

MPCS 54001, Winter 2021

Lab 2 - Solutions

Due: January 22 at 11:59 pm

Submit your assignment to Gradescope. If you need help, post questions to Ed Discussion. As a reminder, if you make a public post on Ed Discussion, please don't give away the answer! Please submit one pdf per group, answering the questions which appear on the last page. Gradescope will allow you to submit one pdf and add all group members to it after submitting.

Most of the grading for this assignment is checking the questions against the printout (or screen capture) that was submitted with the lab.

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?

[Check this against the printout. It should be 1.1.](#)

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

[Check this against the printout. At a minimum it should include US English.](#)

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

[Check this against the printout.](#)

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

[Check this against the printout. It should be 200.](#)

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

[Check this against the printout.](#)

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

[Check this against the printout.](#)

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.

[Check this against the printout. There should be many.](#)

The HTTP CONDITIONAL GET/Response Interaction

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?

[Check this against the printout. There should not be one there.](#)

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

[Check this against the printout. The server should return the contents, which you can tell from text returned in response to first GET.](#)

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?

[Check this against the printout. There should be an IF-MODIFIED-SINCE. It should match the last modified time returned for the first GET request.](#)

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.

[Check this against the printout. This should be a "304 Not Modified" and the server did not send the file.](#)

Retrieving Long Documents

12. How many HTTP GET request messages did your browser send? Which packet number in the trace contains the GET message for the Bill of Rights?

Check this against the printout. This will vary from answer to answer. The packet numbers are in the left-most column.

13. Which packet number in the trace contains the status code and phrase associated with the response to the HTTP GET request?

Check this against the printout.

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

Check this against the printout. It should be 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?

Check this against the printout.

HTML Documents with Embedded Objects

16. How many HTTP GET request messages did your browser send? To which Internet addresses were these GET requests sent?

Check this against the printout. There should be three; one for the base file, one to get the publisher logo, and one to get the textbook cover.

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.

Check this against the printout. You can tell from the packet numbers for the requests. Was the request for the second image made before the first image file was received?

HTTP Authentication

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

[Check this against the printout. It should be 401 Authorization 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?

[Check this against the printout. The GET should include the "Authorization: Basic:" field.](#)