



Web UX and accessibility

CM1102 Web Applications

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UI and UX design

- UX or User Experience is basically the feeling a user experiences using your website or app. On the other hand, UI or User Interface refers to the various combinations of the design elements and strategies used to create a successful UX..

Importance of Using UI and UX Design



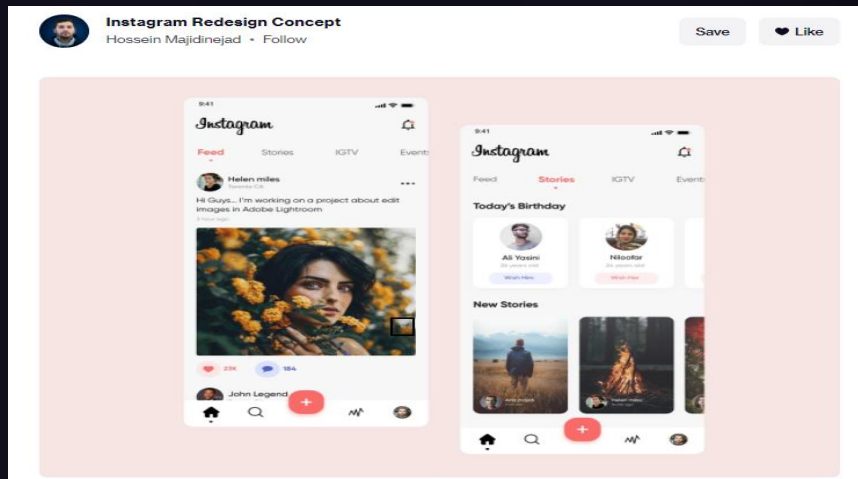
- The basic aim of any business is sales and growth of the business. UX/UI Design plays an important role in helping the sales and growth of any business or organization.
- The user experience and customer satisfaction of a website or an App is what ultimately helps increase conversions.
- The competition is intense with users having lots of alternatives for the products and/or services offered by companies. There is a very short window to attract their attention and make an impact. UI and UX Design play importance in winning the consumers trust and confidence.

What is UX?



- UX design is the process of creating products and services that solve a specific user problem, while ensuring that the proposed solution is both easy and enjoyable to use. It takes a lot to get the user experience just right and there are many different factors to consider. [1]
- Creating a great UX involves observing, analyzing, ideating, iterating and testing. It is about turning bad experiences into good ones. UX also counts on usability. Is your website successful in fulfilling users' purpose?
- User Experience varies from user to user. A well planned and neatly designed website enables a good user experience.

Features of Good UI/UX



- **Simplicity** Simplicity is the key. The design should be elegant enough to look decent and legitimate but simple so users don't get lost in finding what they are looking for.
- The design is simple, with a balanced use of colors. Solutions for industry specific designs with simple and minimal design interventions.

- **Clarity** Clarity means that the content should be very clearly expressed as it is very important for your audiences to understand what you are offering.

- **Feedback/Response** Feedback Response time is a feature of great social networking website. Feedback is a major pointer in interaction design.

- **User Assistance** Another important feature that will make your product and services easier to use.

Principles of UX Design

Principles of UX design [1]:

- **User-centricity** - means putting the user's needs first and making decisions based on what you know about them and what they want from the product
- **Consistency:**
 - There are several layers to consistency in UX design. On the one hand, you want to keep your designs consistent in terms of how they look and function across all pages/screens and products within the same brand or product family.
 - At the same time, consistency also extends to meeting the user's expectations for the kind of product you're designing. For example, if you're designing a flight booking app, your users will come in with certain expectations of how the app should function based on their experience with similar apps on the market. You don't need to copy your competitors, but equally, you don't need to reinvent the wheel.

Principles of UX Design

- **Hierarchy:**
 - Hierarchy relates to information architecture as well as the visual hierarchy of individual pages and screens. As a rule, the more important elements are at the 'top' of the hierarchy (i.e. more prominent and easier for the user to find).
 - Information architecture refers to the sitemap; the overall structure and organisation of your website or app and how the user navigates from one page or screen to another.
- **Context** - You need to understand who your users are and the context in which they'll use your product(s). Context considers the circumstances in which your product will be used and how certain factors might impact the user experience.
- **User control** - helping users to correct or reverse errors without throwing the entire user experience into disarray. User control and freedom can be built into the website by incorporating "Undo" and "Redo" functionality, providing "Cancel" buttons and clearly labelling alternative actions and routes the user can take if they want to revert a particular action.

Principles of UX Design



- **Accessibility:**
 - Ensuring the product or service is accessible to and usable for as many people as possible. It includes catering to the needs of people with disabilities, as well as understanding how different environments or situational factors might impact the user experience.
 - One example of designing for accessibility could be to use high colour contrast to ensure that text is legible for users with visual impairments. For real-world examples of accessible design in action, check out these websites which have nailed the accessible design principle.
- **Usability** - measure of how easy a product is to use. There are five components of usability to consider: Learnability, Efficiency, Memorability, Errors, and satisfaction.



