

Exercise 3:

Q1.

Status code: 200

Phrase: OK

Q2.

Date: Tue, 23 Sep 2003 05:29:50 GMT

Last Modified: Tue, 23 Sep 2003 05:29:00 GMT

Date is when the message is generated the first time, while the last modified time is the last time the server believes that the resource is modified.

Q3.

Connection is persistent by default as it is of type HTTP/1.1. Simply refer to under “connection length” tab, “Connection: Keep Alive”. Non persistent connection will be displayed as “Connection: close”.

Q4.

From picture 1 (below), the content length displayed as 73 bytes is the size of HTTP response in bytes.

PIC 1

No.	Time	Source	Destination	Protocol	Length	Info
10	4.694850	192.168.1.102	128.119.245.12	HTTP	555	GET /ethereal-labs/lab2-1.html HTTP/1.1
12	4.718993	128.119.245.12	192.168.1.102	HTTP	439	HTTP/1.1 200 OK (text/html)
13	4.724332	192.168.1.102	128.119.245.12	HTTP	541	GET /favicon.ico HTTP/1.1
14	4.750366	128.119.245.12	192.168.1.102	HTTP	1395	HTTP/1.1 404 Not Found (text/html)

▼ Hypertext Transfer Protocol
▶ HTTP/1.1 200 OK\r\n
Date: Tue, 23 Sep 2003 05:29:50 GMT\r\n
Server: Apache/2.0.40 (Red Hat Linux)\r\n
Last-Modified: Tue, 23 Sep 2003 05:29:00 GMT\r\n
ETag: "1bfed-49-79d5bf00"\r\n
Accept-Ranges: bytes\r\n
▶ Content-Length: 73\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
[HTTP response 1/2]
[Time since request: 0.024143000 seconds]
[Request in frame: 10]
[Next request in frame: 13]
[Next response in frame: 14]

Q5. Data contained inside the HTTP response packet is the line based text data displayed is the response packet in picture 2:

PIC 2

No.	Time	Source	Destination	Protocol	Length	Info
10	4.694850	192.168.1.102	128.119.245.12	HTTP	555	GET /ethereal-labs/lab2-1.html HTTP/1.1
12	4.718993	128.119.245.12	192.168.1.102	HTTP	439	HTTP/1.1 200 OK (text/html)
13	4.724332	192.168.1.102	128.119.245.12	HTTP	541	GET /favicon.ico HTTP/1.1
14	4.750366	128.119.245.12	192.168.1.102	HTTP	1395	HTTP/1.1 404 Not Found (text/html)

```
ETag: "1bfed-49-79d5bf00"\r\n
Accept-Ranges: bytes\r\n
Content-Length: 73\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
[HTTP response 1/2]
[Time since request: 0.024143000 seconds]
[Request in frame: 10]
[Next request in frame: 13]
[Next response in frame: 14]
File Data: 73 bytes
```

▼ Line-based text data: text/html

```
<html>\n
Congratulations. You've downloaded the file lab2-1.html!\n
</html>\n
```

Exercise 4:

Q1.

PIC 3

The image shows a Wireshark packet capture of an HTTP GET request. The packet list table is as follows:

No.	Time	Source	Destination	Protocol	Length	Info
8	2.331268	192.168.1.102	128.119.245.12	HTTP	555	GET /ethereal-labs/lab2-2.html HTTP/1.1
10	2.357902	128.119.245.12	192.168.1.102	HTTP	739	HTTP/1.1 200 OK (text/html)
14	5.517390	192.168.1.102	128.119.245.12	HTTP	668	GET /ethereal-labs/lab2-2.html HTTP/1.1
15	5.540216	128.119.245.12	192.168.1.102	HTTP	243	HTTP/1.1 304 Not Modified

The packet details pane for the selected packet (No. 8) shows the following information:

- Frame 8: 555 bytes on wire (4440 bits), 555 bytes captured (4440 bits)
- Ethernet II, Src: Dell_4f:36:23 (00:08:74:4f:36:23), Dst: LinksysG_da:af:73 (00:06:25:da:af:73)
- Internet Protocol Version 4, Src: 192.168.1.102, Dst: 128.119.245.12
- Transmission Control Protocol, Src Port: 4247, Dst Port: 80, Seq: 1, Ack: 1, Len: 501
- Hypertext Transfer Protocol**
 - GET /ethereal-labs/lab2-2.html HTTP/1.1\r\n
 - [Expert Info (Chat/Sequence): GET /ethereal-labs/lab2-2.html HTTP/1.1\r\n]
 - Request Method: GET
 - Request URI: /ethereal-labs/lab2-2.html
 - Request Version: HTTP/1.1
 - Host: gaia.cs.umass.edu\r\n
 - User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.0.2) Gecko/20021120 Netscape/7.01\r\n
 - Accept: text/xml,application/xml,application/xhtml+xml,text/html;q=0.9,text/plain;q=0.8,video/x-mng,image/png,image/jpeg,image/gif;q=0.2,text/css,*/*;q=0.1\r\n
 - Accept-Language: en-us, en;q=0.50\r\n
 - Accept-Encoding: gzip, deflate, compress;q=0.9\r\n
 - Accept-Charset: ISO-8859-1, utf-8;q=0.66, */q=0.66\r\n
 - Keep-Alive: 300\r\n
 - Connection: keep-alive\r\n
 - \r\n
 - [Full request URI: <http://gaia.cs.umass.edu/ethereal-labs/lab2-2.html>]
 - [HTTP request 1/2]
 - [Response in frame: 10]
 - [Next request in frame: 14]

