

Department of Cybersecurity

Linux Programming(24CY23XX)

ASSIGNMENT -3

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1. Distinguish between man and whatis commands? Justify with example.

- The man command opens the full manual page for a Linux command, providing detailed information, options, usage, and examples, similar to a book chapter on that command.
- The whatis command provides a short, one-line summary or description of what a command does, helping you quickly identify or verify commands.

Example:

bash

whatis ls

Output: ls (1) - list directory contents

bash

man ls

Displays detailed documentation on the ls command and its options.

This distinction makes whatis ideal for quick reference, whereas man is suited for in-depth understanding.

2. Use the tee command to save the output of ls -l into a file while also displaying it.

- The tee command reads standard input and writes it simultaneously to standard output and one or more files.

Example:

bash

```
ls -l | tee output.txt
```

This command lists files in long format, displays the output on the terminal, and saves the same output in output.txt.

3. Explain with example how the tee command can be used in logging.

- tee is useful for logging because it allows you to monitor command output live and save it simultaneously to a log file.

Example:

bash

```
ping google.com | tee -a pinglog.txt
```

This command sends ping requests to Google, displays responses live, and appends the output to pinglog.txt, preserving previous data.

This is valuable for system admins who want real-time views and audit logs.

4. List steps in installing Ubuntu 25.04 LTS on Oracle VirtualBox.

1. Download the Ubuntu 25.04 LTS ISO image from the official site.
2. Open Oracle VirtualBox and create a new virtual machine.
3. Name the VM and specify OS type as Linux > Ubuntu 64-bit.
4. Allocate memory (e.g., 4 GB recommended).

5. Create a virtual hard disk (VDI, dynamically allocated).
6. Start the VM and attach the Ubuntu ISO as a virtual optical disk.
7. Boot the VM and follow the Ubuntu installation prompts (language, keyboard layout, disk partitioning).
8. Complete installation and restart the VM.

This process gives you a virtual Ubuntu environment for development/testing without altering your host OS.

5. Troubleshooting Kernel Panic Error during Ubuntu installation.

- Kernel panic is a critical system error. To troubleshoot:
 1. Boot into recovery or rescue mode if available.
 2. Check for corrupted or missing files like initramfs.
 3. Regenerate initramfs using tools like dracut or update-initramfs.
 4. Review logs for hardware compatibility or kernel module issues.
 5. If needed, try booting with an older kernel or different installation media.

Avoid panic; these systematic checks help isolate kernel panic causes.

6. Command to display hostname and change hostname using sysctl.

- Display hostname:

```
bash
```

```
hostname
```

- Change hostname temporarily with sysctl:

```
bash
```

```
sudo sysctl kernel.hostname=new-hostname
```

Note: This change won't persist after reboot; for permanent, edit /etc/hostname or use hostnamectl in modern systems.

7. Command to show calendar of year 1984 with August month.

- Use:

```
bash
```

```
cal 1984 8
```

This displays the calendar for August 1984.

8. Command to display system uptime and logged-in users.

- Combine uptime and w commands or use:

```
bash
```

```
uptime; w
```

or simply:

```
bash
```

```
w
```

uptime shows system run time; w shows current logged-in users and uptime details .

9. Use find to list all .c files in /home/user.

```
bash
```

```
find /home/user -type f -name "*.c"
```

Lists all .c source files under /home/user recursively.

10. Change file permission to allow only owner to read and write.

bash

chmod 600 filename

This sets read/write for owner only, no permissions for group/others.
