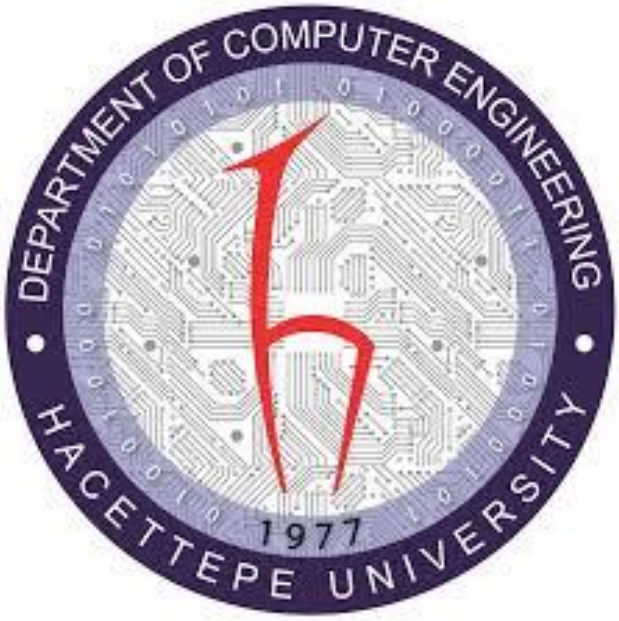
HACETTEPE UNIVERSITY

COMPUTER ENGINEERING DEPARTMENT

COMPUTER NETWORKS LABORATORY



EXPERIMENT: HTTP

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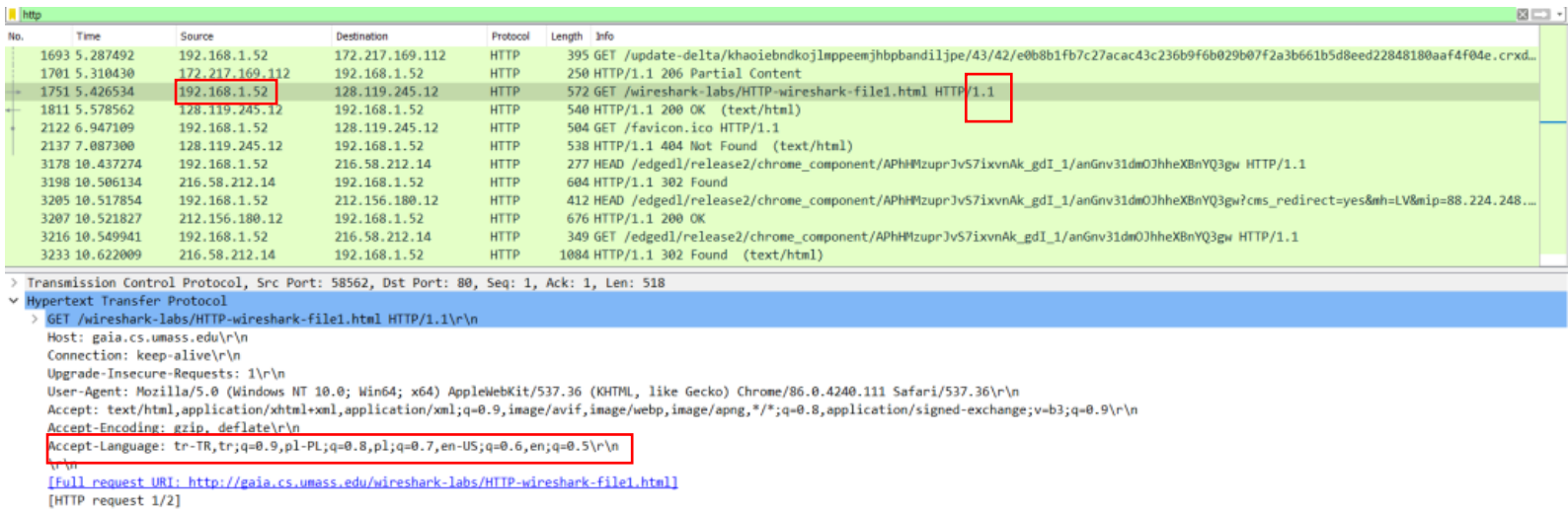
Ece OMURTAY 21627543

