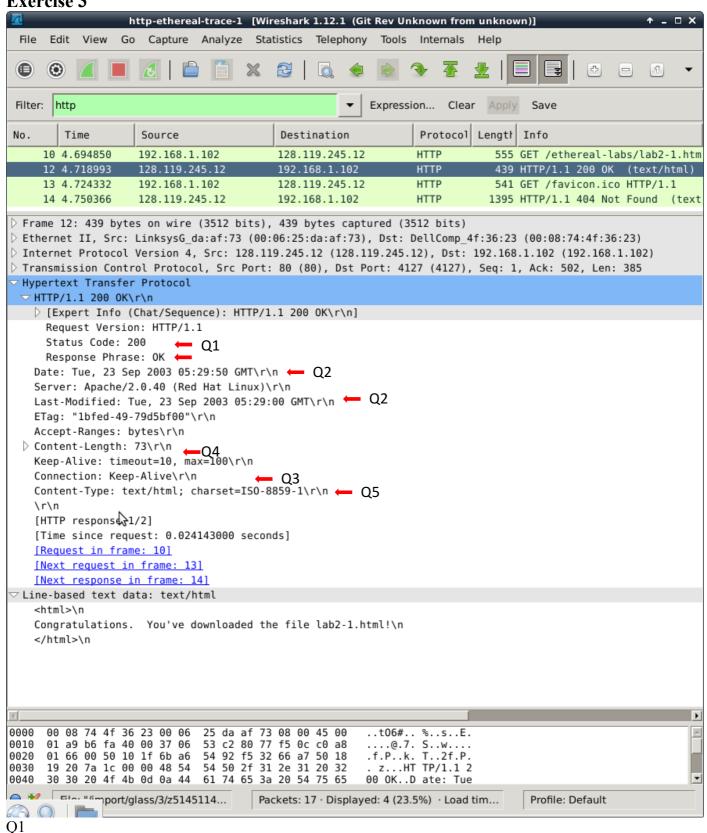
COMP9331 Lab2

Xiaodan Wang Z5145114

Exercise 3



status: 200 phrase: OK

Q2

last modified: Tue, 23 Sep 2003 05:29:00 GMT

date header: Tue, 23 Sep 2003 05:29:50 GMT

The different of two fields is that last-modified shows the latest time of html modified in server as well as date header is the time of response sent. They may be same or date header is later than last-modified.

O3

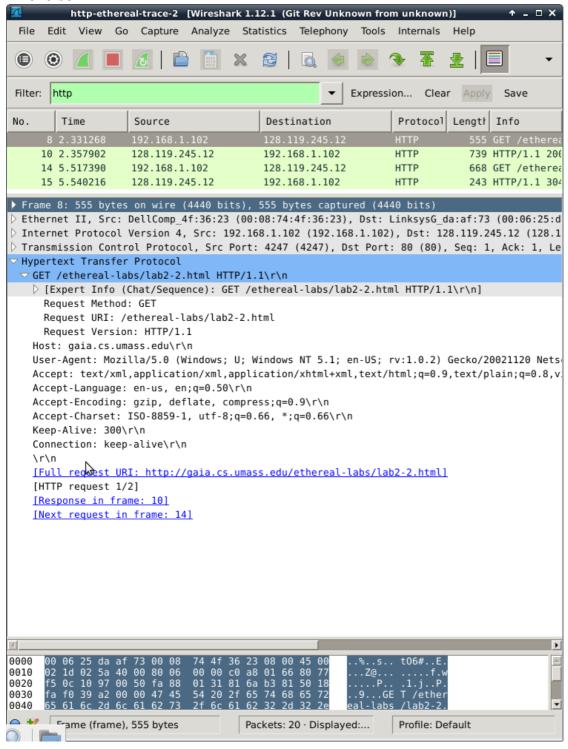
The connection between the browser and the server is persistent.

The connection is kept alive, means that the server keep connection open after sending response.

