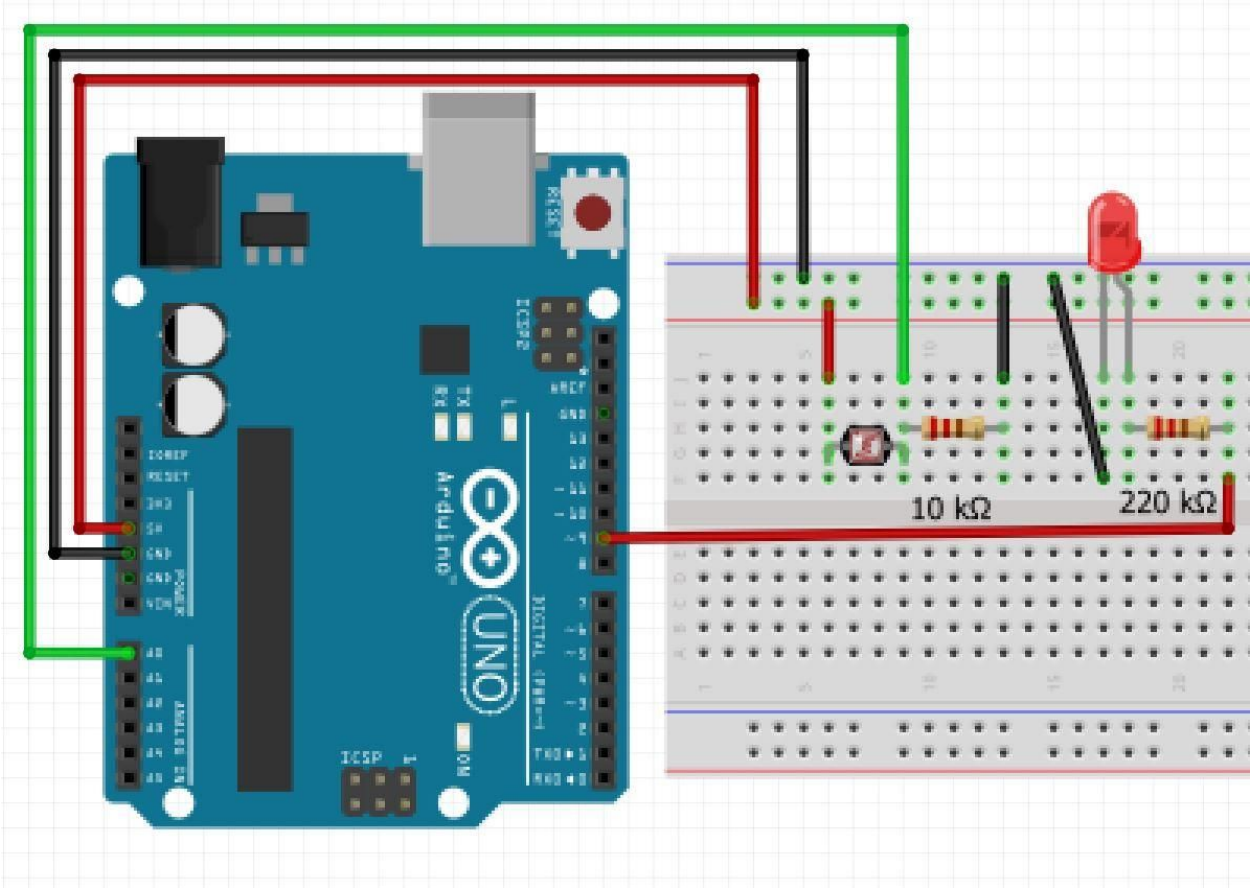
Exercise 3: Photosensitive LED

In this exercise, you will create an LED light that responds to environmental conditions—specifically, low lighting. A photo sensor detects light levels and, based on the program you will write, turns on the LED light when light levels fall below a certain threshold and off once light levels rise above. Check your LED light by turning on and off the lights or holding your hands around the photo sensor to block light. This is the same technology that turns street lamps in your neighborhood on and off.

Step 1: Assemble the Arduino and breadboard.



