

EECS 489 – FA 21

Discussion 3

Assignment- I

Due date: **09/22 2021, 11:59 PM**

Please make sure to:

- register your GitHub username
- join our GitHub organization (accept the invitation)
- use your private pl-username repo to upload your submission

Hosted in GitHub under <https://github.com/eecs489>

HTTP Request

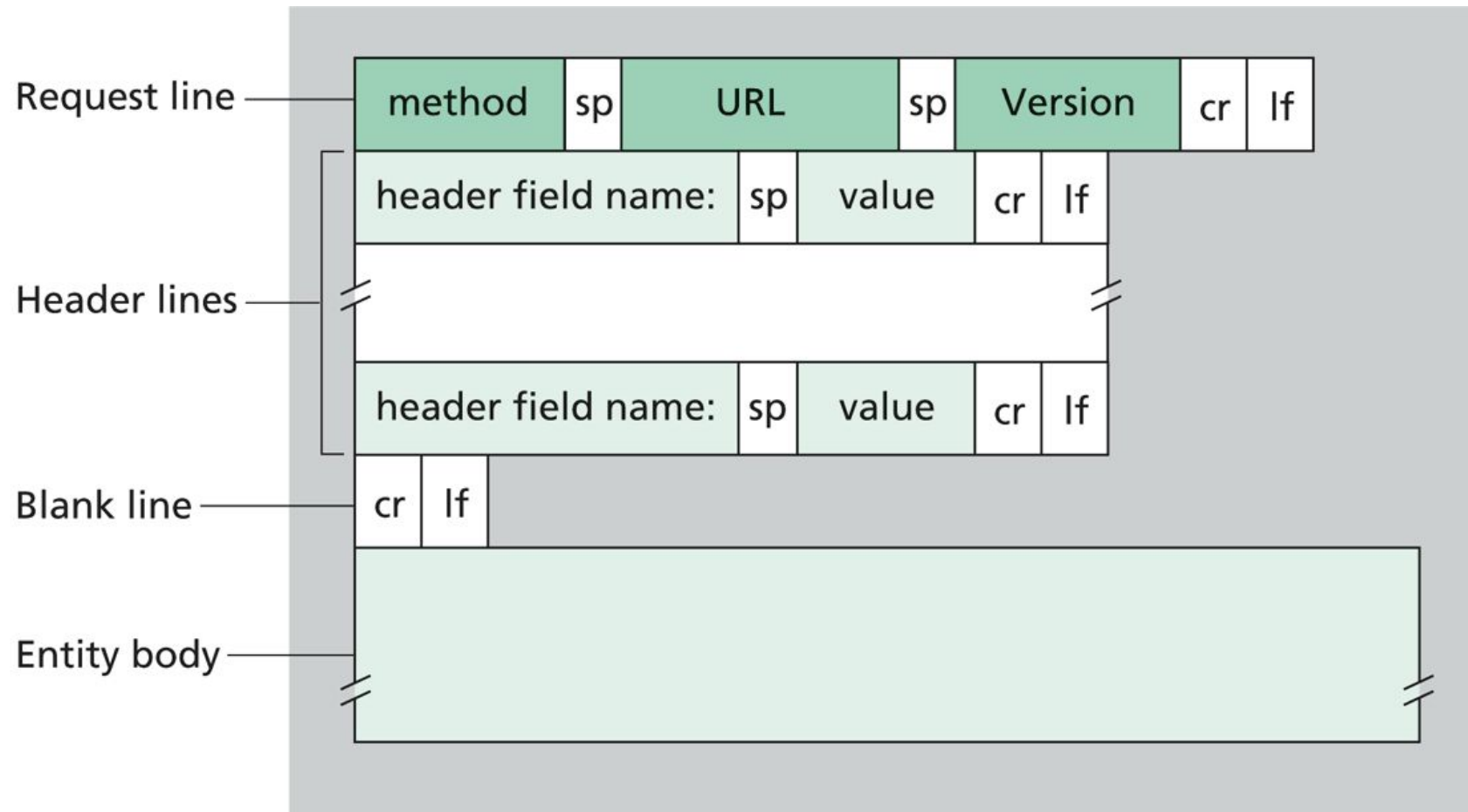


Figure 2.8 ♦ General format of a request message

HTTP Response

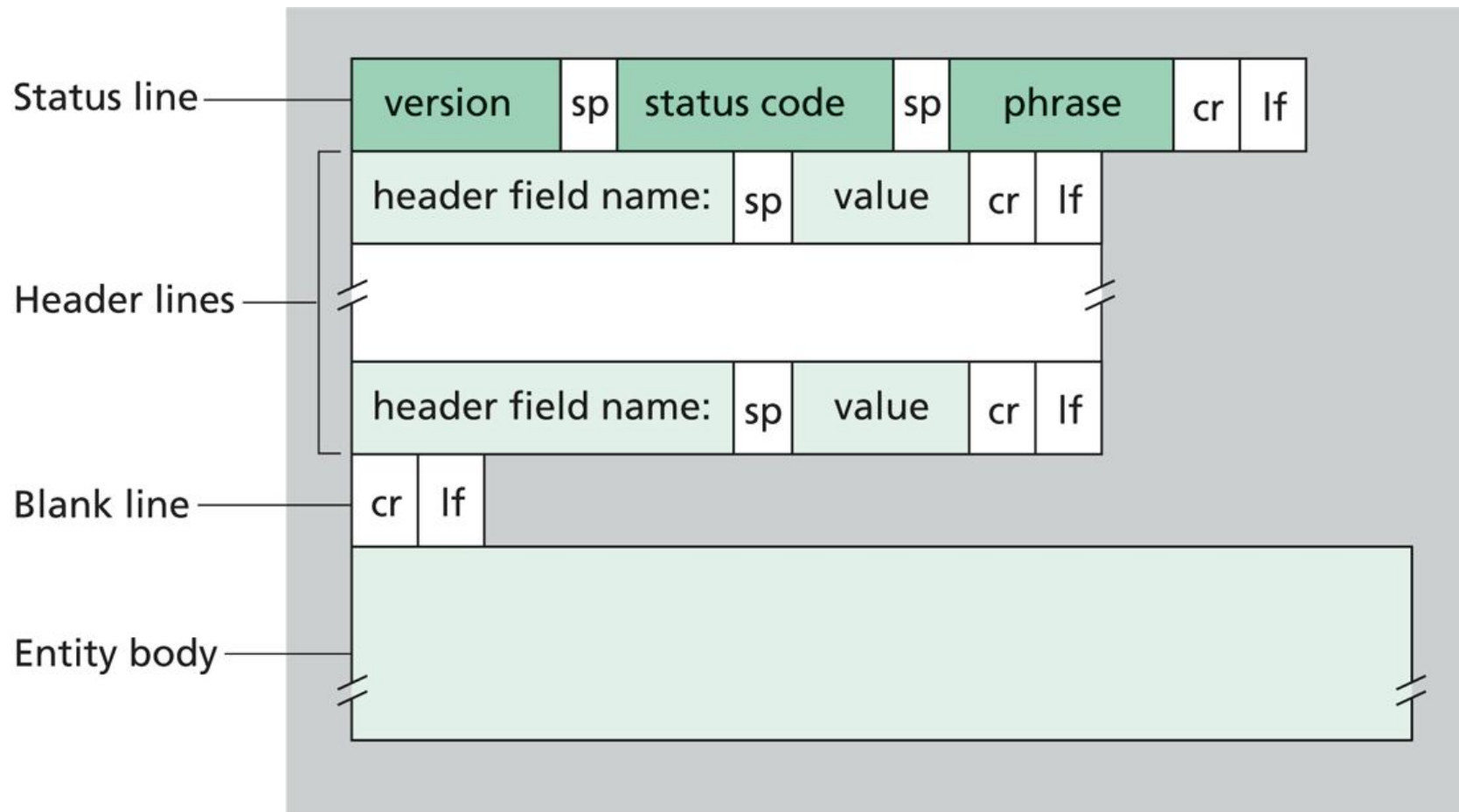


Figure 2.9 ♦ General format of a response message

Q | True or False

- HTTP response messages never have an empty message body
- False.
- Some HTTP response messages have an empty message body.
 - HTTP Status-Code of 200 for HEAD request can be sent without message-body
 - HTTP Status-Code of 204 and 304 MUST NOT include a message body. (RFC 2616)

Q2 True or False

- Two distinct Web pages (for example, www.mit.edu/research.html and www.mit.edu/students.html) can be sent over the same persistent connection.
- True.
- It is because both of these web pages are on the same physical server (www.mit.edu).

Q3 True or False

- With non-persistent connections between browser and origin server, it is possible for a single TCP segment to carry two distinct HTTP request messages.
- False.
- In a non-persistent connection, the connection closes after each request-response. In this case, the connection will close once the first message is received, and there will be a new connection opened to send the second message.

