CS 120 - Introduction to Business Computing

Instructor: Kevin Sullivan
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Classes: Olsson Hall 009, MWF 10:00 AM – 11:00 AM
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Prerequisites: Basic computer literacy – files, directories, keyboard, email, etc.

Required textbook and related materials: *Java Program Design* (Cohoon and Davidson). Students are required to sign up for and use CodeLab. This course uses the JCreator IDE (IDE stands for *interactive development environment*–a tool for writing programs). The LE version is available free of charge and can be used on any computer supporting Java. JCreator in turn requires Java (JDK 5.0), which can also be downloaded for free. You may obtain the required software and use it on your own PC, or you can do your work on UVa lab computers.

Motivation and course description: The operation of any major business today depends on computer systems whose behaviors are directed by complex, costly, and strategically important *software*. The general goal of this course is to help you *understand* and *begin* to answer the following questions:

- What are *software systems* and how are they used?
- What are *computer programs* and how do they relate to software systems?
- How can investing to create & deploy software systems create *business value*?
- Why is it so hard to create *good* software systems *well*?
- How are software systems in general, and programs in particular, *developed*?
- How can we *succeed* in creating good software systems well?

These are important questions, but they're also very big questions. A whole graduate program could be spent on them. We're starting at the beginning and we've only got one semester, so the approach we're going to take is to gain some exposure to the overall set of big issues, but do in by focusing primarily on the most concrete of them, the creation of *programs*. In particular, we will focus mainly on *program design and implementation* using the Java language. We will learn (1) the basic building blocks of programming, as provided by the Java language; (2) how to use Java to compose building given blocks into more complex programs; and (3) how to use Java to turn more complex programs back into simpler building blocks for the next level of program composition. We will also discuss techniques to help us to create *useful* and *dependable* programs more *efficiently*.

Requirements and Grading: The course work consists of *required attendance and participation*, about five machine problems, about ten quizzes, two exams, and regular CodeLab assignments.

Attendance, participation, quizzes, exams, and CodeLab exercises are all individual assignments. You may not work together on these assignments. Machine problems, on the other hand, may be addressed by group efforts with up to three people per group. If you choose to work with a group on a particular problem, each member of the group must participate fully in solving the problem, and is responsible for completely understanding all aspects of the solution. All members of a group will receive the same group grade. A machine problem will generally have two parts, a coded solution to a given problem, and a written part. Both parts are important and will be equally weighted. Even if you choose not to work in a group you may consult other students. Permitted consultation includes discussions of choices of algorithms & data structures, and examining someone else's code, *once yours is working*, to assist them in debugging their code. Assistance may not include copying or paraphrasing of solutions. Use common sense and behave honorably. Do not risk cheating: Apparent honor violations will be prosecuted. It's far better to just let the instructor know you've had a problem and ask for help.

The tentative grade breakdown for the class is as follows:

- CodeLab exercises 10%
- Machine problems 30%
- Quizzes 10%
- Exam #1 20%
- Exam #2 30%