

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

Question1. The status code is 200. The phrase is ok.

Question2. The last modified date is Tue, 23 Sep 2003, 05:29:00. Yes. These two are nearly the same. However, the date is 50 seconds slower than the last modified date.

Question3. The connection between the browser and the server is persistent. The connection field in the header shows it is 'keep-Alive'.

Question4. The length of the content is 73 bytes.

Question5. It can be retrieved from the Line-based text data: "Congratulations, You've downloaded the file lab2-1.html!"

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

Question1. There is no such a line like this in the HTTP GET.

Question2. It has "Last-Modified: Tue, 23 Sep 2003 05:35:00 GMT\r\n".

Question3. There is "IF-MODIFIED-SINCE:" and "IF-NONE-MATCH" lines in response to the second HTTP get. Information: "If-Modified-Since: Tue, 23 Sep 2003 05:35:00 GMT\r\n " "If-None-Match: "1bfef-173-8f4ae900"\r\n

Question4. Status code is 304. Phrase is Not Modified. It didn't return the contents of the file, because the phrase of it is not modified, there is no content contained.

Question5. E-Tag: "1bfef-173-8f4ae900". It can be an identifier of a source and also if anything of it changed, the e-tag will change either. No, the value has not changed because it is not modified.

## Exercise 5: Ping Client

Program Output (include the final calculation of RTT)

```
Received from 127.0.0.1: PING 0 2019-10-05 22:28:43.405
  Reply not sent.
Received from 127.0.0.1: PING 1 2019-10-05 22:28:44.497
  Reply not sent.
Received from 127.0.0.1: PING 2 2019-10-05 22:28:45.499
  Reply not sent.
Received from 127.0.0.1: PING 3 2019-10-05 22:28:46.5
  Reply sent.
Received from 127.0.0.1: PING 4 2019-10-05 22:28:46.623
  Reply sent.
Received from 127.0.0.1: PING 5 2019-10-05 22:28:46.75
  Reply sent.
Received from 127.0.0.1: PING 6 2019-10-05 22:28:46.869
  Reply sent.
Received from 127.0.0.1: PING 7 2019-10-05 22:28:46.956
  Reply sent.
Received from 127.0.0.1: PING 8 2019-10-05 22:28:46.991
  Reply not sent.
Received from 127.0.0.1: PING 9 2019-10-05 22:28:47.993
  Reply not sent.
^Cz5191682@vxl:~/comp3331/lab2$ java PingServer 1099
Received from 127.0.0.1: PING 0 2019-10-05 22:28:59.87
  Reply sent.

z5191682@vxl:~/comp3331/lab2$ java PingClient 127.0.0.1 1099
Received from 127.0.0.1: PING 0 2019-10-05 22:28:59.87 RTT: 201 ms

Received from 127.0.0.1: PING 1 2019-10-05 22:29:00.181 RTT: 200 ms

Received from 127.0.0.1: PING 2 2019-10-05 22:29:00.382 RTT: 50 ms

Time out, packet 3

Received from 127.0.0.1: PING 4 2019-10-05 22:29:01.448 RTT: 155 ms

Time out, packet 5

Received from 127.0.0.1: PING 6 2019-10-05 22:29:02.606 RTT: 29 ms

Time out, packet 7

Time out, packet 8

Time out, packet 9

Average rrt: 63, Min-delay: 29, Max-delay: 155
```