GROUP NUMBER : 12

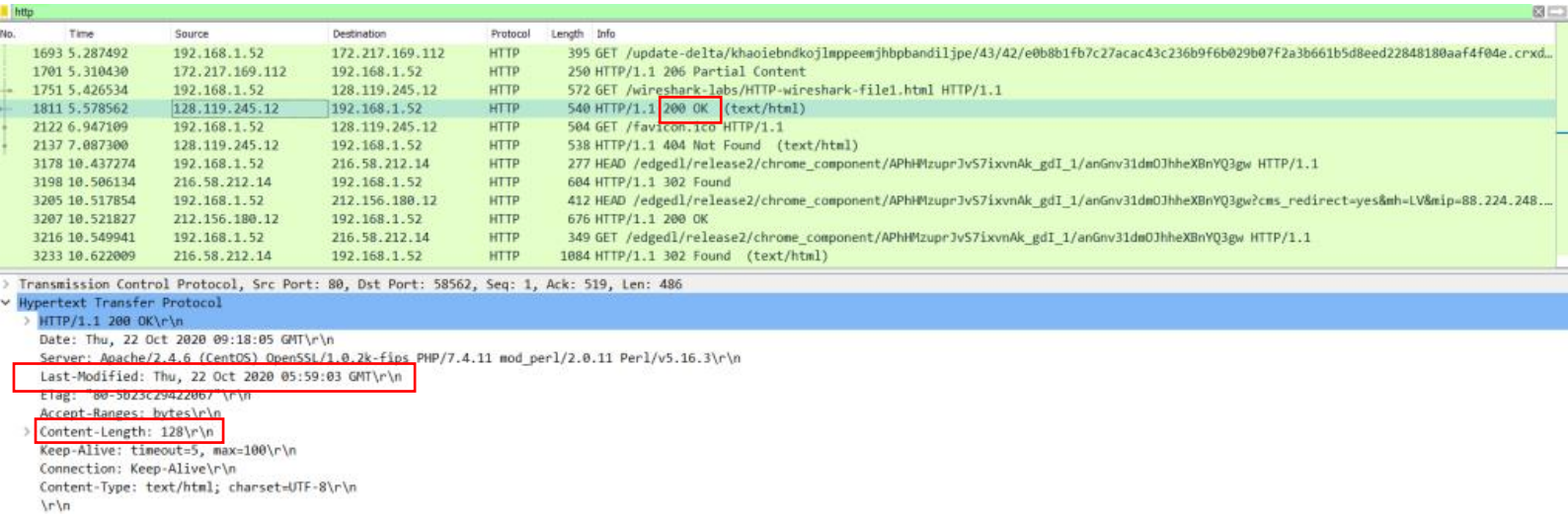
1. The Basic HTTP GET/response interaction
    1. Our browser is running on HTTP version of 1.1



