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/**
 This example demonstrates some fairly basic image processing. We are
 going to convert the image to grayscale.

 We just need to get access to the pixels, and then we can visit
 each one in turn and convert it to grayscale by averaging together
 the red, green, and blue channels.

 I used a straight average here, but we can turn this into a weighted average
 where each channel gets a different weight to get different looks.

 This shows both the original and the grayscale images.

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PImage img;
void setup() {
  img = loadImage("cole2.jpg");
  size(img.width, img.height*2);
  noLoop();
}

void draw() {
  image(img, 0, 0);

  // get the pixels array ready for us
  img.loadPixels();

  // loop through the array, visiting each pixel
  for (int i = 0; i < img.pixels.length; i++) {
    // average together the R,G, and B components
    float luminance = (red(img.pixels[i]) + green(img.pixels[i]) + blue(img.pixels[i])) /
3;
    //load the new gray color into the pixel
    img.pixels[i] = color(luminance);
  }

  // write the pixels back into the image
  img.updatePixels();

  // display it
  image(img, 0, img.height);
}
```