

Making Documents Accessible - Digital Content Accessibility

University of Colorado Boulder
[Digital Accessibility Office \(DAO\)](#)

bit.ly/denver-content-a11y

Meet the Team



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Agenda

1. Intro to digital accessibility
2. Content accessibility best practices
 - a. Images and visual design
 - b. Text content: document structure and design
3. Slide accessibility
4. PDF accessibility

Breaks will be built in every hour!

Session Objective

The purpose of this session is to understand best practices for **creating accessible digital content**, regardless of editing platform.



What is Digital Accessibility?

All people should have the opportunity to access the **same information and services** in the digital environment without facing **undue barriers or burdens**.

How to Approach Digital Accessibility Work

- **Proactive and Reactive approaches:**
 - **Reactive:** Waiting for a person with a disability to ask for an accommodation.
 - **Proactive:** Anticipating access needs, and making content accessible in advance.
 - **NOTE:** Zero accommodations is not the goal!
- Take time to **learn accessibility habits and skills** and implement **proactive** accessibility practices one at a time.

Images & Visual Design

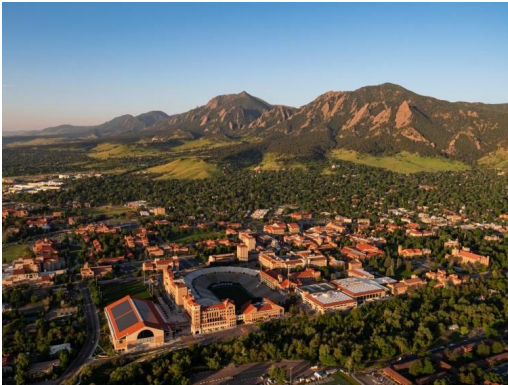


Images and Visual Design Practices

1. **Alt Text (current topic)**
2. Visual Style as Meaning
3. Color Contrast

What is Alt Text?

- Text that conveys the meaningful content of an image concisely to someone who can't see it.
- Not visible in your document; read by assistive technology.
- If it's not present, the file name is read.



× Aerial view of CU Boulder., In line with text, image

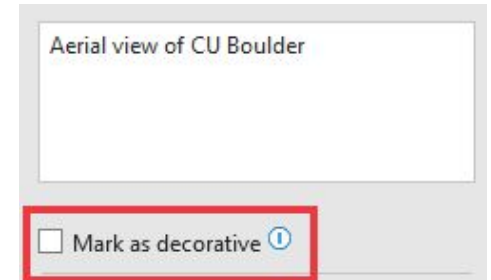
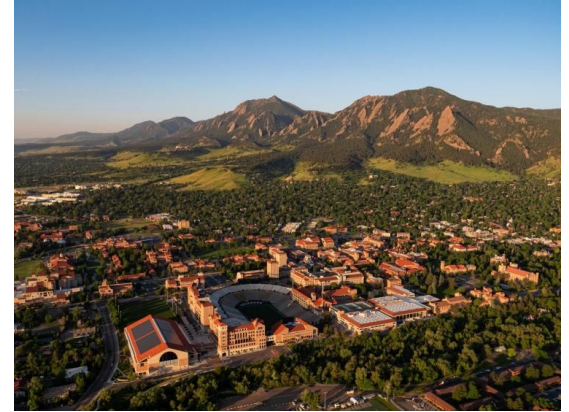
× Screen Shot 2019-06-26 at 9.15.40 PM.png, image

How to Write Alt Text

- Should be short (~150 characters).
 - Prioritize accurate descriptions over character limit.
- It should only describe what can be seen in the image.
- Start with the most important information; omit “image of.”
- Alt text varies depending on the context in which an image is used.
 - Should be a neutral description, not commentary.
- Avoid using automated tools to generate alt text.
- To practice writing alt text, ask yourself, "how would I describe this image to a friend over the phone?"

How to Write Alt Text (2)

- Some images have no meaningful content.
 - Mark as a “decorative image”
 - Will not be read by assistive technology.
- Google Docs does not allow for decorative images ([Google Docs limitations](#)).