Parts needed:

Arduino board

Bread board

1 photo sensor

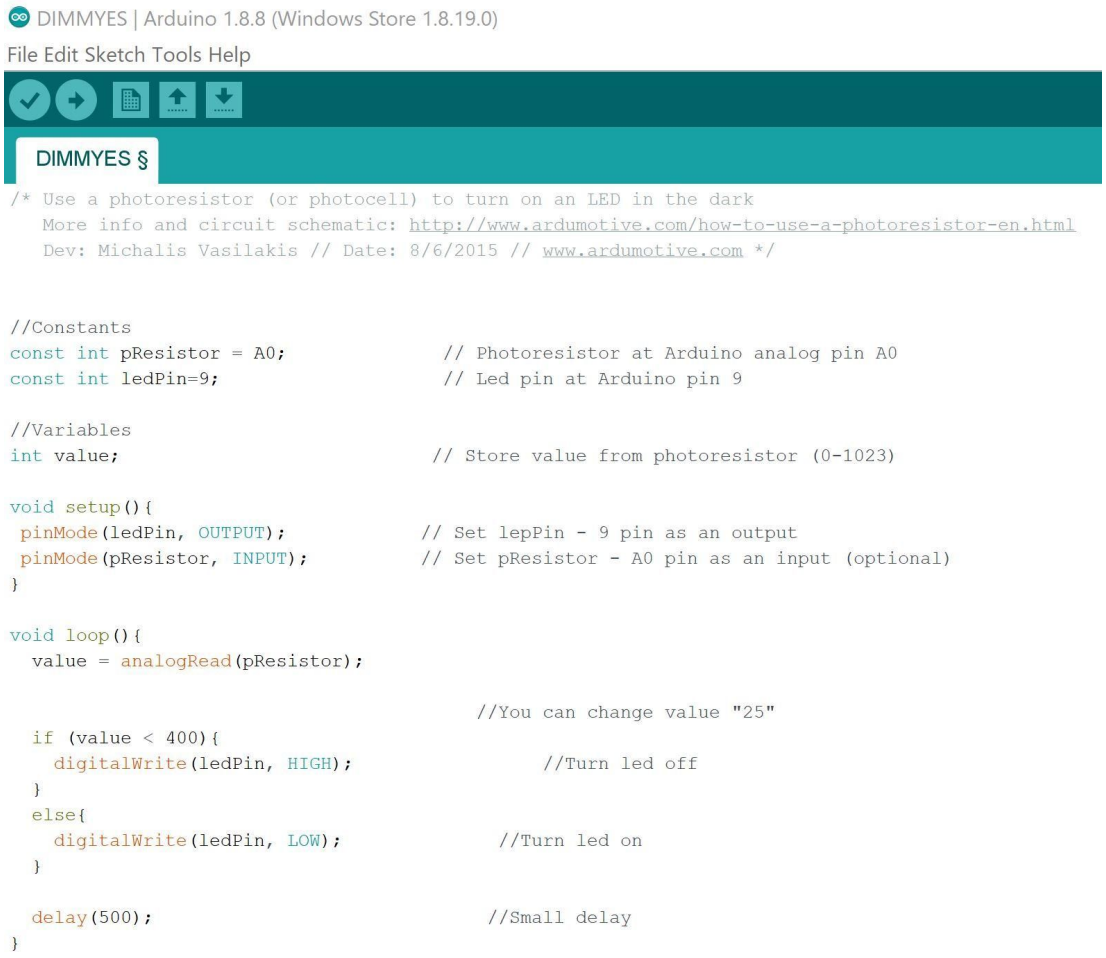
1 LED bulb

1 220k ohm resistor

1 10k ohm resistor

6 jumper wires

Step 2: Program the Arduino.




```
/* Use a photoresistor (or photocell) to turn on an LED in the dark
   More info and circuit schematic: http://www.ardumotive.com/how-to-use-a-photoresistor-en.html
   Dev: Michalis Vasilakis // Date: 8/6/2015 // www.ardumotive.com */


//Constants
const int pResistor = A0;              // Photoresistor at Arduino analog pin A0
const int ledPin=9;                    // Led pin at Arduino pin 9

//Variables
int value;                             // Store value from photoresistor (0-1023)

void setup(){
 pinMode(ledPin, OUTPUT);             // Set lepPin - 9 pin as an output
 pinMode(pResistor, INPUT);           // Set pResistor - A0 pin as an input (optional)
}

void loop(){
  value = analogRead(pResistor);

                                          //You can change value "25"
  if (value < 400){
    digitalWrite(ledPin, HIGH);                 //Turn led off
  }
  else{
    digitalWrite(ledPin, LOW);               //Turn led on
  }

  delay(500);                              //Small delay
}
```