In-class exercise

- Install an Adafruit VL6180X sensor on your breakout board. Get the demo code in the Examples menu running
- Add to the example code to allow the user to specify a distance threshold in the code, and to light the Arduino's on-board red LED whenever the distance is found by the VL6180X to be less than the specified value

Homework (due 10/30)

Modify your program to accept an integer input from the serial monitor's input field and use this on the fly to decide when to illuminate the Arduino's red LED.

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In-class exercise

1. Wire up two BME680s to an Adalogger: have one use SPI and the other I2C. Be sure to place bypass capacitors between power and ground for each BME680.
2. Code up a loop that will, each pass through the loop, read the temperature from both devices (using the usual default parameters for the temperature sensors) and store the values obtained in an array. Add whatever delay() is necessary to make the loop take about 10 seconds to record 1,000 values from each sensor.

Homework (due 11/4)

1. Write the temperature values to a microSD memory card, either as plain text or as comma-separated value files, making sure to include something that will let you distinguish among various data sets that you'll store on your laptops, either when opening an SD file or else when transferring the data to a laptop.
2. Have your Adalogger calculate the following for each run of 1,000 recordings: average temperature (through I2C and SPI readings) and the RMS deviations from the means of TI2C, TSPI, and TI2C - TSPI. Write these to the end of each file of data.
3. Write a python program that will read a data file and generate graphs of the values of T_I2C, T_SPI, and T_I2C – T_SPI as functions of sample number. Also have your program generate histograms of the values of these three quantities for the data file. Do this for several different files you've stored