EXAM

Human-Computer Interaction

Tuesday 29 May 2012

Instructions

- This exam consists of 15 questions, worth 6 points each; in total 90 points. You get 10 points for free.
- Answers in English would be appreciated, but Dutch is also fine.
- You are allowed to consult a (print-out) of the textbook by Stone *et al.* and a print-out of the lecture slides.
- **Make sure your answers are concise and to the point.** Irrelevant extra text will reduce the number of points you get for a question.

Use scenario

Before answering the questions please read the scenario below carefully:

> "Alice is 48 years old; she lives in Berlin and is interested in art. She has heard of a new cultural-heritage search engine that allows her to explore millions of art objects. She goes to the website of this search engine. She first sets the language to German; she then types into the search field the string "Picasso". As a result she gets a new screen where she sees groups of thumbnails with short descriptions. Each group has a label. The first group shows paintings made by Picasso; the second group shows works in the Picasso museum in Paris; the third groups shows paintings of collaborators of Picasso, and so on. At the bottom there is a "Next" link, apparently to go to the next page of result groups. She clicks on the thumbnail of a painting in the first group, called "Woman with Fan'. She gets a new page with textual information about the painting (creator, date, location, subject, etc.) plus the same thumbnail. She clicks on the thumnail again and gets a full-size image of the painting.
>
> She goes back to the initial search screen with the Home link. She looks at other options available and finds she has used a kind of general search; she can also search specifically for "locations" and "people". She now searches for "Berlin" as location and sees that it gives her groups of artworks such as "Artworks with Berlin as location" and "Paintings with Berlin as subject". She returns to the main screen. There appears to be also an option to write comments about the artworks, but this requires asking for an account. She decides it has been enough for today and ends the session. "

Questions

1. Specify a user profile in which Alice would fit. Which part(s) of the profile are in your opinion the most important for this application?

2. Specify the concrete use case which corresponds to the first paragraph of the scenario.

3. Specify an essential use case on the basis of the concrete use case resulting from the previous question.

4. Which tasks are supported by the search engine? Indicate also task dependencies, if any.

5. Give a detailed specification of the container corresponding to the home page of the search engine.

6. Sketch a content diagram with all containers mentioned in the scenario. You don't need to specify details of the containers, only container names.

7. Assume the cultural-search application would provide an additional function, namely to generate a "virtual tour" of artworks based on the search history. Can you think of an appropriate mental model which you could exploit in such a tour?

8. Consider the four psychological principles for UI design ((i) users see what they expect to see, (ii) users have difficulty focusing on more than one activity at a time, (iii) it is easier to perceive a structured layout, (iv) it is easier to recognize something than to recall it). Select two principles for which you give an example of how it is used (or should have been used, in case you spotted a violation) in the search engine.

9. Consider the following UI design principles: (i) affordance, (ii) visibility, and (iii) feedback. For each principle think of a potential violation in the context of the search engine.

10. Sketch one screen of a low-fidelity prototype for the scenario.

11. Give three examples of quantitative usability requirements: one of type "Effectiveness", one of type "Engaging", and one of type "Easy to learn".

12. Assume you want to set up a user study for the application. Specify a relevant hypothesis and corresponding null hypothesis as well as dependent, independent and control variables.

13. Given the hypothesis specified in the previous question: draw up a design of a quasi experiment to test this hypothesis. Indicate how and why you make use of randomization.

14. Specify three closed questions which you could include in a survey to get information about user experience of the application.

15. Consider again adding a function for generating a "virtual tour" of artworks. Envisage how a use scenario for this function could look like in 10 years time, taking into account the new types of interaction likely to be available by then. In answering this question you are allowed to make educated guesses about the state of the art in HCI by 2022.