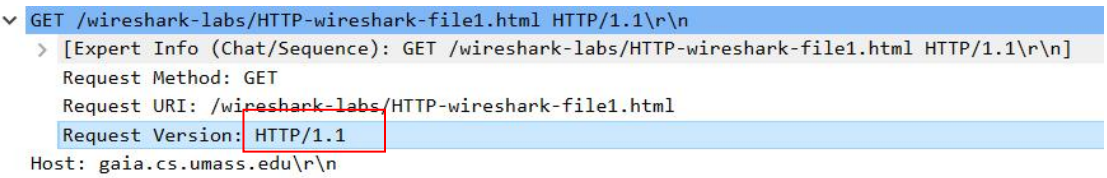
计算机学院_计算机网络_课程实验报告

实验题目： http		学号：202200130048
日期：3.12	班级： 6	姓名： 陈静雯
Email：1205037094@qq.com		

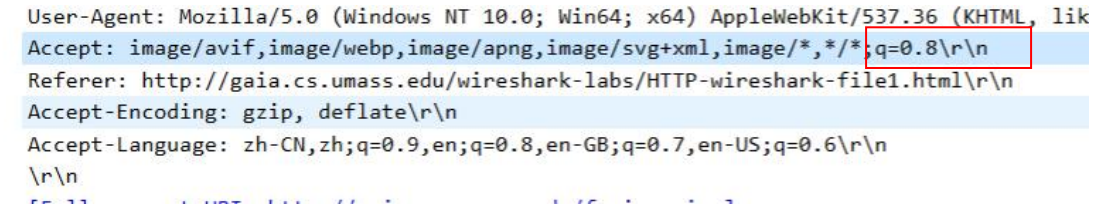
实验方法介绍：
用 wireshark 进行抓包并分析信息

实验过程描述：
1. The Basic HTTP GET/response interaction
2. The HTTP CONDITIONAL GET/response interaction
3. Retrieving Long Documents
4. HTML Documents with Embedded Objects
5. HTTP Authentication

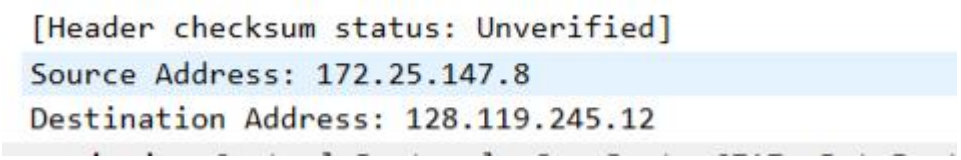
结论分析：
1. Is your browser running HTTP version 1.0, 1.1, or 2? What version of HTTP is the server running
用的是 http 1.1



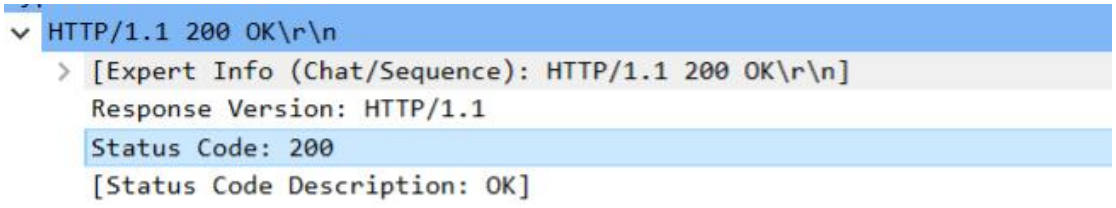
2. What languages (if any) does your browser indicate that it can accept to the server
en-GB 英国 英语



3.What is the IP address of your computer? What is the IP address of the gaia.cs.umass.edu server
电脑:172.25.147.8
gaia 服务器：128.119.245.12

