PA2 - Part B

Re-submit Assignment

Due Feb 21 by 11:59pm **Points** 40 **Submitting** a file upload **File Types** c

Programming Assignment Two

Introduction

In this assignment we will explore Loadable Kernel Modules, file I/O, and how to implement a basic device driver.

This assignment consists of three parts. First, you will compile, install, and run a simple Loadable Kernel Module (LKM). Second, you will write a user-space program that takes commands from the user to read, write and seek on a file. You will use this program to test the functionality of a custom device driver that you'll create in Part C. Finally, you will write your own LKM that implements the device driver.

Part B - User-Space Test Program

Write an interactive test program that will allow you to read from, write to and seek in a file. Your program should accept the name of the file on the command line:

./testprog filename

If the filename doesn't exist, or isn't readable/writeable, your program should print an error message, and terminate with a non-zero exit status.

Once successfully invoked, your interactive program should open ***filename*** for reading/writing, prompt the user with the string ***option?*** and then accept the following input, followed each time by the carriage return/enter key:

r - Your test program should immediately ask for the number of bytes to read using the prompt: ***Enter the number of bytes you want to read:*** Making sure you create a large enough buffer using **malloc()**, read the file starting from it's current position. Then, print the returned data out to the console (stdout), followed by a newline ("\n").
w - Your program should ask for the data to be written to the file, using the prompt: ***Enter the data you want to write:*** The user then enters the desired data terminated by a carriage return. Your program should then write this data to the file.
s - Your program should prompt for values for offset and whence: ***Enter an offset value:*** ***Enter a value for whence:*** Your program should then set it's position in the file according to the offset and whence. See the lseek manpage for more info.
control+d - If the user enters ctrl+d at the ***option?*** prompt, then you should close the file, exit the program, and return the appropriate status.
Other - If the user enters something other than listed above, ignore it and prompt the user again.

Submission

You are required to submit the following to Canvas:

- testprog.c

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Submission

Submitted!
Feb 21 at 2:17pm
Submission Details
Download testprog.c

You may not see all comments right now because the assignment is currently being graded.