UX Roles

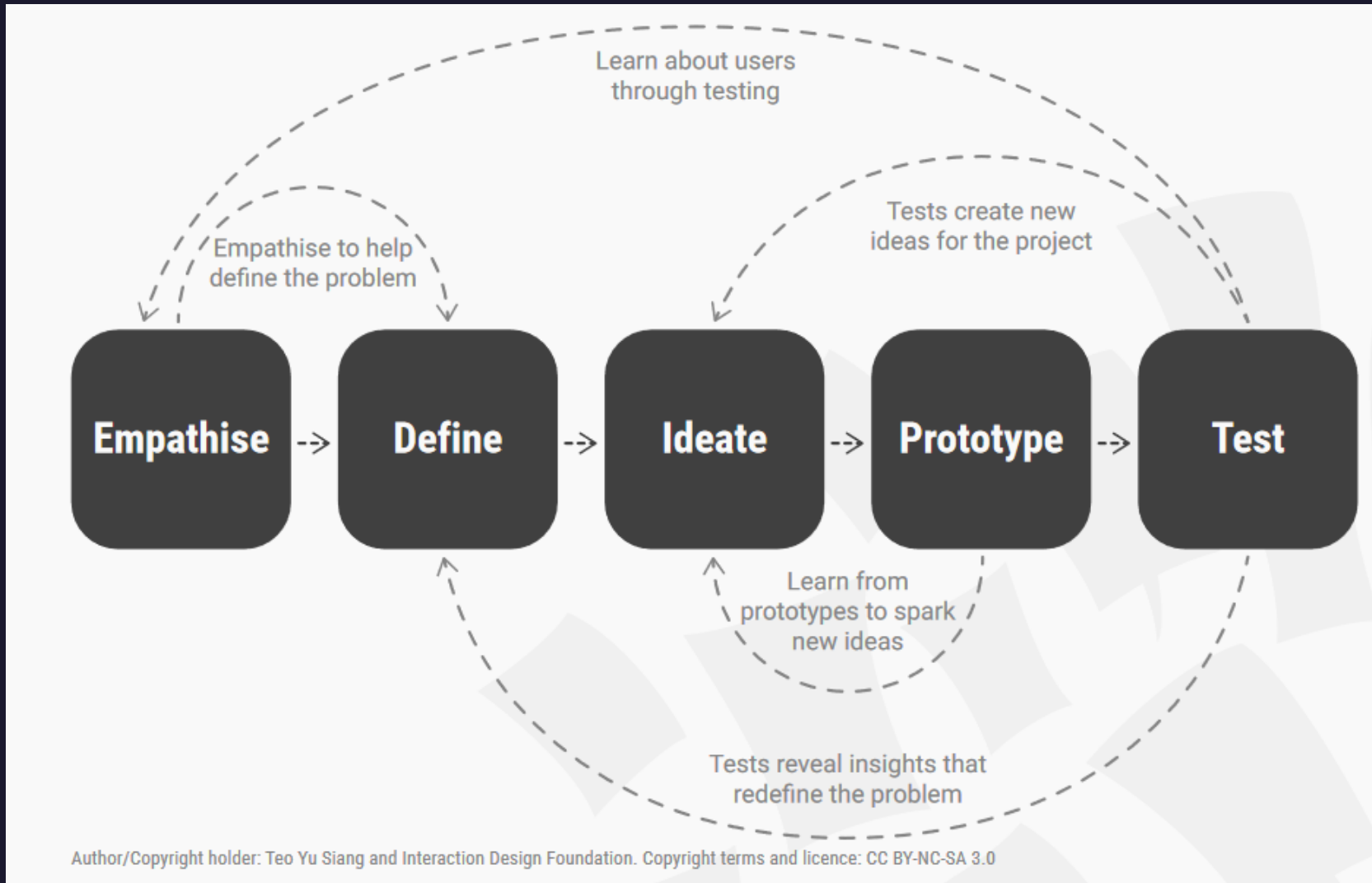
- **UX Designer** – Analyze, develop, wireframe, prototype, test, iterate and refine a product to meet business goals and user needs
- **UI Developer** – focuses on the usability of a website. Usability is whether the system is easy to learn and efficient to use. UI designers try to make systems more user friendly by improving site layout, organization or graphics.

Design Thinking

- Useful for solving ill-defined problems so they are framed in a human-centric way
- Involves developing an understanding of people we design products and services for
 - Develop empathy with users
 - Question the problem, assumptions and implications
 - where possible involve users in the design process

