

Lab Exercise 2: HTTP & Socket Programming

Exercise 3

Question 1:

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

Question 2:

```
Last-Modified: Tue, 23 Sep 2003 05:29:00 GMT  
Date: Tue, 23 Sep 2003 05:29:50 GMT
```

The date is the time of accessing the website, while last modified the origin server believes the resource was last modified.

Question 3:

```
Connection: keep-alive
```

The connection established between the browser and the server is **persistent**. We can infer this by checking the “Connection” headers.

Question 4:

There are 73 bytes of content are being returned to the browser.

```
Content-Length: 73
```

Question 5

The data contained inside the HTTP response packet is a html file:

```
<html>\n
```

Name: RuiLi

zID: z5202952

```
Congratulations.  You've downloaded the file lab2-1.html!\n</html>\n
```

Exercise 4:

Question 1:

I did not see the "IF-MODIFIED-SINCE" line in the HTTP GET.

Question 2:

Yes, the response indicates the last time that the requested file was modified.

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

Question 3:

Yes, I see the "IF-MODIFIED-SINCE" and "IF-NONE-MATCH" lines in the HTTP GET.

There is a date and time in "IF-MODIFIED-SINCE" and an ETag in "IF-NONE-MATCH", which can indicate this resource is changed or not.

```
If-Modified-Since: Tue, 23 Sep 2003 05:35:00 GMT  
If-None-Match: "1bfef-173-8f4ae900"
```

Question 4:

The HTTP status code and phrase returned from the server in response to this second HTTP GET is "304 Not Modified".

The server did not explicitly return the contents of the file, because the "IF-MODIFIED-SINCE" and "IF-NONE-MATCH" value are both the same with the values return from server, it can be considered the html have no change thus there is no message-body in the response.

Question 5:

The value of the Etag is

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

It will compare with the "If-None-Match" header in request, if the values are the same(as well as "Last-Modified" and "If-Modified-Since"), the server will return 304.

If-None-Match: "1bfef-173-8f4ae900"

The Etag in 1st response:

ETag: "1bfef-173-8f4ae900"

Therefore, the value **has not changed** since the 1st response message was received.

[Exercise 5](#)

Please see the python file PingClient.py