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Assignment 4

Network Architecture-I, Fall-2016

1. Suppose within your Web browser you click on a link to obtain a web page. The IP address for the associated URL is cached in your local host, so a DNS look-up is not necessary to obtain the IP address. Further suppose that the Web page associated with the link references ten very small objects on the same server. Let *RTT0* denote the RTTs between the local host and one of the objects. Assuming zero transmission time of the object, how much time elapses from when the client clinks on the link until the client receives the full web page with

a. Non-persistent HTTP?

b. Persistent HTTP?

Ans:

Web page is associated with the link references of 10 very small objects on the same server. The IP address for the associated URL is cached in the local host, so a DNS look up is not necessary to obtain the IP address. Given transmission time of the object is zero.

Number of objects = 10

RTT between the local host and one of the objects = RTT_0

Non-persistent HTTP: At most only one object can be sent over TCP connection.

Persistent HTTP: Multiple objects can be sent over a single TCP connection.

Non-persistent HTTP without parallel connections:

For each object in non-persistent HTTP, a new TCP connection has to be setup. So the total time would be twice the round trip time.

Time taken to receive the base HTML file = $2RTT_0$

Time taken to receive each object = $2RTT_0$

Number of objects = 10

Time required for 10 objects = $10*(2RTT_0) = 20RTT_0$

Total time = $2RTT_0 + 20RTT_0 = 22RTT_0$

Time taken by 10 objects using non-persistent HTTP without parallel connections is $\mathbf{22RTT_0}$

Non-persistent HTTP with parallel connections:

In non-persistent HTTP with parallel connections, all the objects can be sent at the same time by establishing multiple TCP connections at the same time in a parallel manner.

Time taken to receive the base HTML file = $2RTT_0$

Time taken to receive all the 10 objects in a parallel way = $2RTT_0$

Total time = $2RTT_0 + 2RTT_0 = 4RTT_0$

Time taken by 10 objects using non-persistent HTTP with parallel connections is $4RTT_0$

Persistent HTTP without pipelining connections:

In persistent HTTP, the connection is setup and the object is sent over the same.

Time taken to receive the base HTML file = $2RTT_0$

Time taken to receive each object = RTT_0

Number of objects = 10

Time required for 10 objects = $10*(RTT_0) = 10RTT_0$

Total time = $2RTT_0 + 10RTT_0 = 12RTT_0$

Time taken by 10 objects using persistent HTTP without pipelining connections is $12RTT_0$

Persistent HTTP with pipelining connections:

In persistent HTTP with pipelining connections, all the objects are sent in a pipelining method on the line over which the connection is setup.

Time taken to receive the base HTML file = $2RTT_0$

Time taken to receive all the 10 objects in a pipelining way = RTT_0

Total time = $2RTT_0 + RTT_0 = 3RTT_0$

Time taken by 10 objects using persistent HTTP with pipelining connections is $3RTT_0$

2. Describe in detail i) what information should be added in which DNS servers for your own start-up company (say ‘networkguru.com’) that has a web server and email service to its employees. ii) What are companies you can contact for domain name registration and how much are the fees?

Ans:

(i)

A domain name is a unique name that is used for the identification of a website. Each website has a domain name that serves as an address that can be used to access the website. Domain name is the replacement of IP address which points to the IP address that is used to identify a computer.

Steps for registering for a domain name:

1. First we need to check for the availability of the domain name. This verification can be done using many web based tools.

2. After checking for the availability of the domain name, contact registrar for the registration of the domain name.

3. Registrar registers the domain name with a static IP address and names of the servers in the appropriate TLD servers.

For new start-up, **networkguru.com**

Register name **networkguru.com** at DNS registrar.

1. Provides names, IP addresses of authoritative name server (primary and secondary). Registrar inserts 2 RR’s into .com TLD server.

2. For web server:

   (networkguru.com, dns1.networkguru.com, NS)

   (dns1.networkguru.com, 212.212.212.1, A)

3. For mail server:

   (mail.networkguru.com, mail1.networkguru.com, MX)

   (mail1.networkguru.com, 212.212.212.1, A)

(ii)

There are many companies that do the domain name registration. Some of them are Network Solutions, Go Daddy, Melbourne IT, etc. ICANN (The Internet Corporation for Assigned Names and Numbers) is the non-profit organization that is responsible for the accreditation of the domain name servers.

For a TLD domain, it costs around $20 to $30 per year whereas country specific domains cost a little more. Once the domain name is registered, it can be accessed from any part of the world.

3. What is meant by a stateful protocol? What is/are an example(s) of stateful protocol? What are the pros and cons of a stateful protocol?

Ans:

Stateful protocol: A communication protocol which requires keeping of the internal state on the server is known as a stateful protocol. It requires the server to retain session information or status about each communications partner for the duration of multiple requests. It requires dynamic allocation of storage to deal with conversations in progress. If a client session dies in mid-transaction, a part of the system needs to be responsible for cleaning up the present state of the server.

Examples of stateful protocol:

TCP (Transmission Control Protocol)

BGP (Broad Gateway Protocol)

Pros and Cons of stateful protocol:

Pros:

1. It retains session information about each communication.

2. It uses dynamic allocation of storage.

3. It keeps the internal state on the server.

Cons:

1. When the client session dies in mid-transaction, a part of the system needs to be responsible for cleaning up the present state of the server.

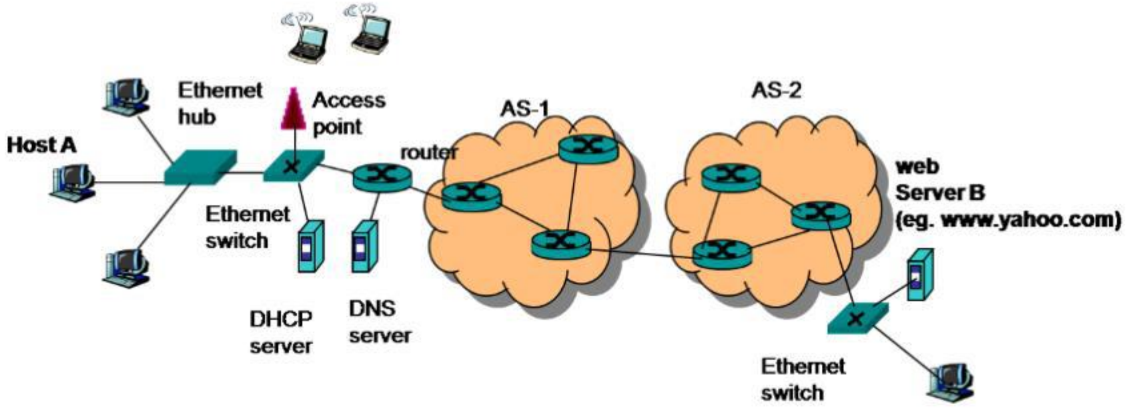
2. Every new request is related to the previous request.

4. Fill out the blanks below.

	Stop-n-Wait	Go-back-N	Selective Repeat
Minimum No. of Sequence number required	2	N+1	N+N
Sender's buffer size	1	N	N
Receiver's buffer size	1	1	N
No. of timers required	1	1	N

5. Consider an end -to- end communication from a hosts A to webserver B. A user on host A clicks on the web page of web server B which is multiple AS hops away. All routers are connected with PPP (Point -to-Point Protocol) links.

Write a series of protocols used for a packet to be transferred from A to B throughout the protocol stack in data plane as well as control protocols necessary. Assume host A just gets into an Ethernet local network, thus nothing has configured initially. Host B is connected to an Ethernet LAN. Routing protocols used in each AS is not given intentionally. Assign any proper routing protocols



Ans:

Protocols used include the following:

- Hyper Text Transfer Protocol (HTTP) with method GET/POST
- ARP: Address Resolution Protocol,
- PPP: Point-to-Point protocol
- TCP: Application, Transport,
- IP: Network,
- MAC addresses
- Domain Name Services (DNS -resolving a host name to an IP address),
- Routing Protocol

- RIP
- OSPF
- IGRP
- iBGP/eBGP

Laboratory Homework

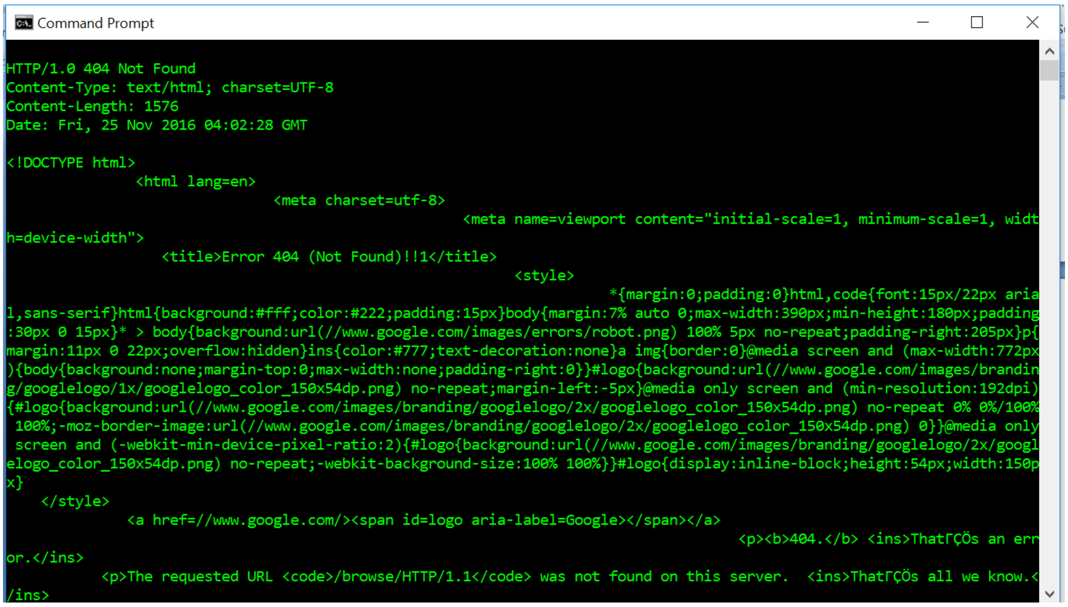
Part-1: Telnet Experiments

1. Try HTTP request (GET, HEAD, or POST) without using a web-browser. You can do this on command line using '> telnet webserver 80'. (for example, www.umkc.edu) Record the HTTP responses from the server – retrieve at least two different response status from the server.

Ans:

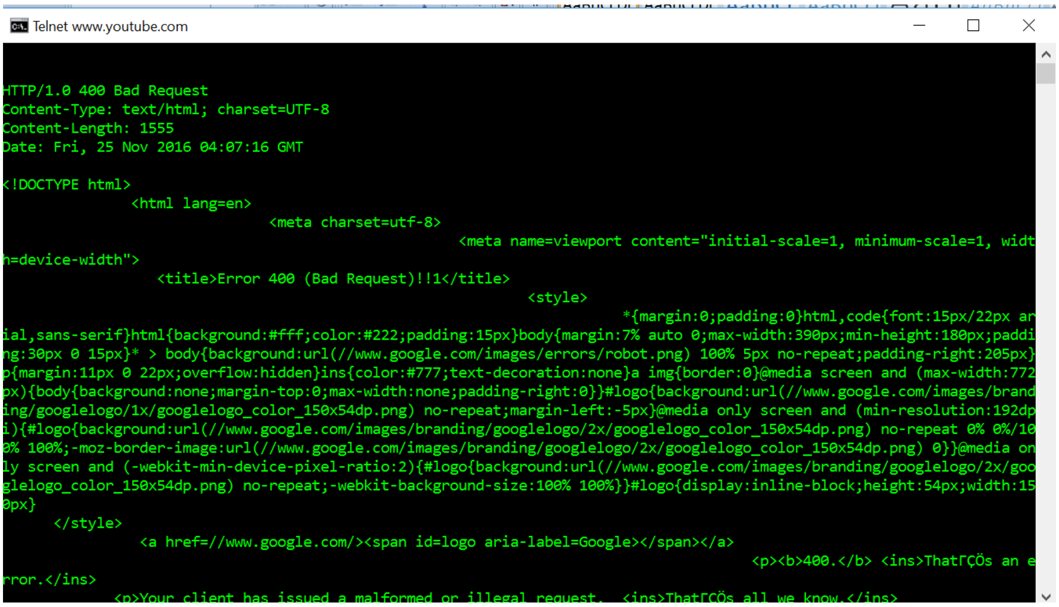
GET Method:

Response 1: 404 Not Found



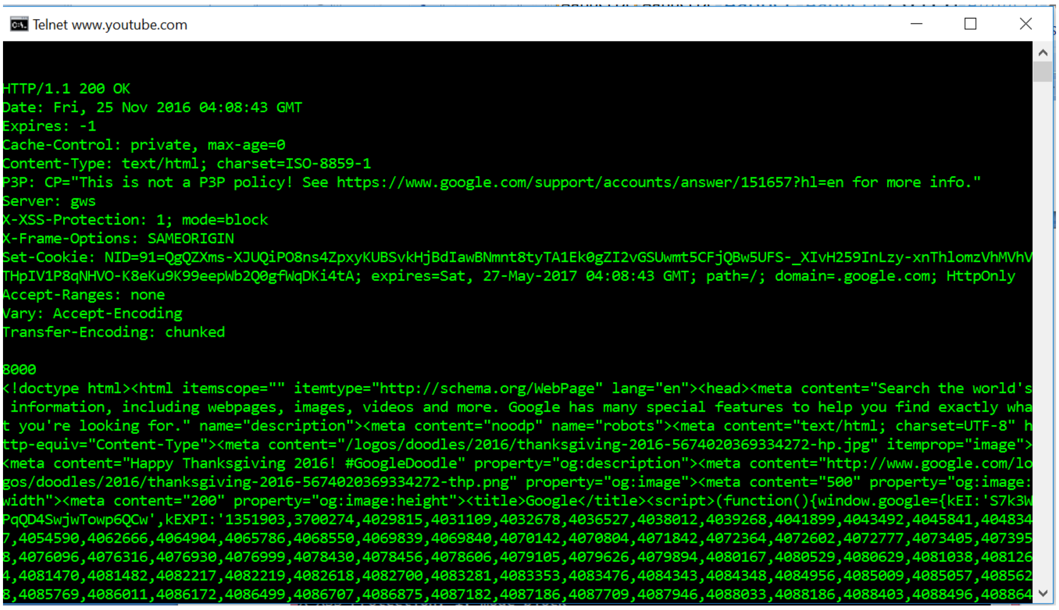
```
HTTP/1.0 404 Not Found
Content-Type: text/html; charset=UTF-8
Content-Length: 1576
Date: Fri, 25 Nov 2016 04:02:28 GMT

<!DOCTYPE html>
               <html lang=en>
                               <meta charset=utf-8>
                                                     <meta name=viewport content="initial-scale=1, minimum-scale=1, widt
h=device-width">
                  <title>Error 404 (Not Found)!!1</title>
                                                           <style>
                                                                      *{margin:0;padding:0}html,code{font:15px/22px aria
l,sans-serif}html{background:#fff;color:#222;padding:15px}body{margin:7% auto 0;max-width:390px;min-height:180px;padding
:30px 0 15px}* > body{background:url(//www.google.com/images/errors/robot.png) 100% 5px no-repeat;padding-right:205px}p{
margin:11px 0 22px;overflow:hidden}ins{color:#777;text-decoration:none}a img{border:0}@media screen and (max-width:772px
){body{background:none;margin-top:0;max-width:none;padding-right:0}}#logo{background:url(//www.google.com/images/brandin
g/googlelogo/1x/googlelogo_color_150x54dp.png) no-repeat;margin-left:-5px}@media only screen and (min-resolution:192dpi)
{#logo{background:url(//www.google.com/images/branding/googlelogo/2x/googlelogo_color_150x54dp.png) no-repeat 0% 0%/100%
 100%;-moz-border-image:url(//www.google.com/images/branding/googlelogo/2x/googlelogo_color_150x54dp.png) 0}}@media only
 screen and (-webkit-min-device-pixel-ratio:2){#logo{background:url(//www.google.com/images/branding/googlelogo/2x/googl
elogo_color_150x54dp.png) no-repeat;-webkit-background-size:100% 100%}}#logo{display:inline-block;height:54px;width:150p
x}
    </style>
              <a href=//www.google.com/><span id=logo aria-label=Google></span></a>
                                                                                     <p><b>404.</b> <ins>ThatΓÇÖs an err
or.</ins>
           <p>The requested URL <code>/browse/HTTP/1.1</code> was not found on this server.  <ins>ThatΓÇÖs all we know.<
/ins>
```

Response 2: 400 Bad Request



```
HTTP/1.0 400 Bad Request
Content-Type: text/html; charset=UTF-8
Content-Length: 1555
Date: Fri, 25 Nov 2016 04:07:16 GMT

<!DOCTYPE html>
               <html lang=en>
                               <meta charset=utf-8>
                                                     <meta name=viewport content="initial-scale=1, minimum-scale=1, widt
h=device-width">
                  <title>Error 400 (Bad Request)!!1</title>
                                                             <style>
                                                                        *{margin:0;padding:0}html,code{font:15px/22px ar
ial,sans-serif}html{background:#fff;color:#222;padding:15px}body{margin:7% auto 0;max-width:390px;min-height:180px;paddi
ng:30px 0 15px}* > body{background:url(//www.google.com/images/errors/robot.png) 100% 5px no-repeat;padding-right:205px}
p{margin:11px 0 22px;overflow:hidden}ins{color:#777;text-decoration:none}a img{border:0}@media screen and (max-width:772
px){body{background:none;margin-top:0;max-width:none;padding-right:0}}#logo{background:url(//www.google.com/images/brand
ing/googlelogo/1x/googlelogo_color_150x54dp.png) no-repeat;margin-left:-5px}@media only screen and (min-resolution:192dp
i){#logo{background:url(//www.google.com/images/branding/googlelogo/2x/googlelogo_color_150x54dp.png) no-repeat 0% 0%/10
0% 100%;-moz-border-image:url(//www.google.com/images/branding/googlelogo/2x/googlelogo_color_150x54dp.png) 0}}@media on
ly screen and (-webkit-min-device-pixel-ratio:2){#logo{background:url(//www.google.com/images/branding/googlelogo/2x/goo
glelogo_color_150x54dp.png) no-repeat;-webkit-background-size:100% 100%}}#logo{display:inline-block;height:54px;width:15
0px}
      </style>
                <a href=//www.google.com/><span id=logo aria-label=Google></span></a>
                                                                                       <p><b>400.</b> <ins>ThatΓÇÖs an e
rror.</ins>
             <p>Your client has issued a malformed or illegal request.  <ins>ThatΓÇÖs all we know.</ins>
```

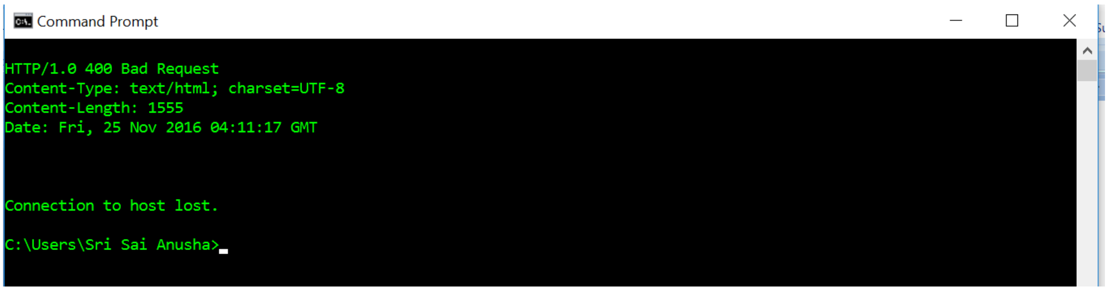
Response 3: 200 OK



```
HTTP/1.1 200 OK
Date: Fri, 25 Nov 2016 04:08:43 GMT
Expires: -1
Cache-Control: private, max-age=0
Content-Type: text/html; charset=ISO-8859-1
P3P: CP="This is not a P3P policy! See https://www.google.com/support/accounts/answer/151657?hl=en for more info."
Server: gws
X-XSS-Protection: 1; mode=block
X-Frame-Options: SAMEORIGIN
Set-Cookie: NID=91=QgQZXms-XJUQiPO8ns4ZpxyKUBSvkHjBdIawBNmnt8tyTA1Ek0gZI2vGSUwmt5CFjQBw5UFS-_XIvH259InLzy-xnThlomzVhMVhV
THpIV1P8qNHVO-K8eKu9K99eepWb2Q0gfWqDKi4tA; expires=Sat, 27-May-2017 04:08:43 GMT; path=/; domain=.google.com; HttpOnly
Accept-Ranges: none
Vary: Accept-Encoding
Transfer-Encoding: chunked

8000
<!doctype html><html itemscope="" itemtype="http://schema.org/WebPage" lang="en"><head><meta content="Search the world's
 information, including webpages, images, videos and more. Google has many special features to help you find exactly wha
t you're looking for." name="description"><meta content="noodp" name="robots"><meta content="text/html; charset=UTF-8" h
ttp-equiv="Content-Type"><meta content="/logos/doodles/2016/thanksgiving-2016-5674020369334272-hp.jpg" itemprop="image">
<meta content="Happy Thanksgiving 2016! #GoogleDoodle" property="og:description"><meta content="http://www.google.com/lo
gos/doodles/2016/thanksgiving-2016-5674020369334272-thp.png" property="og:image"><meta content="500" property="og:image:
width"><meta content="200" property="og:image:height"><title>Google</title><script>(function(){window.google={kEI:'S7k3W
PqQD4SwjwTowp6QCw',kEXPI:'1351903,3700274,4029815,4031109,4032678,4036527,4038012,4039268,4041899,4043492,4045841,404834
7,4054590,4062666,4064904,4065786,4068550,4069839,4069840,4070142,4070804,4071842,4072364,4072602,4072777,4073405,407395
8,4076096,4076316,4076930,4076999,4078430,4078456,4078606,4079105,4079626,4079894,4080167,4080529,4080629,4081038,408126
4,4081470,4081482,4082217,4082219,4082618,4082700,4083281,4083353,4083476,4084343,4084348,4084956,4085009,4085057,408562
8,4085769,4086011,4086172,4086499,4086707,4086875,4087182,4087186,4087709,4087946,4088033,4088186,4088403,4088496,408864
```

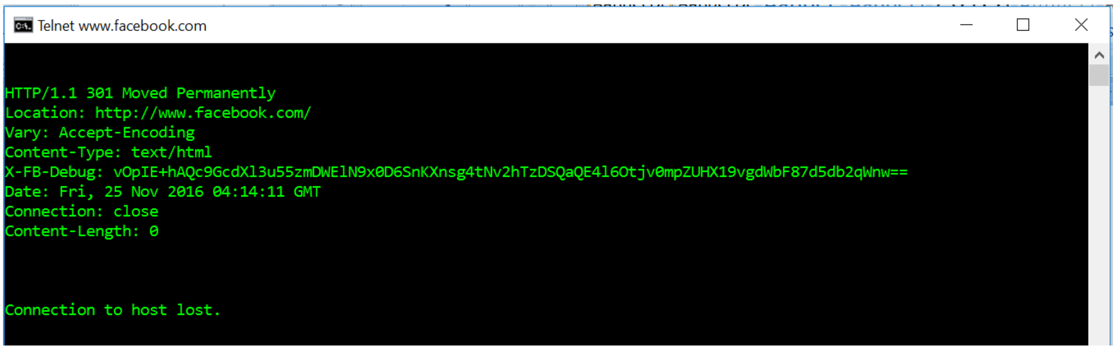
HEAD Method:

Response 1: 400 Bad Request



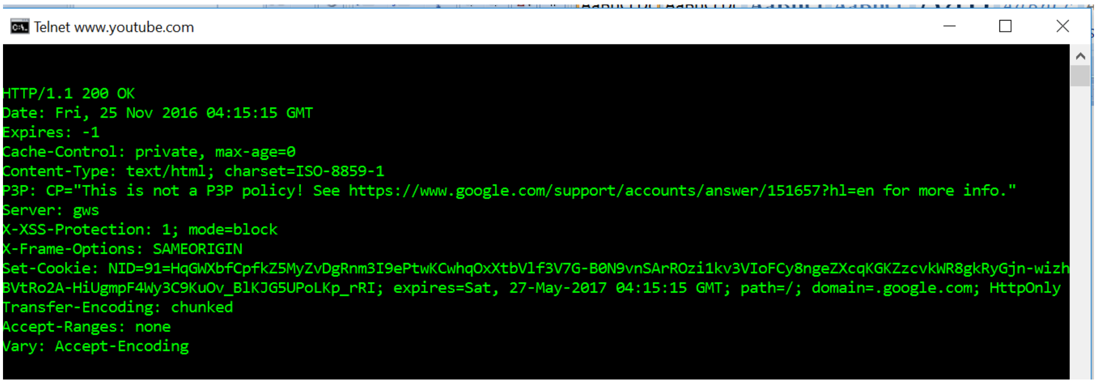
```
HTTP/1.0 400 Bad Request
Content-Type: text/html; charset=UTF-8
Content-Length: 1555
Date: Fri, 25 Nov 2016 04:11:17 GMT


Connection to host lost.

C:\Users\Sri Sai Anusha>
```

