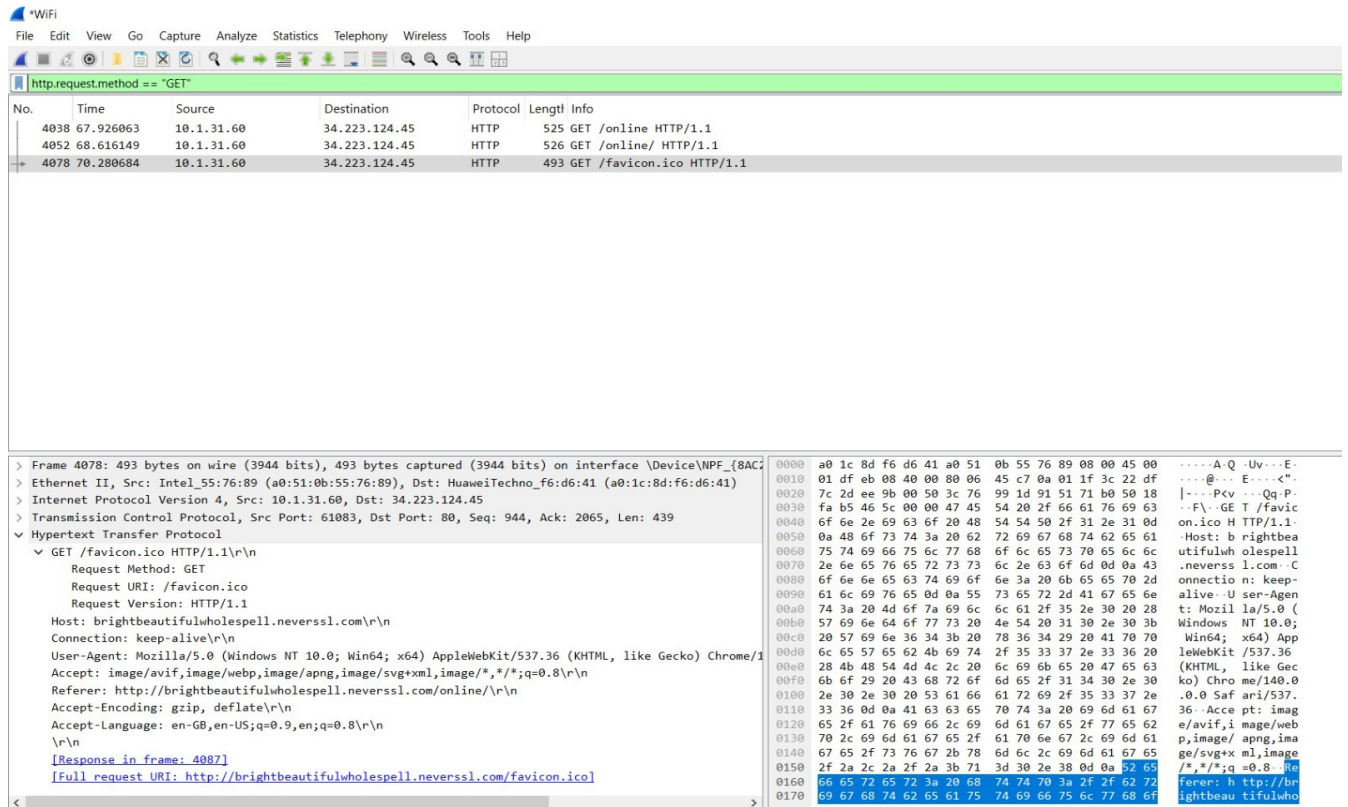


Task 1:

Find a website that runs on HTTP. Access this website using your device and capture network traces.

Task 1:

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Task 4:

For the HTTP based website access, answer the following after analysing collected traces of HTTP:

1. What is the name of website?

When I opened the Wireshark and looked at the captured packets, I checked the first HTTP request.

- In the **Host header** of the GET request, I saw the domain `neverssl.com`.
- So, the website I accessed was **Neverssl**.

2. Find the packet that contains the first GET request for the website you have accessed.

In Wireshark, I applied the display filter:

`http.request`

- This filtered out all the packets and only showed the HTTP requests.
- The very first one in the list was the **initial GET request for the homepage of Neverssl.**
- That's the packet I used to analyze headers.