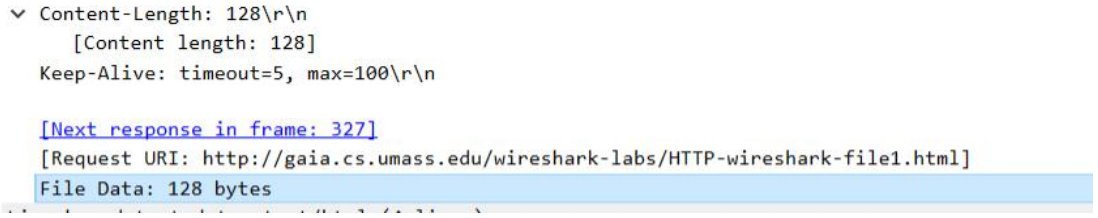


4. What is the status code returned from the server to your browser?
Status code : 200

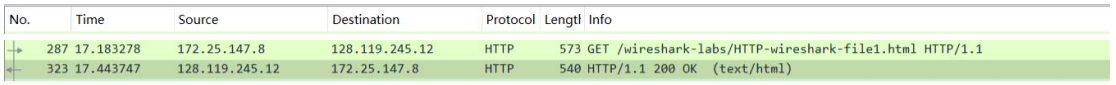


5. When was the HTML file that you are retrieving last modified at the server
2024.3.11 05:59:02

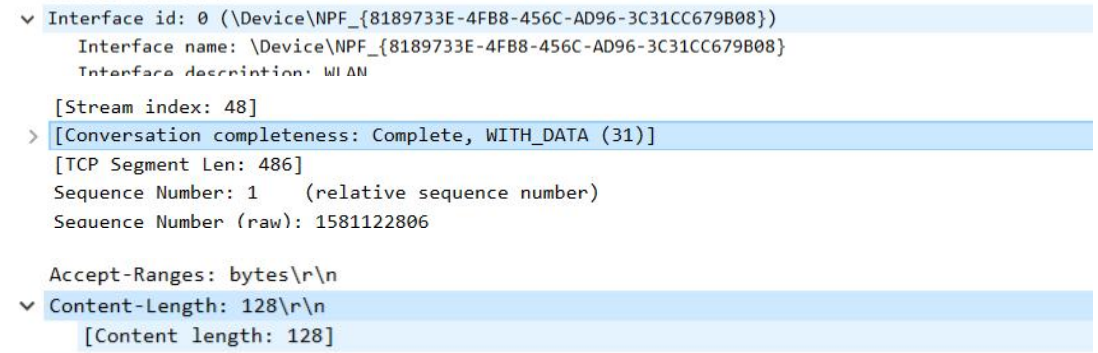
6. How many bytes of content are being returned to your browser?
128 bytes



7. By inspecting the raw data in the packet content window, do you see any headers within the data that are not displayed in the packet-listing window? If so, name one
在列表窗口有的是，时间，网站地址、客户地址、使用的协议、length 网站的大小、以及 info



没有的标头有很多，比如：



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

```
If-None-Match: "173-6135c3d0b7602"\r\n
If-Modified-Since: Mon, 11 Mar 2024 05:59:02 GMT\r\n
\r\n
```

9. Inspect the contents of the server response. Did the server explicitly return the contents of the file? How can you tell.
在 text data 标头下显示了网页内容

```
Line-based text data: text/html (10 lines)
    \n
    <html>\n
    \n
    Congratulations again!  Now you've downloaded the file lab2-2.html. <br>\n
    This file's last modification date will not change.  <p>\n
    Thus  if you download this multiple times on your browser, a complete copy <br>\n
    will only be sent once by the server due to the inclusion of the IN-MODIFIED-SINCE<br>\n
    field in your browser's HTTP GET request to the server.\n
    \n
    </html>\n
```

10. Now inspect the contents of the second HTTP GET request from your browser to the server. Do you see an “IF-MODIFIED-SINCE:” line in the HTTP GET? If so, what information follows the “IF-MODIFIED-SINCE:” header?
2024.3.11 05:59:02，上一次服务器 modified 时间

