Assignment: Basics and Principles

A) User Illusion (2 points)

A.1) What are User Illusions

Explain the concept of user interfaces as illusions for the user. Give examples of specific user interfaces (50 to 100 words).

A.2) A Constructive Approach to Support User Interface Design

Use the "Constructive Approach to Support User Interface Design" to assess different options of a system to remotely visit museums.

Many museums have create the opportunity for virtual visits, e.g.

- The Louvre: https://www.louvre.fr/en/visites-en-ligne#tabs
- The Guggenheim Museum: https://www.guggenheim.org/collection-online
- The British Museum: https://britishmuseum.withgoogle.com/
- Musée d'Orsay: https://artsandculture.google.com/partner/musee-dorsay-paris?hl=en
- Pergamon Museum, Berlin: https://artsandculture.google.com/entity/pergamon/m05tcm?hl=en

Pick one example of a location (museum or zoo) that offers a virtual visit and:

- Describe what a perfect illusion of a virtual visit would be? (50 to 100 words)
- What parameters help to achieve the illusion?
- What parameters reduce the believability of the illusion?
- Make suggestions how the overall virtual experience could be improved by enhancing the illusion based on your assessment (50 to 100 words).

B) Human Centered Design (2 points)

B.1) Difference between the Stereo-Belt and the Walkman

Find the patent of the Stereo Belt (US Patent 4,412,106) and a description of the Sony Walkman.

Discuss the following in (50 to 100 words):

- What are the main differences from a usability perspective?
- What person/user do you expect Pavel (investor of the Stereo Belt) had in mind?
- Why was the Walkman so successful? What is your opinion?

B.2) ISO 9241-210

Sketch the human centered design activities according to ISO 9241-210 and their relationship. Describe, in which activities (from your sketch) the principles of human-centered design from ISO 9241 are anchored (50 to 150 words)?

C) Mental Models and Metaphors (2 points)

C.1) Mental Model vs. Conceptual Model

Describe what mental model and conceptual model are. How do they differ? How are they developed (50 to 100 words)?

C.2) Mental Model of wireless payment by card

Think of different users. Describe three different mental models different users may have for paying wireless by card (total for all 3 mental models 50-150 words). You could either interview people (over phone/skype) and ask them to describe their mental model or you could write a fictional mental model that you can imagine.

C.3) Metaphors

Search for five examples of user interface designs that are based on metaphors. Make screenshots or photos of the interface, provide picture or description of the thing/concept the metaphor is based on, and describe what knowledge and skill the user can transfer from the original thing/concept to the user interface (50 to 150 words).

D) Users and Tasks: Smart TV (2 points)

D.1) Personas

What are typical users that you would expect for a SmartTV in a family home? What personas would you recommend to create for this use case?

D.2) Tasks

What are typical tasks that you would expect that are carried out on a SmartTV in a family home? Pick the 10 most relevant tasks in your view.

D.3) Task Frequency Analysis

Create a task frequency table where you guess what personas would carry out which tasks and how often they might solve that task (as guessed value from 0.0 to 1.0). Describe what would be your recommendations for the overall design to cater best for all users you imagine (50 to 100 words)?

E) Preventing Errors (2 points)

E.1) Description Errors

What are description errors? Provide a good design example (different from the one in the lecture), of a graphical user interface or device interface that reduced the risk of description errors (50 to 150 words).

E.2) Sketch: Designing with Modes

Sketch two alternative designs for an alarm clock, one with and one without modes, based on the following outline. Consider the displays and the device shape as given. In your sketch, you should add the buttons and potentially further information in the display besides the time.

Discuss the pros and cons of your designs (50 to 100 words).

F) User Interface Guidelines (2 points)

F.1) What are UI Guidelines?

Explain how user interface guidelines differ from usability principles (20 to 50 words).

F.2) Using Guidelines

Answer the following questions briefly (one sentence) based on the appropriate guidelines. Also provide a link and screenshot that shows, that you have found the right part of the guidelines.

- What is the preferred button width on the apple watch?
- In what format should be menu icons provided for the apple watch?
- For Windows 10 (UWP), when should you use a check box and when a toggle switch for a binary choice?
- What are the recommendation for Icons in Material design for Android. In particular what are the keyline shapes and what is the recommended Corner radius for square icons?

G) User Interface Checklists (2 points)

G.1) Using a UI Checklists

Use a non-commercial software (e.g. open source program, web application) that is not written for GNOME and assess it based on the following GNOME user interface checklist:
https://developer.gnome.org/accessibility-devel-guide/stable/gad-checklist.html.en

G.2) Discussing the Checklist

Discuss: how much of this GNOME User Interface Checklist is specific to GNOME? What would you need to change if you want to use it for applications on a Windows 10 or macOS Desktop? What would you need to change in the guidelines to make them fit android or iOS? (50-100 words)

H) Constraints (2 points)

H.1) Physical constraints

Find three examples of physical constraints in your everyday environment that reduce the complexity or prevent errors. For each of your examples take a photo and describe in one sentence, how the constraints reduce the possibility for errors or eases use.

H.2) Colors and Cultural Constraints

Find two examples of how colors have different meanings and associations in different cultures. Name the color and describe at least two different meanings in different cultural contexts for each color.

H.3) Symbols and Cultural Constraints

Find two examples of how symbols have different meanings and associations in different cultures. Depict the symbol and describe at least two different meanings in different cultural contexts for each symbol.

Submission:

Hand in the following files:

1) A PDF with your solution for each task (A,B,C,D,E,F,G,H)

Upload your submission file by *24 May 2020, 23:59* packed in a compressed ZIP folder. Name your ZIP folder as follows:

Example: Assignment_Basics_HCI_SS20_Max_Mustermann.zip

Have Fun!