Assignment 2

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March 6, 2019

Q1: telnet whu.edu.cn 25
A1:

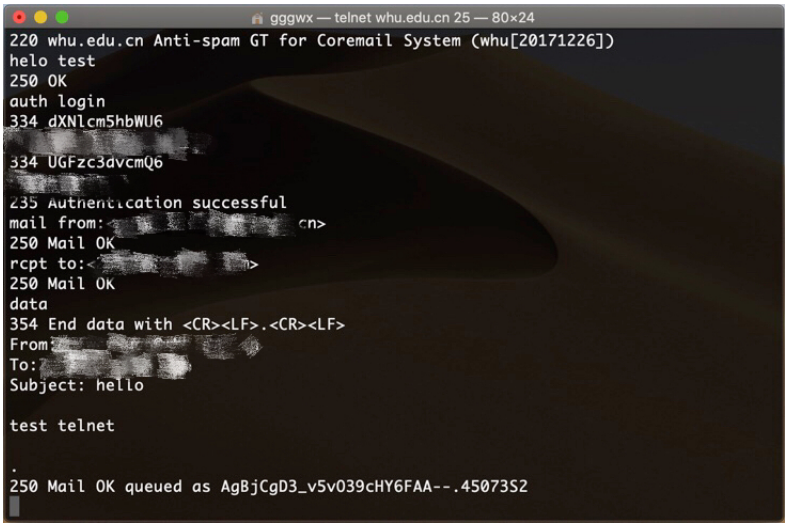

Figure 1: default

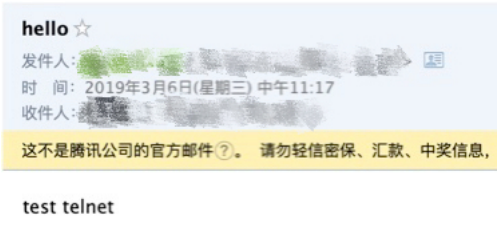

Figure 2: default

1 Problem1

True or false?
a. A user requests a Web page that consists of some text and three images. For this page, the client will send one request message and receive four response messages.
b. Two distinct Web pages (for example, www.mit.edu/research .html and www.mit.edu/students.html) can be sent over the same persistent connection.
c. With non-persistent connections between browser and origin server, it is possible for a single TCP segment to carry two distinct HTTP request messages.
d. The Date: header in the HTTP response message indicates when the object in the response was last modified.
e. HTTP response messages never have an empty message body.

Solution:
a. F. The client will only send **one** messages.
b. T.
c. F. For non-persistent connections, each request/response pair be sent over **a separate** TCP connection.
d. F. The *D*ate: header line indicates the time and date when the HTTP response was created and sent by the server.
e. F. Obviously it can be empty.

2 Problem 3

Assume you open a browser and enter http://yourbusiness.com/ about.html in the address bar. What happens until the webpage is dis- played? Provide details about the protocol(s) used and a high-level description of the messages exchanged.

Solution:

- Application layer protocols: DNS and HTTP
- Transport layer protocols: UDP for DNS; TCP for HTTP

3 Problem 4

Consider the following string of ASCII characters that were captured by Wireshark when the browser sent an HTTP GET message (i.e., this is the actual content of an HTTP GET message). The characters ¡cr¿¡lf¿ are carriage return and line-feed characters (that is, the italized character string ¡cr¿ in the text below represents the single carriage-return character that was contained at that point in the HTTP header). Answer the following questions, indicating where in the HTTP GET message below you find the answer.

GET /cs453/index.html HTTP/1.1 <cr><lf>Host: gai a.cs.umass.edu <cr><lf>User-Agent: Mozilla/5.0 (Windows;U; Windows NT 5.1; en-US; rv:1.7.2) Gec ko/20040804 Netscape/7.2 (ax) <cr><lf>Accept:ex t/xml, application/xml, application/xhtml+xml, text /html;q=0.9, text/plain;q=0.8,image/png,/*;q=0.5 <cr><lf>Accept-Language: en-us,en;q=0.5 <cr><lf>Accept- Encoding: zip,deflate <cr><lf>Accept-Charset: ISO -8859-1,utf-8;q=0.7,*;q=0.7 <cr><lf>Keep-Alive: 300 <cr><lf>Connection:keep-alive <cr><lf><cr><lf>*

a. What is the URL of the document requested by the browser?
b. What version of HTTP is the browser running?
c. Does the browser request a non-persistent or a persistent connection?
d. What is the IP address of the host on which the browser is running?
e. What type of browser initiates this message? Why is the browser type needed in an HTTP request message?

Solution:
a. The doc request was *https://gaia.cs.umass.edu/cs453/index.html*
b. HTTP version 1.1
c. For Connection: keep-alive, it is a persistent connection.
d. No enough info provided for deciding the IP address.
e. Mozilla/5.0. The browser type information is needed by the server to send different versions of the same object to different types of browsers.

4 Problem 5

The text below shows the reply sent from the server in response to the HTTP GET message in the question above. Answer the following questions, indicating where in the message below you find the answer.
HTTP/1.1 200 OK <cr><lf>Date: Tue, 07 Mar 2008 12:39:45GMT <cr><lf>Server: Apache/2.0.52 (Fedora) <cr><lf>Last-Modified: Sat, 10 Dec2005 18:27:46 GMT <cr><lf>ETag: "526c3-f22-a88a4c80" <cr><lf>Accept- Ranges: bytes <cr><lf>Content-Length: 3874 <cr><lf>Keep-Alive: timeout=max=100 <cr><lf>Connection: Keep-Alive <cr><lf>Content-Type: text/html; charset= ISO-8859-1 <cr><lf><cr><lf><!doctype html public "- //w3c//dtd html 4.0transitional//en"><lf><html><lf><head><lf><meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1"><lf><meta name="GENERATOR" content="Mozilla/4.79 [en] (Windows NT 5.0; U) Netscape]"><lf><title>CMPSCI 453 / 591 / NTU-ST550ASpring 2005 homepage </title><lf></head><lf><much more document text following here (not shown)>
a. Was the server able to successfully find the document or not? What time was the document reply provided?
b. When was the document last modified?
c. How many bytes are there in the document being returned?
d. What are the first 5 bytes of the document being returned? Did the server agree to a persistent connection?

Solution:
a. Yes, the status code is 200. The reply was on Tuesday, 07 Mar 2008 12:39:45GMT
b. On Saturday 10 Dec 2005 18:27:46GMT
c. 3874 bytes
d. <!doc. Yes, the connection is keep-alive.

5 Problem 13

Describe a few scenarios in which mail access protocols are not needed.
Solution:
When the mail message is not a SMTP message.