PIC 4

The image shows a Wireshark packet capture of an HTTP 200 OK response. The packet list table is as follows:

No.	Time	Source	Destination	Protocol	Length	Info
8	2.331268	192.168.1.102	128.119.245.12	HTTP	555	GET /ethereal-labs/lab2-2.html HTTP/1.1
10	2.357902	128.119.245.12	192.168.1.102	HTTP	739	HTTP/1.1 200 OK (text/html)
14	5.517390	192.168.1.102	128.119.245.12	HTTP	668	GET /ethereal-labs/lab2-2.html HTTP/1.1
15	5.540216	128.119.245.12	192.168.1.102	HTTP	243	HTTP/1.1 304 Not Modified

The packet details pane for the selected packet (No. 10) shows the following information:

- Frame 10: 739 bytes on wire (5912 bits), 739 bytes captured (5912 bits)
- Ethernet II, Src: LinksysG_da:af:73 (00:06:25:da:af:73), Dst: Dell_4f:36:23 (00:08:74:4f:36:23)
- Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.102
- Transmission Control Protocol, Src Port: 80, Dst Port: 4247, Seq: 1, Ack: 502, Len: 685
- Hypertext Transfer Protocol**
 - HTTP/1.1 200 OK\r\n
 - [Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]
 - Request Version: HTTP/1.1
 - Status Code: 200
 - Response Phrase: OK
 - Date: Tue, 23 Sep 2003 05:35:50 GMT\r\n
 - Server: Apache/2.0.40 (Red Hat Linux)\r\n
 - Last-Modified: Tue, 23 Sep 2003 05:35:00 GMT\r\n
 - ETag: "1bfef-173-8f4ae900"\r\n
 - Accept-Ranges: bytes\r\n
 - Content-Length: 371\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
 - [HTTP response 1/2]
 - [Time since request: 0.026634000 seconds]
 - [Request in frame: 8]
 - [Next request in frame: 14]
 - [Next response in frame: 15]
 - File Data: 371 bytes
 - Line-based text data: text/html
 - \n
 - <html>\n
 - \n
 - Congratulations again! Now you've downloaded the file lab2-2.html.
\n
 - This file's last modification date will not change. <p>\n
 - Thus if you download this multiple times on your browser, a complete copy
\n
 - will only be sent once by the server due to the inclusion of the IN-MODIFIED-SINCE
\n
 - field in your browser's HTTP GET request to the server.\n
 - \n
 - </html>\n

No. According to both pictures above.

Q2.

Yes. From above picture 4, the file is last modified Tue, 23 Sep 2003 05:35:50

PIC 5

The image shows a Wireshark packet capture of an HTTP GET request. The packet list shows four packets: a GET request (No. 8), a 200 OK response (No. 10), another GET request (No. 14), and a 304 Not Modified response (No. 15). The packet details for packet 14 are expanded, showing the Hypertext Transfer Protocol section with the following fields:

- Request Method: GET
- Request URI: /ethereal-labs/lab2-2.html
- Request Version: HTTP/1.1
- Host: gaia.cs.umass.edu
- User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.0.2) Gecko/20021120 Netscape/7.01
- Accept: text/xml,application/xml,application/xhtml+xml,text/html;q=0.9,text/plain;q=0.8,video/x-mng,image/png,image/jpeg,image/gif;q=0.2,text/css,*/q=0.1
- Accept-Language: en-us,en;q=0.5
- Accept-Encoding: gzip, deflate, compress;q=0.9
- Accept-Charset: ISO-8859-1,utf-8;q=0.66,*q=0.66
- Keep-Alive: 300
- Connection: keep-alive
- If-Modified-Since: Tue, 23 Sep 2003 05:35:00 GMT
- If-None-Match: "1bfef-173-8f4ae900"
- Cache-Control: max-age=0

The packet bytes pane shows the full request URI: <http://gaia.cs.umass.edu/ethereal-labs/lab2-2.html>.

PIC 6

The image shows a Wireshark packet capture of an HTTP 304 Not Modified response. The packet list shows four packets: a GET request (No. 8), a 200 OK response (No. 10), another GET request (No. 14), and a 304 Not Modified response (No. 15). The packet details for packet 15 are expanded, showing the Hypertext Transfer Protocol section with the following fields:

- Request Version: HTTP/1.1
- Status Code: 304
- Response Phrase: Not Modified
- Date: Tue, 23 Sep 2003 05:35:53 GMT
- Server: Apache/2.0.40 (Red Hat Linux)
- Connection: Keep-Alive
- Keep-Alive: timeout=10, max=99
- ETag: "1bfef-173-8f4ae900"

The packet bytes pane shows the HTTP response 2/2 and the time since request: 0.022826000 seconds.

Q3, Q4.

Yes. IF-MODIFIED-SINCE displays the date of the last modification did on the file from a past GET request. IF-NONE-MATCH displays the ETAG value. The value shown depends on whether it is the same ETAG as the server's, if true, status code 304 and empty body is returned back. In this case, code 304 and the phrase "Not Modified" is returned. The server did not explicitly return the contents as code 304 infer that an empty body is returned.

Q3, Q4.

“ETAG” has not changed from 1st to 2nd response. “ETAG” of the 1st response (server side) is compared with the one received in request header. It is compared through server-side logic that checks whether a new copy of resource is needed judging if “ETAG” in both responses are the same. The result of the comparison is displayed through IF-NONE-MATCH header as a “ETAG” value in 2nd response. This “ETAG” value helps to infer whether the requested resources needed to be updated or not.