Intro to Programming Part 3:
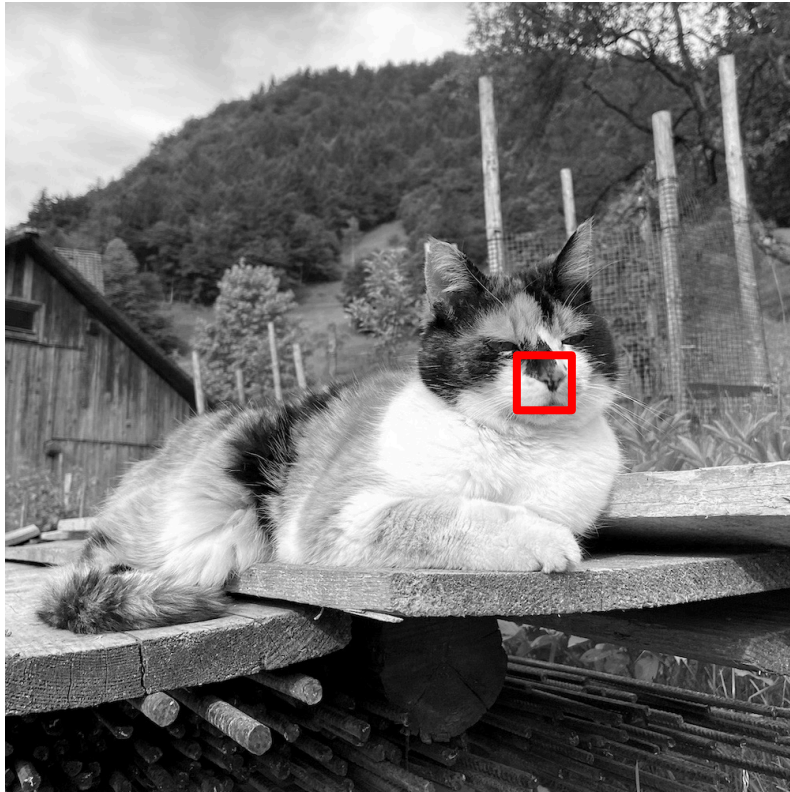
For loops, numpy arrays, and image analysis
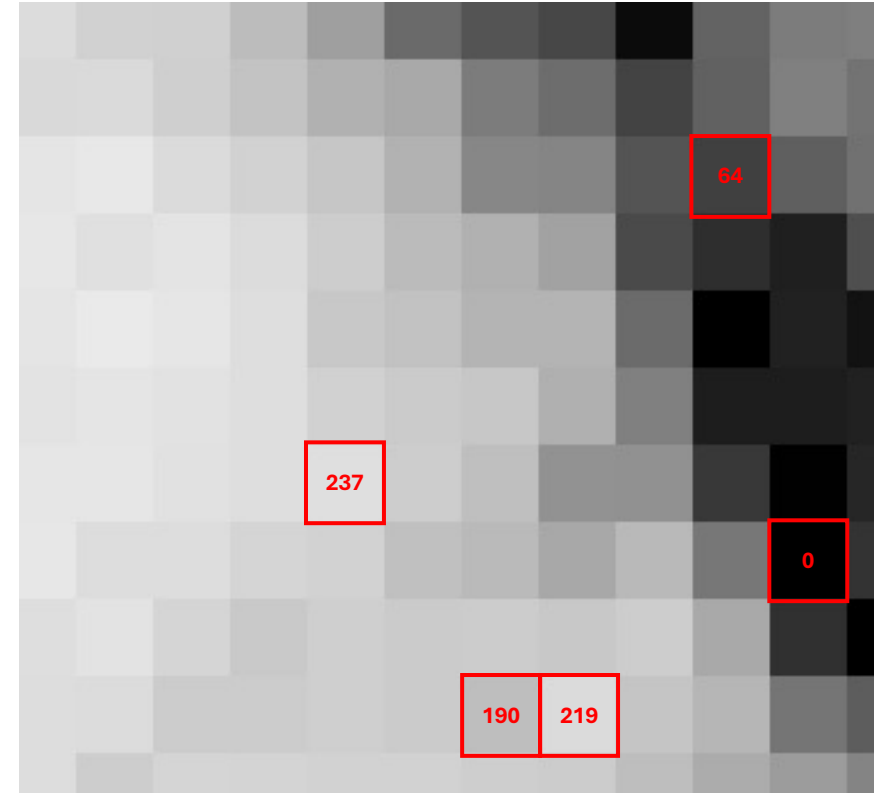
Keisuke Ishihara
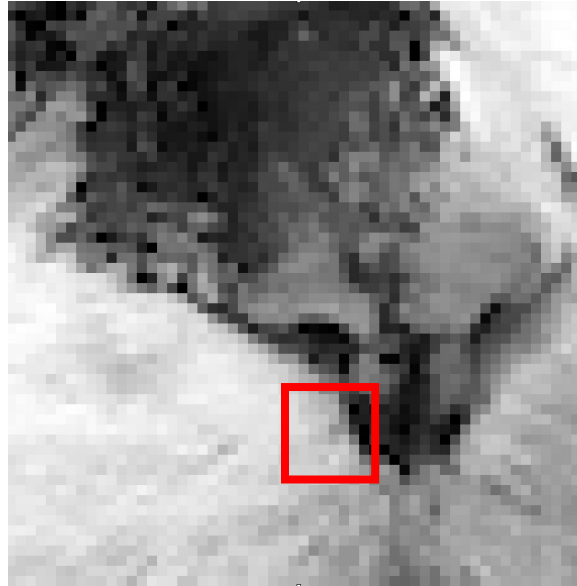
Digital image of Klea taken on my phone

