SENG 310 - Human-Computer Interaction - Midterm
Instructor: Dr. Sowmya Somanath

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Exam Details:
- *Made available:* October 26.
- *Due:* October 28, before 11:59pm Victoria Time.
- *Test Duration:* You have 3 days to complete the test. You can complete the exam sooner, and you can update your submission as many times as you like.
- *Instructor email:* sowmyasomanath@uvic.ca
- **Grades:** This midterm is for 30 points and counts for 20% of your course grade.
- **Format:** This is an open book exam. This means you can reference any material posted on the SENG 310 Brightspace page. You are also welcome to reference the optional textbooks suggested for this course, the majority of which are accessible digitally via the UVic library.
- Answer the questions in this document and when complete, save the file **as a PDF** document. Upload the completed file to Brightspace.
- The completed exam **must not exceed 10 pages, including instructions. Do not alter the formatting, content, or margins. Use Calibri font and size 10. Content beyond the page limit will not be marked.**
- In the case of Brightspace issues, consult:
  https://onlineacademiccommunity.uvic.ca/TeachAnywhere/student-help/
- You are not allowed to communicate with other students or teaching assistants about the midterm on Slack, during the labs, or through other means. If you have an outstanding question, the only person you can ask is me, either by direct slack message (**not on the #general channel**) or by email to sowmyasomanath@uvic.ca
- *Note:* No matter how scrupulous I have been there indeed may be typos or some clarification questions you might have. However, this is an exam, and I won't be able to make any changes on the fly once the exam period has started. So when in doubt, use your best judgment and go ahead and answer the questions. If there are any unintentional ambiguities, just articulate them in your exam answers and if you provide sound reasoning, I will take that into account when grading. Do know however that some open-endedness is intentional as the point of the exam is for you to think and reason.

Academic Integrity Pledge:
You must abide by UVic academic regulations and observe standards of 'scholarly integrity,' (no plagiarism or cheating). Therefore, this exam must be taken individually and not with a friend, classmate, or group. You are also prohibited from sharing any information about the exam with others. I, Nick Wurzer affirm that I will not give or receive any aid on this exam and that all work will be my own.

For the following questions, select a sub-part of the interface that was assigned to you and use that to answer the remainder of the exam.

Sub-part of an interface can consist of one of the below or a combination of the below examples:

    (a) A sub-part for an entire system or interface can be a few specific screens on an app or a few specific web pages for a website

    (b) A sub-part can consist of interaction sequences that enable people to complete 1-2 tasks

    (c) A sub-part can consist of one specific and important feature of the interface

When selecting the sub-part you will use for the following questions, I suggest you think about the following:

    1. Does your choice provide you with enough material to study and evaluate? That is, is it meaningful enough? (make sure you carefully read all questions before deciding on the sub-part to select.)

    2. Can you use this sub-part for the exam questions without spending too much time and running out of space? That is, is your choice of sub-part manageable? (see the exam submission page limit requirements).

Question 1 [5 marks] [suggested length: 0.5-1p]

Describe the interface sub-part you are focusing on in detail and include screenshot(s) as figures (not as a link).
Provide a rationale for why you selected the particular sub-part.

