DAVAO DEL NORTE STATE COLLEGE
"Inspiring Change, Creating Futures"

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Institute of Computing

FINAL EXAMINATION
IT321 (HUMAN AND COMPUTER INTERACTION 2)
FIRST SEMESTER, AY 2025-2026

OVERVIEW:

This final examination requires you to produce a single academic paper that combines both critique writing and research writing.

You will evaluate the usability and accessibility of an academic or government website/app (preferably related to your capstone project) through:

- Web Accessibility Audit (based on WCAG 2.1), and
- Usability Evaluation (based on Nielsen's 10 Heuristic Principles).

Your study must collect and analyze data from:

- 10 Professionals (IT practitioners, web designers, UI/UX experts)
- 10 Persons with Disabilities (PWDs)
- 10 General Users (students, citizens, or service users)

Your group must propose interface improvements supported by a revised prototype screenshot demonstrating your recommended changes.

GROUP COMPOSITION:

- Each group: 4–5 members
- No duplication of websites/systems between groups within the set
- Collaboration and ethical data collection are required

Follow the format outlined below:

COVER PAGE
- Title (include the usability evaluation method)
- DNSC Logo
- Authors' Names
- Course, Instructor, and Date of Submission

ABSTRACT
- A concise paragraph (150–250 words) summarizing:
- The problem or gap addressed
- The website/system studied
- Methodology (WCAG + Heuristic Evaluation)
- Results (quantitative findings)
- Recommendations and significance
- Include 3–5 keywords at the end.

TABLE OF CONTENTS
- Include all main sections with page numbers.

I. INTRODUCTION

A. Background of the Study

Present the system or website being assessed. Discuss its purpose, main features, and relevance to users (e.g., government services or academic functions).
Include 2–3 international and 1–2 local or national studies/literature that relate to web accessibility, usability, or heuristic evaluation. Cite sources using IEEE style.

B. Research Questions
Formulate all research questions based on Nielsen's 10 Usability Heuristics, creating two questions for each heuristic.

C. Objectives of the Study
Formulate SMART objectives (Specific, Measurable, Attainable, Relevant, Time-bounded).

D. Scope and Limitation
Define the boundaries of the study, including:
1. Which pages or modules were evaluated
2. Types of tasks tested
3. Limitations such as network dependency, user variability, or sample size constraints

II. METHODOLOGY

A. Operational/Conceptual Framework
Describe the overall process flow of the study.
Example flow:
Input: Evaluation criteria (WCAG 2.1 + Nielsen's Heuristics)
→ Process: Conduct Web Accessibility Audit + Questionnaire distribution to 30 respondents
→ Output: Accessibility/Usability findings and UI/UX redesign recommendations

A diagram may be included.

B. Source of Data
- Describe respondent profiles and selection criteria.
- 10 Professionals (UX/UI experts, IT developers)
- 10 PWDs (visual, hearing, or mobility impairments)
- 10 General users (students, teachers, citizens)
- Include ethical considerations: consent form, anonymity, voluntary participation.

C. Assessment Method

1. Web Accessibility Audit
Link: https://docs.google.com/spreadsheets/d/1cKGZr24f_F-Bajl8LdNmY6xfs6_C-lx7/edit?usp=sharing&ouid=113607224233402606027&rtpof=true&sd=true
Use the WCAG 2.1 framework evaluating four core principles:
- Perceivable: Text alternatives, captions, adaptable content, distinguishable visuals
- Operable: Keyboard accessibility, navigation, time limits
- Understandable: Readability, error prevention, input assistance
- Robust: Compatibility across browsers and assistive technologies

2. Heuristic Evaluation
Link: https://docs.google.com/spreadsheets/d/1Nbf5uAv0SChvQb5NQRxTuWQ-EFp981fh/edit?usp=sharing&ouid=113607224233402606027&rtpof=true&sd=true
Use Nielsen's 10 Usability Principles as questionnaire dimensions:
- Visibility of System Status
- Match between System and Real World
- User Control and Freedom
- Consistency and Standards
- Error Prevention
- Recognition rather than Recall
- Flexibility and Efficiency of Use
- Aesthetic and Minimalist Design
- Help Users Recognize, Diagnose, and Recover from Errors
- Help and Documentation

3. Usability Metrics

- Learnability (ease of understanding features)
- Efficiency (task time)

- Effectiveness (task success rate)
- Satisfaction (user comfort and preference)
- Respondents will answer a 5-point Likert scale questionnaire
  - (1 = Strongly Disagree to 5 = Strongly Agree).

III. RESULTS AND DISCUSSION

A. Technical Report

Present your data summary using tables and graphs.

- Mean scores per heuristic principle and WCAG criterion
- Comparative results among Professionals, PWDs, and Public Users
- Visuals such as bar charts or radar graphs for clarity

B. Discussion of Findings

Analyze results according to:

- Lowest and highest rated criteria
- Correlation between accessibility and usability results
- Observed usability barriers and design flaws
- Connection to relevant literature or HCI theories

IV. RECOMMENDATION

List and briefly discuss your UI/UX improvement strategies based on findings.

- Address accessibility issues (e.g., color contrast, alt text, keyboard navigation).
- Address usability gaps (e.g., error feedback, menu organization, readability).

