CSE 4461, Winter 2014

Weight: 5% Due: Jan 24, 2014, 11:59pm

Overview

The Course Project shall consist of a number of comp	onents:	
cp01: Project Specification & Milestones (v.1):	5%	20 Jan
cp02: Milestone I:	10%	03 Feb
cp03: Project Specification & Milestones (v.2):	5%	19 Feb
cp04: Presentation (Partial Results):	10%	07, 10, 12 Feb
cp05: Critique Exercise:	5%	17 Feb
cp06: Milestone II:	15%	03 Mar
cp07: Project Specification & Milestones (v.3):	5%	05 Mar
cp08: Final Deliverable:	15%	04 Apr
cp09: Final Presentation:	10%	26, 31 Mar, 02 Apr
cp09: Final Presentation:	10%	26, 31 Mar, 02 Ap

Deliverables (cp01):

1. Identify and describe a topic for project that meets the **course project requirements**.

Prepare a file XXX_TopicSpecification.pdf for the document that contains two sections. Section #1 should be a description of the project's objectives, with a careful characterization of scope. Section #1 should be a description of methodology.

2. Develop a set of milestones and a timeline for these milestones.

Prepare a file XXX_Timeline.pdf for the document. Ensure that your timeline meets the **timeline requirements**.

Submit the files XXX_TopicSpecification.pdf and XXX_Timeline.pdf using the submit command:

submit 4461 cp01 Timeline.pdf
submit 4461 cp01 Timeline.pdf

If you are working in a group, only one submission is needed per group. It does not matter which group member makes the submission. The prefix XXX should be chosen to uniquely identify the submittor (individual or group).

Course Project Requirements

The course project will be a **research project** that concern one of the following domains:

- 1. An Investigation of Empirical Phenomena:
 - **analysis** of a cohesive body of hypermedia content which characterizes usability and/or accessibility (investigating empirical phenomena); use of analytical and/or computational tools.
 - Must have a significant empirical component (i.e., must develop an instrument for data collection and a population of subjects).
- 2. Hypothesis Testing:

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- Generation of **new knowledge** concerning an aspect of usability and/or accessibility.
- Entails formulating a research question that can be answered by conducting a controlled experiment.
- 3. Technology Development:
 - The development of new **computational tools** and/or **computational techniques** for the assessment of usability and accessibility. This may take the form of creating an extension to an existing piece of software.
 - The development of a novel **analytical tool** for the assessment of usability and/or accessibility. This may take the form of the development of an approach or algorithm for analysis that is not instantiated computationally, but is sufficiently operationalized so that it can be performed by a human analyst and could potentially be instantiated computationally.
- 4. Generating New Knowledge:
 - **creation** and/or **authoring** of hypermedia content that fulfills specified usability and/or accessibility objectives.
 - Evaluation criteria must be developed a priori; evaluation criteria must be applied and results included in final project deliverables.
- 5. Other
 - Other types of projects may be allowed at the discretion of the course director

Methodology for Research Projects

The topic categories above require different types of research methodologies. Your project work must entail the use of scientific and/or interdisciplinary techniques that are appropriate to your topic. In general, all research projects will adopt a methodology that consists of the following components:

- 1. Articulation of research question. What question is being asked?
 - For instance:
 - Does a particular population of users find a particular body of hypermedia content usable/accessible? [need to carefully define user population and the characteristics of usable/accessible]
 - Does a specific feature in hypermedia result in improved accessibility?
 - Does one hypermedia authoring system produce content that is significantly different from the content produced by another system, in terms of certain usability and/or accessibility features?
 - How can we automatically assess, given some arbitrarily chosen hypermedia content, whether the content exhibits a particular accessibility or usability characteristic?
 - How can we manually assess, given some particular hypermedia content, whether the content exhibits a particular accessibility or usability characteristic?
 - Given a particular and relevant design domain [to be developed], how can we create hypermedia content that meets particular usability/accessibility objectives?
 - This is a crucial initial step because the question itself provides the criteria for determining whether research project has been completed (specifically, one asks to what degree has the question been answered?)
 - There is a certain amount of skill required to articulate a question that can be answered by a finite amount of work. It is all too easy to inadvertently pose a question that is too open-ended and/or too vague.

- 2. Motivation and purpose. Why are you pursuing this research question? Why would an answer be of value? Oftentimes, an answer to this can also be found during the literature review (see next item).
- 3. What work has been done previously on this particular question and what was discovered? A review of the relevant literature is needed. The results must be synthesized into a coherent whole. If the research question is too broad, then the body of relevant literature will be huge and not tractable?
- 4. Approach: what steps will be taken to answer the research question?
- 5. Results: describe what you have achieved, having undertaken the steps that you identified in the previous step.
- 6. Evaluation: how will you assess the degree to which the research question has been answered?

Other Aspects

Audience: who do you expect will have a need or interest in your research question?

Communication: what are the best technique(s) for describing your research questions, your methodology, and your results.

- Style of writing
- Type of document, dissemination
- Infographics and other visual materials
- Venue

Requirements for Milestone Document

It is understood that the milestones oftentimes need to be developed iteratively. New insights are generated as the research project unfolds which impact the feasibility of milestones that may have already been developed. Alternatively, it may happen that a milestone is accomplished with much less time and effort than expected, which generates an opportunity. A project's list of milestones needs to be nimble, in order to response to unanticipated difficulties and to capitalize on unexpected opportunities.

You will have two opportunities to revise your milestone document.

It is also worth noting that milestone documents, if kept updated, are also a valuable source of documentation about what work was undertaken.

We will use the term 'milestone' to refer to a larger, multi-deliverable piece of work. We will use the term deliverable to refer to a piece of work of fairly small size (can be completed in 1-2 days).

Milestone documents are typically tabular, with the following columns:

Column 1: unique identifier

Column 2: Deliverable description.

This description should be specific. On the basis of the description, you should be able to determine if and when the particular milestone has been accomplished.

The description should also set out the format of the deliverable. For instance, is it a document? (if so, what format?, what estimated length?). Is it a certain "state" (e.g., a particular software module is up and running; all test harnesses return true).

There are different philosophies about the optimal size and scope of individual deliverables. For this course, each deliverable should be approx. 2-5 hours of work and there should about 2 deliverables per week.

Column 3: Dependencies: list deliverables, if any, which are prerequisite. This column serves to provide the "Available Date" (the date at which it becomes possible to begin work on the deliverable.

Column 4: This deliverable is part of which milestone?

Column 5: Due date. The date by which the deliverable should be completed.

Column 6: Completion Date: The date by which the deliverable actually was completed.

Once you have developed a list of deliverables and placed them in the column, you should get a sense of the trajectory of the project.

You should take a step back and think about which deliverables seem to "belong" together, in the sense that they cohere together to form a larger unit of work. These units should map to the milestones in a 1:1 fashion.

If you have more than two milestones, then you should identify which two you will be submitting as part of the course evaluation.