

1)

a)

```
1249 12.232004170 2400:4f20:0:200:db8... 2600:1406:bc00:53::... HTTP 387 GET / HTTP/1.1
```

HTTP 1.1

b)

```
Hypertext Transfer Protocol
GET / HTTP/1.1\r\n
[Expert Info (Chat/Sequence): GET / HTTP/1.1\r\n]
Request Method: GET
Request URI: /
Request Version: HTTP/1.1
Host: example.com\r\n
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:141.0) Gecko/20100101 Firefox/141.0\r\n
Accept: */*\r\n
Accept-Language: en-US,en;q=0.5\r\n
Accept-Encoding: gzip, deflate\r\n
Sec-GPC: 1\r\n
Connection: keep-alive\r\n
Priority: u=4\r\n
Pragma: no-cache\r\n
Cache-Control: no-cache\r\n
\r\n
[Full request URI: http://example.com/]
```

Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:141.0) Gecko/20100101 Firefox/141.0

2)

a) Received a 3XX series status code

b)

Status	302 ?
Version	HTTP/2
Transferred	2.14 kB (307 B size)
Referrer Policy	origin
Request Priority	Low
DNS Resolution	System

302 Found

c) Location Header

```
location: https://lh3.googleusercontent.com/rd-qgw/AF2bZyqbum6uWPNqNcG32tvM28DAzoJudzuX
9YwEHDTJNPq7yl16L3QqEMF-WFawwXcqVnPee7-3xLQBmnsOc2nFviaDEy286pJ6Z3sWEcMMmWEfp
VMog -rXqcY2x6EC-JwGuzdEKEhxzIXaOEC2aE0M7DMqhDtDuCcCK7j29MIBJ3p4ci8iKGxM2A29aFLh
NYVoBWq1F15wc8-naaoS8hwI8Qiz -zEiYv3NUwDBQUbGPwsRHuMKpR3S2rsEhxDWL5e-cStqtCiS-4yn3
x7q771X-Y6xV9sR35cYLemYFFcKpe -5mbD9415zlhx8xnFG3LFsGQZm9hG65ynKwum7GqvmiRA3Ymq
a7H85aYD6VUXDlwYUR8f3Wlm 16XPnZNZKdC- sLPqvPqyAkF40rkks2ylaZkoyp6xWnd5XIVMuAB-Ned
L9ohn -zKcoNebW126VXPivw6Pio4VWxWdeFsP7...yH40tZ8RHfy5fOqNQUhj2p955 -vLDXZioFPQkZPU
Nn5R- 9XwEA87yYoNycfGZkTVNW -zPRJyljE3wvZQDYHdBm39l6BGm1D7-qOC6XMq5dDknvK9T43e
ePvnH -YGgOjbWgWm1R-irR7Wqj0IUumri-kelfbAP5 -IOq26XWTajFcQctXA63Hz-9jCSqWMOjnTRJPE0B
Fcin0ODgPCczbYfpWLEBFgrdFDb4YzFsqIBvGHyKZdTyywNyewGtn1H514S6ooRIFO3wqeHtlqLWDhzLTp
cckNozFVv6l -6BT5kmSpZsgig1ePpPJeuH 12A8Lewl9XOmT3GkPijfBW-Uk -P5-rYDFTtg18ffB1ZkMarvS
193eZ7-Y6wX1POPEKEBUotRswetdmtMOFTqArIFLIKKBA5Rq3Jp8rKTCxCqtyr3LtGUx9S8TUKT79XojTa
dq3qynrKl7rJrUDY665WusfdpiNcd8RTcmbLc0sCzXGoiGPvEVvbQSoHRu7uy=s32-c
```

3)

a)

The traffic is **encrypted** because it uses **HTTPS** (HyperText Transfer Protocol)

Secure). The payload (which would be the actual data, like HTML, images, etc.) is encrypted and cannot be read directly from Wireshark because it is **protected** by encryption

b)

The encrypted traffic uses **TLS** (Transport Layer Security). HTTPS is an implementation of TLS on top of HTTP.

c)

Port 443 is the default port for HTTPS

4)

```
• (base) student@cclab-OptiPlex-5070:~/Desktop/cs161$ python3 server.py
Socket successfully created
socket binded to 12345
socket is listening
Got connection from ('127.0.0.1', 54108)
○ (base) student@cclab-OptiPlex-5070:~/Desktop/cs161$ █
```

```
(base) student@cclab-OptiPlex-5070:~/Desktop/cs161$ python3 client.py
Thank you for connecting
(base) student@cclab-OptiPlex-5070:~/Desktop/cs161$ █
```