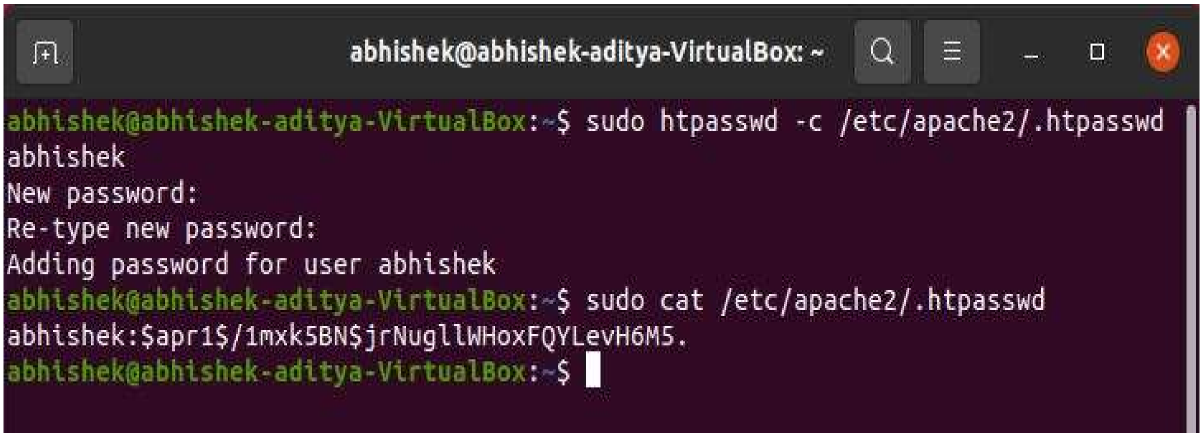
COMPUTER NETWORKS LAB
WEEK 3

ABHISHEK ADITYA BS
PES1UG19CS019
SECTION A

1. Password Authentication

1.1 Password Generation

- To enable basic authentication for HTTP, we need to generate a password file. This file can be generated using the **htpasswd** command.
- Using **sudo htpasswd -c /etc/apache2/.htpasswd** *username* we can set a password for the given user username and write it into the **.htpasswd** configuration file.
- The cat command can be used to view the encrypted password file, which is encrypted using the Data Encryption Standard algorithm



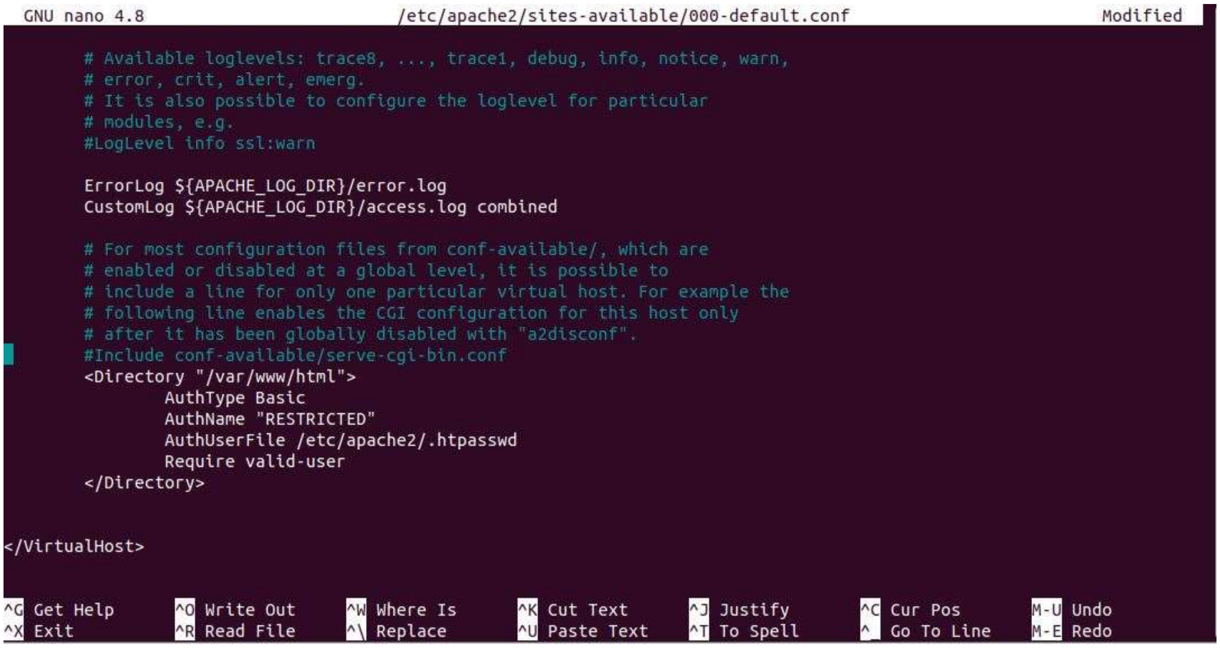
```
abhishek@abhishek-aditya-VirtualBox:~$ sudo htpasswd -c /etc/apache2/.htpasswd
abhishek
New password:
Re-type new password:
Adding password for user abhishek
abhishek@abhishek-aditya-VirtualBox:~$ sudo cat /etc/apache2/.htpasswd
abhishek:$apr1$/1mxk5BN$jrNugllWHoxFQYLevH6M5.
abhishek@abhishek-aditya-VirtualBox:~$ 
```

1.2 Apache Server Authentication

To enable password authentication in the server, we need to modify the Apache configuration file

