

Multimedia

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CS-E1 - Fall 2011

Agenda

- + Course notes
- + Wiki Citations Tutorial
- + Bitmap images
- + (Mega)Pixels
- + Colors
- + Formats
- + Vectors
- + Programs and Image Manipulation

Course Notes

- + Homework #3 is complete!
- + Homework #4 is due by 12 noon on Monday November 14, 2011 and entails:
 - Post on the CS-E1 Blog
 - Write an article for the CS-E1 Wiki
 - Recommended reading of Ch. 5 and 9, Spotlight 6 in *Computers Are Your Future*, 11th Edition
- + Remember to submit via Google Docs and details can be found at computerscience1.net.

Citations

- + Be sure to cite if you quote a sentence or more of content from an outside source, challengeable content, uncommon statistics, an image, etc.
- + Rule of thumb: if you have to ask it should be cited.
- + Citations are either *inline* with a *footnote* or as a list of references at the end of the article.
- + Citations used multiple times can be given names, which will automatically be assigned super-scripted numbers with links.

Citation Syntax

- + Lists of references begin with: `{ {Reflist} }` .
- + Headers are surrounded by `==` like so `==Further reading==`.
- + A list item starts with an asterisk `*` then contains the citation .
- + Inline references can be contained within a reference tag `<ref>Harvard 2011</ref>`.

Demo Time

Bitmaps

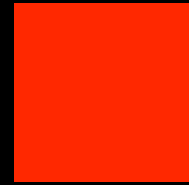
- + Also known as *raster* graphics.
- + Name hints at a map of bits (*pixels*).
- + Rectangular images.
- + Commonly used for digital photographs/pictures.



Example raster image:
Head of the Charles Regatta

Pixels

- + A single point in a raster image.
- + The smallest element of an image.
- + Contains a single color.
- + A *megapixel* is one million pixels.
- + Total pixels in an image:
height x width.



Example of a
red pixel

Colors

- + *RGB* and *CMYK* are two common color models.
- + *RGB* comprised of three parts: Red, Green, Blue, *CMYK* of four: Cyan, Magenta, Yellow, Black.
- + *RGB* can be represented as three bytes 0 - 255 each, or in hexadecimal notation as a concatenation of three bytes beginning with a # (known as an *RGB* and *hex triplet* respectively).

Colors (Cont.)

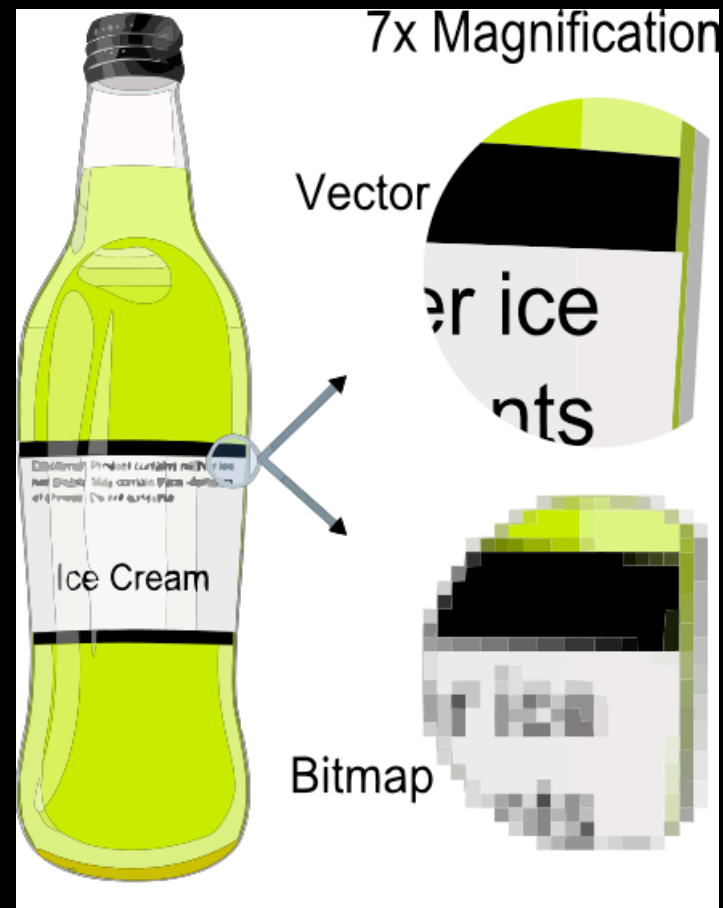
- + Commonly in 8- or 24- bit per pixel.
- + RGB is *additive* whereby if all values are 255 then the color adds up to white. This is useful because by nature all pixels on a screen are black until lit.
- + CMYK is *subtractive*, black is derived from all values being set to their maximum. Useful in print since paper is white until ink is printed on it.

File Formats

BMP **GIF**
JPEG **RAW**
PNG **TIFF**

Vector Graphics

- + Utilizes geographic primitives like polygons, circles, lines, points, etc. to represent an image.
- + Can be scaled up or down without *pixelation*.
- + Does not offer the same level of detail as offered by bitmap images.



[Wikipedia](#)

Software

- + The GIMP (GNU Image Manipulation Program)
- + Inkspace
- + Adobe Photoshop
- + Adobe Illustrator

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