Report for Computer Networks Project

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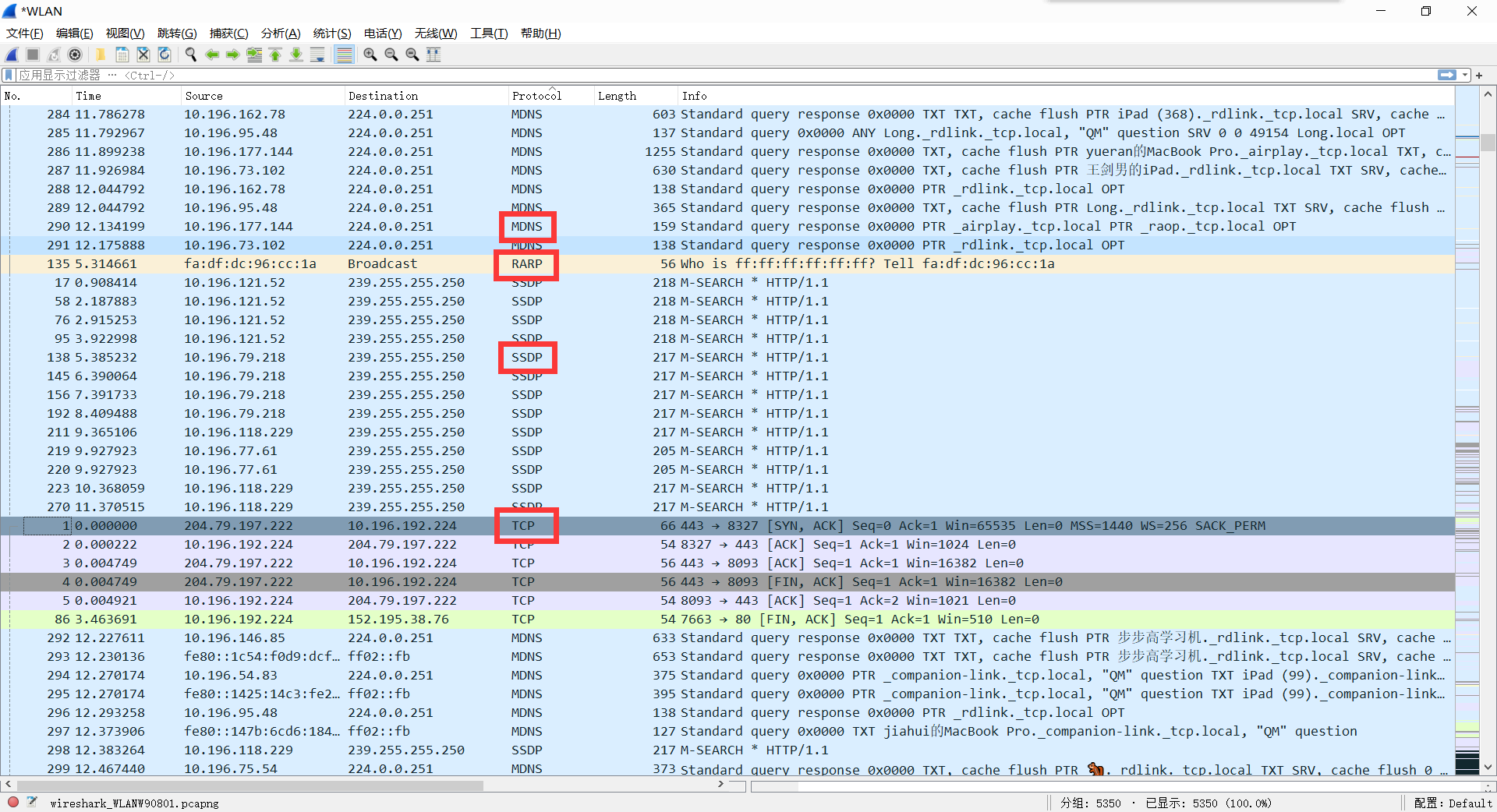
Project Number: #1

