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Applying the Web Content Accessibility Guidelines in Data Visualizations

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Web Content Accessibility Guidelines

- The **Web Content Accessibility Guidelines (WCAG)** is an accessibility standard that the **World Wide Web Consortium (W3C)** develops and maintains.

- **WCAG** provides three levels of guidelines (A, AA, AAA), with AAA being the most stringent. Meeting the guidelines for a level requires also meeting all lower-level guidelines.

- **W3C** released **WCAG 2.1** in 2018, adding additional guidelines for non-text color contrast, responsive interfaces, mobile devices, and so on.

- Salesforce and Tableau currently audit and report against **WCAG 2.0 A** and **AA** guidelines.

- We plan audit and report against **WCAG 2.1** guidelines beginning in **2021**.

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WCAG Principles

- **Perceivable** – Can people perceive the software and information?
  - Are there text equivalents to non-text content? Are colors used properly?

- **Operable** – Can people operate the software?
  - Can all operations be performed using only the keyboard?

- **Understandable** – Can people understand the software?
  - Does the software operate in a logical way? Are there sufficient instructions?

- **Robust** – Does the software work with assistive technologies like screen reading software?

Best Practices for Data Visualization Accessibility
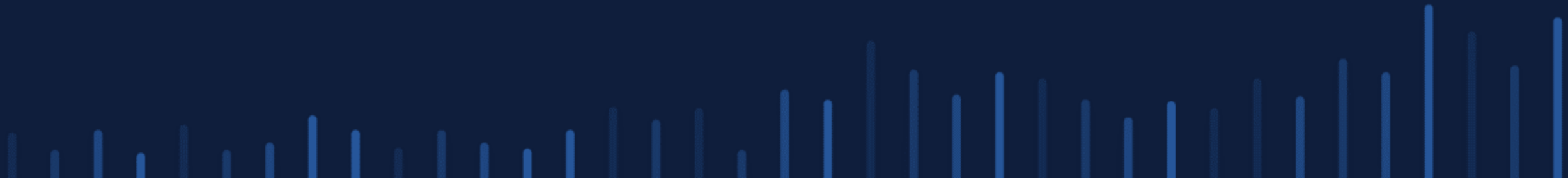
Top Dashboard Accessibility Best Practices

1. Design for accessibility.

2. Use only accessible dashboard elements.

3. Allow data download.

4. Show Titles. Titles should be useful.

5. Show Captions. Captions should describe Views.

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Top Dashboard Accessibility Best Practices

6. Set logical key focus order.

7. Use text colors with sufficient contrast.

8. Do not use only color to convey information.

9. Set alt-text for Images and tooltip text for Buttons.

10. Use Text Objects to give instructions and context.

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1. Design for accessibility.

Accessibility is a design choice.

You cannot make any arbitrary dashboard accessible.

2. Use accessible dashboard elements

- Workbook Tabs
- Dashboard Titles
- Views, specifically:
  - Title
  - View Data Window
  - Captions (when visible)
- List and Dropdown List Filters
- Relative Date Filter

- Categorical Legends
- Text Objects
- Web Page Objects
- Image Objects
- Button Objects
- Parameter Controls
- Set Controls
- Data Highlighter

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3. Allow data download

Data download permission controls whether the View Data page is enabled.

The View Data page provides an accessible table of the data underlying a visualization.