    2. Our browser indicates tr-TR, pl-PL and en-US as languages

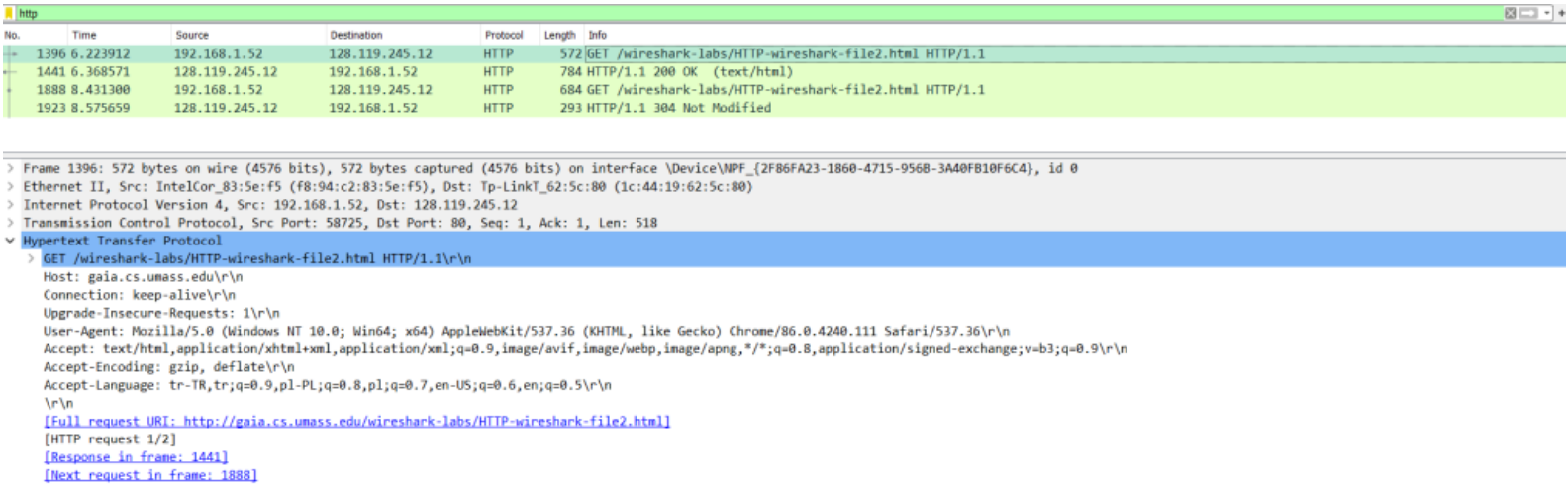
    3. **IP address of our source(our) computer is 192.168.1.52.**

    4. 200 is returned as status code from server to our browser.



    5. This HTML file was modified on 22 Oct 2020 at the server.
    6. 128 bytes of content are being returned from gaia.cs.umass.edu server to our browser.
    7. We do not see any other HTTP message in the packet-listing window.

