Lab1/ z5146286

Exercise 3: Using Wireshark to understand basic HTTP request/response messages。

Question 1: What is the status code and phrase returned from the server to the client browser?

Answer: status code: 200

Response Phrase: OK

```
Status Code: 200
[Status Code Description: OK]
Response Phrase: OK
```

Question 2: When was the HTML file that the browser is retrieving last modified at the server? Does the response also contain a DATE header? How are these two fields different?

Answer: Last-Modified time: Tue, 23 Sep 2003 05:29:00 GMT\r\n

```
Last-Modified: Tue, 23 Sep 2003 05:29:00 GMT\r\n
```

Yes, the response also contain a DATE header

```
Date: Tue, 23 Sep 2003 05:29:50 GMT\r\n
```

The Last-Modified response HTTP header contains the date and time at which the origin server believes the resource was last modified

The Date general HTTP header contains the date and time at which the message was originated。

Question 3: Is the connection established between the browser and the server persistent or non- persistent? How can you infer this?

Answer：Persistent

```
Keep-Alive: 300\r\n
Connection: keep-alive\r\n
```

- In HTTP/1.0 the connection is *non-persistent* by default **unless** you add the "Connection: keep-alive" header in the http request. After that, it is up to the server to choose whether to use a persistent connection or not
- In HTTP/1.1 the connection is *persistent* by default **unless** you add the "Connection: close" header to the http request. In which case the server has to close the connection the requested object has been sent.

Question 4: How many bytes of content are being returned to the browser?

Answer：73 bytes

```
Accept-Ranges: bytes\r\n
Content-Length: 73\r\n
```

Question 5: What is the data contained inside the HTTP response packet?

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▼ Line-based text data: text/html (3 lines)
    <html>\n
    Congratulations.  You've downloaded the file lab2-1.html!\n
    </html>\n
```

Exercise 4: Using Wireshark to understand the HTTP CONDITIONAL GET/response interaction.

Question 1: Inspect the contents of the first HTTP GET request from the browser to the server. Do you see an “IF-MODIFIED-SINCE” line in the HTTP GET?

Answer: NO

Question 2: Does the response indicate the last time that the requested file was modified?

Answer: Yes,

```
Last-Modified: Tue, 23 Sep 2003 05:35:00 GMT\r\n
```

Question 3: Now inspect the contents of the second HTTP GET request from the browser to the server. Do you see an “IF-MODIFIED-SINCE:” and “IF-NONE-MATCH” lines in the HTTP GET? If so, what information is contained in these header lines?

Answer: Yes

```
If-Modified-Since: Tue, 23 Sep 2003 05:35:00 GMT\r\n

If-None-Match: "1bfef-173-8f4ae900"\r\n
```

The If-Modified-Since request HTTP header shows that the server will send back the requested resource, only if it has been last modified after the given date. If the request has not been modified since, the response will be a 304 without any body.

The If-None-Match HTTP request header makes the request conditional.
For GET and HEAD methods, the server will send back the requested resource, with a 200 status, only if it doesn't have an ETag matching the given ones. For other methods, the request will be processed only if the eventually existing resource's ETag doesn't match any of the values listed.

Question 4: What is the HTTP status code and phrase returned from the server in response to this second HTTP GET? Did the server explicitly return the contents of the file? Explain.

Answer:

Status Code 304

Response Phrase: Not Modified

```
Status Code: 304
[Status Code Description: Not Modified]
Response Phrase: Not Modified
```

Question 5: What is the value of the Etag field in the 2nd response message and how it is used? Has this value changed since the 1 stresponse message was received?

Answer: ETag: "1bfef-173-8f4ae900"

The If-None-Match HTTP request header shows that for GET method，the server will send back the requested resource only if it doesn't have an ETag matching the given ones.

Exercise 5: Ping Client (Marked)