

# CSCE 740 - Project 3 - Draft Design

**Due Date:** Sunday, November 5th, 11:59 PM (In PDF format, via Moodle)

## Overview

In this deliverable, you are required to produce a detailed design of the BILL system. The design must be an object-oriented (OO) design and refined down to detailed descriptions of each operation and attribute, with documentation to explain and justify your design. A design template will be available on the course web page to assist in your task.

## The Design Process

The design of systems is still a bit of an art. The goal in the design process is a detailed document - establishing the static and dynamic design of the system - that is complete enough to be a reference from which any competent software engineer can produce code and craft executable test cases.

A first step is typically a preliminary design. This can be considered a draft of the full design document. As you go through the design process, everyone in the group should be involved and read the draft class diagrams and descriptions (see discussion below) and other parts of the document to make sure they understand the overall design and can provide design feedback. As you refine your design, be sure to document your rationale - the hallmark of a good design is one that can be justified.

The design document shall contain the following (at a minimum):

1. An introduction providing an overview of the system. This includes a system description and design objectives.
2. A design overview explaining the overall high-level system architecture, description of all interfaces with the environment (users and external systems), descriptions of any persistent storage mechanisms maintained by the system, and a description of all constraints and assumptions used in the design.
3. Static design (UML class diagrams and class descriptions). This section must contain a complete class model, a high-level English description of the design and how it works to produce functionality, and detailed description of each class (class description, attribute descriptions, and method descriptions).
4. A written explanation of and justification for the design you chose, including specific rationale for the decisions made in the design (for example, why your design may be better than another or why you chose to implement - or not implement - a specific design pattern within your design).

The document must be clear and well organized, and all diagrams must adhere to UML standards.

## Resources

Several resources will be made available:

1. A template will be available from the web page.
2. Guidelines for the API your implementation must offer for interfacing with external systems (given as a Java interface).
3. Sample student and user data that matches the specified data formats.

You may, of course, ask questions about your design. However, please **do not** send an entire document and ask if it's good enough. If you want feedback, **ask specific questions**. We cannot critique your design unless you explain and justify your design and the decisions you arrived at in coming up with your design.