Assignment P4 (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 2.7): ~1.5 pages

Create a thorough GOMS model for contacting a professor to ask for explanation of a grade. In doing so, make sure to (a) **identify** the initial situation, (b) **describe** the selection rules, (c) **outline** several methods, (d) **identify** the operators that comprise those methods (along with the estimated amount of time each operator takes to execute), and (e) **describe** the ultimate goal.

You are not required to use the visualization schema seen in the lectures: you could use a simple outline format instead. However, your GOMS model should stand on its own with no explanatory text: every part of your submission should be a part of the initial situation, selection rules, methods, operators, or the final goal.

> **Hint:** Note that for screen real estate, the GOMS models shown in the lectures do not actually show selection rules or execution times for individual operators. For selection rules, you can phrase these as either boxes that precede the method (e.g. a box that says “Message is formal” prior to a method regarding email) or as a separate list of conditionals (e.g. “If the message is formal, choose the ‘email’ method; if a back and forth conversation is expected, choose the ‘go in person’ method.”).

Question 2 (from Lesson 2.7): ~1.5 pages

Create a hierarchical task analysis of the task of submitting this assignment to Canvas and subsequently receiving one's grade and feedback. We recommend creating this as plaintext outline instead of in a graphical form as shown in the lectures.

Your operators for this hierarchical task analysis should be very low-level: entering a URL, scrolling down, clicking a link, and selecting a file from the file browser would all be operators.

These operators should be grouped into larger tasks that will ultimately accomplish the goal. We would expect at least three levels of hierarchy above the operator level: the top level can be the task as a whole ("Complete an assignment"), further subdivided into sub-tasks and sub-sub-tasks before the operator level. You're welcome to include more layers to the hierarchy if you feel they're appropriate.

Your model should stand on its own; there should be no paragraphs of text supporting the answer to this question. However, text can be placed within the model to annotate, explain, or enhance the model's contents if you'd like (but this is not required).

> **Hint:** The semantics of hierarchical task analyses don't need to be quite as specific as GOMS models. For example, you could include triggers for tasks (such as a task being triggered when an email is received) or waiting times (such as waiting a week before completing a follow-up task).

Question 3 (from Lesson 2.8): ~1.5 pages

Imagine a time before GPS navigation was as widespread as it is now, and think of the system for navigation comprised a married couple, a map, and any other artifacts the individuals use or generate.

Analyze this system from the perspective of distributed cognition: what cognitive activities, including perception, memory, reasoning, and acting, does each part of the system perform? Make sure to differentiate and individually comment on the driver, the passenger, the map, and at least one other piece of the system.

Then, **compare and contrast** this same situation with a lone driver using a GPS. Focus specifically on the social components that are present with a human navigator but absent with a GPS navigator. **Answer** the questions: what does social cognition reveal about the situation that distributed cognition does not? How might the social relationships among the parts of the system affect the success of the system as a whole?

> **Hint:** The "system" can be defined pretty broadly. Road signs, the dashboard readings, and other drivers are all part of the system. If you're having trouble differentiating distributed cognition from social cognition, think about how the situation would be different if the driver and passenger were humanoid robots instead of a married couple.

Question 4 (from Lesson 2.8): ~1.5 pages

Distributed cognition is a lens through which we can view HCI. Take any task you've described in a previous assignment for this class (or, if necessary, a task you haven't previously described) and analyze it from the perspective of distributed cognition.

First, **identify** and briefly **describe** the task you've chosen and the interface associated with it. Then, **describe** the pieces of the system.

Then, **describe** what cognitive tasks are performed by each member of the system, both human and artifact alike. Make sure to choose interfaces that touch on multiple cognitive roles in the non-human portions of the system; it's easy to ascribe memory to artifacts, but make sure to ascribe at least two of the other three cognitive tasks (perception, reasoning, and action) to the artifacts.

> **Hint:** To make this question easier, make sure to focus on a task that involves multiple pieces, such as multiple users and an interface, or a user and multiple interfaces.

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.