Screenshot from Microsoft Word

Identity in Alt Text

- Is the subject's race, gender, disability, skin color, ethnicity, age, etc. essential to understanding the image in its context?
- If the subject is a known individual, use the language they use to describe themselves.
- [Identity in Alt Text Resource](#)



Possible alt text: "A group of activists with varying disabilities, racial identities, genders, and age demographics holding a sign that reads 'Injustice anywhere is a threat to justice everywhere. Martin Luther King Jr.'"

Applying Alt Text in Your Work

- Describe the images in the body of your content even if you can't add alt text.
- How to add alt text to specific platforms:
 - [Microsoft Office](#)
 - [Google Suite](#)
 - [Outlook](#)
 - [Canvas](#)

Images and Visual Design Practices

1. Alt Text
2. **Visual Style as Meaning (current topic)**
3. Color Contrast

What is Visual Style?

- Visual style refers to any visual formatting of content that includes the use of color, *italics*, **bolding**, underlines, and punctuation.
- Style **is** helpful for some people to access content!
- Style should never be used as the **only** way to convey meaning.



Visual Style as Meaning Example - Color

Inaccessible Example:

Can I touch that plant?

- Aloe vera
- Poison ivy
- Poison oak
- Violets

Accessible Example:

Can I touch that plant?

- Aloe vera (yes)
- Poison ivy (no)
- Poison oak (no)
- Violets (yes)

Not Relying on Visual Style Alone in Your Work

- If something is vital in your communications, ensure you're making that clear to all potential viewers.
 - Always supplement color-coded information with text explanations. Use words like "Important" in front of objects that are vital to know.
- Reserve underlining for links only.
- Avoid cluttered or scattered content. Use whitespace around sections or objects to help visual grouping.

Images and Visual Design Practices

1. Alt Text
2. Visual Style as Meaning
3. **Color Contrast (current topic)**


Color Contrast

- Color contrast is the difference in brightness between foreground and background colors.
 - You can't always tell what has sufficient contrast with your eyes alone.
- The [Colour Contrast Analyser](#) software is a free color contrast checker that allows you to easily determine the contrast ratio of two colors simply using an eyedrop tool or inputting the HEX code.
- The [WebAIM Contrast Checker](#) is a free web-based application you can use to check for sufficient color contrast.

Colour Contrast Analyser (CCA)

Foreground colour
HEX ↑↓ 𠄎 𠄎 ?

Background colour
HEX 𠄎 𠄎 ?

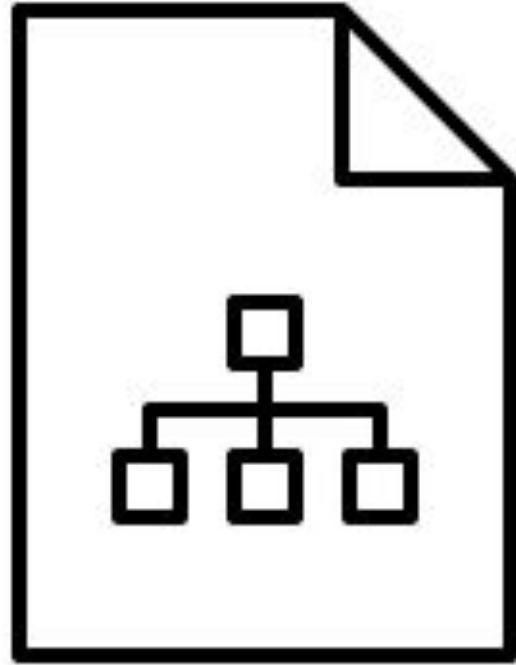
▼ **Sample preview**
 

WCAG 2.1 results Contrast ratio 2.1:1

- ▶ **1.4.3 Contrast (Minimum) (AA)**
 - ✗ Fail (regular text) ✗ Fail (large text)
- ▶ **1.4.6 Contrast (Enhanced) (AAA)**
 - ✗ Fail (regular text) ✗ Fail (large text)
- ▶ **1.4.11 Non-text Contrast (AA)**
 - ✗ Fail (UI components and graphical objects)

Be Boulder.

Text Content: Document Structure & Design



Text Content Practices

1. **Images of Text (current topic)**
2. Headings
3. Link Text
4. Lists
5. Tables

Images of Text

- Images of text are typically digital flyers/posters or photocopied documents of text and are inaccessible.
- Can you select the text?
- CU Denver uses [SensusAccess](#) to convert [images of text](#) using optical character recognition to make text selectable.
 - **Note:** this does not guarantee accessibility, but is a good "just in time" option.

