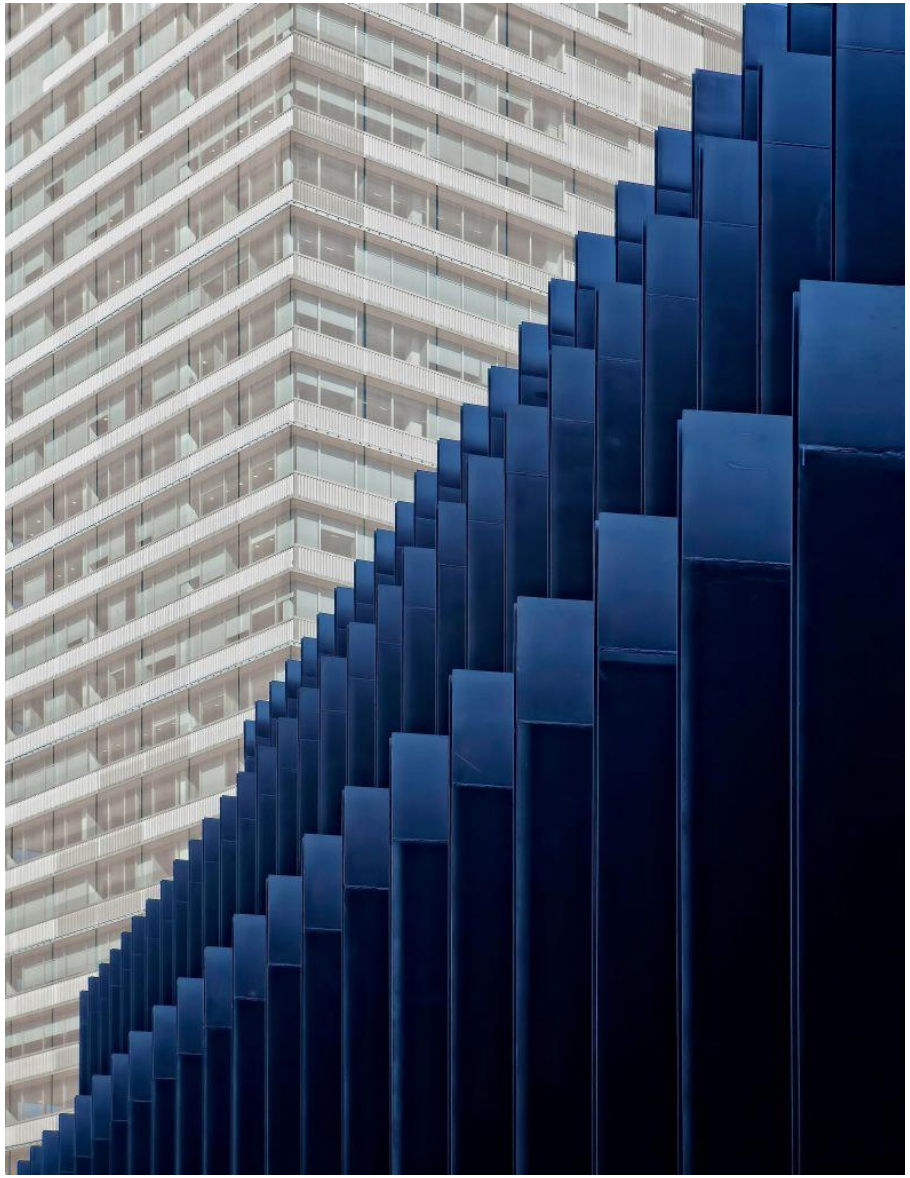
DESIGN PRINCIPLES PROPORTION

1. Use your Office Supply Performance Dashboard
2. Create a dashboard to reflect what the design principle Proportion means to you.

