

# Designing for accessibility

USER-ORIENTED DESIGN IN POWER BI



**Maarten Van den Broeck**

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# Color vision deficiency (CVD)

- Affects approximately 8% of men and 0.5% of women
- Two key causes: a deficiency of particular cones in the eye ("anomaly") or the absence of particular cones in the eye ("anopia")

<sup>1</sup> [https://en.wikipedia.org/wiki/Color\\_blindness](https://en.wikipedia.org/wiki/Color_blindness)

# Color vision deficiency (CVD)

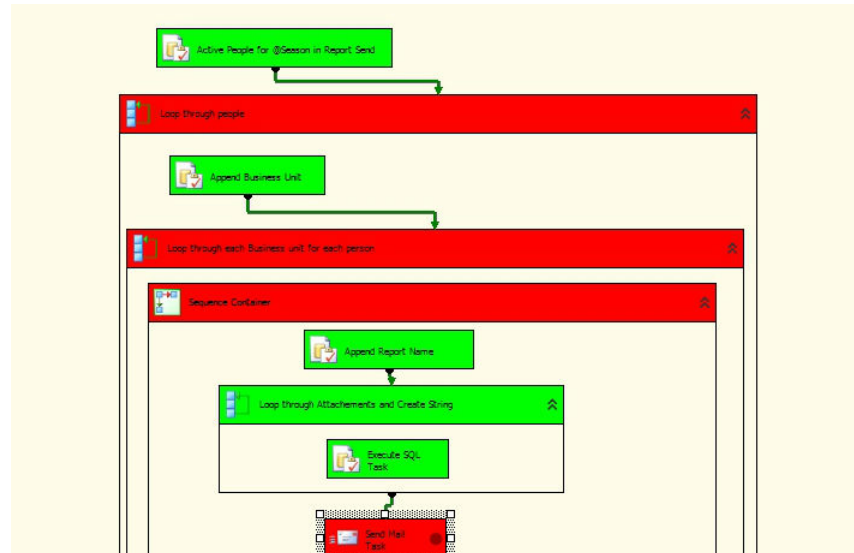
- Affects approximately 8% of men and 0.5% of women
- Two key causes: a deficiency of particular cones in the eye ("anomaly") or the absence of particular cones in the eye ("anopia")

Name	Cones	Likelihood
Protanomaly	Red	1% Men
Protanopia	Red	1% Men
Deuteranomaly	Green	5% Men
Deuteranopia	Green	1% Men
Tritanomaly	Blue	Rare M/F
Tritanopia	Blue	Rare M/F

<sup>1</sup> [https://en.wikipedia.org/wiki/Color\\_blindness](https://en.wikipedia.org/wiki/Color_blindness)

