GIT

Trainer: Nilesh Ghule

Introduction

1. C++
2. Database
3. Java
4. OS
5. DSA
6. .Net
7. Web (MERN)
8. SDM (Devops)
9. Adv Java
10. Aptitude
11. Business Comm
12. Project

CDAC course

24-weeks

1. 4 weeks - Campus prep & project submissions
2. 1 week - CCEE (MCQ)
3. 1 week - Prep.
4. 18 week - Learning

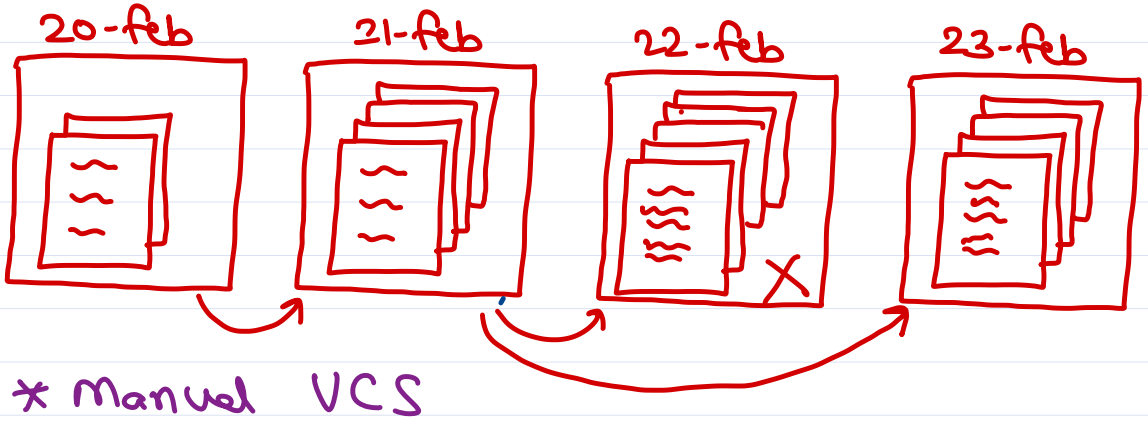
Module evaluation - 100 marks

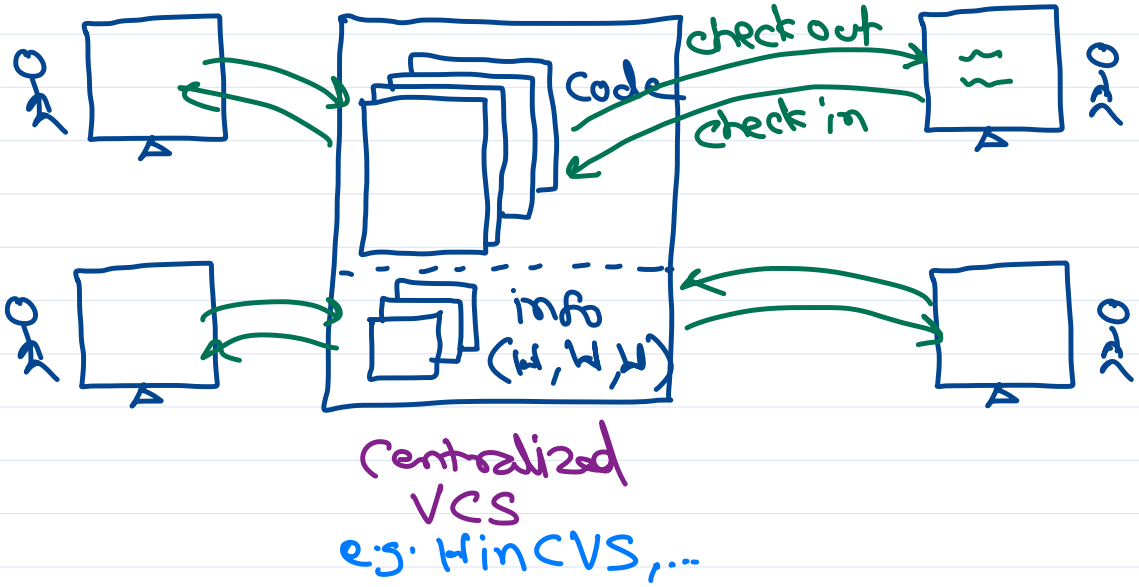
1. Theory - MCQ - CCEE - 40
2. Lab - 40 (at end module).
3. Internal - 20
   - assignments - 10
   - surprize quiz, interviews, ... - 10