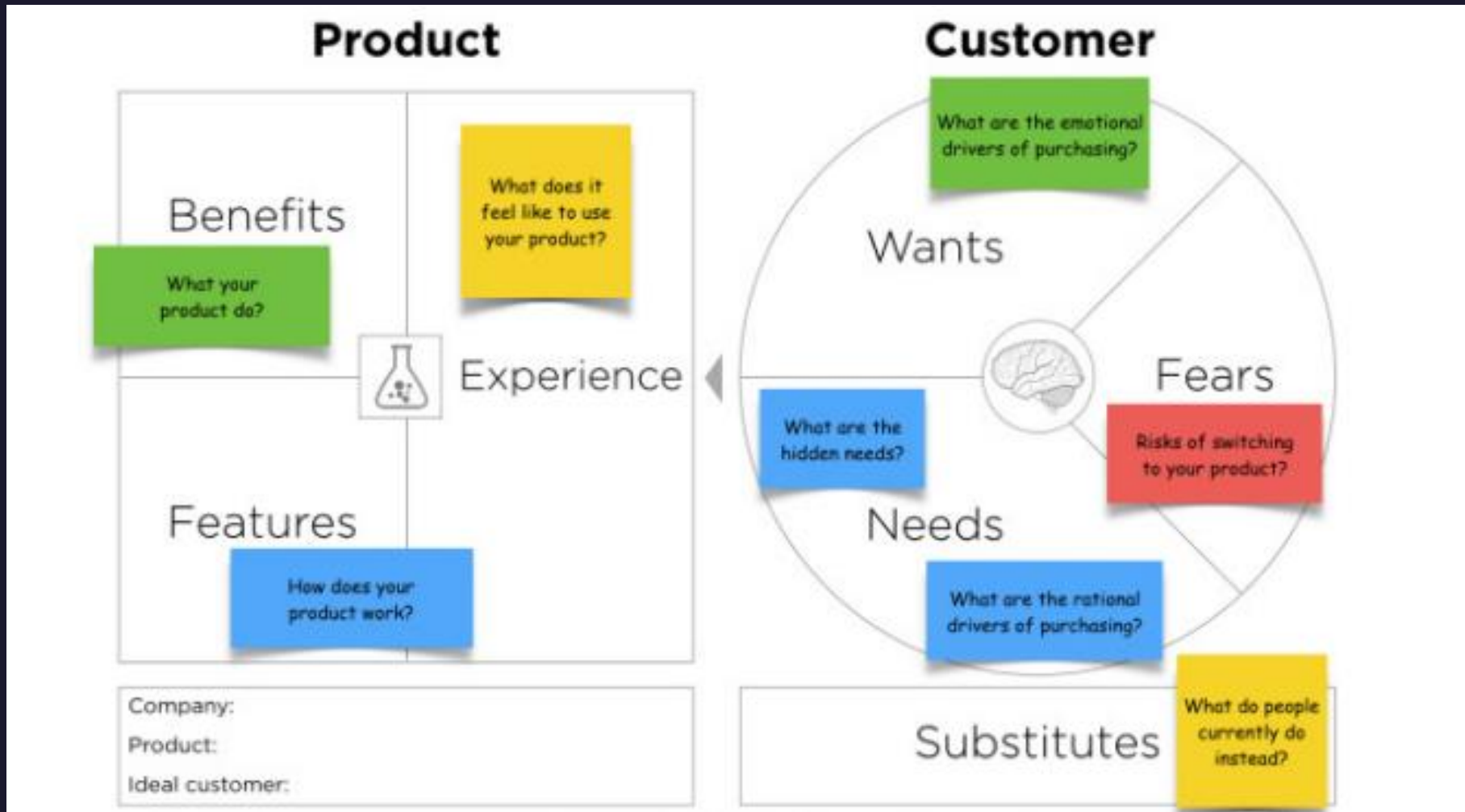


Design Thinking is an Iterative and Non-linear Process



Design Thinking Techniques

- Value Proposition Canvas



Design Thinking Techniques

- **Personas** (<http://www.uxbooth.com/articles/personas-putting-the-focus-back-on-the-user/>)

Meet Steve



Steve Medeiros

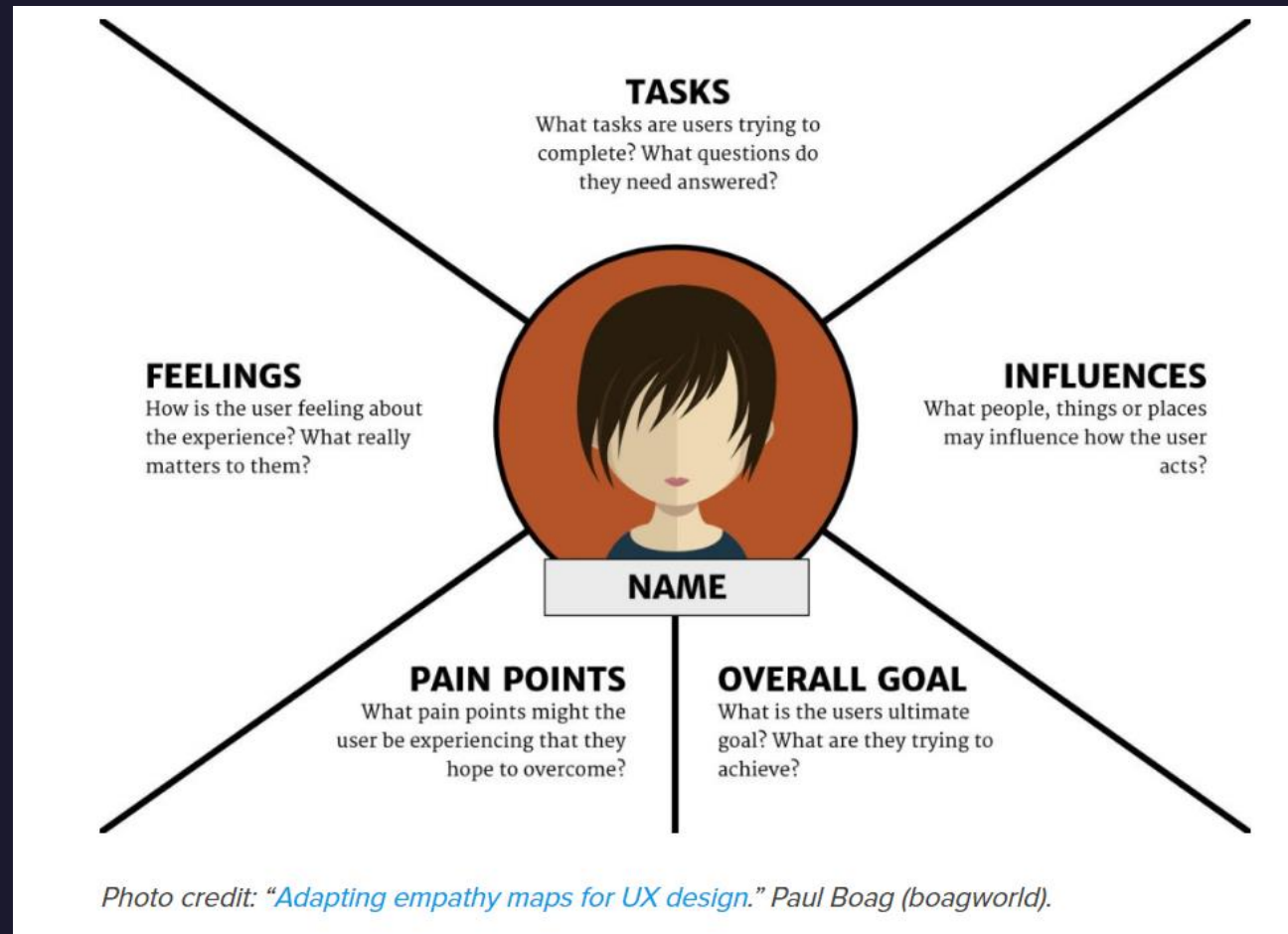
"My parents taught me not to talk to strangers."

- Age: 22
- Role: Graduate
- Area: Finance
- Computer Literacy: High
- Recent graduate of Syracuse University
- Accepted a job in NYC
- Bored of his routine, looking for something new

This is Steve, one of our two personas.

