Photo and Image Formats

In this lesson, we'll be taking a look at
Photo and Image Formats.

Estimated Completion Time: **8 minutes.**

Photo and Image Formats

When creating Apps, you will no doubt use a range of images, or photos.

Perhaps these are photos from your camera. Perhaps you've created an image in something like PhotoShop.

Every image is in a particular format. There are actually hundreds of formats for image files, but when it comes to the web, there are only really three - **JPG, PNG,** and **GIF.**

Each of these formats has particular advantages and potential disadvantages - so we'll discuss this now.

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All cameras store images in JPEG format. JPEG format is one of the most widely used formats for photographs in the world. Almost every photo you see on the web is stored in JPEG format.

JPEG files almost always have an extension of **.jpg.**
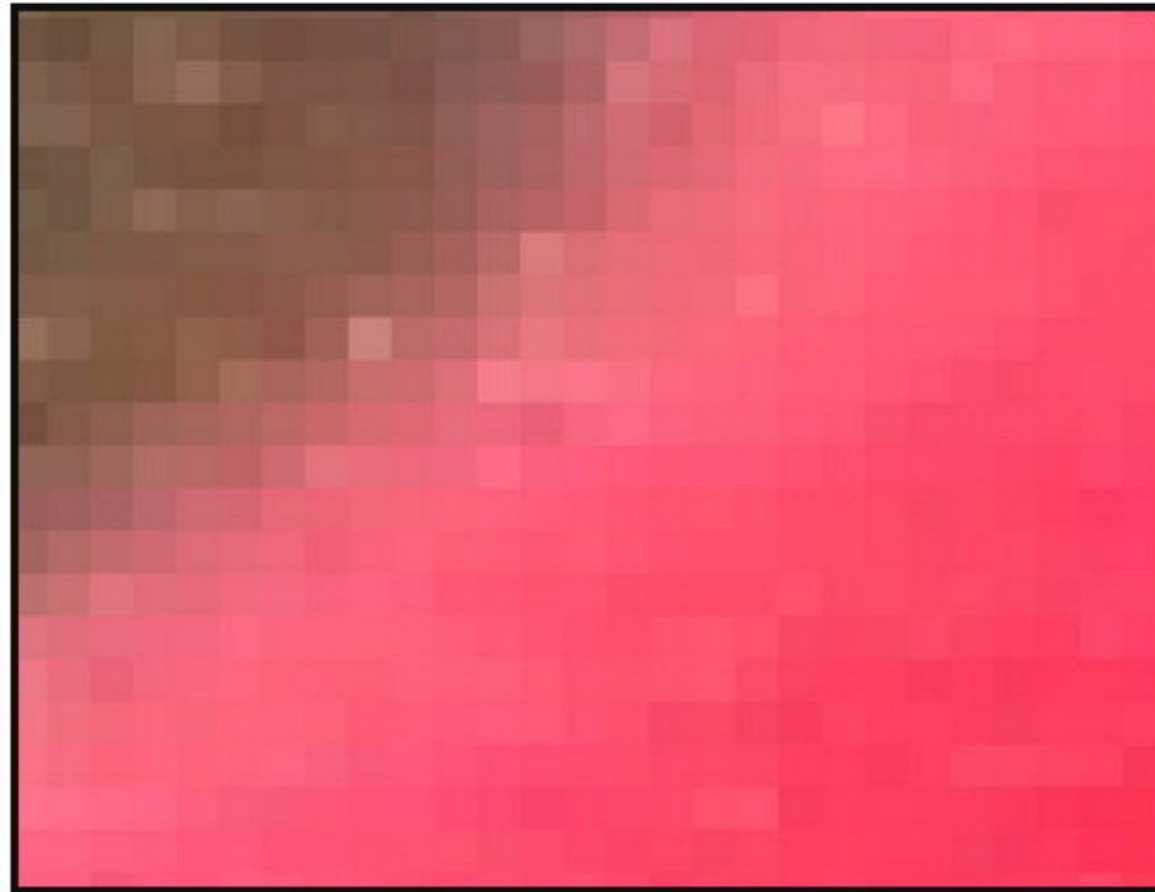
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JPEG is a compressed format. This means that when the images are stored in JPEG format, the image data is compressed to ensure it takes up as little space as possible. Not only does this mean you can fit many photos on your memory card, but on the web, it also means that images download and display much more quickly.
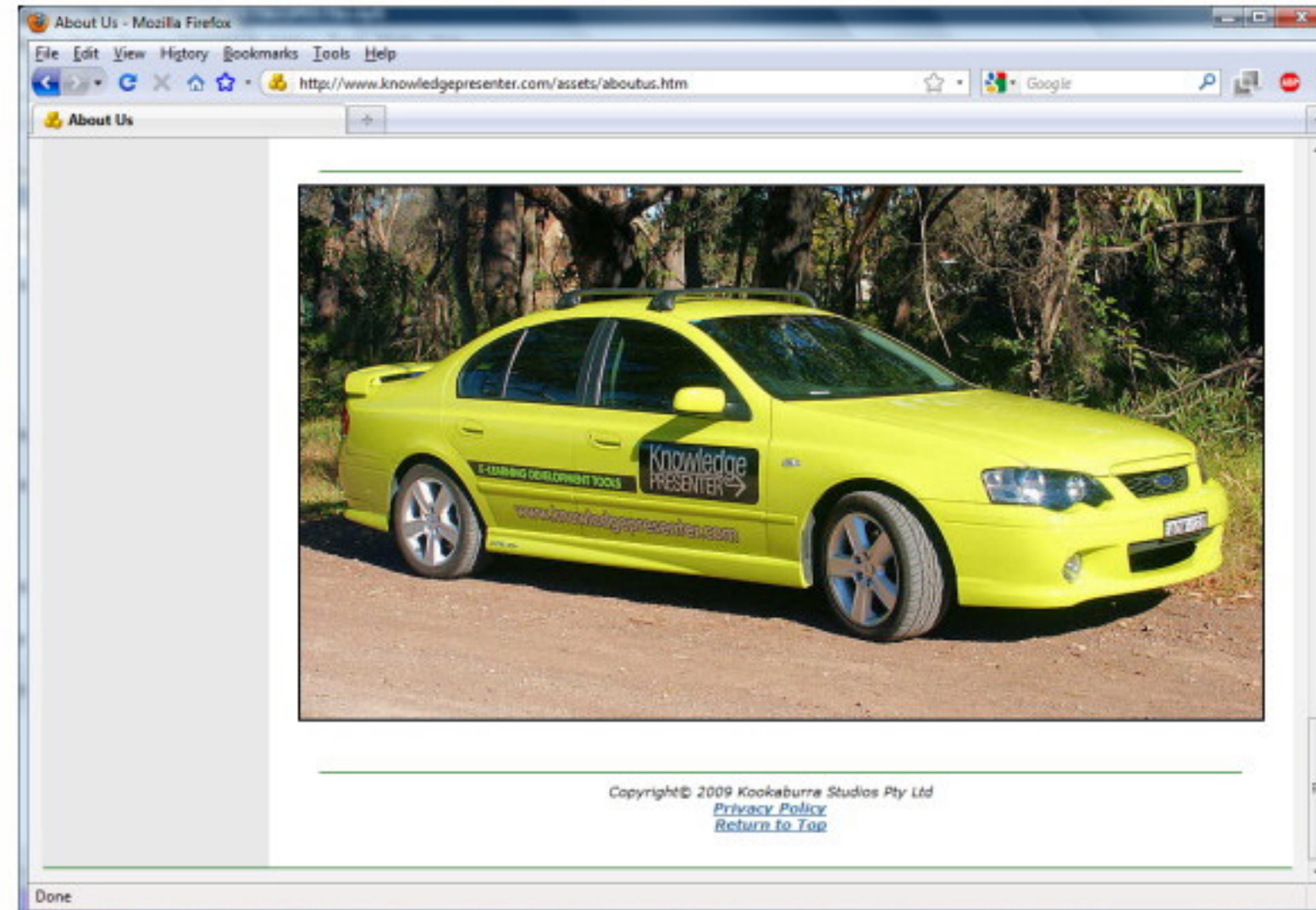
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JPEG is a 24 bit format. This means it contain 16,777,216 colors. Quite a lot! As a result, JPEG can store images with wonderful color depth and clarity.