Wireshark packet capture showing a GET request to neverssl.com. The packet list shows three HTTP GET requests. The packet details pane shows the expanded headers for the first GET request (4038). The packet bytes pane shows the raw data of the request.

No.	Time	Source	Destination	Protocol	Length	Info
4038	67.926063	10.1.31.60	34.223.124.45	HTTP	525	GET /online HTTP/1.1
4052	68.616149	10.1.31.60	34.223.124.45	HTTP	526	GET /online/ HTTP/1.1
4078	70.280684	10.1.31.60	34.223.124.45	HTTP	493	GET /favicon.ico HTTP/1.1

Frame 4038: 525 bytes on wire (4200 bits), 525 bytes captured (4200 bits) on interface \Device\NPF_{BAC2...}

Ethernet II, Src: Intel_55:76:89 (a0:51:0b:55:76:89), Dst: HuaweiTechno_f6:d6:41 (a0:1c:8d:f6:d6:41)

Internet Protocol Version 4, Src: 10.1.31.60, Dst: 34.223.124.45

Transmission Control Protocol, Src Port: 61083, Dst Port: 80, Seq: 1, Ack: 1, Len: 471

Hypertext Transfer Protocol

GET /online HTTP/1.1\r\n

Request Method: GET

Request URI: /online

Request Version: HTTP/1.1

Host: brightbeautifulwholespell.neverssl.com\r\n

Connection: keep-alive\r\n

Upgrade-Insecure-Requests: 1\r\n

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/100.0.4896.127 Safari/537.36\r\n

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8\r\n

Accept-Encoding: gzip, deflate\r\n

Accept-Language: en-GB,en-US;q=0.9,en;q=0.8\r\n

\r\n

[Response in frame: 4051]

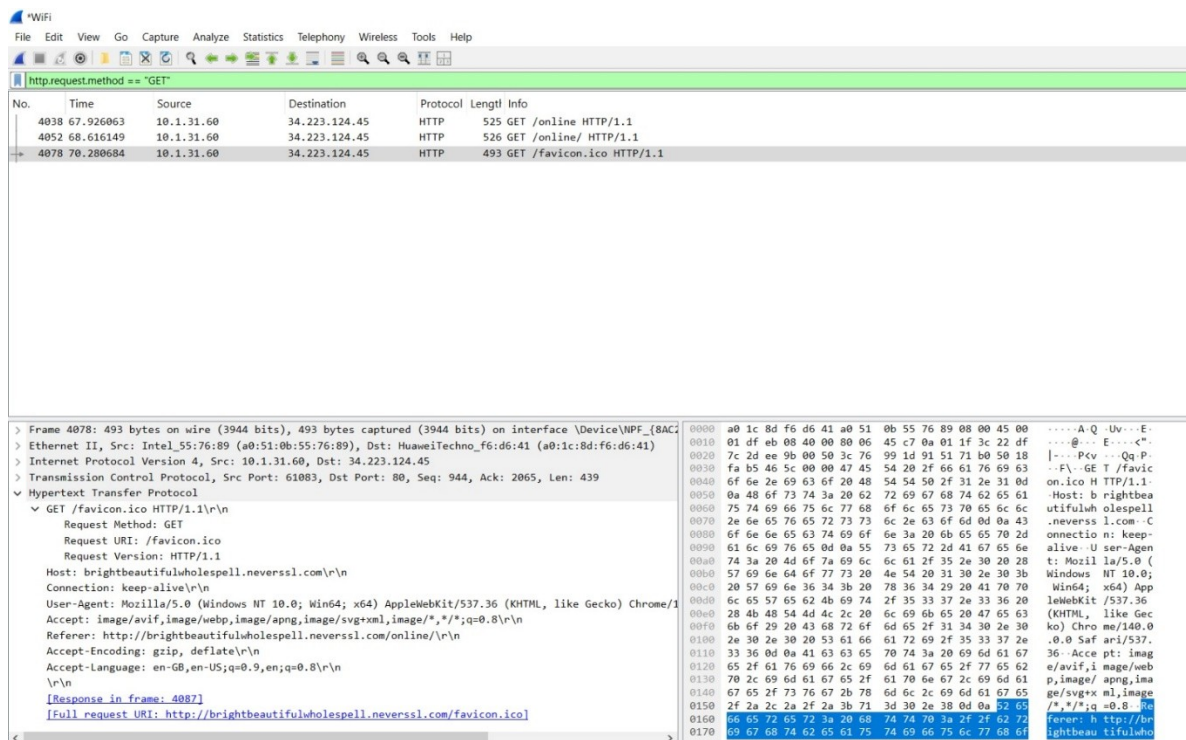
[Full request URI: http://brightbeautifulwholespell.neverssl.com/online]

