ECE231 Lab Assignment #8.3
Due: 11:59 pm, Saturday 5/11/24

Problem statement: Design and build an embedded system that measures object distance using the HC-SR04 ultrasound device. Indicate object range in cm using the 4-digit 7-segment display.

Use the following specification:
3.1 Your system shall measure the range (distance) to objects placed >5 cm and <200 cm from the ultrasound sensor.
3.2 The system shall display range in cm with a resolution of 1 cm with leading 0's on the display (example: 5 cm would display as 0005 while 200 cm would be displayed as 0200).

What to submit:

- Video demonstrating a functioning system meeting specifications. You don't need to demonstrate object distance from 5 to 200 cm in your video, but you should clearly show that the system is functioning and displaying distance vs range.
- Your source code .c file

For requirement 3.1, it is not necessary to demonstrate the full range of measurements from 5 to 200 cm, but it should be clear from the video that the system is able to measure and display distance.

Grading Rubric:
10 Points. Video correctly demonstrates items 3.1 and 3.2 above.
-3 Points. Video correctly displays distance but does not display distance with leading zeros
-5 Points. Display range is obviously incorrect.
-5 Points. Four-digit seven segment display is not programmed correctly for retinal persistence and has too much "flicker" or delay in illuminating the digits.
-10 Points. Code is not submitted or is the result of code sharing or collaborating

Late submissions are allowed subject to a 20% per day late penalty. Anything that is submitted up to 24 hours late is assessed 20% late penalty; 24- 48 hours is to be assessed a 40% late penalty, etc..