CSC3320 System Level Programming
Homework 5

Due at 11:59 pm on Nov. 25th, 2014
Write a C program named “mywc.c” simulating the “wc” command taking some options and text file as arguments. If no options are given, mywc outputs the number of lines, words and characters in the given file as well as the file name separated by space. When the –l option is used, mywc can output the number of lines; When the –w option is used, mywc can output the number of words; When the –c option is used, mywc can output the number of characters. If the given file doesn’t exist, it gives an error message with program name, text file name and the casual separated by colon. Below are sample runs of mywc (assuming mywc is the generated executable file):

```bash
$./mywc test.txt
2 5 8 test.txt

$./mywc -l test.txt
2

$./mywc -w test.txt
5

$./mywc -c test.txt
8

$./mywc -lw test.txt
2 5

$./mywc -lc test.txt
2 8

$./mywc -lwc test.txt
2 5 8

$./mywc nonexistent.txt
./mywc:nonexistent.txt: No such file or directory
```
Notes:

• # of lines = # of new line character (‘\n’) in the given file.
• Assume words are separated by one or more spaces and new line characters.
• Take care of the situation that a word is broken into two parts because the limited buffer size force the read stop in the middle of a word and the rest continues in the next read.
• The counting words program in slides CBasic.ppt and reverse.c in slides Chapter13.ppt are good examples to help you finish this homework.
• Produce the error message by perror().
• cc –o mywc mywc.c names your program “mywc” instead of the default “a.out”.
• Verify your program by comparing with wc.

Submission:

• Upload an electronic copy (MS word or pdf) of your answer sheet (including the source code in your shell scripts and screenshots of outputs) to the folder named “HW5” of the dropbox in the desire2learn system.
• Name your file in the format of HW5_FisrtnaveLastname (eg. HW5_YuanLong.docx, HW5_YuanLong.pdf)
• Please add the homework number and your name at the top of your answer sheet.
• Upload the source code of “mywc.c” to the desire2learn system. And please write your name as a comment at the first line in the file.