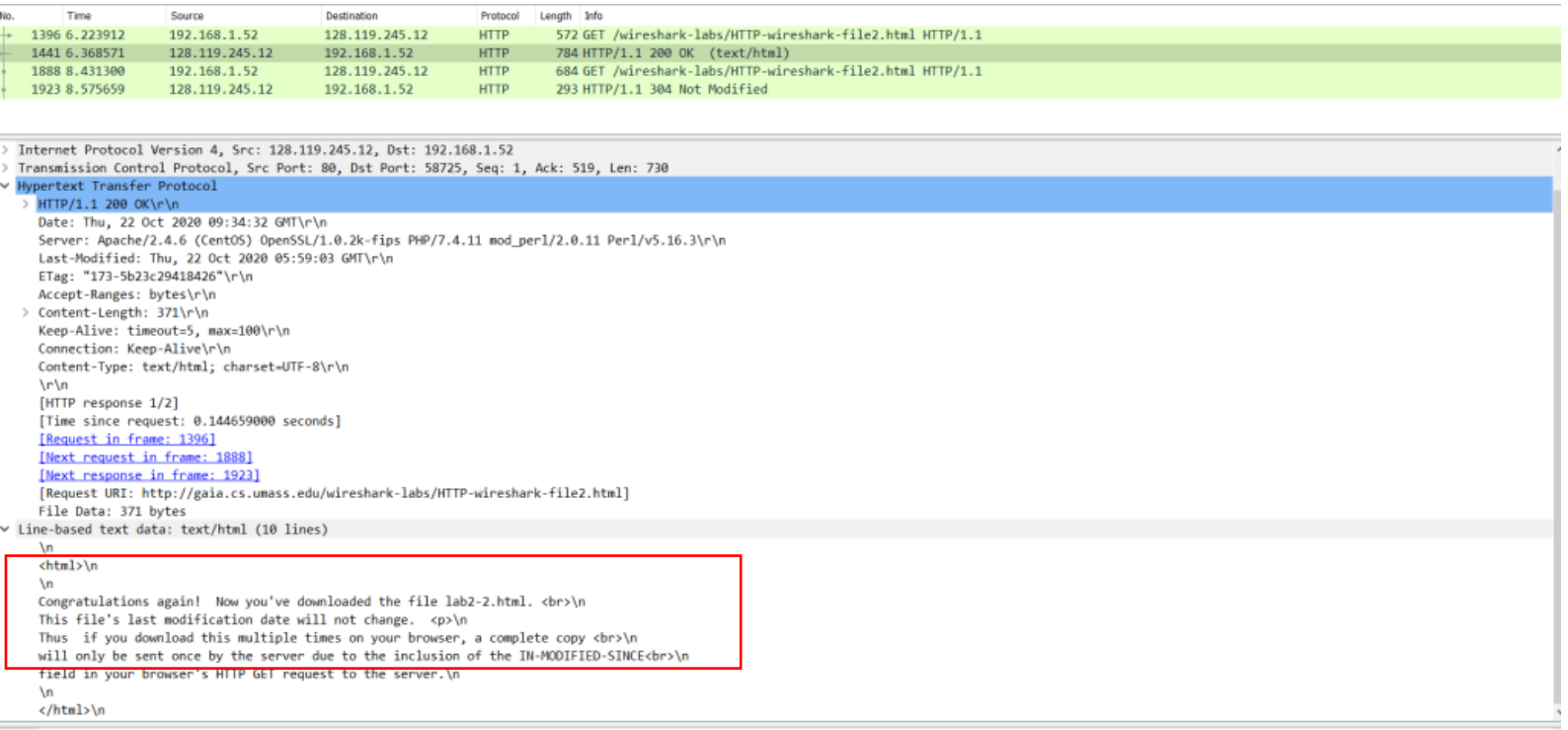
2. The HTTP CONDITIONAL GET/response interaction
    8. There is no IF-MODIFIED-SINCE line in HTTP GET.



```
http
No.     Time       Source          Destination     Protocol  Length  Info
   1396 6.223912   192.168.1.52    128.119.245.12  HTTP         572  GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
   1441 6.368571   128.119.245.12  192.168.1.52    HTTP         784  HTTP/1.1 200 OK  (text/html)
   1888 8.431300   192.168.1.52    128.119.245.12  HTTP         684  GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
   1923 8.575659   128.119.245.12  192.168.1.52    HTTP         293  HTTP/1.1 304 Not Modified

> Frame 1396: 572 bytes on wire (4576 bits), 572 bytes captured (4576 bits) on interface \Device\NPF_{2F86FA23-1860-4715-956B-3A40FB10F6C4}, id 0
> Ethernet II, Src: IntelCor_83:5e:f5 (f8:94:c2:83:5e:f5), Dst: Tp-LinkT_62:5c:80 (1c:44:19:62:5c:80)
> Internet Protocol Version 4, Src: 192.168.1.52, Dst: 128.119.245.12
> Transmission Control Protocol, Src Port: 58725, Dst Port: 80, Seq: 1, Ack: 1, Len: 518
v Hypertext Transfer Protocol
  > GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1\r\n
    Host: gaia.cs.umass.edu\r\n
    Connection: keep-alive\r\n
    Upgrade-Insecure-Requests: 1\r\n
    User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/86.0.4240.111 Safari/537.36\r\n
    Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9\r\n
    Accept-Encoding: gzip, deflate\r\n
    Accept-Language: tr-TR,tr;q=0.9,pl-PL;q=0.8,pl;q=0.7,en-US;q=0.6,en;q=0.5\r\n
    \r\n
    [Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file2.html]
    [HTTP request 1/2]
    [Response in frame: 1441]
    [Next request in frame: 1888]
```

