CS1A

Object Oriented Programming Methodologies in Java

Dept. of Computer Science, Foothill College

Course Description

CS 1A is an introduction to computer programming using the Java language. You will learn how to write Java programs that cover a wide range of applications. The ability to work with computers and access to the Internet are the only prerequisites. A working facility with simple Algebra as well as good written English comprehension skills are both strong advisories. For success, you will also need both a desire to learn and a positive attitude.

My goal in this course for you is to develop a programming application that is user centric. We will gradually develop an application by applying new concepts learned in modules in each of the projects. We will apply principles of object oriented programming such as encapsulation and composition.

We will work toward a test driven development (TDD) approach. The goal of this approach is to minimize bloated code by first defining how a feature is used before we start development. Otherwise, if we dive into writing code as soon as we talk to the client (or in this class read a programming assignment description), we run the risk of spending lots of time on code and features that the user never uses, or writing buggy code that makes our application fail. Our goal is to write good object oriented application(s) that the user would want to use!

Your job is to continuously improve your implementation. So, if you find a bug in your implementation or determine that your approach resulted in an incomplete feature, then isolate the problem and work on one feature at a time until it meets all the test requirements.

Topics we will cover are:

- The structure of a Java program.
- Variables and statements.
- Valid and invalid assignment statements.
- Control structures.
- Single dimensional arrays.
- Writing pseudo-code.
- Defining a class and creating objects.
- Defining and using instance attributes and methods.

- Defining and using class attributes and methods.
- Method signatures.
- Scope of a variable.
- Immutable variables.
- Two dimensional arrays.
- Exception handling.
- Introduction to file input and output (I/O).
- Passing arrays to methods.

Development tools we discuss:

- Debugging via your integrated development environment (IDE).
- Introduction to version control via git.
- Introduction to the command line interpreter (CLI).

Laboratory

Laboratory option of this class is conducted online. The amount of time you spend varies greatly with the individual. Some students take 10 hours, some take 20 hours.

Complete Every Single Project Every Single Week.

I believe that most of your learning will take place while you are working on your laboratory assignments. Therefore, every week you will be working on a assignment and each assignment is a computer program. It is impossible to succeed in this class without studying *every single week* of the quarter.