Assignment P3 (Spring 2021)

Answer the following prompt in a maximum of 8 pages (excluding references) in JDF format. Any content beyond 8 pages will not be considered for a grade. 8 pages is a maximum, not a target; our recommended per-section lengths intentionally add to less than 8 pages to leave you room to decide where to delve into more detail. This length is intentionally set expecting that your submission will include diagrams, drawings, pictures, etc. These should be incorporated into the body of the paper unless specifically required to be included in an appendix.

If you would like to include additional information beyond the word limit, you may include it in clearly-marked appendices. These materials will not be used in grading your assignment, but they may help you get better feedback from your classmates and grader.

Question 1 (from Lesson 2.5): ~1.5 pages

Many of the design principles and heuristics we discuss here relate to other material we have already covered in the class.

Select three of these fifteen principles and describe how **each** principle might be used to support the creation of an invisible interface, especially in terms of each one's relationship to specific phases of bridging the gulfs of execution or evaluation.

Then, **select** two principles and describe how **each** principle could be used to create interfaces that emphasize the participant view of the user; in other words, select two principles and describe how each relates to understanding not just the user's abilities and thought process, but also the context in which they exist outside their interaction with the interface.

> **Hint:** Certain design principles, especially those that focus on equal access, are largely concerned with the context of the task, and particularly the extra context introduced by different user populations based on disabilities, language barriers, or prior experience with technology.

Question 2 (from Lesson 2.5): ~1.5 pages

From your everyday life, **select** an interface that is intolerant of errors the user commits. **Describe** the interface, and **describe** how it responds to user errors, **highlighting** how easy the error is to commit and the penalty associated with it.

Then, **describe** how constraints might be used to improve the interface to avoid errors in the first place. Then, **describe** how improved mappings could be used to avoid errors. Then, **describe** how improved affordances could be used to avoid errors.

These redesign options can be mutually exclusive (in other words, you can generate either three different redesigns, one for each principles, or one redesign that incorporates all three principles). However, all should target the error(s) you selected originally.

> **Hint:** If you're having trouble coming up with redesigns for all three principles, you may want to select a different interface. Interfaces embedded in the real world, like car stereo systems or ATMs, are often good places to think about how different principles can address the same task because the design is more complex (incorporating both digital and physical artifacts).

Question 3 (from Lesson 2.6): ~1.5 pages

Games provide an interesting place to investigate slips, mistakes, and errors because they are one of the few places where we might not always *want* to make accomplishing the task easier.

Select one game with which you are familiar (besides Tetris); this could be a board game, a card game, a sport, a video game, or any other kind of game.

First, **describe** a *slip* that a player of the game might make. Remember, a slip generally occurs when the player knows what action they should take, but does something different instead. In Tetris, this might be a player wanting to move a piece to the right, but pressing the left button instead. Then, **describe** why the player might make that slip. Then, briefly **suggest** a way the interface could be changed to prevent that slip in the future.

Second, **describe** a *mistake* that a player of the game might make. Remember, a mistake generally occurs when the player knows what they want to accomplish, but doesn't know how to actually make it happen. In Tetris, this might be a player wanting to rotate a piece clockwise, but pressing to rotate it counter-clockwise instead because they do not know which button rotates clockwise. Then, **describe** why the player might make that mistake. Then, briefly **suggest** a way the interface could be changed to prevent that mistake in the future.

Finally, **describe** something that makes the game challenging, but that is *not* a slip or a mistake. For example, in Tetris, there may be no obvious place for a piece to go, but that does not force the user to commit a slip or a mistake.

> **Hint:** For slips, leveraging constraints and better mappings are often good tools for ensuring the user performs the action they know they want to perform. For mistakes, leveraging discoverability and better representations can help a user figure out the right action.

Question 4 (from Lesson 2.6): ~1.5 pages

From your everyday life, **select** an interface that you would argue uses a good representation of its underlying content. **Describe** the connections between the representation and the underlying content. **Answer** the question: in what ways does the representation exemplify at least **two** criteria of a good representation?

Then, **select** an interface that you would argue does not use a good representation of its underlying content. **Describe** the mismatch between the representation and the underlying content; in what ways does the representation violate at least **two** criteria of a good representation?

> **Hint:** Good design tends to go unnoticed; that's the point! If you're having trouble thinking of an interface with a good representation, think of a bad one first; then, think of an interface in a similar domain that does not experience the same problems as the bad one. It's likely that the better interface uses better representations.

Submission Instructions

Complete your assignment using JDF, then save your submission as a PDF. Assignments should be submitted to the corresponding assignment submission page in Canvas. You should submit a **single** PDF for this assignment. This PDF will be ported over to Peer Feedback for peer review by your classmates. If your assignment involves things (like videos, working prototypes, etc.) that cannot be provided in PDF, you should provide them separately (through OneDrive, Google Drive, Dropbox, etc.) and submit a PDF that links to or otherwise describes how to access that material.

This is an individual assignment. All work you submit should be your own. Make sure to cite any sources you reference, and use quotes and in-line citations to mark any direct quotes.

Late work is not accepted without advanced agreement except in cases of medical or family emergencies. In the case of such an emergency, please contact the Dean of Students.

Grading Information

Your assignment will be graded on a 20-point scale coinciding with a rubric designed to mirror the question structure. Make sure to answer every question posted by the prompt. Pay special attention to bolded words and question marks in the question text.

Peer Review

After submission, your assignment will be ported to Peer Feedback for review by your classmates. Grading is *not* the primary function of this peer review process; the primary function is simply to give you the opportunity to read and comment on your classmates' ideas, and receive additional feedback on your own. All grades will come from the graders alone.

You will typically be assigned three classmates to review. You receive 1.5 participation points for completing a peer review by the end of the day Thursday; 1.0 for completing a peer review by the end of the day Sunday; and 0.5 for completing it after Sunday but before the end of the semester. For more details, see the participation policy.