New York University
Tandon School of Engineering
Department of Electrical & Computer Engineering

Introduction to Operating Systems (CS-GY6233)
Fall 2020

Assignment 2

In this assignment, you shall develop a very simple Linux kernel module that runs on your virtual machine.

Please consult the freely available O'Reilly book "Linux Device Drivers, 3rd Edition" (https://lwn.net/Kernel/LDD3/), in particular p.16, as well as your text book p.96 to get you started. Note that even though the book is written for kernel version 2.6, most mechanisms are applicable with minor or no changes. The relevant function is copied below as a starting point.

```
#include <linux/init.h>
#include <linux/module.h>
MODULE_LICENSE("Dual BSD/GPL");
static int hello_init(void)
{
printk(KERN_ALERT "Hello, world\n");
return 0;
}
static void hello_exit(void)
{
printk(KERN_ALERT "Goodbye, cruel world\n");
}
module_init(hello_init);
module_exit(hello_exit);
```

The hello_init function is invoked when you insert your module, whereas the hello_exit is invoked when you unload your module.

Modify this module and have it print the hello message followed by the current time in hour/minutes/seconds in hh:mm:ss format, when the module is loaded and also when it exits. You shall test your code using the "insmod" and "rmmod" utilities.

What to hand in (using Blackboard):

- Your ".c" and ".h" files (with appropriate comments).
- Your Makefile.
- A screen shot of your terminal window showing the current directory, the command used to compile your program, the command used to run your program and the output of your program.

RULES:

- You may consult with other students about GENERAL concepts or methods but copying code (or code fragments) or algorithms to solve your coding assignment is NOT ALLOWED and is considered cheating (whether copied form other students, the internet or any other source).
- If you are having trouble, please ask your teaching assistant for help.
- You must submit your assignment prior to the deadline.