Exercise 01

Goal: Introduce students to methods that read images, display images, resize images & scale image contents.
FYI: The functions in the "Helpful Methods" are all C++ functions. The python functions can be found on OpenCV official website.

Part A: Read and Display Images

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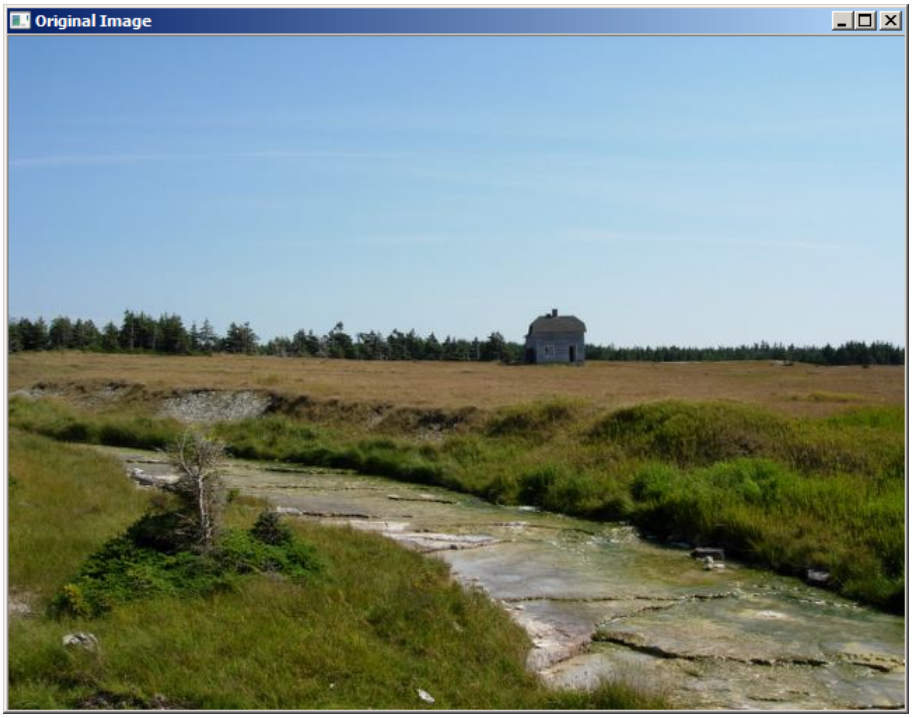
Helpful Methods
Mat cv::imread(const String & filename, int flags=IMREAD_COLOR)
void cv::imshow(const String &winname, InputArray mat)
Int cv::waitKey (int delay = 0)

Result



Part B: Down-sample Image

Down-sampling/Sub-sampling: *Selecting one single value to represent several values in a part of the image*

Mini-Goal: Down-sample the loaded image by a factor of 4.

Hint: Try shrinking the original image by a factor of four and then expanding the resulting image back to the original dimensions

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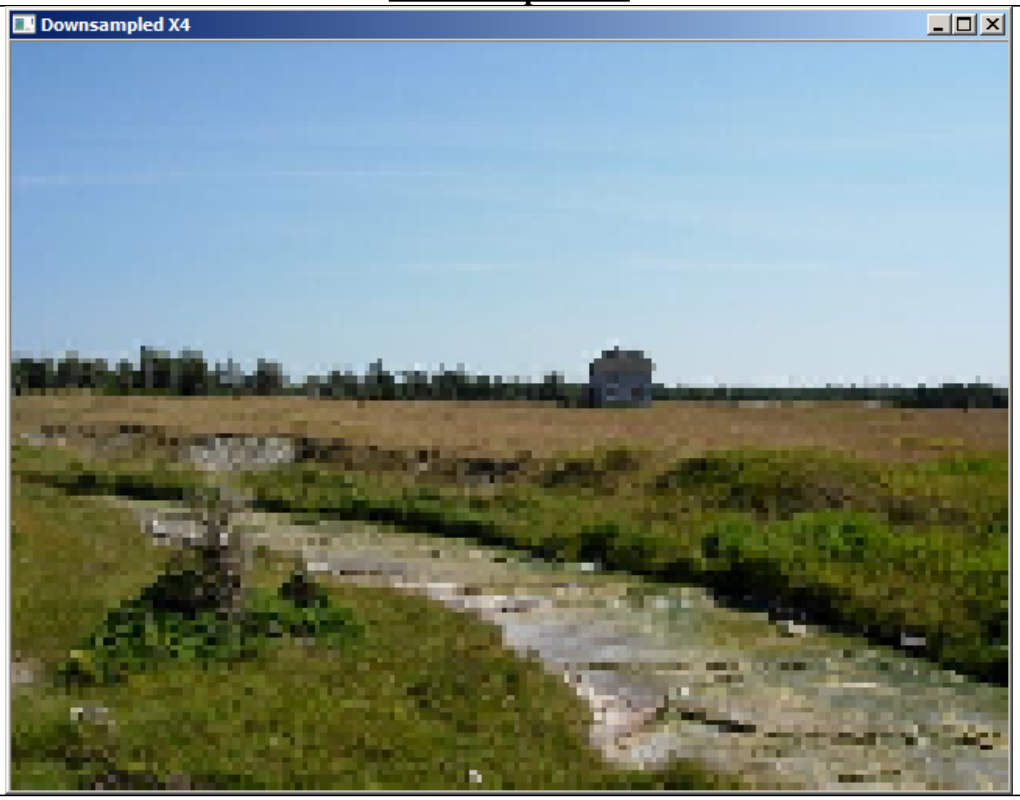
Helpful Methods
Void resize(InputArray src, Output Array dst, Size dsize, double fx=0, double fy=0, int interpolation=INTER_LINEAR)

Result

Downsampled X4



Part C: Quantize Image

Quantization: *Mapping of a large range of possible sample values into a smaller range of values or codes*

Mini-Goal: Quantize a loaded image by a factor of 32.

Result

Quantized X 32