Operating Systems–II: CS3523
Spring 2020
Lab Assignment 4: Hello World Kernel Module
Last date for submission: N/A

Write a Linux kernel module which prints “Hello World” when it is loaded into the running kernel, and prints “Bye Bye World” when it is unloaded from the kernel.

Learning objectives of this assignment are:

- How to write Makefile for kbuild
- How to write module load and unload callback functions
- How to respect the Licensing
- How to take pride and blame
- How to compile and link
- How to load and unload
- How to see/clear debug prints
- Know about strict version binding (ABI mismatch)

Sample code is provided to you in order to get you to speed and make you develop reasonably functional real kernel code. All you need to do is to meet the above objectives and modify the module to print Hello and Bye messages.

Instructions:

1. Login to the VM you created in Lab Assignment 2 as root user and find IP address
   # ip r
2. Download the code shared onto your laptop and copy the tar file to the VM and run this command in your laptop
   ```
   $ scp 00.mykmod.tar root@vmipaddr:~/
   Where <vmipaddr> is the IP address of your VM
   ```
3. In the VM, install kernel devel package
   ```
   # yum install kernel-devel-`uname -r`
   ```
4. Extract the tar file.
   ```
   # tar -xvf 00.mykmod.tar
   ```
5. Change to the kernel directory
   ```
   # cd 00.mykmod/kernel
   ```
6. Compile/Link the code to create kernel module
   ```
   # make
   ```
7. Load the module
   ```
   # insmod mykmod.ko
   ```
8. List loaded modules and module metadata
   ```
   # lsmod | grep -i -e size -e mykmod
   ```
9. See output form prints
   ```
   # dmesg | tail
   ```
10. Unload the module

```
# rmmod mykmod
```

11. See the output from prints

```
# dmesg | tail
```