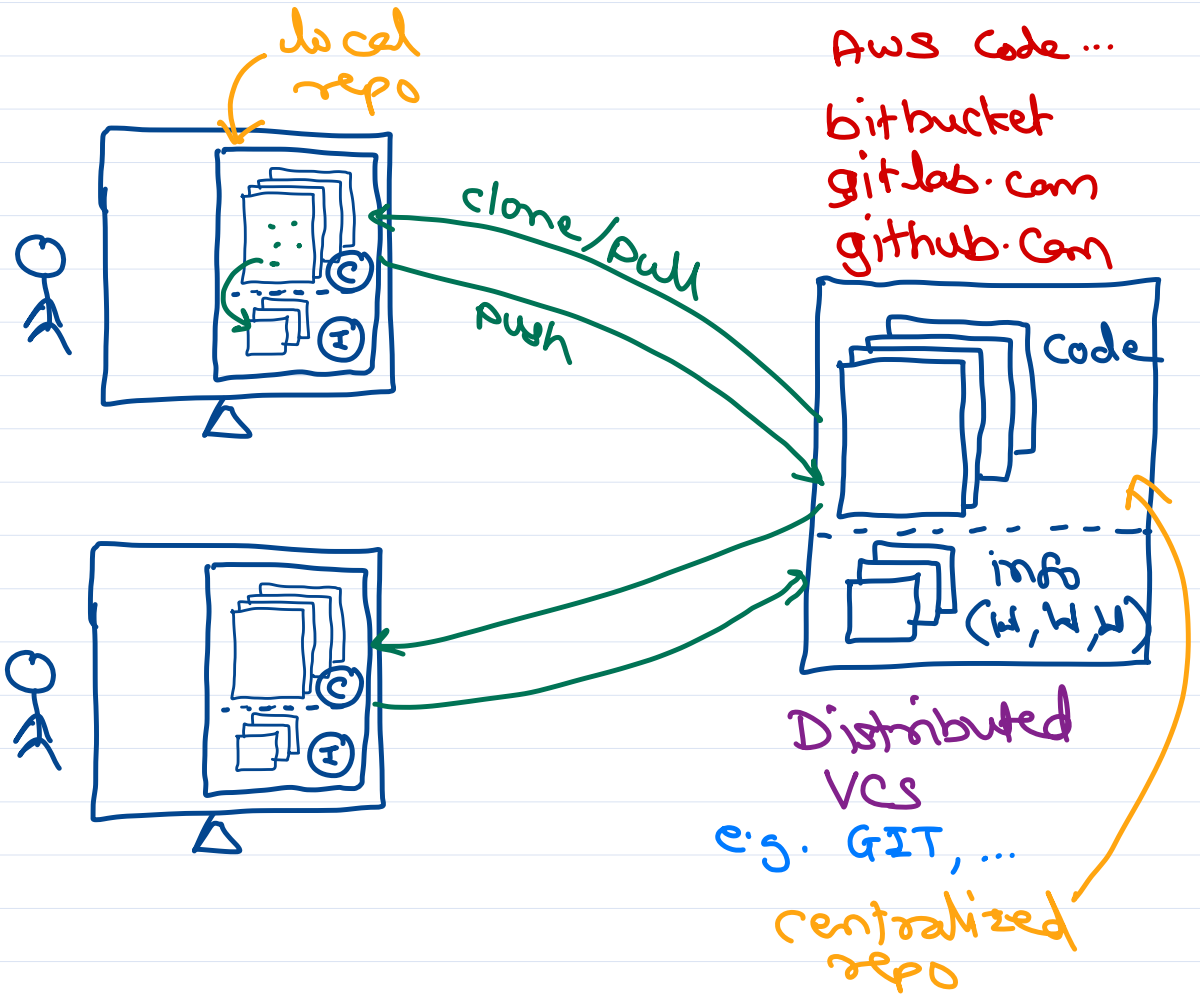
Group activities → Labs

1. Tech : Hackathons, Project, ...
2. Non Tech : Comm^n, Sports, ...

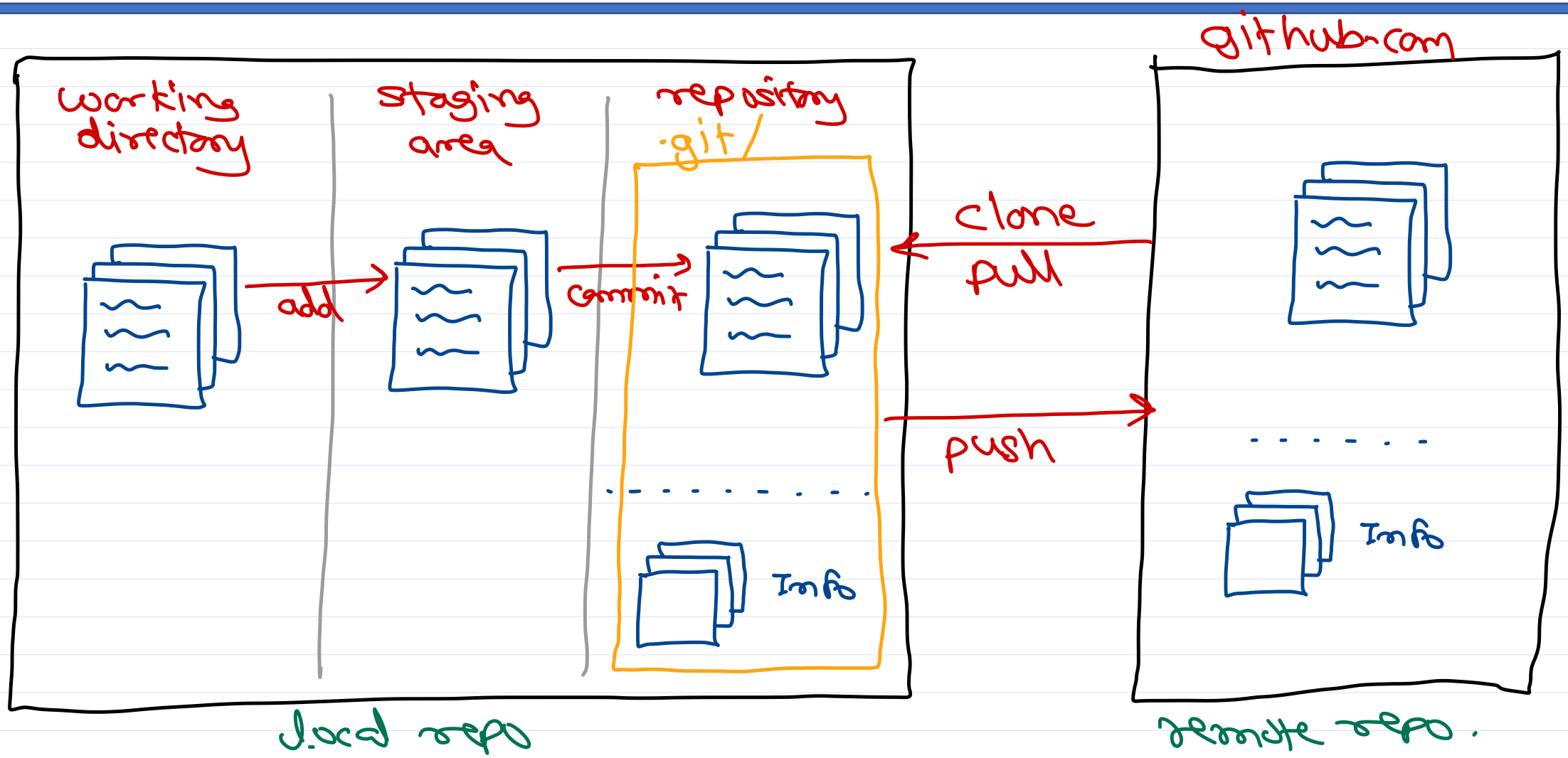
Version Control System







GIT architecture



Important commands

① git config (who, ...)
   git config --global user.name ...
   git config --global user.email ...