# CVD in action

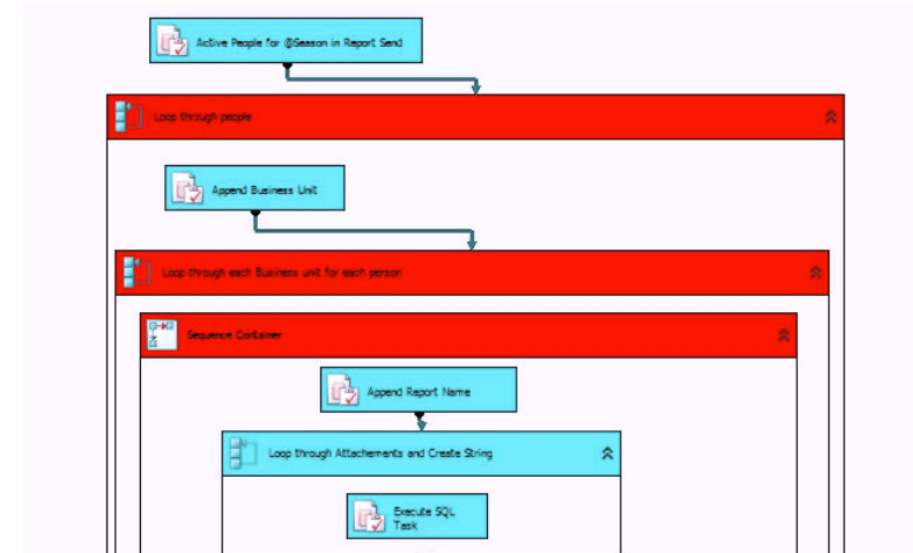
## Typical vision



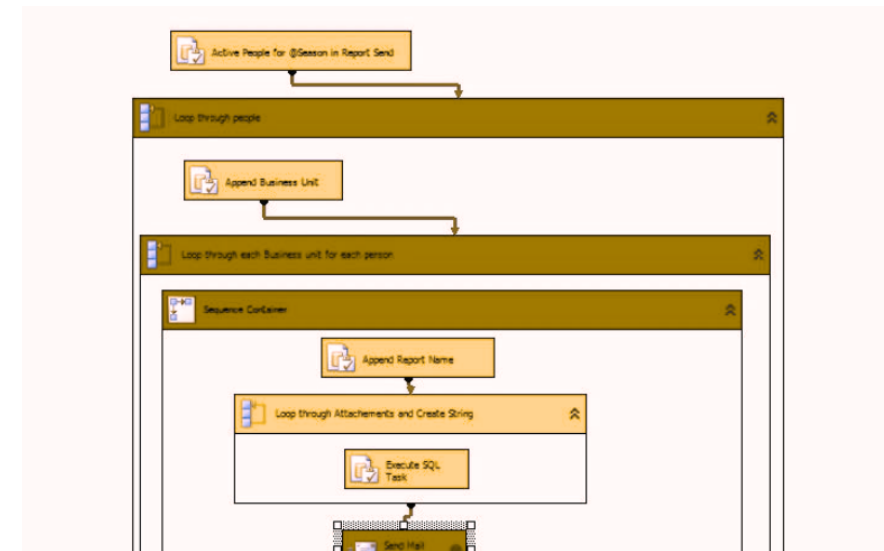
