# COMP3331 Lab2

## Exercise 1:

1. The content type of the header is text/html. The size of the response is 4847 bytes. It was last modified Tue, 09 Jan 2024 08:07:39 GMT. Yes, I see an “Accept-Ranges” header field. This indicates its support for handling partial requests for a resource, such as byte ranges. This essentially means a client can request only a specific part of the file instead of the entire resource.
2. The content type of the resource is text/html and the size of the response is 4847 bytes.
3. 

```
z5599337@vx10:~$ telnet vision.ucla.edu 80
Trying 131.179.80.72...
Connected to vision.ucla.edu.
Escape character is '^]'.
GET /people.html HTTP/1.1
host: vision.ucla.edu
```

*Figure 1: Command to fetch people.html*

4. The host address (either an IP address or a hostname) tells the Telnet client where to send its connection request.

## Exercise 2:

1. The site does set a cookie in my browser. This is evident by the “Set-Cookie” header field which includes a key value pair cookie. This field is not evident with the ‘www.vision.ucla.edu’ host, therefore it most likely doesn’t set a cookie.
2. There are 3 cookies installed by google.com.

## Exercise 3:

1. The status code returned was “200” and the response message was “OK”.
2. The HTML file that the browser retrieves was last modified on “Tue, 23 Sep 2003 05:29:00 GMT”. Yes, it does contain a DATE header which contains the value “Tue, 23 Sep 2003 05:29:50 GMT”. The difference between the Last Modified and Date header fields is that date refers to the time in which the response message was generated, whereas the Last Modified looks at when the resource was last modified. This is why you can see the time in the Date field is later than the last modified.
3. The connection established between the browser and the server is persistent as the “Connection” header field is set to “Keep-Alive” meaning that a single TCP connection is used for multiple HTTP requests and response instead of establishing a new one for each one respectively.
4. 73 bytes of content are being returned to the browser.
5. The data contained inside the HTTP response packet is a html/text content type with the contents:

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

*Figure 2: Data contained with HTTP response packet*

# Exercise 4:

1. The first HTTP GET request does not contain an “IF-MODIFIED-SINCE” header field.
2. The first HTTP response does indicate the last time the requested file was modified which was Tue, 23 Sep 2003 05:35:50 GMT.
3. The second HTTP GET request does contain the “IF-MODIFIED-SINCE” and “IF-NONE-MATCH” header fields. The “IF-MODIFIED-SINCE” header field contains a string of a specific date and time (<day> <date> <month> <year> <time> GMT) for the server to check if the requested resource has been modified since that date. When this happens, the server will send a response code of “304 Not Modified” and will instead send the cached version of the resource to the client to save bandwidth and improve performance. The “IF-NONE-MATCH” also contains a string of a specific ETag which again the server checks if the requested resource has the same ETag and subsequently performs the same function as the “IF-MODIFIED-SINCE” if they match.
4. The second HTTP GET request returned a “304 Not Modified” response and message. The server did not explicitly return the file’s contents, instead the resource was retrieved via the cache which kept a copy of the file’s contents for it is not downloaded again since it had not been modified since the last request. The cache is a temporary storage container on the browser which keeps copies of resources such as HTML pages, CSS, images, etc.
5. The ETag value for the 2nd response message is “1bfef-173-8f4ae900". The ETag value is checked against the previous HTTP request to see if the file has been modified or not. If it has been modified, the server will explicitly send the resource to the client, else the cache will serve the stored content to the client.

# Exercise 5:

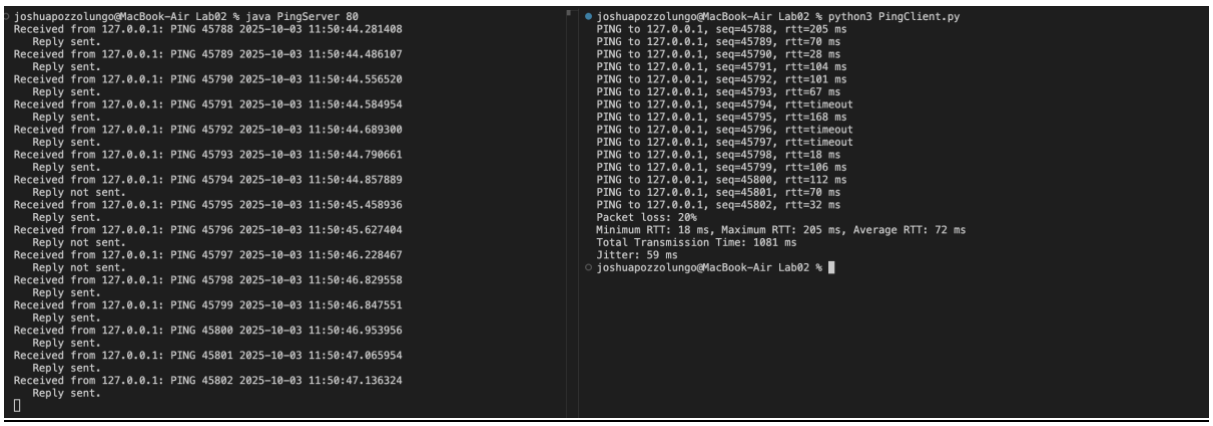


*Figure 3: PingClient.py sample output*