

Wednesday 12 November

Programming Assignment 09: due Wednesday 19 November

Class Activity 23:

Objectives:

- Review arithmetic operations/order of precedence.
- Learn about file management.
- Practice file management.

Available on `get12`: `fReadOpen.cpp`; `fWriteOpen.cpp`; `filetest.cpp`;
`ca23a.dat`

Place all in the `c:\user` directory.

Activity 1:

Open `ca23a.dat` with your favorite text editor. Count the number of values. Record ____.

Activity 2:

Design a function called `void displayheader(void)` that will display your header information (name, class, section, assignment, date, brief description of assignment, etc) when called. Save this function in the `c:\user` directory for inclusion in your programs.

Activity 3:

Load `filetest.cpp` into Visual Studio. Scan down the file. Answer the following questions:

- a. What is the variable `value` used for?
- b. What is the variable `numvalues` used for?
- c. What is the variable `pickedup` used for?
- d. What does the variable type `FILE` designate?
- e. How is the data file to be read opened for reading?
- f. What does the name `pInfile` represent?
- g. Explain the loop initialization conditions for the `while` loop.
- h. Explain the loop control condition for the `while` loop.
- i. What happens inside the loop body?
- j. Why is `pInfile` closed after the reading loop?
- k. What is the difference between the `fprintf` and `printf` calls?

Activity 4:

Add your `displayheader` function to program `filetest.cpp`.

Activity 5:

Run `filetest.cpp`.

- a. Answer `c:\user\myfile.dat` to what file to read. What happens?
- b. Answer `c:\user\ca23a.dat` at the next request. What happens?
- c. Answer `c:\user\ca23a.dat` at the next request. What happens? Is this what you want?
- d. Answer `c:\user\ca23a.out` at the next request. What happens?
- e. Open `ca23a.out` with your favorite text editor. What are the contents? How do they compare with the screen display?

Activity 6:

Modify `filetest.cpp` to read the contents of a file into a 1-dimensional array. Modify the sections that print the results (both the `printf` and `fprintf` sections) to display the contents of the array. Test your modified program with data file `ca23a.dat`.

- a. What new variable(s) must be declared in `main` to handle the array?
- b. Should you now use a defined constant? Why? Where is it declared?

Activity 7:

Turn the section of code in `filetest.cpp` that reads the contents of the file into a function called `getarray`.

- a. What information (variables) is required from `main` for `getarray` to do its job?
Hint: `main` has no need to know about the file pointer for the file any longer since the input file operations are being moved to the `getarray` function. `main` only needs to know about the results of getting the data from the file.
- b. What information (variables) are returned to `main`?
- c. What variables must be declared locally in `getarray`. See hint to (a).
- d. What is the prototype for `getarray`?
- e. What is the calling statement in `main` for `getarray`?

Test your modified program with data file `ca23a.dat`.

Activity 8:

What happens if you change the type designation for `value` from `int` to `double` (be sure to change the placeholder in the `fscanf` also)? Welcome to a bona fide “bug” in the Microsoft compiler. A way around this bug is to “initialize” `value = 0.0` when it is declared.

Turn in: A copy of your program from activity 7 and the screen display from running the program.