Comp 484 Homework 1   --Help references, (besides lecture slides and notes), listed at bottom.

Jared Fowler

1e. HTTP/1.1 200 OK

1f. Indicates that the request has succeeded.

1g. Retrieves whatever information is identified by the Request-URI. Note: URI is a Uniform Resource Identifier, which is a string of chars used to identify the name of a resource. In this case, the URI would be represented by the '/'. Note-to-self: This works just like a PC file directory. We enter the host domain www.csun.edu and from here, GET will retrieve the file based upon the path provided. The path provided was '/', aka, relative root directory.

1h. http://www.csun.edu/

1i. The return value is 200, therefore it must have been successful. A web page was received, however, it is evident that the returned text is different (in length) than the previous page received with the '/' by itself. We can therefore conclude that CSUN will not default you to the normal /index.html when you enter their site normally.

1j. <!-- Dream on. -->

1k. It doesn't work. The first line reads: HTTP/1.1 404 Not Found. As stated by the error code, the site or file was not found.

1l. Apache/2.2.3 (Red Hat)

2a. adamkaplan.org/var/www/images/words/dream.html

2b. adamkaplan.org

2c. https -> Hyper Text Transport Protocol Secure

2d. https always connects via a well-known default port: 443

3a.

```
MXTB-PWS3v2 140ms
      0  f.edu-servers.net  192.35.51.30  NON-AUTH  93 ms  Received 4 Referrals ,
rcode=NO_ERROR    NS ns1.dns.ucla.edu,NS ns2.dns.ucla.edu,NS ns3.dns.ucla.edu,NS
ns4.dns.ucla.edu,

   1  ns3.dns.ucla.edu  192.35.210.7  AUTH  46 ms  Received 1 Answers ,
rcode=NO_ERROR    A 164.67.100.172,
```

3b.

```
MXTB-PWS3v2 31ms
      0  b2.org.afilias-nst.org  199.249.120.1  AUTH  31 ms  Received 1 Referrals
, rcode=NAME_ERROR    SOA mname=a0.org.afilias-nst.info/rname=noc.afilias-
nst.info/serial=2011359547,
```

3c. The DNS procedure outlined in lecture 2 refers to a recursive style. In essence, the recursive style requires little work from the originating machine. Traversing through the DNS tree, different servers keep track of the request until the domain name can be identified. Once identified, the information travels back the way it came until it reaches the original system that requested it. Along the way, this information can be cached so that a future request can be handled much more quickly. A downside to this approach is that each DNS server will need to hold information about the particular

request until it makes its way back. This can be very resource intensive for the thousands of requests that it might need to handle at once. The Microsoft article refers to the iteration process. This requires more work upon the original machine that makes the request. Upon communicating with a DNS server, if the server is not aware of the domain name, it returns a list of referrals which the original machine can then connect to. This process continues until the original machine connects to a DNS server which contains the domain name information. This style requires less memory resources for the individual DNS servers, but also doesn't allow each DNS server to cache information for faster future look ups.

3d. Iterative. Looking at answer 3a, we can see that 4 referrals were received. Referrals are used in the iterative style of resolution.

4. URL: http://akaplan.edu/echo.php?a=b&q=15&d=funk&c=4&b=2&e=z

5. How many hops were needed from your machine to the destination?

5a. www.csun.edu

> Tracing route to www.csun.edu [130.166.238.195]
>
> over a maximum of 30 hops:
>
> 1   3 ms   3 ms   4 ms 172.31.145.1
>
> 2   4 ms   4 ms   4 ms 130.166.240.209
>
> 3   4 ms   4 ms   5 ms 10.213.0.10
>
> 4   4 ms   4 ms   4 ms www.csun.edu [130.166.238.195]
>
> 4 hops

5b. www.youtube.com

> 9 hops

5c. www.cs.vu.nl

> 17 hops

6.

> **Packet 1:** Source: A ;; Destination: B ;; SEQ# = 42 ;; ACK# = NA ;; SYN = 1 ;; ACK = NA
>
> **Packet 2:** Source: B ;; Destination: A ;; SEQ# = 109 ;; ACK# = 43 ;; SYN = 1 ;; ACK = 1
>
> **Packet 3:** Source: A ;; Destination: B ;; SEQ# = 43 ;; ACK# = 110 ;; SYN = NA (Should still be 1) ;; ACK = 1

References Used:

R1: http://www.w3.org/Protocols/rfc2616/rfc2616-sec10.html

R2: http://www.w3.org/Protocols/rfc2616/rfc2616-sec9.html#sec9.3

R3: https://technet.microsoft.com/en-us/library/cc775637(v=ws.10).aspx