Design Thinking Techniques

- Empathy Maps



Design Thinking Techniques

- **Sketches, Wireframes, Mockups** (<https://blog.prototypr.io/ux-foundations-prototyping-c873354c43cd>)



Sketch



Wireframe



Mockup



Design Thinking Techniques

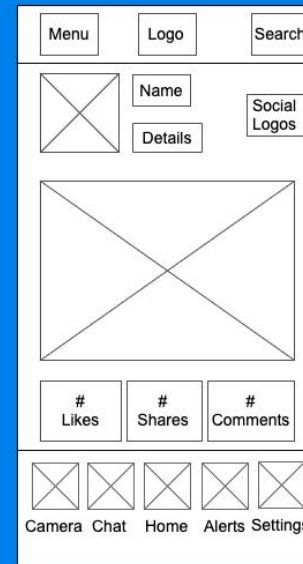
- Storyboard



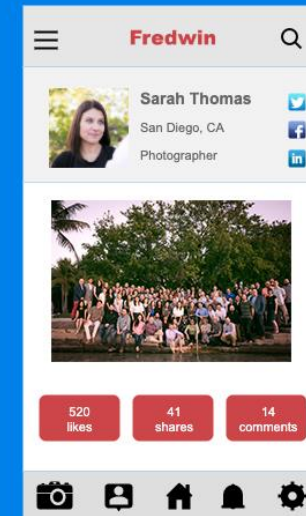
Smile and sadness on human faces can add emotions to your story and it comes alive in the hearts and minds of your audience. Image credit: Chelsea Hostetter, Austin Center for Design

- **Wireframes** - a low-fidelity representation of a site or app. It can be done on paper (preferably) or using digital software.
- **Mock-ups** - A mockup is a middle-to-high fidelity, static, design representation. Very often a mockup is a visual design draft of what the finished website or app would look like.
- **Prototype** - A realistic representation of what the website will look like. The final result can look exactly like the mockup or be a variation of it after version revisions. While some designers prefer to draw the mockups using graphic software, others do it straight in **HTML/CSS**.