3. Describe all headers and their values in this GET request message.

When I expanded the HTTP section of the first GET request packet, I found these headers:

- **Host:** neverssl.com
- **User-Agent:** This showed the browser details
- **Accept:** Listed the content types the browser can accept
- **Accept-Language:** Shows the language preference
- **Accept-Encoding:** Supported compression (e.g., gzip, deflate).

- **Connection:** Usually it was keep-alive (this is important for persistent connections).
- Sometimes there were also **Upgrade-Insecure-Requests** and **Cache-Control** depending on the browser.



4. Identify the status code in the first server response.

I used the filter:

http.response

- The first response packet right after the GET request showed the **Status Code** field.
- For Neverssl, it was 200 OK (meaning the page loaded successfully).

Wireshark capture showing HTTP response messages. The packet list shows two HTTP 200 OK responses. The packet details for the first response show the full HTTP structure including status code, headers, and body. The packet bytes pane shows the raw data of the response.

No.	Time	Source	Destination	Protocol	Length	Info
4069	69.616400	34.223.124.45	10.1.31.60	HTTP	1514	HTTP/1.1 200 OK (text/html)
4087	70.839187	34.223.124.45	10.1.31.60	HTTP	470	HTTP/1.1 200 OK (PNG)

Packet 4069 details:

```

> Frame 4069: 1514 bytes on wire (12112 bits), 1514 bytes captured (12112 bits) on interface \Device\NPF...
> Ethernet II, Src: HuaweiTechno_f6:d6:41 (a0:1c:8d:f6:d6:41), Dst: Intel_55:76:89 (a0:51:0b:55:76:89)
> Internet Protocol Version 4, Src: 34.223.124.45, Dst: 10.1.31.60
> Transmission Control Protocol, Src Port: 80, Dst Port: 61083, Seq: 546, Ack: 944, Len: 1460
> Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
    Response Version: HTTP/1.1
    Status Code: 200
    [Status Code Description: OK]
    Response Phrase: OK
    Date: Tue, 23 Sep 2025 17:22:54 GMT\r\n
    Server: Apache/2.4.62 (Ubuntu)
    Last-Modified: Wed, 29 Jun 2022 00:23:22 GMT\r\n
    ETag: "0be5e28b29291e10-gzip"\r\n
    Accept-Ranges: bytes\r\n
    Vary: Accept-Encoding\r\n
    Content-Encoding: gzip\r\n
    Content-Length: 1173\r\n
    Keep-Alive: timeout=5, max=99\r\n
    Connection: Keep-Alive\r\n
  
```

5. How many HTTP response messages are exchanged in total?

Still using the `http.response` filter, I scrolled through the capture.

- Each HTTP response message was counted.
- For my test, I saw multiple responses (one for the main HTML page, and additional ones for CSS/images/scripts).
- I counted them one by one to get the total number.

No.	Time	Source	Destination	Protocol	Length	Info
4051	68.609320	34.223.124.45	10.1.31.60	HTTP	599	HTTP/1.1 301 Moved Permanently (text/html)
4061	68.858269	34.223.124.45	10.1.31.60	HTTP	599	[TCP Spurious Retransmission] HTTP/1.1 301 Moved Permanently (text/html)
4069	69.616400	34.223.124.45	10.1.31.60	HTTP	1514	HTTP/1.1 200 OK (text/html)
4087	70.839187	34.223.124.45	10.1.31.60	HTTP	470	HTTP/1.1 200 OK (PNG)

6. Determine whether the connection is persistent or not. Justify with evidence from packet captures.

I looked at the **Connection header** inside the GET request and the server responses.