Include before-and-after screenshots of the revised prototype, illustrating specific solutions such as:

- Redesigned navigation menu
- Improved form layout
- Enhanced typography for readability
- Responsive or mobile-friendly adjustments

V. CONCLUSION

Summarize:

- The overall accessibility and usability status of the website/system
- The importance of compliance with HCI standards
- The anticipated user benefits from the redesigned interface

VI. REFERENCES

Follow IEEE citation format, arranged according to order of appearance.

Example:

[1] J. Nielsen, Usability Engineering, Academic Press, 1993.
[2] World Wide Web Consortium, "Web Content Accessibility Guidelines (WCAG) 2.1," 2018.
[3] D. Norman, The Design of Everyday Things, Basic Books, 2013

VII. APPENDICES

Appendix	Content
A	User Personas (Professional, PWD, Public User)
B	Questionnaires (Web Accessibility + Heuristic Evaluation Items)
C	Data Summary Tables and Graphs
D	Revised Prototype Screenshots
E	Proof of Data Gathering (Consent Forms, Photos, or Logs)
F	Grammarly & AI Detection Reports (Grammar ≥ 90%; AI ≤ 15%)

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TECHNICAL REQUIREMENTS

- Format: A4 paper, justified text, 1.0 spacing, Times New Roman, 12pt font
- File type: .PDF
- Grammar score: ≥ 90% (Grammarly)
- AI detection: ≤ 15%
- Respondents: 30 total (10 Professionals, 10 PWDs, 10 Public Users)
- All citations: IEEE Style
- Include proof of consent and data gathering in appendices

FINAL REMINDER

- Ensure ethical data collection (voluntary consent and anonymity).
- No duplication of systems/websites across groups.
- The research questions must be aligned with Nielsen's Heuristic Principles.
- All redesign proposals must be supported with visual evidence (prototype screenshots).
- Submit in PDF format through the instructor's designated submission platform.

Your work will be rated accordingly to the rubric outlined below:

CRITERIA	OUTSTANDING		GOOD		FAIR		POOR	
	Descriptor	Points	Descriptor	Points	Descriptor	Points	Descriptor	Points
Research Foundation & Context	Provides a clear and compelling background with strong rationale and justification for assessing the website or system. Defines a well-structured problem and objectives aligned with HCI principles. Integrates relevant, recent, and synthesized literature (IEEE-cited).	20	Presents an adequate background and rationale. Defines research objectives with minor lapses in clarity. Uses mostly relevant literature but lacks synthesis.	15	Provides minimal background and rationale. Objectives are vague or misaligned. Literature used is limited or outdated.	10	Lacks clear background, rationale, or objectives. Little or no literature support or justification for the research	6
Methodology & Assessment Approach	Demonstrates a systematic, replicable process. Employs WCAG/Heuristic or accepted UX evaluation standards with well-defined instruments and parameters. Clear alignment between objectives and methods.	20	Uses appropriate methods and valid instruments. Some aspects of the process or parameters are not fully explained.	15	Describes basic methodology with limited explanation or weak linkage between objectives and approach.	10	Lacks methodological rigor. No clear evaluation framework or misapplied WCAG/heuristic principles.	6
Findings & Analysis	Findings are comprehensive, well-organized, and evidence-based. Analysis integrates quantitative and qualitative results. Strong connections made between usability, accessibility, and user needs.	20	Findings are clear and supported by data but lack depth in interpretation. Adequate discussion of usability and accessibility results.	15	Findings are basic or partially supported by data. Analysis is limited or descriptive.	10	Findings are unclear, inconsistent, or unsupported by data. Interpretation is missing or irrelevant.	6
Proposed Prototype / Recommendations	Prototype effectively addresses identified weaknesses. Shows clear improvements in usability, accessibility, and user-centered design. Design changes are practical, evidence-based, and visually demonstrated.	20	Recommendations address most weaknesses and show meaningful improvements. Some design choices lack depth of justification.	15	Prototype changes are minimal or cosmetic. Recommendations are general and not fully supported by data.	10	Prototype does not address findings. Recommendations are unclear or not implemented.	6
Academic Writing Quality	Paper is well-organized, cohesive, and scholarly. Writing is clear, concise, and grammatically accurate. Proper IEEE citations, formatting, and structure.	20	Paper has good organization and clarity. Minor grammar or formatting errors. Most citations correctly formatted.	15	Paper has weak organization or flow. Several grammatical and citation errors.	10	Writing is disorganized, unclear, and contains many grammar and citation errors.	6

Suggested Readings:

1. https://drive.google.com/file/d/1SNLC_23YZqbAZtIRLQQiLJmHW4ngb0PT/view?usp=sharing
2. https://drive.google.com/file/d/1WA9jv6P7jj0Xi2Ww4DH02BYmy5fMjdcp/view?usp=drive_link
3. https://drive.google.com/file/d/1ZNg-p2J-Nysi50ehnlw7nfdXAjEDes7o/view?usp=drive_link
4. https://drive.google.com/file/d/1FgzlqaEKpoSsrPTdDJAqA5LyciuRz-VX/view?usp=drive_link

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