Complete Git Course - Beginner to Advanced

1. What is Git?

Git is a version control system to track changes in your code. It helps manage versions, work with teammates, and track history.

2. Install and Configure Git

Download Git:
- Windows: https://git-scm.com/download/win
- Linux: https://git-scm.com/download/linux
- Mac: https://git-scm.com/download/mac

Configure Git globally:
git config --global user.name "Your Name"
git config --global user.email "your@email.com"

3. Start a Project

Initialize:
git init

Check status:
git status

4. Add and Commit Files

Stage files:
git add file.txt
Add all:
git add .
Commit:
git commit -m "Message"

5. Connect to GitHub

Add remote:
git remote add origin https://github.com/your-username/repo.git

6. Push to GitHub

Set branch and push:
git branch -M main
git push -u origin main

7. Pull from GitHub

Pull updates:
git pull origin main

8. View History

View commits log:
git log

9. Branching

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Create branch:
git branch feature
Switch branch:
git switch feature

10. Merge Branches

Switch to main:
git switch main
Merge:
git merge feature

11. Ignore Files

Create .gitignore and add:
node_modules/
*.log
.env

12. Undo Mistakes

Unstage file:
git reset file.txt
Undo commit (keep changes):
git reset --soft HEAD~1
Undo commit (discard changes):
git reset --hard HEAD~1

13. Remote Branches

See all branches:
git branch -a
Fetch remote changes:
git fetch origin

14. Forking and Contributing

Fork on GitHub, then clone locally:
git clone https://github.com/your-username/forked-repo.git
Make changes and push to your fork, then create a Pull Request.

15. Useful Shortcuts

Add + Commit:
git commit -am "msg"
Short log:
git log --oneline

16. Practice Repo Example

mkdir git-practice
cd git-practice
git init
touch file.txt
echo "Hello Git" > file.txt

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git add .
git commit -m "First commit"