CS4392/5376: Computer Networks/Communication Networks

Summer II 2021

Homework #1

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• Release date: June 7th, 2021 (Wednesday)

• Due date: July 13th, 2021 (Tuesday) before midnight, 11:59 PM

• It should be done INDIVIDUALLY; Show ALL your work; Write your answer in a Word file and

submit it through the Blackboard; You can screen capture for print.

• Total: 25 pts

1. Read “Wireshark Lab: Getting Started”, install Wireshark (https://www.wireshark.org/), and follow 10

steps shown in the section “Taking Wireshark for a Test Run”. Answer four questions shown in the

section “What to hand in”.

[5 pts]

1. List 3 different protocols that appear in the protocol column in the unfiltered

packet-listing window in step 7 above.

Answer:

* STP
* TCP
* UDP

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 packetlisting

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.)

Answer:

It took 0.058 seconds

3. What is the Internet address of the gaia.cs.umass.edu (also known as wwwnet.

cs.umass.edu)? What is the Internet address of your computer?

Answer:

The internet address of the gaia.cs.umass.edu is 128.119.245.12

The internet address of my computer is 100.64.6.91

4. Print the two HTTP messages (GET and OK) referred to in question 2 above. To

do so, select Print from the Wireshark File command menu, and select the

“Selected Packet Only” and “Print as displayed” radial buttons, and then click

OK.

Answer:

I tried but the print not working on my computer.

Graphical user interface, application

Description automatically generated

2. Read “Wireshark Lab: HTTP” and answer 19 questions.

[20 pts]

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

server running?

Answer:

HTTP 1.1

2. What languages (if any) does your browser indicate that it can accept to the

server?

Answer:

En-US and zh-CN

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

Answer:

Mine:100.64.6.91

Gaia.cs.umass.edu:128.119.245.12

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

Answer:

Status code:200

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

Answer:

Tue, 13 Jul 2021 05:59:01 GMT

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

Answer:

128

7. By inspecting the raw data in the packet content window, do you see any headers

within the data that are not displayed in the packet-listing window? If so, name

one.

Answer:

No, the raw data appears to match up the packet-listing window.

8. 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?

Answer:

No

9. Inspect the contents of the server response. Did the server explicitly return the

contents of the file? How can you tell?

Answer:

Yes, In Line-based text data, it shows the content as below:

Graphical user interface, text, application

Description automatically generated

10. 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-MODIFIED-SINCE:” header?

Answer:

Yes. 

11. 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.

Answer:

We got a HTTP 1.1 304 Not Modified Response. This is much shorter than the full response packet seen previously.

Text

Description automatically generated

12. How many HTTP GET request messages did your browser send? Which packet

number in the trace contains the GET message for the Bill or Rights?

Answer:

Only one. The packet number is 470.

Graphical user interface, text, application, email

Description automatically generated

13. Which packet number in the trace contains the status code and phrase associated

with the response to the HTTP GET request?

Answer:

Same to the screenshot above, the packet number of the response from server is 490.

14. What is the status code and phrase in the response?

Answer:

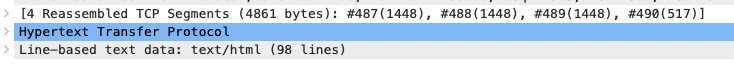
The code and phrase in the response is 200 OK

15. How many data-containing TCP segments were needed to carry the single HTTP

response and the text of the Bill of Rights?

Answer:

4 TCP segments as follow:



16. How many HTTP GET request messages did your browser send? To which

Internet addresses were these GET requests sent?

Answer:

There are 4 HTTP GET request and the internet addresses are in screenshot:

Table

Description automatically generated

17. Can you tell whether your browser downloaded the two images serially, or

whether they were downloaded from the two web sites in parallel? Explain.

Answer:

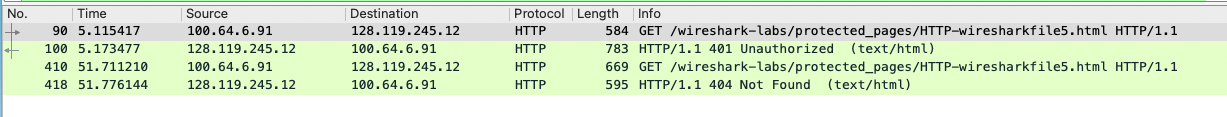
The browser downloaded the two images in serially because based on the above screenshot, the second picture download request was sending right after we got the first 200 OK of the first image.

18. What is the server’s response (status code and phrase) in response to the initial

HTTP GET message from your browser?

Answer:

The server initial responses was 401 Authentication Required



19. When your browser’s sends the HTTP GET message for the second time, what

new field is included in the HTTP GET message?

Answer:

In the second HTTP GET, there is a Authorization field as follow:

Graphical user interface, text, application

Description automatically generated