ECE 282 Lab 4

1. Command practice

What do the following commands do?

a) date
b) touch
c) wc
d) What is the meaning of each output of the command 'wc'?
Hint: Use manpage if you are unsure.

Try the commands that can do the following tasks:

a) Find out how many lines are there in the output of 'man –k read'
Hint: 'wc' and pipeline (|)

b) Find out how many words are there in the file 'dirent.h'
Hint 1: The file is located at /usr/include/dirent.h
Hint 2: Use 'cat' (or 'more', 'less') and pipeline to 'wc'

c) Change the mode (the permission of a file)
Hint: Search the manual for "change mode"

2. Play with masking (include the following questions/tasks in the report)

Answer to the following questions are required in your lab report:

a) In **struct stat**, the variable that contains the file size is **st_size.** What is the variable that contains the file permission (protection)?

b) The flag defined for the **st_mode** field for a **'directory'** is S_IFDIR. What is its bitmask value?
In Binary:
In Octal:

c) What is the bit mask to check for "owner has read permission"?
In Binary:
In Octal:

d) What is the bit mask to check if a file has all the following permissions
owner can read, write; group can read only; others cannot read/write/execute.
In Binary:
In Octal:

Hint:
Remember st_mode is 16 bits…
Search the manual: man –k file
Opps, too many results, search again: man –k file | grep status
See that 'stat' is the function we need.
Read the manual: man 2 stat, you can find all answers here.

3. Can you LS?

From Chapter 3 in the text:

3.11 The ls2 bug Modify ls2. c so it works correctly when the name of a directory is given as a command-line argument.

The new file name is **ls3.c**. The program must be modular, i.e. use separated functions to carry out the required functionalities. Furthermore, each function must be written in a separate .c file. Header files must be used and included in the header file to define the functions. Finally, write a makefile to compile the whole project.

Include your ls3.c and all other .c and .h source files as well as the Makefile.