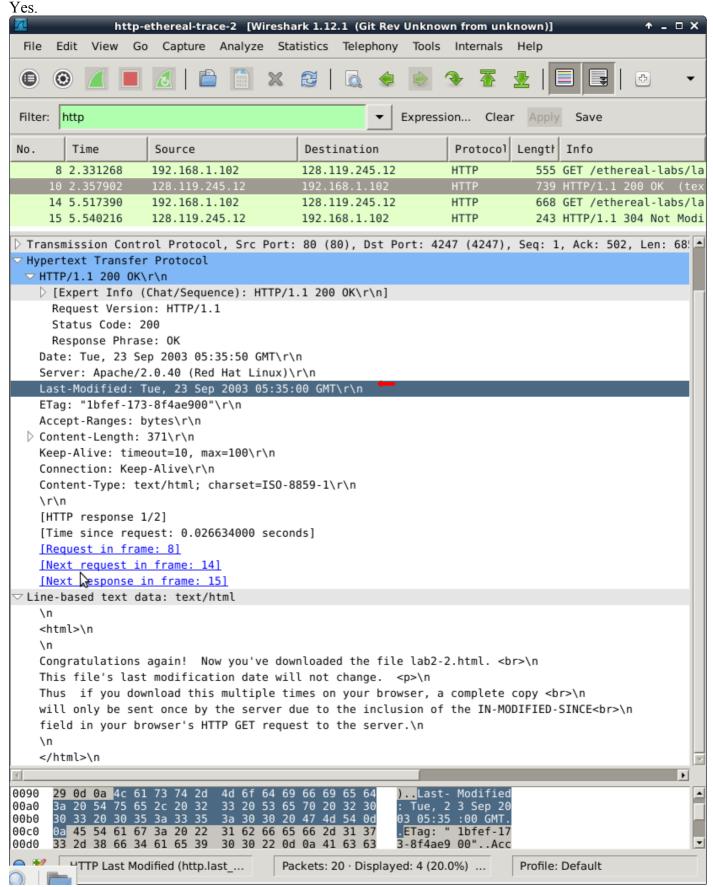
Q4 73 bytes

Q5 text/html

Exercise 4



Q2

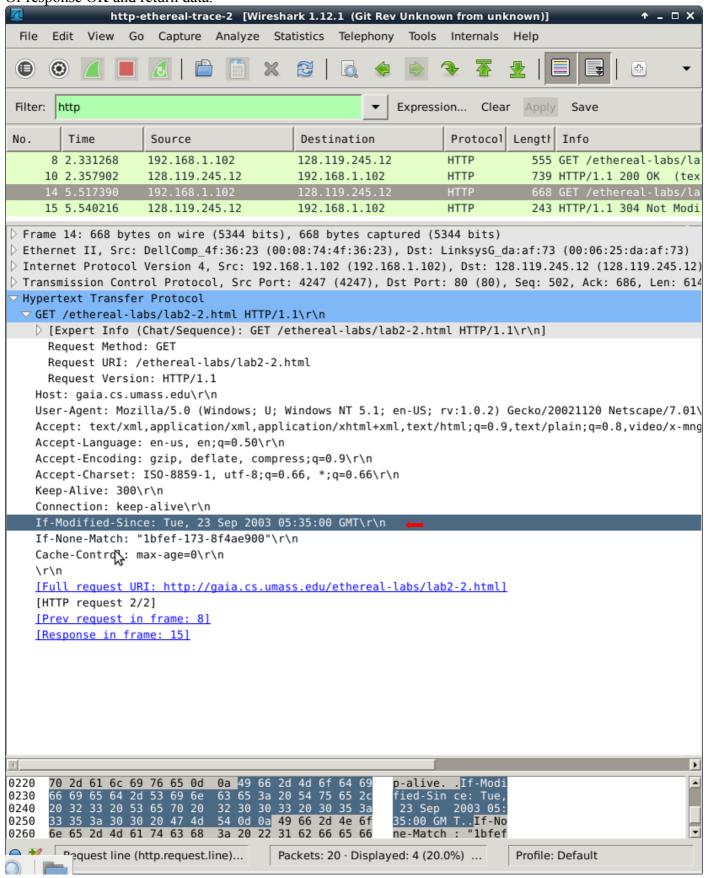


last modified: Tue, 23 Sep 2003 05:35:00 GMT

Yes. It is a conditional GET which the response is depends on the request data.

If the object not modified before date, response 304 not modified.

Or response OK and return data.



Q4

status code: 304 phrase: not modified

The server didn't return the contents of file.

As the request date is later than If-Modified-Since date, the HTTP response is 304 not modified. http-ethereal-trace-2 [Wireshark 1.12.1 (Git Rev Unknown from unknown)] + _ □ X Go Capture Analyze Statistics Telephony Tools Internals File Edit View 1 \odot Filter: http Expression... Clear Save No. Time Source Destination Protocol Length Info 8 2.331268 192.168.1.102 128.119.245.12 HTTP 555 GET /ethereal-labs/lab2-2.htm 10 2.357902 128.119.245.12 192.168.1.102 HTTP 739 HTTP/1.1 200 OK (text/html) 14 5.517390 192.168.1.102 128.119.245.12 HTTP 668 GET /ethereal-labs/lab2-2.htm Frame 15: 243 bytes on wire (1944 bits), 243 bytes captured (1944 bits) Ethernet II, Src: LinksysG_da:af:73 (00:06:25:da:af:73), Dst: DellComp_4f:36:23 (00:08:74:4f:36:23) □ Internet Protocol Version 4, Src: 128.119.245.12 (128.119.245.12), Dst: 192.168.1.102 (192.168.1.102) Hypertext Transfer Protocol ¬ HTTP/1.1 304 Not Modified\r\n [Expert Info (Chat/Sequence): HTTP/1.1 304 Not Modified\r\n] Request Version: HTTP/1.1 Status Code: 304 Response Phrase: Not Modified Date: Tue, 23 Sep 2003 05:35:53 GMT\r\n 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] [Prev response in frame: 10] [Request in frame: 14] 0000 74 4f 36 23 00 00 e5 dc 88 40 00 37 06 01 66 00 50 10 97 81 6a 77 f5 88 05 0010 f8 80 b6 2e fa 54 50 2f 0020 00 00 48 0030 0040 Frame (frame), 243 bytes Packets: 20 · Displayed: 4 (20.0%) · Load tim... Profile: Default

Q5

Etag: "1bfef-173-8f4ae900"

As the If-Modified-Since conditional GET above, the request with date 23/09/2003 05:35:53 went to branch If-None-Match, and then Etag becomes that.

