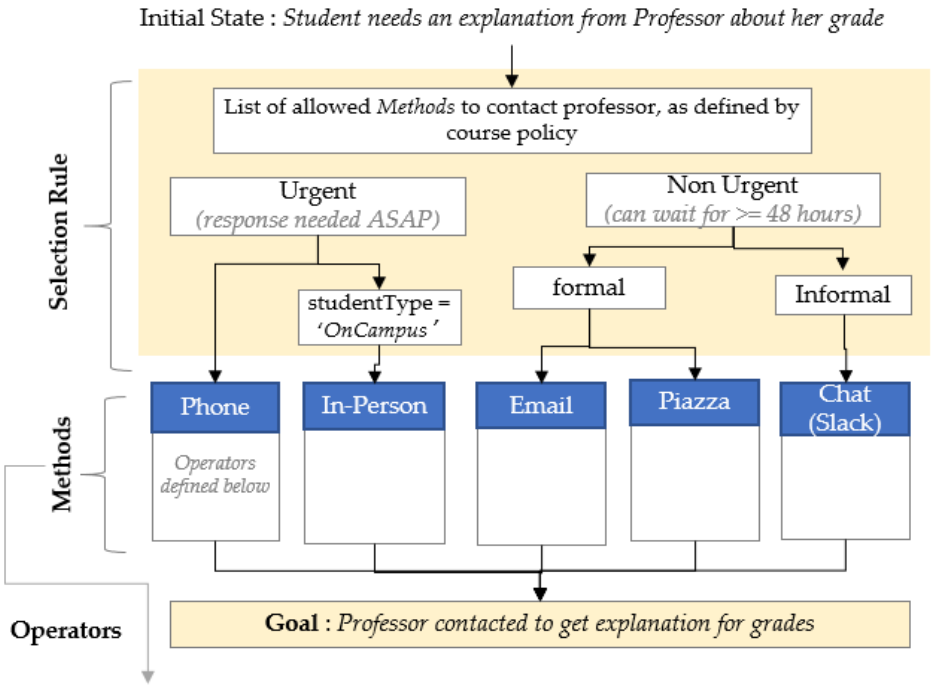
Assignment-P4

Arti Chauhan
achauhan39@gatech.edu

QUESTION-1



Operators for method = Phone	
1. Go to Professor's website.	
a) Open computer.	1 min
b) Open browser	40 sec
c) Type in Professor's website url.	1 min
d) Hit enter	1 sec
2. Note professor's office-phone number.	1 min
3. Note Hours when calling Professor is allowed.	30 sec
4. Wait until calling-hours	1-3 hrs
5. Pick up phone.	10 sec
6. Dial in professor's phone number.	20 sec
7. Press call button.	1 sec
8. If professor picks up phone :	
a) Greet professor	5 sec
b) Ask questions regarding grade.	15 min
c) All questions are answered, thank Professo	5 sec
d) End the call - press disconnect button.	1sec
Else :	
if voice-mail is setup : leave message for Profe	3 min
else : Hang up , Select other method (Email,Piazza ..)	

Operators for method = In Person	
1. Go to Professor's website.	
a) Open computer.	1 min
b) Open browser	40 sec
c) Type in Professor's website url.	1 min
d) Hit enter	1 sec
2. Note professor's office location	1 min
3. Note Hours when meeting Professor in-person is allowed.	30 sec
4. Wait until visiting-hours.	1-3 hrs
5. Walk to Professors office	10 mins
6. If Professor = 'Available'	
a) Open the door , enter the room	3 sec
b) Greet professor	5 sec
c) Ask questions regarding grade.	15 min
d) All questions are answered, thank Professor.	5 sec
e) Leave office	10 sec
Else : *# professor busy with other student*	
wait outside his office	15 min
go to step-6 when professor is available.	

Operators for method = Piazza	
1. Open computer	1 min
2. Accomplish Login(Piazza)	84 sec
3. Click 'New Post'	2 sec
4. select Post-Type = Question	1 sec
5. Click 'Instructor' radio-button.	0.5 sec
6. Set Post_to = Professor's name	15 sec
7. Type in one-line summary in *'Summary'* field.	1 min
8. Type in inquiry regarding grade in *'Details'* field.	15 min
9. Proof read post-description.	4 min
10. Hit 'Post My Question' button	1 sec

Operators for method = Email	
1. Open computer	1 min
2. Accomplish Login(Gatech Email)	84 sec
3. Click 'New' button (on top left) to compose	2 sec
4. Enter Professor's email-id in 'To' field.	1 min
5. Add a subject line	1 min
6. Type in inquiry regarding grade in 'Message box'	15 min
7. Proof read email.	4 min
8. Hit 'Send' button	1 sec

