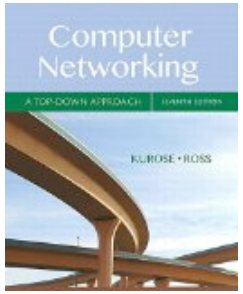
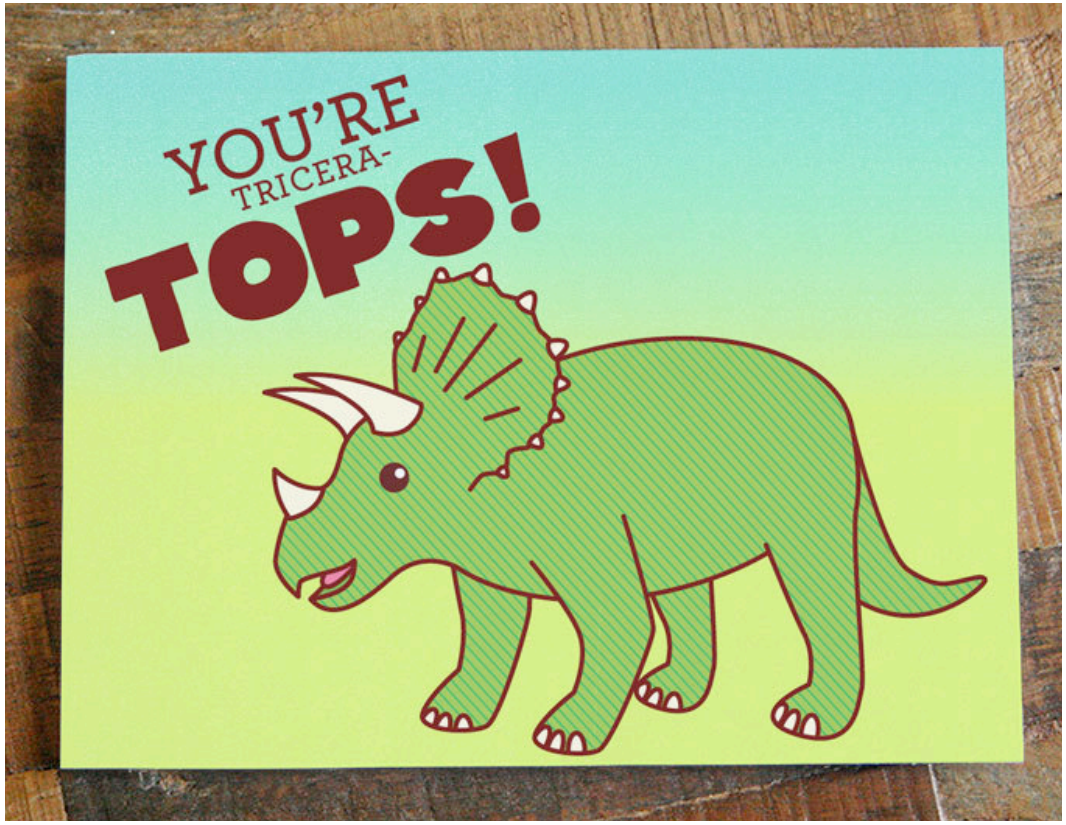
COMP 375: Lecture 05



- **News & Notes:**
  - Quiz #1 in class TODAY
  - Project #1 due Monday @ 10PM
- **Reading (Fri, Feb. 9)**
  - Section 2.3 (Email)

Quiz #1

- Closed book. Closed notes.
- Happy Send a Card to a Friend Day!



Section 2.2

THE WEB & HTTP

How many **objects** need to be sent by the server to fully load this page?

A.	1
B.	2
C.	3
D.	4
E.	> 4

You can simulate an HTTP client using the telnet program.

1. Telnet to your favorite Web server:

```
telnet home.sandiego.edu 80
```

Opens TCP connection to port 80 (default HTTP server port) at USD's homepage server. Anything typed is sent to server on port 80 at home.sandiego.edu

2. Type in a GET HTTP request:

```
GET /~sat/ HTTP/1.1
Host: home.sandiego.edu
```

By typing this in (hit enter/return twice), you send this minimal (but complete) GET request to the HTTP server.

3. Look at response message sent by HTTP server!

An HTTP request contains a required request line plus optional headers.

carriage return (CR) character

line-feed (LF) character

Request line (GET, POST, etc.)

Header lines

```
GET /index.html HTTP/1.1\r\n
Host: home.sandiego.edu.edu\r\n
User-Agent: Firefox/47.0\r\n
Accept: text/html,application/xhtml+xml\r\n
Accept-Language: en-us,en;q=0.5\r\n
Accept-Encoding: gzip,deflate\r\n
Accept-Charset: ISO-8859-1,utf-8;q=0.7\r\n
Keep-Alive: 115\r\n
Connection: keep-alive\r\n
\r\n
```

Request MUST end with **blank line.**

Which of these is a **valid HTTP request** message for the following URL?

