Practical Exercise: Features of UI/UX Design for Mobile Applications

Analysis & Redesign Project

Course: Mobile Application Development (Chapter 2)
Level: Technical University Students
Duration: 6–8 hours self-study + 1–2 hours online discussion
Format: Individual Analysis Report with Low-Fidelity Redesign (2–3 pages)

Exercise Overview

In this exercise, you will analyze a real mobile application through the lens of **core UI/UX design principles**, identify usability problems, and propose evidence-based redesigns.

Key Learning Outcomes:

- Recognize how design principles manifest in production applications
- Develop critical eye for usability issues
- Apply human-centered design thinking to problem-solving
- Communicate design rationale clearly

Part A: Principle Identification & Analysis

Task 1: Real App Audit (Self-Study: 2–3 hours)

Objective: Examine one main screen of a real mobile app against established UI/UX principles.

Instructions:

1. **Choose one app** you use regularly (e.g., Instagram, Gmail, Maps, Weather, Notes, Banking app, etc.).

2. **Select one primary screen** (home, dashboard, feed, list view, etc.) — not a detail or settings screen.
3. **Document the current state:**
    - Take a screenshot
    - Write a 2–3 sentence description of what the screen does
4. **Identify principle implementations** — Create a table mapping screen elements to UI/UX principles:

Principle	Screen Element	How It Works	Effectiveness (1–5)	Notes
Visual Hierarchy	Button sizes, text weight, color	Primary action is largest, darkest color	4	Clear but could use more contrast
Simplicity / Minimalism	Number of elements on screen	Only 3 main sections visible	3	Too much secondary info below fold
Navigation & IA	Tab bar, menu structure	Bottom tab navigation with 5 tabs	4	Logical grouping, easy to learn
Feedback & State	Loading spinner, success message	Toast notification after action	4	Appears briefly, could linger longer
Contextual Design	Personalization, time/location awareness	Suggested content based on history	5	Highly relevant recommendations

Deliverable: Completed table (5–7 principles minimum) with detailed notes.

Task 2: Usability Problem Detection (Self-Study: 1–2 hours)

Objective: Identify and articulate specific UX problems on the same screen.

Instructions:

1. **Observe user friction points** — Things that slow you down, confuse you, or require extra taps:
    - Hard-to-reach buttons (especially on large phones)
    - Unclear labels or icons

- Hidden or buried features
- Inconsistent terminology
- Information overload
- Slow or unclear feedback

2. **Document each problem in detail:**

Problem #	What Happens	Principle Violated	User Impact	Severity (1–5)
1	Search icon is in top-right corner, unreachable for left-hand users	Accessibility / ergonomics	Users must switch hands or use two hands	3
2	Icon for "Save" is ambiguous (star or bookmark?)	Clarity / consistency	New users don't know what it does	4
3	No indication of how many items are loaded vs. total available	Feedback / transparency	Users unsure if they've seen everything	2

3. **Prioritize:** Identify the **top 3 problems** by severity and frequency of occurrence.

Deliverable: Table with at least 4–5 problems identified, top 3 highlighted.

Part B: Redesign Proposal

Task 3: Low-Fidelity Redesign Sketch (Self-Study: 2–3 hours)

Objective: Propose layout and interaction improvements addressing the top 3 problems.

Instructions:

1. **Sketch a new version** of the same screen on paper or in a simple drawing tool (Figma, Adobe XD, even Google Drawings).
    - **Keep it simple:** Wireframe style (boxes, lines, basic text).
    - **Focus on layout, not visual design** (don't spend time on colors/typography).
2. **For each of your top 3 problems, annotate one specific change:**
    - **Problem:** "Search icon unreachable"
        - **Solution:** "Move search to bottom-left within thumb zone; add search bar to top as alternative swipe action"

        - **Principle:** Accessibility, touch ergonomics
    - **Problem:** "Icon ambiguity"
        - **Solution:** "Replace star icon with filled/outline variants; add label on first use"
        - **Principle:** Clarity, progressive disclosure
    - **Problem:** "No load indicator"
        - **Solution:** "Add 'Showing 15 of 47 items' text with 'Load More' button at bottom"
        - **Principle:** Feedback, transparency
3. **Show before/after comparison:**
    - Left side: original screenshot
    - Right side: your sketch with annotations

Deliverable:

- Hand-drawn or digital sketch with 3–5 annotated changes
- Clear "before/after" visual comparison
- 1–2 sentences per change explaining the rationale

Task 4: Interaction Flow Narrative (Online: 0.5–1 hour)

Objective: Describe how a user would experience your redesigned screen.

Instructions:

Write a **short scenario** (200–300 words) describing how a user completes a common task on your redesigned screen. Include:

1. **User goal:** "I want to find and save a new recipe"
2. **Happy path:** Step-by-step interaction flow (tap, swipe, see result)
3. **Error recovery:** What happens if something goes wrong?
4. **Feedback moments:** Where does the app confirm the user's action?

