The purpose of this project is provide experience with developing a kernel module in Linux.

**Problem Statement**

This project is to complete the Linux Kernel Module project on pages 96-101 of the textbook using a virtual machine. It consists of two parts: creating a simple kernel module that can be loaded and removed from the kernel and using the kernel linked list structure.

**Project Details**

The files needed to complete this project are available on csserver in directory `/home/hwang/cs470/project1`. The Linux virtual machine image (`debian-cmpt352.vmdk`) should be copied to your own development space. The kernel module stub (`simple.c`) and makefile should be copied into the created virtual machine. The makefile will compile the stub into a kernel module as described in the textbook. Note that if you have your own Linux machine (i.e. you have `sudo` privileges), you can create the kernel module directly on the machine. However, errors in kernel modules usually cause machines to crash, so it is recommended that a virtual machine be used.

The Linux virtual machine image can be run in a Virtual Box VM. Virtual Box is available on the lab machines (both Linux and Windows), or can be downloaded from the Virtual Box website (http://www.virtualbox.com). Instructions on how to create a virtual machine from the provided image file is available from the textbook website (www.os-book.com – click on the textbook cover, then the Linux Virtual Machine link).

**Assignment**

(20 points) Implement the project as outlined in the textbook. This project is to be done individually.

(10 points) Demonstrate the project to the instructor as outlined in the textbook. This must be done on or before the due date/time for full credit. Appointments may be made during most times the instructor does not have scheduled activities. Demos may be attempted at most two times after which late penalties will accrue per attempt.

(10 points) Answer the following questions

1. What aspect of this project did you find most difficult to understand? Why?
2. What aspect of this project did you find least difficult to understand? Why?
3. What, if anything, did you find interesting or surprising about operating system kernels that you did not know before doing this project? Why?
4. As a result of this project, are you more likely to try to modify your own operating system if the need arises? Why or why not?
What to Submit
Create a tarfile or a zipfile containing the following items:

- **Well-documented** code for the kernel module.
- Answers to the questions above, preferably in PDF format

Submit your archive using the submission system (http://submission.evansville.edu). Your username is your ACENET username, unless you are also in CS 375, in which case your username will have "-cs470" appended to it, and your password is your student ID number including the leading 0 (i.e. 7 digits). The grading script only will accept submissions. It will not run anything.