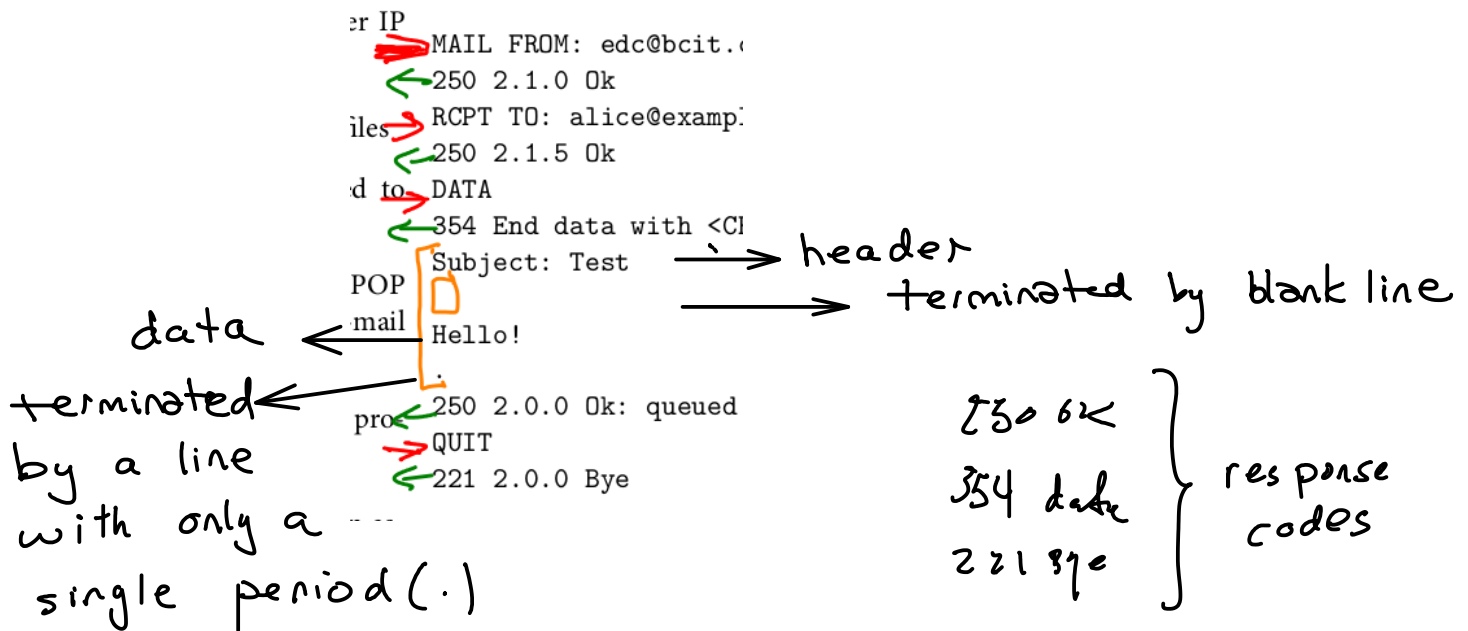


Lecture 17 - IP Applications

Exercise 1: Which of these lines were sent by the client and which by the server? What are the header lines and how are they terminated? What is the data and how is it terminated? How many different result codes are there? What caused the connection to terminate?

→ from client
← from server



session terminated by client sending a QUIT command

Exercise 2: What are some advantages and disadvantages of using text-based protocols?

- easier to test & develop new applications
- may use more data ("bandwidth")

Exercise 3: What might some of the headers in Listing 1 mean?

```
GET / HTTP/1.1
Host: www.example.net
User-Agent: Mozilla/5.0 (X11; Linux i686; rv:37.0) Gecko/20100101 Firefox/37.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
DNT: 1
Connection: keep-alive
Cookies:
```

Annotations:

- host: Host
- browser: User-Agent
- types of content the browser can handle: Accept
- preferred languages: Accept-Language
- "do not track": DNT
- Keep TCP connection open: Connection
- session state: Cookies

Exercise 4: What might some of the headers in Listing 2 mean?

```
HTTP/1.1 200 OK
Accept-Ranges: bytes
Cache-Control: max-age=604800
Content-Type: text/html
Date: Fri, 24 Apr 2015 22:10:01 GMT
Etag: "359670651"
Expires: Fri, 01 May 2015 22:10:01 GMT
Last-Modified: Fri, 09 Aug 2013 23:54:35 GMT
Server: ECS (pae/3796)
X-Cache: HIT
x-ec-custom-error: 1
Content-Length: 1270

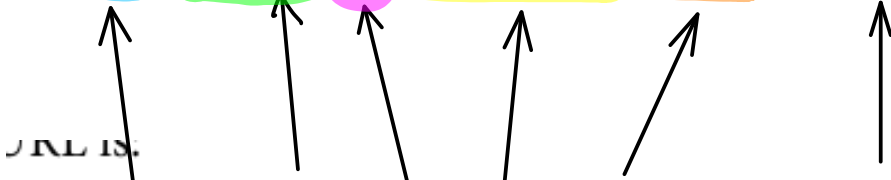
<!doctype html>
<html>
<head>
...
```

Annotations:

- MIME content type: Content-Type
- how long to cache content: Cache-Control
- date: Date
- when content expires: Expires
- length of content following the blank line marking end of headers: Content-Length

Exercise 5: Parse the URL:

`https://bcit.ca:85/files/public/?bydate#first-end`



schema://domain:port/path?query_string#fragment_id

Exercise 6: URL-encode the string Hi 's?, escaping all characters other than letters.

%20 Hi's?

Hi%27s%3f



Exercise 7: What might the content-type text/csv mean?

text in csv format (e.g. spreadsheet)