Notes 3

Questions

What is a graphical user interface (GUI)? A GUI is a way to interact with a computer using visual elements like windows, icons, buttons, menus, and a mouse pointer. Instead of typing commands, you click and drag things.

Examples:

- Windows desktop

- macOS interface

- GNOME or KDE in Linux

What is a Desktop Environment? A desktop environment is the complete graphical interface system in an operating system. It includes:

- Window manager

- File manager

- Panels / taskbars

- System settings

- Default applications

Examples in Linux:

- GNOME

- KDE Plasma

- XFCE

Basically, it's the "look and feel" layer of your operating system.

What is the Command Line Interface (CLI)? A CLI is a text-based interface where users interact with the operating system by typing commands.

Instead of clicking icons, you type instructions like:

- ls
- cd Documents
- pwd

It gives more control and is often faster and more powerful than a GUI for technical tasks.

How do I access the Command Line Interface (CLI)? In Linux:

1. Open a terminal application (like Tilix, GNOME Terminal, etc.)

2. Keyboard shortcut often: Ctrl + Alt + T

In Windows:

- Command Prompt (cmd)

- PowerShell

- Windows Terminal

In macOS:

- Open the Terminal app from Applications → Utilities

What is a Virtual Console? A virtual console is a text-only interface that runs directly on the system without a graphical environment.

In Linux, you can switch to one using: Ctrl + Alt + F1 through F6 (varies by distro)

It runs independently of the desktop environment and is useful for troubleshooting when the GUI fails.

What is a Terminal Emulator? A terminal emulator is a graphical program that allows you to use the command line within a desktop environment.

Examples:

- GNOME Terminal

- Tilix

- Konsole

It "emulates" the old physical hardware terminals but runs inside a GUI.

What is Bash? Bash stands for Bourne Again Shell.

It is:

- A command interpreter (shell)

- A scripting language

- The default shell for many Linux distributions

It processes user commands and allows automation through scripts.

What is the Shell Prompt? The shell prompt is the text displayed in the terminal that indicates the shell is ready to accept commands.

Example: kevin@debian:~$

It usually shows:

- Username

- Hostname

- Current directory

A symbol like $ (regular user) or # (root)

Commands – Definition, Usage, and Examples

clear Definition: Clears the terminal screen.

Usage: clear

Example: clear

echo Definition: Displays text or variables in the terminal.

Usage: echo [text]

Examples: echo Hello World echo $HOME echo -n "Hello"

date Definition: Displays or sets the system date and time.

Usage: date date --rfc-3339=ns

Examples: date date +"%Y-%m-%d"

free Definition: Displays memory usage (RAM and swap).

Usage: free free -h

Example: free -h

uname Definition: Displays system information.

Usage: uname uname -a

Example: uname -a

history Definition: Shows previously executed commands.

Usage: history

Example: history !25 (runs command number 25)

man Definition: Displays the manual page for a command.

Usage: man [command]

Example: man ls man date

tldr Definition: Provides simplified examples of commands (community-driven summaries).

Usage: tldr [command]

Example: tldr tar tldr git

cheat Definition: Shows practical command usage examples from cheat sheets.

Usage: cheat [command]

Example: cheat tar cheat ssh

hostname Definition: Displays or sets the system's hostname.

Usage: hostname

Example: hostname

df Definition: Shows disk space usage of mounted filesystems.

Usage: df df -h

Example: df -h

du Definition: Shows disk usage of files and directories.

Usage: du du -sh [directory]

Example: du -sh Documents

figlet Definition: Displays text in large ASCII art letters.

Usage: figlet [text]

Example: figlet Kevin figlet "Linux Lab"