Images

IT403 Handout

# Basic concepts

Images are not text – stored separately from HTML files – image file formats

Pixels – equal sized squares – rectangular grid – larger dimensions mean more pixels

Color depth – storage per pixel – higher values mean more colors, but also more storage

Optimization – striking ideal balance of image quality and file size

Reduce bandwidth expenses and wait time for users

# Image file formats for the Web

Compression – storing same data with fewer bits – helps in optimization

Lossless – compressed image is identical to pre-compression image

Lossy – compressed image is reduced quality approximation of pre-compression image

Image file formats without built in compression, such as BMP, are not suitable for Web use

JPEG – Joint Photographic Experts Group – .jpeg or .jpg extension

Lossy compression – amount selectable when file is saved – more lost on each save

True color – 16,777,216 simultaneous colors available

Ideal for photographic images

GIF – Graphic Interchange Format – .gif extension

Lossless compression

256 maximum simultaneous colors from a true color palette – fewer colors, smaller file size

Supports both animation and transparency – one color chosen as transparent

Ideal for diagrams, line art, logos, cartoons, and other images that will not tolerate lost info

PNG – Portable Network Graphic – .png extension

Lossless compression – somewhat more efficient form than GIF uses

Up to true color support – fewer max colors results in smaller file size

Supports alpha channel transparency – 256 levels of transparency

Suitable for all image types, but most commonly used as alternative to GIF

# Obtaining images

Copyright – legally protects creator’s rights – virtually all images are copyrighted by somebody

Images on the Web are not necessarily free for the taking!

Self-generated – image editor, digital camera, scanner

Generally, you automatically own the copyright on any original images you create

Beware derivative works – reproducing a copyrighted work doesn’t give you the copyright

Other-generated – image archives (not search engines!), stock image suppliers

Terms of use – if you don’t accept the terms, don’t use the image – free vs. royalty free

Request permission – if you don’t get explicit permission, don’t use the image – credit source

Always make and publish a local copy unless explicitly directed otherwise – use a relative URL

Inline linking (aka, hot linking, bandwidth theft, etc.)

To grab an image off a Web page, right-click it and choose Save Image As…

**Best practice**: Use only locally published copies of images accessed with relative URLs

**Best practice**: Use only images for which you are confident you have proper permission

# Manipulating images

Crop first to get most relevant portion

Scale to smallest size necessary to serve its purpose – keep variety of screen resolutions in mind

Filter and fine tune as desired

Convert to appropriate image file format – JPEG for photos, GIF or PNG for everything else

Save a copy to publish – retain original

**Best practice**: Optimize every image prior to publishing it

# Inline images

Images that appear as part of the structured content of a Web page – inserted with HTML

**Best practice**: Use only inline images that contribute to the content’s message

img element – empty, replaced element – ends with slash

src attribute – URL browser should use to retrieve image file – almost always a relative URL

alt attribute – textual alternative to image – primarily for screen readers – accessibility

height and width attributes – dimensions of image in pixels – image will scale to match

**Best practice**: Always use truthful height and width values

Inline images may be used as link labels – place img element as content of the a element

**Best practice**: Use alt attribute of clickable images to describe where link will take the user

**Best practice**: Use empty quotes for the alt value of images that do not require an alternative

# Background images

Images that appear in the background of an element’s content area and padding – inserted with CSS

**Best practice**: Use background images for any purely decorative images

**Best practice**: Always use a background color as a backup for a background image

background-image property – value in url() functional notation

background-repeat property – repeat, no-repeat, repeat-x, repeat-y

background-position property – takes two space-separated values

first value is horizontal – left, center, right, length unit, or percentage of box width

second value is vertical – top, center, bottom, length unit, or percentage of box height