② git init
   create new local repo

③ git add path
   add given file/dir into staging area.

④ git commit -m "why"
   add staged changes into local repo.

⑤ git status
   see working/staging files/changes.

⑥ git log
   see all commits (metadata).

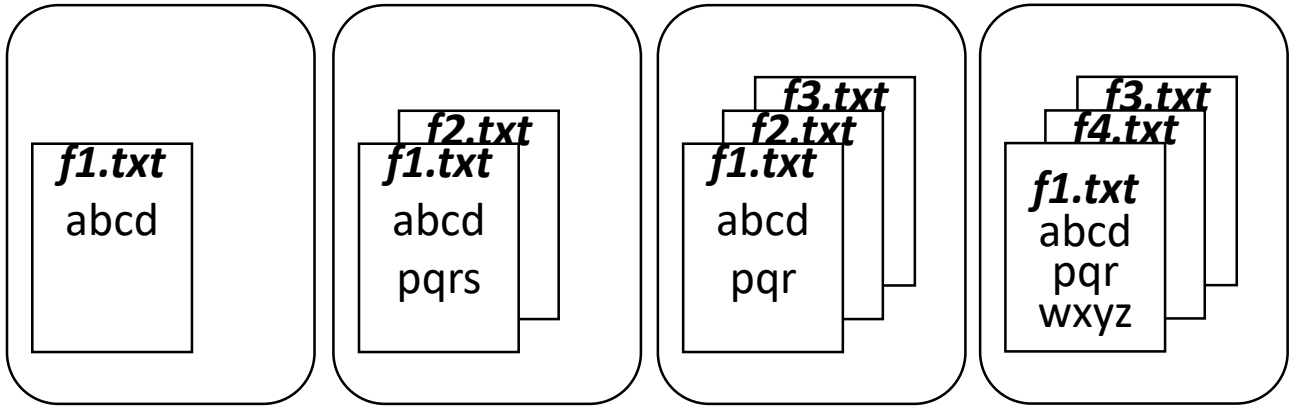
⑦ git clone
   - copy full repo (from remote to local machine).