Time – 10 mins

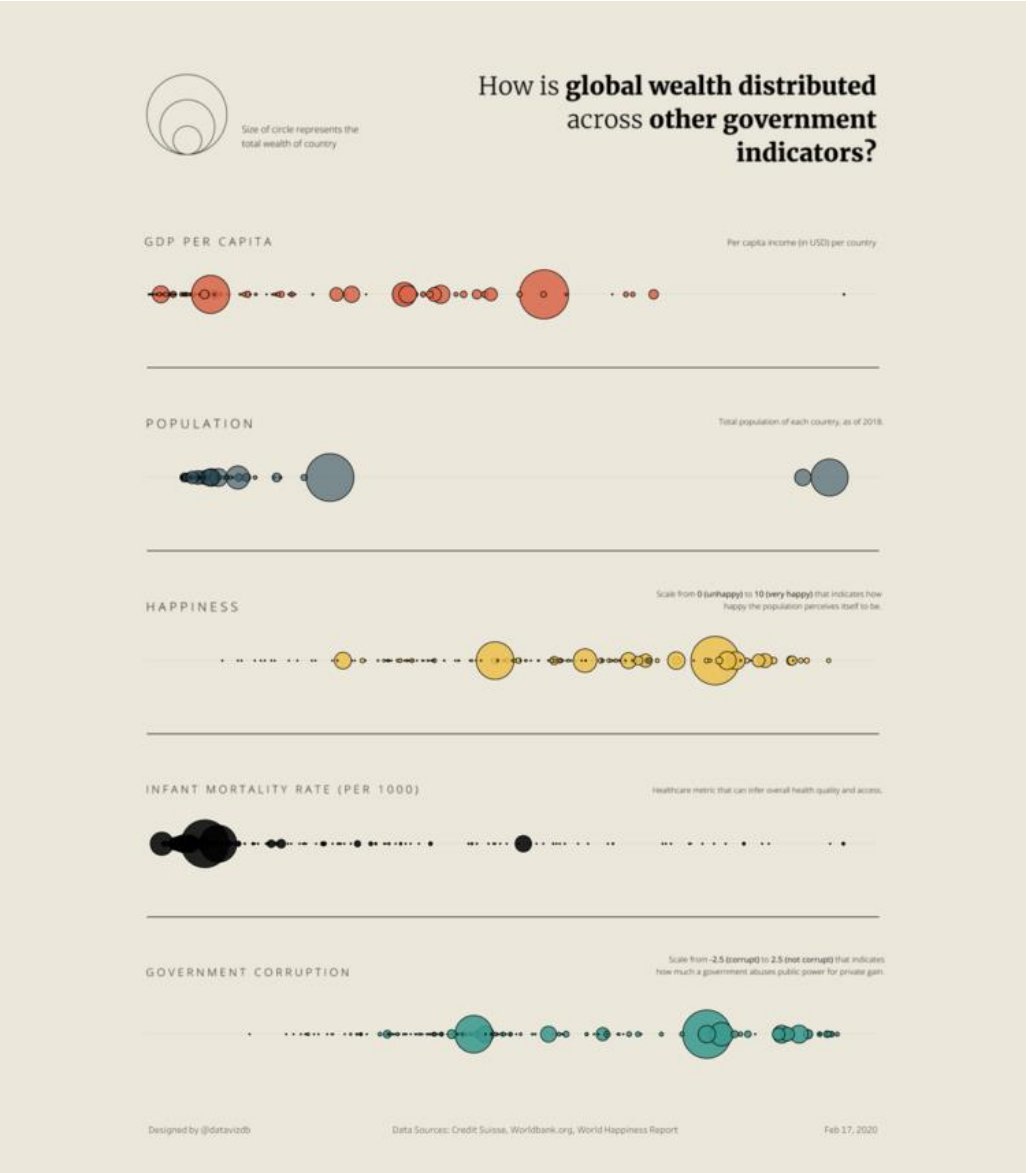
DESIGN PRINCIPLES RHYTHM

1. Rhythm, is closely related to movement, is one of the vaguer principles of design.
2. When we say that a design has proper rhythm, we mean that the elements that make up the design create movement that is pleasing to the eye.
3. If the colors, shapes, or other characteristics of your dashboard does not allow your audience's eye to move across the data seamlessly, then try to rearrange your elements.



DESIGN PRINCIPLES RHYTHM

1. In the Global Wealth Distributed Across other Government Indicators, Rhythm is created by unified spacing between elements.
2. The position of the data points are slightly different, but the number of data points across all five visualizations are consistent.
3. This allows the users to process information across all visualizations.



