

EECS 489 - WN 23

Discussion 3

# Logistic

Assignment 1 Due date: **01/27 2023, 11:59 PM**

Please make sure to:

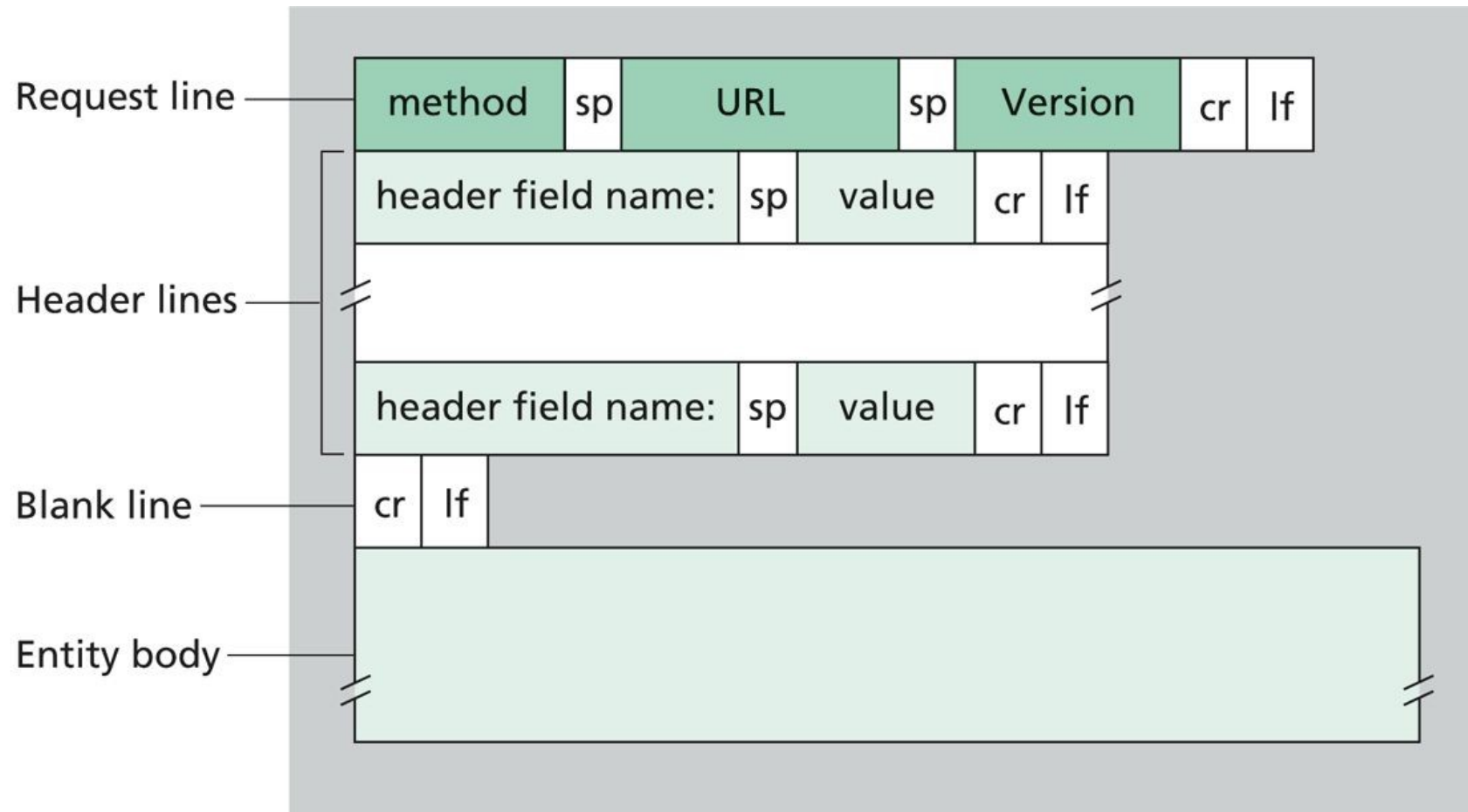
- register your GitHub username
- join our GitHub organization (accept the invitation)
- use your private pl-username repo to upload your submission

