

# **Department of Cybersecurity**

## **Linux Programming(24CY23XX)**

### **ASSIGNMENT -3**

**Name: Mohd Sahil Ansari    Class:3A**  
**USN:ENG24CY0134            Roll no:22**

#### **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.

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#### **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.

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### **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.

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### **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.

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## **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.

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## **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.

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

- Use:

```
bash
```

```
cal 1984 8
```

This displays the calendar for August 1984.

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## **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 .

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## **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.

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**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.

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