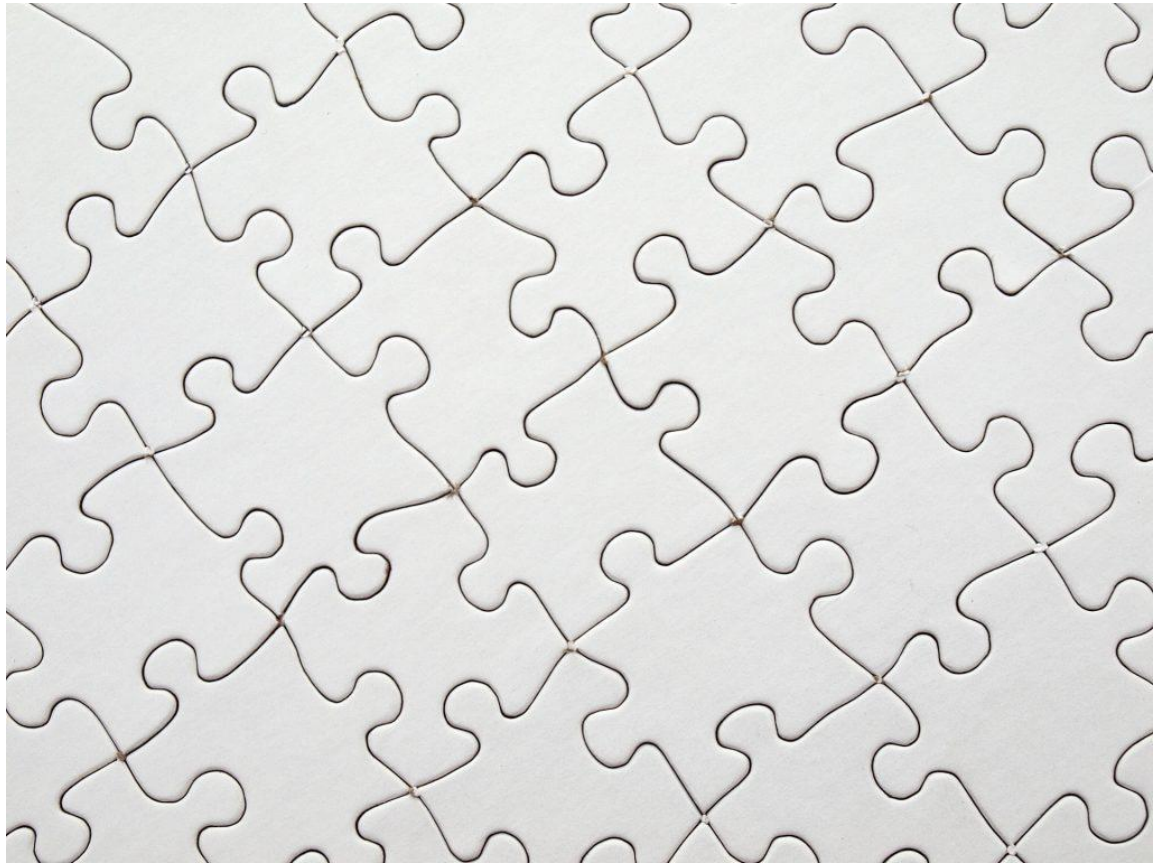
DESIGN PRINCIPLES RHYTHM

1. Use your Office Supply Performance Dashboard
2. Create a dashboard to reflect what the design principle Rhythm means to you.