This can be done using
sudo nano /etc/apache2/sites-available/000- default.conf

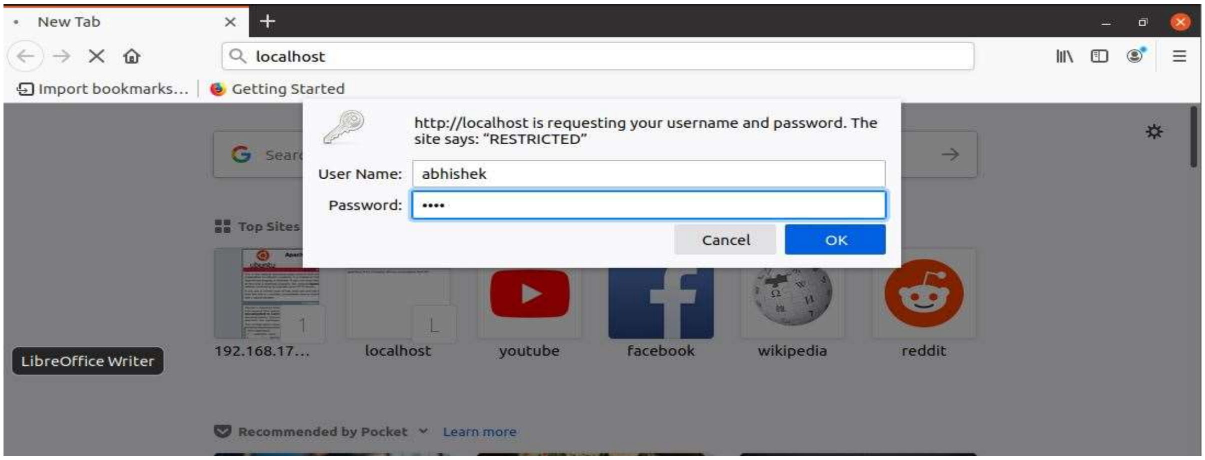
- Password authentication is added to the **/var/www/html** directory which is the localhost home directory so that all files hosted here will require authentication to access.
- To activate the authentication and policy, we need to restart the server using **sudo service apache2 restart**



```
 GNU nano 4.8                   /etc/apache2/sites-available/000-default.conf                   Modified

        # Available loglevels: trace8, ..., trace1, debug, info, notice, warn,
        # error, crit, alert, emerg.
        # It is also possible to configure the loglevel for particular
        # modules, e.g.
        #LogLevel info ssl:warn

        ErrorLog ${APACHE_LOG_DIR}/error.log
        CustomLog ${APACHE_LOG_DIR}/access.log combined

        # For most configuration files from conf-available/, which are
        # enabled or disabled at a global level, it is possible to
        # include a line for only one particular virtual host. For example the
        # following line enables the CGI configuration for this host only
        # after it has been globally disabled with "a2disconf".
        #Include conf-available/serve-cgi-bin.conf
        <Directory "/var/www/html">
                AuthType Basic
                AuthName "RESTRICTED"
                AuthUserFile /etc/apache2/.htpasswd
                Require valid-user
        </Directory>


</VirtualHost>


^G Get Help     ^O Write Out    ^W Where Is     ^K Cut Text     ^J Justify      ^C Cur Pos      M-U Undo
^X Exit         ^R Read File    ^\ Replace      ^U Paste Text   ^T To Spell     ^_ Go To Line   M-E Redo
```

1.3 Accessing Localhost

- We can now access localhost only after entering the username and password set earlier
- These credentials are entered on the browser window



http://localhost is requesting your username and password. The site says: "RESTRICTED"

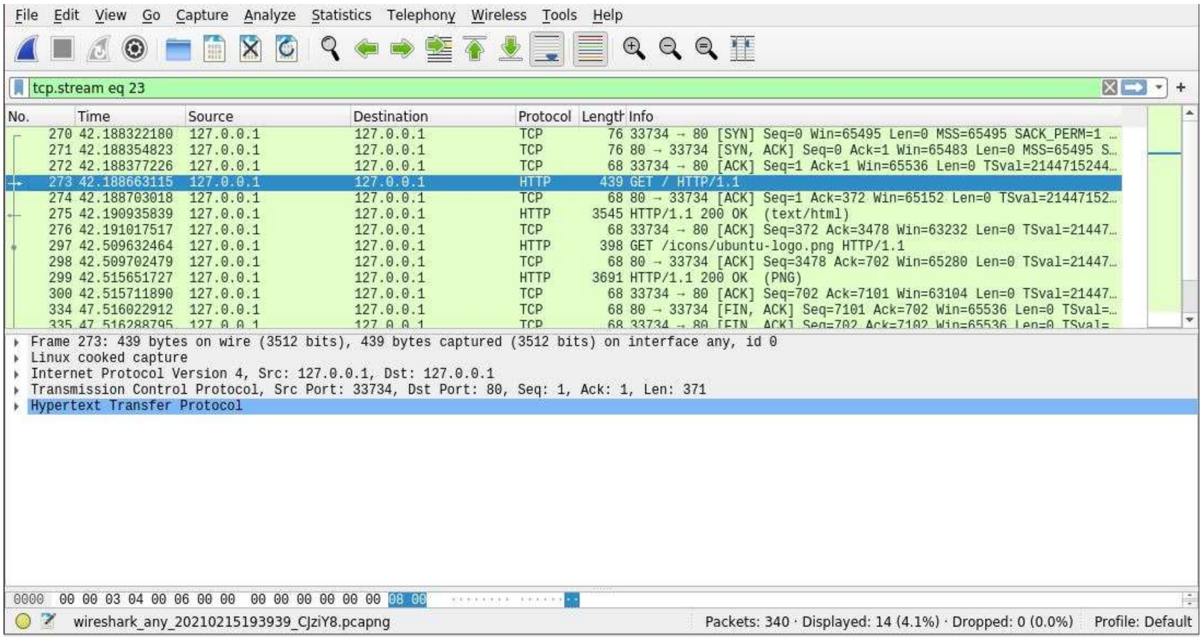
User Name: abhishek

Password: ••••

Cancel OK

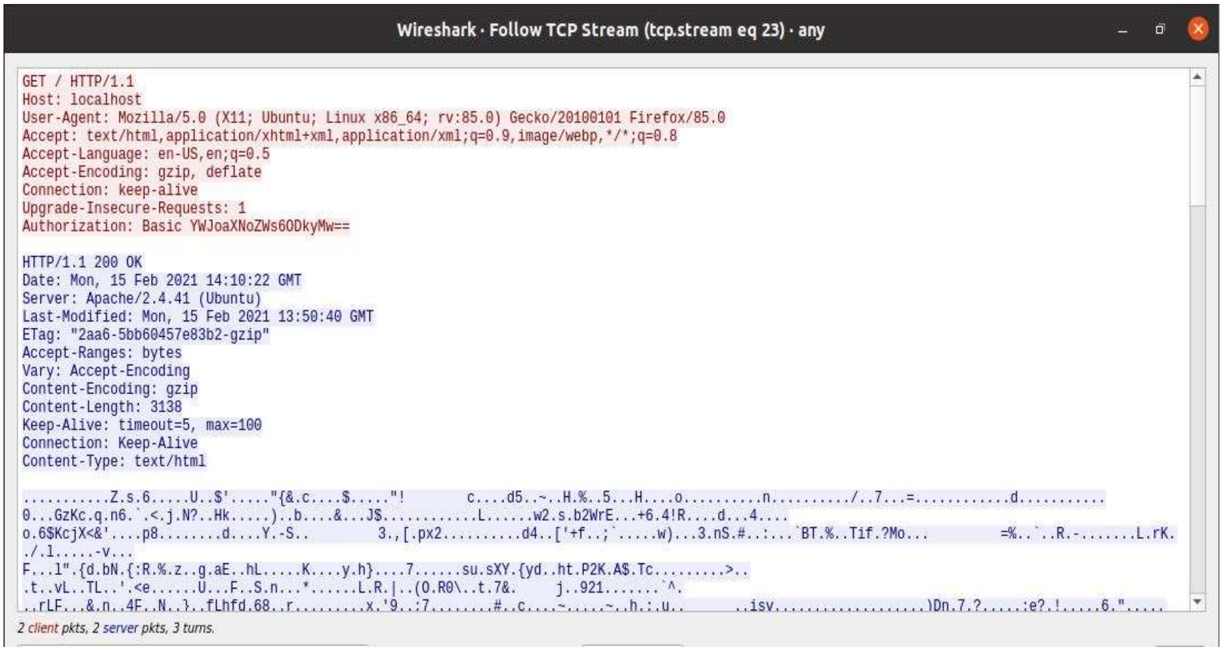
1.4 Wireshark Packet Capture

Wireshark can be used to capture the packets sent on the network. The first GET request corresponding to the HTML file is analysed and its TCP Stream is expanded, and parameters examined.