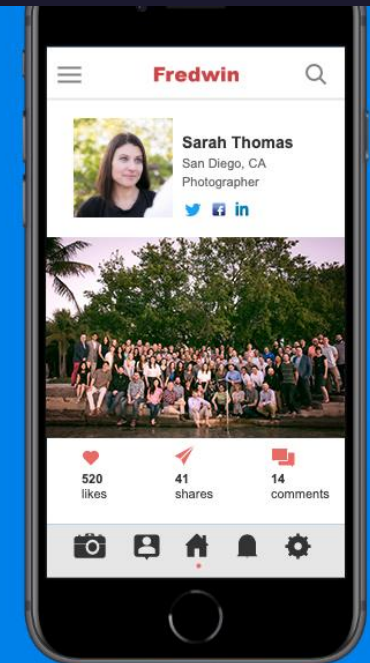
Wireframes, Mock-ups, Prototypes



Wireframe



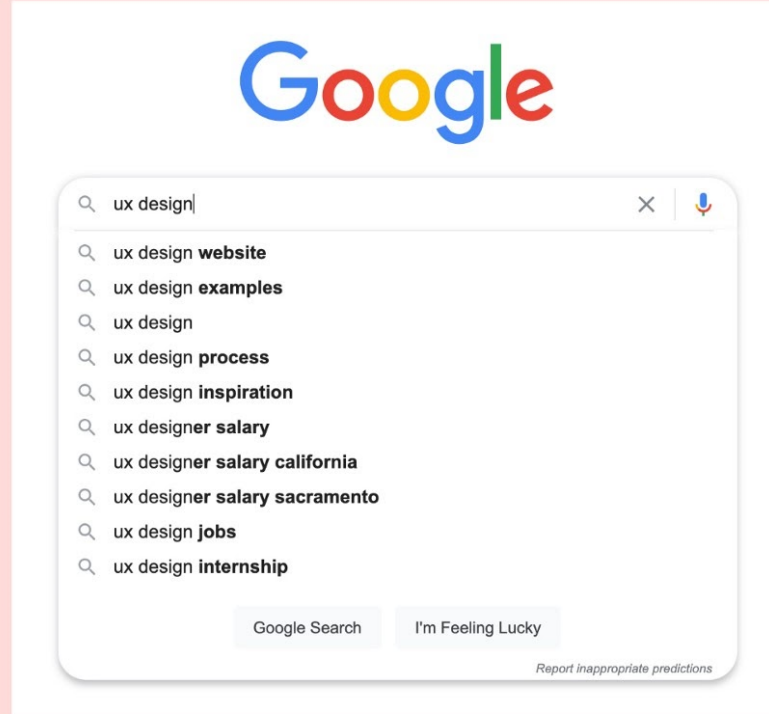
Mockup



Prototype

Examples of good UX design

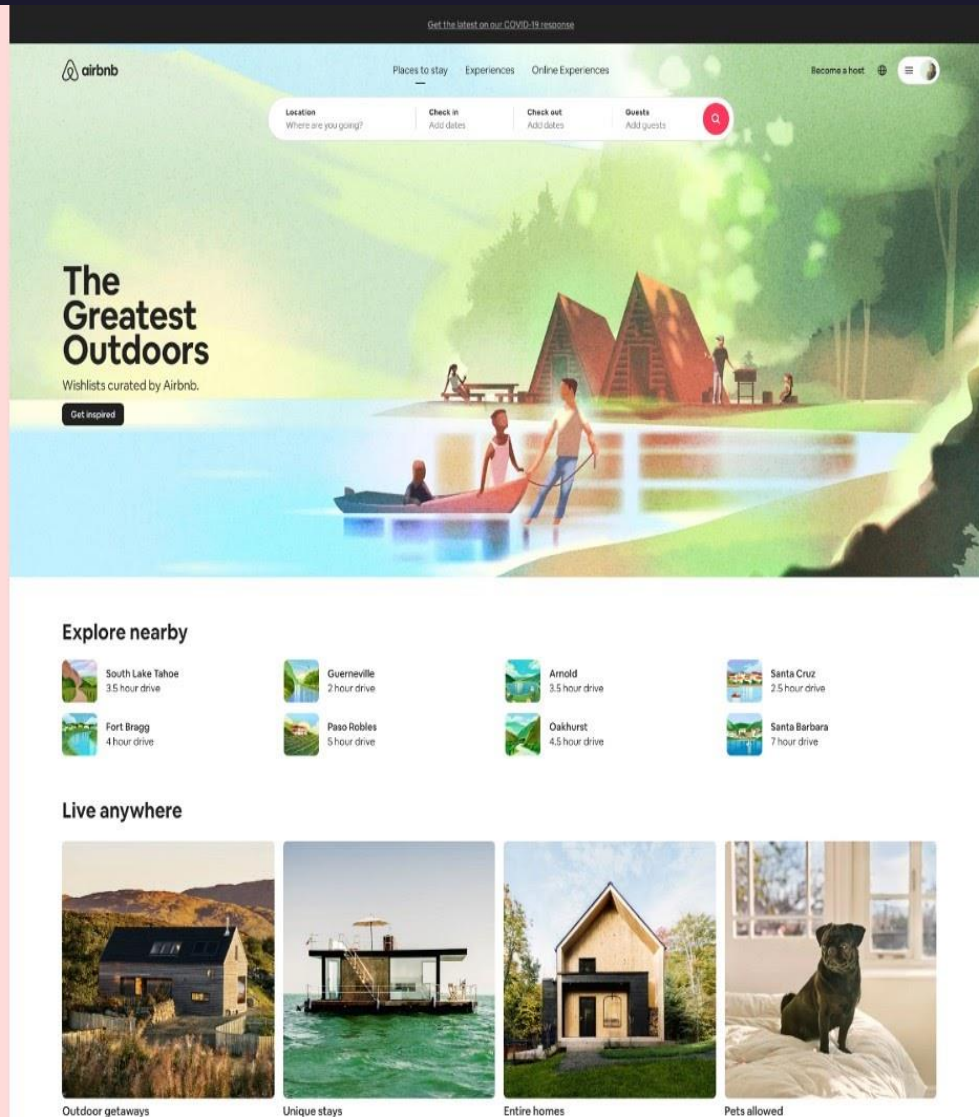
Google



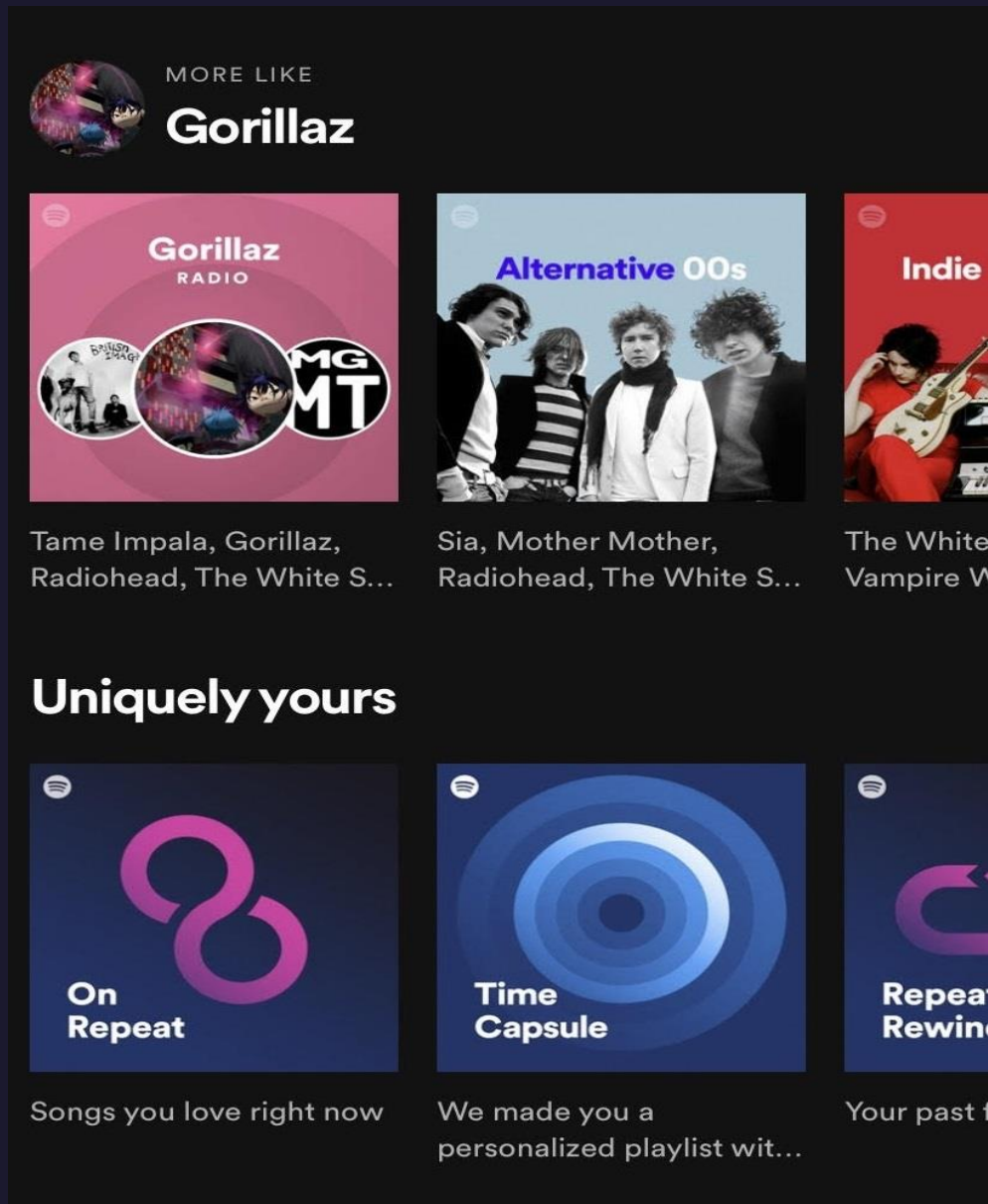
Google's
auto-suggest
feature

Examples of good UX design

Airbnb



Airbnb
homepage



Examples of good UX Design

Spotify



Web Accessibility

- Web accessibility allows every user of all abilities to interact with the web design, access every small element, grab valuable information, and much more. Most importantly by improving web accessibility businesses allow site visitors to enjoy the website browsing experience, regardless of the impairment users may have.
- The internet is a place of equality. It can give us power and choice at the same level if accessible.
- Tim Berners-Lee (founder of WWW) says **the power of the web is in its universality**access by everyone regardless of disability is its essential aspect.

Benefits of Web Accessibility

- In addition to access to information, there is also a strong business case for accessibility. It overlaps with other best practices such as mobile Web design, usability, design for older users and optimized searches.
- Case studies have shown that accessible websites have:
 - Better search results
 - Reduced maintenance costs
 - And increased audience reach.

Why is Web Accessibility important?

The web is becoming an increasingly important resource in many aspects of life in fields such as:

- Education
- Employment
- Government
- Commerce
- Health care
- Recreation

It is essential that the Web can be accessible in order to provide equal access and equal opportunity for everyone so they can actively participate in society.

Accessibility

- **Accessibility is not...**





- Text-only pages
- Separate accessible versions (except in multimedia)
- Boring
- Difficult

- **Accessibility is...**

- Accessibility is about building web pages that can be navigated and read by **everyone**, regardless of disability, location, experience or technology.



Web Accessibility

- Up to 22% of the British population have some kind of disability.
- The major kinds that affect web use include:
 -  **Visual** – blind, low vision, color-blind
 -  **Hearing** – deafness
 -  **Motor** – inability to use a mouse, slow response time, limited fine motor
 -  **Cognitive** – includes learning disabilities, unable to focus



Barriers to Accessibility

