

## Home Exam – Systemdesign med ett användarperspektiv

This is the final assignment for the course. It is mandatory, and has to be handed in on Studium.

The assignment consists of 6 main questions, which you are to describe in **reasonable** detail. The responses to the assignment should **not exceed 6 pages** in total for all topics (using 12pt type). They could be shorter, of course, as long as they provide the proper information.

### General instructions:

Please read thoroughly before you start:

- This is a home exam, which you have about five days to complete. The implications of this are that I will not have any control over how you arrive at the answers. This also means that you will be able to use Google or other students, for example, as help. However, this also means that I will be expecting a correspondingly higher standard on the answers.
- I am not interested in any code in the answers. There are two main reasons for this:
  1. There is enough code to read in your projects already
  2. I am interested in how well you have *understood* the more general content of the course, which in turn means that you:
    - should be able to answer the questions on an abstract level
    - should answer in such a way that you can convince me about that you have understood the ideas.
    - will be asked for things that may not have been taught explicitly, but which you should be able to figure out if you have understood the concepts.
- Your responses should be possible to understand for a student who has not taken this course yet, which means that you *can not* rely on me knowing what you intended to write.
- The exams will be run through the system for plagiarism control, which means that you should really try to put things into your own words, even if you have been discussing the question with some other student on the course.
- You may have ideas and thoughts that deviate from my personal (and the official course) views. This is OK, but you have two options:
  1. Answer what you think I want to read.
  2. State your own opinion, but in that case, you should also provide a very good motivation for why your answer is better.

Both options can give the full score on the question (but it might require a slightly larger effort to get it!).

- This document is written in English, but you may answer in English or Swedish, according to what you feel better using. If you don't remember the term in one language you may use the term in the other.
- Some questions may overlap to some extent, which is intentional.

I hope that you all will make well on this exam. If there is anything that is difficult to understand in the questions, you are welcome to ask for clarification in the mail. I will answer as well as possible within the limits of not replying to the question itself.

### Question 1:

Sometimes it is easy to confuse the user-oriented metaphor (the view) with the actual application base (the model).

- A. Explain why this can happen when you are developing a system.
- B. Give an example of how this confusion can negatively affect:
  - 1. the user's understanding of the system
  - 2. the programming solution as such

Your answer should preferably be based on the project solutions you have implemented. *Hint: Think about the lecture on Drag and Drop, as well as what we know about Human Factors.*

### Question 2:

One important concept in this course has been the MVC (Model-view-control) paradigm. In order to answer this question, you have to:

- A. describe the principles behind the MVC paradigm
- B. explain why the MVC has become more difficult:
  - 1. when the direct manipulation interface replaced the command language
  - 2. with the introduction of touch screens (i.e., where you can interact directly with the graphics without the mouse or other input devices. \*
- C. give your opinion about MVC in relation to:
  - 1. Agile development
  - 2. Rapid prototyping
  - 3. Sustainability
- D. Why is it so important to only make changes directly in the model, if you can do it just as easily directly in the view?

### Question 3:

- 1. What are some major conceptual considerations you need to make while implementing UNDO-REDO? You should describe at least two!
- 2. Where is the difficulty in implementing UNDO-REDO?
- 3. Explain why you have chosen the functions that can be undone in your project.

### Question 4:

In this course we have worked with an application made through the use of a Web browser. However, the important principles are not tied to the implementation language(s). Which of the principles (MVC, Internationalization, Drag and Drop, UNDO-REDO) do you consider to be:

- A. easiest to implement on a more traditional programming platform (such as C#, Java, Python, etc.)?
- B. most difficult to transfer onto that platform?

For both questions you should motivate your answer carefully.

### Question 5:

A. Motivate why and how Drag and Drop, as well as UNDO-REDO can be supported by a proper implementation of the Model-View-Control paradigm.

B. Also discuss how you have used this in your project (or if not, why you have not used it).

### Question 6:

Give your opinion about the project you have created.

In your answer you should:

- a. motivate why your project is well designed from a Human-Computer interaction perspective.
- b. describe how you have taken human factors (such as memory, perception, etc. – cf. with the first three lectures) into account in your design of the project.
- c. Describe some things that are not well designed in this respect, you should point these out, and give a hint as to what could be done to rectify this.

Note that I am interested in **your** thoughts about the design, and not a defense of the final product. This means that you **can be critical** to your own project.