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Introduction to GIT in Practice

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GLOBALLY RESPECTED

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What's GIT and GitHub?

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- **Git** is **a tool** that you use on your computer to keep track of changes in your files.
- Local storage

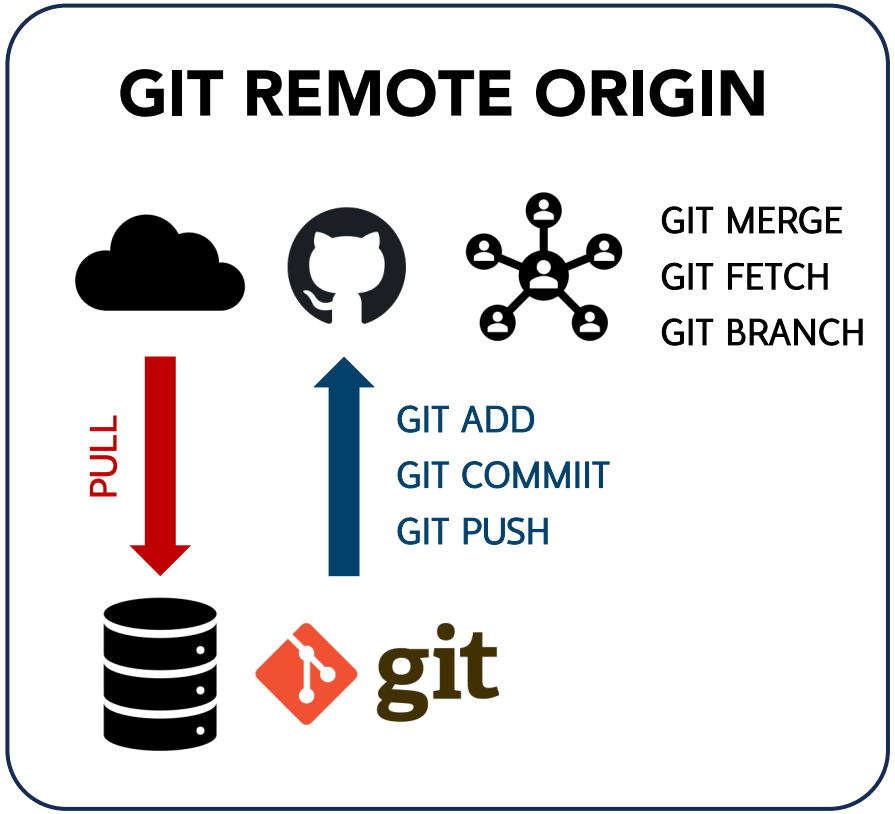
Git	"Undo"	Track Change
n-history	limited history	1-history
no time limit	on clipboard	no time limit
cache file	clipboard (temporary)	file