File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

```
tcp.stream eq 23

No.   Time          Source      Destination  Protocol Length Info
 270 42.188322180  127.0.0.1   127.0.0.1    TCP        76 33734 → 80 [SYN] Seq=0 Win=65495 Len=0 MSS=65495 SACK_PERM=1 …
 271 42.188354823  127.0.0.1   127.0.0.1    TCP        76 80 → 33734 [SYN, ACK] Seq=0 Ack=1 Win=65483 Len=0 MSS=65495 S…
 272 42.188377226  127.0.0.1   127.0.0.1    TCP        68 33734 → 80 [ACK] Seq=1 Ack=1 Win=65536 Len=0 TSval=2144715244…
 273 42.188663115  127.0.0.1   127.0.0.1    HTTP      439 GET / HTTP/1.1
 274 42.188703018  127.0.0.1   127.0.0.1    TCP        68 80 → 33734 [ACK] Seq=1 Ack=372 Win=65152 Len=0 TSval=21447152…
 275 42.190935839  127.0.0.1   127.0.0.1    HTTP     3545 HTTP/1.1 200 OK  (text/html)
 276 42.191017517  127.0.0.1   127.0.0.1    TCP        68 33734 → 80 [ACK] Seq=372 Ack=3478 Win=63232 Len=0 TSval=21447…
 297 42.509632464  127.0.0.1   127.0.0.1    HTTP      398 GET /icons/ubuntu-logo.png HTTP/1.1
 298 42.509702479  127.0.0.1   127.0.0.1    TCP        68 80 → 33734 [ACK] Seq=3478 Ack=702 Win=65280 Len=0 TSval=21447…
 299 42.515651727  127.0.0.1   127.0.0.1    HTTP     3691 HTTP/1.1 200 OK  (PNG)
 300 42.515711890  127.0.0.1   127.0.0.1    TCP        68 33734 → 80 [ACK] Seq=702 Ack=7101 Win=63104 Len=0 TSval=21447…
 334 47.516022912  127.0.0.1   127.0.0.1    TCP        68 80 → 33734 [FIN, ACK] Seq=7101 Ack=702 Win=65536 Len=0 TSval=…
 335 47.516288795  127.0.0.1   127.0.0.1    TCP        68 33734 → 80 [FIN, ACK] Seq=702 Ack=7102 Win=65536 Len=0 TSval=…

▸ Frame 273: 439 bytes on wire (3512 bits), 439 bytes captured (3512 bits) on interface any, id 0
▸ Linux cooked capture
▸ Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1
▸ Transmission Control Protocol, Src Port: 33734, Dst Port: 80, Seq: 1, Ack: 1, Len: 371
▸ Hypertext Transfer Protocol

0000  00 00 03 04 00 06 00 00  00 00 00 00 00 00 08 00   ........ ........

wireshark_any_20210215193939_CJziY8.pcapng    Packets: 340 · Displayed: 14 (4.1%) · Dropped: 0 (0.0%)    Profile: Default
```



Wireshark · Follow TCP Stream (tcp.stream eq 23) · any

```
GET / HTTP/1.1
Host: localhost
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:85.0) Gecko/20100101 Firefox/85.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Upgrade-Insecure-Requests: 1
Authorization: Basic YWJoaXNoZWs6ODkyMw==

HTTP/1.1 200 OK
Date: Mon, 15 Feb 2021 14:10:22 GMT
Server: Apache/2.4.41 (Ubuntu)
Last-Modified: Mon, 15 Feb 2021 13:50:40 GMT
ETag: "2aa6-5bb60457e83b2-gzip"
Accept-Ranges: bytes
Vary: Accept-Encoding
Content-Encoding: gzip
Content-Length: 3138
Keep-Alive: timeout=5, max=100
Connection: Keep-Alive
Content-Type: text/html

..........Z.s.6.....U..$'....."{&.c....$....."!       c....d5..~..H.%..5...H....o..........n........../..7...=...........d..........
0...GzKc.q.n6.`.<.j.N?..Hk.....)..b....&...J$...........L......w2.s.b2WrE...+6.4!R....d...4....
o.6$KcjX<&'....p8........d....Y.-S..        3.,[.px2..........d4..['+f..;`.....w)...3.nS.#..:...`BT.%..Tif.?Mo...        =%..`..R.-.......L.rK.
./.l.....-v...
F...l".{d.bN.{:R.%.z..g.aE..hL.....K....y.h}....7......su.sXY.{yd..ht.P2K.A$.Tc.........>..
.t..vL..TL..'.<e......U...F..S.n...*......L.R.|..(O.R0\..t.7&.     j..921.......`^.
..rLF...&.n..4F..N..}..fLhfd.68..r.........x.'9..:7........#..c....~.....~..h.:.u..       ..isv..................)Dn.7.?.....:e?.!.....6.".....
```

2 client pkts, 2 server pkts, 3 turns.