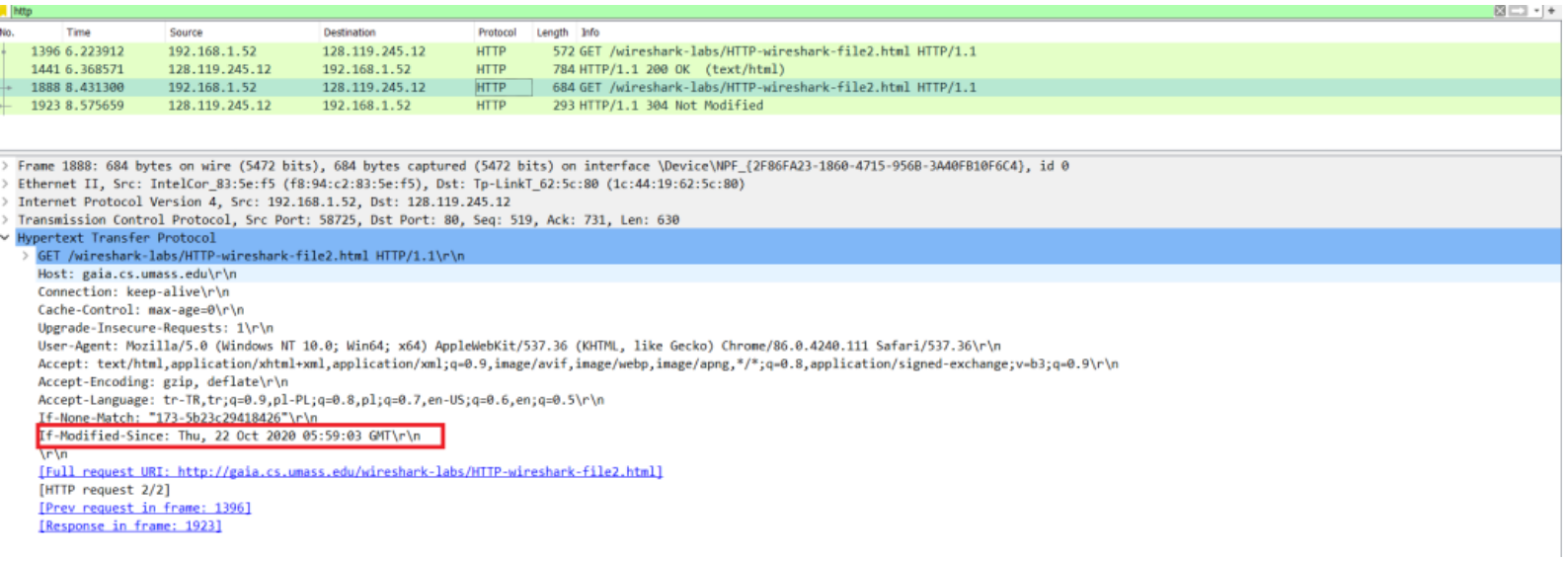
    9. The server responded with the contents of the file to the first GET and we can tell this by the screenshot below



