CIS440 Individual Assignments

Your individual capstone research project requires in-depth, empirical investigation of an important problem in information systems development, operations, or management. You may select a *product* problem or a *process* problem, for example:

– the design of a search engine for a particular type of data
– how to balance breadth and depth in software testing
– implementing multi-language support while avoiding spaghetti code
– how to do project management for geographically distributed teams
– techniques for attaining and measuring search engine optimization
– etc.

You will probably benefit from choosing a topic that will help you in your team's capstone project, but you are not required to do so. Your group project could be a good context in which to experiment with solutions to the problem you are studying. However, you are individually responsible for this research, and it need not be related to what your groupmates are working on.

There are four major deliverables of your individual work, which constitute 60% of your overall course grade, detailed below:

Research Paper Proposal (September 15, 5%)

In about five pages (1000-2000 words), identify the problem that you will be working on. You must convince me that the problem is real and meaningful—that is, solving it matters. You must also show that it is challenging and non-trivial (i.e., there's no single obvious best solution). Give a preview of how you will investigate the problem: who you can interview, what sources you will read, and how you will gather direct evidence. Submit via Blackboard.

I recommend that you talk to me *before* the due date for help choosing a good research topic.

Literature Review and Problem Analysis (October 22, 20%)

In this mid-term paper, present a thorough analysis of the problem based on your research. By this point you should have reviewed a broad range of literature on the topic—books, articles, lectures, and other media—and made sure you understand multiple points of view on the problem and its solutions.

For full credit, you must also have interviewed at least two experts or practitioners who have some knowledge about the topic, and incorporate some of their views in your literature review.

Based on the understanding you have acquired from this research, you must outline your plan for conducting empirical research in the remaining half of the semester. This plan should focus on one or more potential solutions to the problem you have studied, and use data or experience to test its implied hypothesis. For example, you may plan to create and test a software implementation of the proposed solution. Alternatively, you may conduct case study research with a real organization, survey research, archival data analysis, or experimentation.

The mid-term paper should be about twenty pages (about 4000-6000 words), professionally written, and may include part or all of the proposal you submitted earlier. Submit via Blackboard.

Individual Research Presentation (Oct 20, in class, 5%)

In class on October 20, we will break up into small groups. In a presentation (or "conference") with a small group, deliver a condensed version of the mid-term literature review and problem analysis, and ask for feedback. In addition to discussing your topic at a general level, talk about how you intend to conduct empirical research in the second half of the semester. I will provide you with feedback forms for the group. <u>Submit copies, photos, or scans of these forms with the paper due October 22</u>, to get credit for this in-class activity.

Final Term Paper (December 10, 30%)

The final term paper must include the research and analysis submitted in the mid-term paper, as well as a thorough report on the empirical work you conducted in the second half of the semester, and a discussion of your findings. The research write-up should describe your methodology and process, the data or measurements of results, and some conclusions as to whether your hypotheses were supported or unsupported. In accordance with the iterative and empirical approach we have taken this semester, you are expected to document the development and testing of your ideas over time, rather than merely report the theory you ended up with. The exact form of this write-up will vary according to your chosen research methods, but it is essential that you not merely report your results but also think critically about the reasons for them, and their implications.

The final paper should be about 30 pages (roughly 8000-10,000 words) and it may contain part or all of the initial proposal and mid-term paper. Deliver a hard copy to my office (or the IS department front office, if I am out) and submit the electronic version via Blackboard. My expectations are that it be <u>professionally written</u> and edited, that it reflects a thorough understanding of a meaningful problem in information systems, and that it reports thoughtfully on a rigorous <u>empirical</u> study of at least one potential solution to that problem.