1.5 Decrypting Base64 Encryption

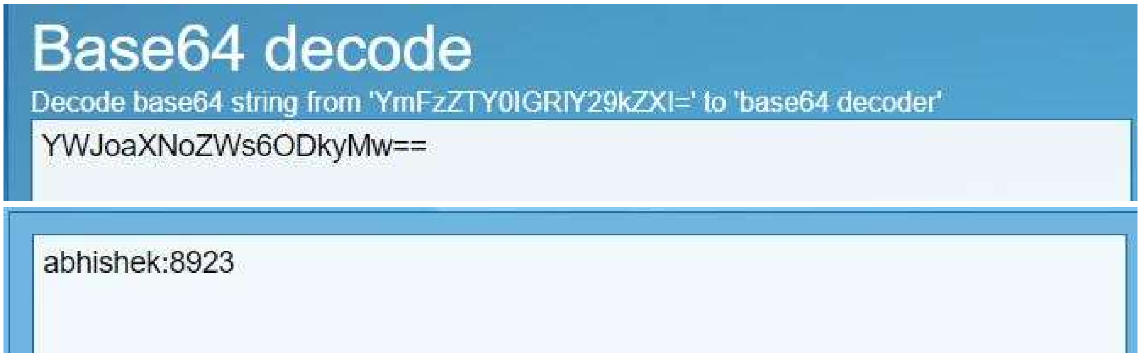
- We can observe that the **Authorization** field stores the password we had entered to access localhost.
- This password is encrypted using the Base64 algorithm before it is transmitted along the network.
  - Each character is converted into 8-bit binary ASCII representation
  - Group these bits into chunks of 6-bits.
  - Convert these chunks into their decimal equivalent and assign the corresponding Base64 character
  - The Base64 algorithm supports the use of lowercase as well as uppercase alphabets, all digits from 0 to 9 and the special characters + and / only.
- Similarly, Base64 is decoded by obtaining the 6-bit binary chunks for each character, grouping them into chunks of 8-bits and then converting into their corresponding character
  - ★ **YWJoaXNoZWs6ODkyMw==** can be first converted to a 6-bit binary equivalent

Y	24	011000
W	22	010110
J	9	001001
o	40	101000
a	26	011010
X	23	010111
N	13	001101
o	40	101000
Z	25	011001
W	22	010110
s	44	010110
6	58	011010
O	14	001110
D	3	000011
k	36	100100
y	50	110010
M	12	001100
w	48	110000

★ These binary equivalents can then be grouped together and then decoded to ASCII

01100001	a
01100010	b
01101000	h
01101001	i
01110011	s
01101000	h
01100101	e
01100101	k
10011010	:
00111000	8
00111001	9
00110010	2
00110011	3

Decoding **YWJoaXNoZWs6ODkyMw==** using online Base64 decoder



Base64 decode

Decode base64 string from 'YmFzZTY0IGRlY29kZXI=' to 'base64 decoder'

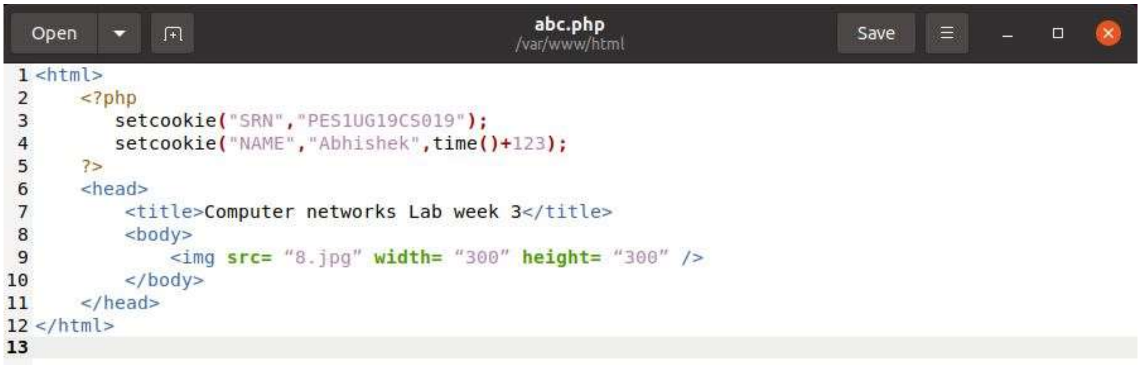
YWJoaXNoZWs6ODkyMw==

abhishek:8923

2. Setting Cookies

2.1 Setting Cookies with PHP

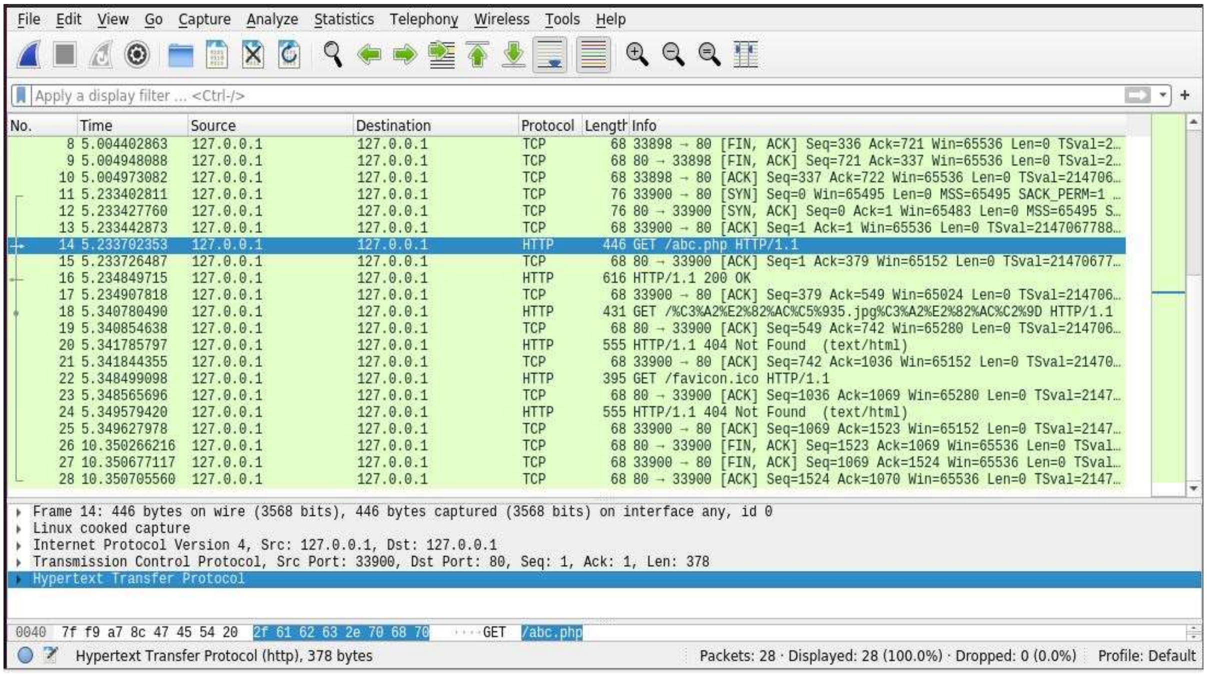
- We can set cookies using a PHP script and the **setcookie(name, value, expire_time)** function
- When this file is requested by the browser a cookie will be set