Operators for method = Chat(Slack)	
1. Open computer	1 min
2. Accomplish Login(slack)	84 sec
3. Go to desired class	30 sec
4. If professor is available online	
a.Greet professor	30 sec
b.Ask questions regarding grade.	15 min
c. All questions are answered, thank Professor.	1 min
d.End the call - press disconnect button.	5 sec
else	
Type in offline message (questions regarding grades) for professor.	15 min

Operators for sub goal = Login(Application *)	
1. Instantiate Application by clicking icon or typing in its url.	30 sec
2. Recall login	10 sec
3. Click on login field	2 sec
4. Type in your login	10 sec
5. Recall password	20 sec
6. hit Enter (cursor moves to password field)	1 sec
7. Type in your password.	10 sec
8. Hit enter	1 sec
total =	84 sec

QUESTION-2

Goal is to submit assignment and subsequently receiving grade and feedback.

Tasks :

1. Fulfill prerequisite i.e. complete the assignment
2. Submit assignment
3. wait (for assignment to be graded)
4. Check grades and read the feedback.

Plan : do 1 , 2, 3

when email notification for grade-completion is received

do 4

Hierarchical Task Analysis of above-mentioned task# 2 and 4 is presented below.

- **Submit Assignment :**
  - Open computer
  - Open browser
  - Enter URL http://canvas.gatech.edu
  - **Login** *<- this procedure is treated as a subtask and reused in another canvas-related task analysis mentioned below.*
    - Click 'Login to Canvas' link
    - Click on 'GT Account' input field.
    - Enter your GT Account.
    - Hit tab (this brings cursor to 'Password' field)
    - Enter password.
    - Press 'LOGIN' button.
    - Perform two-factor Authentication
      - Choose an authentication method.
      - If method chosen is *'Send Me a Push'*
        - ✓ Click on 'Send Me a Push' button.
        - ✓ Open your phone
        - ✓ Open 'Duo Mobile' App
        - ✓ Click on pending request.
        - ✓ Click on 'Approve' button.
      - If method chosen is *'Call Me'*
        - ✓ Click on 'Call Me' button.
        - ✓ Receive call on your phone
        - ✓ Press 1
      - If method chosen is *'Enter a Passcode'*
        - ✓ Click on 'Enter a Passcode' button.
        - ✓ Open your phone

- ✓ Open 'Duo Mobile' App
- ✓ Note the passcode displayed on phone
- ✓ Click on input field next to 'Log in' button
- ✓ Enter the passcode

- Move the cursor to select desired course tile.
- Upload Assignment
  - Click on 'Assignment' tab (in left pane)
  - Click on assignment for which submission is to be performed.
  - Click on 'Submit Assignment' button on top right
  - Select 'File Upload' tab.
  - Click on 'Browse' button.
  - Browse to the completed assignment pdf.
  - Click 'Open'
  - Wait for file to upload
  - Click 'Submit Assignment'
  - Wait for submission to go through.
  - Check submission-success (status displayed on right pane)

***Trigger** : Notification-email ('Assignment graded') received*

❖ **Review Grades and Feedback**

- Open computer
- Open browser
- Enter URL http://canvas.gatech.edu/
- Accomplish **Login**
  - *Follow steps described in '**Login**' subtask above*
- Review grades and feedback
  - Click on 'Grades' on left pane
  - Locate Assignment for which grades needs to be checked.
  - Scroll down if desired assignment is not in view.
  - Check the score earned for assignment in question
  - Click on assignment
  - Review the feedback comments (displayed in right gray pane)
- Submit regrade-request, if need be.
  - Follow regrade-request policy as defined by professor.

QUESTION-3

Cognitive activities

Task of driving is cognitively demanding. It requires user to perform multiple activities in parallel such as monitor surrounding traffic, keep track of his speed ,monitor route etc. In given scenario, task of driving involves multiple agents / artifacts, each contributing to task's success by sharing the cognitive load. More specifically,

1. **Driver** : Driver (wife) uses perception to monitor surrounding cars to determine when it's safe to change lane and adjust her own speed. She also perceives weather condition and reasons over this information to take appropriate action. E.g. : she lowers her speed if there is low visibility due to heavy rain. She monitors if there is enough fuel to reach the destination.

2. **Navigator** : Navigator (Husband) uses his perception to determine possible route(s) to destination using Map. He reasons over these routes to determines best route E.g. : take scenic route if they are not in hurry or take local roads if highways are too crowded during that time. He translate this info verbally to provide directions to wife as she is driving.
   If couple is visiting a known area, husband can also draw upon his memory to recall the best route, without heavily relying on Map.