================================== BEGIN QUESTION 1 ANSWER ==================================

      I have been given the interface of WhatsApp for this test. I chose a sub-part of the messaging tab in WhatsApp. When choosing a sub-part I wanted enough of the app to be able to satisfy Don Norman's design principals, as well as create a persona and task description. I've decided the task description will include some kind of message to another user, so I need the user to be able to locate a group/person to message and select a message to send. This vertical view of the messages tab should give me enough information to answer the next four questions of this exam.
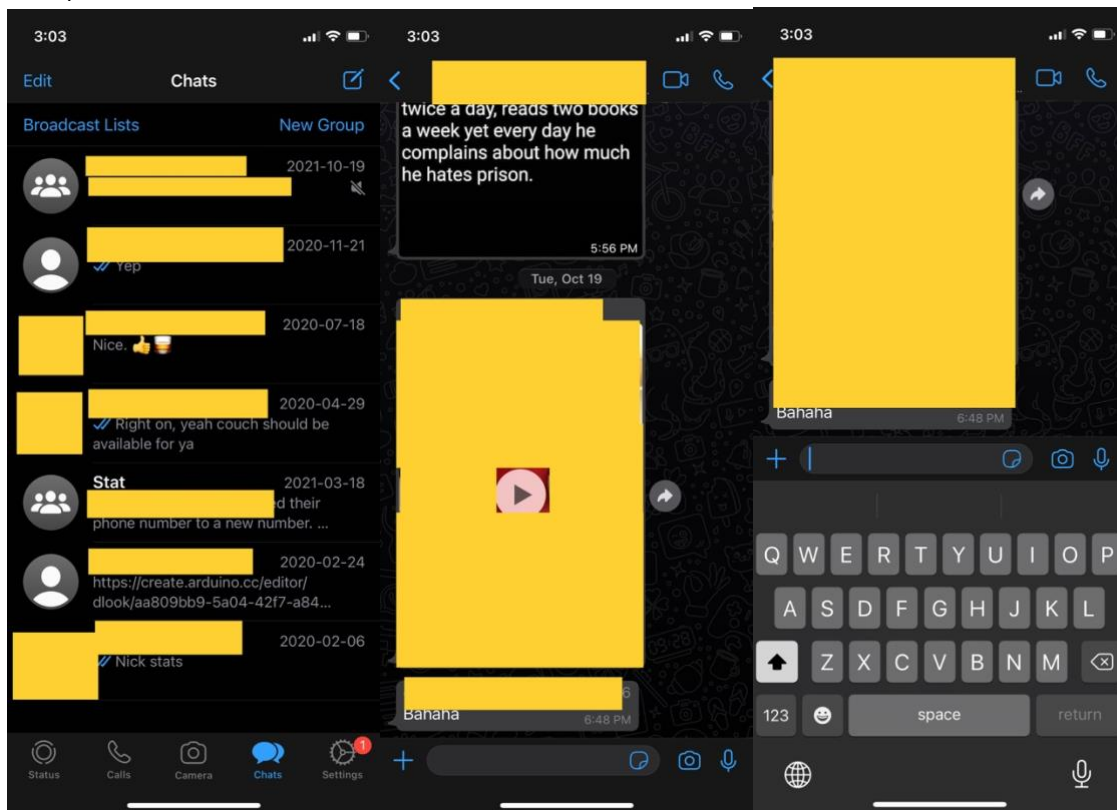

Figure 1, 2, 3 (left to right)

Figure 4

================================== END QUESTION 1 ANSWER ==================================

Question 2 [5 marks] [suggested length: 0.5-1p]

*Explain **any five** of Don Norman's Principles of Interaction in your own words and for each principle provide one example from the interface sub-part you have selected.*

================================== BEGIN QUESTION 2ANSWER ==================================

Discoverability:

       Discoverability is about whether a feature of an interface can be easily uncovered by a user who has not used that feature before. There must be some kind of indication that something can be interacted with on that part of the interface. One example of this in WhatsApp is the "chats" text and icon that appears on the bottom of figure 1. The icon indicates something can be clicked or interacted with.

Feedback:

       Feedback is a design principal which has to do with being able to observe the current state of object through the interface. Feedback should be timely, and the appropriate mode of feedback should be selected. Feedback should also convey meaningful information about the state of the device. In figure 1, an example of feedback can be seen as checkmarks next to the last message sent in a conversation. The checkmarks are a visual form of feedback that indicate whether the last message has been read by the other user(s) or not. The visual

feedback is appropriate because a user can quickly see which messages have been seen in many of their most recent conversations.

Affordances:

A design's affordances are defined by its properties and the relation of those properties to its environment and user. For this design principal we must consider the user, which for the purpose of this question is a university student who has some experience with WhatsApp but is familiar with other messaging platforms. An example of an affordance for this student is that the app supports multiple forms of communication. This student sees from figure 1 that calls, and messages can be made, and from figure 3 and 4 this student assumes from icons that messages can take many forms, such as emojis, voice memos and pictures. These forms of communication would be appropriate for communicating with another user who has similar amounts of experience on messaging platforms.