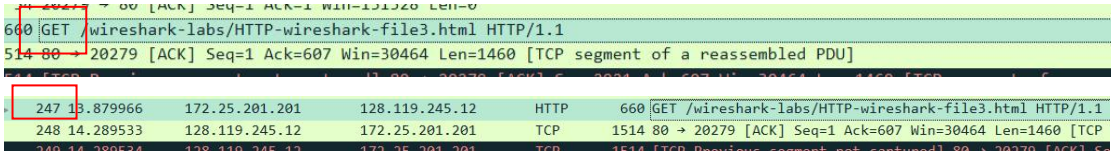
```
Hypertext Transfer Protocol
  GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1\r\n
  Host: gaia.cs.umass.edu\r\n
  Connection: keep-alive\r\n
  Cache-Control: max-age=0\r\n
  Upgrade-Insecure-Requests: 1\r\n
  User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) (
  Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng
  Accept-Encoding: gzip, deflate\r\n
  Accept-Language: zh-CN,zh;q=0.9,en;q=0.8,en-GB;q=0.7,en-US;q=0.6\r\n
  If-None-Match: "173-6135c3d0b7602"\r\n
  If-Modified-Since: Mon, 11 Mar 2024 05:59:02 GMT\r\n
  \r\n
```

11. 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.
304 not modified。服务器没有返回文件内容，因为之前第一次访问的时候已经返回了（ok 的时候），在 cookie 中保存了网页信息，刷新之后没有修改所以直接读取 cookie 中的内容即可。

```
HTTP/1.1 304 Not Modified\r\n
  [Expert Info (Chat/Sequence): HTTP/1.1 304 Not Modified\r\n]
  Response Version: HTTP/1.1
  Status Code: 304
  [Status Code Description: Not Modified]
  Response Phrase: Not Modified
```

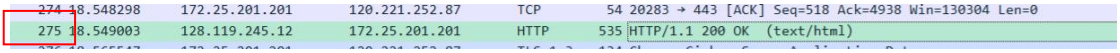
12. How many HTTP GET request messages did your browser send? Which packet number in the trace contains the GET message for the Bill or Rights?

本地浏览器发送了一条 get 请求；packet number：247



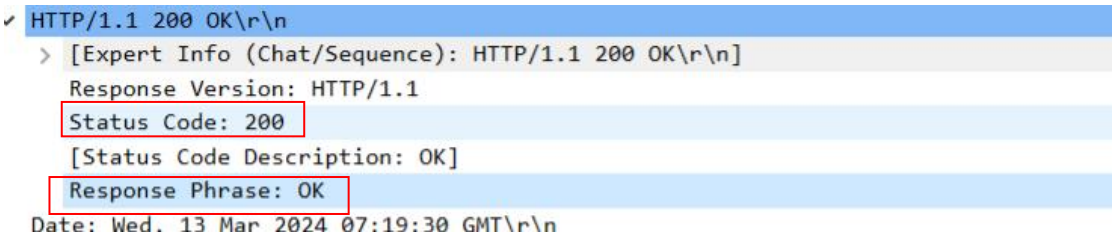
13. Which packet number in the trace contains the status code and phrase associated with the response to the HTTP GET request?

Packet number：275



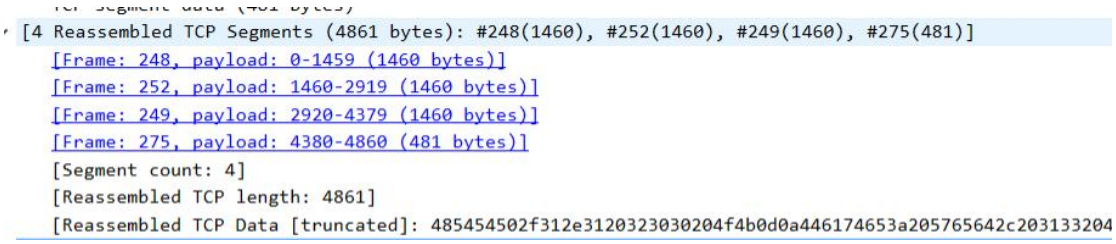
14. What is the status code and phrase in the response?