Example:

> "User opens the app and taps the search button in the bottom-left (now in thumb zone). Search bar expands. User types 'pasta recipes.' Results appear within 1 second with a loading indicator. User sees 'Showing 12 of 847 recipes' at the top—transparency that there's more to explore. User taps a recipe card; detail view opens with 'Save' button highlighted in primary color. User taps 'Save.' Icon fills and a 2-second toast says 'Saved to favorites.' User can now navigate back or continue searching."

Deliverable: 200–300-word scenario narrative.

Part C: Reflection & Strategic Thinking

Task 5: Design Decision Justification (Online: 0.5 hour)

Objective: Develop strategic thinking about design trade-offs.

Instructions:

Answer **two or three of the following questions** (150–200 words total):

1. **Trade-offs:** Did you choose simplicity over feature completeness (or vice versa)? Why?
2. **Platform conventions:** Does your redesign follow Android or iOS design guidelines? Where did you deviate, and why?
3. **Accessibility:** Who might struggle with your original design? How does your redesign help them?
4. **Data-driven thinking:** If you had one metric to measure the success of your redesign, what would it be? (e.g., task completion time, error rate, user satisfaction)
5. **Future iteration:** If users tested your redesign, what would you want to learn in the next round?

Deliverable: Answers to 2–3 questions, 150–200 words total.

Evaluation Criteria

Criteria	Excellent (9–10)	Good (7–8)	Acceptable (5–6)	Needs Improvement (<5)
Principle Application	All 5+ principles identified with nuanced analysis	4–5 principles identified; clear reasoning	3–4 principles; surface-level analysis	Fewer than 3 principles; vague explanation
Problem Identification	Problems are specific, severe, well-prioritized	3–4 problems identified; reasonable priority	2–3 problems; weak prioritization	Fewer than 2 problems; unclear severity

Redesign Quality	Clear improvements; grounded in principles & evidence	Improvements present; mostly sound reasoning	Changes present; some weak rationale	Changes are vague or unjustified
Clarity of Communication	Excellent annotations, compelling narrative	Clear explanation; good visual clarity	Readable but lacks detail	Unclear or poorly organized
Strategic Thinking	Demonstrates understanding of trade-offs & metrics	Thoughtful reflection on design choices	Basic reflection; limited depth	Minimal or missing reflection

---

Deliverable Checklist

Submit as **PDF or DOCX (2–3 pages)** containing:

- [ ] **Task 1:** Screenshot + principle identification table (5–7 rows)
- [ ] **Task 2:** Usability problem table (4–5 problems, top 3 highlighted)
- [ ] **Task 3:** Before/after visual comparison (sketch with 3–5 annotations)
- [ ] **Task 4:** User scenario narrative (200–300 words)
- [ ] **Task 5:** Strategic reflection (2–3 questions answered, 150–200 words)
- [ ] **Source attribution:** Name the app analyzed; include link to public screenshots if possible

---

Resources & References

Design Principle References:

- Nielsen Norman Group: UI Design Principles
- Apple Human Interface Guidelines: https://developer.apple.com/design/human-interface-guidelines/
- Google Material Design: https://material.io/design/

Usability Resources:

- Don Norman, *The Design of Everyday Things* (Chapter 1–2 on mental models & feedback)
- Interaction Design Foundation: UX Design Process

Sketching & Wireframing Tools:

- Pen & paper (simplest, fastest)
- Figma (free tier available)
- Adobe XD (free tier available)
- Google Drawings or Miro (quick & collaborative)

Timeline Guidance

Self-Study (6–8 hours):

- Hours 1–3: Task 1 (principle audit)
- Hours 4–5: Task 2 (problem detection)
- Hours 6–8: Task 3 (sketch & annotation)

Online Sessions (1–2 hours):

- 0.5 hours: Task 4 discussion (share scenarios, peer review)
- 0.5 hours: Task 5 reflection & strategic thinking
- 0.5–1 hour: Group discussion on common principles and problems

---

Extension Tasks (Optional, Advanced)

1. **Comparative Analysis:** Redesign the same screen for both iOS and Android, noting platform-specific conventions.
2. **Accessibility Audit:** Test your redesign against WCAG 2.1 accessibility guidelines (color contrast, touch target size, keyboard navigation).
3. **A/B Test Hypothesis:** Propose a simple A/B test comparing your redesign to the original (e.g., "Users will complete the task 20% faster with the new layout").
4. **Heuristic Evaluation:** Have a peer evaluate your redesign using Nielsen's 10 Usability Heuristics; document their feedback.

Notes for Instructors

This exercise bridges **theory (design principles) and practice (real-world app analysis)**. Students develop:

- Critical observation skills
- Problem-solving mindset grounded in evidence
- Communication of design rationale
- Empathy for user experience

Discussion prompts for online session:

- "What principles appeared most often across students' apps?"
- "Which problems are app-specific vs. common across platforms?"
- "How do accessibility and simplicity sometimes conflict?"
- "What would happen if you redesigned for a different user persona?"

Assessment Notes

Grading rubric integration:

- Rubric emphasizes *reasoning* over *perfect design*
- Encourages iteration, not perfection
- Values clear communication of rationale
- Recognizes that trade-offs are necessary in real design