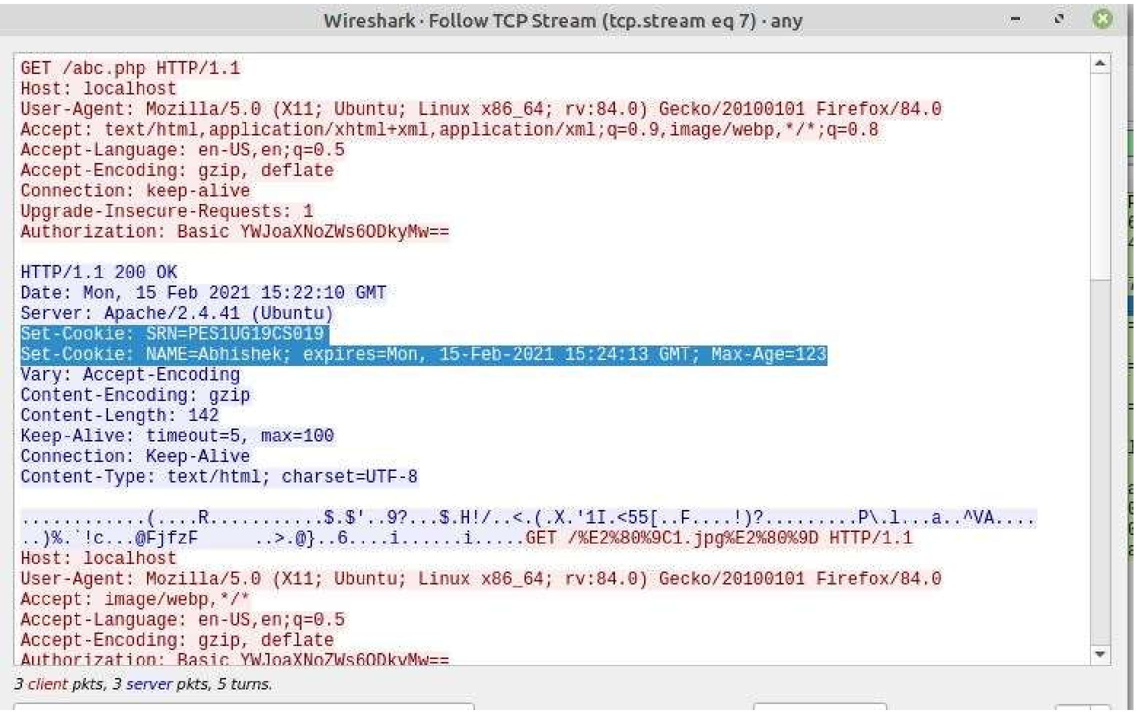
```
<html>
    <?php
        setcookie("SRN","PES1UG19CS019");
        setcookie("NAME","Abhishek",time()+123);
    ?>
    <head>
        <title>Computer networks Lab week 3</title>
        <body>
            <img src= “8.jpg” width= “300” height= “300” />
        </body>
    </head>
</html>
```

2.2 Wireshark Capture

- Wireshark can be used to capture the packets sent on the network. The first GET request corresponding to the PHP file is analysed and its TCP Stream is expanded and examined.
- The Cookie name, value and the associated parameters can be viewed under the HTTP header **Set-Cookie**.
- We can observe the name, value, and the expiry time of the set cookie, if the cookie has not already expired.



```
No.   Time         Source      Destination  Protocol Length Info
    8 5.004402863  127.0.0.1   127.0.0.1    TCP        68 33898 → 80 [FIN, ACK] Seq=336 Ack=721 Win=65536 Len=0 TSval=2…
    9 5.004948088  127.0.0.1   127.0.0.1    TCP        68 80 → 33898 [FIN, ACK] Seq=721 Ack=337 Win=65536 Len=0 TSval=2…
   10 5.004973082  127.0.0.1   127.0.0.1    TCP        68 33898 → 80 [ACK] Seq=337 Ack=722 Win=65536 Len=0 TSval=214706…
   11 5.233402811  127.0.0.1   127.0.0.1    TCP        76 33900 → 80 [SYN] Seq=0 Win=65495 Len=0 MSS=65495 SACK_PERM=1 …
   12 5.233427760  127.0.0.1   127.0.0.1    TCP        76 80 → 33900 [SYN, ACK] Seq=0 Ack=1 Win=65483 Len=0 MSS=65495 S…
   13 5.233442873  127.0.0.1   127.0.0.1    TCP        68 33900 → 80 [ACK] Seq=1 Ack=1 Win=65536 Len=0 TSval=2147067788…
   14 5.233702353  127.0.0.1   127.0.0.1    HTTP      446 GET /abc.php HTTP/1.1
   15 5.233726487  127.0.0.1   127.0.0.1    TCP        68 80 → 33900 [ACK] Seq=1 Ack=379 Win=65152 Len=0 TSval=21470677…
   16 5.234849715  127.0.0.1   127.0.0.1    HTTP      616 HTTP/1.1 200 OK
   17 5.234907818  127.0.0.1   127.0.0.1    TCP        68 33900 → 80 [ACK] Seq=379 Ack=549 Win=65024 Len=0 TSval=214706…
   18 5.340780490  127.0.0.1   127.0.0.1    HTTP      431 GET /%C3%A2%E2%82%AC%C5%935.jpg%C3%A2%E2%82%AC%C2%9D HTTP/1.1
   19 5.340854638  127.0.0.1   127.0.0.1    TCP        68 80 → 33900 [ACK] Seq=549 Ack=742 Win=65280 Len=0 TSval=214706…
   20 5.341785797  127.0.0.1   127.0.0.1    HTTP      555 HTTP/1.1 404 Not Found  (text/html)
   21 5.341844355  127.0.0.1   127.0.0.1    TCP        68 33900 → 80 [ACK] Seq=742 Ack=1036 Win=65152 Len=0 TSval=21470…
   22 5.348499098  127.0.0.1   127.0.0.1    HTTP      395 GET /favicon.ico HTTP/1.1
   23 5.348565696  127.0.0.1   127.0.0.1    TCP        68 80 → 33900 [ACK] Seq=1036 Ack=1069 Win=65280 Len=0 TSval=2147…
   24 5.349579420  127.0.0.1   127.0.0.1    HTTP      555 HTTP/1.1 404 Not Found  (text/html)
   25 5.349627978  127.0.0.1   127.0.0.1    TCP        68 33900 → 80 [ACK] Seq=1069 Ack=1523 Win=65152 Len=0 TSval=2147…
   26 10.350266216 127.0.0.1   127.0.0.1    TCP        68 80 → 33900 [FIN, ACK] Seq=1523 Ack=1069 Win=65536 Len=0 TSval…
   27 10.350677117 127.0.0.1   127.0.0.1    TCP        68 33900 → 80 [FIN, ACK] Seq=1069 Ack=1524 Win=65536 Len=0 TSval…
   28 10.350705560 127.0.0.1   127.0.0.1    TCP        68 80 → 33900 [ACK] Seq=1524 Ack=1070 Win=65536 Len=0 TSval=2147…

▸ Frame 14: 446 bytes on wire (3568 bits), 446 bytes captured (3568 bits) on interface any, id 0
▸ Linux cooked capture
▸ Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1
▸ Transmission Control Protocol, Src Port: 33900, Dst Port: 80, Seq: 1, Ack: 1, Len: 378
▸ Hypertext Transfer Protocol

0040  7f f9 a7 8c 47 45 54 20  2f 61 62 63 2e 70 68 70   ····GET /abc.php

Hypertext Transfer Protocol (http), 378 bytes    Packets: 28 · Displayed: 28 (100.0%) · Dropped: 0 (0.0%)    Profile: Default
```



```
GET /abc.php HTTP/1.1
Host: localhost
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:84.0) Gecko/20100101 Firefox/84.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Upgrade-Insecure-Requests: 1
Authorization: Basic YWJoaXNoZWs6ODkyMw==

HTTP/1.1 200 OK
Date: Mon, 15 Feb 2021 15:22:10 GMT
Server: Apache/2.4.41 (Ubuntu)
Set-Cookie: SRN=PES1UG19CS019
Set-Cookie: NAME=Abhishek; expires=Mon, 15-Feb-2021 15:24:13 GMT; Max-Age=123
Vary: Accept-Encoding
Content-Encoding: gzip
Content-Length: 142
Keep-Alive: timeout=5, max=100
Connection: Keep-Alive
Content-Type: text/html; charset=UTF-8

............(....R...........$.$'..9?...$.H!/..<.(.X.'1I.<55[..F....!)?.........P\.l...a..^VA....
..)%.`!c...@FjfzF     ..>.@}..6....i......i.....GET /%E2%80%9C1.jpg%E2%80%9D HTTP/1.1
Host: localhost
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:84.0) Gecko/20100101 Firefox/84.0
Accept: image/webp,*/*
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Authorization: Basic YWJoaXNoZWs6ODkyMw==
```