Response 2: 301 Moved Permanently



```
HTTP/1.1 301 Moved Permanently
Location: http://www.facebook.com/
Vary: Accept-Encoding
Content-Type: text/html
X-FB-Debug: vOpIE+hAQc9GcdXl3u55zmDWElN9x0D6SnKXnsg4tNv2hTzDSQaQE4l6Otjv0mpZUHX19vgdWbF87d5db2qWnw==
Date: Fri, 25 Nov 2016 04:14:11 GMT
Connection: close
Content-Length: 0


Connection to host lost.
```

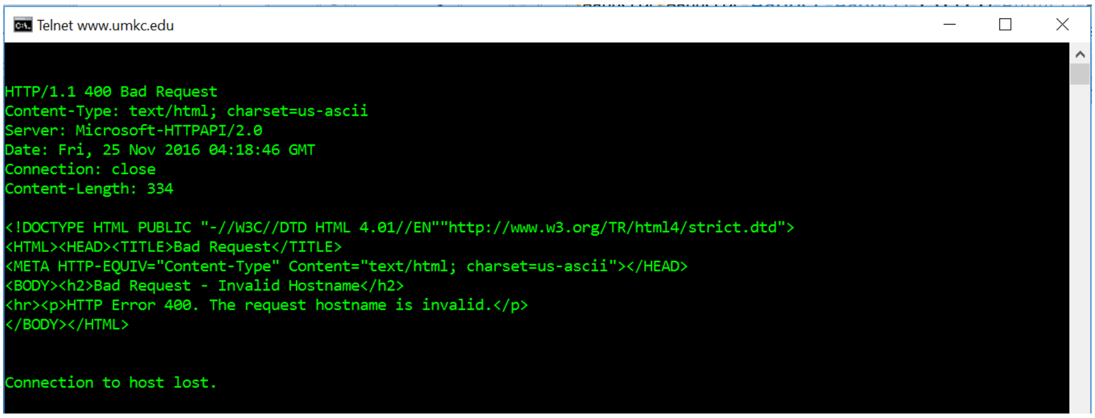
Response 3: 200 OK



```
HTTP/1.1 200 OK
Date: Fri, 25 Nov 2016 04:15:15 GMT
Expires: -1
Cache-Control: private, max-age=0
Content-Type: text/html; charset=ISO-8859-1
P3P: CP="This is not a P3P policy! See https://www.google.com/support/accounts/answer/151657?hl=en for more info."
Server: gws
X-XSS-Protection: 1; mode=block
X-Frame-Options: SAMEORIGIN
Set-Cookie: NID=91=HqGWXbfCpfkZ5MyZvDgRnm3I9ePtwKCwhqOxXtbVlf3V7G-B0N9vnSArROzi1kv3VIoFCy8ngeZXcqKGKZzcvkWR8gkRyGjn-wizh
BVtRo2A-HiUgmpF4Wy3C9KuOv_BlKJG5UPoLKp_rRI; expires=Sat, 27-May-2017 04:15:15 GMT; path=/; domain=.google.com; HttpOnly
Transfer-Encoding: chunked
Accept-Ranges: none
Vary: Accept-Encoding
```

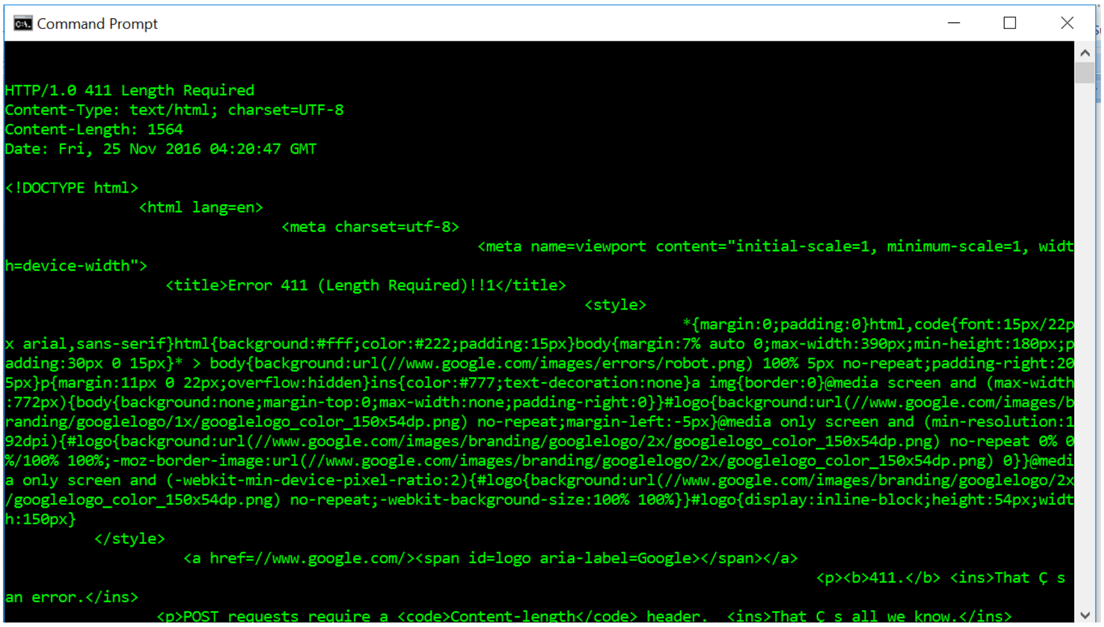
POST Method:

Response 1: 400 Bad Request



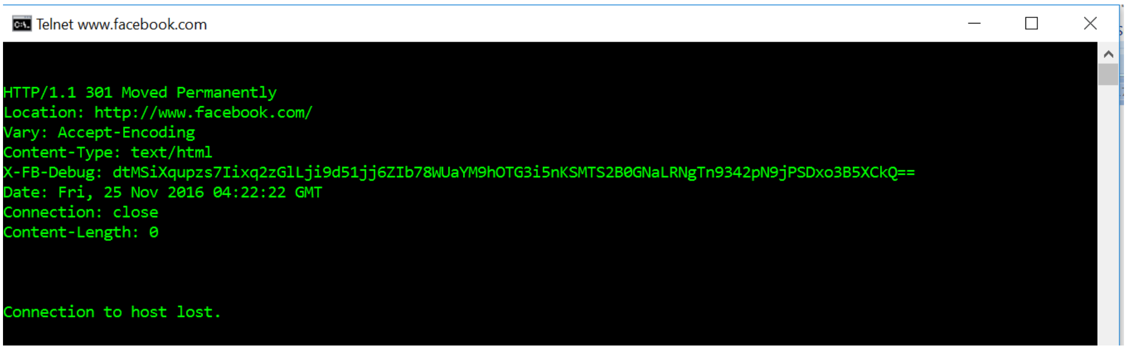
```
HTTP/1.1 400 Bad Request
Content-Type: text/html; charset=us-ascii
Server: Microsoft-HTTPAPI/2.0
Date: Fri, 25 Nov 2016 04:18:46 GMT
Connection: close
Content-Length: 334

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN""http://www.w3.org/TR/html4/strict.dtd">
<HTML><HEAD><TITLE>Bad Request</TITLE>
<META HTTP-EQUIV="Content-Type" Content="text/html; charset=us-ascii"></HEAD>
<BODY><h2>Bad Request - Invalid Hostname</h2>
<hr><p>HTTP Error 400. The request hostname is invalid.</p>
</BODY></HTML>


Connection to host lost.
```

Response 2: 411 Length Required



```
HTTP/1.0 411 Length Required
Content-Type: text/html; charset=UTF-8
Content-Length: 1564
Date: Fri, 25 Nov 2016 04:20:47 GMT

<!DOCTYPE html>
               <html lang=en>
                               <meta charset=utf-8>
                                                     <meta name=viewport content="initial-scale=1, minimum-scale=1, widt
h=device-width">
                  <title>Error 411 (Length Required)!!1</title>
                                                                 <style>
                                                                            *{margin:0;padding:0}html,code{font:15px/22p
x arial,sans-serif}html{background:#fff;color:#222;padding:15px}body{margin:7% auto 0;max-width:390px;min-height:180px;p
adding:30px 0 15px}* > body{background:url(//www.google.com/images/errors/robot.png) 100% 5px no-repeat;padding-right:20
5px}p{margin:11px 0 22px;overflow:hidden}ins{color:#777;text-decoration:none}a img{border:0}@media screen and (max-width
:772px){body{background:none;margin-top:0;max-width:none;padding-right:0}}#logo{background:url(//www.google.com/images/b
randing/googlelogo/1x/googlelogo_color_150x54dp.png) no-repeat;margin-left:-5px}@media only screen and (min-resolution:1
92dpi){#logo{background:url(//www.google.com/images/branding/googlelogo/2x/googlelogo_color_150x54dp.png) no-repeat 0% 0
%/100% 100%;-moz-border-image:url(//www.google.com/images/branding/googlelogo/2x/googlelogo_color_150x54dp.png) 0}}@medi
a only screen and (-webkit-min-device-pixel-ratio:2){#logo{background:url(//www.google.com/images/branding/googlelogo/2x
/googlelogo_color_150x54dp.png) no-repeat;-webkit-background-size:100% 100%}}#logo{display:inline-block;height:54px;widt
h:150px}
          </style>
                    <a href=//www.google.com/><span id=logo aria-label=Google></span></a>
                                                                                           <p><b>411.</b> <ins>That Ç s
an error.</ins>
                 <p>POST requests require a <code>Content-length</code> header.  <ins>That Ç s all we know.</ins>
```

Response 3: 301 Moved Permanently



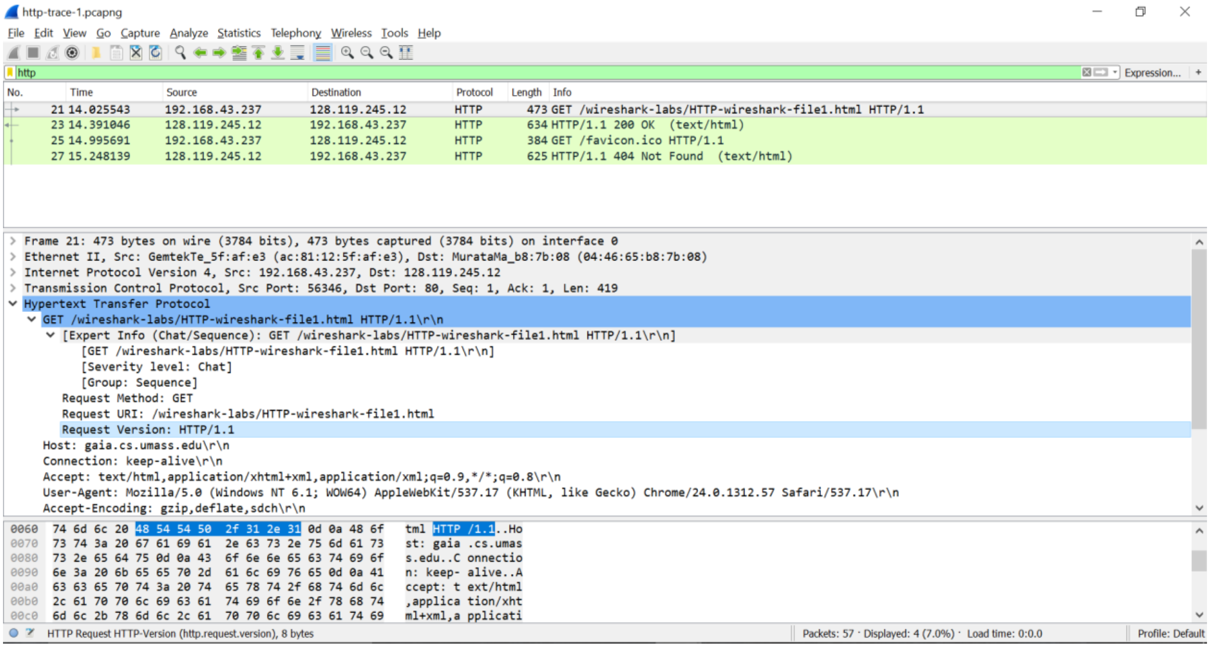
```
HTTP/1.1 301 Moved Permanently
Location: http://www.facebook.com/
Vary: Accept-Encoding
Content-Type: text/html
X-FB-Debug: dtMSiXqupzs7Iixq2zGlLji9d51jj6ZIb78WUaYM9hOTG3i5nKSMTS2B0GNaLRNgTn9342pN9jPSDxo3B5XCkQ==
Date: Fri, 25 Nov 2016 04:22:22 GMT
Connection: close
Content-Length: 0



Connection to host lost.
```