Signifiers:

While discoverability lets a user know that something can be interacted with, a signifier helps a user understand what that interaction may do. Taking the same example from discoverability, the icon is a speech bubble, and the text underneath the icon is labelled "chats". The appearance of the icon and the label inform the user that that interaction will have something to do with messaging or chatting.

Mappings:

A mapping is way to help a user understand how features of an interface correspond to their actions. In figure 3 the keyboard is an example of a mapping. When a user touches one of the letters, 'j' for example, the letter 'j' shows up in the typed message, and not 'k' or 'f' or any other letter. In order to capitalize a letter, a user must press the "shift" button. In this case 'shift' + 'b' maps to 'B'.
================================= END QUESTION 2 ANSWER =================================

For questions 3, 4 and 5 assume that you are asked to re-design the sub-part of the interface using the human-centered design process.

Question 3 [5 marks] [suggested length: 0.5p]

Create a persona for someone you would consider is a typical user for the interface and provide rationale/justification for your choice.
================================= BEGIN QUESTION 3 ANSWER =================================

This persona should be representative of the intended end user. Although I don't know who the primary end user is for WhatsApp, I'm going to assume that many people use WhatsApp to keep in touch with family. WhatsApp can be a good way for people with varying phone plans to keep in touch since it works with Wi-Fi. Thus, one end user could be a student looking to stay in touch with family while they are at university.

Persona:

Mark Jones is a 19-year-old first-year student at University of British Columbia studying science (undeclared). His family lives in Alberta and like many first-year students he is on a budget. Mark has an android phone, a Dell laptop and considers himself an averagely skilled technology user compared to others his age. Mark would like to find out more about the extracurriculars which the school offers, but he really likes outdoor rock climbing and thinks the climbing club may be a good option for him. He has just arrived at campus and is excited

to meet more people and explore the UBC campus and downtown Vancouver. Since Mark is taking five courses, he knows it will be a busy semester, but he would still like to maintain relationships with friends and family in Alberta.

================================ END QUESTION 3 ANSWER ================================

Question 4 [5 marks] [suggested length: 0.5p]

*Develop **one** key task description for this persona and provide rationale/justification for your choice.*

================================ BEGIN QUESTION 4 ANSWER ================================

Since the application WhatsApp has many mediums for messages (text, photo, video, voice memo), other users must be able to react to this media. I've chosen the task of reacting with an emoji because it's a fast, easy and entertaining way for users to react to media. For a student like Mark who maybe doesn't have the most time, but still wants to stay in touch with his family, emojis are a great form of communication.

Task Description:

Mark waits until he is connected to Wi-Fi to check WhatsApp so that he doesn't waste data. When he checks WhatsApp, he sees that his uncle sent him a hilarious video of his 8-year-old cousin helping out in the kitchen in his family group chat. After he watches the video, Mark decides to react to the it by sending an emoji in the group chat. Mark must navigate to the emojis, select an appropriate one to send, then send it in the group chat. Afterwards, he navigates back to see if there are any other notifications.

================================ END QUESTION 4 ANSWER ================================

Question 5 [10 marks] [suggested length: 1.5-2p]

*Demonstrate, using sketches/photographs and textual descriptions, **one new** interface idea that allows the persona from Question 3 to complete the task identified in Question 4, and discuss the strengths and limitations of your solution. Again, the sketches/photographs must be included as figures, not as a link to an external site.*

================================ BEGIN QUESTION 5 ANSWER ================================

For my user interface idea, I've prioritized previewing and reacting to conversations over responding with messages and other types of content. By changing the layout of the messages home screen from a column of rectangles to a 2 by 6 grid of rectangles as seen in figure 1, it allows pictures and videos to be previewed more easily. When a user taps and holds a group/conversation, it will pop out, giving a larger display of the conversation. By enlarging images and playing videos automatically, the user can preview content more efficiently as seen in figure 2. Then if a user decides to react with an emoji, they can double tap the conversation to see their past most popular emoji reactions also seen in figure 2. This way a user never has to leave the main messages page to react with an emoji. A single tap could pull up the conversation as full screen, allowing more modes to respond.