Time – 10 mins

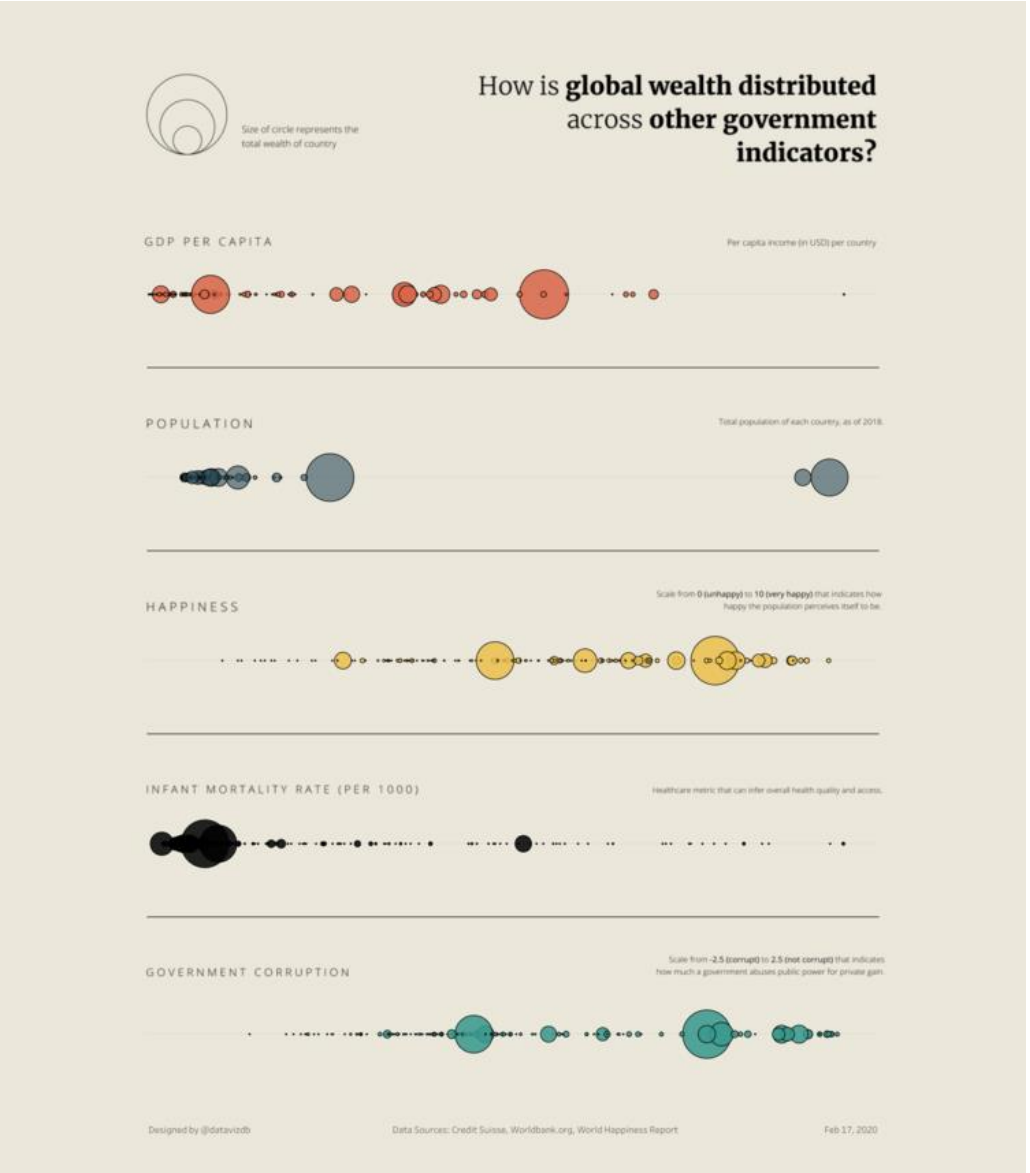
DESIGN PRINCIPLES
UNITY

1. Unity gives your dashboard the impression of having an overarching **“theme”**
2. Can also be described as how well design elements work together.



DESIGN PRINCIPLES
UNITY

1. How is Global Wealth Distributed Across other Government Indicators.
2. Unity was created by
    1. Consistent, horizontal visualizations where the movement of data behaves in the same way.
    2. Line breaks are used to not only to divide each visualization but keep the horizontal unity of the design
    3. Dashboard uses color of similar saturation levels. The only exception is the black color that is used.
        - Ensure that users are not distracted by colors of varying hues, saturations, and brightness.
    4. Equal spacing between elements unifies the element by their internal and external padding.



DESIGN PRINCIPLES UNITY

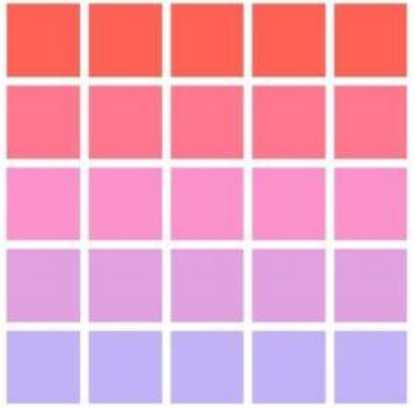
1. Use your Office Supply Performance Dashboard
2. Create a dashboard to reflect what the design principle Unity means to you.

Time – 10 mins

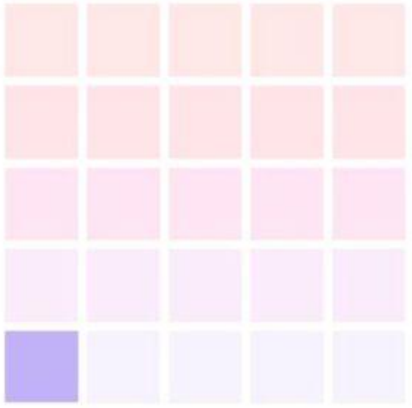
DESIGN PRINCIPLES

define your dream

turn your dream into goals



break your goals into steps



take it one step at a time

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