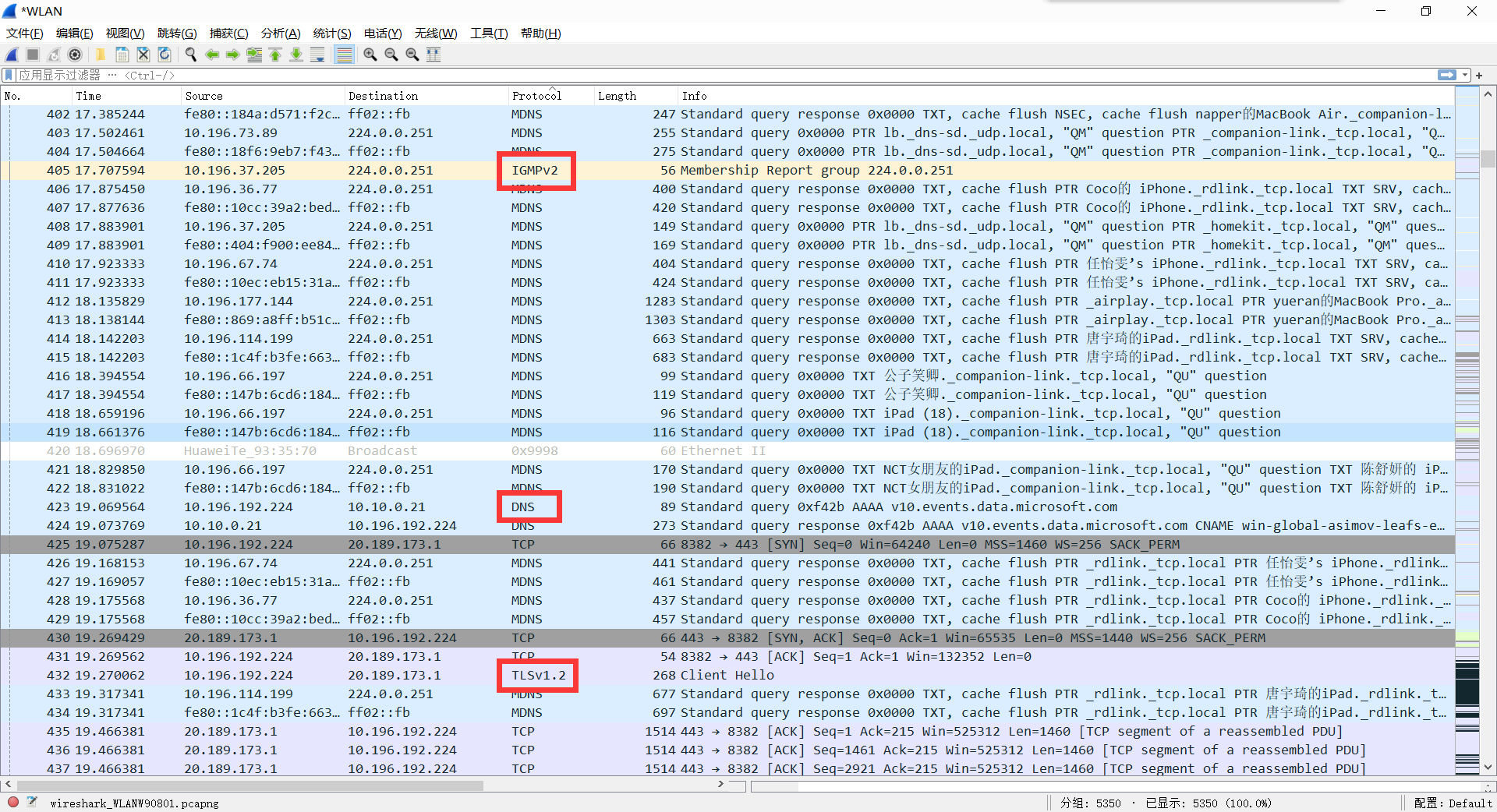
Date: 2023.3.6

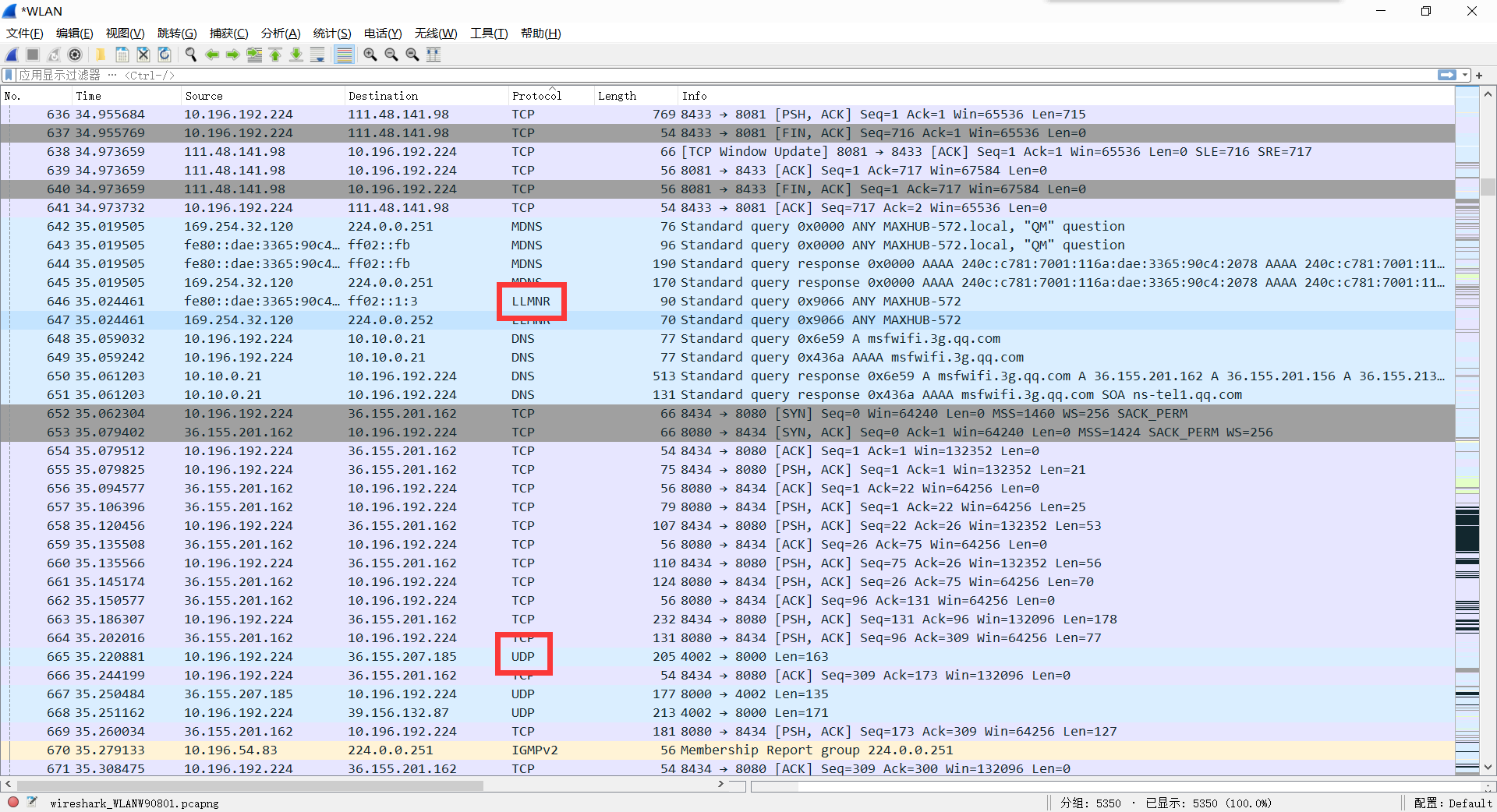
**Part A**

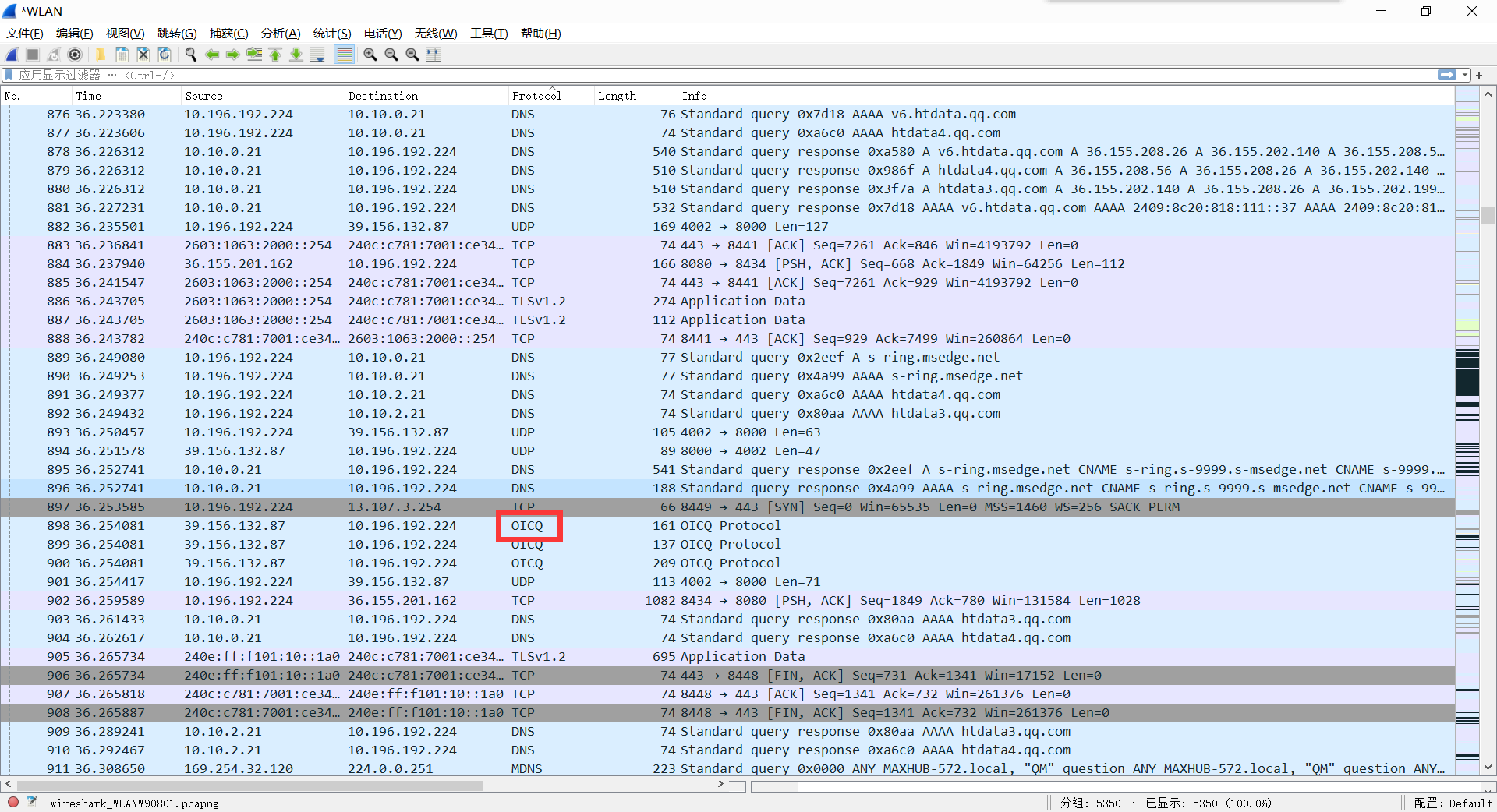
**1.List up to 10 different protocols that appear in the protocol column in the unfiltered packet-listing window in step 7 above.**

Here are the protocols we see: TLSv1.2, TCP, SSDP, RARP, MDNS, LLMNR, IGMPv2, OICQ, UDP, DNS.



