Grade 10 Cybersecurity

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LOGIC GATES\Boolean

IS NOT AND OR

input output

0 false

1 true

A B AND OR XAND NOR

0 1 F T F F

1 0 F T F F

0 0 F F T T

1 1 T T T F

XAND (Exclusive AND) only if both are equal.

NOR (Neither this nor that) only proves things that are false.

Basic Linux Commands:

henry@Henry:~$

henry = user  
Henry = PC name  
~ = home/henry

cd / = goes to root directory

ls = list

cd = change directory

cd- = go back

pwd = prints current wording directory

mkdir/rmdir = make/remove directory

cat = view what’s in a file

touch = creates empty documents

nano file\_name = allows you to edit a file

mv = rename

find = search for files

Rm = remove stuff

Computer Parts

Applications:

OS (Operating System): manages all the software and hardware on the computer.

File systems:  a set of data structures, interfaces, abstractions, and APIs that work together to manage any type of file on any type of storage device, in a consistent manner.

Computer: Shell: The shell manages the interaction between you and the operating system by prompting you for input

Kernal: acts as a bridge between applications and data processing performed at hardware level using inter-process communication and system calls.

Hardware: store and run the written instructions provided by the software

Hardware: Motherboard, CPU(Central Processing Unit), GPU(Graphics Processing Unit/Graphics Card), SSD(Solid State Drive), RAM(Random Access Memory), Case, Cooler, Power supply.

Networking

1. IP Address (Internet protocol): The number used to identify devices that are connected to the internet.

2. Subnet mask: It hosts portions in an IP address for routing and identification.

3. Gateway: It connects network devices, helping them communicate easier.

4. DNS (Domain Name System): (only 13 DNS servers in the world) Copies URL with IP address.

5. Network switch: It is a device that connects local networks allowing them to communicate.

6. Network Router: A network router is a device that connects networks and directs data traffic.

7. Access point: is allows wifi enabled devices to connect to a wired network.

8. MAC address: Identifier assigned to a network interface for communication.

9. Port: Allows multiple devices to use networks without interference.

10. Types of networks (Wan, LAN, PAN MAN and VPN)

Permissions

ls -l = view permissions

r = read = 4  
w = write = 2  
x = execute = 1

types of people it affects

User/owner = u  
Group = g  
ALL = o

+ to add user to file  
- to remove permissions  
= to set exact permissions

Chmod = Change file permissions

Useful Commands

1. Ifconfig (internet configuration) = It is used in Unix-like operating systems like Linux, to configure and display information about network interfaces on a system.

2. ip (internet protocol) = it is the address of your device. You would use it to view information about network interfaces, like their name, states, and hardware addresses. It also replaced the ifconfig and route command.

3. host = used to find the ip address of a specific domain name or find the domain name of an IP address.

4. tracepath = traces network paths and is similar to traceroute.

5. ss = used to display socket statistics. It replaced netstat.

6. dig = retrieves information about various DNS.

7. iwconfig = It configures wireless network interfaces on linux systems.

8. hostname = It shows the name of the device you’re using.

9. ping = it shows how well your computer is working.

10. ifplugstatus = You need to download ifplugd to use the command. The command checks the link status of a network interface.

11. tcpdump = Good for network troubleshooting, analysis, debugging.

12. wget = used to download files from the internet

13. iftop = view a list of network connections in real time and their transfer rates

14. arp = Used to display and modify the Address resoulution protocol (APR) cache on a system. APR is a network protocol used to map an IP address to a physical (MAC) address on a local network.

15. Traceroute = it traces network paths.

16. netstat = Provides information about network connections, routing tables, interface statistics, and other network-related information on a computer.

17. nslookup = query DNS servers to obtain domain name or IP address mapping, or other DNS records

18. mtr = It combines "traceroute" and "ping" commands. It sends packets it you destination then it continuously updates the information.

19. route = It is used to display or manipulate the routing table. The routing table is a set of rules that dictates how network traffic should be directed in a computer network.

20. whois = It queries the WHOIS database. The WHOIS database contains information about registered domain names, IP address allocations and other registration details.

21. IRC (internet relay chat): It is a protocol used for real-time text messaging or chat using the internet. It allows people to communicate through private chats or groups.

Keywords/Abbreviations

IP adress = Internet Protocol

GUI = Graphic User Interface

DNS = Domain Name System

OS (Operating System): manages all the software and hardware on the computer.

Git

Git init = make repository

Git add filename = adds file so you can commit later  
  
git commit = save progress  
git checkout -b “branch name” = make branch  
git checkout “branch name” = switch to branch  
git restore “file name” = revert to last commitment version  
git rm –cached “file name” = remove file from repository  
git reset --soft HEAD~x = remove x commits

Passwords  
bot\_1 = Viscount2022