Week #13: DNS and NAT
Exam Review Question
CS 241: Fall 2013

These questions are provided to you to help you study material covered in CS 241 that may appear on the final exam. These exact questions may or may not appear on the final exam, but the topics they cover will almost certainly be on the final exam.

1. For the entire Internet, there are less than 20 root name servers. Each of these servers can handle less than 10,000 simultaneous requests, meaning that less than 200,000 simultaneous DNS lookups to the root name server can be made at one time. However, there are tens of millions of simultaneous DNS requests made on the Internet. How is this possible?

2. The University of Illinois' domain name is `www.illinois.edu`. Assuming that no information is cached, what all name servers need to be contacted in order to resolve the Illinois domain name into an IP address?

3.   While chatting with your friend, you found out from your operating system that the IP address of your computer is `192.168.1.3`. To your surprise, your friend says his IP address is also `192.168.1.3`. However, IP addresses on the Internet must be unique in order to uniquely identify each device. Is your friend lying? Explain why he is lying or what is going on.

4. At home, you set up a web server on your computer. On all your computers in your house, you can access this web server just fine. However, your friend (in another location) claims he is unable to access the web server. Assuming the web server is configured correctly, what could cause your friend to be unable to access your web server? Explain how this problem is fixed?