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

AG: <https://eecs489.eecs.umich.edu/>

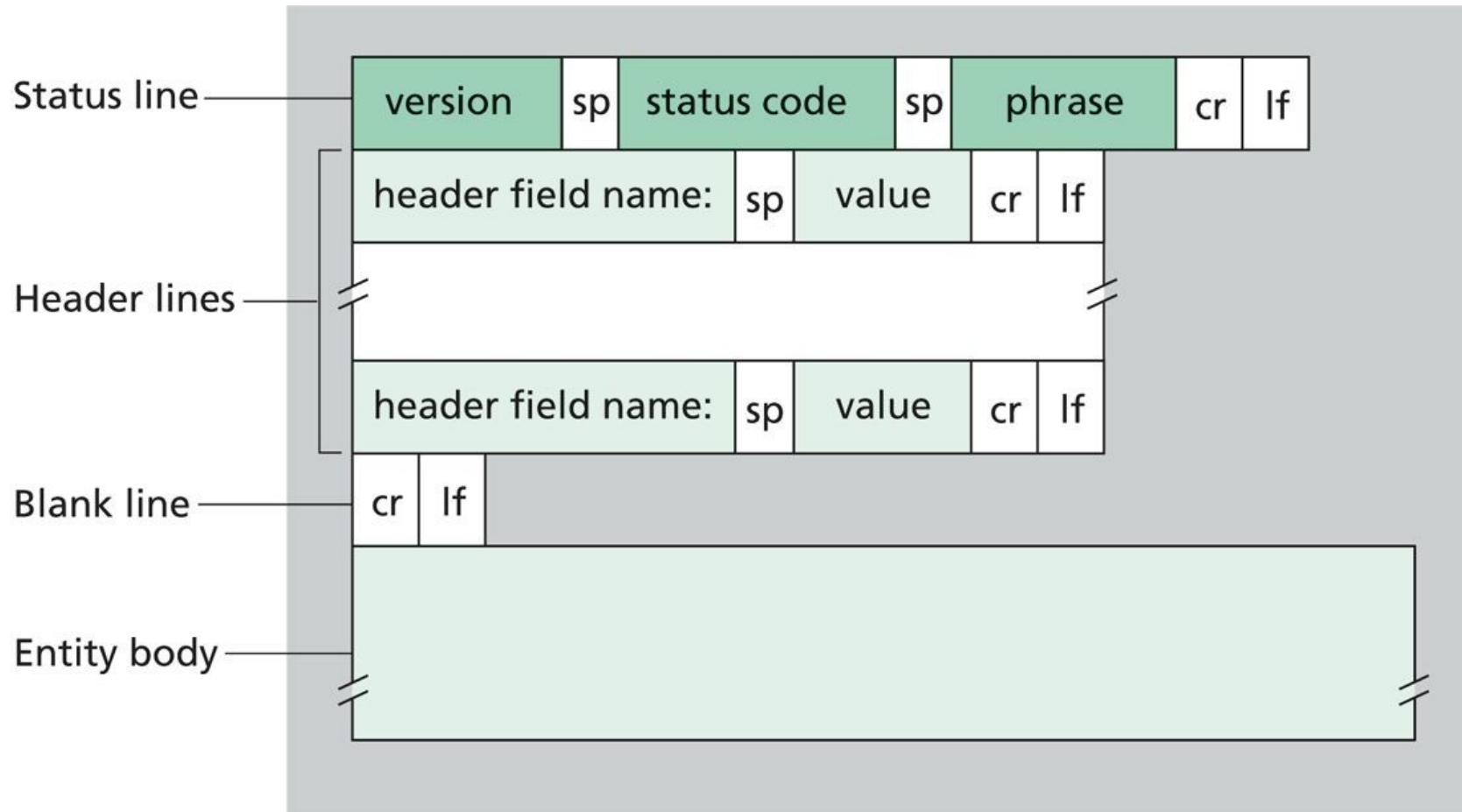
Assignment 2 is coming. Group formation: <https://forms.gle/Mi3tsZzcNoVHIXPW7>

# 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

# 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](http://www.mit.edu/research.html) and [www.mit.edu/students.html](http://www.mit.edu/students.html)) can be sent over the same persistent connection.

# Q2 True or False

- Two distinct Web pages (for example, [www.mit.edu/research.html](http://www.mit.edu/research.html) and [www.mit.edu/students.html](http://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](http://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

# 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\n Host:
gaia.cs.umass.edu\r\n User-Agent: Mozilla/5.0
(Windows;U; Windows NT 5.1; en-US; rv:1.7.2)
Gecko/20040804 Netscape/7.2 (ax)
\r\n Accept:ext/xml, application/xml,
application/xhtml+xml, text/html;q=0.9,
text/plain;q=0.8,image/png,*/*;q=0.5\r\n Accept
-Language: en-us,en; q=0.5\r\n Accept-
Encoding: zip,deflate\r\n Accept-Charset:
ISO-8859-1,utf-8;q=0.7,*;q=0.7\r\n Keep-Alive:
300\r\n Connection: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?

# Q4 Consider the Following Request

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Gecko/20040804 Netscape/7.2 (ax)
\r\n Accept:ext/xml, application/xml,
application/xhtml+xml, text/html;q=0.9,
text/plain;q=0.8,image/png,*/*;q=0.5\r\n Accept
-Language: en-us,en; q=0.5\r\n Accept-
Encoding: zip,deflate\r\n Accept-Charset:
ISO-8859-1,utf-8;q=0.7,*;q=0.7\r\n Keep-Alive:
300\r\n Connection:keep-alive\r\n\r\n
```

- What is the URL (w/o scheme) of the document requested by the browser?

[gaia.cs.umass.edu/cs453/index.html](http://gaia.cs.umass.edu/cs453/index.html)

- Does the browser request a persistent or non-persistent connection?

**Persistent**

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Gecko/20040804 Netscape/7.2 (ax)
\r\n Accept:ext/xml, application/xml,
application/xhtml+xml, text/html;q=0.9,
text/plain;q=0.8,image/png,*/*;q=0.5\r\n Accept
-Language: en-us,en; q=0.5\r\n Accept-
Encoding: zip,deflate\r\n Accept-Charset:
ISO-8859-1,utf-8;q=0.7,*;q=0.7\r\n Keep-Alive:
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- What type of browser initiates this message? Why is browser type needed in an HTTP request message?

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- 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?
- How many bytes are being returned in the document?

# Q5 Consider the Following Response

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3874



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- What are the first 5 bytes of the document being returned?
- Did the server agree to a persistent connection?

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Ranges: bytes\r\n Content-Length: 3874\r\n
Keep-Alive: timeout=max=100\r\n Connection:
Keep-Alive\r\n Content-Type: text/html; charset=
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<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
2. Non-persistent HTTP with the browser configured for 5 parallel connections
3. Persistent HTTP with pipelining

# 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!