- **Visual:** Screen readers, read web page content aloud for people who have low or no vision.
 - Simulation: <https://webaim.org/articles/nvda/>
- Deaf: Need captioning for sound.
- **Motor:** People who don't have use of their arms or hands sometimes navigate the web via the keyboard, hitting keys with a stick in their mouths.
- Requires site design that allows for exclusive keyboard navigation...(try getting around a web page using just the keyboard, without using a mouse.)



Basic Accessible Design Principles

- **Provide appropriate alternative text**
- **Caption video, provide transcripts for audio**
- **Make file downloads (e.g., PDFs) accessible**
- **Do not rely on color alone to convey meaning**
- **Make sure content is structured, clearly written and easy to read**



How People with Disabilities Use the Web

- Alternative keyboards or switches
- Scanning software
- Screen magnifiers
- Screen readers
- Speech recognition
- Tabbing through structural elements
- Text browsers
- Visual notification
- Voice browsers



Examples of Web Accessibility

Here are some examples of things you can do:

- Keep navigation the same on each page
- Have a way for the user to increase/decrease font on pages.
- Have a high enough contrast between background color and text color.
- Have alternative text for graphics and videos:
 - Alt text for images and charts
 - Captions and/or transcripts for videos
- Have links that make sense. Avoid “click here” as link text.
- Forms and tables should be properly formatted and labeled with the correct HTML.

Examples of Web Accessibility

- Content
 - Relevant content for the page
 - Relevant page titles
 - Heading markup
 - Correct HTML markup for relevant content
- For scripts, applets and plugins
 - Have an alternative way to access the information
- Offer information in plain text format when possible; PDFs and Flash files are not easily accessible
- Do not use different colored text to convey meaning

A background image showing a group of business professionals in an office setting. A man in a suit and tie is on the left, and a woman is in the center, both looking at a laptop screen. Another person's hand is visible on the right, also interacting with the laptop. The scene is dimly lit, with the primary light source coming from the laptop screen.

Evaluating and Testing for Web Accessibility

When developing or redesigning a site, evaluate and identify issues early during the process.

