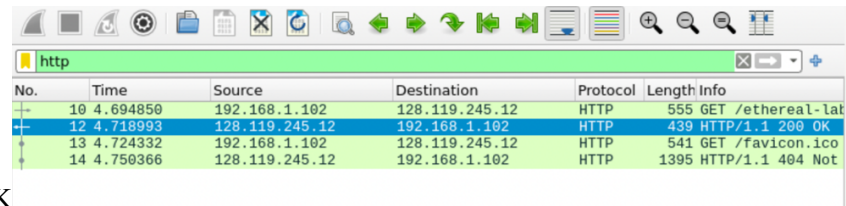


Exercise 3

Question 1: What is the status code and phrase returned from the server to the client browser?



No.	Time	Source	Destination	Protocol	Length	Info
10	4.694850	192.168.1.102	128.119.245.12	HTTP	555	GET /ethereal-lab
12	4.718993	128.119.245.12	192.168.1.102	HTTP	439	HTTP/1.1 200 OK
13	4.724332	192.168.1.102	128.119.245.12	HTTP	541	GET /favicon.ico
14	4.750366	128.119.245.12	192.168.1.102	HTTP	1395	HTTP/1.1 404 Not

200 (successful response)->OK

Question 2: When was the HTML file the browser retrieves last modified at the server? Does the response also contain a DATE header? How are these two fields different?

Tue, 23 Sep 2003 05:29:50 GMT\r\n

Yes

The modified date presents the time when the file was modified, and the Date presents the time that ask for request (time stamp).

No.	Time	Source	Destination	Protocol	Length	Info
694850	192.168.1.102	128.119.245.12	HTTP	555	GET /ethereal-labs/lab2-1.ht	
718993	128.119.245.12	192.168.1.102	HTTP	439	HTTP/1.1 200 OK (text/html)	
724332	192.168.1.102	128.119.245.12	HTTP	541	GET /favicon.ico HTTP/1.1	
750366	128.119.245.12	192.168.1.102	HTTP	1395	HTTP/1.1 404 Not Found (tex	

Transmission Control Protocol, Src Port: 80, Dst Port: 4127, Seq: 1, Ack: 502, Len: 385
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

Question 3: Is the connection established between the browser and the server persistent or non-persistent? How can you infer this?

Persistent (as the connection shows keep-active)

```
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]
```

Question 4: How many bytes of content are being returned to the browser?

73 bytes

```
[Time since request: 0.024143000 seconds]
[Request in frame: 10]
[Next request in frame: 13]
[Next response in frame: 14]
[Request URI: http://gaia.cs.umass.edu/ethereal-lab]
File Data: 73 bytes
```

Question 5: What is the data contained inside the HTTP response packet?

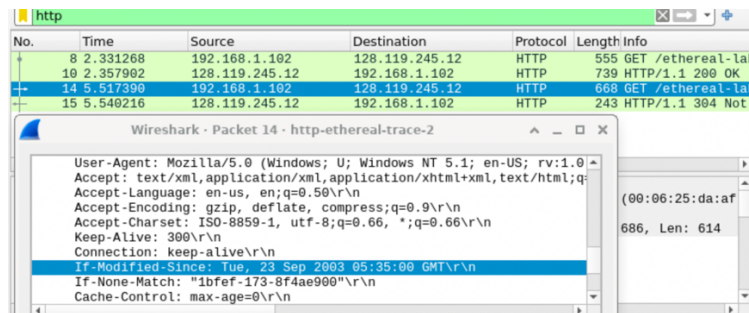
Congratulations. You've downloaded the file lab2-1.html!\n

```
File Data: 73 bytes
Line-based text data: text/html (3 lines)
<html>\n
Congratulations. You've downloaded the file lab2-1.html!\n
</html>\n
```

Exercise 4

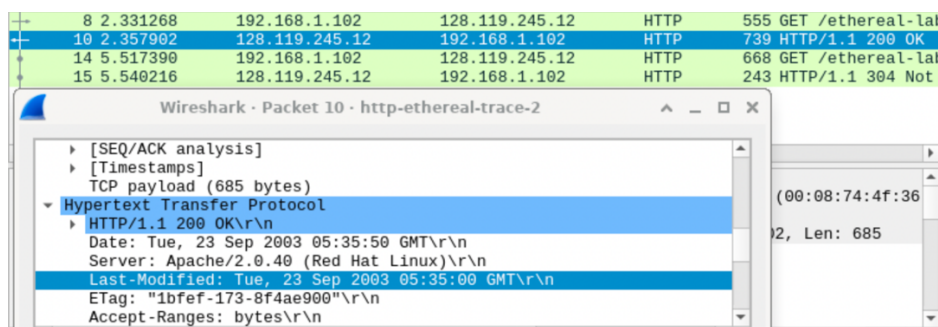
Question 1: Inspect the contents of the first HTTP GET request from the browser to the server. Do you see an “IF-MODIFIED-SINCE” line in the HTTP GET?

No, we can only find “IF-MODIFIED-SINCE” in the second HTTP GET request.



Question 2: Does the HTTP response from the server indicate the last time that the requested file was modified?

Yes, cause it shows the last modified date.