Since the 1st response message was received, the value hasn't changed.

Exercise 5

```
🔃 lab2 — -bash — 71×22
appledeMacBook-Pro-2:lab2 apple$ java PingServer 8888
                                                           lab2
Received from 127.0.0.1: PING 0 1533823635861
                                                           appledeMacBook-Pro-2:9331 apple$ cd lab2
   Reply sent.
                                                           [appledeMacBook-Pro-2:lab2 apple$ ls
Received from 127.0.0.1: PING 1 1533823635995
                                                           PingClient.pv
                                                                                    TCPClient.pv
                                                                                                            http-ethereal-trace-2
                                                                                   TCPServer.py
                                                           PingServer.class
                                                                                                            lab2pdf
   Reply sent.
Received from 127.0.0.1: PING 2 1533823636147
                                                           PingServer.java
                                                                                   http-ethereal-trace-1
                                                                                                            pic
                                                           appledeMacBook-Pro-2:lab2 apple$ python PingClient.py 127.0.0.1 8888
   Reply sent.
Received from 127.0.0.1: PING 3 1533823636217
                                                           pint to 127.0.0.1, seq = 0, rtt = 134 ms
                                                           pint to 127.0.0.1, seq = 1, rtt = 152 ms
   Reply sent
Received from 127.0.0.1: PING 4 1533823636364
                                                           pint to 127.0.0.1, seq = 2, rtt = 70 ms
Reply sent.
Received from 127.0.0.1: PING 5 1533823636372
                                                           pint to 127.0.0.1, seq = 3, rtt = 147 ms
                                                           pint to 127.0.0.1, seq = 4, rtt = 8 ms
                                                           pint to 127.0.0.1, seq = 5, time out
   Reply not sent
Received from 127.0.0.1: PING 6 1533823637377
                                                           pint to 127.0.0.1, seq = 6, rtt = 151 ms
                                                           pint to 127.0.0.1, seq = 7, rtt = 164 \text{ ms}
   Reply sent.
Received from 127.0.0.1: PING 7 1533823637528
                                                           pint to 127.0.0.1, seq = 8, rtt = 196 \text{ ms}
                                                          pint to 127.0.0.1, seq = 9, rtt = 55 ms
   Reply sent.
Received from 127.0.0.1: PING 8 1533823637692
                                                           min rtt: 8
                                                           max rtt: 196
   Reply sent.
Received from 127.0.0.1: PING 9 1533823637888
                                                           avg rtt: 119
                                                           loss rate: 0.1
   Reply sent.
                                                          appledeMacBook-Pro-2:lab2 apple$ ☐
```

Left part is PingServer and right part is PingClient. Below is the codes for PingClient in Python3.

```
🕨 🔵 🔵 *PingClient.py - /Users/apple/Downloads/cse/9331/lab2/PingClient.py (3.6.4)*
import time
from socket import *
from numpy import mean
# host and port
serverName = str(sys.argv[1])
serverPort = str(sys.argv[2])
# establish client socket
clientSocket = socket(AF_INET, SOCK_DGRAM)
# timeout 1 second wait
clientSocket.settimeout(1)
# min, max, avg
rtt = []
# 10 ping requests
for sequence in range(10):
    # massage sent: PING sequence_number timestamp
    timestamp = int(round(time.time() * 1000))
    massage1 = 'PING'+' '+str(sequence)+' '+str(timestamp)
    clientSocket.sendto(massage1.encode(),(serverName, int(serverPort)))
    # massage recieved: PING sequence_number timestamp CRLF
        # massage recieved
        recieved = clientSocket.recv(20)
        timerecv = int(round(time.time() * 1000))
        massage2 = recieved.decode()
        a = massage2.split()
        print(f'pint to {serverName}, seq = {a[1]}, rtt = {timerecv-int(a[2])} m
        rtt.append(timerecv-int(a[2]))
    # time out
    except:
        print(f'pint to {serverName}, seq = {sequence}, time out')
        continue
if rtt:
    print(f'min rtt: {min(rtt)}\nmax rtt: {max(rtt)}\navg rtt: {int(mean(rtt))}'
    print('min rtt: None\nmax rtt: None\navg rtt: None')
print(f'loss rate: {(10 - len(rtt))/10}')
clientSocket.close()
                                                                    Ln: 4 Col: 0
```