CSCE 742 - Project Part 4 - Extension and Modification

Due Date: Tuesday, December 4th, 11:59 PM (in PDF format, via Dropbox)

Your job, this semester, is to understand, document, and extend the architecture of a non-trivial real-world software system. In the last phase of the project, you described the architecture at multiple layers of abstraction and also from multiple viewpoints. In this - the last phase of the project - you will modify that architecture in a significant way.

Implement and document the extensions or refactoring proposed in Part 3. The "implementation" should be at the level of design documentation, and should be sufficiently precise so as to evaluate your modification or enhancement. I would expect a functional or class diagram that defines the changes that will be made in your proposed system, as well as (for extensions) additional requirements, scenarios and sequence diagrams that define dynamics of the new and/or improved system. After reading your extension, a reasonably-skilled developer (e.g. me) should have a good idea of how to implement it.

You should use the techniques learned in this class and others (i.e., CSCE 740 if you took it) and design patterns / architectural styles, to create and explain your architecture. Note: the documented extension has to involve a significant amount of new design work performed by your team; documenting an existing extension of the system is not acceptable.

Part of the assignment is to communicate changes. The following steps should be taken:
1. The version history should be updated to reflect the change. (If you do not have a version history section, add one).
2. Add a the status section, presenting an overview of the refactoring or extensions that you have proposed and (broadly) how it impacts the rest of the document.
3. It is likely that the new or modified behavior will affect your requirements, scenarios and sequence diagrams to explain the modified/new behavior. Alter your existing requirements, scenarios, and sequence diagrams, and add new ones as needed.
4. I would like the changes to be integrated into entire document. In the case of an extension, this may involve a new subsystem-level architectural view as a separate section. In all cases, it will involve changes to existing text to reflect the new information. To make the changes stand out, write the new material in a different color font.

If you are refactoring, you will:
1. Explain how your new architecture better satisfies stakeholder goals.
2. Explain how your new architecture has the capability to better meet expected change cases.

If you are extending an architecture, you will:
1. Enumerate design alternatives for the extension,
2. Choose one and explain why it is the best at meeting your extension goal, and
3. Explain how the extension fits into the existing architecture.