1 Objectives

In this assignment, we will continue with documenting our design.

The attached **design document template** has EIGHT sections. We will ignore sections 1, 2, 3, 4, 6, and 8 and focus only on sections 5 (interfaces) and 7 (rationale). Note that with the information from the architecture document (developed in an earlier assignment) – we can (if we wanted to) fill out sections 3 and 4 (decomposition and dependencies).

2 Steps

2.1 STEP ONE: DEFINE THE INTERFACES BETWEEN SUBSYSTEMS

In terms of design, an interface is a type of contract between developers that states how one system or object can call another system or object and **allows teams to develop code separately, test separately, and integrate easily**. (Why is this useful?).

Essentially, you have to define precisely each of the ball-and-joint or peel-away points. There are different types of connections between sub-systems:

a. The most common type of connection between subsystems is the function or procedure call. The "function prototype or signature" must be clearly specified. Do this as in javadocs.
b. Two sub-systems can communicate via a FILE. In that case, the format of the file has to be specified unambiguously.
c. Two sub-systems can work with a database. In that case, the database table formats etc must be specified. Think about how customer and account information will be stored. Are you going to use a COTS (commercial off the shelf) database or create a file structure of your own? What is the format of the tables/files you will use? What subsystems use which tables/files?
d. Two sub-systems can communicate via sockets. In that case, the message format AND the message protocol (if any) would need to be specified unambiguously and in detail. It also could be using standard protocols like HTTP/HTTPS etc.

2.1.1 Fill out Section 5.1

a. Give a list of all sub-systems
b. For each sub-system (or module):
    i. Start a new sub-section.
    ii. Specify <we are looking for detailed specs> each interface that this sub-system provides. Also, describe each interface. For example, if this sub-system provides a sort function, then I would provide the complete function prototype with arguments, their types, the return type etc AND the description of the function. Similarly with other types of

connections. Another example, would be to describe details of message being passed through socket (this might be a Message class – or it might be a string with a particular format). If there is a sequence of messages that must be sent between server and client (called a protocol), then the protocol must be described. LACK OF DETAILS WILL BE PENALIZED. Note that this step is the single step that can allow for proper concurrent development, for proper testing, and for easier integration.

b. Repeat this for the MAJOR sub-systems .

2.2 STEP TWO: COMPLETE SECTION 5.2 OF INTERFACE SECTION

In the process interface section, describe how processes/threads are created, when they start running, and how they die.

2.2.1 Fill out section 5.2.

First, give a list of each process (executable) in your system.

a. For each process:
   i. Start a new sub-section.
   ii. Indicate how process and threads are initiated by user and how user or system interacts with the process (including killing the process)

You do not have to write much in this section.

2.3 STEP THREE: COMPLETE SECTION 7 - DESIGN RATIONALE

In the design issues, describe the **major global design issues** that were encountered. For each issue: 1) describe the issue, 2) describe the factors that affect the issue, 3) describe the alternative designs and their pros and cons, and finally state the resolution of the design issue (i.e. what was the solution chosen) and why. LIMIT to describing the TOP four design issues (i.e. one per student). Note that **screen design choices is NOT** what we are talking about here.

3 Convert to final form for submission

1. Finalize the draft – and also create a pdf version. Submit BOTH on blackboard.
2. Make sure the name of your team and your project name are clearly displayed at the top of the FIRST PAGE.

In addition, as usual – do submit minutes of meetings. Also, work distribution is to be submitted by each student separately.