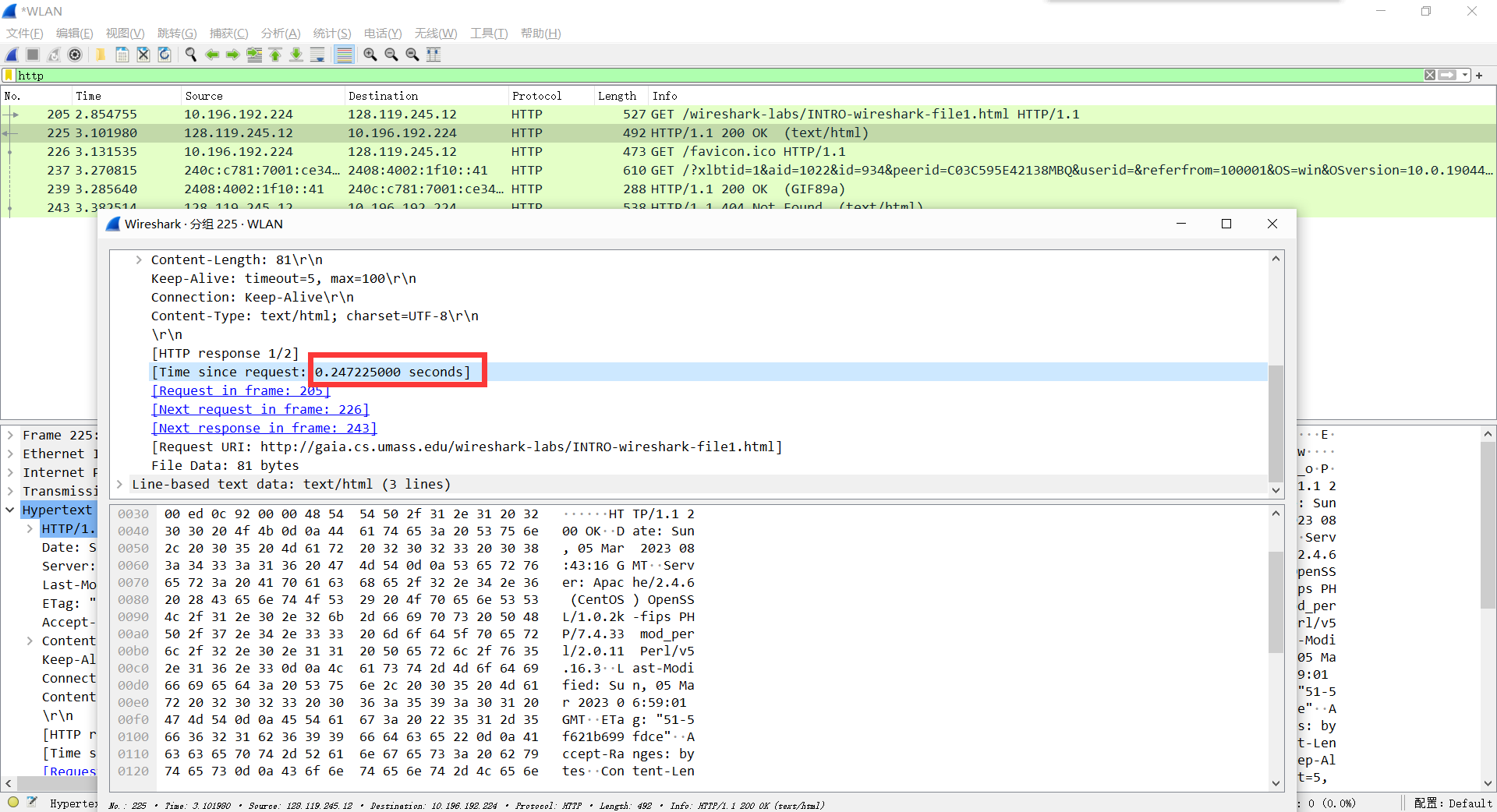




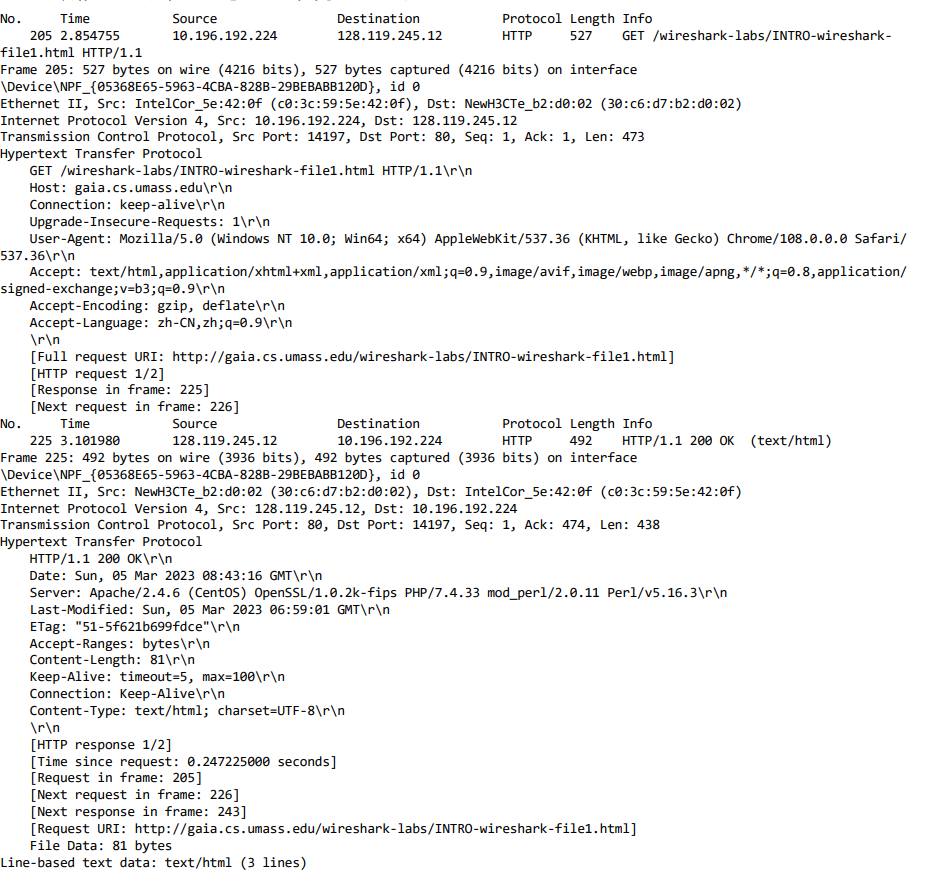


**2. How long did it take from when the HTTP GET message was sent until the HTTP OK reply was received? (By default, the value of the Time column in the packet-listing window is the amount of time, in seconds, since Wireshark tracing began. To display the Time field in time-of-day format, select the Wireshark View pull down menu, then select Time Display Format, then select Time-of-day.)**

It took 0.247225000 seconds.

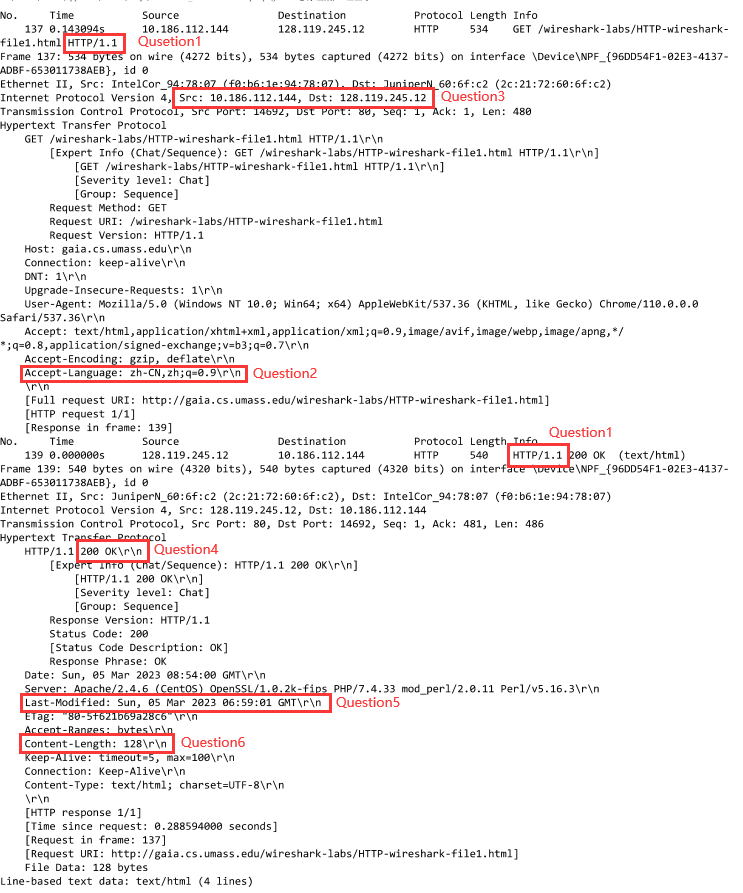


**3.Print the two HTTP messages displayed above. To do so, select Print from the Wireshark File command menu, and select “Selected Packet Only” and “Print as displayed” and select “output to a file”, and then click OK. Copy the text to your final PDF document for submission.**



**Part B**

1. **The Basic HTTP GET/response interaction**



**1.Is your browser running HTTP version 1.0 or 1.1? What version of HTTP is the server running？**

My browser is running HTTP version 1.1 and the sever is running version 1.1 too.