A digital image is composed of pixels

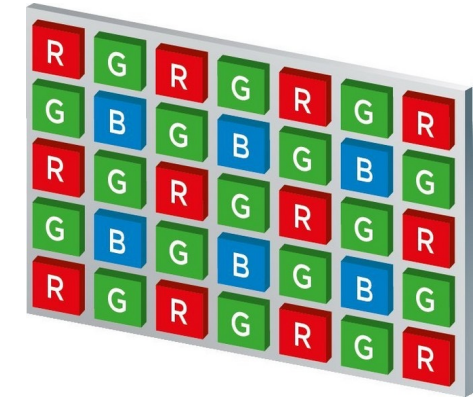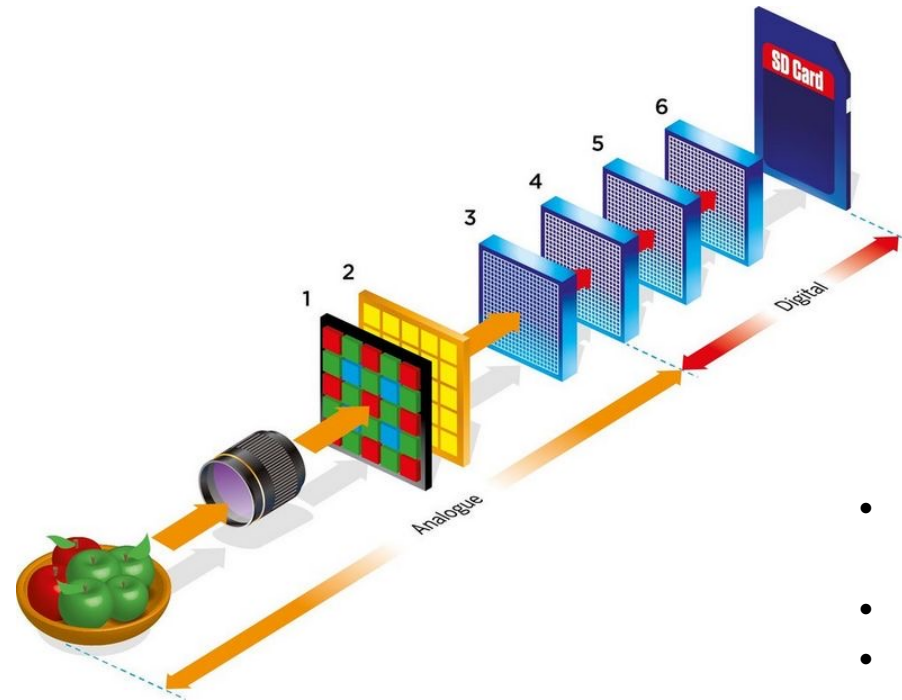gray scale image