4. Show Titles. Titles should be useful.
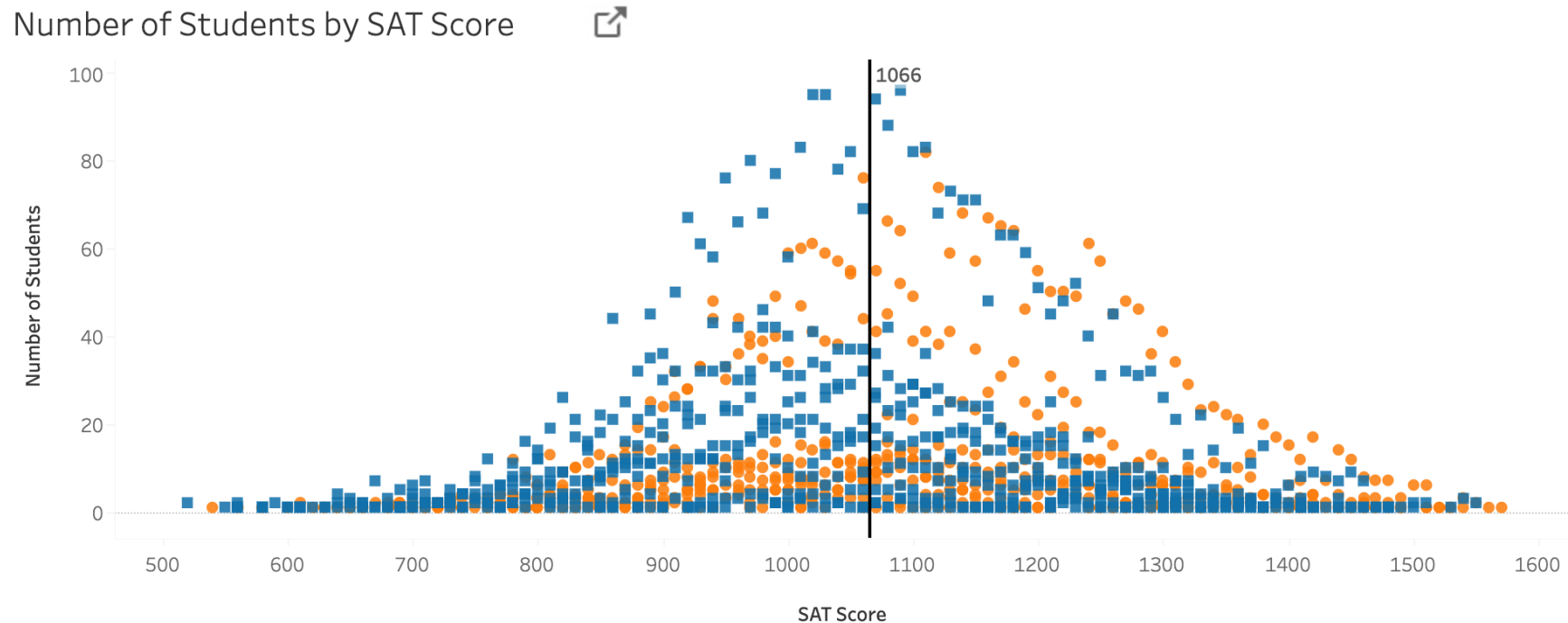
```
<h1>Dashboard Title</h1>


<h2>View Title</h2>


<h3>Filter, Parameter, Set, or Legend Title</h3>
```

5. Show Captions that describe Views.

Screen readers will read visible Captions. Captions can even have some dynamic elements!

Number of Students by SAT Score

Number of Students by SAT Score and Gender is a histogram showing number of students by SAT score. SAT Score is on the x axis. Number of Students is on the y axis. Blue squares represent female students. Orange circles represent male students. The reference line displays the average SAT Score.

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6. Set logical key focus order.

Instructions for setting focus order by editing the Workbook XML are in the following Tableau Community Forums topic:

How can I set the focus order of the views and objects in a dashboard?

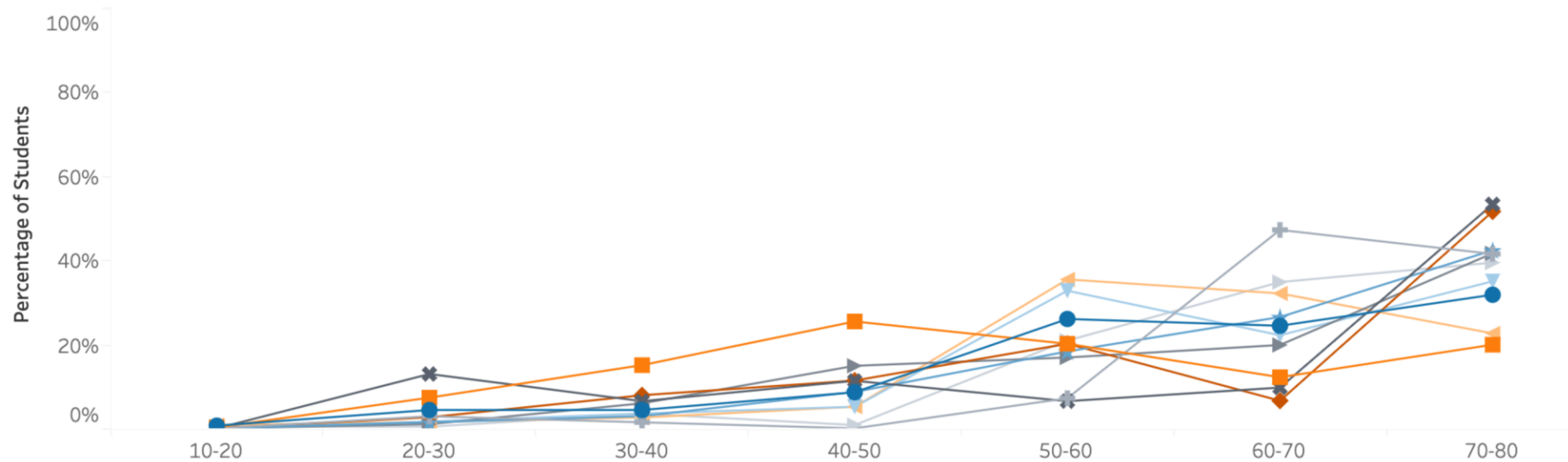# 7. Use text colors with sufficient contrast.

