CSE471: DATA COMMUNICATIONS AND COMPUTER NETWORKS

YEDITEPE UNIVERSITY

FALL 2021

ASSIGNMENT 2 – DUE DATE OCTOBER 31ST, 2021

1. Execute the following tools and share your results using the output text or the results screenshot.

    (a) Using the **dig** or **nslookup** command from the terminal find the **MX**, **A**, **CNAME** and **NS** type **DNS** records for the following web sites *pine64.org, asahilinux.org, zerotier.com, www.zerotier.com,* and *mirror.verinomi.com.*

    (b) Using the **traceroute** command do an **ICMP trace** to the *mirror.de.leaseweb.net.*

2. Create a virtual instance of a small footprint Debian flavor **Linux OS** – such as Ubuntu Server, Q4OS (q4os.org) or LXLE (lxle.net). Install Bind 9 using the guide provided (tinyurl.com/CSE471installBind9) so that when you resolve www.yeditepe.edu.tr on the virtual machine, it resolves to 10.10.10.10. Furthermore, by following the example video tutorial provided in the link (tinyurl.com/CSE471ReverseLookUp | tinyurl.com/CSE471ReverseLookUp2) enable reverse IP look up so that when a reverse look up for the 10.10.10.10 is requested on the virtual machine it returns www.yeditepe.edu.tr.

3. In your own words please answer the following questions:

    (a) What are the networking models (client/server etc.) available on the Internet?

    (b) What are the functionalities of a protocol? Please provide three known protocol names that you use daily bases.

    (c) What is the difference between shared and dedicated media? Please name examples for each one of them.

    (d) What are the main components on a wireless home modem?

    (e) What are the main differences between Packet Switched Network and Circuit Switched Network?

4. List the possible delay types that can occur on a network node. Furthermore describe each type of delay and explain how and why this type of delay may occur?

5. Describe throughput in the networking context and give an example of how a **bottleneck** can occur in a real world network by using figures and providing approximate load values for each link.

6. Explain why layering in networking is considered harmful by some networking experts. If given the chance, how would these experts change the networking teaching structure?

Submit your assignments in a document file, which has your student number as name, through the COADSYS (http://yulearn.yeditepe.edu.tr/) latest end of Sunday, October 31st, 2021.