An image is made up of pixels. Each pixel is made up of a red, a green and a blue channel. 24 bit images allow 8 bits per channel, which means any single pixel can be made up of a combination of 256 variations of red, 256 variations of green, and 256 variations of blue.

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We mentioned that JPEG is a compressed format. When a JPEG image is saved, it can be saved using a scale of compression ratios. The less compression, the larger the image, but the better quality it retains. It's all a tradeoff.

On the left - the photo is stored using a low JPEG compression setting. The quality remains high. On the right, we've selected a very high compression setting. The image will take up much less space, and download very much more quickly, but, well, look at it.

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You will probably find on your camera, on in an editing program (and even inside AppCobra) a setting related to image quality. Generally, you'll find probably three settings – fine, medium, and basic. They may be phrased differently, but they mean the same thing.

Fine, or *high* means low compression, and better quality image. *Basic*, or *low*, means high compression, with smaller images, but quality will suffer.

The difference between high and low quality settings on your camera may sometimes be subtle - but it is still important to retain as much quality as possible.

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A common term you may here is relation to photos, or in particular, JPEG files, is **_Artefacting_.** Artefacting is one of the methods JPEG uses to compress images – and sometimes, if you look close, or the JPEG file is heavily compressed, these will be visible.

On the left, we've zoomed in on a well compressed JPEG. On the right, we've zoomed in on an image that has been too heavily compressed.

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It is probably rare, if you select the highest quality setting on your camera or editing software, that there will be any visible artefacting on your photographs.

However, if you use a graphics program to edit and save your images, you may be given the option to select a compression setting. If you see unacceptable artefacting on your image, set the compression to a lower setting.

High Quality

Medium Quality

Low Quality

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RAW files, created generally by high end cameras, are not stored like JPEG images. So much color information is saved with a RAW file (16 bits per channel), that this is more than a JPEG file can store (maximum 8 bits per channel). In fact, this is more color information than can be displayed on most monitors.


RAW images take up a lot more space on your memory card. They will also take longer to process, and copy to your computer. Modes such as burst mode are unlikely to work with RAW files.

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Even though the RAW format ensures photos are stored at the highest possible quality, note that RAW files are not designed for the web. They are simply too big.

