**ECE 1111: Engineering Computation I**

**Homework No. 5: Formatted I/O and Make Files**

**Goal:** Demonstrate that you can compile, link and run a program that prints formatted output to the terminal using the function fprintf. You will need to read about the specifics of how you print formatted data using any of the resources at your disposal. For example, you can learn about this using Google search or by consulting any of the textbooks listed in the syllabus.

**Deliverables:** Include the files below in this directory:

/data/courses/ece\_1111/current/homework/hw\_05/lastname\_firstname

Create four subdirectories: p01, p02, p03 and p04. These should include all the files necessary to compile and run your solution to each part. You must use the makefile template that we provide. The graders will grade your homework by traversing into this directory, compiling and running your code. If your code fails to compile, you will receive a failing grade for that part of the assignment.

**Note that you are not allowed to use cin and cout in this course.** We will focus on using fprintf until you are very comfortable doing formatted I/O.

**Description:** The tasks are:

1. In p01, create a program that prints "hello world" to the terminal screen. Call this p01.cc. Compile it using make, run it, and verify that it gives the correct answer. Your output should look like this:

ece-000\_[1]: p01.exe

hello world

1. In p02, create a second program, p02.cc. Declare these variables in your program:

char c = 'q';

short int i = 27;

long j = 27272727;

float sum = 27.272727272727;

Demonstrate the use of fprintf to print these to the terminal using the following format:

the value of <insert variable name> is <insert value>

For example, for the short integer, the output should look like this:

the value of i is 27

**For the floating-point variable, print its value using four decimal points.**

1. In p03, modify p02.cc code to do a formatted print statement. Call this new version p03.cc. Construct a formatted print statement that prints the integer and floating-point values in the same line:

the value of i is 27 and the value of sum is 27.27

Pay special attention to how to format the floating-point number so that only two decimal points of precision are printed. **You can accomplish this by adding a format specification to the "%f" specification in your fprintf statement.**

1. In p04, create a file called "mytext.txt". It should contain the lines below:

This is line number 1.

This is line number 2.

This is line number 3.

Hello world.

This is line number 5.

Write a program called, called p04.cc, that reads this data from stdin:

myprog\_04.exe < mytext.txt

and prints the contents of this file line by line to the terminal.

You will need to Google search the solution to this problem since it involves writing a loop (which we haven't covered yet). Your program should work for any length file (the file can be 5, 6 or 1,000 lines long). Compare your output to what the “more” and “cat” commands produce.