Accessibility

X

Accessibility

✓

8. Do not use only color to convey information.

Percentage of Students by SAT Decile

Percentage of Students by SAT Decile is a line graph showing percentage of students within each SAT decile. SAT Decile is on the x axis. Percentage of Students is on the y axis. Each line shows the data for a different academic division.

9. Set alt-text for Images and tooltip text for Buttons.

Screen readers will read both.

Edit Image Object ✕

Image

Hypothetical University Logo.png [Choose]

Options

☑ Fit Image
☐ Center Image

Target URL

[   ]

Alt Text

[Hypothetical University Logo - Sic Transit Gloria]

[Apply] **[OK]**

Edit Button ✕

Navigate to

[Percentage of Students by SAT Decile ▼]

Button Style

[Image Button ▼]

Image

View Goto Sheet.png [Choose]

Format

Border   Background

[None ▼]   [None ⊘ ▼]

Tooltip

[Navigate to Percentage of Students by SAT Decile view]

53/80 characters

[Apply] **[OK]**

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10. Use Text Objects to give instructions and context.

SAT Performance of Admitted Students

The SAT Performance of Admitted Students dashboard uses two graphs to show SAT score data for students admitted to a hypothetical university. The first is a line graph showing Percentage of Students by SAT Decile. Each line in the graph shows the data for a different Academic Division. The second is a histogram showing Number of Students by SAT Score.

Use the Select Academic Year, Select Gender, and Select Academic Division controls to filter the data in the two graphs.

When either the Percentage of Students by SAT Decile or Number of Students by SAT Score graph has key focus, press Ctrl+Shift+Enter to open the View Data window to view the underlying data for the graph in a table. Close the View Data window to return to the dashboard. If you filter the data after opening the View Data window, you must close and reopen the View Data to view the filtered data.

Use the Shape Legend for Percentage of Students by SAT Decile and Color Legend for Percentage of Students by SAT Decile to highlight data in the Percentage of Students by SAT Decile graph. Use the Shape Legend for Number of Students by SAT Score and Color Legend for Number of Students by SAT Score legends to highlight data in the Number of Students by SAT Score graph.

New Guidelines in WCAG 2.1

- Non-Text Contrast
  - Colorblind Custom Color Palettes

- Reflow
  - Meeting New WCAG 2.1 Success Criteria in Tableau Dashboards: Reflow

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Resources

- You can find all Tableau resources related to accessibility in the [Accessibility FAQ](#) on the Tableau Community Forums.

Contact us:

➢ Do you have any further questions on Accessibility?

➢ What topics would you like to see covered in the future webinars?

➢ Would like to test drive Tableau yourself?

➢ Do you need help with your own dashboards?

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	TRACK: WHAT'S NEW IN TABLEAU	TRACK: DATA-DRIVEN INNOVATION	TRACK: DATA SKILLS FOR ALL
9:00 – 9:20	Welcome & Q&A with Tableau President and CEO, Mark Nelson		
9:25 – 9:50	What's New in Tableau 2021.1	Data Innovation: Where Data and Analytics Are Headed	Grow your Career as an Advocate for Data Literacy and Analytics Within your Organisation
9:55 – 10:20	What is Tableau Business Science	Aligning Analytics Initiatives with Business Objectives	Data Beyond Dashboards: Using the Entire Tableau Platform
10:25 – 10:55	Supercharge your Analytics with Tableau Data Management	Building a Data Culture to Propel Faster Decision Making	AI & the Analyst: Amplify your Data Skills with new capabilities and Tableau Business Science
11:00 – 11:55	Executive Keynote Featuring: • Francois Ajenstat, Chief Product Officer, Tableau • Stephanie Richardson, VP Community Tableau & Tableau Customer Bentley • Guest Speaker: Shivvy Jervis, Futurist and Speaker on Human-Centered Innovation		
12:00 – 12:25	Data Discussion Panels		