

UX, ACCESSIBILITY AND IMPLEMENTATION

LIGHT AND DARK MODE IN WEB DESIGN

WHY DARK MODE EXISTS?

- ▶ Reduced eye strain
- ▶ Battery efficiency
- ▶ Aesthetic preference
- ▶ System level adoption

HOW OUR EYES ACTUALLY READ

- ▶ Contrast polarity
- ▶ Reading speed
- ▶ Environment matters

ACCESSIBILITY MATTERS

- ▶ WCAG contrast ratios
- ▶ Text must remain readable
- ▶ Avoid pure black and pure white

USER EXPERIENCE DECISIONS

- ▶ Automatic detection
- ▶ Manual toggle
- ▶ Remember user choice

HOW IT WORKS TECHNICALLY

- ▶ Colour variables
- ▶ Theme switch
- ▶ No redesign required

AVOIDING THE FLASH PROBLEM

- ▶ Load theme early
- ▶ Avoid visual flicker

PERFORMANCE AND BATTERY

- ▶ Battery impact on OLED
- ▶ No speed improvement

DESIGN SYSTEM THINKING

- ▶ Plan from the beginning
- ▶ Use consistent colour roles
- ▶ Test both modes equally

COMMON MISTAKES

- ▶ Low contrast
- ▶ Broken logos
- ▶ Readable forms
- ▶ No testing

WHEN NOT TO USE DARK MODE

- ▶ Content heavy reading
- ▶ Strong brand constraints
- ▶ Limited development time

DEMONSTRATION

- ▶ Live theme switch example

DEMONSTRATION

```
// Detect system preference
function getSystemPreference() {
  return window.matchMedia &&
    window.matchMedia("(prefers-color-scheme: dark)").matches
    ? "dark"
    : "light";
}
```

DEMONSTRATION

```
// Apply theme
function applyTheme(theme) {
  document.documentElement.dataset.theme = theme;
}
```

DEMONSTRATION

```
// Initialise theme on page load
function initTheme() {
  const saved = localStorage.getItem("theme");
  const theme = saved ? saved : getSystemPreference();
  applyTheme(theme);
  updateStatus();
}
```

DEMONSTRATION

```
// Toggle theme manually
function toggleTheme() {
  const current = document.documentElement.dataset.theme || "light";
  const next = current === "dark" ? "light" : "dark";
  localStorage.setItem("theme", next);
  applyTheme(next);
  updateStatus();
}
```

DEMONSTRATION

```
// Reset to system preference
function resetTheme() {
  localStorage.removeItem("theme");
  const system = getSystemPreference();
  applyTheme(system);
  updateStatus();
}
```

DEMONSTRATION

```
// Update text display
function updateStatus() {
  const saved = localStorage.getItem("theme");
  const system = getSystemPreference();
  const current = document.documentElement.dataset.theme;

  document.getElementById("status").textContent =
    "Current: " +
    current +
    " | Saved: " +
    (saved ? saved : "none") +
    " | System: " +
    system;
}
```

DEMONSTRATION

```
// Event listeners
document.addEventListener("DOMContentLoaded", function () {
  initTheme();

  document.getElementById("toggle").addEventListener("click", toggleTheme);
  document.getElementById("reset").addEventListener("click", resetTheme);
});
```

PREVENTING THEME FLICKER IN PRODUCTION

- ▶ Flash of incorrect theme
- ▶ Theme must load before first paint
- ▶ Inline script in `<head>` (production pattern)

THE TAKEAWAYS

- ▶ Dark mode is contextual
- ▶ Accessibility first
- ▶ Use structured implementation
- ▶ Test properly

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