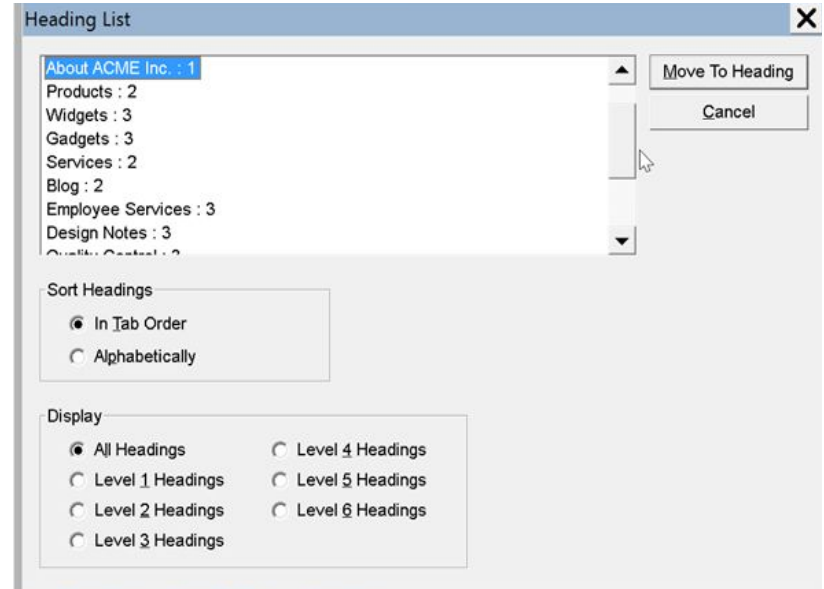


Text Content Practices

1. Images of Text
2. **Headings (current topic)**
3. Link Text
4. Lists
5. Tables

What are Headings?

- Organize and structure your content hierarchically.
- Must be programmatically applied as a style or “tagged” in your editing program.
- Do not mimic a heading by using visual style such as text size, bold, or underline.
- Use familiar heading designs.



Heading Level Breakdown

- **Heading 1:** H1 is broadest topic or document/website title. Generally only have one H1 in a document.
- **Heading 2:** H2 is used to introduce the main topics of your doc/website. You can have multiple H2s through H6s.
- **Heading 3:** H3s are subtopics related to your H2 used to help further breakdown your content.
- **Heading 4:** H4s are subtopics related to your H3.
- **Heading 5 & 6:** Subtopics related to your H4/H5. Do not exceed H6 in your content as screen readers cannot read further than H6.

Heading Levels

- Only increase level by +1 at a time as you increase specificity of headings.
- You may decrease by more than one heading level at a time.

Animals (H1)

Mammals (H2)

The definition of a mammal is a warm-blooded vertebrate animal of a class that is distinguished by the possession of hair or fur, the secretion of milk by females for the nourishment of the young, and (typically) the birth of live young.

Cats (H3)

The cat, also referred to as domestic cat or house cat, is a small domesticated carnivorous mammal. It is the only domesticated species of the family Felidae. Advances in archaeology and genetics have shown that the domestication of the cat occurred in the Near East around 7500 BC.

Dogs (H3)

The dog is a domesticated descendant of the wolf. Also called the domestic dog, it was domesticated from an extinct population of wolves during the Late Pleistocene, over 14,000 years ago by hunter-gatherers, prior to the development of agriculture. The dog was the first species to be domesticated by humans.

Corgis (H4)

The Welsh Corgi is a small type of herding dog that originated in Wales. The name corgi is derived from the Welsh words *cŵr* and *ci*, meaning "dwarf" and "dog", respectively.

Birds (H2)

Birds are a group of warm-blooded vertebrates constituting the class Aves, characterized by feathers, toothless beaked jaws, the laying of hard-shelled eggs, a high metabolic rate, a four-chambered heart, and a strong yet lightweight skeleton

Headings & Slide Titles

- In both PowerPoint and Google Slides, slide titles are read as headings.
- Every slide should have a unique title.
 - If you have the same heading for multiple slides, add a number or word to create a unique title. For example, "Heading Levels (2), Heading Levels Continued"

Applying Headings in Your Work

- How to add headings on specific content editing platforms:
 - [Headings in Microsoft Word \(video\)](#)
 - [Headings in Google Docs](#)
 - [Headings in Canvas Pages](#)
 - [Headings in WebExpress](#)
 - [Headings in HTML](#)

Text Content Practices

1. Images of Text
2. Headings
3. **Link Text (current topic)**
4. Lists
5. Tables

What is Link?

