PROCEDURE

The basic approach to this lab will be to first develop and debug your system using the simulator. You will get a lab grade for this simulation phase of development. After the software is debugged, you will interface actual components to the LaunchPad and run your software on the real microcontroller. You will get a second lab grade for this real-board phase of development.

We have already configured the starter project to use **UART0** (UART1 was used in the C11_Network example.

Part a) You will write an I/O driver routine that outputs strings to the UART0 device. See the comments in the **UART.h** and **UART.c** for more detailed descriptions of how this **UART_OutString** function is to work.

Part b) You will write an I/O driver routine that outputs an unsigned decimal number to the UART0 device. See the comments in the **UART.h** and **UART.c** for more detailed descriptions of how these **UART_ConvertUDec** and **UART_OutUDec** functions are to work.

Parameter	UART display
0	" 0 "
10	" 10 ″
999	" 999 "
1000	"1000 ″
9999	"9999 "
10000 or more	"**** ″

Table 11.1. Specification for the UART_OutUDec *function (do not display the quotes").*

Part c) Assume the system stores the integers 0 to 9999, but the values mean 0.000 to 9.999 cm. For example, in the software a variable might contain 1234, but that value actually means 1.234 cm. You will write an I/O driver routine that outputs the value of the distance to the UART0 device. See the comments in the UART.h and UART.c for more detailed descriptions of how these **UART_ConvertDistance** and **UART_OutDistance** functions are to work.

Parameter	UART display
0	"0.000 cm"
1	"0.001 cm"
999	"0.999 cm"
1000	"1.000 cm"
9999	"9.999 cm"
10000 or more	"*.*** cm"

Table 11.2. Specification for the UART_OutDistance function (do not display the quotes").

During checkout, I will grade your system in both simulation and on the real board. During the simulation grading I will automatically set the input and check your output.

GRADING IN SIMULATION MODE

0:00 / 1:45   1.0x

DR. JONATHAN VALVANO: Let's show you how to get a grade for Lab 11

in Simulation.

You begin in edX.

And take this four-digit number, Copy.

And then we go over to Keil.

We have to make sure that we're running in Simulation.

Right here I'm using the Simulator with

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