⑧ git pull
   - copy latest changes from remote to local repo.

⑨ git push
   - send changes from local repo to remote repo.

Version control system

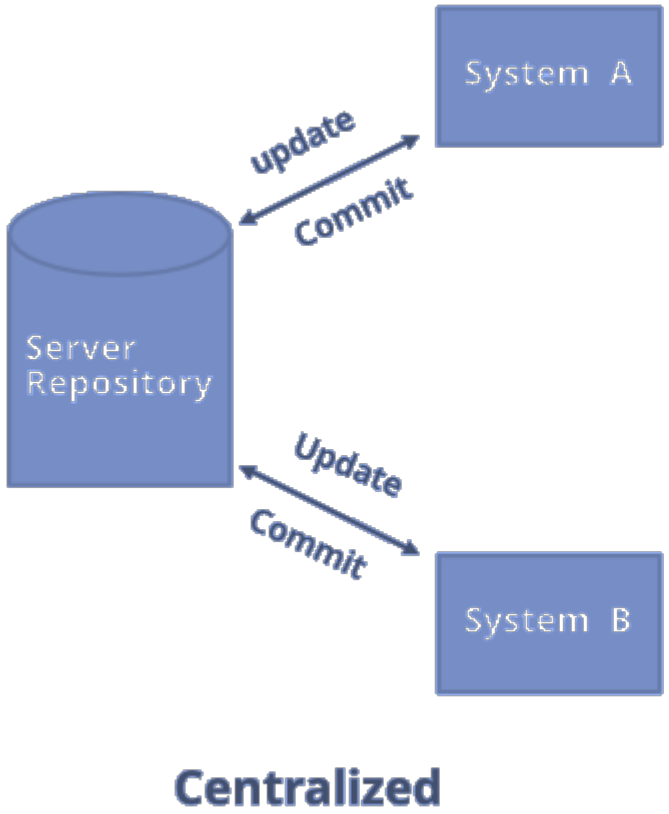
- For management of documents/source code
- Logical way to organize and control revisions of the code.
- Tracks/controls changes in code.
- Also known as
  - Revision control system
  - Source code control system
- Two types:
  - Centralized VCS
    - e.g. CVS, SVN, Bazaar, …
  - Distributed VCS
    - e.g. Git, Mercurial, Arch, …



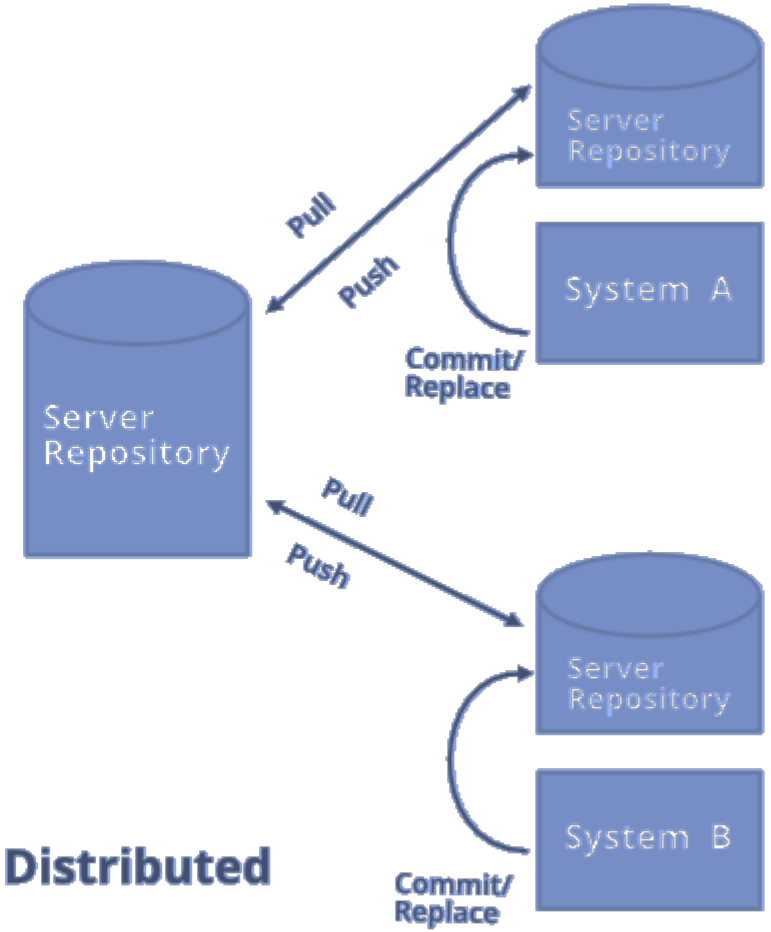
https://medium.com/@kamilmasyhur/what-do-you-know-about-version-control-system-vcs-6a1e1922c970