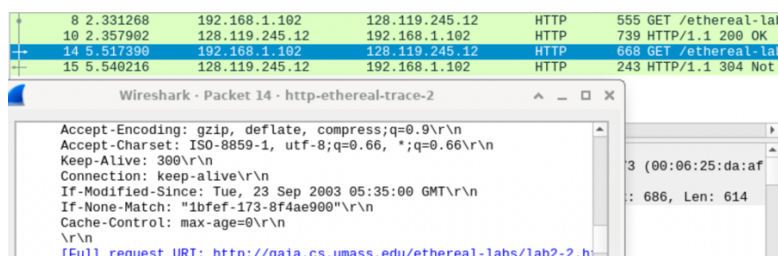


Question 3: Now inspect the contents of the second HTTP GET request from the browser to the server. Do you see the “IF-MODIFIED-SINCE:” and “IF-NONE-MATCH” lines in the HTTP GET? If so, what information is contained in these header lines?

Yes.

The header of “IF-MODIFIED-SINCE:” is from the last modified time of the file.

The header of “IF-NONE-MATCH” is from the last response from etag.



Question 4: What is the HTTP status code and phrase returned from the server in response to this second HTTP GET? Did the server explicitly return the file's contents? Explain.

304 NOT Modified

No, the file that were requested for is the same as what it had so it will not return the file.

1.102	128.119.245.12	HTTP	555 GET /ethereal-labs/lab2-2.html HTTP/1.1
245.12	192.168.1.102	HTTP	739 HTTP/1.1 200 OK (text/html)
1.102	128.119.245.12	HTTP	668 GET /ethereal-labs/lab2-2.html HTTP/1.1
245.12	192.168.1.102	HTTP	243 HTTP/1.1 304 Not Modified

Error! Filename not specified. Question 5: What is the value of the Etag field in the 2nd response message, and how is it used? Is the Etag value the same as in the 1st response?

Yes, those two etag message are the same.

(Etag value the same as in the 1st response)

1.102	128.119.245.12	HTTP	555 GET /ethereal-labs/lab2-2.html HTTP/1.1
245.12	192.168.1.102	HTTP	739 HTTP/1.1 200 OK (text/html)
1.102	128.119.245.12	HTTP	668 GET /ethereal-labs/lab2-2.html HTTP/1.1
245.12	192.168.1.102	HTTP	243 HTTP/1.1 304 Not Modified

▶ HTTP/1.1 200 OK\r\n
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

(Etag value the same as in the 2nd response)

1.102	128.119.245.12	HTTP	555 GET /ethereal-labs/lab2-2.html HTTP/1.1
245.12	192.168.1.102	HTTP	739 HTTP/1.1 200 OK (text/html)
1.102	128.119.245.12	HTTP	668 GET /ethereal-labs/lab2-2.html HTTP/1.1
245.12	192.168.1.102	HTTP	243 HTTP/1.1 304 Not Modified

Server: Apache/2.0.40 (Red Hat Linux)\r\n
Connection: Keep-Alive\r\n
Keep-Alive: timeout=10, max=99\r\n
Etag: "1bfef-173-8f4ae900"\r\n
\r\n
[HTTP response 2/2]
[Time since request: 0.022826000 seconds]
[Prev request in frame: 8]

Exercise 5

PingServer 1024 Output:

```
z5335039@vx08:~/Desktop$ java PingServer 1024
Received from 127.0.0.1: ping3331 1655520777093
  Reply not sent.
Received from 127.0.0.1: ping3332 1655520777779
  Reply sent.
Received from 127.0.0.1: ping3333 1655520777946
  Reply not sent.
Received from 127.0.0.1: ping3334 1655520778547
  Reply sent
Received from 127.0.0.1: ping3335 1655520778717
  Reply sent.
Received from 127.0.0.1: ping3336 1655520778825
  Reply sent.
Received from 127.0.0.1: ping3337 1655520778948
  Reply sent.
Received from 127.0.0.1: ping3338 1655520779140
  Reply sent.
Received from 127.0.0.1: ping3339 1655520779261
  Reply not sent.
Received from 127.0.0.1: ping3340 1655520779862
  Reply not sent
Received from 127.0.0.1: ping3341 1655520780462
  Reply sent.
Received from 127.0.0.1: ping3342 1655520780592
  Reply sent.
Received from 127.0.0.1: ping3343 1655520780605
  Reply sent.
Received from 127.0.0.1: ping3344 1655520780635
  Reply sent.
```

PingClient 127.0.0.1 1024 Outcome:

```
z5335039@vx08:~/Desktop$ java PingClient 127.0.0.1 1024
ping to /127.0.0.1, seq = 3331, time out
ping to /127.0.0.1, seq = 3332, rtt = 152ms
ping to /127.0.0.1, seq = 3333, time out
ping to /127.0.0.1, seq = 3334, rtt = 170ms
ping to /127.0.0.1, seq = 3335, rtt = 107ms
ping to /127.0.0.1, seq = 3336, rtt = 123ms
ping to /127.0.0.1, seq = 3337, rtt = 192ms
ping to /127.0.0.1, seq = 3338, rtt = 121ms
ping to /127.0.0.1, seq = 3339, time out
ping to /127.0.0.1, seq = 3340, time out
ping to /127.0.0.1, seq = 3341, rtt = 129ms
ping to /127.0.0.1, seq = 3342, rtt = 13ms
ping to /127.0.0.1, seq = 3343, rtt = 30ms
ping to /127.0.0.1, seq = 3344, rtt = 77ms
```

-----Report Output-----

Minimum round-trip time is: 13
Average round-trip time is: 111
Maximum round-trip time is: 192