pixel

50x50 pixel
8 bit
gray scale image

=

50 columns

50 rows

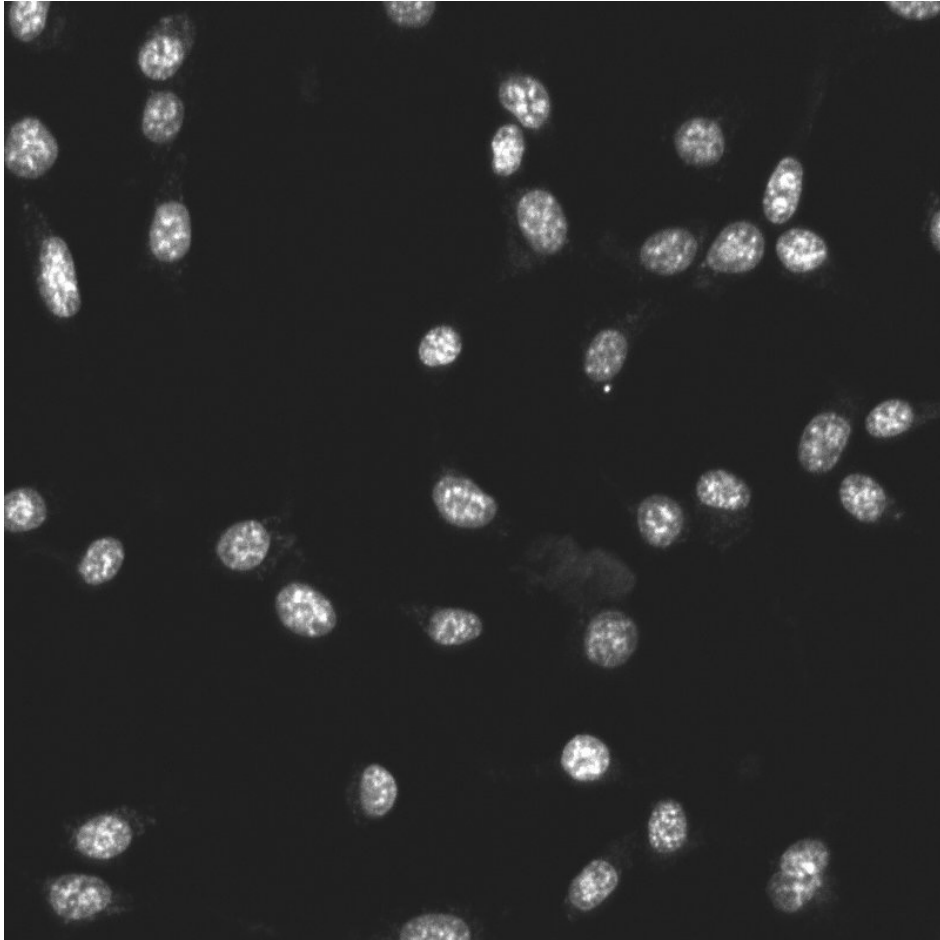matrix

8 bit contains
2^8 possible values:
0-255

How do digital cameras work?

- Red/Green/Blue color-aware sensor array converts photons to electric signals
- Analog signals are digitized.
- Information is stored as image files.

Today, practically all research microscopes are controlled by a computer!

Let's use Python to interact with digital images!

Today's goal:

Write a program that
1. counts cells
2. measures nuclear area