OS - 2020 Problem Sheet #1.

Problem 1.1

The following program always outputs garbage value as there is a problem with the program.

The problem is when we allocate space for char d[len + 1]. It goes into the ~~static~~ Stack segment however once the ~~pro~~ function returns it shrinks back so when we try outputing in the terminal some random garbage value is printed.

A quick fix for this would be to set static char d[50] so that it remains there after the function returns. ~~e so use~~ The small drawback however is when using static you cannot dynamically allocate so you have to set the size to 50.

Problem 1.2

a) when opening ~~a file~~ a common error that come is Errno value 2 which is there is no such file or directory ..:

When closing a common error that can happen is if the file was already closed or never opened the first time. It could possibly give you errno value 9.

b) The value of errno is 0 when completed without error.

Problem 1.3

a) Open file "scat.c".

b) when we use strace we can clearly see that the system call takes more time. The reason is with library call the function such as putc() and getc() are kept in the buffer and ~~later~~ then after validating ~~after~~ the kernal sends ~~them~~ them to standar output.:

However with system call the program is reading each individual bit of data and them writing. There are much more read and write commands taking

place so it is slower.

using strace as well we can justify this as with library call there is just one call being made whereas with system call there are many read and write.

ps→ Sorry I could not attach the screenshots to justify my answer as I don't have linux system. will fix problem next time.

c) Code in "Scat.c"

We can see that it is fast as in linux call and the reason is as the copying and output is done in kernel mode itself without requiring the need of userspace.