- Link text is using words in place of a URL to make it easier to determine where a link is taking someone.
- Screen readers can jump from link to link to navigate quickly through a page.
- Links should make sense outside of their context in the document.



Link Text Best Practices

- **Describe the destination concisely** in link text; avoid “click here”.
- **Identify the destination file type** in the link text if it’s not a web page.
 - Example: [CU Boulder Digital Accessibility Standards \(PDF\)](#).
- **Avoid duplicate link names** unless they go to the same destination.
- **Don’t write out full URLs** unless they’re meant to be memorized.

Link Text: Describe the Destination



[Click here](#) to visit the beach.



[Click here](#) to visit the dump.

Link Text: Describe the Destination (2)

[Click here](#)

[Click here](#)

Link Text: Describe the Destination (3)

[Visit the beach](#)

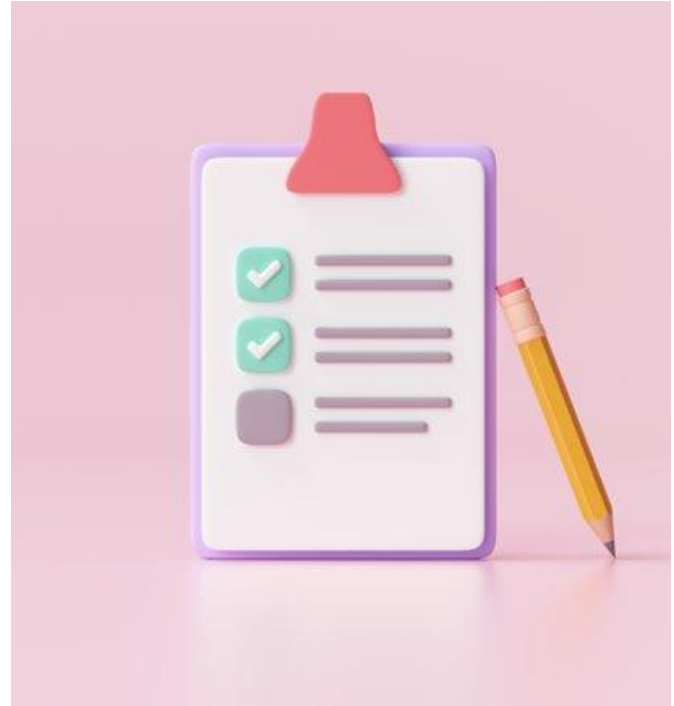
[Visit the dump](#)

Text Content Practices

1. Images of Text
2. Headings
3. Link Text
4. **Lists (current topic)**
5. Tables

Lists

- Use the List creation button!
- When you press Enter, if it automatically indents and creates the next list item, you're doing it right.
- Avoid too many levels of indentation in a list.



Text Content Practices

1. Images of Text
2. Headings
3. Link Text
4. Lists
5. **Tables (current topic)**

Tables

- Avoid using tables for layout purposes.
 - Tables should only contain **data**.
- Add a caption, if needed.
- Avoid merged cells & complex tables.
- Avoid empty data cells, with the exception of cell A1 if you have column **and** row headers.

data table

	2010	2011	2012	2013
Expenses	\$50	\$58	\$79	\$83
Income	\$202	\$300	\$290	\$249

layout table

 University of Colorado Boulder	
	

Table Headers

- **Table headers** are cells that describe the data in its column or row.
- You must **tag (or programmatically apply)** table headers in your content editing platform rather than mimicking them with visual styles.
- **Column headers** are generally **required** whereas row headers are generally nice to have. This depends on your table layout.
- Repeat column headers if they continue onto multiple pages.

column headers

row headers

User Experience Example

If you read the second row of the accessible table below with a screen reader, navigating from cell to cell, the screen reader will read:

"Jeremiah, Monday 78, Tuesday 56, Wednesday 42, Thursday 23."