200 OK



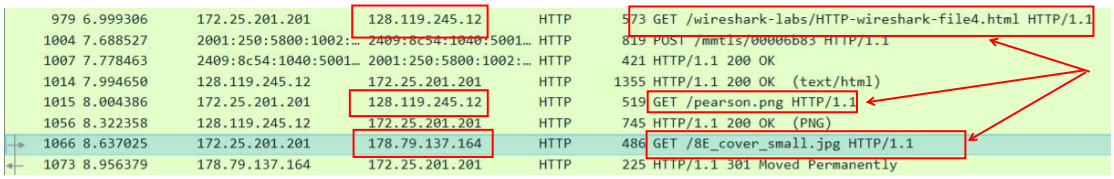
15. How many data-containing TCP segments were needed to carry the single HTTP response and the text of the Bill of Rights?

4 segments



16. How many HTTP GET request messages did your browser send? To which Internet addresses were these GET requests sent?

3 条，两条发送到的 IP 都为：128.119.245.12，还有一张图片发送请求到 178.79.137.164



17. Can you tell whether your browser downloaded the two images serially, or whether they were downloaded from the two web sites in parallel? Explain.

由下图可知，两张图片是从不同的网址下载的，先下载了 person.png，后下载了 8E_cover_small.jpg。

```
\n
<p>\n
<img src="http://gaia.cs.umass.edu/pearson.png" WIDTH="140" HEIGHT="82" > </p>\n
<p>This little HTML file is being served by gaia.cs.umass.edu. \n
It contains two embedded images. The image above, also served from the \n
gaia.cs.umass.edu web site, is the logo of our publisher, Pearson. \n
The image of our 8th edition book cover below is stored at, and served from,\n
  a  WWW server kurose.cslash.net in France:</p>\n
<p align="left"><img src="http://kurose.cslash.net/8E_cover_small.jpg"\n
\t\t     width="168" height="220"></p>\n
And while we have your attention, you might want to take time to check out the\n
```

979	6.999306	172.25.201.201	128.119.245.12	HTTP	573	GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1
1004	7.688527	2001:250:5800:1002:…	2409:8c54:1040:5001…	HTTP	819	POST /mmtls/00006b83 HTTP/1.1
1007	7.778463	2409:8c54:1040:5001…	2001:250:5800:1002:…	HTTP	421	HTTP/1.1 200 OK
1014	7.994650	128.119.245.12	172.25.201.201	HTTP	1355	HTTP/1.1 200 OK (text/html)
1015	8.004386	172.25.201.201	128.119.245.12	HTTP	519	GET /pearson.png HTTP/1.1
1056	8.322358	128.119.245.12	172.25.201.201	HTTP	745	HTTP/1.1 200 OK (PNG)
1066	8.637025	172.25.201.201	178.79.137.164	HTTP	486	GET /8E_cover_small.jpg HTTP/1.1
1073	8.956379	178.79.137.164	172.25.201.201	HTTP	225	HTTP/1.1 301 Moved Permanently

18. What is the server's response (status code and phrase) in response to the initial HTTP GET message from your browser.

401 unauthorized

```
Response Version: HTTP/1.1
Status Code: 401
[Status Code Description: Unauthorized]
Response Phrase: Unauthorized
```

19. When your browser's sends the HTTP GET message for the second time, what new field is included in the HTTP GET message?

Authorization: credentials

```
Cache-Control: max-age=0\r\n
Authorization: Basic d2lyZXNoYXJrLXN0dWRlbnRzOm5ldHdvcms=\r\n
    Credentials: wireshark-students:network
Upgrade-Insecure-Requests: 1\r\n
```

结论：

1. http 协议
2. Cookie：在第一次访问网页时保存 cookie，以便下次访问快速显示
3. 网页内容较多时，会分多次传输
4. 网页中有图片时，客户端会按顺序 get 图片的信息下载到本地
5. 网页需要正确的用户名和密码进行认证