

COMP 2560 Fall 2020

Assignment 1

Due date: Oct. 10, 11:59pm

1. Write a program that uses *lseek* function once to get the size of an open file, and then print the size of the file on the screen.
2. Write a C program called writer.c. It uses system call I/O to create a file called "list1.txt" which has the following text-based content:

```
101 GM      Buick    2010
102 Ford    Lincoln  2005
```

There are three blanks between the first and the second columns. There is one tab between the second and third, and between the third and fourth columns.

You can only call function "write" once. After file "list1.txt" is created, type the following commands to check the content of the file. Make sure you understand how characters are internally saved.

```
>>>> more list1.txt
>>>> od -c list1.txt
>>>> xxd list1.txt
```

3. Write a C program using system call I/O to determine how many lines there are in a text file.
4. Write a C program using system call I/O to
 - a) open an existing text file passed to your program as a command line argument, then
 - b) display the content of the file,
 - c) ask the user what information he/she wants to append
 - d) receive the info from the user via keyboard
 - e) append the info received in d) to the end of the file
 - f) display the updated content of the file.
5. Study the linux/unix command "cat" to understand its basic functionality.
6. Study the provided source code (mycat.c) below which implements the "cat" command using standard I/O functions.

7. Rewrite the provided `mycat.c` program using `read`, `write`, `open` and `close` (System I/O functions) instead of the standard I/O functions.

Please make sure all your code works properly on CS Linux servers

For all questions, you need to submit your source code when applicable. Whenever possible, also use `script` with timing option to record you compiling and running your program and submit the recorded files. Please properly name the recorded files so that markers could easily identify which script file is for which question.

Please note the late assignment submission policy stated in the course outline.

```

//mycat.c

#include<stdio.h>

int main(int argc, char* argv[])
{
    FILE *fp;

    void filecopy(FILE *, FILE *);

    if (argc == 1)
    {
        filecopy(stdin, stdout);
    }
    else
    {
        while(--argc >0)
        {
            if ((fp = fopen(*++argv, "r")) == NULL)
            {
                printf("cat: can not open %s\n", *argv);
                return 1;
            }
            else
            {
                filecopy(fp, stdout);
                fclose(fp);
            }
        }
    }

    return 0;
}

void filecopy(FILE *ifp, FILE *ofp)
{
    int c;

    while ((c = getc(ifp)) != EOF)
    {
        putc(c, ofp);
    }
}

```