COM S 213 – Fall 2002

ASSIGNMENT #1: **Calculator**

DATE GIVEN: **9/5/02**

DATE DUE: **9/12/02**

PURPOSE:
The purpose of this assignment is to allow you to apply the review concepts we've covered in the first three lectures. While we will have covered additional topics which could be applied to the assignment by the time this assignment is due, please restrict your solution to topics covered in lectures 1, 2 and 3.

ASSIGNMENT:
You will be given a file which contains calculations to perform. The operations which may be requested are limited to addition, subtraction, multiplication and division (+,-,*,/). The file will also contain the numbers to perform the calculations with. A sample file might be:

```
5
6
+
2
*
3.5
-
4
/
```

The first two lines are the first two numbers. The third contains the initial operation to perform. The first line is the number that will appear on the left hand side of the operation, and the second line is the number that will appear on the right hand side. Subsequently, the result of this operation becomes the left hand side of the next operation, and the next line in the file will be the number to appear on the right hand side of the next operation, followed by the next operation to perform, etc., etc. In our example file above, we would end up computing the following:

```
(((5 + 6) * 2) - 3.5) / 4
```

Your assignment is to write a program which prompts the user for a file name, opens the file, reads in the data and performs all the requested operations. You should print out each operation as it occurs. You should be prepared to handle the following error conditions:

- File cannot be opened
- Divide by zero
- Operator not recognized (not one of +.-,/,*)

You may assume that the file is formatted correctly—that is—that you won't have to worry about numbers and/or operators being in the wrong place. The file will always start with two numbers and then alternate operators with one number until the end of file is reached.

SUGGESTIONS:
OK, even though this section is named "Suggestions" it should really read "If you want all the credit you can possibly get on this assignment I'd strongly *suggest* that you follow the guidelines here!"

Make use of functions where possible to "modularize" your code. Don't give me the whole thing in one big `main()` function.

Make sure you can properly deal with floating point numbers. You may limit this to support the range of numbers available by using `float` variables.

COMMENTS:
Check the course web site for information on assignment formatting and submission guidelines. This information should be available by Saturday evening. Check the web site for updates/adjustments to the assignment and feel free to email me with questions. I will provide a data file on the course web site that you should use for your sample run (see assignment guidelines when available).