**2. What languages (if any) does your browser indicate that it can accept to the server?** Accept-Language: zh-CN,zh

**3.What is the IP address of your computer? Of the gaia.cs.umass.edu server?**

My computer : 10.186.112.144

Sever: 128.119.245.12

**4.What is the status code returned from the server to your browser?**

200 OK

**5.When was the HTML file that you are retrieving last modified at the server?**

Last-Modified: Sun, 05 Mar 2023 06:59:01 GMT

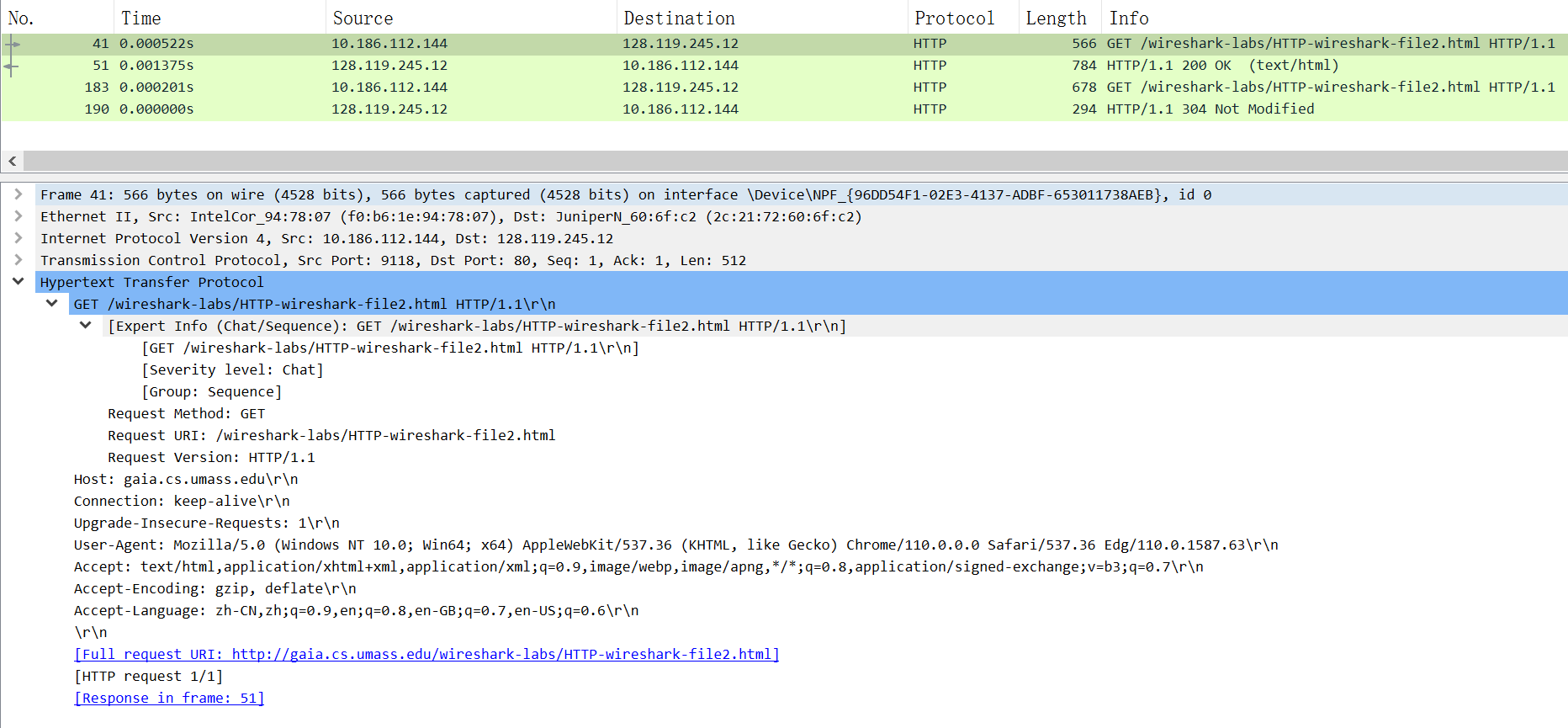
**6.How many bytes of content are being returned to your browser?**

128 bytes

1. **The HTTP CONDITIONAL GET/response interaction**

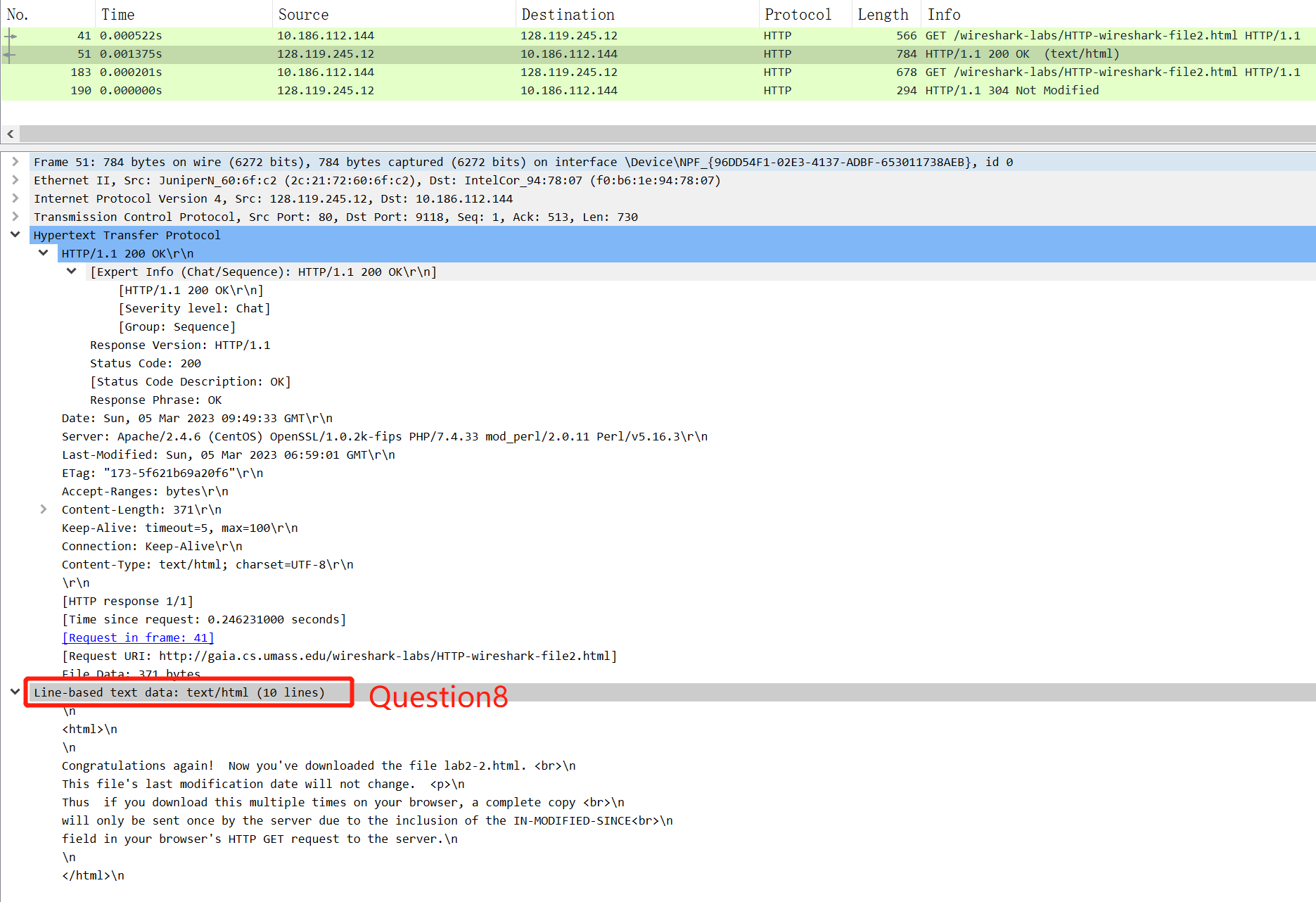
**7.Inspect the contents of the first HTTP GET request from your browser to the server. Do you see an “IF-MODIFIED-SINCE” line in the HTTP GET?**

No, there is no “IF-MODIFIED-SINCE” line in the HTTP GET.



