Lab 1 Assignment

Purpose: To become familiar with Unix file system calls and with Unix system calls in general.

Assignment: Write a program in C (or C++), with the following steps:

1. Create, in your current directory, a new file named XYZ.doc, and copy the file /usr/class/cis660/xx.xx into that file in the following way:
- Reads the next 200 characters from xx.xx,
- Those characters are then immediately written in XYZ.doc.
- Writes characters "X1Y2A3" into file XYZ.doc
The previous steps are repeated until the end of file xx.xx. The last read may not have 200 characters.
At the end, print a number of characters read from xx.xx and a number of characters written into XYZ.doc.

2. Create, in your current directory, two new files named XXX.txt and WWW.txt, and copy the file XYZ.doc into those two files in the following way:
- Read the next 40 characters from XYZ.doc, and among characters read replace each character '1' with 2 blanks and all characters are then written in XXX.txt,
- Then the next 20 characters are read from XYZ.doc, and among characters read replace each character '2' with character 'A' and all characters are then written in WWW.txt.
The previous steps are repeated until the end of file XYZ.doc. The last read may not have 40 or 20 characters.
At the end, print a number of characters written in XXX.txt and in WWW.txt.

3. Write in XXX.txt the following characters: A1C2E3GHabcdefgh starting at location 400. The old characters in those positions are overwritten;

4. Append file WWW.txt (i.e. write at the end of the file) with characters of your name. This will enlarge the file by some number of characters;

5. Insert into file WWW.txt, starting after location 260, following characters: ijklmnopI1K2M3OR. This will enlarge file size by 16; This is bonus step.

6. Create a new file named ZZZ.txt and copy XXX.txt into ZZZ.txt. Copying should be done by reading 400 characters at time from file XXX.txt and immediate writing them into file ZZZ.txt.

7. Append file ZZZ.txt with file WWW.txt, but by writing it in reverse order.
At the end, prints a number of characters written into ZZZ.txt.

8. Read ZZZ.txt (80 characters at a time) and print every hundredth set of 80 characters read. Delete files XYZ.doc, XXX.txt, WWW.txt and ZZZ.txt.

Please comment your programs clearly indicating each step above.

For manipulating files, you may use only Unix file systems calls listed in the lecture handout. You are not allowed to create temporary files, or to keep entire file or its large parts into memory.

Submissions:
a. your source code file using command: *submit c660a? lab1 your_source_code_file*
b. a hard copy of your source code and the output (printing) of the last execution of your program. Provide your compilation command as a comment at the beginning of your program.
Due date: Wednesday, January 19, 2011
Please check as soon as possible if you have any problem with issuing command:
                        submit c660a? lab0 test_file_name