Version control system

Centralized VCS

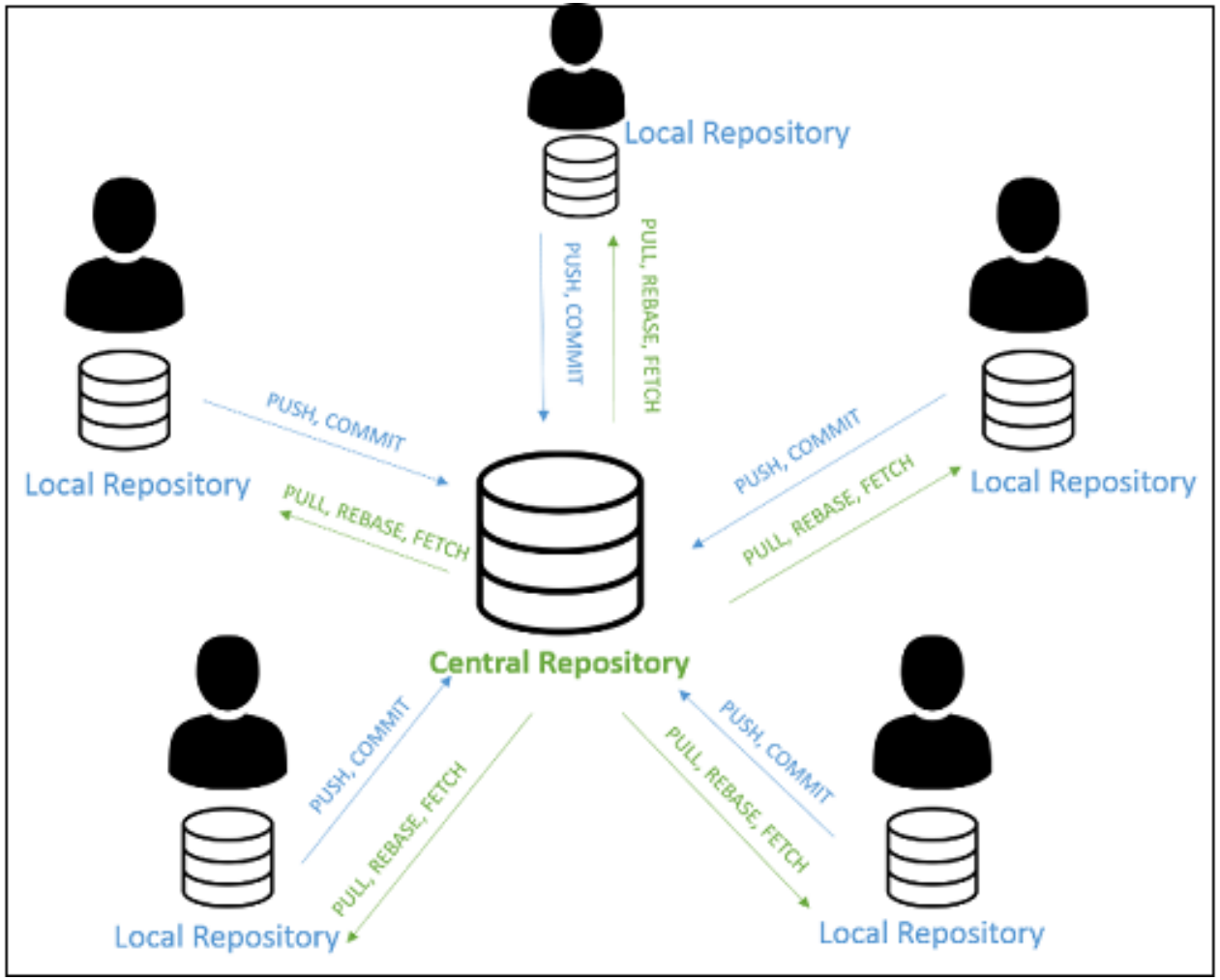


Distributed VCS



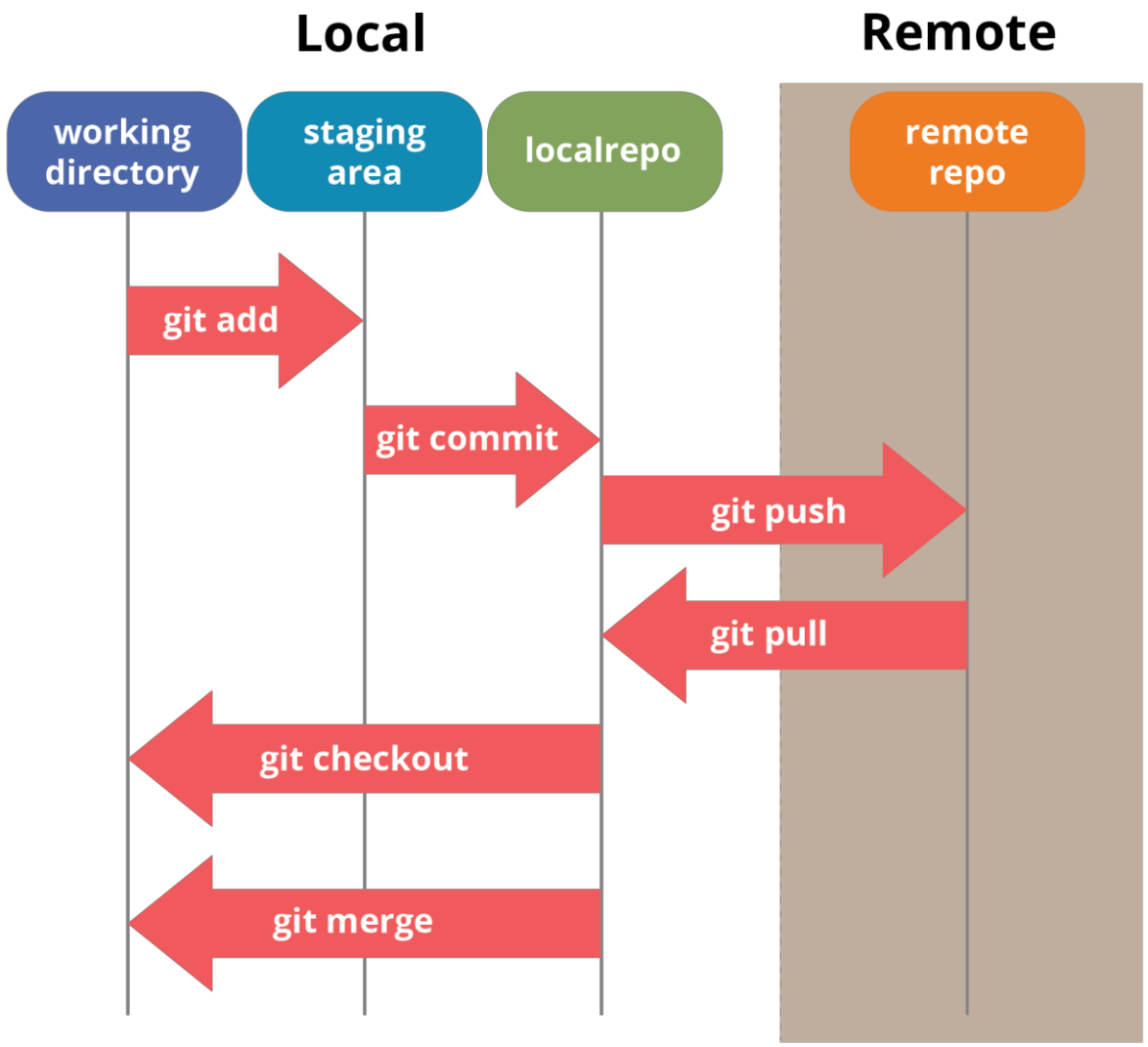
GIT

- Distributed VCS & SCM.
- Designed by developed by Linus Torvalds to manage Linux kernel source code.
- Open source software.
- Free under GPL.
- Development
  - Began on 3-Apr-2005.
  - Announced on 6-Apr.
  - Became self-hosing on 7-Apr.
  - First branch merging on 18-Apr.
  - Achieved performance goals on 29-Apr.
  - Began kernel (2.6.12) management from 16-Jun.



Terminologies

- GIT repository
  - Directory containing code and its metadata (.git).
- GIT working
  - Working area
  - Staging area
  - Repository
- Commits
  - Hold a state of repository.
  - GIT maintains commit history.
- Local vs Remote repository
- Remote repository operations
  - clone, pull, push.



Git installation & setup

- On Ubuntu
  - sudo apt-get install git
- List global settings
  - git config --global --list
- Set up global properties
  - git config --global user.name <your name>
  - git config --global user.email <your email>
  - git config --global core.editor <editor app>
- GIT user details are associated with each commit done by the user.

- On Windows
  - Download and install GIT.
    - https://git-scm.com/downloads
  - Installed components
    - GIT bash
    - git-gui + gitk
  - GIT Bash
    - git command
    - bash commands
    - vim editor
- In editor/IDE
  - All leading IDEs have GIT support.
  - VS Code, Eclipse, …

GIT commands

- terminal> git init

- terminal> git status
- terminal> git status –s

- terminal> git add <file-path>
- terminal> git add <dir-path>

- terminal> git commit –m "message"