**8.Inspect the contents of the server response. Did the server explicitly return the contents of the file? How can you tell?**Yes.

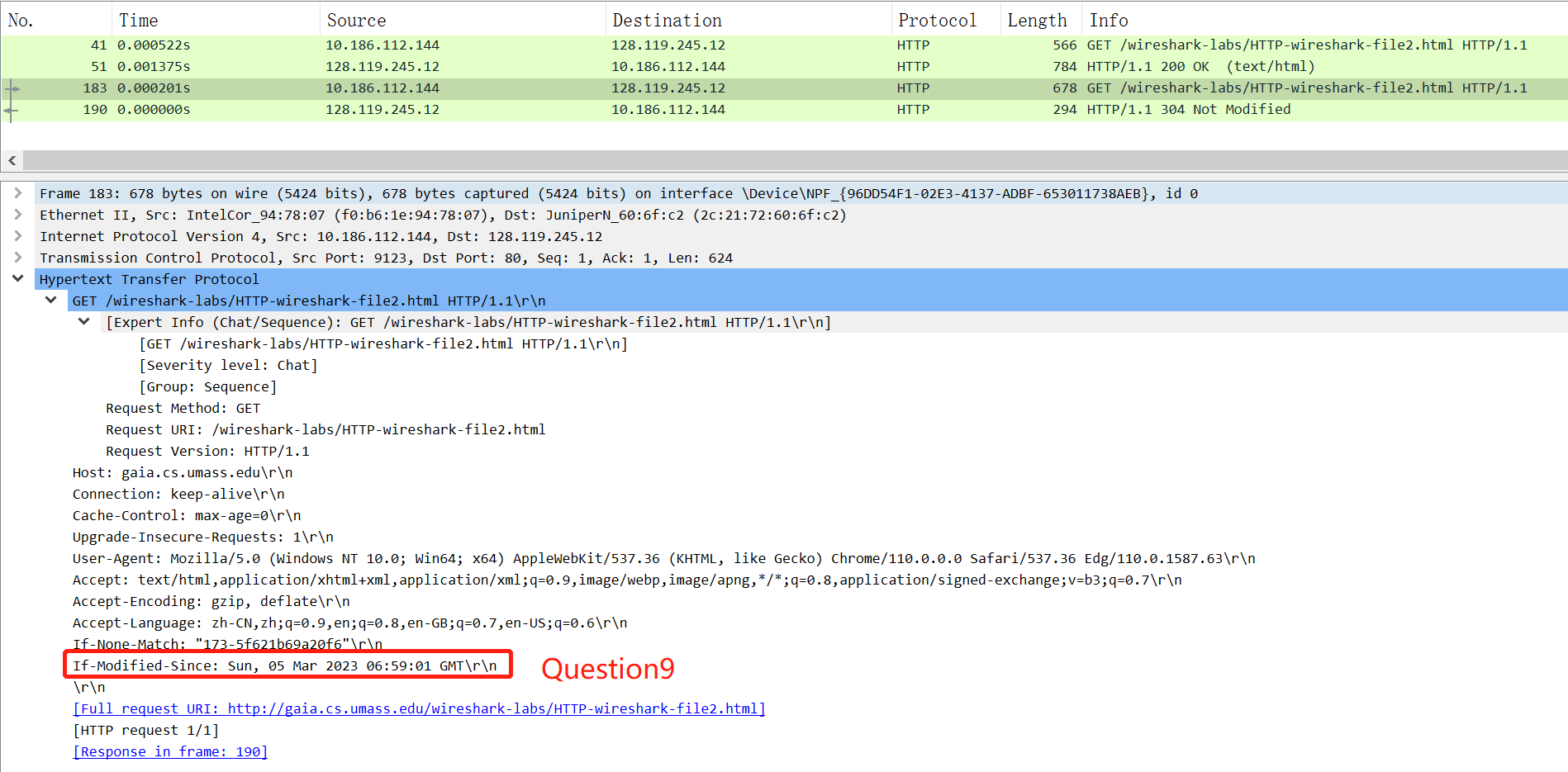
Line-based text data: text/html (10 lines)



**9.Now inspect the contents of the second HTTP GET request from your browser to the server. Do you see an “IF-MODIFIED-SINCE:” line in the HTTP GET? If so, what information follows the “IF-MODIFIEDSINCE:” header?**

Yes.

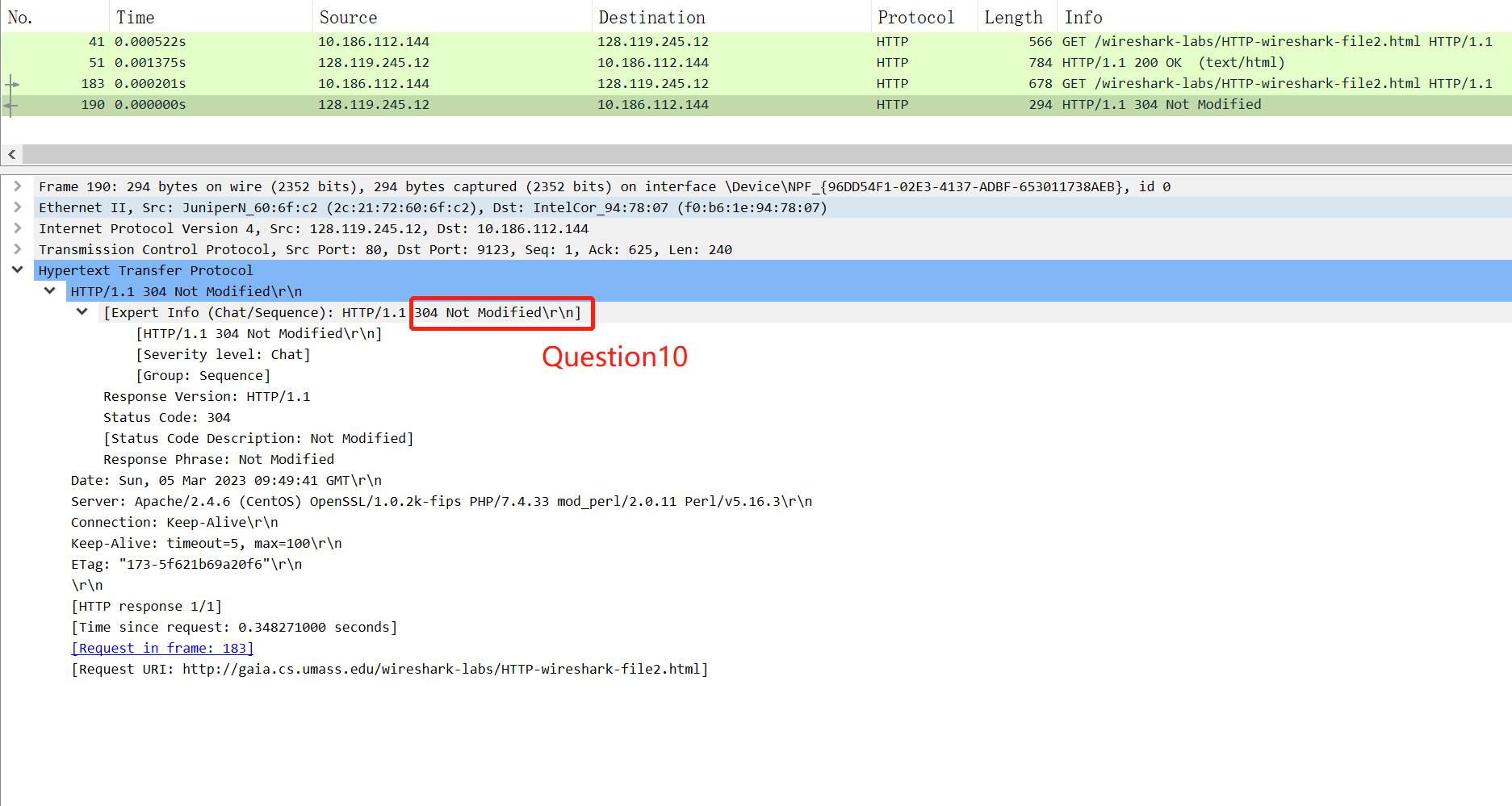
If-Modified-Since: Sun, 05 Mar 2023 06:59:01 GMT\r\n



