Lab Exercise 2: HTTP & Socket Programming

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

Question 1:

The status code is 200, and phrase returned from the server to the client browser is OK.

Question 2:

The HTML file was last modified on Tuesday, 23 September 2003 at 5:29:50 GMT. The response does contain a DAE header, which indicates the time when the HTTP response message was generated by the server. However, it is showing the same as the last modified. Hence, the server might simple setting the last modified time as the time when the HTTP response message is created.

Question 3:

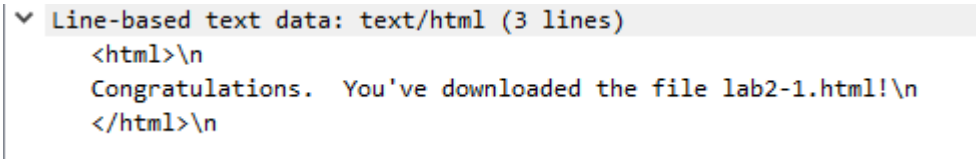
Both the browser and the server are using persistent HTTP connections. This can infer from the connection, header in both the request and response.

Question 4:

73 bytes of content are being returned to the browser.

Question 5:

The data contained inside the HTTP response packet is:



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

Question 1:

No, I do not see an “IF-MODIFIED-SINCE” line in the HTTP GET.

Question 2:

The response does indicate the last time that the requested file was modified on Tuesday, 23rd September 2003 at 5:35 GMT.

Question 3:

I do see “IF-MODIFIED-SINCE” and “IF-NONE-MATCH” line int the second HTTP GET request. “IF-MODIFIED-SINCE:” contains a time, which is Tuesday, 23rd September 2003 at 5:35 GMT. The “IF-NONE-MATCH” contains "1bfef-

173-8f4ae900". The browser has cached the last modified time from the response for the same page and is including that time in the subsequent response message. It is also asking server to check the Etag with the previously received value in IF-NONE-MATCH.

Question 4:
The HTTP status code and phrase returned from the server in response to this second HTTP GET is 304 Not Modified. This indicates to the bowser that the server does not modified the page since the time specified in “IF-MODIFIED-SINCE” in the request. Therefore, the server did not explicitly return the contents of the file.

Question 5:
The value of the Etag field in the 2nd response message is "1bfef-173-8f4ae900", which has not changed since the 1st response message was received. Etag is one kind of mechanism used by HTTP for cache validation.

Exercise 5: Ping Client

```
$ python PingClient.py 127.0.0.1 1025
Ping to 127.0.0.1, seq = 3331, time = 178
Ping to 127.0.0.1, seq = 3332, time = 33
Ping to 127.0.0.1, seq = 3333, time = 40
Ping to 127.0.0.1, seq = 3334, time = 96
Ping to 127.0.0.1, seq = 3335, time = 19
Ping to 127.0.0.1, seq = 3336, time = 178
Ping to 127.0.0.1, seq = 3337, timeout
Ping to 127.0.0.1, seq = 3338, time = 195
Ping to 127.0.0.1, seq = 3339, time = 2
Ping to 127.0.0.1, seq = 3340, time = 137
Ping to 127.0.0.1, seq = 3341, time = 183
Ping to 127.0.0.1, seq = 3342, time = 30
Ping to 127.0.0.1, seq = 3343, timeout
Ping to 127.0.0.1, seq = 3344, timeout
Ping to 127.0.0.1, seq = 3345, time = 58
transmission finished
rtt min/avg/max = 2.999/96.287/195.543 ms
```