Lecture 4 Notes — Shell Commands (CLI Basics)

1. What is Linux?

- Open-source Unix-like OS (Linus Torvalds, 1991).
- Popular distros: Ubuntu, Debian, Fedora.
- Runs servers (96%+ of top 1M), embedded systems, Android.
- Secure, stable, main platform for open source dev.
- Works via CLI (but GUI available too).

2. Kernel vs. Shell

- Kernel → core of OS, talks to hardware.
- Shell → interface for user ↔ kernel (bash, zsh).
- Where we type commands.

3. CLI vs. GUI

- CLI: fast, scriptable, developer-friendly.
- GUI: intuitive, slower, manual repetition.

4. Starting a Shell

- Linux/Mac → search Terminal.
- Windows → install Git Bash.

5. Basic Commands

- pwd → print current directory (full path).
- cd [dir] → change directory (/, ., .., ~, absolute/relative path).
- ls → list files/dirs (-l for detailed, -lh human-readable).
- Autocomplete: press Tab.
- History: press ↑ arrow.
- clear → wipe terminal display.

6. File & Directory Manipulation

- ■■ Danger: irreversible changes (esp. rm).
- cp src dst → copy files/dirs.
- mv src dst → move or rename.
- rm file → delete file permanently.

- mkdir name → make new directory.
- Wildcards: * matches any string, ? matches one char.

7. Help & Exit

- help [cmd] → built-in help (bash).
- man [cmd] → manual page.
- exit → close terminal session.

Study Tip

- Practice: create a dummy folder, move into it, make files/dirs, copy, rename, then clean up.