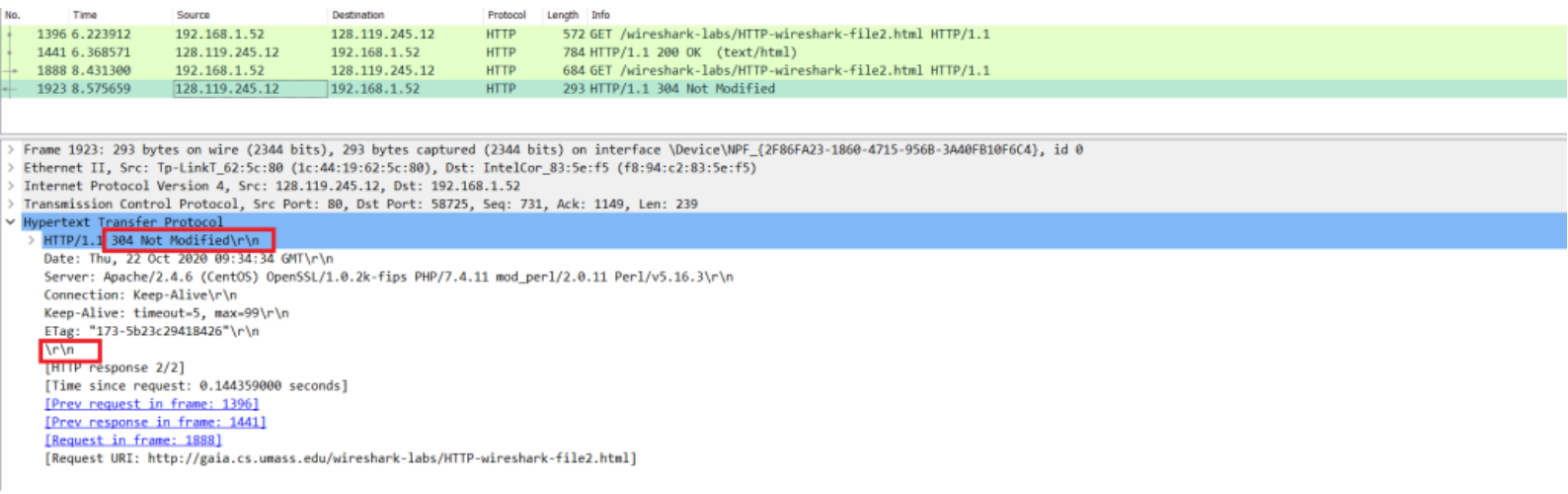
```
No.     Time       Source          Destination     Protocol  Length  Info
   1396 6.223912   192.168.1.52    128.119.245.12  HTTP         572  GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
   1441 6.368571   128.119.245.12  192.168.1.52    HTTP         784  HTTP/1.1 200 OK  (text/html)
   1888 8.431300   192.168.1.52    128.119.245.12  HTTP         684  GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
   1923 8.575659   128.119.245.12  192.168.1.52    HTTP         293  HTTP/1.1 304 Not Modified

> Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.52
> Transmission Control Protocol, Src Port: 80, Dst Port: 58725, Seq: 1, Ack: 519, Len: 730
v Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
    Date: Thu, 22 Oct 2020 09:34:32 GMT\r\n
    Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.11 mod_perl/2.0.11 Perl/v5.16.3\r\n
    Last-Modified: Thu, 22 Oct 2020 05:59:03 GMT\r\n
    ETag: "173-5b23c29418426"\r\n
    Accept-Ranges: bytes\r\n
  > Content-Length: 371\r\n
    Keep-Alive: timeout=5, max=100\r\n
    Connection: Keep-Alive\r\n
    Content-Type: text/html; charset=UTF-8\r\n
    \r\n
    [HTTP response 1/2]
    [Time since request: 0.144659000 seconds]
    [Request in frame: 1396]
    [Next request in frame: 1888]
    [Next response in frame: 1923]
    [Request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file2.html]
    File Data: 371 bytes
v Line-based text data: text/html (10 lines)
    \n
    <html>\n
    \n
    Congratulations again!  Now you've downloaded the file lab2-2.html. <br>\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 <br>\n
    will only be sent once by the server due to the inclusion of the IN-MODIFIED-SINCE<br>\n
    field in your browser's HTTP GET request to the server.\n
    \n
    </html>\n
```

    10. Second GET message has IF-MODIFIED-SINCE line. File is modified in 22 Oct 2020. It can be seen in screenshot below.

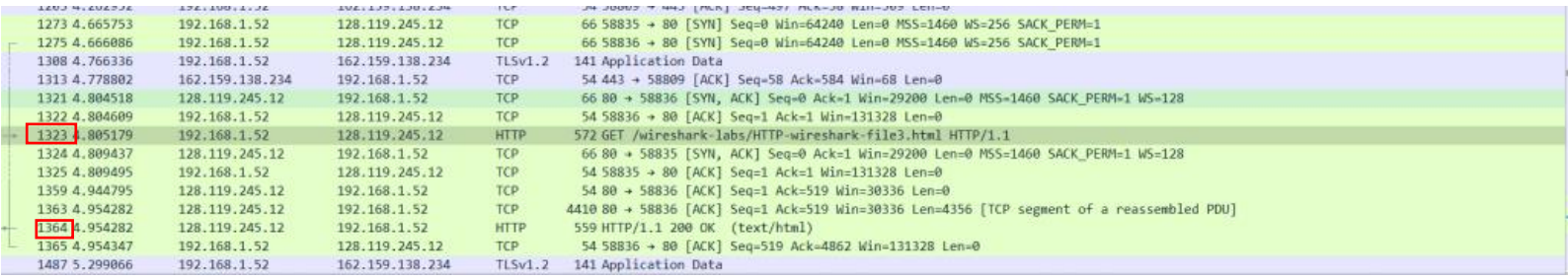


11. The file has not been modified. So, the text is not returned in HTTP message. We can tell this by the following screenshot.