RAW

JPEG
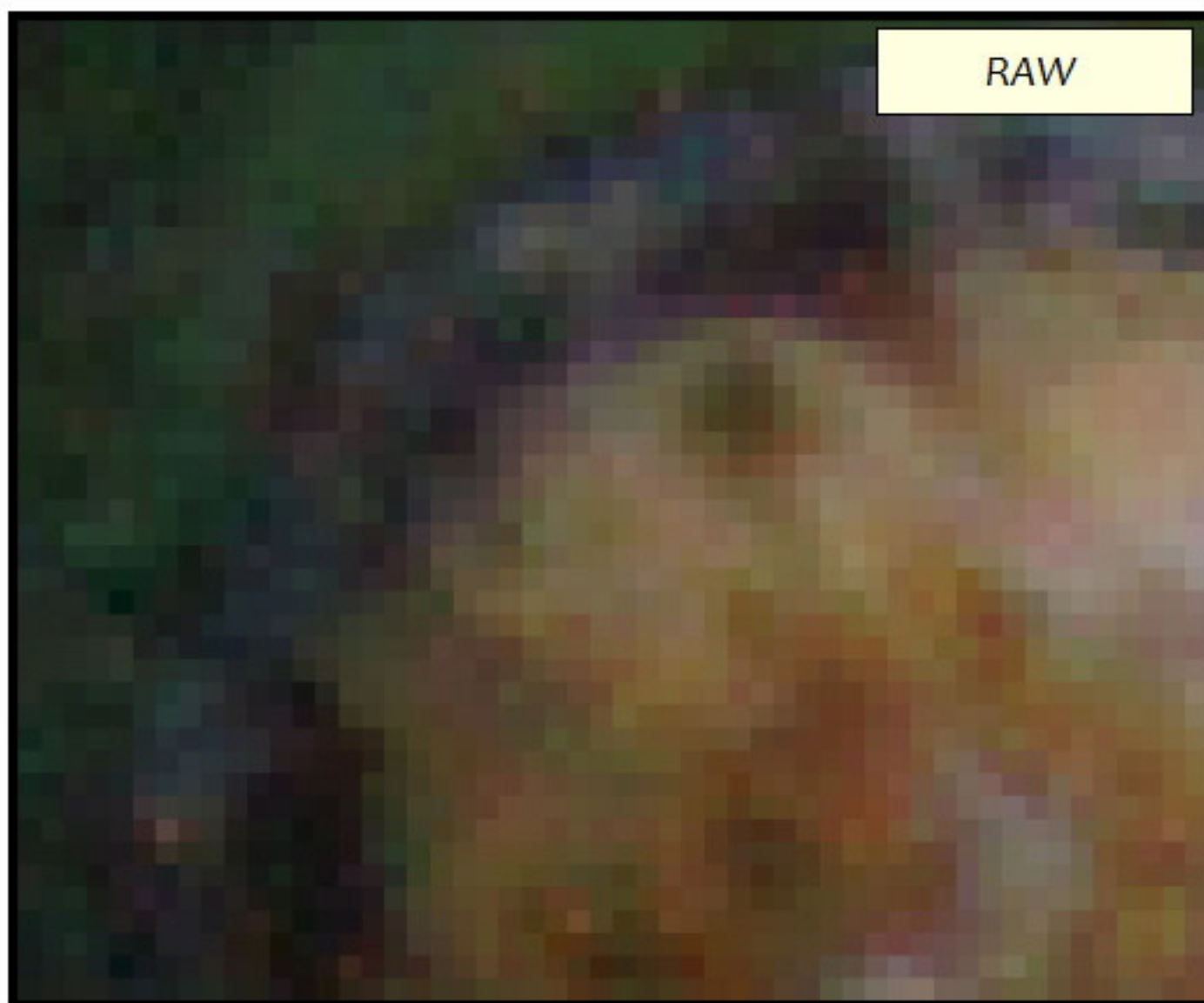
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GIF Files. Another file format you'll see a lot on the web are GIF (Graphics Interchange Format) files.

Photographs can be stored in GIF files, but GIF files have a maximum color depth of 8 bits - which means they can only have a maximum of 256 colors. So, GIF format can not really do justice to photographs, and when photos are in GIF format, they will take up more room and download time than JPEG files.

GIF files are usually used for cartoon types images, images with a transparent color, or for simple animations (animated GIFs).

GIF format is usually used for cartoon type images, simple animations, and images with a simple transparent color.

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GIF Files. Because GIF files are, relatively speaking, a very low quality format, it is rarely used these days.

The exception here is for animated GIFs. Both of the examples below are in animated GIF format.

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PNG Files. PNG is another common format you'll see on the web.

PNG is a flexible format that can be used to store both cartoon like images, and photographic images. However, although PNG supports it, you'll get much better results using JPG to store photographic images.

The amazing PNG format advantage is called **alpha transparency.** Alpha Transparency not only allows transparent areas, but also partially transparent areas. This can give beautiful results.

While PNG format can be very flexible, it simply is not practical for photographs - unless you need a high quality 'cut-out', like that on the left.

Photo and Image Formats

You've now completed this lesson.

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