RAJAGIRI SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

SIXTH SEMESTER

101003/CS622S: NETWORKING LAB

LAB CYCLE

JANUARY 2024- MAY 2024

Day 1. a) Familiarise the basics of network configuration files and networking commands in Linux.

- /etc/init.d/network
- /etc/sysconfig/network
- /etc/sysconfig/network-scripts
- /etc/sysconfig/network-scripts/ifcfg-eth0
- /etc/nsswitch.conf
- /etc/hosts

Study the above commands and identify the suitable command from the above list for the following purposes:

Imagine you as a system administrator of a company A123.

i) You have multiple network interface cards in your system. You need to provide additional configuration for only the first NIC.

ii) You need to control searches for users, IP addresses and group information.

iii) You need to specify routing and host information for the network interfaces

b) Familiarise the Linux Networking Commands:

- ping
- ifconfig
- traceroute
- netstat
- nslookup
- route
- host

- iwconfig
- hostname
- nload

Study the above commands and identify the suitable command from the above list for performing the following:

i) Test whether "Google" is up and accessible

ii) Send 5 messages of buffer size 1000 bytes to any URL.

iii) List all UDP Sockets.

iv) Print the IP address details of the google.com

v) Display the hostname of your computer.

Day 2. Familiarize and understand the use and functioning of system calls used for network programming in Linux.

i) Process management: Write a C program to implement fork, exec, getpid, exit and wait system calls.

ii)Directory management: Write a C program using opendir, readdir and closedir system calls.

iii)File Management: Write a C program for copying a file into another using I/O system call.

Day 3. Implement client-server communication using socket programming and TCP as transport layer protocol in C.

Day 4. Implement client-server communication using socket programming and UDP as transport layer protocol in C.

Day 5. Simulate sliding window flow control protocols

i) Implement Stop and Wait ARQ Protocol in C

ii) Implement Go back N in C.

Day 6. Implement Distance Vector Routing protocol in C .

Day 7. Implement Simple Mail Transfer Protocol in C.

Day 8. Implement File Transfer Protocol in C.

Day 9*. Implement congestion control using a leaky bucket algorithm.

Day 10. Familiarize the Wireshark tool.

Day 11*. Design and configure a network with multiple subnets with wired and wireless LANs using required network devices. Configure commonly used services in the network.

Day 12. Study of NS2 simulator.

*Extra questions

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Operating System to Use in Lab : Linux
Compiler/Software to Use in Lab : GCC, NS2
Programming Language to Use in Lab : Ansi C

Lab-in charges

S6 CS Alpha : Ms. Mehbooba P Shareef
S6 CS Beta : Ms. Jisha Mary Jose
S6 CS Gamma: Dr. Tripti C.

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