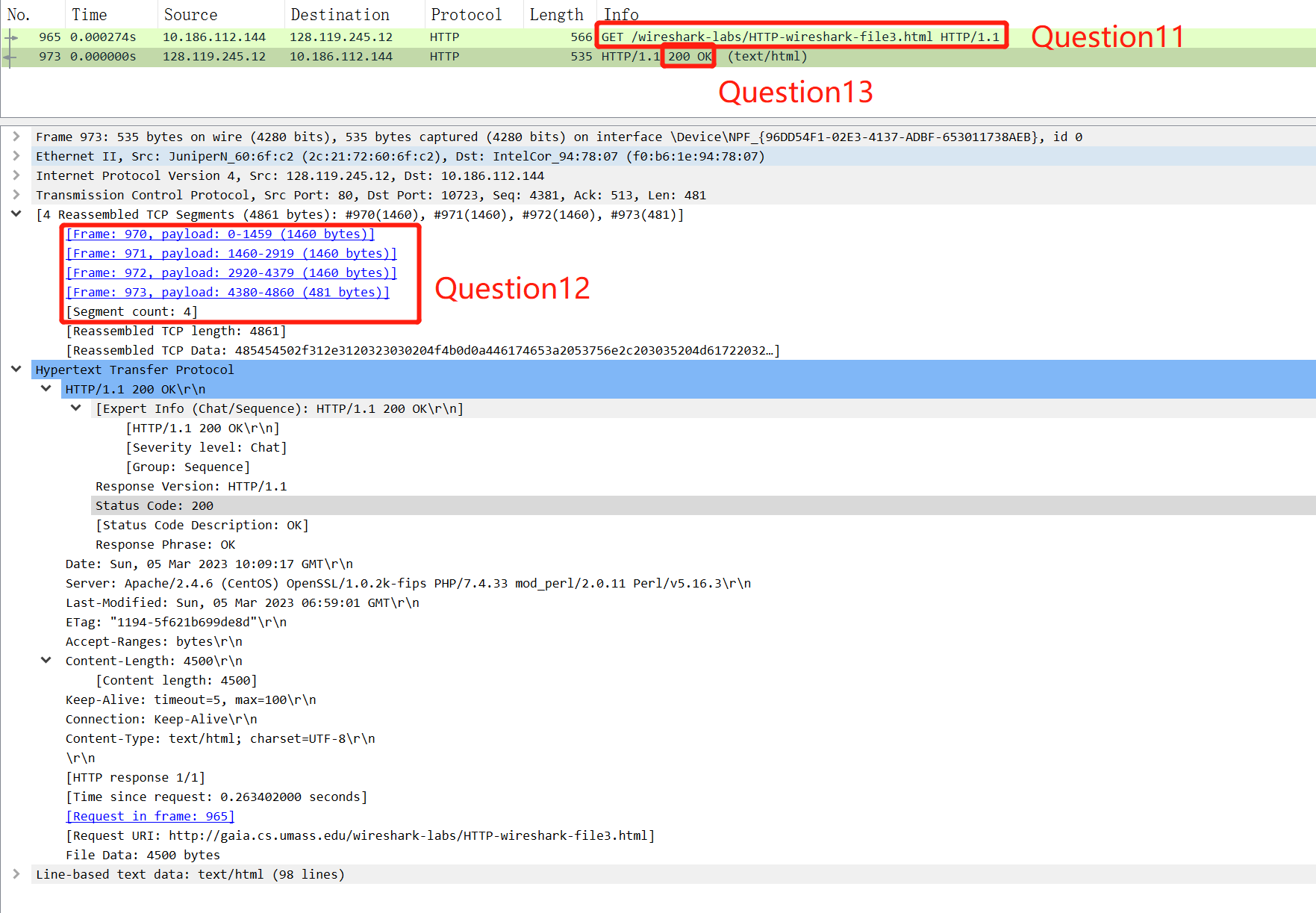
**10.What is the HTTP status code and phrase returned from the server in response to this second HTTP GET? Did the server explicitly return the contents of the file? Explain.**

304 Not Modified

After our browser has cached the information on this page, it is not sure if the current cache is up to date. So, when we visit the site again, we will check the last-modified value of the last time to make sure the information in our browser is up to date. If it is the latest, it will return 304 Not Modified, which means that our current one is the latest, and the browser can just read it from the cache, so there is no need to send the page information again. If it is not the latest, the processing method is the same as the first visit to the page. The server will send the latest web page information to the client, and the status code is 200 OK



1. **Retrieving Long Documents**



**11.How many HTTP GET request messages were sent by your browser?**

One.

**12.How many data-containing TCP segments were needed to carry the single HTTP response?**

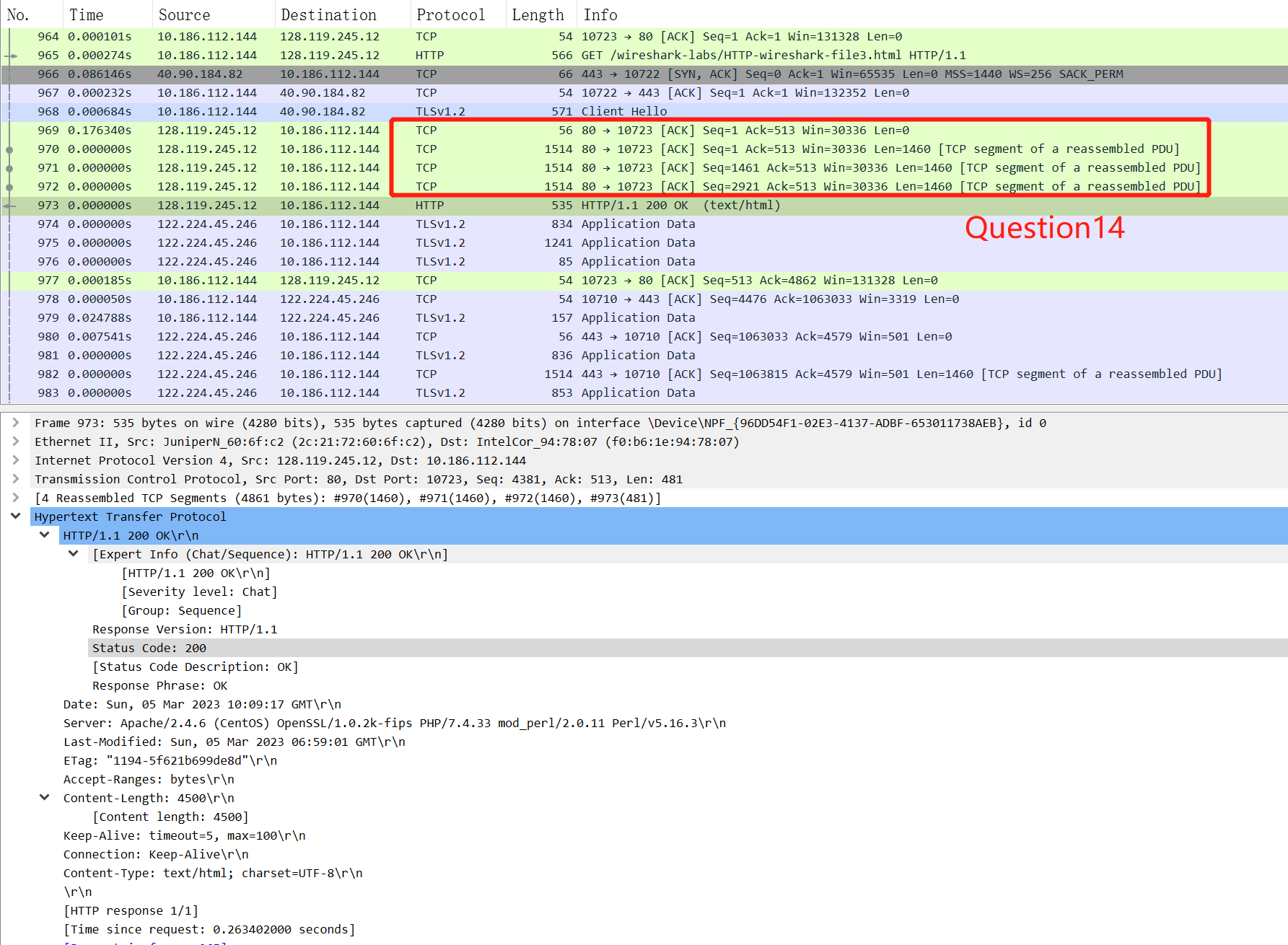
Four, as shown in the screenshot above.