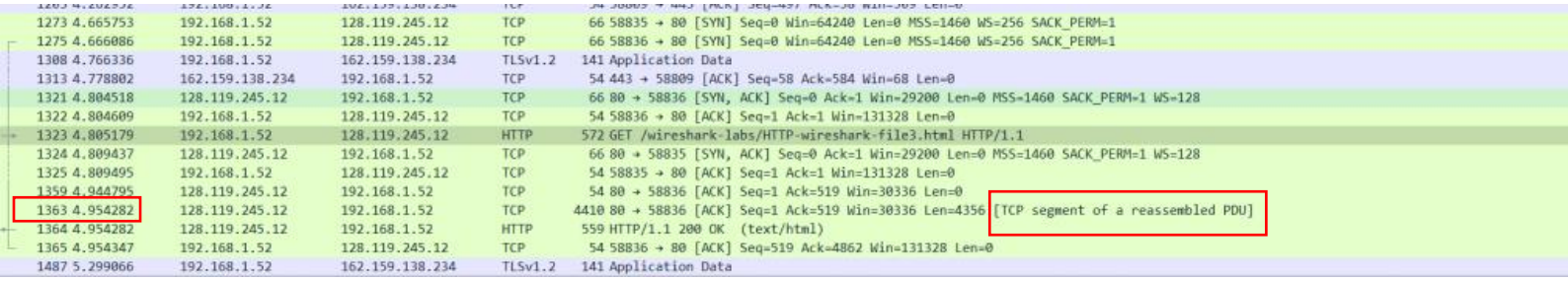


3. Retrieving Long Documents

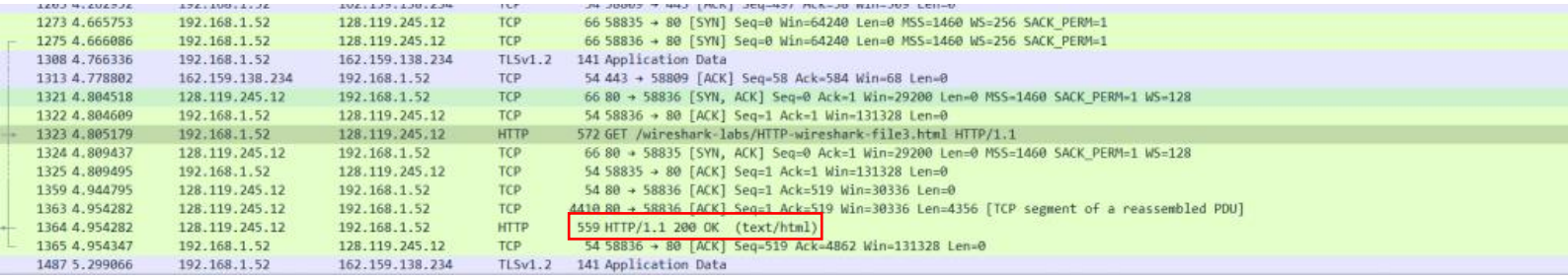
12. Since the document is so long, HTTP is divided into TCP packets. Only 1 GET request message is sent from our browser. GET message is on packet 1323. OK message is on packet 1364.



13. Packet 1363.



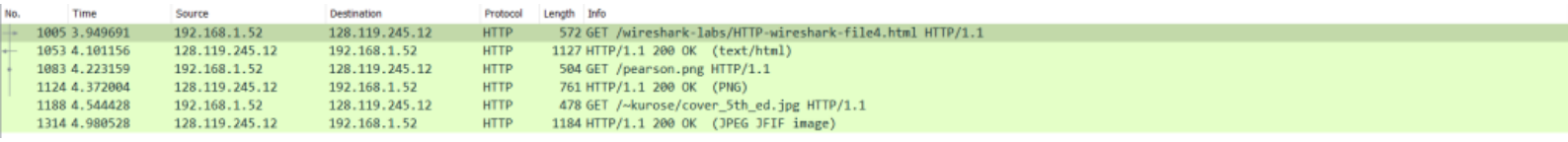
14. 200-OK.