If headers are not tagged appropriately, a screen reader will read:

"Jeremiah, 78, 56, 42, 23."

Number of minutes at the gym, by day of week

	Monday	Tuesday	Wednesday	Thursday
Jeremiah	78	56	42	23
Ariel	74	50	54	33

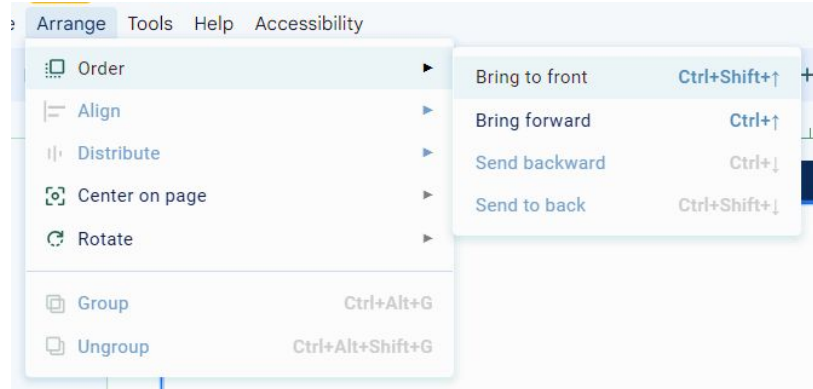
Additional Slide Accessibility Practices

Reading Order

- Reading order determines the order in which assistive technology, specifically screen readers, will read content on each slide.
- Setting the Reading Order:
 - Allows text-to-speech or screen reading software to read information sequentially, typically left to right, top to bottom.
 - To test the reading order on either PowerPoint or Google Slides, place your cursor on your slide (outside of any elements on the slide), then press the Tab key. The order in which the elements are selected is the order in which they appear to assistive technologies.

Rearranging Reading Order in Google Slides

If you need to change the order of an element, in the main menu, select **Arrange**, or select any element, right-click (or Shift + F10) to open the drop-down menu, hover over the **Order** submenu to see the options for movement of the element.



How to Rearrange Reading Order in Google Slides

- **Send to back** places the element at the top of the reading order, making it first to be read by a screen reader (Ctrl + Shift + down arrow).
- **Bring to front** places the element at the bottom of the reading order, making it last to be read by a screen reader (Ctrl + Shift + up arrow).
- **Send backward** moves the element higher in the reading order (Ctrl + down arrow).
- **Bring forward** moves the element lower in the reading order (Ctrl + up arrow).

Rearranging Reading Order in Microsoft PowerPoint

- Reading Order Method:
Each content element should be organized from top to bottom (opposite of the Selection Pane process) so assistive technology can read it in its logical reading order.
 - Only available in PPT desktop version.
- Selection Pane Method:
Each content element should be organized from bottom to top (opposite of the Reading Order process).
 - Available in PPT's online and desktop version.

Thinking About PDF Accessibility

Scope of PDF Training

- PDF accessibility is complicated, but not impossible.
- We won't teach you every important detail in checking a PDF for accessibility during today's session.
- The things we'll cover will give you a high level sense of the accessibility of a PDF document.

Pros and Cons of PDFs

Advantages:

- Easily opened on any device.
- Doesn't require purchased software to access.
- Layout and formatting is consistent across all devices.

Disadvantages:

- Requires purchased software and knowledge to edit.
- Requires form fields to allow users to enter information.
- Requires significantly more time, effort, and knowledge to make accessible than other file types.

First Rule of PDFs:

Ask yourself "does this need
to be a PDF?"

Could your PDF be a different document type?

- **Do you need a consistent visual layout on all devices?**
 - PDF, HTML
- **Does the document need to be available to people outside the university?**
 - PDF, HTML
- **Is the document frequently updated?**
 - HTML, Word, PPT
- **Will users need to type in the document?**
 - Word, Google Docs, PPT
- **Do you need form fields?**
 - Web Express forms, Google Forms, Qualtrics
- **Does the document need to be printed?**
 - PDF, Word, PPT

