Assignment P4

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QUESTION 1

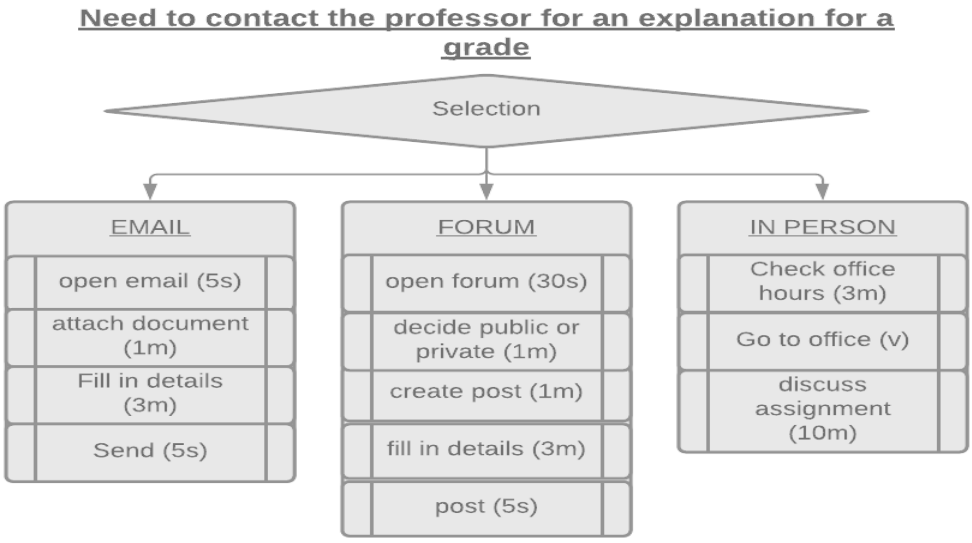

Figure 1—GOMS Model for assignment query.

1.1 Initial situation

In the question description, our user has the goal of contacting the professor to ask for an explanation of a grade. This could be to dispute the grade, get clarification on a deduction, or to ask for a more verbose explanation. The grade could be any assignment, quiz, exam, etc…

1.2 Selection rules

The selection rules are defined as follows.

1. Medium of communication (Canvas, email, EdStem (public, private))
2. Technology devices available (smartphone, laptop, tablet, desktop)
3. Depth of explanation

4. Privacy concerns

The first rule is choosing the medium of communication. Depending on the professor, some may only accept queries from a specific outlet to ensure they only have one source of truth. The second rule is the devices available to the user, this rule coincides with rule three. The third rule is the depth of explanation. If you need to provide your submission and full description of the issue you may want to use a computer, if you just want clarification on a small dedication you may just want to use your phone. The last rule is privacy concerns, this relates to posting private or public queries on EdStem or another medium. Can the question be asked publicly, and would it benefit others to do so?

1.3 Methods

The methods I have identified are email, private forum, public forum, and in person. Here I consider a forum to be EdStem, Canvas, Piazza or any other medium that organizes the class with a message board system.

1.4 Operators

The operators are shown in visual 1, and varry to some extent on the method chosen. The time to execute each operator is shown by S for seconds, M for minutes, and V denoting a varied time frame dependent on other variables.

1.5 Ultimate goal

The ultimate goal is to get the explanation for a grade. This may come from the professor or the professor may forward you to the individual who graded your work directly.

QUESTION 2

- Submitting this assignment to canvas
    - Complete assignment
        - answer question 1
            - identify initial situation
            - describe the selection rules
            - outlines several methods
            - identify the operators that comprise those methods
            - describe the ultimate goal
        - answer question 2
            - create hierarchical analysis
                - breakdown goal into tasks
                    - breakdown tasks into operators
                - combine operators into tasks
        - answer question 3
            - analyze the system from the perspective of distributive cognition
            - compare and contrast to lone driver
            - answer questions
                - answer what does social cognition reveal that distributed does not
                - how might social relationship affect the system as a whole
        - answer question 4
            - find task to interface with
                - look for task in previous assignments
                - choose task
            - describe the task
                - analyze and create description
                - describe the interfaces associated
            - describe cognitive tasks performed by each member
                - analyze the system
                - break out cognitive tasks
                - describe at least two
    - Review assignment
        - check grammar
            - use grammar check
            - proofread for errors
        - check spelling
            - proof read for spelling errors
            - use spell check
        - ensure assignment requirements are met
            - check list submission form
            - match requirement to section in paper
    - Submit assignment
        - open assignment page
            - open browser
            - click bookmarks
            - select canvas
            - sign-in
            - click assignment from todo list
        - create submission
            - click start assignment
            - click choose file
            - upload file
            - click agree to terms
            - click submit assignment

- Receive grades and feedback
- Check feedback (triggered by email notification)
    - open Outlook
        - open by notification (choose by preference)
            - touch notification from Home Screen
            - unlock phone
            - unlock outlook
        - open from homes screen (choose by preference)
            - unlock device
            - open "personal" app folder
            - open outlook
                - sign in
    - find email (only applicable to 'open from home screen')
        - tab over to other
        - find response email
            - read email subject
        - open email
    - read response
        - read feedback
        - write response if feedback is productive
            - <insert respond to feedback hierarchy>
- Check feedback (no triggers)
    - open outlook (follow process described above
        - …
    - check emails
        - tab over to other
        - look for feedback
            - check email subject heading for feedback
    - read response
        - read feedback
        - write response if feedback is productive
- Check grade submission (triggered by email notification)
    - open canvas app
        - unlock phone
        - open "personal" app folder
        - open canvas app
        - sign in
    - go to grades
        - open courses
        - open HCI
        - go to grades
    - check grade
        - scroll to assignment
        - check grade
        - open comments
        - read feedback comments

Figure 2—Hierarchical task analysis for submitting this assignment, and subsequently checking one's grades.