Part-2.1: The Basic HTTP GET/response interactions

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

Ans:

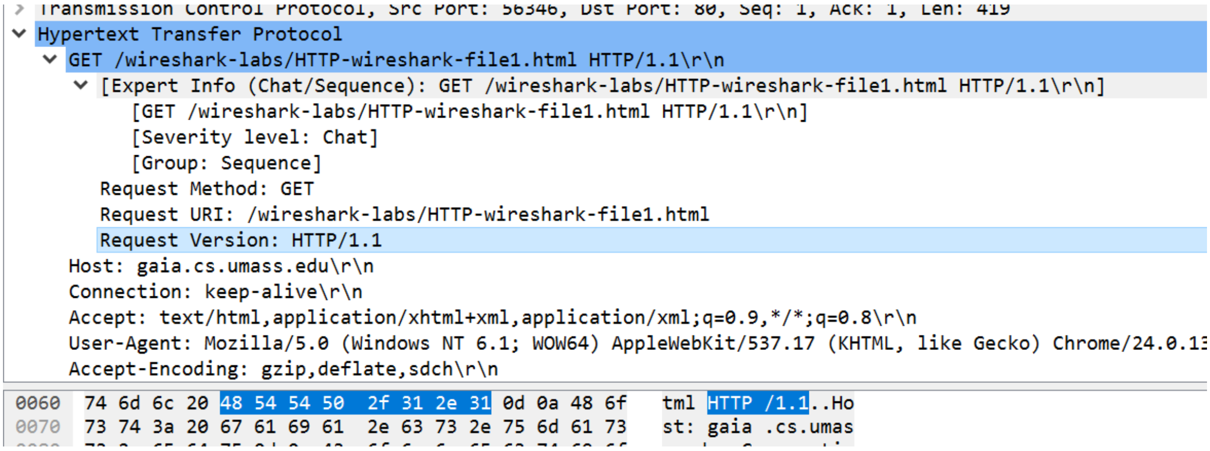
My browser and server are running on HTTP version 1.1



http-trace-1.pcapng

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
http
Expression...

```
No.   Time       Source          Destination     Protocol Length Info
   21 14.025543  192.168.43.237  128.119.245.12  HTTP     473 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
   23 14.391046  128.119.245.12  192.168.43.237  HTTP     634 HTTP/1.1 200 OK  (text/html)
   25 14.995691  192.168.43.237  128.119.245.12  HTTP     384 GET /favicon.ico HTTP/1.1
   27 15.248139  128.119.245.12  192.168.43.237  HTTP     625 HTTP/1.1 404 Not Found  (text/html)

> Frame 21: 473 bytes on wire (3784 bits), 473 bytes captured (3784 bits) on interface 0
> Ethernet II, Src: GemtekTe_5f:af:e3 (ac:81:12:5f:af:e3), Dst: MurataMa_b8:7b:08 (04:46:65:b8:7b:08)
> Internet Protocol Version 4, Src: 192.168.43.237, Dst: 128.119.245.12
> Transmission Control Protocol, Src Port: 56346, Dst Port: 80, Seq: 1, Ack: 1, Len: 419
v Hypertext Transfer Protocol
  v GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n
    v [Expert Info (Chat/Sequence): GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n]
        [GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n]
        [Severity level: Chat]
        [Group: Sequence]
      Request Method: GET
      Request URI: /wireshark-labs/HTTP-wireshark-file1.html
      Request Version: HTTP/1.1
    Host: gaia.cs.umass.edu\r\n
    Connection: keep-alive\r\n
    Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8\r\n
    User-Agent: Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.17 (KHTML, like Gecko) Chrome/24.0.1312.57 Safari/537.17\r\n
    Accept-Encoding: gzip,deflate,sdch\r\n

0060  74 6d 6c 20 48 54 54 50  2f 31 2e 31 0d 0a 48 6f   tml HTTP /1.1..Ho
0070  73 74 3a 20 67 61 69 61  2e 63 73 2e 75 6d 61 73   st: gaia .cs.umas
0080  73 2e 65 64 75 0d 0a 43  6f 6e 6e 65 63 74 69 6f   s.edu..C onnectio
0090  6e 3a 20 6b 65 65 70 2d  61 6c 69 76 65 0d 0a 41   n: keep- alive..A
00a0  63 63 65 70 74 3a 20 74  65 78 74 2f 68 74 6d 6c   ccept: t ext/html
00b0  2c 61 70 70 6c 69 63 61  74 69 6f 6e 2f 78 68 74   ,applica tion/xht
00c0  6d 6c 2b 78 6d 6c 2c 61  70 70 6c 69 63 61 74 69   ml+xml,a pplicati

HTTP Request HTTP-Version (http.request.version), 8 bytes    Packets: 57 · Displayed: 4 (7.0%) · Load time: 0:0.0    Profile: Default
```

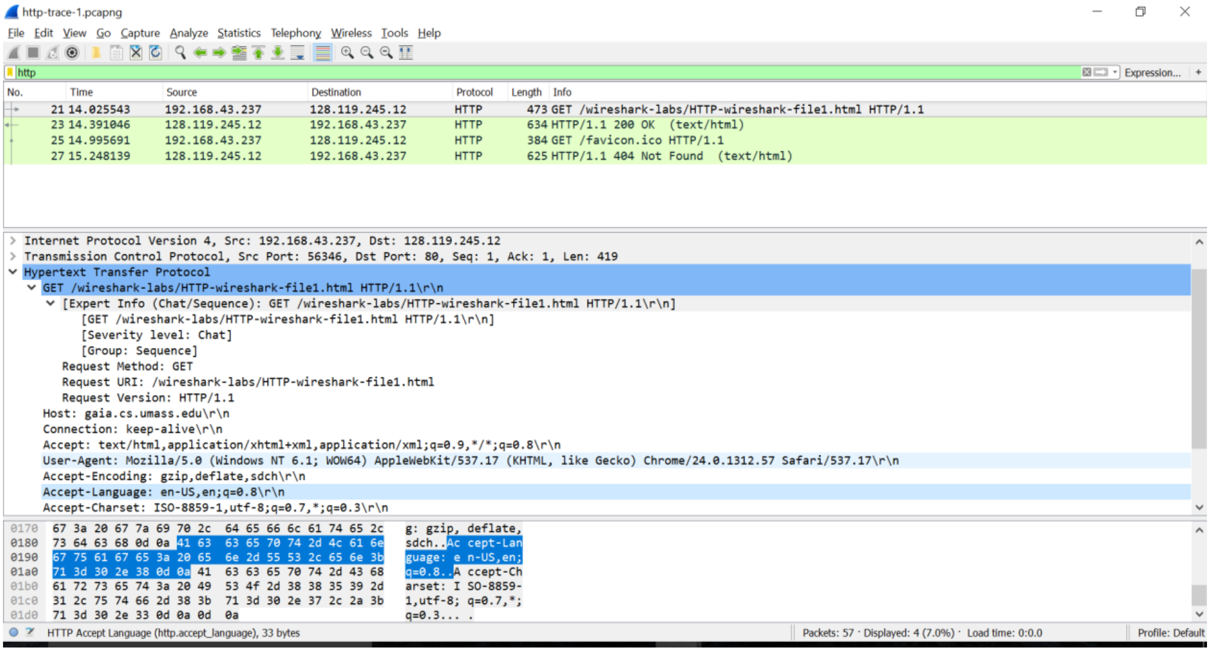


```
> Transmission Control Protocol, Src Port: 56346, Dst Port: 80, Seq: 1, Ack: 1, Len: 419
v Hypertext Transfer Protocol
  v GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n
    v [Expert Info (Chat/Sequence): GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n]
        [GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n]
        [Severity level: Chat]
        [Group: Sequence]
      Request Method: GET
      Request URI: /wireshark-labs/HTTP-wireshark-file1.html
      Request Version: HTTP/1.1
    Host: gaia.cs.umass.edu\r\n
    Connection: keep-alive\r\n
    Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8\r\n
    User-Agent: Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.17 (KHTML, like Gecko) Chrome/24.0.13
    Accept-Encoding: gzip,deflate,sdch\r\n

0060  74 6d 6c 20 48 54 54 50  2f 31 2e 31 0d 0a 48 6f   tml HTTP /1.1..Ho
0070  73 74 3a 20 67 61 69 61  2e 63 73 2e 75 6d 61 73   st: gaia .cs.umas
```

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

Ans:

My browser accepts US English Language.



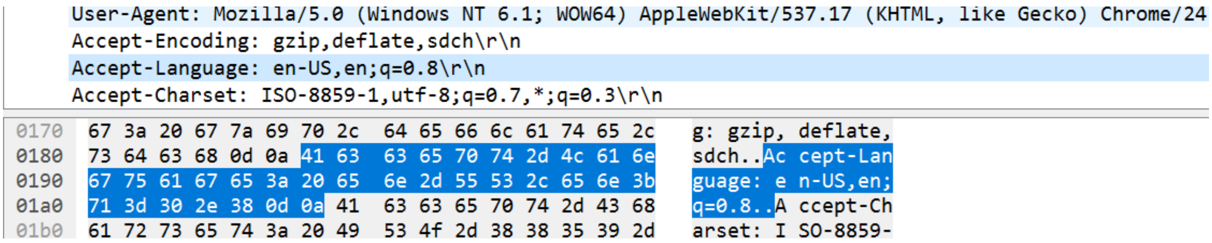
http-trace-1.pcapng
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
http
Expression… +

```
No.     Time        Source            Destination       Protocol  Length  Info
     21 14.025543   192.168.43.237    128.119.245.12    HTTP      473 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
     23 14.391046   128.119.245.12    192.168.43.237    HTTP      634 HTTP/1.1 200 OK  (text/html)
     25 14.995691   192.168.43.237    128.119.245.12    HTTP      384 GET /favicon.ico HTTP/1.1
     27 15.248139   128.119.245.12    192.168.43.237    HTTP      625 HTTP/1.1 404 Not Found  (text/html)
```

```
> Internet Protocol Version 4, Src: 192.168.43.237, Dst: 128.119.245.12
> Transmission Control Protocol, Src Port: 56346, Dst Port: 80, Seq: 1, Ack: 1, Len: 419
v Hypertext Transfer Protocol
  v GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n
    v [Expert Info (Chat/Sequence): GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n]
        [GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n]
        [Severity level: Chat]
        [Group: Sequence]
      Request Method: GET
      Request URI: /wireshark-labs/HTTP-wireshark-file1.html
      Request Version: HTTP/1.1
    Host: gaia.cs.umass.edu\r\n
    Connection: keep-alive\r\n
    Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8\r\n
    User-Agent: Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.17 (KHTML, like Gecko) Chrome/24.0.1312.57 Safari/537.17\r\n
    Accept-Encoding: gzip,deflate,sdch\r\n
    Accept-Language: en-US,en;q=0.8\r\n
    Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.3\r\n
```

```
0170  67 3a 20 67 7a 69 70 2c  64 65 66 6c 61 74 65 2c   g: gzip, deflate,
0180  73 64 63 68 0d 0a 41 63  63 65 70 74 2d 4c 61 6e   sdch..Ac cept-Lan
0190  67 75 61 67 65 3a 20 65  6e 2d 55 53 2c 65 6e 3b   guage: e n-US,en;
01a0  71 3d 30 2e 38 0d 0a 41  63 63 65 70 74 2d 43 68   q=0.8..A ccept-Ch
01b0  61 72 73 65 74 3a 20 49  53 4f 2d 38 38 35 39 2d   arset: I SO-8859-
01c0  31 2c 75 74 66 2d 38 3b  71 3d 30 2e 37 2c 2a 3b   1,utf-8; q=0.7,*;
01d0  71 3d 30 2e 33 0d 0a 0d  0a                        q=0.3... .
```