## Protanopia



## Tritanopia



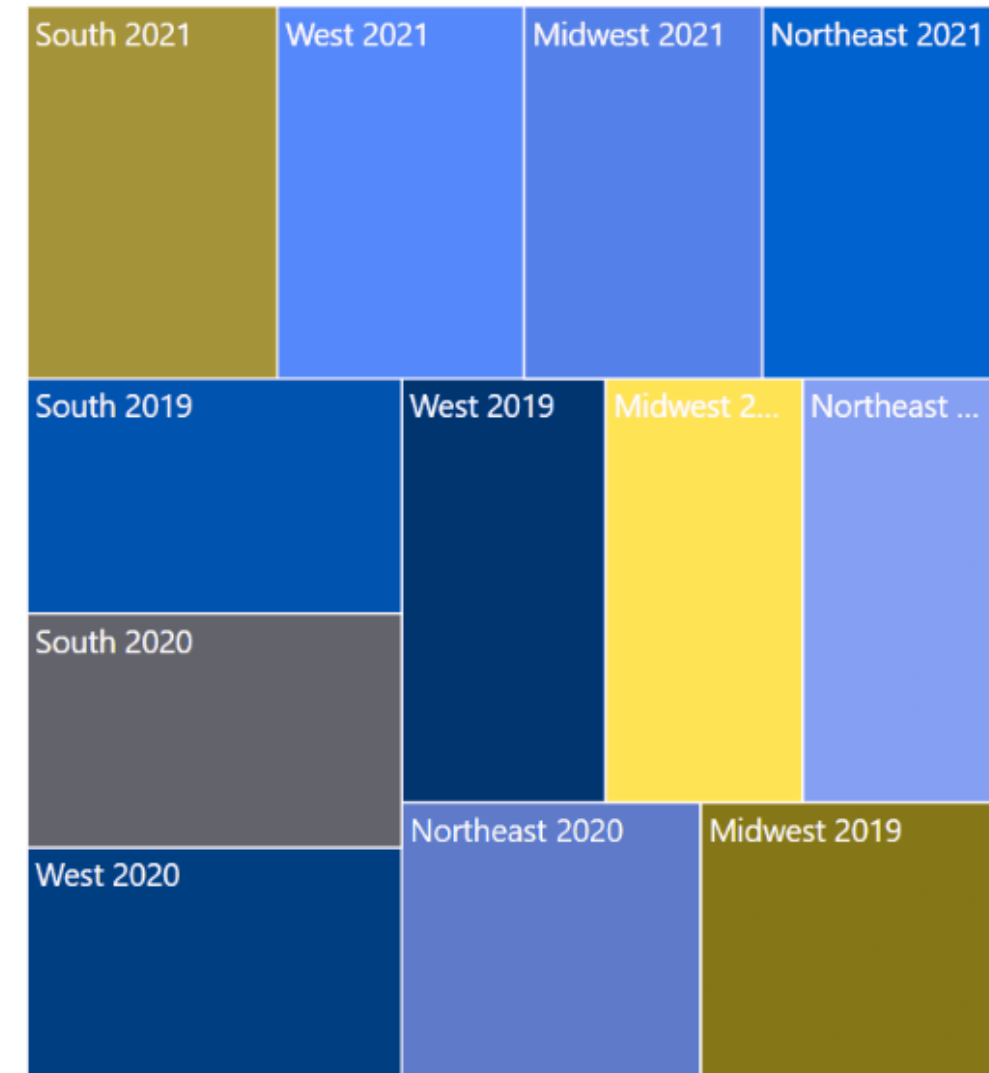
## Deuteranopia



