

16 General-Purpose Tool Specifications

This document outlines the technical specifications for sixteen utility tools designed as lightweight, static web applications.

1. Alphabetizer

Description: A text processing utility to organize lists by various sorting criteria. **Key Features:** Sort A-Z, Z-A, by length (ascending/descending), and remove duplicates. **User Flow:**

1. User pastes a list into a large text area.
2. User selects a sorting method from a dropdown or button group.
3. The list updates instantly in the output area.

2. "Reverse" Text Tool

Description: A simple string manipulator for reversing character order. **Key Features:** Character-level reversal, word-level reversal, and "flip" (upside-down text using Unicode). **User Flow:**

1. User types or pastes text.
2. Toggle switches determine if the whole string or just individual words are reversed.
3. A "Copy" button allows for quick retrieval of the transformed text.

3. Smart "Quote" Fixer

Description: A typography tool that converts "dumb" typewriter quotes into "smart" curly quotes. **Key Features:** Straight-to-curly conversion, double-hyphen to em-dash conversion, and trailing space trimming. **User Flow:**

1. User pastes a rough draft or code-heavy text.
2. The tool automatically processes the text on input.
3. A side-by-side view shows "Original" vs "Typographically Correct" versions.

4. Instant "Placeholder" Image

Description: A generator that creates SVG-based placeholder images for web mockups. **Key Features:** Custom dimensions, background/text color pickers, and custom labels. **User Flow:**

1. User enters width and height (e.g., 800x600).
2. The tool renders an SVG preview.

3. User clicks "Copy Data URL" or "Download SVG" to use the image in their project.

5. Aspect Ratio "Visualizer"

Description: A comparison tool for understanding different display and image ratios. **Key Features:**

Presets (16:9, 4:3, 21:9, 1:1), custom ratio input, and overlay mode. **User Flow:**

1. User selects two or more ratios to compare.
2. Visual boxes are drawn on top of each other to show relative differences in "real estate."
3. Calculations show the exact height needed for a specific width based on the ratio.

6. Font "Pairing" Playground

Description: A design sandbox to test how different typefaces work together. **Key Features:**

Google Fonts integration, "Header" vs "Body" selection, and sample blog layout. **User Flow:**

1. User selects a font for the Heading and another for the Body.
2. A live "Article Preview" updates with the selected fonts.
3. Tool provides the CSS `@import` or `<link>` code for the chosen pair.

7. "Gray-Scale" Tester

Description: An accessibility and design tool to check visual hierarchy and contrast. **Key Features:**

Image upload, CSS filter application, and contrast ratio highlighting. **User Flow:**

1. User uploads a screenshot of their UI design.
2. A slider toggles between color and grayscale.
3. User checks if the "important" elements still stand out without color.

8. Discount "Final Price"

Description: A retail math utility for calculating sales prices and savings. **Key Features:**

Percentage off, "Buy X Get Y," and tax calculation. **User Flow:**

1. User enters the original price and the discount percentage.
2. The tool displays the "You Save" amount and the "Final Price" in large, bold text.
3. An optional "Sales Tax" field allows for a total checkout estimate.

9. Time "Duration" Adder

Description: A calculator for summing multiple time durations, essential for video editors and loggers. **Key Features:** Add/Subtract modes, support for HH:MM:SS format, and running total.

User Flow:

1. User inputs a series of time durations (e.g., 02:30 + 01:15).
2. The tool calculates the cumulative total.
3. Results can be toggled between "Total Seconds," "Total Minutes," or "Formatted Time."

10. Percentage "Change"

Description: A mathematical tool to calculate the variance between two values. **Key Features:**

Increase/Decrease detection and "Percentage of" sub-calculator. **User Flow:**

1. User enters "Old Value" and "New Value."
2. The tool displays the percentage change with a color-coded arrow (Green for up, Red for down).
3. Provides the math formula used for transparency.

11. Interest "Simple" Calculator

Description: A financial utility for calculating non-compounding interest. **Key Features:**

Principal, Rate, and Time inputs; result breakdown. **User Flow:**

1. User enters the principal amount, the annual interest rate, and the duration in years/months.
2. The tool displays the total interest earned and the final balance.
3. A simple bar chart shows the ratio of Principal to Interest.

12. Roman Numeral Converter

Description: A bi-directional translator for Arabic and Roman numerals. **Key Features:** Integer to Roman, Roman to Integer, and historical date formatting. **User Flow:**

1. User types a number (e.g., 2026) or a string (e.g., MMXXVI).
2. The tool detects the input type and converts it instantly.
3. Large, decorative display of the result.

13. Hydration "Log"

Description: A daily water intake tracker designed for persistence. **Key Features:**

`localStorage` saving, customizable goals, and "quick-add" buttons. **User Flow:**

1. User clicks a button to add a glass (e.g., 250ml).
2. A visual "water level" in a bottle graphic rises.
3. Data persists across page refreshes; a "Reset" button clears the day's progress.

14. Screen "Dead Pixel" Test

Description: A full-screen utility to identify hardware defects on a monitor. **Key Features:** Full-screen toggle, solid color cycling (R, G, B, W, K). **User Flow:**

1. User clicks "Start Test" to enter full-screen mode.
2. User clicks or uses Arrow keys to cycle through solid colors.
3. Any non-matching pixel becomes visible against the solid background.

15. Virtual "Coin Toss"

Description: A minimalist decision-making tool. **Key Features:** CSS3 3D flip animation, result history, and "Heads/Tails" customization. **User Flow:**

1. User clicks the coin or a "Flip" button.
2. A 3D coin animation spins for 1 second.
3. The result is announced and added to a small "History" log at the bottom.

16. Pali/English Glossary

Description: A specialized reference tool for Buddhist philosophical terms. **Key Features:** Instant search/filter, English-to-Pali and Pali-to-English modes, and offline-first JSON data. **User Flow:**

1. User types a term (e.g., "Dukkha" or "Suffering").
2. The list filters in real-time to show the term, its etymology, and a brief definition.