Homework #4b: Arduino "Hello World" (50 points)
Submit a compressed (.tgz) file with Arduino **source code** to Canvas

For this assignment, you must implement a light sensor device using the Arduino Uno, external analog to digital converter (ADC) chip (i.e., Microchip MCP3002), and light sensor. Your solution must meet the following requirements:

- The Arduino, external ADC chip, and light sensor must be correctly wired:
  - Arduino connected to ADC
    - SPI bus pins
    - chip select pin
    - 5V power and ground
  - ADC chip connected to light sensor
    - ADC channel 0 connected to GND pin
    - ADC channel 1 connected to SIG pin
  - Light sensor connected to Arduino
    - 5V power and ground only
- The Arduino must acquire samples from the ADC at 100 Hz (every 10 ms)
  - Arduino asks ADC for sample
  - ADC digitizes the light sensor's analog voltage output
  - ADC returns floating point (digitized) voltage to Arduino
- The Arduino must output the floating point voltages to Serial
  - baud rate 115,200

HINTS

- Use the provided circuit diagram
- Timer interrupts (e.g., Arduino MsTimer2 library)
- Example Arduino sketch for Microchip_MCP3002
  - File -> Example -> Microchip_MCP3002 -> sample_ADC
  - (assumes Microchip_MCP3002 library was already installed)
- Object member functions defined in Microchip_MCP3002.h
- Arduino IDE Serial Monitor
- Use a flashlight to "excite" the light sensor