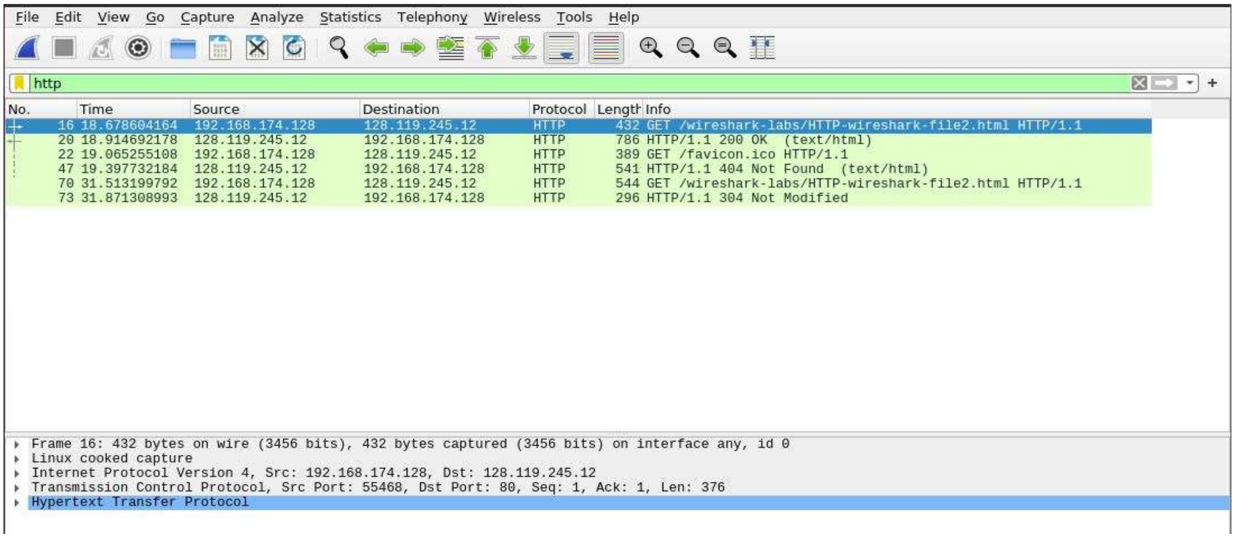
3 client pkts, 3 server pkts, 5 turns.

3. Conditional GET

- A conditional HTTP response is one that carries the resource only if it had been modified since the last GET request by the client.
- The HTTP header **If-Modified-Since** is one way to implement Conditional GET
- The server checks the **If-Modified-Since** header value and resends the resource only if it has been modified since the timestamp in the header
- If it has not been modified, a **304 Not Modified** status code is sent back.

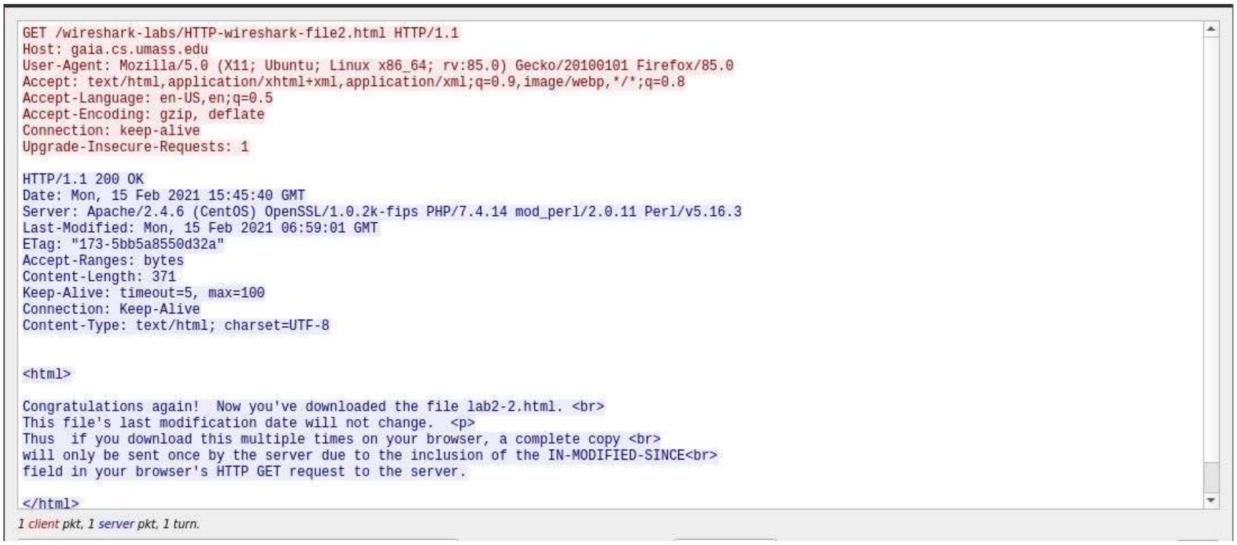
3.1 Repeat Requests for HTML Page

- An HTML page is requested by the client and the HTML file is obtained along with a 200 OK response status
- Immediately, the request is made again either by refreshing or accessing it via a browser tab
- The second response from the server is obtained as **304 Not Modified** since the resource has not been modified since the last GET.


