EXAM

Human-Computer Interaction

Friday 27 June 2014, (12:00 – 14:45)

Instructions

- This exam consists of 15 questions, worth 6 points each; in total 90 points. You get 10 points for free.
- Answers both in Dutch and English are allowed.
- You are allowed to consult a (print-out) of the textbook by Stone *et al.* and a print-out of the lecture slides. No digital versions of the book or slides are allowed.
- **Make sure your answers' hand-writing is readable.**
- **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:

"Klaas is 80 years old; he is originally from the Netherlands and now lives in Orlando, USA. His children and grandchildren have all ended up outside the Netherlands as well and live across the different continents, e.g. Rio, Beijing, and Melbourne. At times of events like the soccer World Cup, they all get asked by their local friends and colleagues about this special phenomenon where the Dutch population and its streets "turn orange". Klaas likes to tell about this orange-mania and to explain this special part of Dutch cultural tradition and also help his children and grandchildren explain it to their friends. For this he often searches the Web for new videos, pictures and newspaper articles related to this orange-mania.

He has discovered a social networking website, in English, where people interested in the Dutch and their traditions and events exchange old and new video and photo material and stories about typical Dutch Traditions & Events, for example Sinterklaas, Elfstedentocht or Queen's Day. He also subscribed there for a group specifically interested in Dutch sports. Users of this website can search, bookmark, share and comment on events, people, etc.

The World Cup in Brazil is coming up and he wants to tell his youngest grandchildren the story of Dutch soccer and the orange-mania that goes with it. He goes to the social network website and logs in. He searches for 'soccer'. The results come back clustered according to the type of the items, e.g. matches, teams, players. He clicks on the cluster 'matches' and sees a ranked list of results. He browses a bit the results by scrolling through a couple of pages, clicking on the button 'next'. Each result (match) has a thumbnail and an indication for what its format is, e.g. TV video broadcast, radio audio broadcast, news paper picture, news paper article, or magazine article and there are also corresponding filters for each format. He selects the filter for 'TV video broadcast' and he also selects a filter to see only the videos posted by members of the 'Dutch sports' group in the network that he is subscribed to. The list of results now contains 10 match videos. He clicks on the first one named "EURO 1988 Final", and looks at the detailed description of this TV video broadcast, e.g. year of broadcast, channel it was broadcast on, which match is shown, what the match score is and who scored, etc. He really likes the particular video (and the result of that

match), but unfortunately this one comes with Dutch commentary. Unfortunately, his grandchildren would not be able to understand this, so he searches through the related videos and finds a video that the BBC made in 1990 in preparation for the following World Cup about the 1988 Final match and the orange-mania of the Dutch people that occurred around that match. He clicks on it and looks at its description. He sees that the video comes with a set of pictures from the tour through the canals that followed after the Dutch team returned home. He also notices that his friend Louis has favorited this video and left a comment that in this video you can see the canal tour pass the bridge they both biked on many times when they were both living in Amsterdam. Klaas watches the video nostalgically and then also favorites it.

He now uses the service of this social network to send an electronic postcard to his grandchildren with the selected video "EURO 1988 Final" broadcast by the BBC in 1990. He uses the e-postcard wizard to configure it with the right content (e.g. including the pictures from the canal tour), the right background, and a message to his grandchildren and children. He also configures the date for the card to be received by them, i.e. at noon of June 13th, just before the first match of the Dutch team in this year's World Cup. He also checks the option to share a message on his timeline in the social network that he has just created an e-postcard with this video.

Questions

1. Specify a user profile in which Klaas would fit. Indicate the part(s) of the profile that in your opinion are the most important for the design of this application? Explain why.

2. Specify the concrete use case, which corresponds to this scenario. Consider all relevant user tasks from the scenario.

3. Specify the essential use case on the basis of the concrete use case resulting from question 2.

4. Make a complete list of all the tasks that are supported by the Dutch Traditions & Events website. Indicate clearly the task dependencies, if any exist. Give a brief explanation for those.

5. Give a detailed specification of the container corresponding to the soccer match page of the website.

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

7. Assume the Dutch Traditions & Events website would provide an additional function, namely to generate '*a video collage'* based on your interests, preferences and location. Give an appropriate mental model, which you could exploit in such a '*video collage*'.

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 a concrete example of how they are used (or should

have been used in case you spotted a violation) in the Dutch Traditions & Events website.

9. Consider the following UI design principles: (i) mapping, (ii) feedback, (iii) visibility, and (iv) affordance. For each principle think of a potential violation in the context of the Dutch Traditions & Events website. Motivate your answer.

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

11. Give three examples of quantitative usability requirements for the scenario: 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 Dutch Traditions & Events website. Specify an overall goal of the study, one relevant empirical scientific question, one relevant/corresponding hypothesis and the corresponding null hypothesis, as well as the dependent, independent and control variables.

13. Given the hypothesis specified in the previous question 12, draw up a design of a quasi-experiment to test this hypothesis. Give explicitly the type of the design. Explain why you have chosen for this design and indicate how and why you make use of randomization.

14. Specify three closed questions (in the appropriate format) that you could include in a survey to measure the user experience with the Dutch Traditions & Events website. Consider the context of the study defined in questions 12 and 13.

15. Think creatively of how current advances in user interface and interaction technologies could be included in a Traditions & Events social networking application. Describe the features of such a website if it would use such state-of-the-art solutions and explain why you think it is going to be attractive for users. You are allowed to make educated guesses.