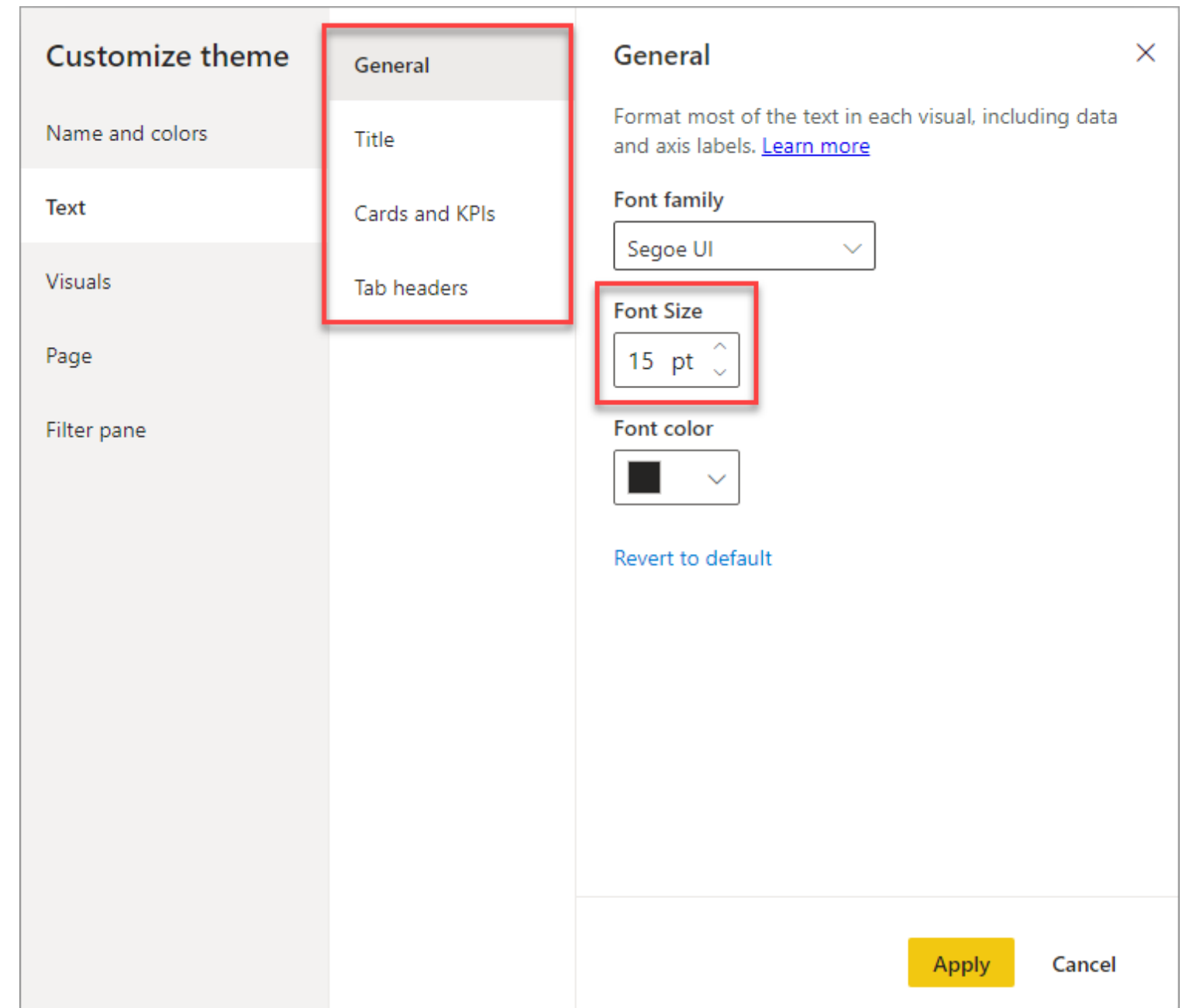
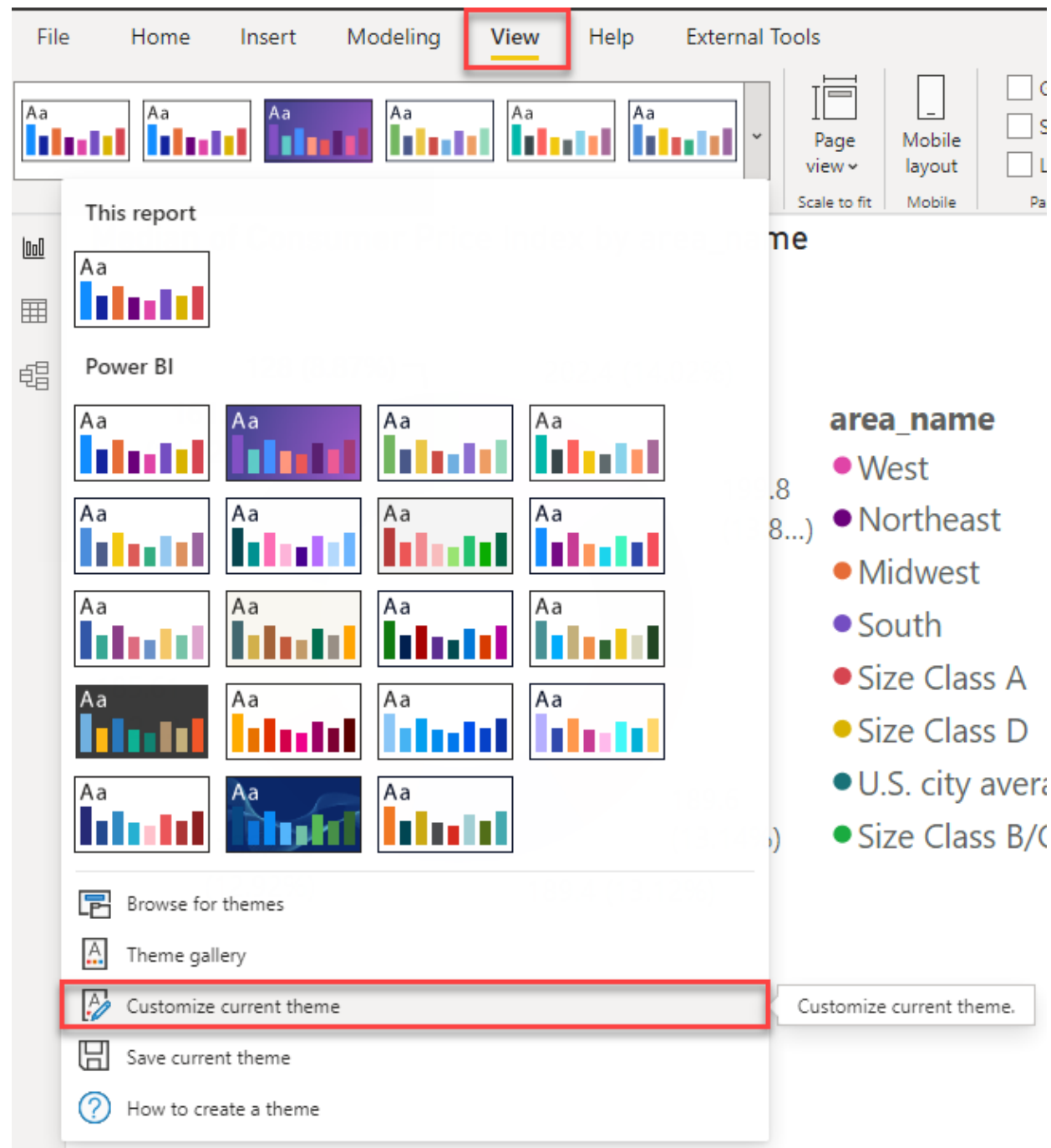
# Tips for better color usage