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

```
No.   Time          Source           Destination      Protocol Length Info
   16 18.678604164  192.168.174.128  128.119.245.12   HTTP     432 GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
   20 18.914692178  128.119.245.12   192.168.174.128  HTTP     786 HTTP/1.1 200 OK  (text/html)
   22 19.065255108  192.168.174.128  128.119.245.12   HTTP     389 GET /favicon.ico HTTP/1.1
   47 19.397732184  128.119.245.12   192.168.174.128  HTTP     541 HTTP/1.1 404 Not Found  (text/html)
   70 31.513199792  192.168.174.128  128.119.245.12   HTTP     544 GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
   73 31.871308993  128.119.245.12   192.168.174.128  HTTP     296 HTTP/1.1 304 Not Modified
```

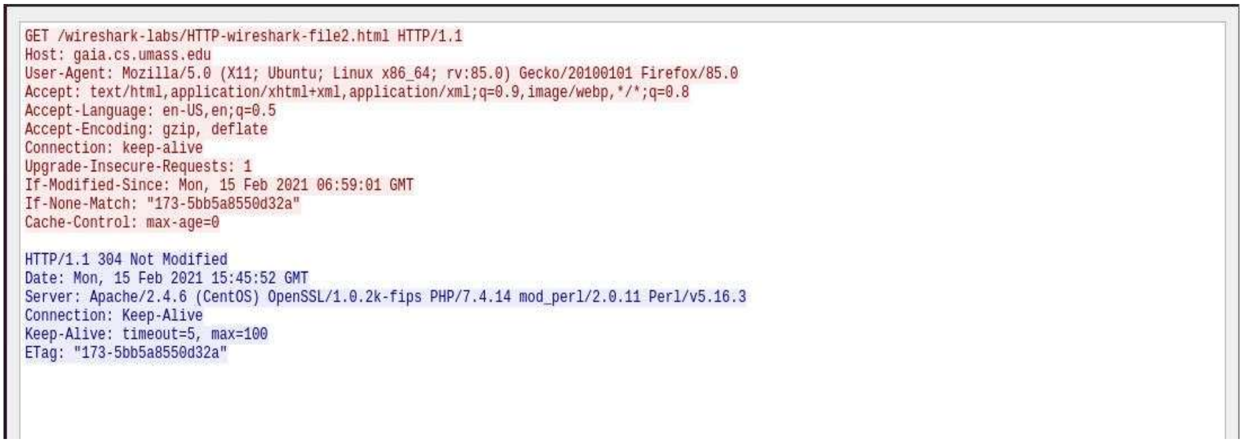
```
▸ Frame 16: 432 bytes on wire (3456 bits), 432 bytes captured (3456 bits) on interface any, id 0
▸ Linux cooked capture
▸ Internet Protocol Version 4, Src: 192.168.174.128, Dst: 128.119.245.12
▸ Transmission Control Protocol, Src Port: 55468, Dst Port: 80, Seq: 1, Ack: 1, Len: 376
▸ Hypertext Transfer Protocol
```



```
GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
Host: gaia.cs.umass.edu
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:85.0) Gecko/20100101 Firefox/85.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Upgrade-Insecure-Requests: 1

HTTP/1.1 200 OK
Date: Mon, 15 Feb 2021 15:45:40 GMT
Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.14 mod_perl/2.0.11 Perl/v5.16.3
Last-Modified: Mon, 15 Feb 2021 06:59:01 GMT
ETag: "173-5bb5a8550d32a"
Accept-Ranges: bytes
Content-Length: 371
Keep-Alive: timeout=5, max=100
Connection: Keep-Alive
Content-Type: text/html; charset=UTF-8


<html>

Congratulations again!  Now you've downloaded the file lab2-2.html. <br>
This file's last modification date will not change.  <p>
Thus  if you download this multiple times on your browser, a complete copy <br>
will only be sent once by the server due to the inclusion of the IN-MODIFIED-SINCE<br>
field in your browser's HTTP GET request to the server.

</html>
```

1 client pkt, 1 server pkt, 1 turn.

First Request from server - **200 OK**

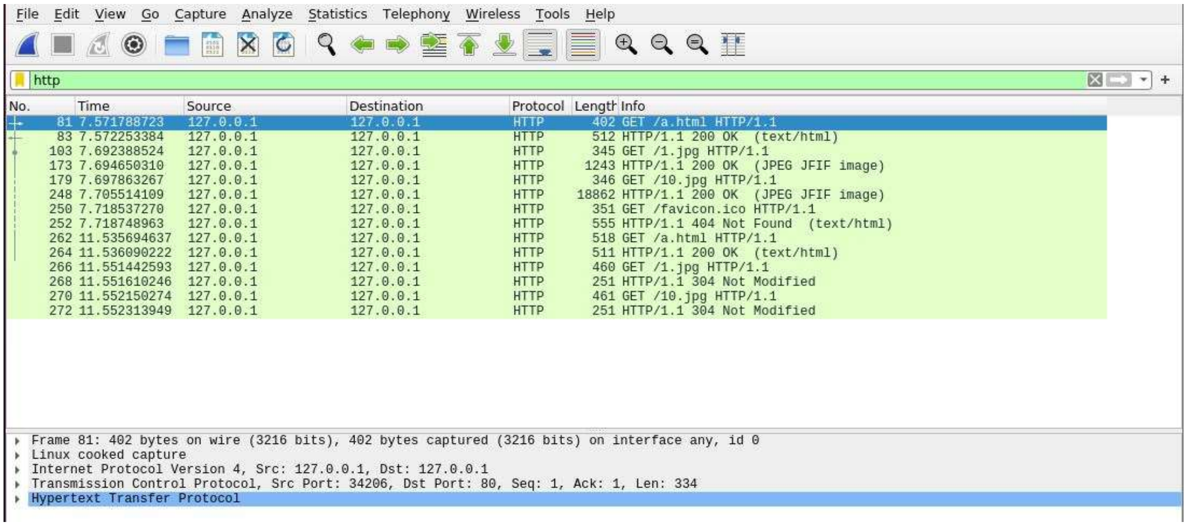


```
GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
Host: gaia.cs.umass.edu
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:85.0) Gecko/20100101 Firefox/85.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Upgrade-Insecure-Requests: 1
If-Modified-Since: Mon, 15 Feb 2021 06:59:01 GMT
If-None-Match: "173-5bb5a8550d32a"
Cache-Control: max-age=0

HTTP/1.1 304 Not Modified
Date: Mon, 15 Feb 2021 15:45:52 GMT
Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.14 mod_perl/2.0.11 Perl/v5.16.3
Connection: Keep-Alive
Keep-Alive: timeout=5, max=100
ETag: "173-5bb5a8550d32a"
```