3. **Map** : Map serves as an extension of navigator's memory. It offload's navigator from having to remember entire route. Navigator refers to map to accomplish his moment to moment goals such how far is the next exit , whether exit is on right or on left.

4. **Surrounding traffic** : From speed of surrounding cars, driver can perceive traffic conditions and adjust her speed accordingly. Type of vehicles (presence of Police cars and/or ambulance) helps driver infer that there might an accident and prompt Navigator to look for an alternate route.

5. **Road/Exit signs and landmarks** : While Map can be thought of as extension user's long-term memory, Exit signs and landmarks serve as extension of 'working memory'. Driver doesn't have to remember that in x

meters she needs to take the exit. Rather she relies on exit-sign and acts accordingly as soon as she sees one.

Social Cognition

Now consider the case where GPS replaces human-navigator. From three scenarios presented below, we can see distributed cognition is not enough to ensure the success of system facilitating task of 'Reaching destination safely and on time'. It is the social relationship between agents involved that shapes success of the system.

1. While GPS is good at providing directions, thereby reducing driver's cognitive load, it can't accurately infer the context in which driving is occurring or driver's state of mind. In contrast, human navigator can see driver didn't fully stop at Stop sign or is driving above speed-limit and can warn driver about it. With no such warnings, driver might get pulled over by cop and hence may not reach destination on time.

2. Assuming couple has embarked on a long drive , human navigator can gauge driver's level of fatigue after few hours of drive, which GPS can't. Human navigator can offer to take the wheels or start an interesting conversation or play music that driver likes if driver is feeling sleepy. This reduces chances of accident and ensures couple reach their destination safely.

3. GPS is as good as data it gets and can't beat human navigator's improvisation. If driving through mountainous area, GPS-receiver needs to be able to see enough of the sky to receive signal from GPS-satellite. Fortunately, human navigator doesn't have this dependency. A map is all couple needs to successfully accomplish the task of reaching their destination.

QUESTION-4

To answer this question, I have chosen the interface that I had described in my P1 Assignment – my new Samsung washing machine (Fig 4). Machine's interface is very well designed and has minimal learning curve. All options are laid out in a grid, with a clear grouping for temperature, spin and soil. It has Wi-Fi connectivity , which allows user to control machine remotely. My-Cycle option (top right corner), aptly named, conveys user that he can save his preferred cycle settings.

Figure 4. washing machine

Pieces of the System and Cognitive task

Besides human (user) , there are several components in this system that help accomplish the task of laundry.

1. My smart phone : This washing machine is Wi-Fi enabled and hence allows me to control it remotely. Using Samsung washer App on my phone, I can schedule a load and/or get notifications when it's done. Hence it acts as extension of my memory. I don't have to remember when to start the load - phone works with the machine to start it at scheduled time. I also don't have to actively track if load is done. Notification received on phone lets me know that it's time to transfer clothes to dryer.

2. Weight sensors : Machine has weight sensors which allows it to sense (perceive) weight of the clothes put in. It reasons over the weight information

it collected and selects appropriate load size (small , medium and large). It offloads the task of load-size selection from user to machine.

3. Spin-speed : Intelligence is built into machine to determine the correct spin speed based on fabric-type. When user selects fabric_type = *delicate* , machine reasons over this input and takes the action of selecting correct spin-speed.

4. Safety locks : This machine is a front-load washer. If lid is opened during the wash , water can flood the laundry room. It proactively perceives the possibility of such mistakes and activates safety locks before water starts flowing in machine. This acts as a constraint and relieves user from having to set lock every time wash is started.

5. My-Cycle : This component allows user to save her preferred wash-cycle settings. Interface also teaches user how to save it i.e. *by holding it for 3 sec (*displayed on the interface itself*)*. Thus 'My-Cycle' enables user to run a load with her preferred setting with one touch. User can define several wash-profiles based on load-size or fabric type. Machine remembers these profiles and performs the action of setting appropriate water-temperature, spin-speed and soil-level , thus saving user many button presses.

Finally, there is human-agent (user), who perceives how dirty clothes are and selects right 'Soil-Level'. User perceives if fabric is delicate or heavy and selects correct 'Fabric-Type' option. User also has to remember to put clothes in the machine and add detergent and fabric softener. User reasons over the time-of-the-day when to schedule the load - Should he schedule after 9:00pm when electricity is cheap, or should he schedule when he is out for errands.

There are other components such as water-supply, electricity, detergent in this system but in my mind, they are more of 'facilitators' than 'cognitive agents'. Though one could refute this argument since they are acting i.e. enabling change in system's state (*wash->rinse->spin->end*).