`http://home.sandiego.edu/~sat/meow.jpg`

A.	`GET meow.jpg HTTP/1.0` `Host: home.sandiego.edu/~sat/`
B.	`GET /~sat/meow.jpg HTTP/1.0` `Host: home.sandiego.edu`
C.	`GET home.sandiego.edu/~sat/meow.jpg HTTP/1.0` `Host: home.sandiego.edu`
D.	More than one of the above
E.	None of these are correct.

HTTP responses follow a similar format to requests.

Status line (protocol, status code, status phrase)

Header lines

```
HTTP/1.1 200 OK\r\n
Date: Sun, 24 Dec 2014 23:59:40 GMT\r\n
Server: Apache/2.0.52 (CentOS)\r\n
Last-Modified: Tue, 30 Oct 2007 17:00:02 GMT\r\n
ETag: "17dc6-a5c-bf716880"\r\n
Accept-Ranges: bytes\r\n
Content-Length: 2652\r\n
Keep-Alive: timeout=10, max=100\r\n
Connection: Keep-Alive\r\n
Content-Type: text/html; charset=ISO-8859-1\r\n
\r\n
data data data data data ...
```

The **data** (e.g. the requested HTML file)

HTTP trades efficiency for simplicity by being text-based.

Text-based Protocol (HTTP):

```
HTTP/1.1 200 OK\r\n
Date: Sun, 24 Dec 2014 23:59:40 GMT\r\n
```

Binary Protocol (e.g. DNS):

Sometimes HTTP requests aren't OK.

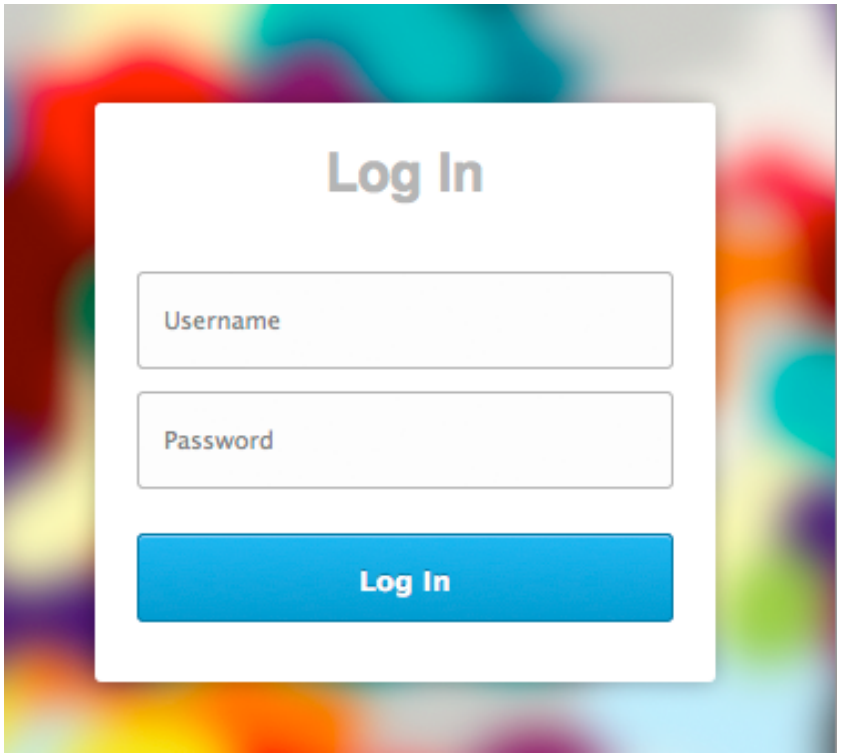
Use telnet to request the following pages and note the status code of response.

1. http://home.sandiego.edu/~sat/nada.html
2. http://home.sandiego.edu/~sat/solutions.html
3. http://home.sandiego.edu/~sat (no trailing '/')

Finally, try a "gibberish" request to home.sandiego.edu and note the response status code.

We've seen how to GET data from a server.

How do we go about ***sending*** *data?*



HTTP provides two basic mechanisms for sending "form" data to a server.

GET method:

- Input is uploaded in URL field of request line:

```
www.somesite.com/animalsearch?monkeys&banana
```

POST method:

- Web page often includes form input
- Input is uploaded to server in request entity body

You should be able to differentiate between use cases for GET and POST.

In what scenarios would you use GET? POST?

	GET	POST
A.	Piazza post	Search terms, Take-out order
B.	Search terms, Take-out order	Piazza post
C.	Search terms	Piazza post, Take-out Order
D.	Piazza post, Search terms, Take-out Order	
E.		Piazza post, Search terms, Take-out Order