

CS 176A: Homework 2

Part 1

1.
 - a. A whois database is a public collection of information about registered domain names and updated DNS settings
 - b. whois ucsb.edu
 - i. Registrant is UCSB ETS Network & Communications Services, Admin is Kevin Schmidt
 - ii. Servers
 1. ns2.ucsb.edu
 2. bru-ns2.brown.edu
 3. Ns1.ucsb.edu
 - iii. The domain was activated on April 27, 1987
 - iv. I used whois.com
 - c. www.apple.com
 - i. Hosted on e6858.dscx.akamaiedge.net
 - ii. IPv4
 1. 23.35.29.21
 - iii. IPv6
 1. 2600:1406:bc00:88e::1aca
 2. 2600:1406:bc00:881::1aca
 - d. UCSB has 3 addresses
 - i. 2620:12a:8001::3
 - ii. 2620:12a:8000::3
 - iii. 23.185.0.3
 - e. My machine has the address 128.111.30.209/26
Hostname: csilvm-09.cs.ucsb.edu
2.
 - a. If you run TCPClient before TCPServer, we see the following error because there is no server yet and TCP requires a 3-way handshake but it cannot complete this process without a server running.
Traceback (most recent call last):
File "C:\Users\dhruv\Desktop\School\4th Year\CS176A\HW2\TCPClient.py", line 5, in <module>
clientSocket.connect((serverName,serverPort))
socket.gaierror: [Errno 11001] getaddrinfo failed
 - b. There are no errors initially, but when we send the packet there is a chance that it is never received and our code simply hangs forever, this is because of UDP's unreliability.
 - c. If both sides know each other's differing port number there will be no issues, but if they are unaware we will have the same error as part 2a.

3. No change is required to UDPServer.py, as the port being assigned is happening dynamically by the OS so that the client now uses 5432 while the server is still on Port 12000. Bind is entirely optional.

Part 2: Wireshark

1. Wireshark
 1. DNS is sent over UDP
 2. The destination of the DNS query and the source of the response are both Port 53.
 3. The DNS Query is sent to 128.111.1.1
 4. The DNS Query is type A and carries 0 Answer RRs
 5. The DNS Queries would have to be sent to a different address (a subdomain within the main domain) which is not happening so we can assume there are not multiple requests being made for more images
2.
 1. The destination port is once again port 53 for the query, and the source of the response is 53.
 2. The query message is sent to 128.111.1.2
 3. The response message contains 3 Answer RRs, each of which is a web address with information about it.
 - i. www.mit.edu: type CNAME, class IN, cname www.mit.edu.edgekey.net
 - ii. www.mit.edu.edgekey.net: type CNAME, class IN, cname e9566.dscb.akamaiedge.net
 - iii. E9566.dscb.akamaiedge.net: type A, class IN, addr 23.56.123.79
3. The nameservers provided are as follows:
 1. mit.edu: type NS, class IN, ns asia1.akam.net
 2. mit.edu: type NS, class IN, ns eur5.akam.net
 3. mit.edu: type NS, class IN, ns ns1-37.akam.net
 4. mit.edu: type NS, class IN, ns asia2.akam.net
 5. mit.edu: type NS, class IN, ns use2.akam.net
 6. mit.edu: type NS, class IN, ns use5.akam.net
 7. mit.edu: type NS, class IN, ns usw2.akam.net
 8. mit.edu: type NS, class IN, ns ns1-173.akam.netThe IP addresses were not provided.