✅ Git Commands & Concepts - Revision Notes

🔹 Basic Git Commands

git status → Shows current branch and tracked/untracked files.

git add <file> → Stages specific file.

git add . → Stages all modified and new files.

git commit -m "message" → Commits staged changes with a message.

git log → Shows commit history.

git reset <file> → Unstages a file from staging area.

git restore <file> → Discards changes in working directory.

git restore --staged <file> → Removes a file from staging area, but keeps changes.

git stash → Temporarily saves uncommitted changes.

git stash pop → Applies and removes the last stash.

🔹 Forking and Cloning

Fork: Copy a repo to your GitHub profile.

git clone https://github.com/your-username/forked-repo.git

🔹 Remote Repositories

git clone <url> → Clone the forked repo locally.

Example:git remote -v → Lists remotes.

git remote add origin <your-fork-url> → Adds your fork as origin.

git remote add upstream <original-repo-url> → Adds main repo as upstream.

git fetch upstream → Fetches changes from upstream repo.

git pull upstream main → Merges upstream’s main into your local main.

🔹 Branching

git branch → Lists all local branches.

git branch <branch-name> → Creates a new branch.

git checkout <branch-name> → Switches to that branch.

git checkout -b <branch-name> → Creates and switches to new branch.

git push origin <branch-name> → Pushes local branch to your fork.

🔹 Keeping Your Fork Up-to-Date

bash

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git checkout main

git fetch upstream

git merge upstream/main

git push origin main

🔹 Creating a Pull Request (PR)

Fork the original repo.

Clone your fork locally.

Create a branch:

git checkout -b feature-xyz

Make changes → git add . → git commit -m "your message"

Push branch to your fork:

git push origin feature-xyz

Go to GitHub → Open Pull Request:

Base repo: upstream

Base branch: main

Compare: your fork’s feature-xyz

Click Create Pull Request

🔹 Upstream & Rebase

git fetch upstream → Grabs latest changes.

git rebase upstream/main → Re-applies your local commits on top of upstream’s main.

Useful to clean history before PR.

🔹 Conflict at Same Line

Occurs when both upstream and your branch modify the same line.

To resolve:

Git will mark conflict in file using:

markdown

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<<<<<<< HEAD

Your changes

=======

Upstream changes

>>>>>>> upstream/main

Manually choose which version to keep.

Stage it again: git add <file>

Continue: git rebase --continue or git commit

Linux basics

📁 Linux Commands & Terminal Notes

🖥️ Basics

Terminal Emulator: Interface to access shell (like gnome-terminal, xterm, zsh, etc.).

Shell: A command-line interpreter; popular shells are Bash, Zsh, Fish.

Bash Files: ~/.bashrc, ~/.bash\_profile – scripts executed at shell startup.

zprofile: Similar to .bash\_profile, but used with Zsh.

📂 Environment Variables

View: printenv, echo $VAR\_NAME

Path Variable: echo $PATH

Set temporarily: export VAR=value

Permanent storage: Add to .bashrc or .zshrc

Where stored: Typically in ~/.bashrc, ~/.profile, or /etc/environment

📁 Navigation & File Management

📄 Directory Navigation

pwd – Print working directory

cd – Change directory

cd .. – Move to parent directory

cd ~ – Move to home directory

ls – List contents

ls -R – Recursive list

📄 File/Directory Commands

mkdir – Create directory

touch – Create empty file

cat file.txt – View file content

man command – Show manual

tr 'a-z' 'A-Z' – Translate characters (e.g., lowercase to uppercase)

📁 File Manipulation

cp file1 file2 – Copy file

cp -R dir1 dir2 – Copy directory recursively

mv file1 file2 – Rename or move

rm file – Delete file

rm -r folder – Delete directory

🔐 File Permissions

ls -l – View permissions

chmod 755 file – Change permissions

chown user:group file – Change file owner

⛓️ Operators & Bulk Actions

\*, ?, [] – Wildcards

Example: cp \*.txt backup/

🕵️ Searching & Filtering

grep 'text' file.txt – Search text

history – Show past commands

locate filename – Fast file search

find / -name file.txt – Search manually

diff file1 file2 – Compare files

head -n 10 file.txt – First 10 lines

tail -n 10 file.txt – Last 10 lines

⚙️ System Info & Utilities

df -h – Disk usage

top / htop – System monitor

uname -a – Kernel info

free -h – RAM usage

vmstat – Memory & process stats

id – Current user ID

getent passwd – List all users

lsof – List open files

🧠 User Management

useradd username – Add user

userdel username – Delete user

🌐 Networking

nslookup domain.com – DNS info

netstat -tuln – Network connections

hostname – Display system hostname

🛠️ Miscellaneous

wget URL – Download file

zip file.zip file1 file2 – Zip files

unzip file.zip – Extract files

alias ll='ls -alF' – Create shortcuts

ps aux – Running processes

sed, cut – Stream editing

regex – Powerful pattern matching (used in grep, sed, etc.)

⌨️ Terminal Shortcuts

Ctrl + A – Go to start of line

Ctrl + E – Go to end of line

Ctrl + C – Cancel command

Ctrl + D – Logout or close terminal

Ctrl + R – Search command history