Note: My Philosophy about Labs

When I assign a lab in this course I leave it fairly vague. This is absolutely intentional. If I gave very explicit instructions I am likely to get a zillion labs all looking alike. I don't want that. I want some creativity and that is best got by letting you do some thinking on your own. Second, I want you to have to do some research. The more you have to read, the more you will learn. I've learned far more from writing programs of my own where I had to dig to get info. This is lateral learning. Finally, I try to give a minimum set of requirements that I can think of off the top of my head. I hope that most of you will go beyond the requirements and think of other things that would be useful.

I fully understand that you may get stuck. That's fine. When you do I will give you pointers or examples. That is all part of learning. This will carry into the engineering world. There will always be people who know more than you and can help!

Note about academic integrity:

It is fine to talk to others about approaches to writing code. It is dishonest to use their code in your program. I have programs which examine code. I will also be reading all your programs. If I find code that is "lifted", I will give you an automatic zero for that lab. The person who you copied from will get half credit and no more (because they shouldn't be showing code). There will be no make-up for this. DO THE RIGHT THING!

Lab 1: Student Records Lab

This lab is a continuation of Lab 8 which you did in CS12. It will use as a starting point the same data set. When you first did this lab you may have used a rather kludgy way to get the data in. That part should be rewritten to use a Scanner to get the information in. A Scanner is an object which is used to process text files when the format of the file is known. That is the case here. The student input file has a specific format. Each student record comprises two integers followed by three strings:

e.g. 286447 12 Bowers Megan Female

Write a routine which parses this file using a scanner to create an array of student records using the same student record class as before. It is included in the files for this lab.

So what is different about this lab? This lab is meant is an exercise in developing classes and using a gui interface (windows, menus, buttons).

You are to develop a program which does the following (as a minimum):

1) Read in an existing text file with the format specified above. The user must be able to specify a path to the file.
2) Be able to view the file in a scroll-pane in the window.
3) Be able to select a student in the scroll-pane and then bring up a window which contains the different fields for a student. Then, be able to edit them.

4) Be able to write the file out as an object file. This will require you to develop a class which contains all the students. A good name would be studentClass. Inside that class will be the array of students. Then, research on the web how to read and write a file of objects in Java. If you're stuck, contact me. So, be able to read that file back in.
5) Be able to sort in the window your students by last name or by student id.
6) Be able to get summary statistics(i.e. number of boys, girls, grades etc.).
7) Be able to add a student.
8) Be able to delete a student.
9) Be able to search for a student and have that student highlighted in the scroll window.
10) There can be NO global variables, that is, variables that are defined between the "class" name of your program and the methods.
11) The window to edit the student information should pop up loaded with the student info and then disappear when closed.
12) The entire interface must be through windows. The only thing in the cmd window should be starting your program and any debugging info (which should be none in the final product).

Most of the techniques you need to use are covered in your Java textbooks:
Java A Beginner's Guide
Introducing JavaFX 8 Programming
These are available in the Files section of your course.

Some things to remember. When researching what methods are available for a particular object class, do a google search. For example: to find out what methods are available for a Scanner, type "Oracle Java Scanner Methods". Generally it will bring up the right page for what you need.

Note about academic integrity:
It is fine to talk to others about approaches to writing code. It is dishonest to use their code in your program. I have programs which examine code. I will also be reading all your programs. If I find code that is "lifted", I will give you an automatic zero for that lab. The person who you copied from will get half credit and no more (because they shouldn't be showing code). There will be no make-up for this. DO THE RIGHT THING!