Q4 Consider the Following Request

```
GET /cs453/index.html HTTP/1.1\r\nHost:
gaia.cs.umass.edu\r\nUser-Agent: Mozilla/5.0
(Windows;U; Windows NT 5.1; en-US; rv:1.7.2)
Gecko/20040804 Netscape/7.2 (ax)
\r\nAccept:ext/xml, application/xml,
application/xhtml+xml, text/html;q=0.9,
text/plain;q=0.8,image/png,*/*;q=0.5\r\nAccept
-Language: en-us,en;q=0.5\r\nAccept-
Encoding: zip,deflate\r\nAccept-Charset:
ISO-8859-1,utf-8;q=0.7,*;q=0.7\r\nKeep-Alive:
300\r\nConnection:keep-alive\r\n\r\n
```

- What is the URL (w/o scheme) of the document requested by the browser?
- Does the browser request a persistent or non-persistent connection?

Persistent

Q4 Consider the Following Request

```
GET /cs453/index.html HTTP/1.1\r\nHost:
gaia.cs.umass.edu\r\nUser-Agent: Mozilla/5.0
(Windows;U; Windows NT 5.1; en-US; rv:1.7.2)
Gecko/20040804 Netscape/7.2 (ax)
\r\nAccept:ext/xml, application/xml,
application/xhtml+xml, text/html;q=0.9,
text/plain;q=0.8,image/png,*/*;q=0.5\r\nAccept
-Language: en-us,en;q=0.5\r\nAccept-
Encoding: zip,deflate\r\nAccept-Charset:
ISO-8859-1,utf-8;q=0.7,*;q=0.7\r\nKeep-Alive:
300\r\nConnection:keep-alive\r\n\r\n
```

- What type of browser initiates this message? Why is browser type needed in an HTTP request message?

Mozilla/5.0

Q5 Consider the Following Response

```
HTTP/1.1 200 OK\r\nDate: Tue, 07 Mar 2008
12:39:45GMT\r\nServer: Apache/2.0.52 (Fedora)
\r\nLast-Modified: Sat, 10 Dec2005 18:27:46
GMT\r\nETag: "526c3-f22-a88a4c80"\r\nAccept-
Ranges: bytes\r\nContent-Length: 3874\r\n
Keep-Alive: timeout=max=100\r\nConnection:
Keep-Alive\r\nContent-Type: text/html; charset=
ISO-8859-1\r\n\r\n<!doctype html public "-
//w3c//dtd html 4.0 transitional//en">\n<html>\n
<head>\n  <meta http-equiv="Content-Type"
content="text/html; charset=iso-8859-1">\n  <meta
name="GENERATOR" content="Mozilla/4.79 [en] (Windows NT
5.0; U) Netscape]">\n  <title>CMPSCI 453 / 591 /
NTU-ST550A Spring 2005 homepage</title>\n</head>\n
<much more document text following here (not shown)>
```

- Did the server successfully find the document?

Yes

- How many bytes are being returned in the document?

3874

Q5 Consider the Following Response

```
HTTP/1.1 200 OK\r\nDate: Tue, 07 Mar 2008
12:39:45GMT\r\nServer: Apache/2.0.52 (Fedora)
\r\nLast-Modified: Sat, 10 Dec2005 18:27:46
GMT\r\nETag: "526c3-f22-a88a4c80"\r\nAccept-
Ranges: bytes\r\nContent-Length: 3874\r\n
Keep-Alive: timeout=max=100\r\nConnection:
Keep-Alive\r\nContent-Type: text/html; charset=
ISO-8859-1\r\n\r\n<!doctype html public "-
//w3c//dtd html 4.0 transitional//en">\n<html>\n
<head>\n  <meta http-equiv="Content-Type"
content="text/html; charset=iso-8859-1">\n  <meta
name="GENERATOR" content="Mozilla/4.79 [en] (Windows NT
5.0; U) Netscape]">\n  <title>CMPSCI 453 / 591 /
NTU-ST550A Spring 2005 homepage</title>\n</head>\n
<much more document text following here (not shown)>
```

- What are the first 5 bytes of the document being returned?

<!doc

- Did the server agree to a persistent connection?

Yes

Q6

You request a very small HTML file from a server. This HTML references eight other very small images. Let X denote the RTT between the localhost and the server. How much time elapses with:

1. Non-persistent HTTP with no parallel TCP connections $9 * 2X = 18X$
2. Non-persistent HTTP with the browser configured for 5 parallel connections $2X + 2X + 2X = 6X$
3. Persistent HTTP with pipelining $2X + X = 3X$

Thanks

Have a good one!