

Lab 1: A Basic Web Client

Checkpoint due: Monday Sep 14th @ 11:59pm

Lab due: Monday Sep 21st @ 11:59pm

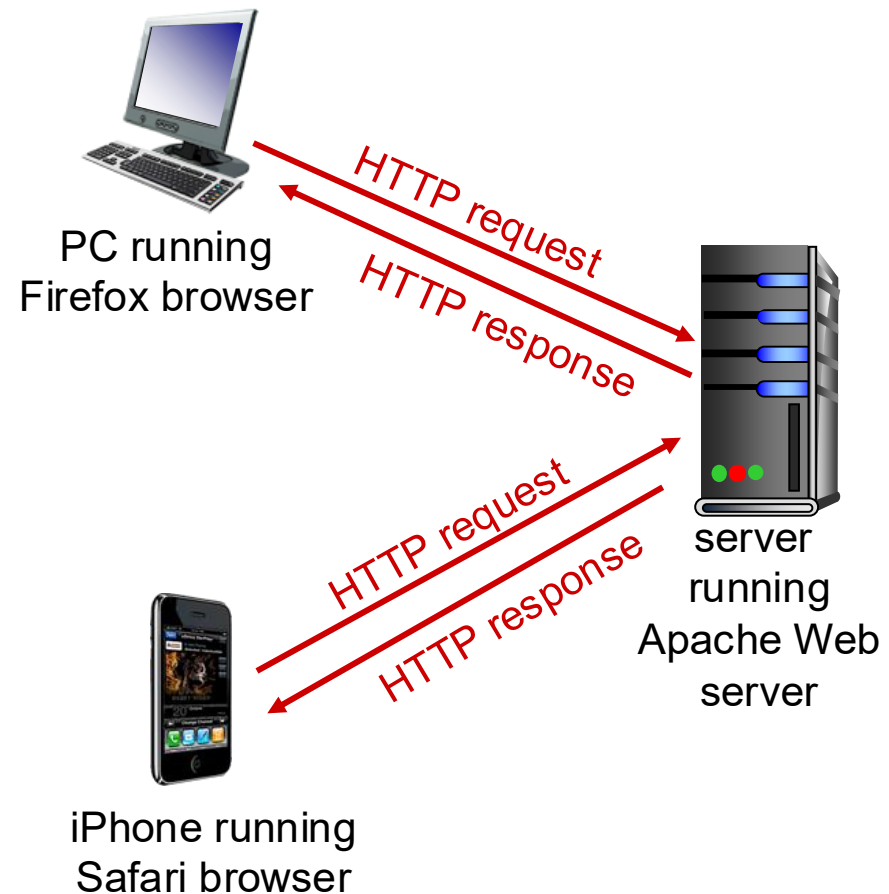
Review partnership expectations

- Find a time that you both can meet
- Partnerships are most successful if you actually collaborate and understand design and implementation of solutions
- If you have a problem with partners, you need to let me know. I can't do anything to help if I don't know.

HTTP: HyperText Transfer Protocol

Client/Server model

- **client:** browser that uses HTTP to request, and receive Web objects.
- **server:** Web server that uses HTTP to respond with requested object.



HTTP and the Web

- **web page** consists of **objects**
- object can be: an HTML file (index.html)

demo.cs.swarthmore.edu/index.html

This is the root page of the demo server. The interesting examples live in the [/example](#) directory. They are:

- [/example/directory/](#): An example of a directory.
- [/example/fiona.jpg](#): An example image (one of Kevin's cats).
- [/example/hello.txt](#): A simple text file.
- [/example/index.html](#): An HTML file serving as the default page for the /example directory.
- [/example/pic.html](#): An HTML file that links to the cat picture.
- [/example/pride_and_prejudice.pdf](#): A large PDF (binary) file containing Jane Austen's "Pride and Prejudice".
- [/example/pride_and_prejudice.txt](#): A large text file containing Jane Austen's "Pride and Prejudice".

HTTP and the Web

- a web page consists of **base HTML-file** which includes **several referenced objects**
- each object is addressable by a **URL**, e.g.,

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`demo.cs.swarthmore.edu/example/pic.html`

host name

path name

Demo of solution...

Before next lab...

- Talk about HTTP more
- Talk about sockets

So for this lab and checkpoint let's do a quick overview of what you need to know to get started without those lectures...

For checkpoint...

1. Complete Part 1 of worksheet.txt
2. Extract the host and path portions of the input URL
3. Construct the HTTP request by filling in the provided GET template described in the Telnet example and on the class slides.
4. Extract just the file name from the path

Like a haiku...put HTTP request into template:

GET <path> HTTP/1.0\r\n

Host: <hostname>\r\n

\r\n

Some helpful string functions...

`strchr` - locate a character in a string

`strstr` - will find substrings within a string

Read the man pages...

Some helpful assumptions...

- If no path is given, your client should request: /. The server will send you back an `index.html` file, if it has one.

Let's look at the starter code...

Systems programming tips:

1. writing a small bit of code
2. testing w/ `valgrind` and `gdb`
3. brief comments
4. repeat step 1

Students who follow this have a much higher rate of succeeding in the course!