OS Project Two Report

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For the second project, a lot of the difficulty stemmed from understanding what needed to be done and how exactly to implement it. After understanding the project, it was not too difficult, however some challenges presented in the LKM were too difficult to overcome. Our project compiles with version 4.15.0-29 Linux Headers. The user application is a terminal interface that runs an endless while loop, constantly asking the user which operation they would like to do, whether it be create, encrypt, decrypt, destroy, or configure. In order to run our program, from the git repository, the following commands need to be run: make, make user, dmesg to find the major number, mknod /dev/cryptctl c <major number> 0. And then after that, you can run ./user\_app, which executes our program. After this, you can run create once to create the first encrypt/decrypt pair successfully. Our program can only create one pair successfully; subsequent create calls will not create more file pairs. Delete also does not work. However, encrypt and decrypt and configure work perfectly on the file pairs for encrypt and decrypt. We initially created the first pair, and then sought to complete encrypt and decrypt as it is worth a lot of points, more than being able to dynamically create and destroy the encryption devices. The difficulties in the project especially involved dealing with the intricacies of the LKM, and not being able to do many things one can do so easily in the user space. An example of this was understanding all of the functions to create the first cryptctl device, and so on. Moreover, a lot of issues that caused the VM to crash were frustrating. To expedite the process, some of our group members used a VirtualBox with Ubuntu so that we could restart our own VM’s if need be. We obviously also tested on the actual VM as well to make sure that our project compiled there too.