QUESTION 3

3.1 Analysis

In the system I'm going to analyze from the perspective of distributed cognition, there are 4 agents performing. The four agents are the driver, passenger, map, and the car.

The driver has the majority of the perceptive load looking for other cars sharing the roadway, ensuring passenger safety, and keeping track of the route. The memory is fairly short term as the driver is likely just watching out for the next turn or exit. The driver is reasoning and acting with the passenger and the vehicle. This may look like checking the gas level, or asking for the next turn in the route.

The passenger carries the majority of the reasoning. Acting along with the map, the passenger will ensure they're on the correct route, and try to plan any pit stops that may be necessary. The passenger is also using mostly short-term memory to break the route into identifiable chunks like exits and highways.

The map holds the long-term memory of the route. It does not actually have any ability of perception but interacts with the passenger to help them identify the route and offload the burden of trying to store it in long term memory. The map helps in reasoning with the passenger if there's a change in route, or necessary stop.

The car is perceiving and reasoning about its internal state and notifying the driver, as well as other drivers through indicators and brake lights. The car is holding the memory of miles traveled and gas consumption. The car is acting as the transportation of the passengers, and notifying other drivers on the road of its movement through indicators and brake lights.

3.2 Compare and contrast lone driver with GPS

Style of driving is one social component that is present in the non GPS situation but very present when a passenger is involved. With a GPS, you can be an aggressive, cautious, or even bad driver and you will not receive any feedback or cause any conflict. However if you are with a passenger they may disagree with your style of driving which may cause tension.

Route planning with a GPS is very hands off. You would simply type in your settings and destination, and the route gets planned. When you have a passenger with a map there is a social aspect beyond the route planning of just the driver. The passenger may want to take a scenic route or plan for more frequent stops.

Delegating directions with a GPS is very straightforward as you have a visual of the roadway and even oral communication if turned on. The responses follow the same form and are given at specific intervals. With a passenger you may have to specify how you want to be informed of a route change, or when your next turn is. If the passenger says you'll take the next right, does that mean the next right I see or the right after that?

3.3 Compare and contrast distributed and social cognition

Social cognition reveals a more subjective view of each agent rather than an objective view. In thinking about the system from a social cognitive view we emphasize the communication and interaction between agents. In thinking about this system from a distributed cognitive view it reveals more of the objective view of each agent, distributed is closer to a what relationship while social is closer to how.

Social relationships can affect the success of the system by the process in which that system communicates and provides feedback. The driver should communicate when an issue arises or feedback is not as expected. Going back to the "next right" example that I noted previously. Better communication may be needed to ensure the success of agents individually and as a whole.

QUESTION 4

Figure 3—GE standard oven

4.1 Description of the task and interface

One task that has come up previously in my assignments has been the task of cooking food in an oven. For the purposes of this question the task will be baking food. The interface of the oven is very standard as shown above in figure 3. It consists of a single oven system with bake, broil, and clean settings. The temperature and type of cooking is configured before pressing start, and turned off with a cancel button. There is also a timer functionality, but rarely used as it takes a while to increment the time.

4.2 Pieces of the system

The system includes myself, the oven, and my phone. As far as myself, I am the main actor in the system doing the communication between the oven and the phone. The oven is manipulated by me, and will provide the cooking. The phone provides the timing of the cooking. I prefer to use my phone as mentioned earlier that the timer functionality on the oven is rather slow to set. Other pieces of the system may include the dish you are cooking, the vessel that carries it, and anything used to protect your hands when pulling the hot vessel from the oven.

4.3 Cognitive tasks of the system (memory, perception, reasoning, and action)

I perform the actions of preparing the food for baking, setting the oven configuration, placing the dish in the oven, setting the timer, removing the dish when the timer alerts me, and turning off the oven. Here I may reason with the

oven to decide on a temperature depending on the type of dish, I may also reason with the cooking time depending on temperature and desired doneness. The memory I am likely using may be long term memory if I have cooked this dish often, or it may come from short term memory in which I read a recipe. I use my perception to check on the dish to see if it is cooking as desired, I also will need to listen for when the oven is properly heated and when the timer goes off.

The oven holds the long term memory of the cooking temperature to ensure the oven heats up and stays at the desired level. It uses perception through sensors to reason about when to turn up or down the heat depending on if I have started, stopped, or opened the oven door. Its actions are to heat the coils to a specified temperature, and remain there until the cancel button is pressed.

The phone holds the long term memory of the timer. It's action is to alert me when the timer has reached zero so that I can remember to stop the oven and remove the food. The perception and reasoning of the device is configured through code such that it can take my input by its touch interface and produce the desired outcome.