This interface is better for allowing users to preview content and then prioritize who they want to respond to. Perhaps it could encourage more use of media that is not text based, since videos and photos could be seen more easily. Visual feedback is given through the pop out window and corresponding grayed out area when previewing, and the darkened tab which shows the present tab the user is on.

Some drawbacks to this design may include discoverability. Without having been shown, a user may not know how to preview content or react with an emoji. The focus on previewing content and reacting may also lead to shorter conversations and perhaps less meaningful engagement with other users. Despite these limitations, this

design could have some good elements for a student like Mark who is fairly tech savvy, has limited time and wishes to stay connected to family.
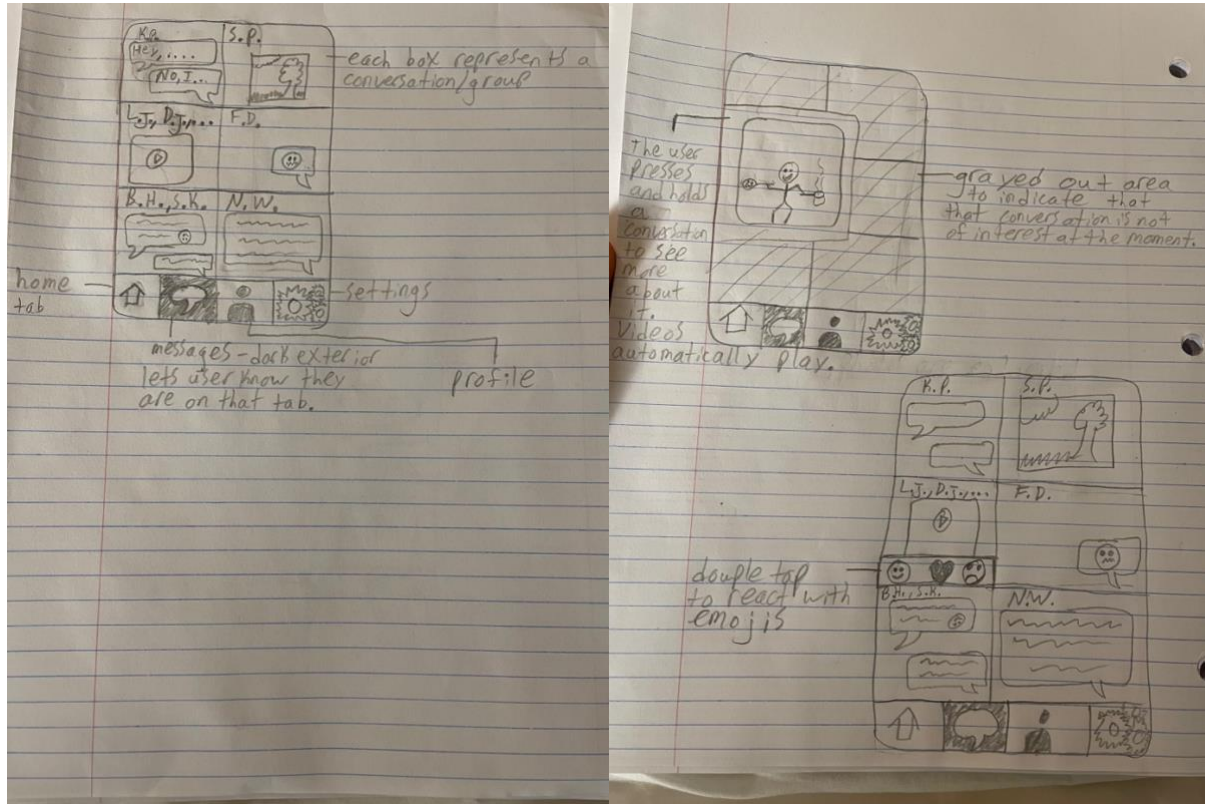

Figure 1, 2 (left to right)

===================================== END QUESTION 5 ANSWER =====================================