

# CS113 - Program Design and Algorithms

## Lab Assignment #6

### Summer 2002

The purpose of this exercise is to allow you to create and manipulate linked lists in an application.

You are to write a program that keeps track of the students in a class. A file, called `classfile`, contains one line for each student registered in the class, in the following form:

ID num	Code	Last name	First Name
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The code can be one of:

- R - regular registration
- A - audit
- W - withdrawn from class

The names in this file are in the order that each student registered for the class (i.e., in no particular order).

For this program, you are to:

1. Input the student names from the file, and create three lists: a list of “regular” students, a list of audits, and a list of students who have withdrawn.
2. The program should output a prompt and allow the user to move student information from one list to another. To move a student from one list to another, the code (like above) along with the student ID, should be input at the prompt. For example, if the student with id 12345 is changing to audit status, the following input would be typed:

```
>>> A 12345
```

(Note that >>> is your program’s prompt). If an ID number is input that does not correspond to a student in the class, an error message should be printed.

3. When the user is finished changing the lists, a Q should be typed at the prompt. The program should then print out the three (modified) lists, *sorted in alphabetical order* by last name. (HINT: Since the lists must be printed out in alphabetical order, it is probably easier to create the lists in alphabetical order in the first place.)

Be sure to properly dispose of the dynamic memory you used when finished with the program.