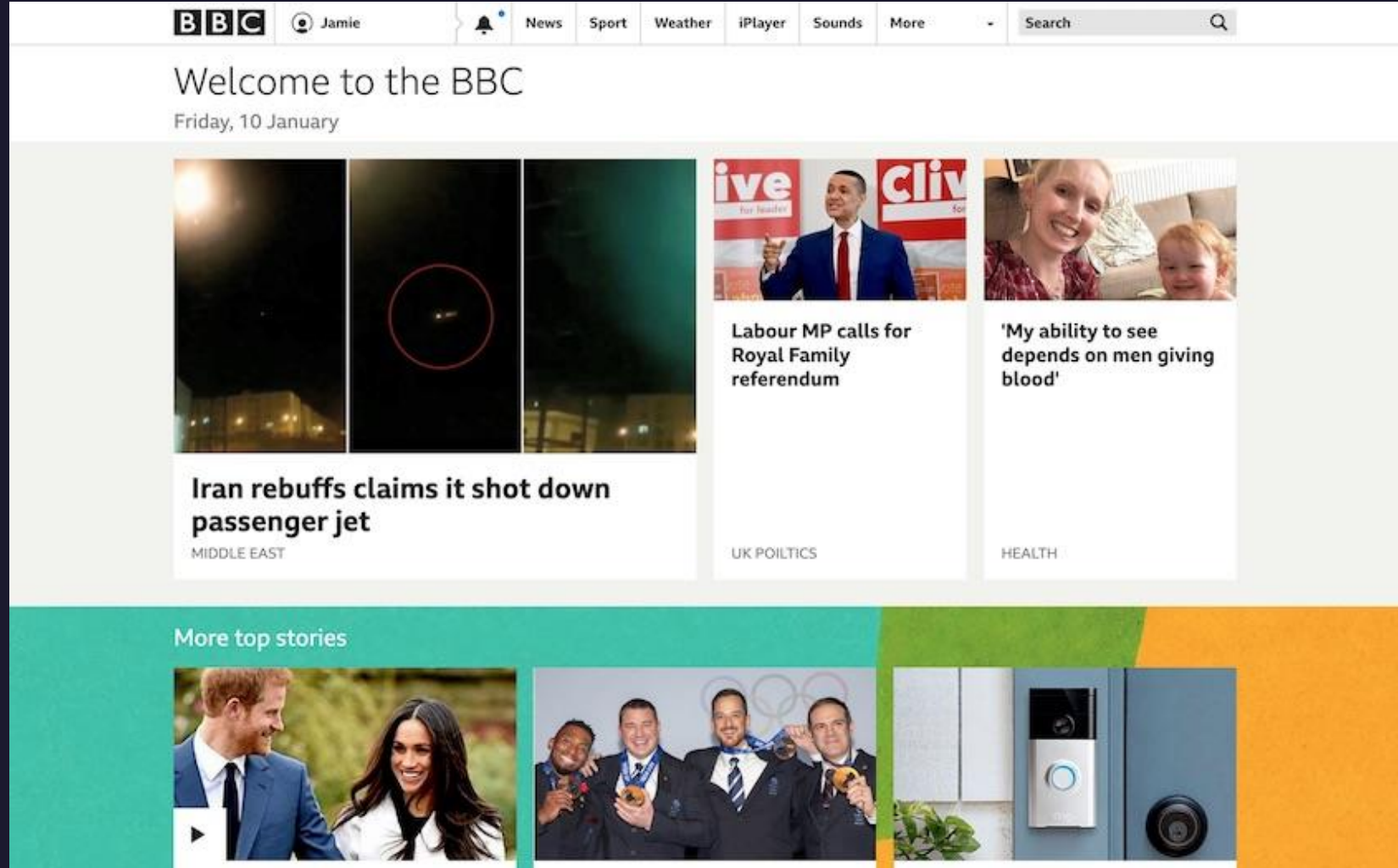
Try disabling the style sheet, if the content and format is still readable, then the site is accessible. In other words, do not rely on styling to convey core messages.

Testing Resources

[Web Accessibility Evaluation Tools List -
https://www.w3.org/WAI/ER/tools/](https://www.w3.org/WAI/ER/tools/)

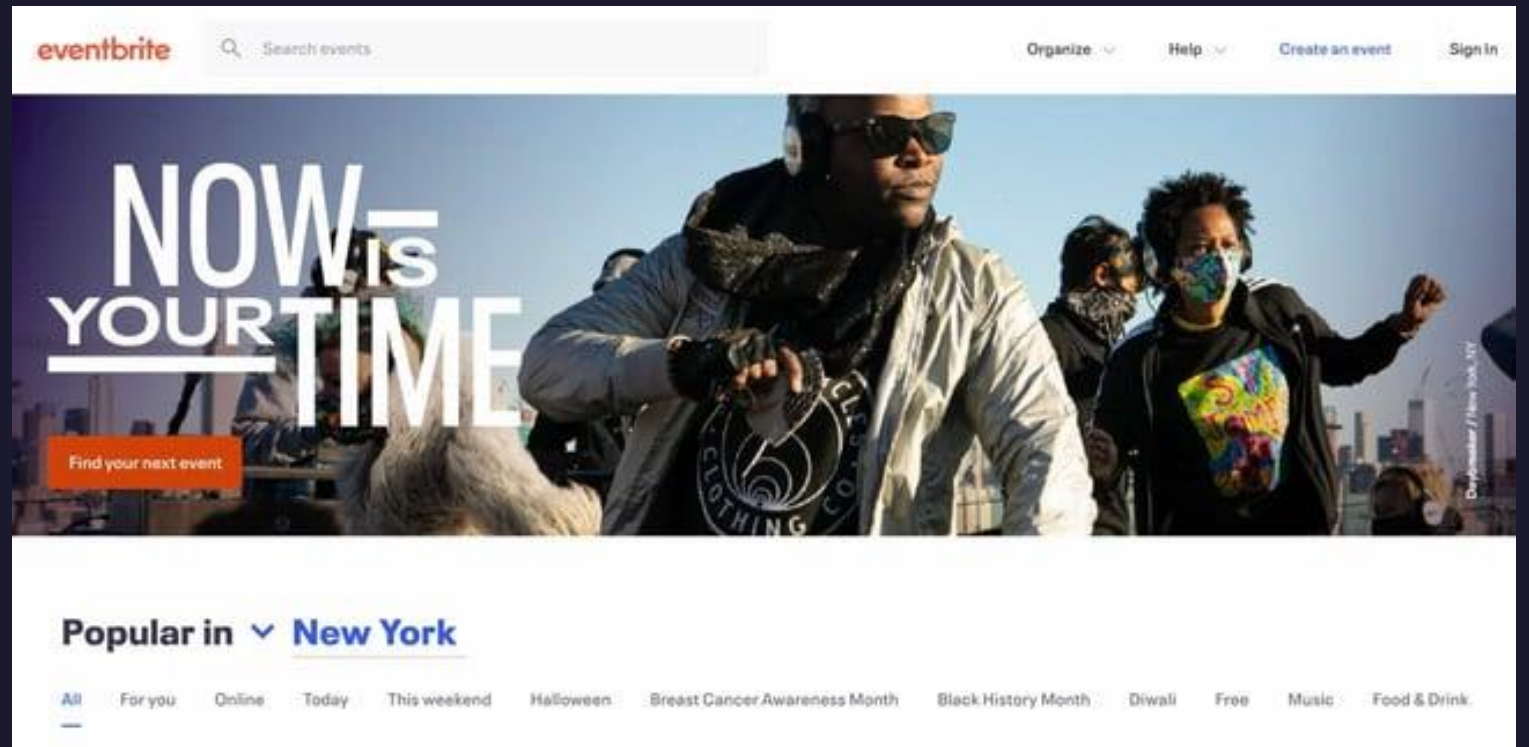
Examples of good web accessibility website