Second Request from Server – **304 Not Modified**

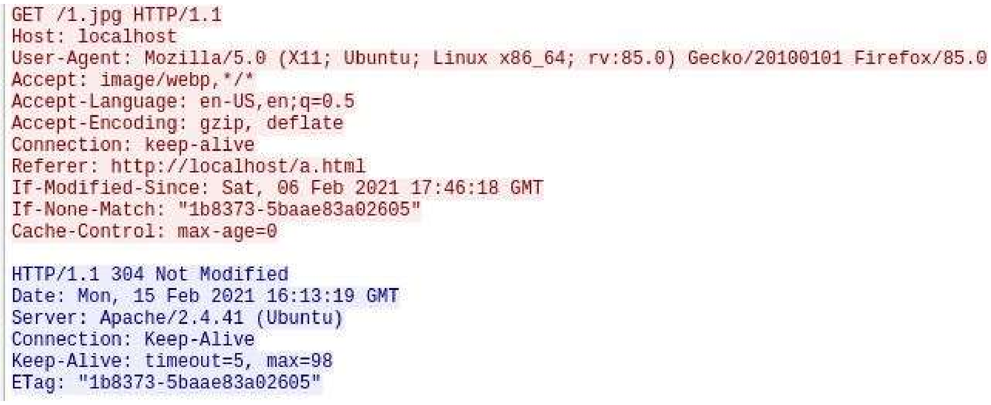
3.2 Conditional GET on Localhost

- A simple HTML file with 2 images is placed in the localhost home directory.
- From a browser, a request is made for the file, which receives a response of **200 OK** with both images being sent by the server.

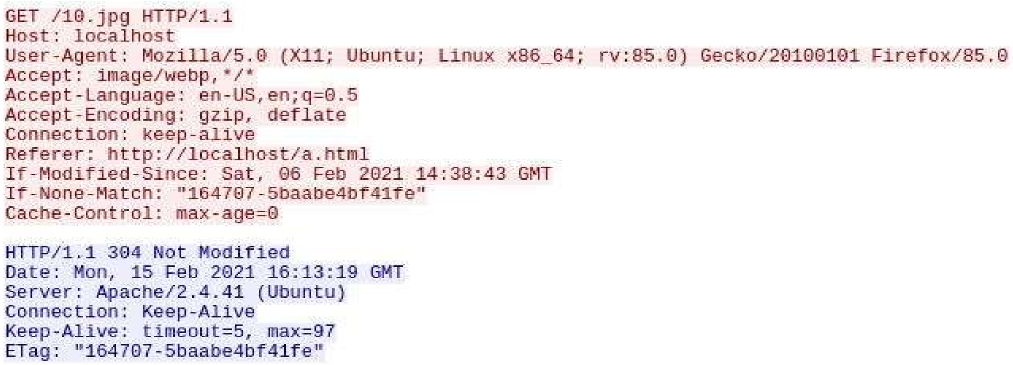


```
No.   Time          Source      Destination  Protocol Length Info
   81 7.571788723   127.0.0.1   127.0.0.1    HTTP      402 GET /a.html HTTP/1.1
   83 7.572253384   127.0.0.1   127.0.0.1    HTTP      512 HTTP/1.1 200 OK  (text/html)
  103 7.692388524   127.0.0.1   127.0.0.1    HTTP      345 GET /1.jpg HTTP/1.1
  173 7.694650310   127.0.0.1   127.0.0.1    HTTP     1243 HTTP/1.1 200 OK  (JPEG JFIF image)
  179 7.697863267   127.0.0.1   127.0.0.1    HTTP      346 GET /10.jpg HTTP/1.1
  248 7.705514109   127.0.0.1   127.0.0.1    HTTP    18862 HTTP/1.1 200 OK  (JPEG JFIF image)
  250 7.718537270   127.0.0.1   127.0.0.1    HTTP      351 GET /favicon.ico HTTP/1.1
  252 7.718748963   127.0.0.1   127.0.0.1    HTTP      555 HTTP/1.1 404 Not Found  (text/html)
  262 11.535694637  127.0.0.1   127.0.0.1    HTTP      518 GET /a.html HTTP/1.1
  264 11.536090222  127.0.0.1   127.0.0.1    HTTP      511 HTTP/1.1 200 OK  (text/html)
  266 11.551442593  127.0.0.1   127.0.0.1    HTTP      460 GET /1.jpg HTTP/1.1
  268 11.551610246  127.0.0.1   127.0.0.1    HTTP      251 HTTP/1.1 304 Not Modified
  270 11.552150274  127.0.0.1   127.0.0.1    HTTP      461 GET /10.jpg HTTP/1.1
  272 11.552313949  127.0.0.1   127.0.0.1    HTTP      251 HTTP/1.1 304 Not Modified

▸ Frame 81: 402 bytes on wire (3216 bits), 402 bytes captured (3216 bits) on interface any, id 0
▸ Linux cooked capture
▸ Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1
▸ Transmission Control Protocol, Src Port: 34206, Dst Port: 80, Seq: 1, Ack: 1, Len: 334
▸ Hypertext Transfer Protocol
```

- When the request is sent again, the **304 Not Modified** status code is sent and images are not sent back.



```
GET /1.jpg HTTP/1.1
Host: localhost
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:85.0) Gecko/20100101 Firefox/85.0
Accept: image/webp,*/*
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Referer: http://localhost/a.html
If-Modified-Since: Sat, 06 Feb 2021 17:46:18 GMT
If-None-Match: "1b8373-5baae83a02605"
Cache-Control: max-age=0

HTTP/1.1 304 Not Modified
Date: Mon, 15 Feb 2021 16:13:19 GMT
Server: Apache/2.4.41 (Ubuntu)
Connection: Keep-Alive
Keep-Alive: timeout=5, max=98
ETag: "1b8373-5baae83a02605"
```



```
GET /10.jpg HTTP/1.1
Host: localhost
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:85.0) Gecko/20100101 Firefox/85.0
Accept: image/webp,*/*
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Referer: http://localhost/a.html
If-Modified-Since: Sat, 06 Feb 2021 14:38:43 GMT
If-None-Match: "164707-5baabe4bf41fe"
Cache-Control: max-age=0

HTTP/1.1 304 Not Modified
Date: Mon, 15 Feb 2021 16:13:19 GMT
Server: Apache/2.4.41 (Ubuntu)
Connection: Keep-Alive
Keep-Alive: timeout=5, max=97
ETag: "164707-5baabe4bf41fe"
```