HTTP Accept Language (http.accept_language), 33 bytes | Packets: 57 · Displayed: 4 (7.0%) · Load time: 0:0.0 | Profile: Default



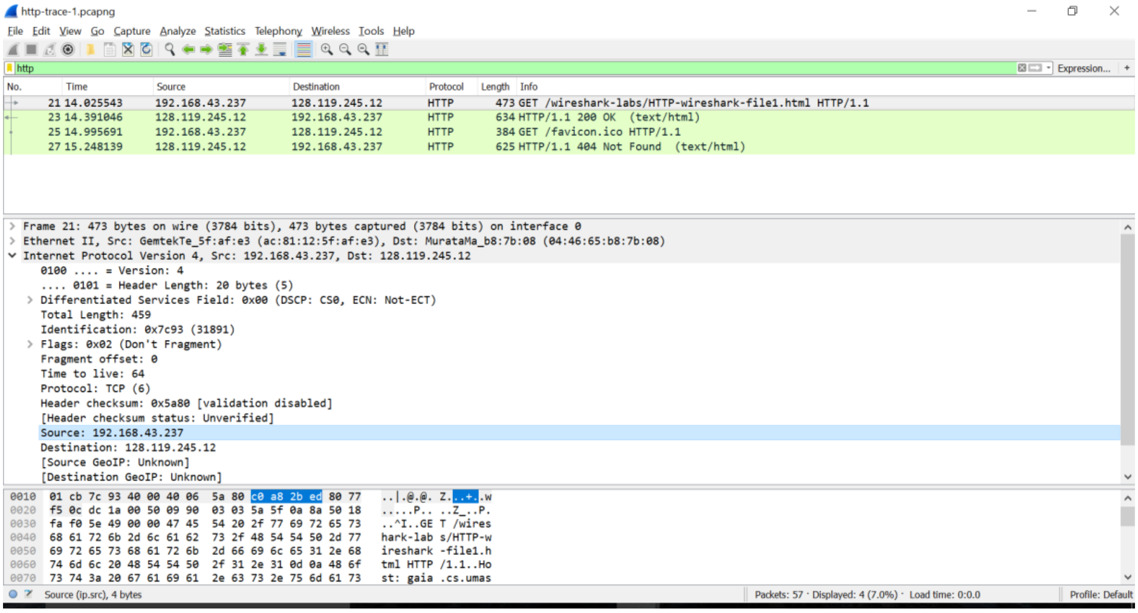
```
User-Agent: Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.17 (KHTML, like Gecko) Chrome/24
Accept-Encoding: gzip,deflate,sdch\r\n
Accept-Language: en-US,en;q=0.8\r\n
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.3\r\n
```

```
0170  67 3a 20 67 7a 69 70 2c  64 65 66 6c 61 74 65 2c   g: gzip, deflate,
0180  73 64 63 68 0d 0a 41 63  63 65 70 74 2d 4c 61 6e   sdch..Ac cept-Lan
0190  67 75 61 67 65 3a 20 65  6e 2d 55 53 2c 65 6e 3b   guage: e n-US,en;
01a0  71 3d 30 2e 38 0d 0a 41  63 63 65 70 74 2d 43 68   q=0.8..A ccept-Ch
01b0  61 72 73 65 74 3a 20 49  53 4f 2d 38 38 35 39 2d   arset: I SO-8859-
```

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

Ans:

The IP address of my computer is 192.168.43.237 and that of gaia.cs.umass.edu server is 128.119.245.12



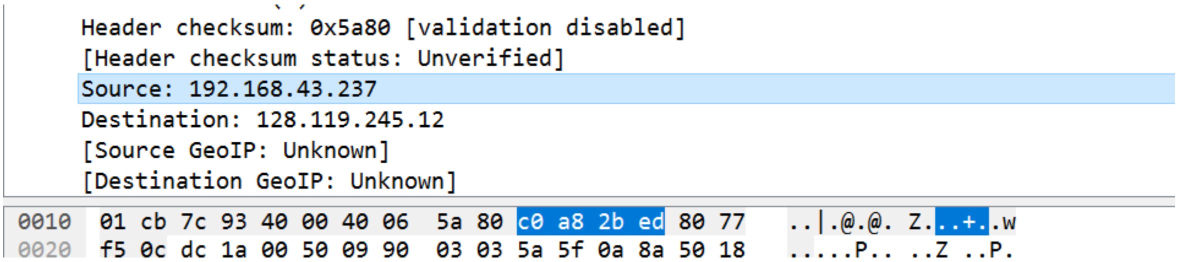
http-trace-1.pcapng
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
http
Expression… +

```
No.     Time        Source            Destination       Protocol  Length  Info
     21 14.025543   192.168.43.237    128.119.245.12    HTTP      473 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
     23 14.391046   128.119.245.12    192.168.43.237    HTTP      634 HTTP/1.1 200 OK  (text/html)
     25 14.995691   192.168.43.237    128.119.245.12    HTTP      384 GET /favicon.ico HTTP/1.1
     27 15.248139   128.119.245.12    192.168.43.237    HTTP      625 HTTP/1.1 404 Not Found  (text/html)
```

```
> Frame 21: 473 bytes on wire (3784 bits), 473 bytes captured (3784 bits) on interface 0
> Ethernet II, Src: GemtekTe_5f:af:e3 (ac:81:12:5f:af:e3), Dst: MurataMa_b8:7b:08 (04:46:65:b8:7b:08)
v Internet Protocol Version 4, Src: 192.168.43.237, Dst: 128.119.245.12
    0100 .... = Version: 4
    .... 0101 = Header Length: 20 bytes (5)
  > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
    Total Length: 459
    Identification: 0x7c93 (31891)
  > Flags: 0x02 (Don't Fragment)
    Fragment offset: 0
    Time to live: 64
    Protocol: TCP (6)
    Header checksum: 0x5a80 [validation disabled]
    [Header checksum status: Unverified]
    Source: 192.168.43.237
    Destination: 128.119.245.12
    [Source GeoIP: Unknown]
    [Destination GeoIP: Unknown]
```

```
0010  01 cb 7c 93 40 00 40 06  5a 80 c0 a8 2b ed 80 77   ..|.@.@. Z...+..w
0020  f5 0c dc 1a 00 50 09 90  03 03 5a 5f 0a 8a 50 18   .....P.. ..Z_..P.
0030  fa f0 5e 49 00 00 47 45  54 20 2f 77 69 72 65 73   ..^I..GE T /wires
0040  68 61 72 6b 2d 6c 61 62  73 2f 48 54 54 50 2d 77   hark-lab s/HTTP-w
0050  69 72 65 73 68 61 72 6b  2d 66 69 6c 65 31 2e 68   ireshark -file1.h
0060  74 6d 6c 20 48 54 54 50  2f 31 2e 31 0d 0a 48 6f   tml HTTP /1.1..Ho
0070  73 74 3a 20 67 61 69 61  2e 63 73 2e 75 6d 61 73   st: gaia .cs.umas
```

Source (ip.src), 4 bytes | Packets: 57 · Displayed: 4 (7.0%) · Load time: 0:0.0 | Profile: Default

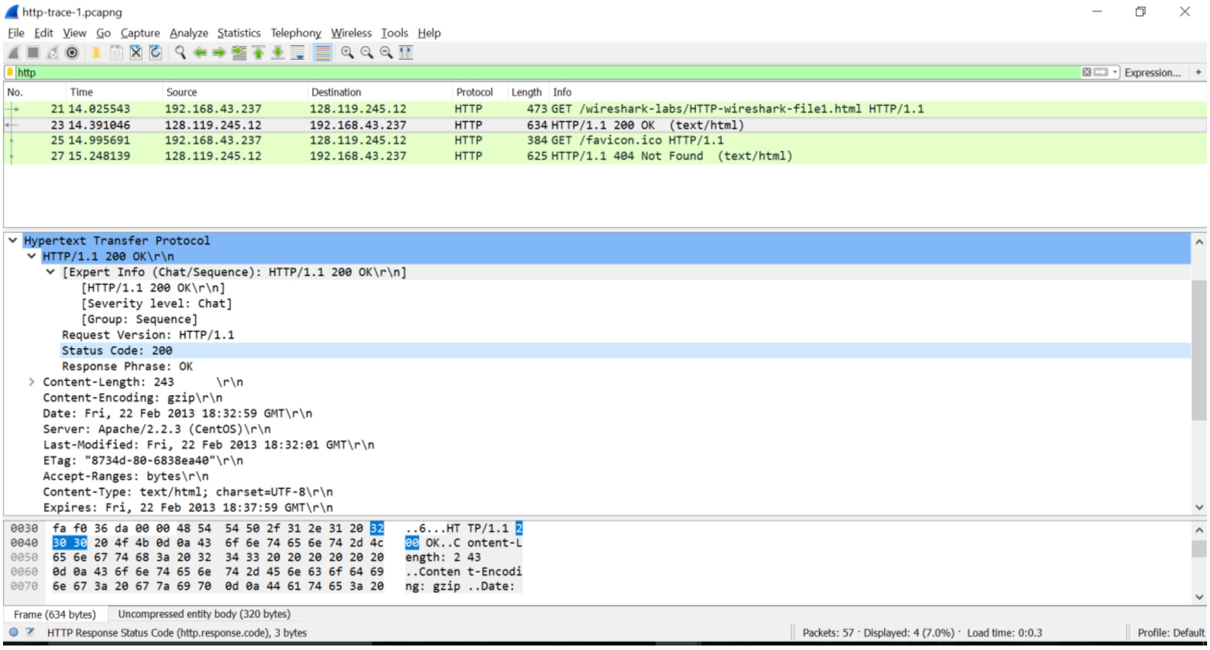


```
    Header checksum: 0x5a80 [validation disabled]
    [Header checksum status: Unverified]
    Source: 192.168.43.237
    Destination: 128.119.245.12
    [Source GeoIP: Unknown]
    [Destination GeoIP: Unknown]
0010  01 cb 7c 93 40 00 40 06  5a 80 c0 a8 2b ed 80 77   ..|.@.@. Z...+..w
0020  f5 0c dc 1a 00 50 09 90  03 03 5a 5f 0a 8a 50 18   .....P.. ..Z ..P.
```

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

Ans:

