For this assignment, you should start by copying the *Session13* project to a new project called *Assign06*. After copying an existing project into a new project, always build and run the new project before modifying it, to make sure you are building on solid ground.

Morph the proximity measurement task into a sensor task that measures the proximity, temperature, and humidity every 500 milliseconds. The tricky part of this assignment is to share the I2C bus between the proximity sensor and the temperature & humidity sensor.

Create a sensor measurement structure that contains all three measurements – proximity in mm, temperature in °C, and humidity in percentage. All three measurements should be stored as 16-bit unsigned integers (proximity, distance and relative humidity are always positive and we are not expecting the ambient temperature to be below 0°C).

The sensor task should fill the measurement structure and place it in a queue.

The output task should block until there is an entry in the queue. It should then remove it from the queue and display the three measurements in a single line with a newline character at the end, in the following format (keep the width of the three integer values as shown):

Prox: xxxxmm -- Temp: xxC –- Hum: xx%

**This assignment must be emailed to tlupfer@sandiego.edu by midnight on Sunday, October 11th.**

**Make sure your name appears in the module comments at the top of any C and header files you create or modify.**

**Create a zipfile containing the *inc* and *src* directories of the project (and no other directories).**

**You should attach a single file named:  
  
 *lastname06.zip*  
  
In other words, my file would be named *lupfer06.zip.***