**13.What is the status code and phrase associated with the response to the HTTP GET request?**

200 OK

**14.Are there any HTTP status lines in the transmitted data associated with a TCP-induced “Continuation”?**

Yes, as shown in the screenshot below.



1. **HTML Documents with Embedded Objects**

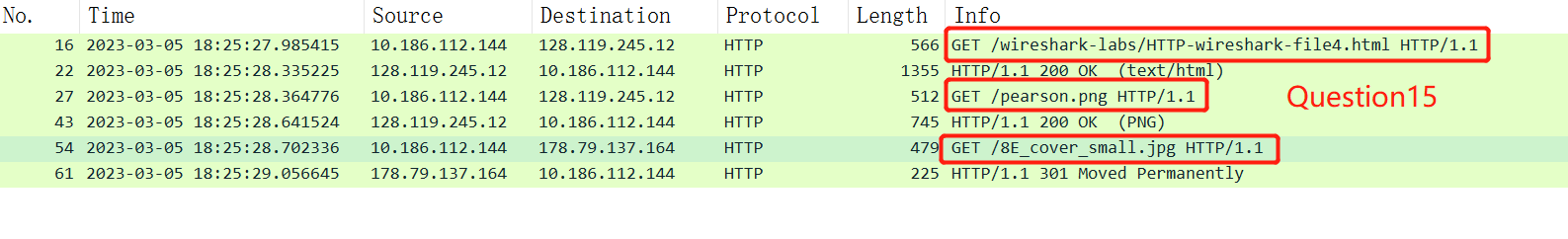
**15.How many HTTP GET request messages were sent by your browser? To which Internet addresses (IP addresses) were these GET requests sent?**

Three.

Destination Address: 128.119.245.12

Destination Address: 128.119.245.12

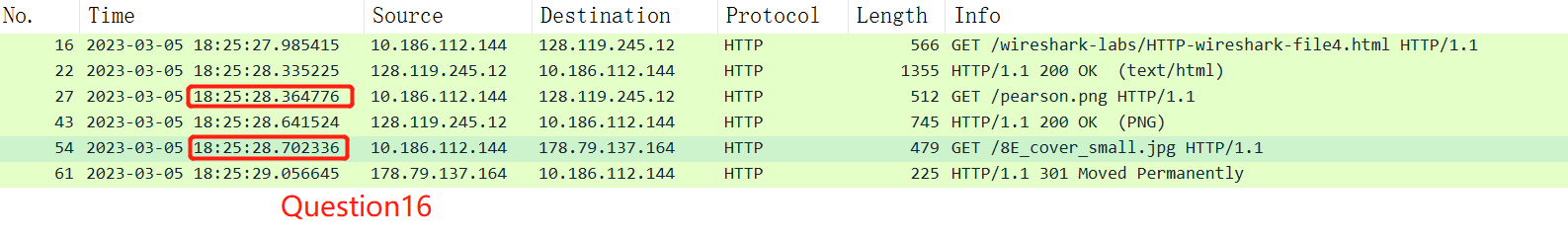
Destination Address: 178.79.137.164



**16.Can you tell whether your browser downloaded the two images serially, or whether they were downloaded from the two web sites in parallel? Explain.**

The browser downloaded the two images serially.

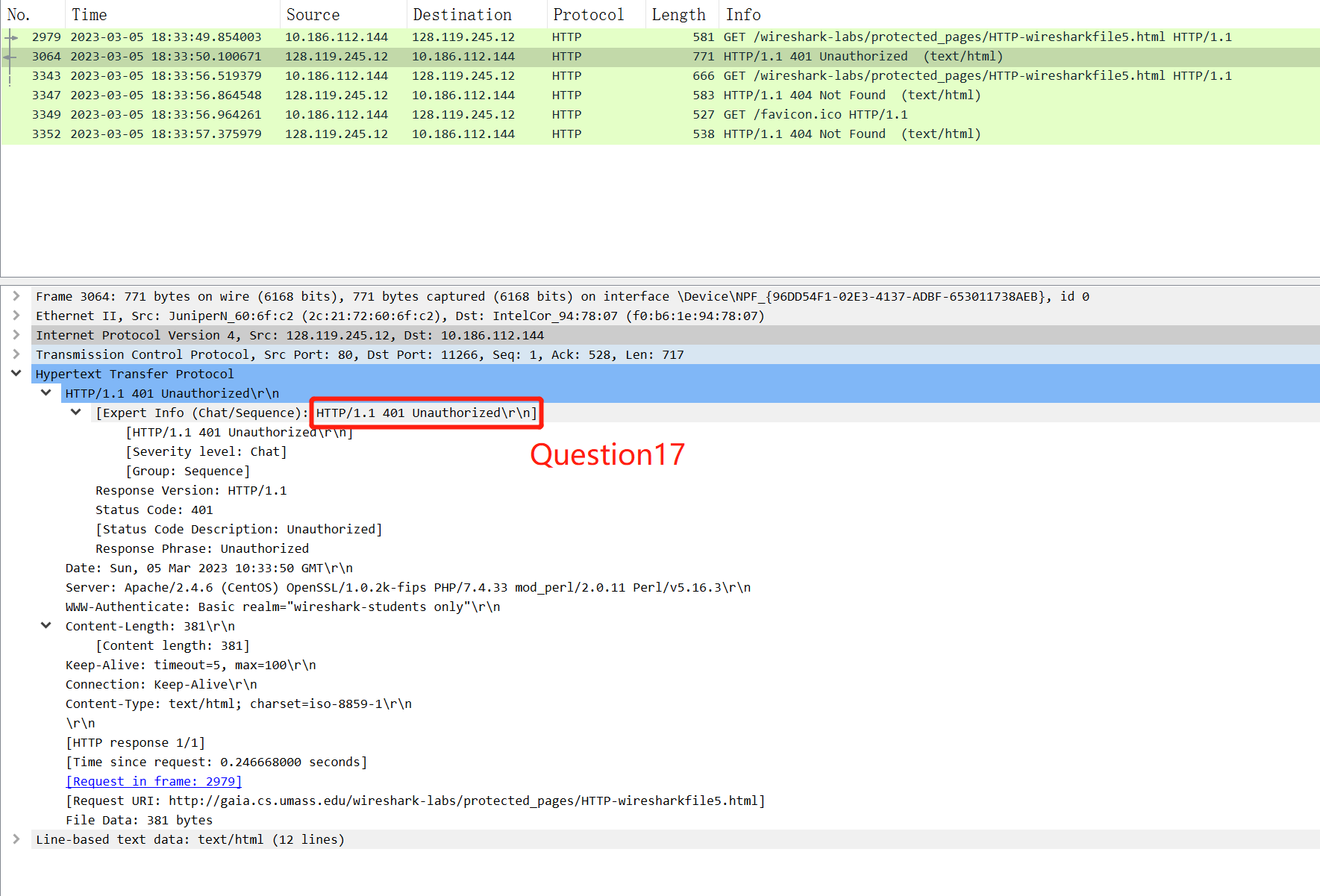
Because the two images are requested consecutively, and by the time it is seen to wait until the first image request is answered before continuing with the second image request.



