IST 331 - Section 1 - Spring 2014
Mid-Term Exam     6 March 2014

Name: ____________________________

Please answer the following 20 questions — 5 points each, scaled to 25% of the course grade.

1. When should you start to study the user? Name at least three situations.
   1) High human risk, e.g., developing systems to operate nuclear reactors.
   2) High financial risk, e.g., a viable system relies on less training which can save a company money.
   3) When there is a lack of matching expertise, if a similar system or service is easier to use than your current users will use that instead.

2. Comment on the iPhone 6s (device and iOS, the newest iPhone) with respect to each aspect of the ABCS.
   iPhone 6s
   Analogic — Apple introduced two sizes, the iPhone 6 & 6s.
   Behavioral — FBI report display enlarged, resolution improved
   Cognitive — New iOS similar to old version, so users know how they work.
   Social — Apple Pay was implemented so users could pay at a store using

3. Expand any 5 of the following acronyms or names:
(more than 5 correct = 5, wrong ones count negative)
   ✓ HCD - Human-centered design
   ✓ The name of the instructor: Frank E. Ritter
   ✓ GEMS - Generic Error Modeling System
   ✓ The name of the TA
   ✓ UCSD
   ✓ IRB
   ✓ TND - Test Noteworthy Difference
   ✓ PQ4R
   ✓ S-R
   ✓ UX - User Experience
4. One version of Fitts’ Law is $\text{Time} = 70 \text{ ms} \times \log_2 \left( \frac{\text{target distance}}{\text{target size}} + 0.5 \right)$.
Note what changes may be necessary to this law when using a thumb on a smartphone.

Not all humans have the same hand or thumb size, and therefore, the equation may have to account for this, possibly changing the target distance.

5. Based on material in the book, give two suggestions when you design a cell phone for older users.

A

1) Louder speakers
2) Bigger buttons

6. Name two principles of visual grouping, and note how you can use these principles to improve usability or decrease errors when you design a webpage.

A

1) Similarity—keep objects that perform similar functions near each other. For example, tabs on a website.

2) Proximity—arranging related information close to each other, for example, search results on a search engine.

7. (a) What is a JND? (b) How can you apply this concept to interface design?

C

a) Just Noticeable Difference  

b) User should be able to discriminate different elements of a system so make them perceptually different by at least 1 JND but preferable several JNDS
8. Imagine you are designing an app for Google Glass (glasses with a built-in display and CPU, shown here), such as a calendar (but you can choose a different app if you describe it first). How can you decrease a risk associated with the use of the app using aspects of visual perception?

Visual acuity varies from person to person. It would be ideal to have multiple display settings to account for variances of vision between users. It would be risky to have one setting that only applies to people with good vision, for example. This would severely limit the potential users of the application.

9. Consider these two learning curves for an interface. Note an example interface where you would like to see the first curve and an example where you would like to see the second curve.

(a) A simple mobile platform game: you want the user to be relatively successful on the first try.

(b) A complex system, e.g., Photoshop. The user will improve with frequent use.

10. Note three ways that you can help a user learn how to use your interface based on your lab and the book.

   1) Keep the interface simple.

   2) Provide instructions with the system.
11. Describe a way based on human memory to make an 8 letter or digit password that is easier to remember for students.

Mnemonic devices

12. What is feeling of knowing and why is it important for designing user interfaces?

It is the feeling that someone has about their knowledge of a particular subject. It is important for design because when people know that they have completed a specific task using a system, they are more easily able to recognize and figure out how they accomplished it even if they don't explicitly remember how they did it.

13. Note two stimulus-response compatibility problems with this elevator's interface.

1) Order of the buttons does not follow world or mental model
2) Alarm button serves as other buttons
14. What is information scent, and why is it important for website design?

It is visual or textual cues that lead a user to what they are looking for. It is important because it helps users find what they are looking for.

15. Note 5 ways noted in the books or in your labs that you can make material on your website easier to read.

1) Positive contrast helps reading
2) Sans serif font easier to read on some devices
3) Avoid using more than 1 font, can bias readers
4) Highlight or increase size of important information to get more salience of report

16. Given this schematic view of a user, note 4 ways that errors can arise.

1) Lack of perceptual skills
2) Executive memory decay
3) Lack of motivation (Not in this schematic)
4) Procedural slips in motor
17. Note up to 4 mistakes with this report snippet and number them.

Robert's performance got much worse with time as shown in Table 1.

1) Never use subject names
2) Label as a graph or figure
3) Label y-axis

Table 1: Percent correct for the fifth smartest subject, Robert.

18. What is an advantage of running a usability study in a quiet room, and what is an advantage of running it in a cafeteria?

A quiet room provides less "noise", which may otherwise skew data results by distracting participants. However, a cafeteria could provide lots of potential participants.

19. Your perception lab was to provide background on running usability studies and to give some insight on how to improve websites. Here is a picture of a web site. Suggest two questions about how to improve it that a study like your perception lab (or the default lab, if different) could start to address.

1) Is bold text more recognizable than regular text in context hunting?
2) Does a white or black background make it faster for people to find things in a user?
20. Fill in this Internet meme as a useful instruction for next year's class members:
That is, what is a surprising fact/observation/comment that students in 331 or designers might find surprising that is particularly and poignantly true? What is a take-away message from this course so far? The grader will be looking for insight in the comment, not just surface truth.

BONUS POINTS
B1. Who wrote the forward to the book? First, last name

B2. Who wrote the preface to the Foundations to User-Centered Design book? First names and last names.

B3. Name an author(s) of a paper you read for the course and the topic of their paper.