# LAB 3 – Application Layer

Name – Sati, Ankit Date – 10/13/2021

Section - 001

Total in points (Maximum 100 points)–

Professors Comments –

Affirmation of Independent Effort – Ankit Sati

1. **The basic HTTP GET/response interaction**
2. The Brower is running HTTP 1.1 and the server is running

[Expert Info (Chat/Sequence): GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n][Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]

1. It indicates that it can accept an en-US language (English).

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

1. The IP of my computer is 10.0.0.220 and the server IP is 128.119.245.12. The source and destination IP address.

165 2021-10-11 19:53:05.576884 **10.0.0.220** **128.119.245.12** HTTP 640 GET

1. 200 OK is the status code returned to the browser.

2021-10-11 20:11:13.657673 128.119.245.12 10.0.0.220 HTTP 540 HTTP/1.1 200 OK (text/html)

1. The time appear to be only 1 minute earlier than I opened it due to the fact that we waited for a minute.

Last-Modified: Mon, 11 Oct 2021 05:59:02 GMT\r\n

1. 128 bytes is being returned to the browser

Content-Length: 128\r\n

[Content length: 128]

1. No, I do not see any other headers that are not displayed in packet window. This is because it will be a superset with all the information. Only time and date that is varied so that cannot be considered as a header.
2. **The HTTP conditional GET/response interaction**
3. Inspect the contents of the first HTTP GET request from your browser to the server. Do you see an “IF-MODIFIED-SINCE” line in the HTTP GET?

**Answer - No, there is no IF-MODIFIED-SINCE line in the first HTTP GET.**

1. Inspect the contents of the server response. Did the server explicitly return the contents of the file? How can you tell?

**Answer - Yes, the server did return the contents of the file as there is a “Line-based text data” line and under it is the text.**

1. Now inspect the contents of the second HTTP GET request from your browser to the server. Do you see an “IF-MODIFIED-SINCE:” line in the HTTP GET? If so, what information follows the “IF-MODIFIED-SINCE:” header?

**Answer - Yes, there is an “IF-MODIFIED-SINCE” line in the second GET request and it follows with a date of Mon, 11 Oct 2021 05:59:02 GMT**

**If-Modified-Since: Mon, 11 Oct 2021 05:59:02 GMT\r\n**

1. HTTP GET? Did the server explicitly return the contents of the file? Explain.

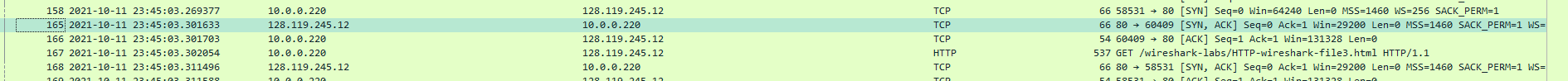
**Answer - The status code is 304 Not Modified and this time it did not return the contents of the file. The reason is that since the file was not modified there is no new content that needs to be passed and so there is no need to download the file again.**

Graphical user interface, text, application

Description automatically generated

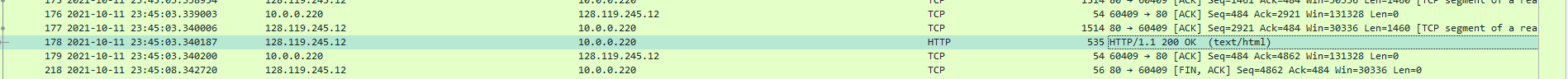
1. **Retrieving long documents**
2. My browser only sent 1 HTTP GET request to the server. The Packet that contained the GET message was packet number 167.

167 2021-10-11 23:45:03.302054 10.0.0.220 128.119.245.12 HTTP 537 GET /wireshark-labs/HTTP-wireshark-file3.html HTTP/1.1



1. The packet that contains the status code and phrase which the server sent in response to the GET message was packet number 178.

178 2021-10-11 23:45:03.340187 128.119.245.12 10.0.0.220 HTTP 535 HTTP/1.1 200 OK (text/html)



1. As mentioned in the question above, the status code that is returned **is 200 OK**. (refer to the screenshot above)
2. The data was sent over 4 packets as mentioned in the screenshot below.

This is because the packet size exceeded the normal size and we had to break the packets and arrange them back in order.

Text

Description automatically generated

1. **HTML Documents with Embedded Objects**
2. There were 3 HTTP GET requests sent from my browser to the server

(128.119.245.12). It sent to the internet address of the main html page, and also the locations of the images.

A picture containing rectangle

Description automatically generated

1. The two images were downloaded serially. The first image was requested and retrieved with a status of 200 OK. Then the browser tried to download the second image and had a response of 302 Found, which means the image location moved. The browser had to then send another request to the new destination to retrieve the second image, and it came back with a 200 OK.
2. **HTTP Authentication**
3. The servers intial response was “401 Unauthorized ”

58 2021-10-12 00:49:59.512908 128.119.245.12 10.0.0.220 HTTP 771 HTTP/1.1 **401 Unauthorized (text/html)**

1. The new field that is now included is the authorization field. This is included because we sent the server a username and password along with our request stating that we were authorized to receive the page.

Having said that the page was long lost and hence we were not able to view anything but we could easily see the authentication requests.

Application

Description automatically generated with medium confidence

**Question 2**

**Domain naming system.**

Steps.

1. Creating the flask application for User Server.

Text

Description automatically generated

1. Create another app for Fibanacci server.

Text

Description automatically generated

1. Finally build the socket.

Text

Description automatically generated

1. As shown in the screenshots above the images of all the 3 files were mounted on docker.
2. Checked the simultaneous files on dockerhub.
3. Pushed the file to Git.
4. Exercise complete.

* File on Git - <https://github.com/Satiankit96/dns_app.git>
* Another Zip file attached on the homework.

Text

Description automatically generated