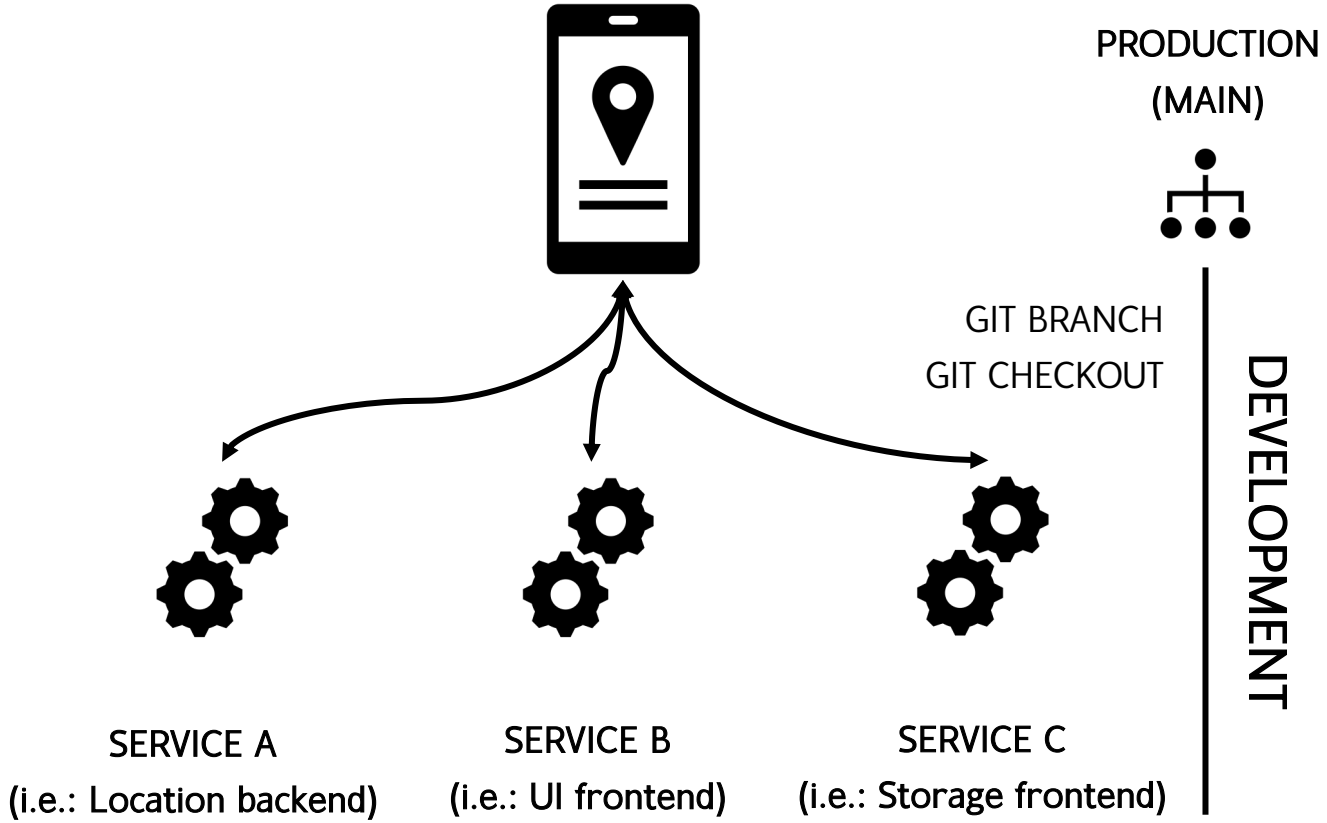
GitHub

- GitHub is **a web-service** where you can store and share the files (project) you've tracked with Git and collaborate with others.
- Cloud storage → Sharing and Collaboration

Other similar web-service:
GitLab | Bitbucket | SourceForge
AWS CodeCommit | GitKraken

GIT & GitHub Workflow





Common GIT Commands

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Command	Description	Example Usage
`git init`	Initializes a new Git repository	`git init`
`git clone <url>`	Clones an existing repository from a remote server to your local machine	`git clone https://github.com/Shidiq/snhlib`
`git add <file>`	Stages a specific file or files for next commit, use "." to stage all changes (new, modified, or deleted files) in current directory for the next commit.	`git add filename.txt` or `git add .`
`git commit -m "<message>"`	Commits the staged changes to the repository with a descriptive message.	`git commit -m "add new feature"`
`git push`	Uploads the local commits to the remote repository (i.e., GitHub, GitLab)	`git push -u origin main` `git push -u origin development`
`git pull`	Fetches and merges changes from the remote repository into the current branch.	`git pull`
`git branch <name>`	Creates a new branch with the spesific name.	`git branch development`
`git checkout <name>`	Switches to the specified branch.	`git checkout development`

Scenario

- [Only] Local repository
- Local to online repository (i.e.: GitHub)
  - First, Create local repository, `git init`
  - Setup URL, `git remote add origin <url>`
  - Push local changes, `git add .` and `git commit –m “message”`
  - Pull to main, `git push -u origin main`
- Online to local repository
  - First, Create online repository
  - Use on local, `git clone <url>`

Basic Git Workflow

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With your repository set up, you can now use Git to manage your project:

- **Stage Changes**: `git add .`
- **Commit Changes**: `git commit -m "Your commit message"`
- **Push to GitHub**: `git push`

This minimal setup will allow you to start using Git for version control and GitHub for collaboration and remote storage.

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QUICK DEMONSTRATION

- GIT in LOCAL
- LOCAL to CLOUD
- CLOUD to LOCAL

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"Git and GitHub are essential tools in project management, especially for teams collaborating on code. Git provides powerful version control, enabling developers to track changes, work on parallel branches, and merge code efficiently. GitHub extends Git's capabilities by offering a platform for remote collaboration, issue tracking, and project management, making it easier for teams to coordinate, review code, and manage workflows. Together, they streamline the development process, improve collaboration, and ensure code quality in projects of any size."