

Spring 2013 Final Exam

10(c) What do the following entities afford? When designing User Interfaces, why should you include entities with specific affordance?

Answer:

Door knob - twisting

3D button - pushing / clickable

Scissors - cutting

Chair - sit

Because it gives the user a strong hint on how the UI should be used.

10(e) Joel Spolsky states that interfaces should require minimum memory from users. For example, mobile phones allow a user to assign names to phone numbers because names are easier to remember. Consider these scenarios:

1. The user is prompted to select a photograph for his avatar and is shown a list of file paths to the photos.
2. The user wants to load a file and is required to input the file path.
3. The user wants to edit a photo via a series of adjustments. For increasing the saturation he needs to type in the “bumpSat” command. For adjusting the contrast he needs to type in the “contrastScan [options]” command. For adding a gradient he needs to type in the “invokeRenderer [options]” command. So on and so forth.

How do the above three scenarios break the minimum memory principle? Describe how would you change them to follow the principle.

Answer:

1. Use thumbnails instead of filenames. User does not need to remember photo - filename associations.
2. Use a file browser to locate the file. User can explore the file system and does need to remember specific file paths.
3. Mark the adjustments graphically through the use of icon panels or menus. The user does not need to remember specific commands.

10(f) What is the main problem with the following window? Why?
(For the image, refer to the exam)

Answer: Too much text. It is useless for experienced users and novices will either skip it or get confused by it.

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10(a) What are two advantages and two disadvantages of separating user interface code from application code?

Answer:

Advantages: People who write HTML don't need to know how to program well.
Programmers don't need to be good UI designers.

Disadvantages: Application objects generate HTML. Code tends to creep into web pages.

10(b) The concept of “safety” in user interfaces was discussed in class. Describe two examples of this concept using your own class project. If this does not apply to your class project, answer the same question for a different system

Answer:

Make actions predictable and reversible. Example: Undo functionality in many applications.

Each action does one thing. Example: Copy and Paste, where copy just gets the text and paste actually pastes it in another context.

10(e) In terms of user interface design,

i. What is the program model?

ii. What is the user model?

Answer:

i. The program has a "mental model," only this one is encoded in bits and will be executed faithfully by the CPU.

ii. It is their mental understanding of what the program is doing for them.

10(f) Joel Spolsky says “A user interface is well-designed when the program behaves exactly how the user thought it would.” Explain in your own words what he means by this statement, and give an example of a user interface that does not respect this principle.

Answer: To make people happy, you have to let them feel like they are in control of their environment. To do this, you need to correctly interpret their actions. The interface needs to behave in the way they are expecting it to behave.

Example: If there is a button on a screen and it is clickable, it will make the users happy because a button affords being clicked and the user wants to be able to click on that button. If, however, a button-shaped object is on the screen but users can’t click on it, that would make a bad interface.

10(g) Joel Spolsky suggests affordance and metaphors can help define user models.

i. Define affordance, and give an example from your own class project.

ii. Define metaphor, and give an example from your own class project.

iii. Joel Spolsky also advocates consistency in UI designs. Why is it important?

Answer:

i. Well-designed objects make it clear how they work just by looking at them. Some doors have big metal plates at arm-level. The only thing you can do to a metal plate is push it. In the words of Donald Norman, the plate affords pushing. Other doors have big, rounded handles that just make you want to pull them. They even imply how they want you to place your hand on the handle. The handle affords pulling. It makes you want to pull it.

ii. A metaphor is a figure of speech that describes a subject by asserting that it is, on some point of comparison, the same as another otherwise unrelated object. Developing a user interface where the program model matches the user model is not easy.

Sometimes, your users might not have a concrete expectation of how the program works and what it's supposed to do. In these cases, you are going to have to find ways to give the user clues about how something works. With graphical interfaces, a common way to solve this problem is with metaphors.

iii. Consistency causes ease of use which in turn causes good feelings for the user. Being consistent makes people happier because they know what they need to do to get a certain result.

Spring 2010 Final Exam

7(b) What deficiency do use cases typically present when used for UI design?

Answer: Use cases are high-level tasks and UI design requires more detail than use case analysis usually provides.

7(c) How can use cases be used most effectively for UI design?

Answer: Decompose high-level use case into low-level ones, find ones that are missing and simplify by generalizing them.

7(d) According to Joel on Software, when is a user interface well designed?

Answer: A user interface is well-designed when the program behaves exactly how the user thought it would. Asking the user to make a decision isn't in itself a bad thing.

7(e) Is giving users more choices always a good approach for user interface design? Why or why not?

Answer: Every time you provide an option, you're asking the user to make a decision. The problem comes when you ask them to make a choice that they don't care about. In the case of help files, people are looking at the help file because they are having trouble accomplishing something they really want to accomplish.

7(f) List two techniques for user interface design that reduce what the user needs to remember.

Answer:

Define intuitive shortcuts

Use real-world metaphors

7(h) Why is it usually a bad idea to create a unique, innovative user interface for a program?

Answer: Because users are used to a convention and by changing it, the interface wouldn't be consistent. Being inconsistent means the users have to remember new stuff and they don't like that. Therefore, it is a better idea to be consistent and to follow the same pattern as the previous successful designs.

7(i) Give an example of a user interface affordance.

Answer: A button affords being clicked.