- Less is more!
- Prefer visuals which do not need to use color as a signal
- Use CVD-friendly color palettes
- Have indicators other than color
- Use tools like Coblis

Median of Consumer Price Index by area\_name and Year



# Font Sizes



# High Contrast Mode

Settings

Home

Find a setting

Ease of Access

Vision

Display

Mouse pointer

Text cursor

Magnifier

Color filters

High contrast

Narrator

Hearing

Audio

Closed captions

Interaction

Speech

Keyboard

High contrast

Make text and apps easier to see by using more distinct colors.

Use high contrast

Turn on high contrast

On

Press left Alt + left Shift + Print Screen to turn high contrast on and off.

Choose a theme

High Contrast Black

Select a colored rectangle to customize high contrast colors

Text

Hyperlinks

Disabled Text

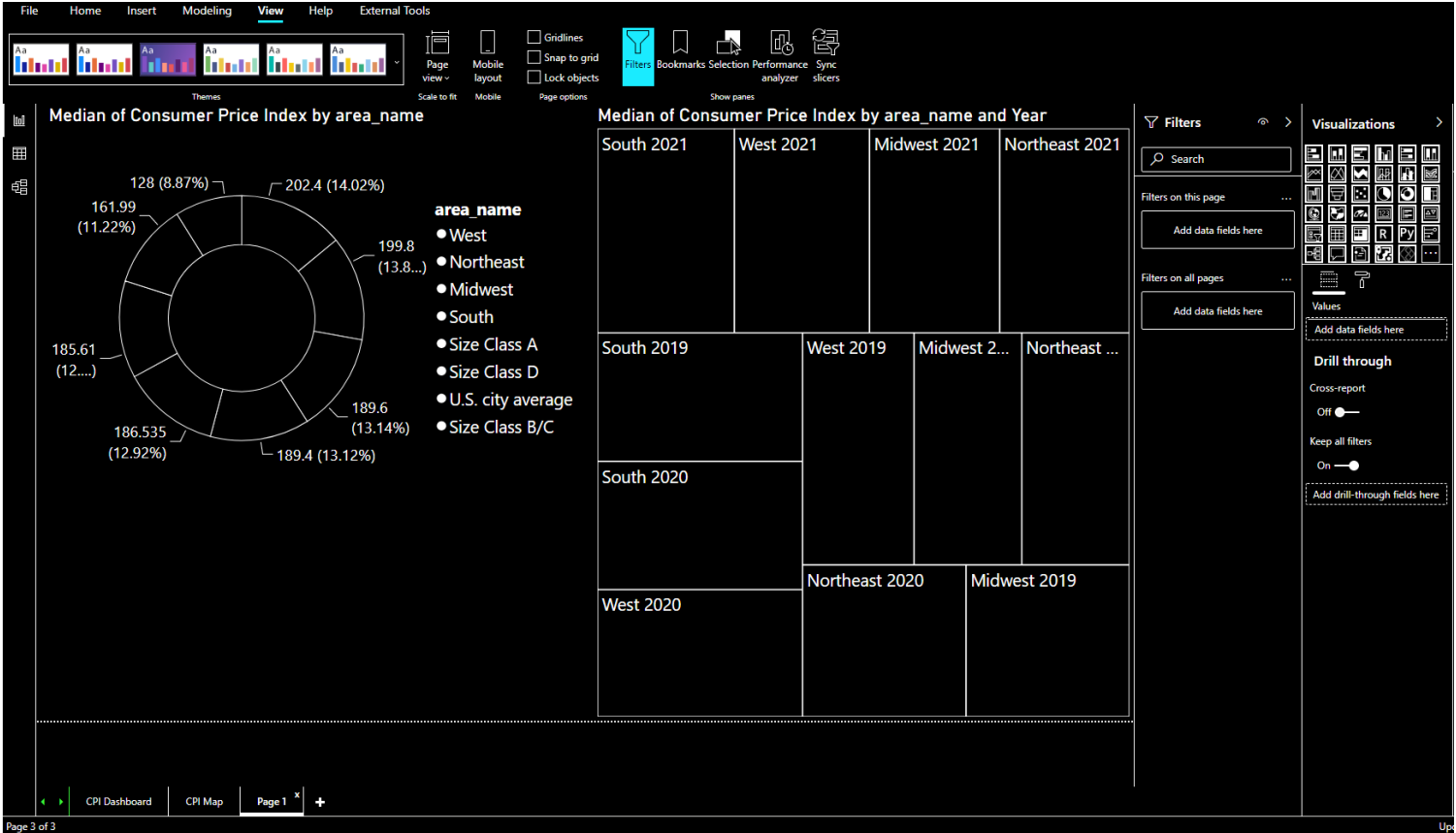
Selected Text

Button Text

Background

Apply

Cancel



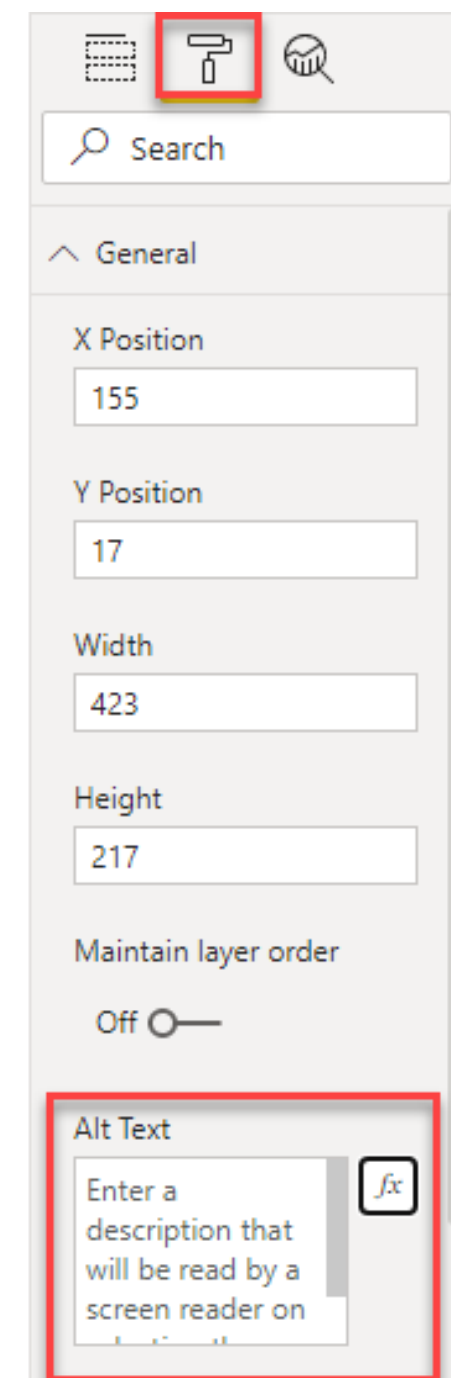
# Increasing contrast

- Contrast ratio: difference in perceived brightness between two colors
- Recommended at least 4.5:1 for normal text and 3:1 for large text (18 points or larger)
- Background images typically lead to lower contrast ratios
- Use contrast testing tools to check this



