UI/UX Fundamentals

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Course Goal: To understand the fundamental principles of UI and UX by experiencing, analyzing, and designing within the technological constraints of milestone operating systems from the past 40 years.

Core Tools:

- **UTM:** For running virtual machines on modern hardware.
- **Internet Archive:** As the source for OS disk images (ISOs) and abandonware.
- **Decker:** A modern tool for creating HyperCard-like media.
- **Figma:** For modern design mockups and assignments.

Class Schedule

1. Week 1: Thursday, November 6
2. Thursday, November 13
3. Thursday, November 20
4. Wednesday, December 3 (Make up class)
5. Thursday, December 4
6. Thursday, December 11
7. Tuesday, December 16

Week 1: The Conversational Interface — UX Without Graphics

- **Era:** Early 1980s Command-Line Interfaces (CLI).
- **Core Concepts:** Cognitive load, discoverability, feedback, syntax vs. natural language, efficiency for power users.
- **Lecture:** The art of the command line. Why was it the only option? What makes a good CLI? We'll discuss the UX of tools like git or ffmpeg as modern parallels.
- **Hands-on Lab (in UTM):**
  - Boot into a **MS-DOS 6.22** virtual machine.

    - **Tasks:** Navigate the file system (cd, dir), manage files (copy, ren, del), and use a text-based application like the EDIT command.
    - **Analysis:** Students will reflect on what was frustrating and what was efficient. How do you find out how to do something? (The /? switch).
- **Assignment:** Design the basic command structure for a CLI application (e.g., a tool to manage a music playlist, a simple project timer, or some application of your choosing). Define the commands, flags, and the text for its help screen. **Do this in a Google Doc using a black background and a white monospace font**
    - **For example:** `somecommand -with -flags`
    - Reading: UX patterns for CLI tools

Week 2: The Birth of Metaphor — The First GUI

- **Era:** Mid-1980s (Apple Macintosh).
- **Core Concepts:** The WIMP Paradigm (Windows, Icons, Menus, Pointer), the Desktop Metaphor, direct manipulation, Fitts's Law, Human Interface Guidelines.
- **Lecture:** The revolution from Xerox PARC to the 1984 Mac. Why the desktop, trash can, and file folder metaphors were so critical for user adoption.
- **Hands-on Lab (in UTM):**
    - Boot into **Mac OS System 7.5**.
    - **Tasks:** Explore the GUI. Use MacPaint to experience bitmap graphics creation.
    - **Focus Lab:** Launch and interact with **HyperCard**. Explore a pre-made "stack" (e.g., the original welcome stack). Students will click through, see how navigation works, and understand the concept of linked "cards."
- **Assignment:**
    1. **Analysis:** Write a short comparison of the HyperCard navigation experience to browsing a simple website.
    2. **Design:** Storyboard in Figma a 4-5 card "About Me" stack in HyperCard. Sketch what would be on each card and how they would link together.

Week 3: The GUI Goes Mainstream — The Age of Windows

- **Era:** Mid-1990s (Windows 95).
- **Core Concepts:** The Start Menu and Taskbar, modal dialogs, standardizing UI widgets, the "browser" as an application.

- **Lecture:** How Windows 95 won the desktop and created a set of UI patterns that are still with us today. The beginning of the internet era for the masses.
- **Hands-on Lab (in UTM):**
  - Boot into **Windows 95**.
  - **Tasks:** Explore the Control Panel. Change the desktop background and color scheme. Use Microsoft Paint.
  - **Focus Lab:** Launch the bundled **Internet Explorer 2.0 or 3.0**. Attempt to navigate to modern, simple text-based websites (like motherfuckingwebsite.com or danluu.com). Then, use the Wayback Machine to find and browse a real website from 1996.
- **Assignment:**
  1. **Analysis:** Write a reflection on the Win95 browsing experience. What breaks on modern sites? What UI patterns from old websites are gone today?
  2. **Design:** Design a "File > Print" dialog box for an application, using only the standard UI elements available in Windows 95.

Week 4: The Wild West of the Web & Rich GUIs

- **Era:** Early 2000s (Windows XP / Mac OS X).
- **Core Concepts:** Skeuomorphism, gradients and drop shadows, rich visual feedback, Web 2.0, AJAX, Flash as a UI/UX paradigm.
- **Lecture:** The shift from functional to "delightful" UIs with Aqua and Luna. How the web started feeling more like an application and less like a document.
- **Hands-on Lab (in UTM & Modern Tools):**
  - Boot into **Windows XP**. Explore the "Luna" theme's visual language: the vibrant Start button, the glossy title bars.
  - **Focus Lab:** Using **Decker** (the modern HyperCard-like tool), complete the built-in tutorial. This directly contrasts the original HyperCard experience from Week 2 with a modern, powerful equivalent.
- **Assignment:** Create a simple, interactive 5-card presentation in **Decker** that teaches a concept from a previous week (e.g., "What is a CLI?").

Week 5: The Touch Revolution & The Great Flattening

- **Era:** Late 2000s - Early 2010s (iOS & Android).
- **Core Concepts:** Mobile-first design, responsive layouts, the rejection of skeuomorphism, the rise of "flat design," touch targets, gestural navigation.
- **Lecture:** Why skeuomorphism failed on mobile. The story behind iOS 7's redesign. The principles of Google's Material Design (light, surface, motion).
- **Hands-on Lab (No UTM):**
  - This week is about analysis of modern devices.
  - **Tasks:** Using their own smartphones, students will find and document three apps: one that uses excellent flat design, one that still has skeuomorphic elements, and one with a confusing navigation structure. They will take screenshots and annotate them.
- **Assignment:** Redesign the Windows 95-era website they browsed in Week 3 for a "mobile-first" experience. Create a simple mockup in Figma showing how the content would be restructured and how navigation would work on a small screen.

Week 6: The Age of the Design System

- **Era:** Mid-2010s to Present.
- **Core Concepts:** Design systems, atomic design, component libraries, accessibility (WCAG), consistency at scale.
- **Lecture:** What problem do design systems solve? We'll break down the structure of a system like Material Design or Apple's HIG. The focus is on moving from designing pages to designing systems.
- **Hands-on Lab (No UTM):**
  - **Tasks:** In a web browser, explore a public design system (e.g., Material Design, IBM Carbon, Shopify Polaris). Students must find and analyze 5 components (like a button, card, or date picker) and identify their different states (hover, disabled, active) and configuration options.
- **Assignment:** Choose one of the earlier projects (the CLI tool, the MacPaint app, or the Win95 dialog) and create a "mini" design system for it in Figma. This includes defining colors, typography, and creating reusable components for buttons, inputs, and windows.

Week 7: Synthesis & Final Project Presentations

- **Era:** Today and Tomorrow.
- **Core Concepts:** Integrating historical lessons into modern practice. Ethical design. A look at what's next: voice UIs, augmented reality, AI in design.
- **Lecture:** Class discussion—what is the most important lesson from past UIs that we have forgotten? What have we gained?
- **Final Project:** Using the design system they created in Week 6, students will produce a high-fidelity, modern, responsive mockup of the application concept they chose. They must be prepared to present their design and justify their choices by referencing principles learned throughout the entire course, from CLI usability to mobile-first thinking.