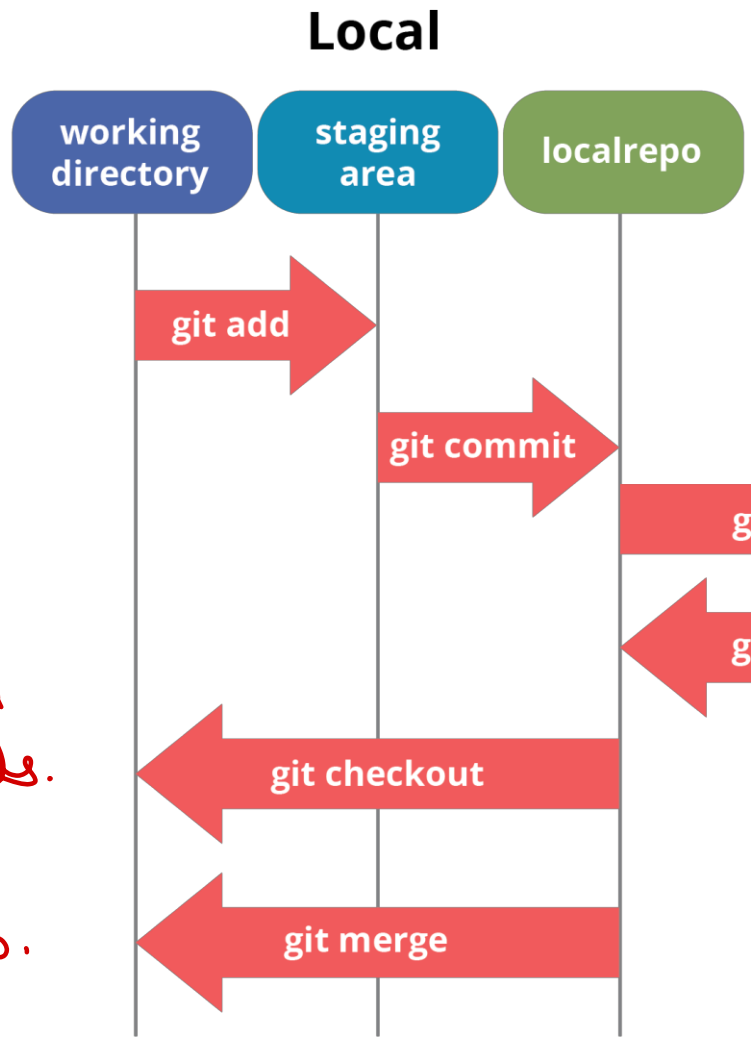
- terminal> git diff (track changes that are not staged)

- terminal> git checkout <file-path> (discard changes & get last committed version)

- terminal> git reset (unstage the changes)

- terminal> git reset --hard (unstage the changes and replace with last committed version)

advanced Commands. ignore for now.

