University of Texas at Dallas—Department of Computer Science
CS 5348.001 Operating Systems Concepts Fall 2019
Project 1

Develop one c program satisfying the following requirements:

1. It is executed with command line parameters as follows:
   a.out n f1 f2 … fn myfile
2. The first command line parameter (after a.out) represents the number of files to be processed.
3. Parameters f1, f2, … fn are names of n existing input files to be processed.
4. Create n new processes. Child process i (1 to n) will do the following:
   a. Open the i-th input file (with the name fi in this case), find the alphabet's frequency of occurrence and write out the result to file myfile (which is the last parameter). For example, process 2 that you create will open the second input file, find the number of occurrences of alphabet a (lower or upper case, a and A, are treated the same way), find the number of occurrences of letter b, etc. and write the results on to the file whose name is the last parameter.
5. The parent is to wait for all children to terminate. The parent then prints a message on the screen and it terminates.

For example, if the command typed is

a.out 4 f1.txt data crypt.c plain.txt result

then there are 4 files to be processed by 4 child processes (newly created), the result is to written to the file result. The input files to be processed are f1.txt data crypt.c and plain.txt

Perform very simple error checking, such as n is less than 0, n>1 but not enough file names are present in the command line, one or more input files are non-existent, etc.

Submit a well-documented program and the results of the execution on sample input files created by you. In particular, upload a single tar file containing the (1) source file, (2) the input files you had created and the result of executing your program on your files. The first line of your source should be a comment that lists the input files of your submission.

Your program will be tested on cs1.utdallas.edu

The due date for this project is September 17, 2019.