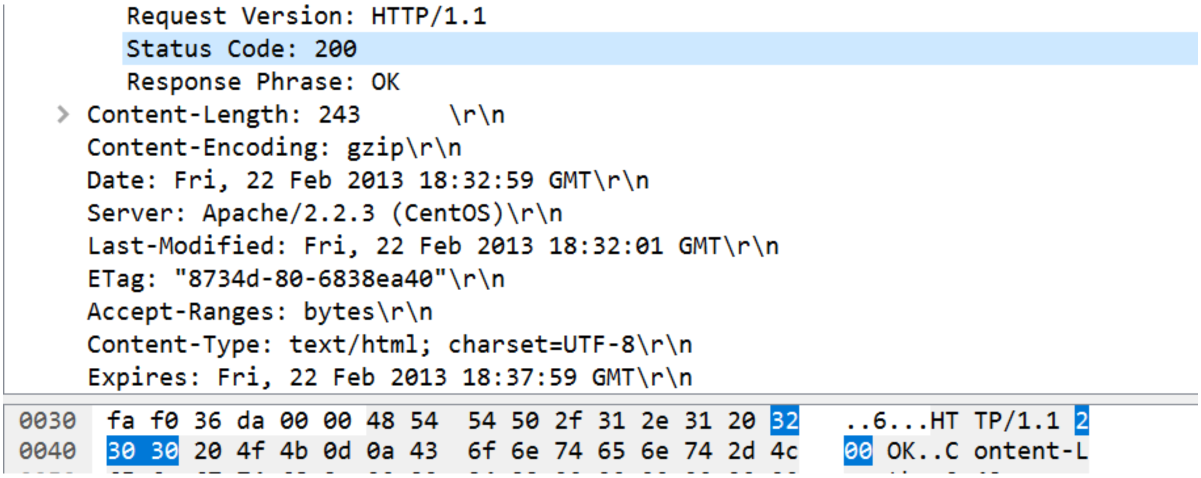
The status code is 200



http-trace-1.pcapng
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Expression... +

http

```
No.  Time       Source          Destination     Protocol Length Info
  21 14.025543  192.168.43.237  128.119.245.12  HTTP     473 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
  23 14.391046  128.119.245.12  192.168.43.237  HTTP     634 HTTP/1.1 200 OK  (text/html)
  25 14.995691  192.168.43.237  128.119.245.12  HTTP     384 GET /favicon.ico HTTP/1.1
  27 15.248139  128.119.245.12  192.168.43.237  HTTP     625 HTTP/1.1 404 Not Found  (text/html)

Hypertext Transfer Protocol
  HTTP/1.1 200 OK\r\n
    [Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]
        [HTTP/1.1 200 OK\r\n]
        [Severity level: Chat]
        [Group: Sequence]
      Request Version: HTTP/1.1
      Status Code: 200
      Response Phrase: OK
  > Content-Length: 243      \r\n
    Content-Encoding: gzip\r\n
    Date: Fri, 22 Feb 2013 18:32:59 GMT\r\n
    Server: Apache/2.2.3 (CentOS)\r\n
    Last-Modified: Fri, 22 Feb 2013 18:32:01 GMT\r\n
    ETag: "8734d-80-6838ea40"\r\n
    Accept-Ranges: bytes\r\n
    Content-Type: text/html; charset=UTF-8\r\n
    Expires: Fri, 22 Feb 2013 18:37:59 GMT\r\n

0030  fa f0 36 da 00 00 48 54  54 50 2f 31 2e 31 20 32   ..6...HT TP/1.1 2
0040  30 30 20 4f 4b 0d 0a 43  6f 6e 74 65 6e 74 2d 4c   00 OK..C ontent-L
0050  65 6e 67 74 68 3a 20 32  34 33 20 20 20 20 20 20   ength: 2 43
0060  0d 0a 43 6f 6e 74 65 6e  74 2d 45 6e 63 6f 64 69   ..Conten t-Encodi
0070  6e 67 3a 20 67 7a 69 70  0d 0a 44 61 74 65 3a 20   ng: gzip ..Date:

Frame (634 bytes)   Uncompressed entity body (320 bytes)
HTTP Response Status Code (http.response.code), 3 bytes    Packets: 57 · Displayed: 4 (7.0%) · Load time: 0:0.3    Profile: Default
```

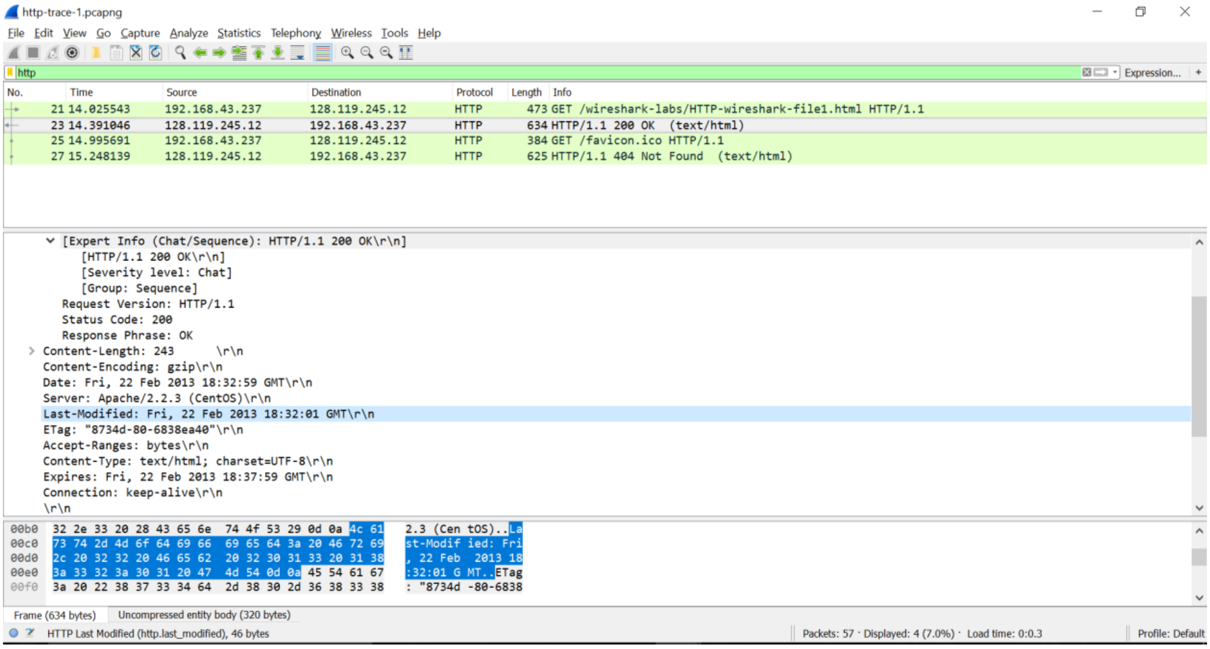


```
      Request Version: HTTP/1.1
      Status Code: 200
      Response Phrase: OK
  > Content-Length: 243      \r\n
    Content-Encoding: gzip\r\n
    Date: Fri, 22 Feb 2013 18:32:59 GMT\r\n
    Server: Apache/2.2.3 (CentOS)\r\n
    Last-Modified: Fri, 22 Feb 2013 18:32:01 GMT\r\n
    ETag: "8734d-80-6838ea40"\r\n
    Accept-Ranges: bytes\r\n
    Content-Type: text/html; charset=UTF-8\r\n
    Expires: Fri, 22 Feb 2013 18:37:59 GMT\r\n
0030  fa f0 36 da 00 00 48 54  54 50 2f 31 2e 31 20 32   ..6...HT TP/1.1 2
0040  30 30 20 4f 4b 0d 0a 43  6f 6e 74 65 6e 74 2d 4c   00 OK..C ontent-L
```

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

Ans:

It was last modified on 22 Feb 2013, Friday at 18:32:01 GMT



http-trace-1.pcapng
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Expression...
+

http

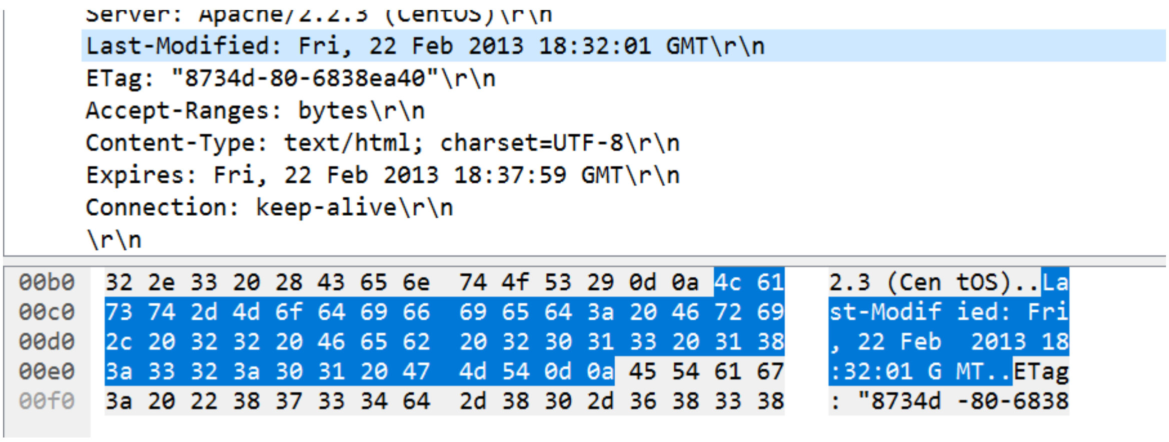
```
No.   Time       Source          Destination     Protocol Length Info
   21 14.025543  192.168.43.237  128.119.245.12  HTTP     473 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
   23 14.391046  128.119.245.12  192.168.43.237  HTTP     634 HTTP/1.1 200 OK  (text/html)
   25 14.995691  192.168.43.237  128.119.245.12  HTTP     384 GET /favicon.ico HTTP/1.1
   27 15.248139  128.119.245.12  192.168.43.237  HTTP     625 HTTP/1.1 404 Not Found  (text/html)
```

```
      [Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]
         [HTTP/1.1 200 OK\r\n]
         [Severity level: Chat]
         [Group: Sequence]
      Request Version: HTTP/1.1
      Status Code: 200
      Response Phrase: OK
   Content-Length: 243      \r\n
   Content-Encoding: gzip\r\n
   Date: Fri, 22 Feb 2013 18:32:59 GMT\r\n
   Server: Apache/2.2.3 (CentOS)\r\n
   Last-Modified: Fri, 22 Feb 2013 18:32:01 GMT\r\n
   ETag: "8734d-80-6838ea40"\r\n
   Accept-Ranges: bytes\r\n
   Content-Type: text/html; charset=UTF-8\r\n
   Expires: Fri, 22 Feb 2013 18:37:59 GMT\r\n
   Connection: keep-alive\r\n
   \r\n
```

```
00b0  32 2e 33 20 28 43 65 6e  74 4f 53 29 0d 0a 4c 61   2.3 (Cen tOS)..La
00c0  73 74 2d 4d 6f 64 69 66  69 65 64 3a 20 46 72 69   st-Modif ied: Fri
00d0  2c 20 32 32 20 46 65 62  20 32 30 31 33 20 31 38   , 22 Feb  2013 18
00e0  3a 33 32 3a 30 31 20 47  4d 54 0d 0a 45 54 61 67   :32:01 G MT..ETag
00f0  3a 20 22 38 37 33 34 64  2d 38 30 2d 36 38 33 38   : "8734d -80-6838
```

Frame (634 bytes)   Uncompressed entity body (320 bytes)

HTTP Last Modified (http.last_modified), 46 bytes   Packets: 57 · Displayed: 4 (7.0%) · Load time: 0:0.3   Profile: Default



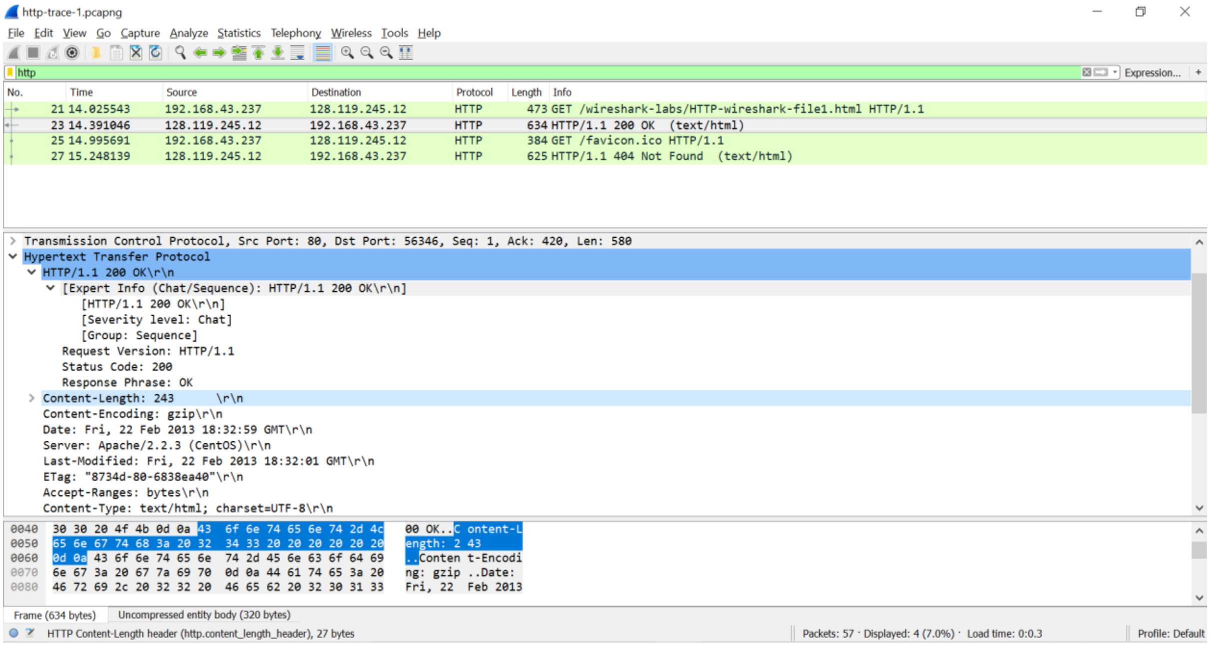
```
Server: Apache/2.2.3 (CentOS)\r\n
Last-Modified: Fri, 22 Feb 2013 18:32:01 GMT\r\n
ETag: "8734d-80-6838ea40"\r\n
Accept-Ranges: bytes\r\n
Content-Type: text/html; charset=UTF-8\r\n
Expires: Fri, 22 Feb 2013 18:37:59 GMT\r\n
Connection: keep-alive\r\n
\r\n
```

```
00b0  32 2e 33 20 28 43 65 6e  74 4f 53 29 0d 0a 4c 61   2.3 (Cen tOS)..La
00c0  73 74 2d 4d 6f 64 69 66  69 65 64 3a 20 46 72 69   st-Modif ied: Fri
00d0  2c 20 32 32 20 46 65 62  20 32 30 31 33 20 31 38   , 22 Feb  2013 18
00e0  3a 33 32 3a 30 31 20 47  4d 54 0d 0a 45 54 61 67   :32:01 G MT..ETag
00f0  3a 20 22 38 37 33 34 64  2d 38 30 2d 36 38 33 38   : "8734d -80-6838
```

