CSE 344

HomeWork #1

Due March 30 2023

1. Write a program that takes up to three command-line arguments:

$ appendMeMore filename num-bytes [x]

This file should open the specified filename (creating it if necessary) and append num-bytes bytes to the file by using write() to write a byte at a time. By default, the program should open the file with the **O_APPEND** flag, but if a third command-line argument (x) is supplied, then the **O_APPEND** flag should be omitted, and instead the program should perform an lseek(fd, 0, SEEK_END) call before each write(). Run two instances of this program at the same time without the x argument to write 1 million bytes to the same file:

$ appendMeMore f1 1000000 & appendMeMore f1 1000000

Repeat the same steps, writing to a different file, but this time specifying the x argument:

$ appendMeMore f2 1000000 x & appendMeMore f2 1000000 x

List the sizes of the files f1 and f2 using ls –l and explain the difference.

2.Implement dup() and dup2() using fcntl() and, where necessary, close(). (You may ignore the fact that dup2() and fcntl() return different errno values for some error cases.) For dup2(), remember to handle the special case where oldfd equals newfd. In this case, you should check whether oldfd is valid, which can be done by, for example, checking if fcntl(oldfd, F_GETFL) succeeds. If oldfd is not valid, then the function should return –1 with errno set to **EBADF.**

3. Write a program to verify that duplicated file descriptors share a file offset value and open file

Grading:

1) Compilation error: -100

2) No makefile, makefile without “make clean”: -30

3) No pdf report submitted : -100. Please note that your report is of utmost importance, as it will be the primary basis for evaluation.

4) No late submissions.

Submission Rules:

1) Your source files, your makefile and a report; place them all in a directory named “lastname_firstname_studentnumber”, and zip the directory.

2) Your report should be in PDF format and include a detailed explanation of how you solved the problem, as well as information on the test cases used, the results obtained, and an explanation of the test results.

3) Your makefile should only compile the program, not run it!

4) You should do your homework on your own. Your homework will be compared against online sources as well as each other’s homework. Proven cases of plagiarism will result in –100 grade.