

Intro to Computer Science

Previous

- SQL review
- Python + MySQL

Next

- Web servers
- HTML
- CGI

Resources

- [HTML](#)
- [Flask](#)
- [Jinja](#)

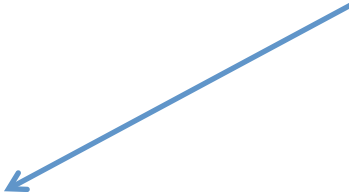
Connection to a web server



What does a web server do?

- A web server is basically a “resource” manager
 - Where resources are mostly files
- You request a file
- The web server
 1. Finds the file
 2. “Processes” the file (if necessary)
 3. Sends the file to you

We'll come back
to this one later



Understanding each other

- Web clients (your browser) and web servers (Yahoo.com) speak the same language: HTTP
 - Hypertext transfer protocol
 - Defines a set of requests that can be made by the client
 - Defines a set of responses that can be returned by the server
- This happens very quickly and is generally hidden from you!

Understanding each other

- Once a response has been received, how do I read it?
 - Hypertext markup language (HTML)
- HTTP is the protocol, HTML is the format
- Browsers basically read and display HTML
 - Know how to speak HTTP
 - Know how to read HTML

HTML versus HTTP

- Separation allows for different levels of required understanding
 - Could know HTTP, but don't have to
 - Could know HTML, but don't have to

You could	This would require an understanding of
Write your own web server	HTTP
Write your own web browser	HTTP and HTML
Write your own web pages	HTML

HTML is a markup language

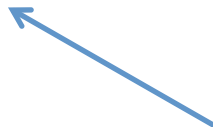
- HTML document contents
 - text, that you are supposed to understand, and
 - “markup” that you are supposed to process otherwise
- HTML document meaning
 - text that is displayed to the screen
 - markup that dictates how and where that text should be placed

The how and where

- “tags” tell HTML readers (browsers) how and where to display text
- There are several
- There are various methods of specifying them
 - Within HTML
 - Using a special HTML tagging language (CSS)
 - Specified within the HTML
 - Specified in a special “section” of the HTML
 - Specified in an external document

HTML is not programming

- There's no programming logic
 - No variables, no control structures
- Akin to a Word document
 - 2+2 doesn't do anything in Word
- Thus, we will focus on basic HTML commands
- There's lots of programming in the HTTP/
HTML workflow



We'll focus on that ☺

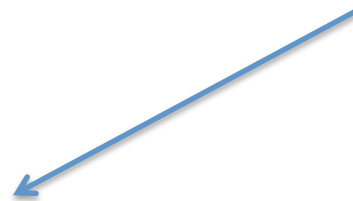
But first

- Writing an HTML document with basic HTML tags
 - bold/italic
 - line breaks
 - links
 - tables

What does a web server do?

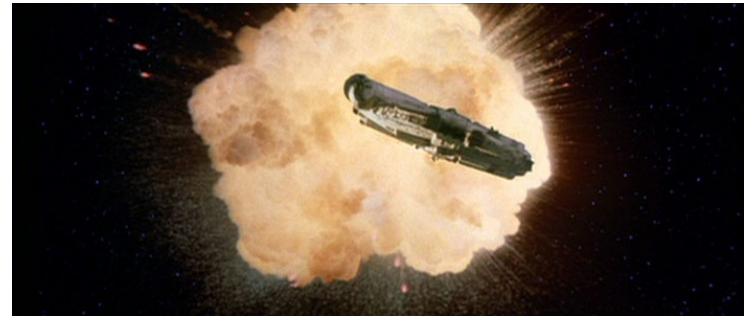
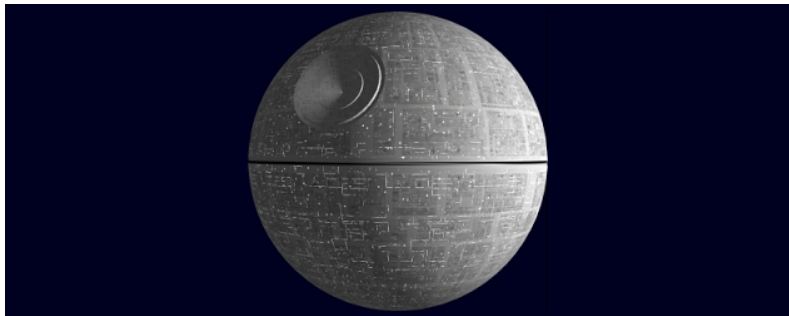
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to this one later
... now is “later”



“HTML, this is programming”

- The page we just made was static
 - Every time we view it, it will be the same
 - Largely a function of HTML
- However, *there's no reason we can't write a program that writes the page*



CGI

- CGI stands for Common Gateway Interface
 - Weird name that essentially means the webserver knows how to *process* the page
- Normally the server regurgitates the resource
 - Most often an HTML page
- CGI extensions help it do something interesting with the page
 - The resource is now a program
 - The program can tell it what HTML to return
- In our case, we'll tell it to run Python 😊

CGI using Python

- You write what looks like a normal Python program
- The URL will state that you're looking for a Python program
 - .py instead of .html
- Your Python program will write HTML

Flask

- Framework that provides
 - Webserver
 - Ability to run Python functions
 - Functions return a string that's sent back to the browser