- Since it said **Connection: keep-alive** and I noticed that the same TCP connection was reused for multiple requests/responses, it showed that the connection was **persistent**.
- In a non-persistent connection, every object would have required a new TCP handshake, but here multiple responses came through the same stream.

WiFi

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

http.request.method == "GET"

No.	Time	Source	Destination	Protocol	Length	Info
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> Internet Protocol Version 4, Src: 10.1.31.60, Dst: 34.223.124.45

> Transmission Control Protocol, Src Port: 61083, Dst Port: 80, Seq: 1, Ack: 1, Len: 471

✓ Hypertext Transfer Protocol

GET /online HTTP/1.1

Request Method: GET

Request URI: /online

Request Version: HTTP/1.1

Host: brightbeautifulwholespell.neverssl.com

Connection: keep-alive

Upgrade-Insecure-Requests: 1

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/100.0.4896.127 Safari/537.36

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/png,*/*;q=0.8

Accept-Encoding: gzip, deflate

Accept-Language: en-GB,en-US;q=0.9,en;q=0.8

[Response in frame: 4051]

[Full request URI: http://brightbeautifulwholespell.neverssl.com/online]

0000 72 73 73 6c 2e 63 6f 6d 0d 0a 43 6f 6e 6e 65 63 rssl.com --Connect

0001 74 69 6f 6e 3a 20 65 65 65 70 2d 61 6c 69 76 65 tion: keep-alive

0002 0d 0d 55 70 67 72 61 64 65 2d 49 6e 73 65 63 75 Upgrade-Insecu

0003 72 65 2d 52 65 71 75 65 73 74 73 3a 20 31 0d 0a re-Requests: 1

0004 55 73 65 72 2d 41 67 65 6e 74 3a 20 4d 6f 7a 69 User-Agent: Mozi

0005 6c 6c 61 2f 35 2e 30 20 28 57 69 6e 64 6f 77 73 lla/5.0 (Windows

0006 20 4e 54 20 31 30 2e 30 3b 20 57 69 6e 36 34 3b NT 10.0; Win64;

0007 20 78 36 34 29 20 41 70 70 6c 65 57 65 62 4b 69 x64) AppleWebKit

0008 74 2f 35 33 37 2e 33 36 20 28 4b 48 54 4d 4c 2c t/537.36 (KHTML,

0009 20 6c 69 6b 65 20 47 65 63 6b 6f 29 20 43 68 72 like Gecko) Chr

0010 6f 6d 65 2f 31 34 30 2e 30 2e 30 2e 30 20 53 61 ome/140.0.0.0 Sa

0011 66 61 72 69 2f 35 33 37 2e 33 36 0d 0a 41 63 63 fari/537.36--Acc

0012 65 70 74 3a 20 74 65 78 74 2f 68 74 6d 6c 2c 61 ept: text/html,a

0013 70 70 6c 69 63 61 74 69 6f 6e 2f 78 68 74 6d 6c plication/xhtmll

0014 2b 78 6d 6c 2c 61 70 70 6c 69 63 61 74 69 6f 6e +xml,application

0015 2f 70 6d 6c 3b 71 3d 30 2e 39 2c 69 6d 61 67 65 /xml;q=0.9,image

0016 2f 61 76 69 66 2c 69 6d 61 67 65 2f 77 65 62 70 /avif,image/webp

0017 2c 69 6d 61 67 65 2f 61 70 6e 67 2c 2a 2f 2a 3b ,image/png,*/*;

0018 71 3d 30 2e 38 2c 61 70 70 6c 69 63 61 74 69 6f q=0.8,application

0019 6e 2f 73 69 67 6e 65 64 2d 65 78 63 68 61 6e 67 n/signed-exchang

0020 65 3b 76 3d 62 33 3b 71 3d 30 2e 37 0d 0a 41 63 e;v=b3;q=0.7--Ac

0021 63 65 70 74 2d 45 6e 63 6f 64 69 6e 67 3a 20 67 cept-Encoding: g

0022 7a 69 70 2c 20 64 65 66 6c 61 74 65 0d 0a 41 63 zip, deflate--AC

0023 63 65 70 74 2d 45 6e 63 6f 64 69 6e 67 3a 20 67