Project 2 Specification
Kernel Compilation and Configuration

Final Submission Due: 3/6 at 11:59:59pm

Purpose
This project introduces you to the nuts and bolts of Linux, virtual machines, kernel configuration, and kernel compilation. You may work in a team of 2 people or by yourself. This project is worth 40 points (8%) of your class grade. **If you want to work in a group of 2, send me an email with both of your names so I can share your vSphere folders with each other.** (This way you both can work/be on the same machine at once, even when not physically next to each other.)

Specification
Compile the 5.5.5 (bleeding edge new stable) kernel found in /usr/src in your Linux virtual machine. Install this kernel and boot into it. An additional part of your grade will be based on how well you can weed out at least 10 unnecessary drivers and/or modules from the kernel. To get full points, be sure to describe each component you took out in the README file (see the bottom of the specification for details). Be sure to look at the class project slides and/or watch the screencast for directions.

Please submit two files: the readme file and the configuration file. Detailed directions are below.

- The README file (can be a Word document or PDF), which should contain:
    - The names of all the members in your partnership
    - A listing of the 10 items you took out of the kernel compilation process and a description of what each item was. (You may take out additional items without listings or descriptions in order to shrink the size of your kernel or modules directory even further.) Note: You will want these notes, in case you take out something that you need to put back in if your kernel fails to boot!!!
    - Screenshot of the results of the following commands after you have booted into the 5.5.5 kernel:
        - uname –r (should show 5.5.5 kernel running)
        - du -h /boot/vmlinuz-5.5.5
        - du -h /lib/modules/5.5.5/ | tail -n 1
        - (As an example, a 5.5.5 kernel without anything taken out had these sizes:)

        ```
        root@cs3430-sp19:~# du -h /lib/modules/5.5.5/ | tail -n 1
        4.0G    /lib/modules/5.5.5/
        root@cs3430-sp19:~# du -h /boot/vmlinuz-5.5.5
        5.4M    /boot/vmlinuz-5.5.5
        ```

    - Any challenges you encountered along the way
    - Any sources you used to help you write your programs/scripts

- A copy of your /boot/config-5.5.5 file. Note: You can use the Firefox web browser in your virtual machine to submit files located in your virtual machine right to elearning, email them to yourself, or put them in your Google Drive.

Grading Rubric

Item	Points Possible
config-5.5.5 file present	15
Screenshot of commands: ▪ uname -r ▪ du -h /boot/vmlinuz-5.5.5 ▪ du -h /lib/modules/5.5.5/ | tail -n 1	10
Listing and description of 10 items removed	10
Reduced *working* size of modules directory to under 2.5 GB	3
Reduced *working* size of kernel image to under 5.2 MB	2
Smallest *working* kernel or module directory size in class	BONUS +5