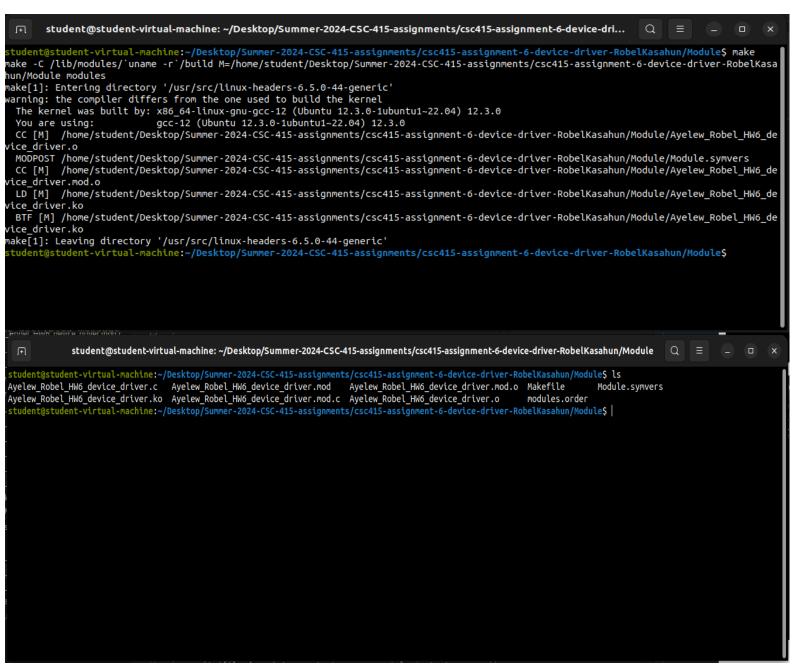
Device Driver

The main purpose of this assignment is to build a device driver that does something, meaning a device driver that performs or solves a specific task. For this assignment, I built a device driver that takes a simple string or series of characters and encrypts the string into something that humans cannot understand and also decrypts an encrypted message into the original string and displays it on the terminal. Most importantly, even though I have been able to make the device driver that can be loaded and unloaded successfully, but when it comes to testing it, I am still getting an error.

- Instructions to load and unload as well as to run the test
 - Head to the project folder
 - Navigate yourself to the module folder → cd Module
 - You are in the Module folder. Execute the following commands
 - make
 - At this point you compiled the program successfully if there are no errors
 - Load the device using the following commands
 - sudo insmod Ayelew Robel HW6 device driver. ko
 - Create a node in /dev using the following command
 - sudo mknod /dev/Ayelew_Robel_HW6_device_driver c 415 0
 - At this point, you loaded the device successfully.
 - Now, head to the Test folder to test the device driver program. Execute the following commands to test the program
 - *cd* .. /*Test*
 - At this point, your are in the Test folder
 - make
 - make run
 - To unload the device, execute the following commands
 - sudo rmmod *Ayelew_Robel_HW6_device_driver*
 - And remove from /dev
 - sudo rm /dev/Ayelew_Robel_HW6_device_driver