# Screen readers

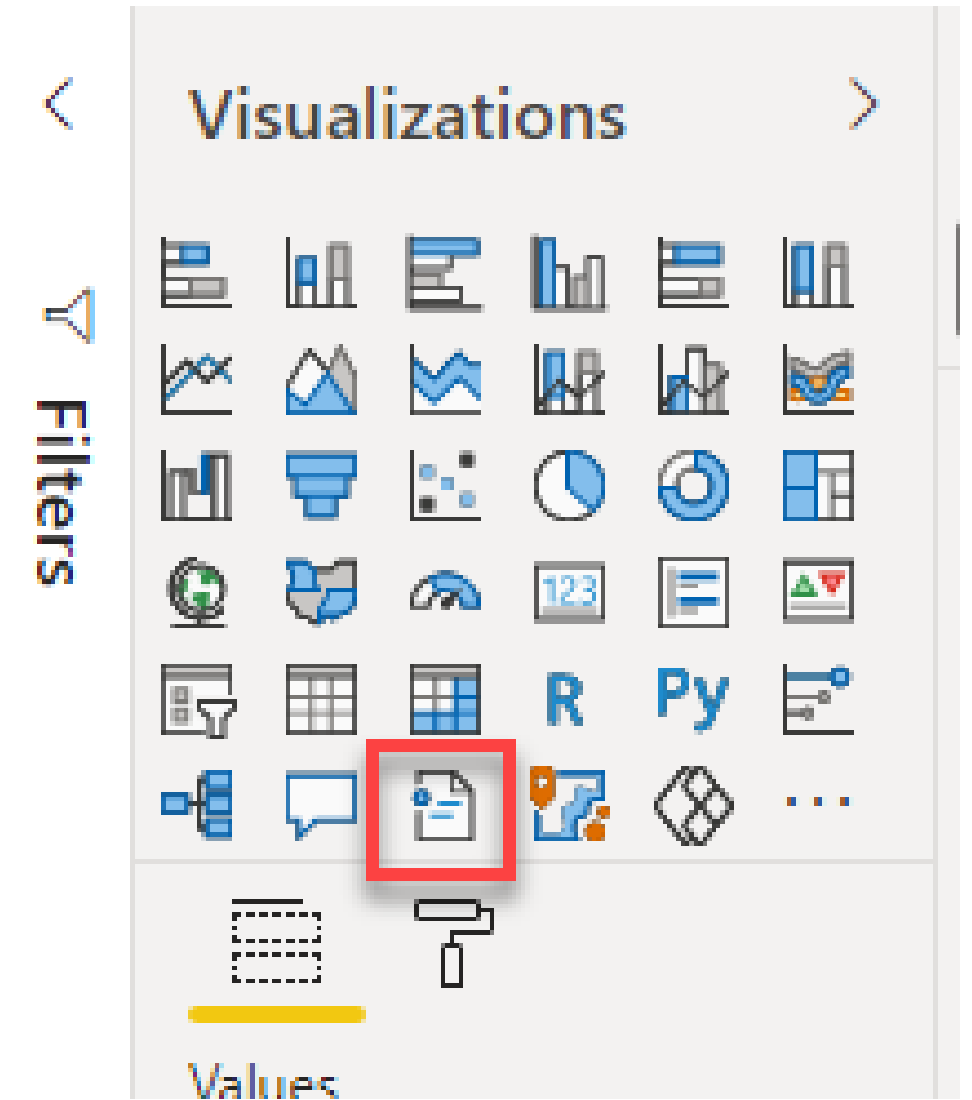
- Power BI supports screen readers--tools which speak aloud the text on a page or the "alt text" of an image for users with limited vision
- Power BI supports showing a visual as a table, making it easier for a reader to list values
- Alt Text describes the visual and can be based on static text or the value of a field
- Keyboard shortcuts are limiting and screen readers don't read all contents.



# Smart narratives

At 0.34, Tim Anderson, CHW had the highest AVG and was 60.85% higher than Richie Martin, BAL, which had the lowest AVG at 0.21.

Across all 36 nameAndTeam, AVG ranged from 0.21 to 0.34.



# Our audience

- Research organization looking to understand inflation trends
- Report users may have visual accessibility concerns

# Let's practice!

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# Accessibility in practice

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