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

Ans:

The number of bytes returning to the browser is 243



http-trace-1.pcapng
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
http
Expression…

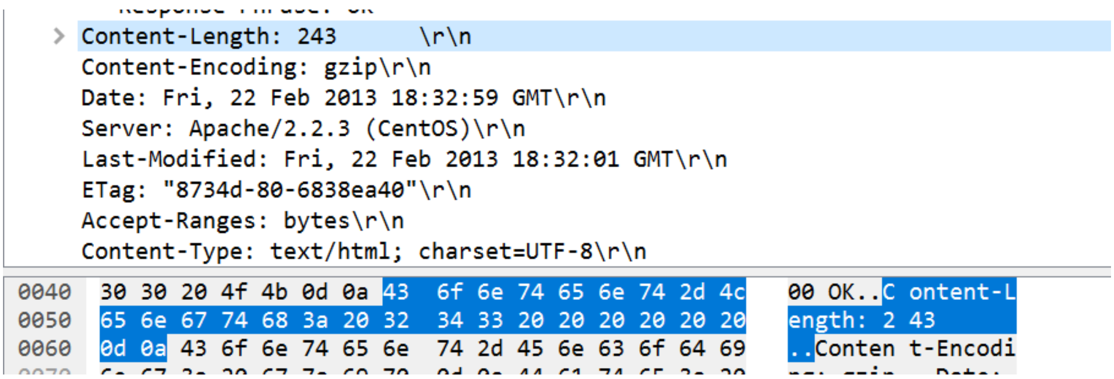
```
No.  Time          Source          Destination     Protocol  Length Info
  21 14.025543     192.168.43.237  128.119.245.12  HTTP      473 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
  23 14.391046     128.119.245.12  192.168.43.237  HTTP      634 HTTP/1.1 200 OK  (text/html)
  25 14.995691     192.168.43.237  128.119.245.12  HTTP      384 GET /favicon.ico HTTP/1.1
  27 15.248139     128.119.245.12  192.168.43.237  HTTP      625 HTTP/1.1 404 Not Found  (text/html)
```

```
> Transmission Control Protocol, Src Port: 80, Dst Port: 56346, Seq: 1, Ack: 420, Len: 580
v Hypertext Transfer Protocol
  v HTTP/1.1 200 OK\r\n
    v [Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]
        [HTTP/1.1 200 OK\r\n]
        [Severity level: Chat]
        [Group: Sequence]
      Request Version: HTTP/1.1
      Status Code: 200
      Response Phrase: OK
  > Content-Length: 243      \r\n
    Content-Encoding: gzip\r\n
    Date: Fri, 22 Feb 2013 18:32:59 GMT\r\n
    Server: Apache/2.2.3 (CentOS)\r\n
    Last-Modified: Fri, 22 Feb 2013 18:32:01 GMT\r\n
    ETag: "8734d-80-6838ea40"\r\n
    Accept-Ranges: bytes\r\n
    Content-Type: text/html; charset=UTF-8\r\n
```

```
0040  30 30 20 4f 4b 0d 0a 43  6f 6e 74 65 6e 74 2d 4c   00 OK..C ontent-L
0050  65 6e 67 74 68 3a 20 32  34 33 20 20 20 20 20 20   ength: 2 43
0060  0d 0a 43 6f 6e 74 65 6e  74 2d 45 6e 63 6f 64 69   ..Conten t-Encodi
0070  6e 67 3a 20 67 7a 69 70  0d 0a 44 61 74 65 3a 20   ng: gzip ..Date:
0080  46 72 69 2c 20 32 32 20  46 65 62 20 32 30 31 33   Fri, 22  Feb 2013
```

Frame (634 bytes) Uncompressed entity body (320 bytes)

HTTP Content-Length header (http.content_length_header), 27 bytes   Packets: 57 · Displayed: 4 (7.0%) · Load time: 0:0.3   Profile: Default



```
  > Content-Length: 243      \r\n
    Content-Encoding: gzip\r\n
    Date: Fri, 22 Feb 2013 18:32:59 GMT\r\n
    Server: Apache/2.2.3 (CentOS)\r\n
    Last-Modified: Fri, 22 Feb 2013 18:32:01 GMT\r\n
    ETag: "8734d-80-6838ea40"\r\n
    Accept-Ranges: bytes\r\n
    Content-Type: text/html; charset=UTF-8\r\n
```

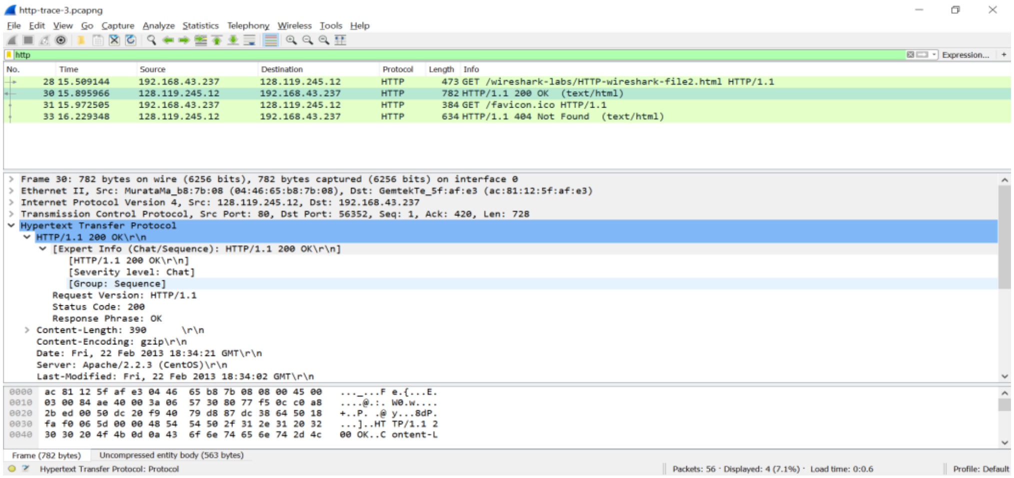
```
0040  30 30 20 4f 4b 0d 0a 43  6f 6e 74 65 6e 74 2d 4c   00 OK..C ontent-L
0050  65 6e 67 74 68 3a 20 32  34 33 20 20 20 20 20 20   ength: 2 43
0060  0d 0a 43 6f 6e 74 65 6e  74 2d 45 6e 63 6f 64 69   ..Conten t-Encodi
```

Part-2.2: Retrieving Long Documents

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

Ans:

The total number of HTTP GET request messages sent by the browser is 2



http-trace-3.pcapng
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
http
Expression…

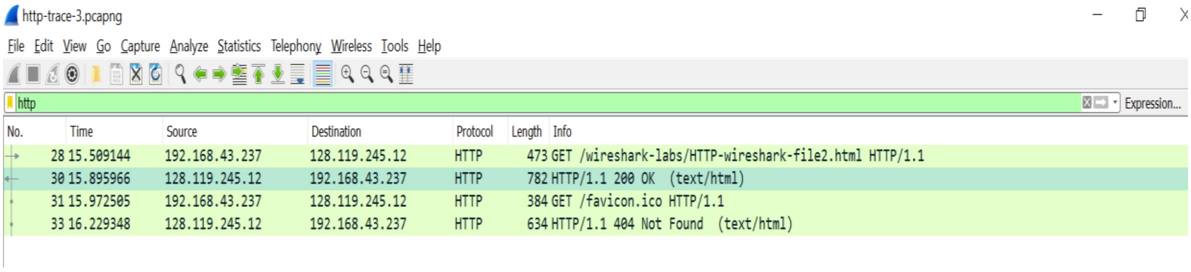
```
No.  Time          Source          Destination     Protocol  Length Info
  28 15.509144     192.168.43.237  128.119.245.12  HTTP      473 GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
  30 15.895966     128.119.245.12  192.168.43.237  HTTP      782 HTTP/1.1 200 OK  (text/html)
  31 15.972505     192.168.43.237  128.119.245.12  HTTP      384 GET /favicon.ico HTTP/1.1
  33 16.229348     128.119.245.12  192.168.43.237  HTTP      634 HTTP/1.1 404 Not Found  (text/html)
```

```
> Frame 30: 782 bytes on wire (6256 bits), 782 bytes captured (6256 bits) on interface 0
> Ethernet II, Src: MurataMa_b8:7b:08 (04:46:65:b8:7b:08), Dst: GemtekTe_5f:af:e3 (ac:81:12:5f:af:e3)
> Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.43.237
> Transmission Control Protocol, Src Port: 80, Dst Port: 56352, Seq: 1, Ack: 420, Len: 728
v Hypertext Transfer Protocol
  v HTTP/1.1 200 OK\r\n
    v [Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]
        [HTTP/1.1 200 OK\r\n]
        [Severity level: Chat]
        [Group: Sequence]
      Request Version: HTTP/1.1
      Status Code: 200
      Response Phrase: OK
  > Content-Length: 390      \r\n
    Content-Encoding: gzip\r\n
    Date: Fri, 22 Feb 2013 18:34:21 GMT\r\n
    Server: Apache/2.2.3 (CentOS)\r\n
    Last-Modified: Fri, 22 Feb 2013 18:34:02 GMT\r\n
```

```
0000  ac 81 12 5f af e3 04 46  65 b8 7b 08 08 00 45 00   ..._...F e.{...E.
0010  03 00 84 ae 40 00 3a 06  57 30 80 77 f5 0c c0 a8   ....@.:. W0.w....
0020  2b ed 00 50 dc 20 f9 40  79 d8 87 dc 38 64 50 18   +..P. .@ y...8dP.
0030  fa f0 06 5d 00 00 48 54  54 50 2f 31 2e 31 20 32   ...]..HT TP/1.1 2
0040  30 30 20 4f 4b 0d 0a 43  6f 6e 74 65 6e 74 2d 4c   00 OK..C ontent-L
```

Frame (782 bytes) Uncompressed entity body (563 bytes)

Hypertext Transfer Protocol: Protocol   Packets: 56 · Displayed: 4 (7.1%) · Load time: 0:0.6   Profile: Default

