## **Group Project Details**

The course objective is to help you become good at developing architectures of large-scale software intensive systems. You're going to do that by understanding what architecture is, the role it plays, and the fundamental concept, techniques, and methods for developing the architecture. Following is the project that you'll be working on throughout this course that helps you further your learning by applying these concepts, techniques and methods:  
  
Internet-based Collaborative Work Environment

Company X is looking to develop better communication and collaboration tools that can help make it easier for its geographically dispersed teams to collaborate with each other. They want to achieve greater efficiencies through faster decision making and avoiding excessive business travel eliminating many hours of downtime and days away from the office. It envisions an Internet-based collaboration system that incorporates:

* + - speech communication
    - video conferencing
    - chat
    - file sharing
    - a shared whiteboard that collaborators (such as software engineers) on a virtual team (such as a globally distributed software development project) can use for brainstorming and sketching their ideas (for instance, drawing UML diagrams for software design).

The system should allow collaborators to use a variety of input devices such as a wireless pen tablet or touch screen, and should be capable of sending output to different devices such as a display station or a smart phone. It should be highly responsive for critical operations such as sketching or drawing, speech and video conferencing. The system should recover from unstable network connections, and it should be possible to track progress of execution and troubleshoot any failures at runtime.

**Deliverables**

The project has four different checkpoints that eventually feed into a final software architecture design document.

**Checkpoint #1** focuses on identifying and characterizing the quality attributes that have a strong influence on the architecture of the system. Your team collectively come into an agreement on the quality attributes characterized as scenarios and their prioritization.

**Checkpoint #2** you’ll explore a broader set of requirements, called architecture drivers, that will drive the development of the architecture of the system. These include, in addition to the quality attributes identified in checkpoint #1, the design purpose, primary functionality, architectural concerns and constraints.

**Checkpoint #3** involves systematically designing, over multiple iterations, the architecture of your system using a method called attribute-driven design. For the system you are designing, your team will explore design concepts such as reference architectures, patterns, tactics and externally developed components that are known solutions to commonly encountered problems when designing software-intensive systems, and decide which subset of these is most suitable to address the architectural drivers of your system.

**Checkpoint #4** focuses on reviewing one of the architectural drivers of the architecture created in checkpoint #3 using a lightweight analysis technique known as tactics based questionnaire.

**Software Architecture Design Document:** You progress through the above checkpoints collectively creating a baseline for next iteration and, as a result of doing this, you're essentially writing the final **software architecture design document**. At the end, you just have to integrate the outputs from the different checkpoints.

I encourage you to go take a look at the lecture notes, readings from the book and try to understand the project. There's a group discussion forum where you can introduce yourself, get to know the people in your group, discuss the course project and plan how you will coordinate amongst yourself to work on the assigned project. If you need quick attention from me, the best way is to send me an e-mail via canvas so that I can get back to you in a timely fashion. If you post comments on discussion forums or other places, those don't grab my immediate attention. I'll get to them only when I'm reading those forums.