How to Create Accessible PDFs

- Two main ways PDFs are created:
 1. Scanning a document as an image.
 2. Exporting to PDF from a source document.
- Scanned images are **not accessible!** You will need to convert the images to digital text. OCR Platforms included:
 - [Google Docs](#) (free)
 - [Adobe Acrobat](#) (cost)
 - [Abbyy FineReader PDF](#) (cost)
 - [Kofax OmniPage](#) (cost)
 - [ClaroPDF](#) (cost)

How to Create Accessible PDFs (2)

- **Source document:** the file from which you export to PDF (Word, InDesign, PowerPoint, etc.)
 - Make your source document as accessible as possible **before** exporting to PDF.
- You may have to export in a particular way to preserve accessibility features; this may vary by content editing platform.
 - [How to preserve accessibility when converting from Word to PDF](#)
 - [How to preserve accessibility when converting from Google Docs to PDF](#)

How to Create Accessible PDFs (3)

- Iterate between source document & PDF:
 - Find issues in PDF using the [Acrobat Accessibility Checker](#).
 - Fix issues in the original platform, re-export to PDF.
 - Continue until PDF is as accessible as possible.
- Unless you've completed PDF accessibility training, we recommend avoiding **PDF remediation** as much as possible.
 - **Remediation:** adding or adjusting accessibility features in Acrobat Pro after the PDF has been created.

Inherited PDFs

- Get the source file if at all possible.
- If you don't have the source file, we recommend exporting to Word or manually recreating the document.
 - Export to Word from Acrobat Pro by:
 - File > Export To > Microsoft Word > Word Document
- Recreating or exporting the document can save time in the long run and allows future edits to be made.

Let's Practice

Practice Document

Do not edit this document. You must download your own copy before editing!

[Accessibility Practice Document](#)

1. Select the link to open the document
2. File > Download
3. Download as Microsoft Word (.docx)
4. Open in MS Word desktop application
5. Select Enable Editing

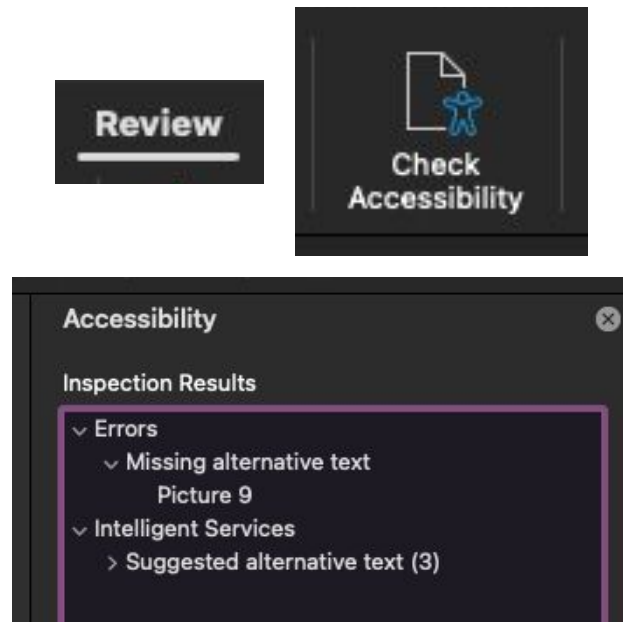
Additional Resources

Additional Resources

- [Canvas Accessibility Checklist](#)
- [Subscribe to our Digital Accessibility Newsletter](#)
- [DAO Self-Paced Resources](#)
- [Follow the DAO on LinkedIn](#)
- [Accessibility Fundamentals for Digital Communicators](#) - system-wide
- [Virtual Office Hours](#) - Fourth Tuesday of each month from 1 to 2 PM

Microsoft Word: Accessibility Checker

- Review > **Check Accessibility**
- The Accessibility checker is a nice high level view and can help you keep accessibility in mind when creating content.
- Accessibility checkers are not a 100% guarantee that your document is fully accessible. There are many accessibility problems an automated checker will fail to identify and will require a manual check.



Mac screenshots

Working with People with Disabilities

- Many disabilities are **invisible**.
- **Not all people report** having a disability in the classroom / workplace.
- It's okay to ask someone what they need (captions, extended deadlines, etc.), but it is **never okay to ask someone what their disability is**.
- What may work for one person **may not work for another**, even if they have the “same” disability.
- People's **lived experiences** of their disability vary widely.

Contact Us

Digital Accessibility Office

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Thank you!

Please provide feedback on the
training you received today -
feedback survey