Web Protocols and Standards: HTTP and HTML

Oct 9, 2019

Announcements
- Lab 5 due Thur and Fri (but limited TA and office hours after Thur!)
- HW 4 will be posted today, due next Wed
- Midterm review session
  - Wed 10/16 8:00-9:30 in TBL 112
  - HW solutions and sample exam posted soon
- Midterm
  - Evening of 10/17
    - At 6 p.m. or 7:30 p.m. in TCL 123
    - 75 minute open book exam

Today’s Plan

- Web Standards and Protocols
  - HTML = Hypertext Markup Language
  - HTTP (1.0 vs. 1.1) = Hypertext Transfer Protocol

Demo

- http://rugger9-2.local
- Is my laptop a webserver??
Demo

- http://rugger9-2.local
- Is my laptop a webserver??

- Run Java server code
- Try again…

Demo part 2

- TCPCapture

- What does this interaction look like?

Demo part 2

- TCPCapture

- What does this interaction look like?  POP!

POP

- USER jeannie
- What other protocols have we seen so far?
POP

USER jeannie
+OK
PASS mysecretword
+OK

USER jeannie
+OK
PASS mysecretword
+OK
RETR 4
HTTP

WEB
BROWSER

GET /~jeannie/index.html HTTP/1.0
HTTP/1.0 200 Document ...

HTTP/1.0

- Connect to server on port 80
- Send: GET /name-of-document HTTP/1.0
- Send any optional header lines
- Send: a blank line
- Process server’s response
- Server closes connection

HTTP/1.1

- Connect to server on port 80
- Send: GET /name-of-document HTTP/1.1
- Send: host: name of server
- Send any optional header lines
- Send: a blank line
- Process server’s response
- Server maintains connection (briefly)

Demo part 3

- Run NetTap
- Connect to www.cs.williams.edu on port 80
- Retrieve /~tom/index-short.html
Moving on…

HTML Document Structure

```html
<HTML>
  <HEAD>
    <TITLE> something short but sweet </TITLE>
  </HEAD>
  <BODY>
    something not so short but sweet
  </BODY>
</HTML>
```

A Brief Example

```html
<html>
  <head>
    <TITLE>CS 134 Sample Page</TITLE>
  </head>
  <body>
    <H1>Hello, CS134!</H1>
    <P>Let's make a webpage!</P>
  </body>
</html>
```

HTML HEAD TAGS

- `<TITLE>` My Wonderful Webpage `<TITLE>`

HTML BODY TAGS

- Paragraph: `<P> ... </P>`
- Line break: `<BR>`
- Headers (n is a number): `<Hn> ... </Hn>`
- Bold: `<B> ... </B>`
- Underline: `<U> ... </U>`
- Italic: `<I> ... </I>`
- Centering: `<CENTER> ... </CENTER>`
TAGS WITH ATTRIBUTES

- Center paragraph: `<P ALIGN=CENTER>`
- Colored font: `<FONT COLOR=RED>` ...

ACCESSING OTHER FILES

- Images
  - `<IMG SRC="someGreatPicture.gif">`
  - `<IMG SRC="http://www.picture.com/image.gif">`

LINKS TO OTHER PAGES

- `<A HREF="http://www.cs.williams.edu"> ... </A>`

```html
<html>
<head>
<TITLE>CS 134 Sample Page</TITLE>
</head>
<body>

<hi>Hello, CS134! </hi>
<center>
<P>Let's make a webpage! <br>
Now I am on another line. <br>
<A HREF="http://www.cs.williams.edu">The text that shows up.</A>
</p>

<P align=center>
<b>Let's make a paragraph! Here's Tom:</b> <br>
<img src="http://cs.williams.edu/~tom/tom-mustache.jpeg" height=200>
</p>

<P>
<font color=red size=14><i>Let's make another large, red paragraph!</i></font>
</p>

</center>
</body>
</html>
```