

Working with Fonts

Fonts are a crucial element of web design, influencing the tone, mood, and readability of your website. Choosing fonts carefully is essential, as some may not render consistently across all devices and operating systems.

Web-Safe Fonts and System Fonts

While often called "web-safe," the reality is more nuanced. These fonts are commonly available on *many* systems, but their presence isn't guaranteed across every device, especially older or less common ones. Relying solely on these fonts limits design flexibility. It's more accurate to consider them "web-fallback" fonts. True "web-safe" fonts are a very small subset and often considered outdated.

A related concept is "system fonts." These are the default fonts provided by the user's operating system. If you don't specify any fonts in your CSS, or if the browser can't find the fonts you specify, it will use the system font. This can lead to variations in how your website looks depending on the user's OS.

Font Stacks: A Robust Approach

A font stack is a prioritized list of fonts specified in your CSS. The browser starts with the first font in the list. If that font is unavailable on the user's system, it moves to the next, and so on, until it finds a font it can use. This ensures your text is displayed as intended on as many devices as possible.

```
CSS
body {
  font-family: "Helvetica Neue", Arial, sans-serif;
}
```

In this example, the browser first tries to use "Helvetica Neue." If that's not available, it falls back to Arial. Finally, if neither is found, it uses a generic sans-serif font. The order is crucial: list your preferred fonts first.

Generic font families (serif, sans-serif, monospace, cursive, fantasy) provide a final fallback. **serif** fonts have small decorative strokes, **sans-serif** fonts do not. **monospace** fonts have

characters of equal width, **cursive** fonts resemble handwriting, and **fantasy** fonts are decorative.

Importing Fonts with **@font-face**

The **@font-face** rule lets you import custom fonts that aren't web-safe. This gives you greater design freedom.

CSS

```
@font-face {
  font-family: 'MyFont';
  src: url('myfont.woff2') format('woff2'),
       url('myfont.woff') format('woff'),
       url('myfont.ttf') format('truetype'); /* For older Android */
  font-weight: 400;
  font-style: normal;
  font-display: swap; /* Important for performance */
}

body {
  font-family: 'MyFont', "Helvetica Neue", Arial, sans-serif;
}
```

We include multiple font formats for browser compatibility. **woff2** is the most modern and highly recommended format due to its superior compression. **woff** is included for older browsers that don't support **woff2**. **ttf** might be needed for some older Android devices. The **format()** descriptor tells the browser the file type.

font-display: swap; is crucial for performance. It tells the browser to display a fallback font immediately while the custom font loads. Once the custom font is ready, it "swaps" in, minimizing FOIT (Flash of Invisible Text) and FOUT (Flash of Unstyled Text). Other values for **font-display** are **block**, **fallback**, and **auto**, each with different loading behaviors.

Example using Google Fonts:

1. Go to Google Fonts and select the font you want.

2. Copy the `<link>` tag provided.
3. Paste it into the `<head>` of your HTML document.
4. Use the font family name in your CSS.

HTML

```
<link rel="preconnect" href="https://fonts.googleapis.com">
<link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
<link
href="https://fonts.googleapis.com/css2?family=Open+Sans:wght@400;700&display=swap" rel="stylesheet">
```

CSS

```
body {
  font-family: 'Open Sans', sans-serif;
}
```

Font File Formats: A Deeper Dive

- **.woff2:** The Web Open Font Format 2.0 offers the best compression and is the preferred format.
- **.woff:** The Web Open Font Format is a widely supported compressed format.
- **.ttf:** TrueType Font, a common format but not as optimized for the web. Primarily used for older Android versions now.
- **.eot:** Embedded OpenType, primarily used for older versions of Internet Explorer and now considered obsolete.

Finding Fonts: Expanding Your Options

- **[Google Fonts](#):** A free and extensive library.
- **[Adobe Fonts](#):** A subscription-based service with a wider selection.
- **[Font Squirrel](#):** Offers a curated selection of free fonts, often with commercial licenses.
- **[DaFont](#):** A large archive of free fonts, but carefully review licenses before use, as many are for personal use only.
- **Other Marketplaces:** Creative Market, MyFonts, etc.

Always check the license agreement for any font you use, even free ones. Licenses vary and dictate how you can use a font (commercial use, embedding, modification, etc.).

Implementing Fonts: Applying Styles

```
CSS
h1 {
  font-family: 'Open Sans', sans-serif;
  font-weight: 700; /* Bold */
  font-size: 2em;
}

p {
  font-family: 'Lora', serif;
  font-style: italic;
  line-height: 1.5; /* Improves readability */
}
```

You can apply different font families, weights, and styles to various elements using CSS. `font-weight` controls the boldness, `font-style` controls italics, and `line-height` affects the spacing between lines.

Additional Considerations

Font Performance: Optimizing for Speed

Large font files can significantly slow down page load times. Optimize by:

- **Using WOFF2:** Prioritize this format for its superior compression.
- **Limiting Variations:** Only include necessary weights and styles.
- **Subsetting:** If your site uses a limited character set, subset the font to include only those characters. Tools are available to do this.
- **Lazy Loading:** Use `font-display: swap` to avoid FOIT/FOUT. Consider using a JavaScript-based font loader for more control over loading strategies.

Font Copyright: Legal and Ethical Use

Always respect font licenses. Common licenses include the Open Font License (OFL), which is permissive, and commercial licenses, which have specific terms and restrictions. Understand the implications of each license before using a font.

Accessibility: Designing for Everyone

Choose fonts that are easy to read and have good contrast. WCAG guidelines recommend minimum contrast ratios between text and background colors. Use online tools to check contrast. Sans-serif fonts are often considered more legible, especially for users with dyslexia. Provide users with the ability to adjust font sizes using relative units like `em` or `rem`.

```
CSS
body {
  font-size: 16px; /* Default size */
}

p {
  font-size: 1.2em; /* 20% larger than the body font */
}

/* Or using rem */
body {
  font-size: 1rem; /* Root font size */
}
p {
  font-size: 1.2rem; /* 20% larger than root font size */
}
```