Compilation



Robel Ayelew Github: RobelKasahun

Loading the device driver



ID:922419937 CSC415 Operating Systems

Compiling and executing the Test



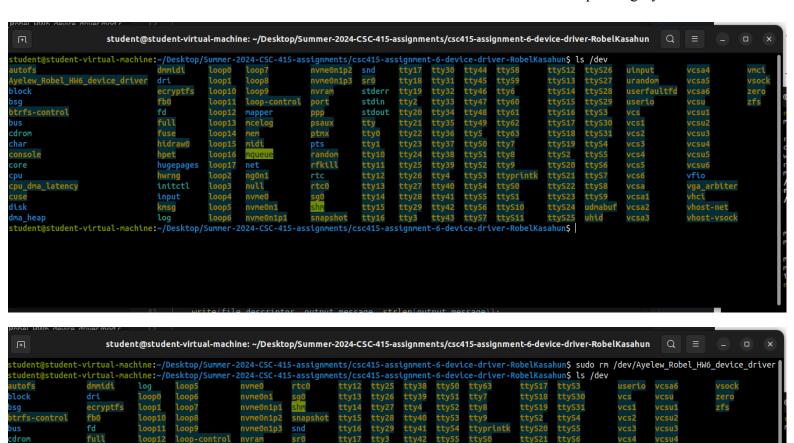
Robel Ayelew Github: RobelKasahun

Unloading the device driver

```
student@student-virtual-machine: ~/Desktop/Summer-2024-CSC-415-assignments/csc415-assignment-6-device-driver-RobelKasahun
 tudent@student-virtual-machine:~/Desktop/Summer-2024-CSC-415-assignments/csc415-assignment-6-device-driver-RobelKasahun/Test$ cd ../
tudent@student-virtual-machine:~/Desktop/Summer-2024-CSC-415-assignments/csc415-assignment-6-device-driver-RobelKasahun$ ls
 odule README.md Test
 tudent@student-virtual-machine:~/Desktop/Summer-2024-CSC-415-assignments/csc415-assignment-6-device-driver-RobelKasahun$ lsmod
                               Size Used by
Ayelew_Robel_HW6_device_driver
                                            12288 0
bnep
intel_rapl_msr
vmw_balloon
                             32768 2
                             20480
                                      0
                             28672
ip6t_REJECT
                             12288
.
nf_reject_ipv6
xt_hl
                             24576
                                         ip6t_REJECT
                             12288
                                       22
intel_rapl_common
                             40960
                                       1 intel_rapl_msr
ip6t_rt
                             16384
crct10dif_pclmul
polyval_clmulni
                             12288
                              12288
polyval_generic
                             12288
                                         polyval_clmulni
ghash_clmulni_intel
                             16384
                                       0
sha256_ssse3
                             32768
sha1_ssse3
aesni_intel
                             32768
                            356352
crypto_simd
                             16384
                                         aesni_intel
cryptd
rapl
                             24576
                                         crypto_simd,ghash_clmulni_intel
                             20480
                            student@student-virtual-machine: ~/Desktop/Summer-2024-CSC-415-assignments/csc415-assignment-6-device-driver-RobelKasahun
 student@student-virtual-machine:~/Desktop/Summer-2024-CSC-415-assignments/csc415-assignment-6-device-driver-RobelKasahun$ sudo rmmod Ayelew_Robel_HW6_device_driver
student@student-virtual-machine:~/Desktop/Summer-2024-CSC-415-assignments/csc415-assignment-6-device-driver-RobelKasahun$ lsmod
 Module
                               Size
                                      Used by
bnep
intel_rapl_msr
                              32768
20480
                              28672
ip6t REJECT
                              12288
nf_reject_ipv6
xt_hl
                              24576
                                          ip6t_REJECT
                              12288
intel_rapl_common
ip6t_rt
                                       1 intel_rapl_msr
                              40960
                              16384
crct10dif_pclmul
polyval_clmulni
polyval_generic
                              12288
                              12288
                                       1 polyval clmulni
                              12288
ghash_clmulni_intel
sha256_ssse3
sha1_ssse3
aesni_intel
                              16384
                              32768
32768
                             356352
crypto_simd
cryptd
rapl
ipt_REJECT
                              16384
                                       1 aesni intel
                              24576
                                          crypto_simd,ghash_clmulni_intel
                              20480
                              12288
nf_reject_ipv4
xt_LOG
                              16384
                                          ipt REJECT
                              16384
```

ou dma latency

isk ma_heap



tty

virtual-machine:~/Desktop/Summer-2024-CSC-415-assignments/csc415-assignment-6-device-driver-RobelKasahun\$

vga_arbiter vhci

userfaultfd