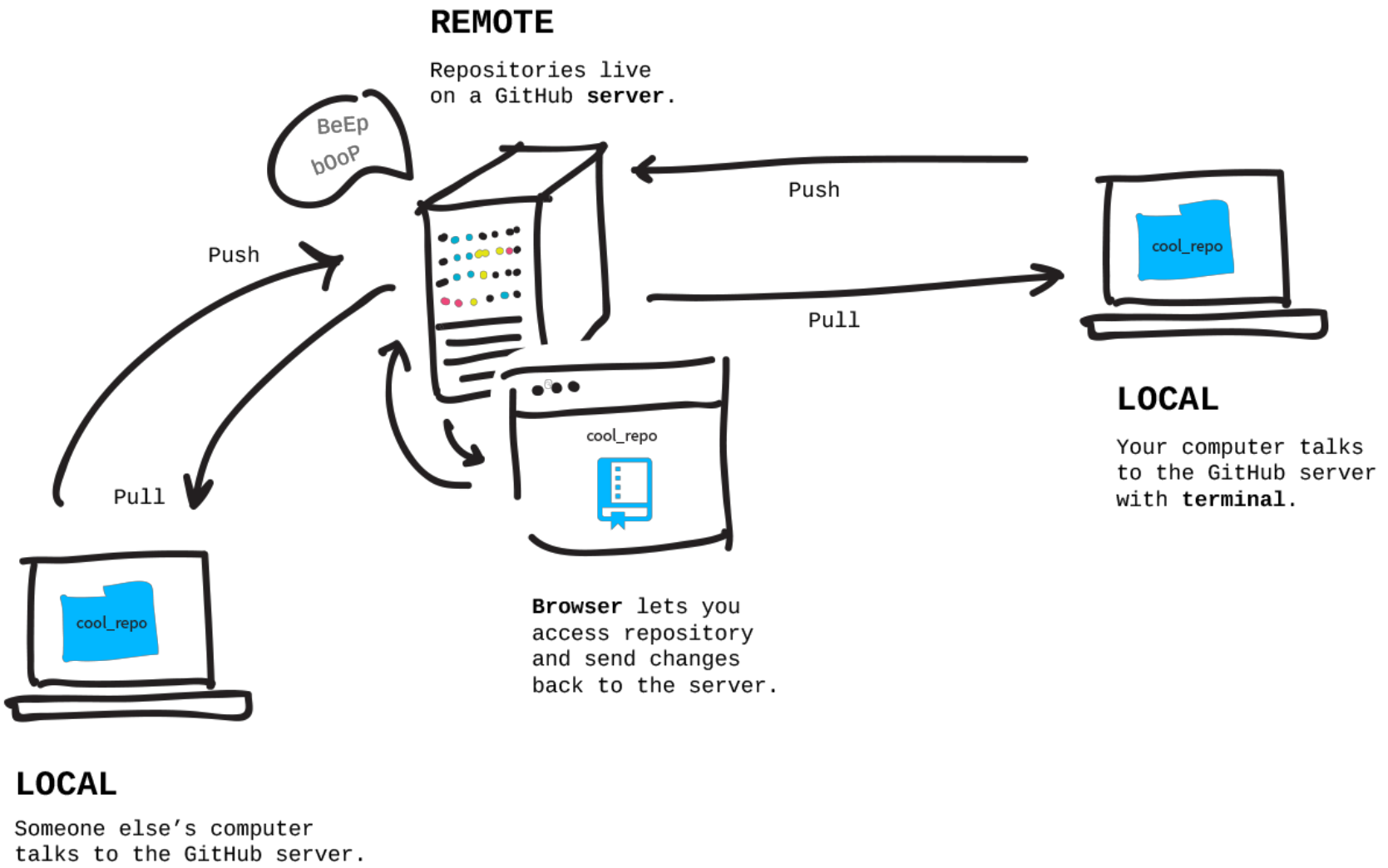


.gitignore

- List directories or files to be ignored for git repository.
- Used to ensure that binaries, IDE metadata files and other undesired files are not maintained in git repository.

GIT Remote repository

- To maintain code repository at centralized location (for code sharing).
- Can be in intranet or internet.
- Popular vendors
  - github.com
  - gitlab.com
  - bitbucket.org



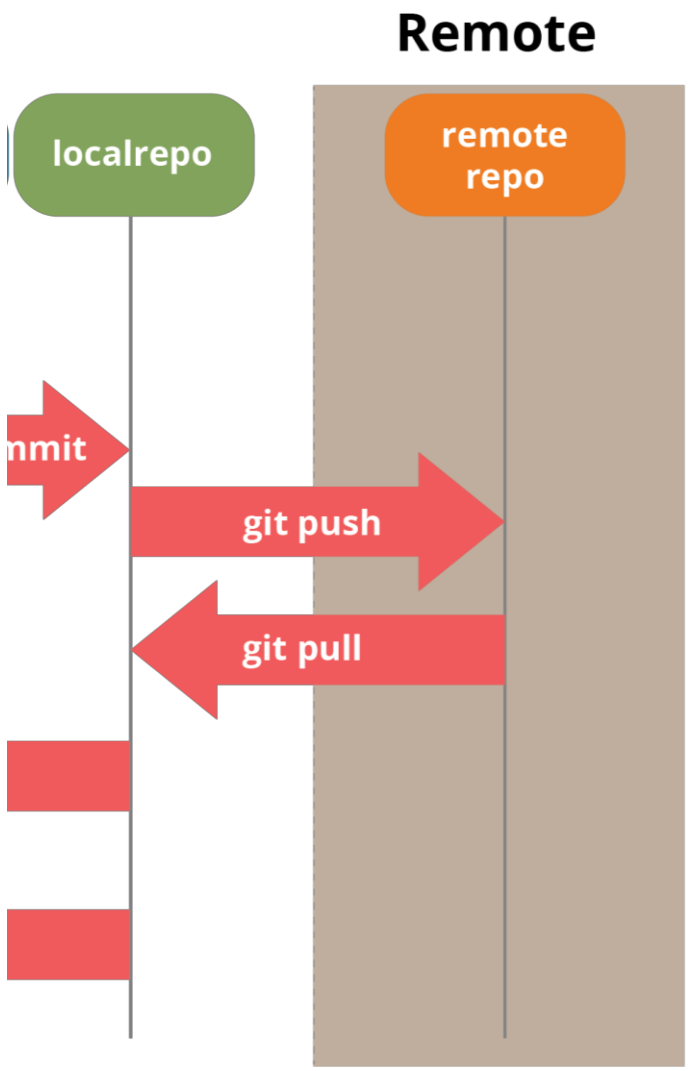
GIT commands

- git remote add origin <remote url>
- git remote -v

- git clone <url>

- git push origin <branch>
- git push

- git pull origin <branch>
- git pull



GIT workflow

- Create project on gitlab.
- Clone repository on local machine.
- Add/modify code locally.
- Commit code in local repository.
- Push code to gitlab repository.
- Other developers can pull your code.

Thank you!

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