1. **HTTP Authentication**

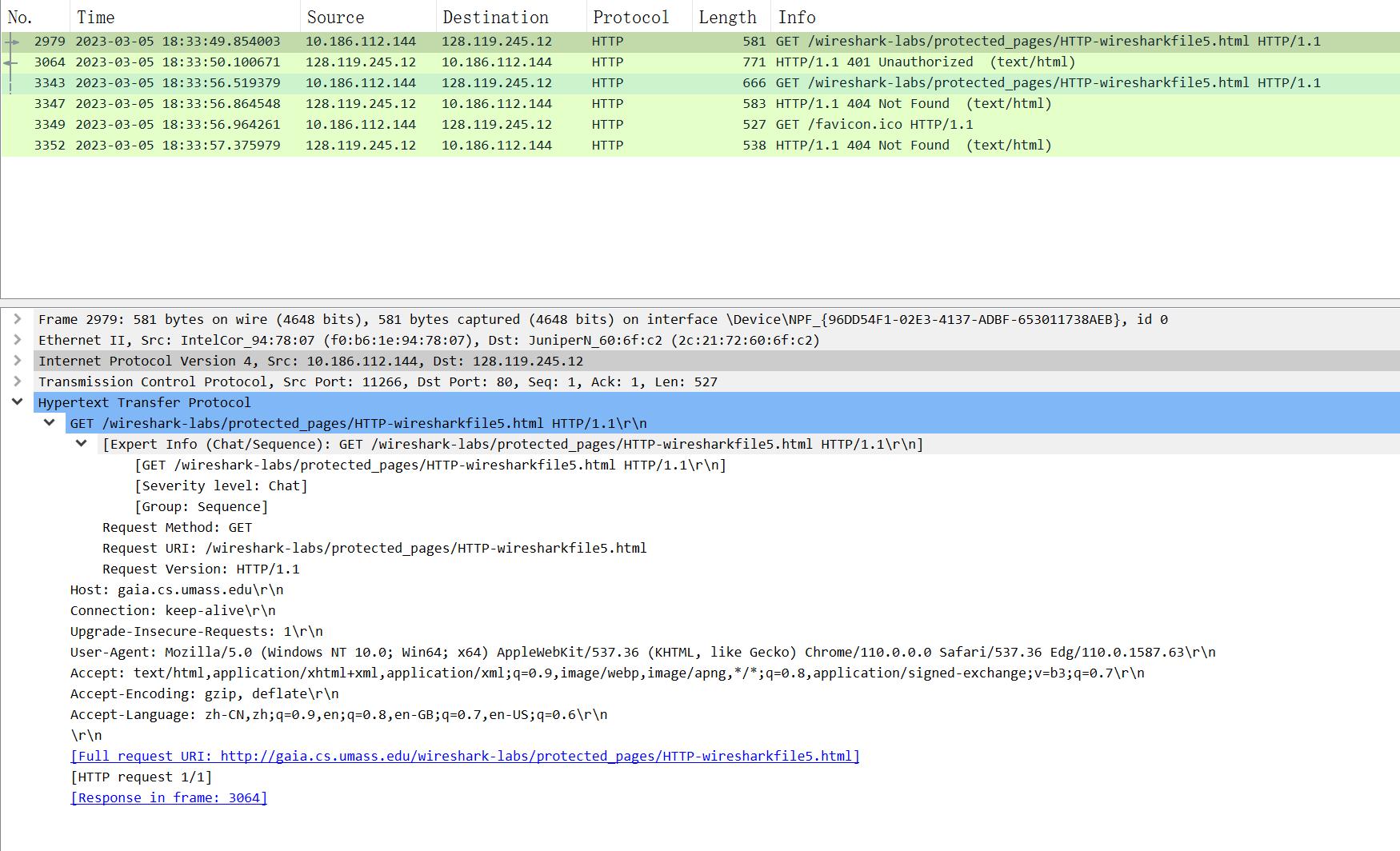
**17.What is the server’s response (status code and phrase) in response to the initial HTTP GET message from your browser?**

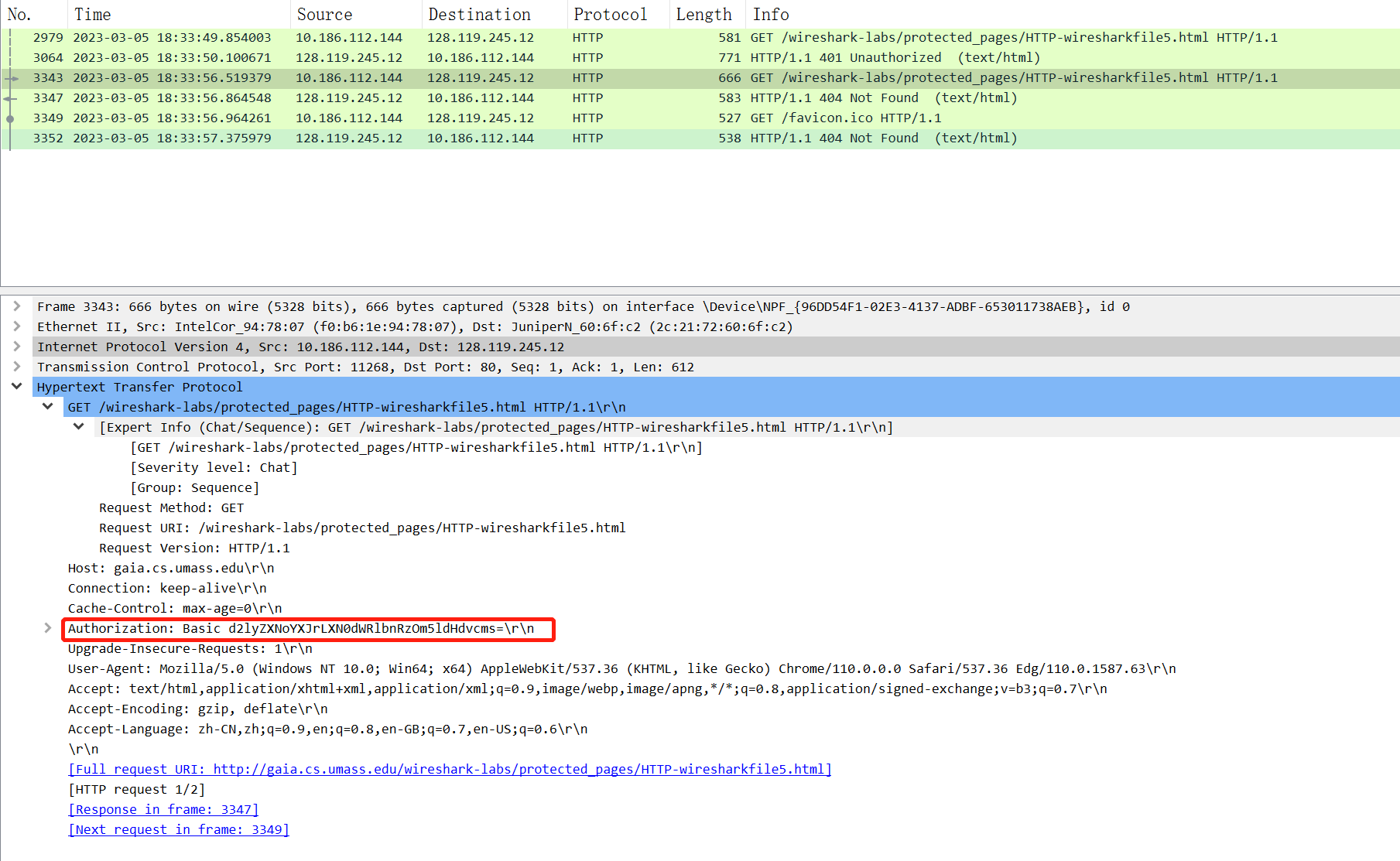
401 Unauthorized



**18.When your browser’s sends the HTTP GET message for the second time, what new field is included in the HTTP GET message?**

First:

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Second:

New：

Authorization: Basic d2lyZXNoYXJrLXN0dWRlbnRzOm5ldHdvcms=\r\n

Credentials: wireshark-students:network