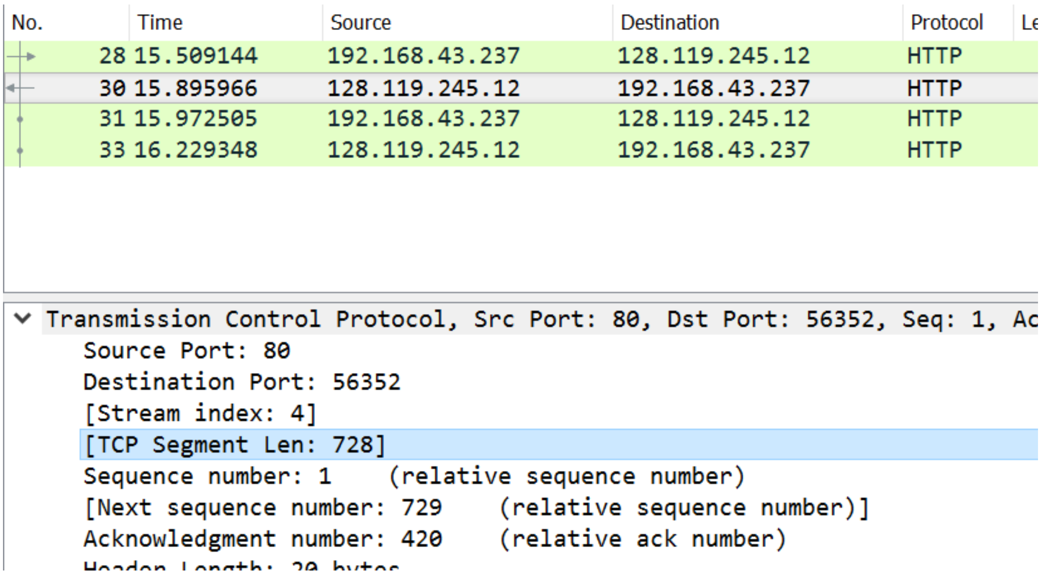

http-trace-3.pcapng
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
http
Expression...

```
No.  Time       Source          Destination     Protocol Length Info
  28 15.509144  192.168.43.237  128.119.245.12  HTTP      473 GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
  30 15.895966  128.119.245.12  192.168.43.237  HTTP      782 HTTP/1.1 200 OK  (text/html)
  31 15.972505  192.168.43.237  128.119.245.12  HTTP      384 GET /favicon.ico HTTP/1.1
  33 16.229348  128.119.245.12  192.168.43.237  HTTP      634 HTTP/1.1 404 Not Found  (text/html)
```

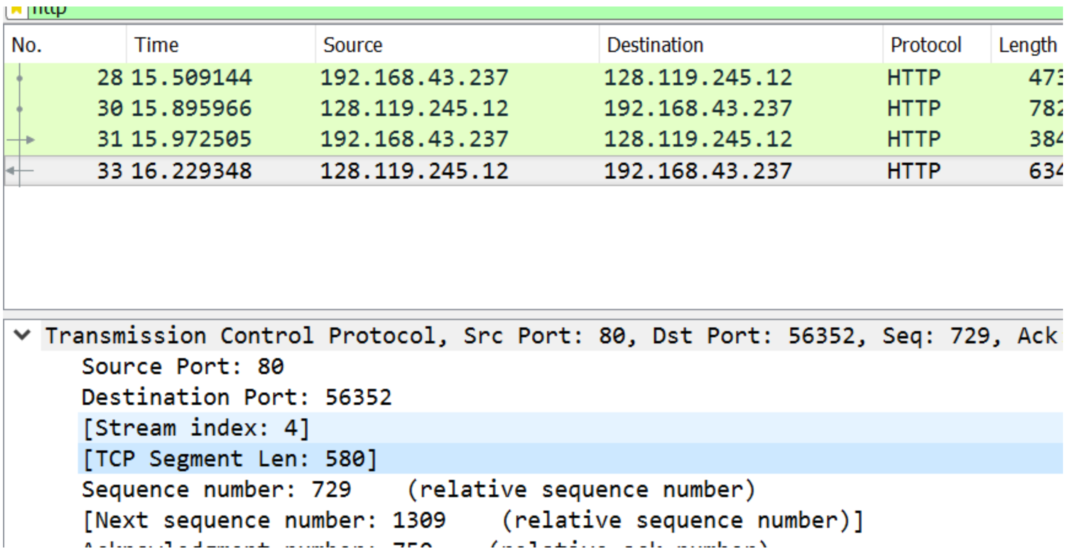
2. How many data-containing TCP segments were needed to carry the single HTTP response?

Ans:

For single HTTP response, the TCP segment length is 728 and 580



```
No.  Time       Source          Destination     Protocol  Le
  28 15.509144  192.168.43.237  128.119.245.12  HTTP
  30 15.895966  128.119.245.12  192.168.43.237  HTTP
  31 15.972505  192.168.43.237  128.119.245.12  HTTP
  33 16.229348  128.119.245.12  192.168.43.237  HTTP

Transmission Control Protocol, Src Port: 80, Dst Port: 56352, Seq: 1, Ac
    Source Port: 80
    Destination Port: 56352
    [Stream index: 4]
    [TCP Segment Len: 728]
    Sequence number: 1    (relative sequence number)
    [Next sequence number: 729    (relative sequence number)]
    Acknowledgment number: 420    (relative ack number)
    Header Length: 20 bytes
```



```
No.  Time       Source          Destination     Protocol  Length
  28 15.509144  192.168.43.237  128.119.245.12  HTTP       473
  30 15.895966  128.119.245.12  192.168.43.237  HTTP       782
  31 15.972505  192.168.43.237  128.119.245.12  HTTP       384
  33 16.229348  128.119.245.12  192.168.43.237  HTTP       634

Transmission Control Protocol, Src Port: 80, Dst Port: 56352, Seq: 729, Ack
    Source Port: 80
    Destination Port: 56352
    [Stream index: 4]
    [TCP Segment Len: 580]
    Sequence number: 729    (relative sequence number)
    [Next sequence number: 1309    (relative sequence number)]
    Acknowledgment number: 750    (relative ack number)
```

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

Ans:

Response 1:

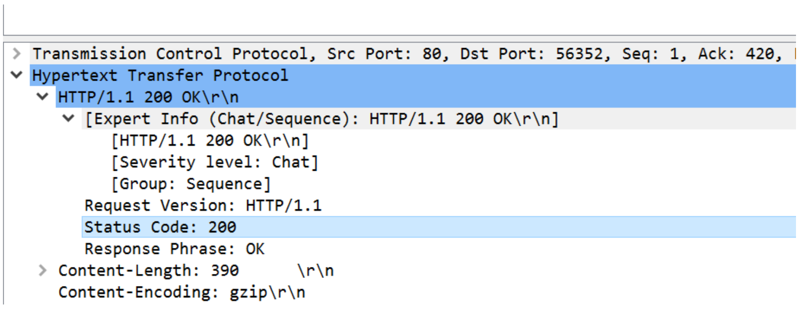
Status Code – 200

Phrase – OK

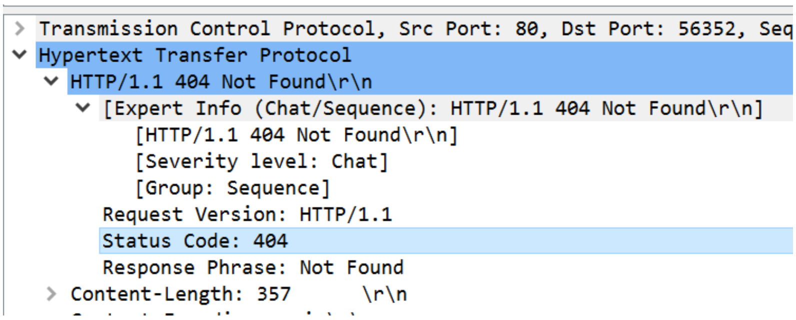
Response 2:

Status Code – 404

Phrase – Not Found



```
> Transmission Control Protocol, Src Port: 80, Dst Port: 56352, Seq: 1, Ack: 420,
v Hypertext Transfer Protocol
  v HTTP/1.1 200 OK\r\n
    v [Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]
        [HTTP/1.1 200 OK\r\n]
        [Severity level: Chat]
        [Group: Sequence]
      Request Version: HTTP/1.1
      Status Code: 200
      Response Phrase: OK
  > Content-Length: 390       \r\n
    Content-Encoding: gzip\r\n
```

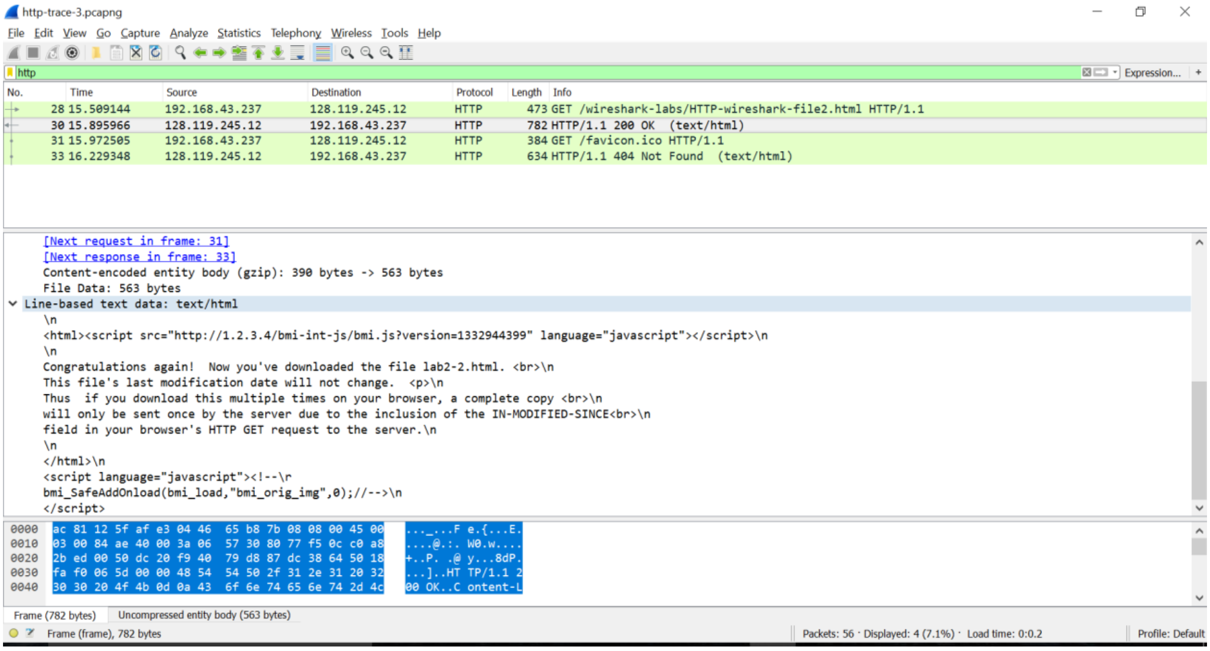


```
> Transmission Control Protocol, Src Port: 80, Dst Port: 56352, Seq
v Hypertext Transfer Protocol
  v HTTP/1.1 404 Not Found\r\n
    v [Expert Info (Chat/Sequence): HTTP/1.1 404 Not Found\r\n]
        [HTTP/1.1 404 Not Found\r\n]
        [Severity level: Chat]
        [Group: Sequence]
      Request Version: HTTP/1.1
      Status Code: 404
      Response Phrase: Not Found
  > Content-Length: 357       \r\n
```

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

Ans:

There are no HTTP status lines in the transmitted data associated with a TCP induced “Continuation”



http-trace-3.pcapng
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
http
Expression...

No.	Time	Source	Destination	Protocol	Length	Info
28	15.509144	192.168.43.237	128.119.245.12	HTTP	473	GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
30	15.895966	128.119.245.12	192.168.43.237	HTTP	782	HTTP/1.1 200 OK (text/html)
31	15.972505	192.168.43.237	128.119.245.12	HTTP	384	GET /favicon.ico HTTP/1.1
33	16.229348	128.119.245.12	192.168.43.237	HTTP	634	HTTP/1.1 404 Not Found (text/html)

```
    [Next request in frame: 31]
    [Next response in frame: 33]
    Content-encoded entity body (gzip): 390 bytes -> 563 bytes
    File Data: 563 bytes
v Line-based text data: text/html
    \n
    <html><script src="http://1.2.3.4/bmi-int-js/bmi.js?version=1332944399" language="javascript"></script>\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
    <script language="javascript"><!--\r
    bmi_SafeAddOnload(bmi_load,"bmi_orig_img",0);//-->\n
    </script>
```

```
0000  ac 81 12 5f af e3 04 46  65 b8 7b 08 08 00 45 00   ..._...F e.{...E.
0010  03 00 84 ae 40 00 3a 06  57 30 80 77 f5 0c c0 a8   ....@.:. W0.w....
0020  2b ed 00 50 dc 20 f9 40  79 d8 87 dc 38 64 50 18   +..P. .@ y...8dP.
0030  fa f0 06 5d 00 00 48 54  54 50 2f 31 2e 31 20 32   ...]..HT TP/1.1 2
0040  30 30 20 4f 4b 0d 0a 43  6f 6e 74 65 6e 74 2d 4c   00 OK..C ontent-L
```

Frame (782 bytes) Uncompressed entity body (563 bytes)

Frame (frame), 782 bytes

Packets: 56 · Displayed: 4 (7.1%) · Load time: 0:0.2

Profile: Default