BBC



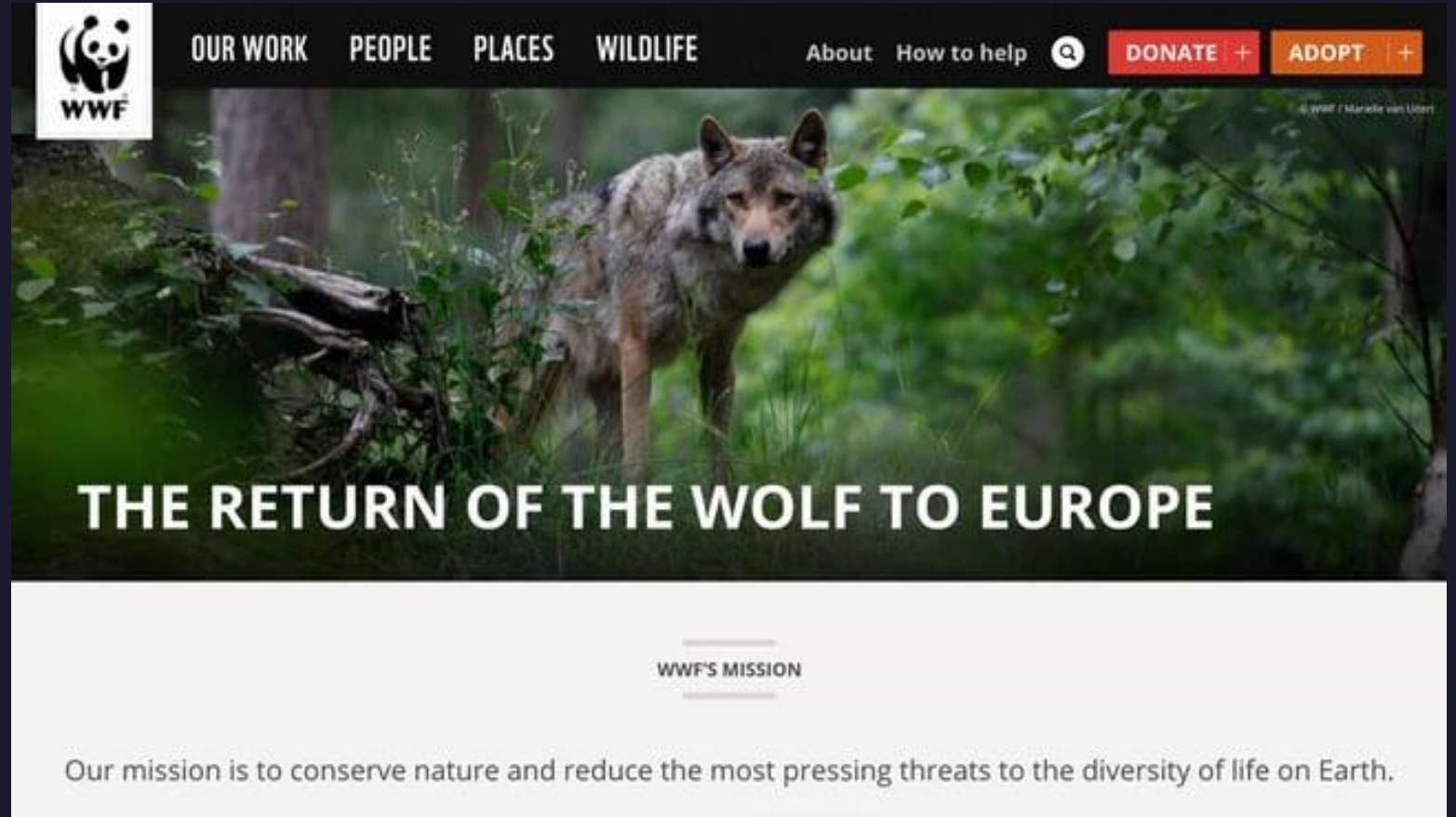
Examples of good web accessibility website

Eventbrite



Examples of good web accessibility website

World Wildlife Fund





Summary

- Users need to have an emotional connection to the experience of using your website. If you are merely creating an interface and not an experience, you have limited chance of gaining users and make your product a success.
- UIs need to be simple to navigate, easy to use, and created with the proper colors and fonts for your users.
- The first and foremost step to build an accessible website is to build empathy and install an inclusive design mentality.

References

1. UX Design Institute, “7 fundamental UX design principles all designers should know”, 2022

<https://www.uxdesigninstitute.com/blog/ux-design-principles/>

2. Christopher Lewis, “Principles of User Experience Design”,

<https://slideplayer.com/Personas: Putting the Focus Back on the Userslide/13593489/>

3. James Costa, “Personas: Putting the Focus Back on the User”, 2011,

<https://www.uxbooth.com/articles/personas-putting-the-focus-back-on-the-user/>

4. Jubilee Kim, “UX Foundations: Prototyping”, 2017, <https://blog.prototypr.io/ux-foundations-prototyping-c873354c43cd>

5. WebAIM, “Web Accessibility Checklist “, <https://webaim.org/standards/508/checklist>

6. W3C, “Web Accessibility Evaluation Tools List”, <https://www.w3.org/WAI/ER/tools/>

7. WAVE Toolbar , <http://wave.webaim.org/>

8. Jacob Gube, “What Is User Experience Design? Overview, Tools And Resources”, 2010, <https://www.smashingmagazine.com/2010/10/what-is-user-experience-design-overview-tools-and-resources/>



Thank You!

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