

ECE 71 – Engineering Computations in C

Professor Kriehn

Due By: Midnight on Wednesday, September 9, 2009

1. Take a look at the code for **limits.c** on my website (<http://optics.csufresno.edu/>). Login to **callisto.engr.csufresno.edu** and create a source file called **hw2.c** using the text editor **nano**. Once you have created the file and copied the contents of the program into **hw2.c**, save it, exit the text editor, compile your program, and create an output file called **hw2.o**. Execute the program, and note the limits for the **short**, **int**, and **long** integer types, followed by the limits for the **float**, **double**, and **long double** floating point types, and finally, the limits for the **char** character type. Copy the results to your notes, and verify that the information I gave you in class is correct. Then submit **hw2.c** to the grader program. If the grader program has a problem with your program, fix your errors and re-submit until you are successful.

Remember:

To create a filename called hw2.c :	~> nano hw2.c
To compile your program:	~> gcc -lm hw2.c -o hw2.o
To submit your program:	~> submit hw2.c
To check your program:	~> alpine

If you notice that the program scrolls by too quickly and you cannot read all of the information that is printed to the screen, you can send the output of your program to the **more** command, which will prompt you to press a key after every page of output is displayed to the screen:

```
~> hw2.o | more
```

In Unix/Linux, the **|** character means to “pipe” the output of the first command into the input of the second command. Press any key after the first page of information is displayed to look at the remainder of the output.

2. Take a look at the code for **single_ascii.c** on my website. Create a source file called **hw3.c** using the text editor **nano**. Once you have created the file and copied the contents of the program into **hw3.c**, save it, exit the text editor, compile your program, and create an output file called **hw3.o**. Execute the program, and using Appendix B from your book, verify the different ASCII codes for several integers and letters. Test both lowercase and uppercase letters, as well as the special characters (**!@#\$%^&*()**). Once you have verified the ASCII codes, submit **hw3.c** to the grader program. If the grader program has a problem with your program, fix your errors and re-submit until you are successful.
3. Take a look at the code for **ascii.c**. Create a source file called **hw4.c** using the text editor **nano**. Once you have created the file and copied the contents of the program into **hw4.c**, save it, exit the text editor, compile your program, and create an output file called **hw4.o**. Execute the program, and again using Appendix B from your book, verify the operation of the program. Once you are satisfied, submit **hw4.c** to the grader program. If the grader program has a problem with your program, fix your errors and re-submit until you are successful.

During the next class period, bring a print-out of your code (with comments!) and a one-page writeup that explains each of the 3 programs that you have written. Also take a look at the header files that are included in the three programs and comment on them. The header files can be found under the directory **/usr/include** on **callisto**. To access them, use the **cd** (change directory) command and type the following:

```
~> cd /usr/include
```

To look at the contents of the directory, use the **ls** (list contents) command:

```
~> ls
```

To look at the contents of a specific header file, use the **more** command. For example, to look at **stdio.h**, type:

```
~> more stdio.h
```

To return to your home directory, type:

```
~> cd ~
```

I will provide 10 points of extra credit if you can also explain the **printf** and **scanf** functions, and a working knowledge of format specifiers. Take a look at the following document to see how to format your homework:

http://optics.csufresno.edu/downloads/ECE_Homework_Guidelines.pdf

Remember: **Each person** needs to submit **hw2.c**, **hw3.c**, and **hw4.c** on **callisto**, and each person needs to have their own personal 1-page writeup (with the code printed out) that you will turn in by the due date.

This should keep you plenty busy...

See you soon!

Prof. Kriehn