15. There is only one TCP segment. It is in packet 1363.

4. HTML Documents with Embedded Objects

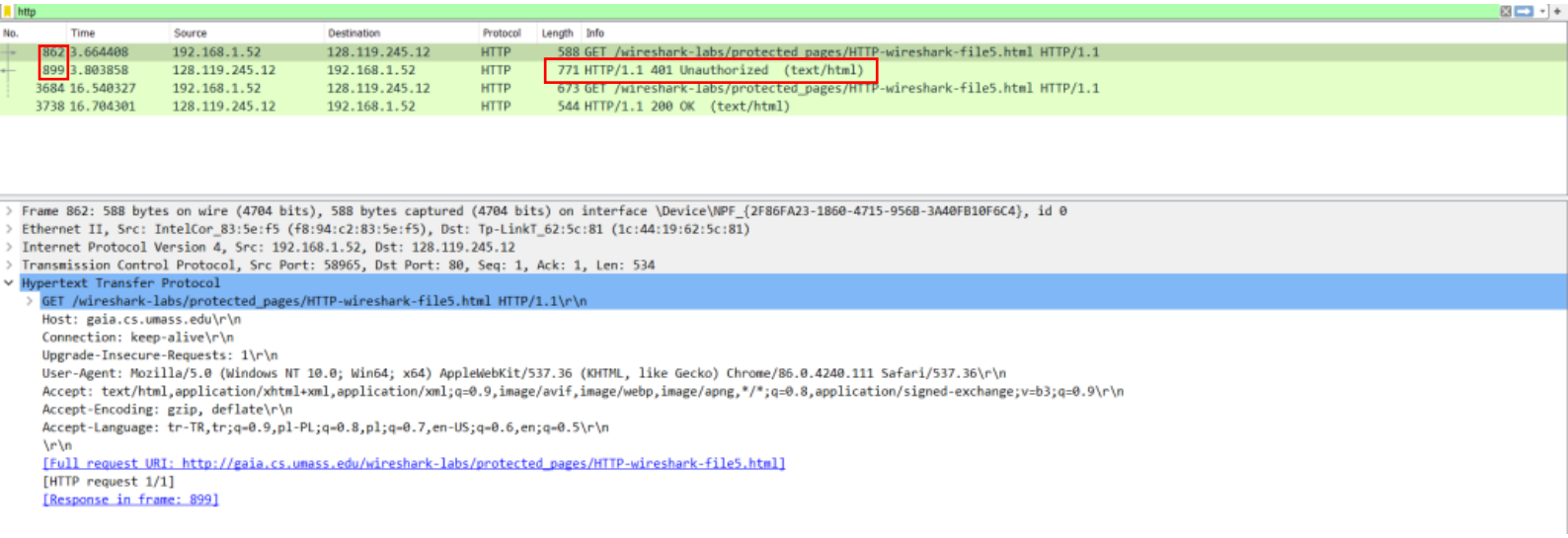
16. Our browser sent 3 HTTP GET messages: packet 1005 - base file -, packet 1083 – Pearson logo - and packet 1188 - textbook cover -. GET message is sent to the same IP addresses so the pictures come from the same server.



17. The images are downloaded serially in our browser. HTTP messages are between the GET messages. First image was requested and sent before the second image, and so on. We can understand this from first images get packet is 1083 and its OK reply is sent on 1124 packet, the second images GET is sent on 1188 packet and it's reply is gotten on 1314 packet so they don't happen simultaneously.

5. HTML Authentication

18. Packet 862 is the GET message, packet 899 is the server's reply message which is Unauthorized. If authorization is needed on a page, 401 unauthorized message is returned after the first get and then after filling the necessary areas like passwords the get message is sent a second time and if the authorized is correct then OK message is displayed.



19. The new message is *Authorization: Basic*