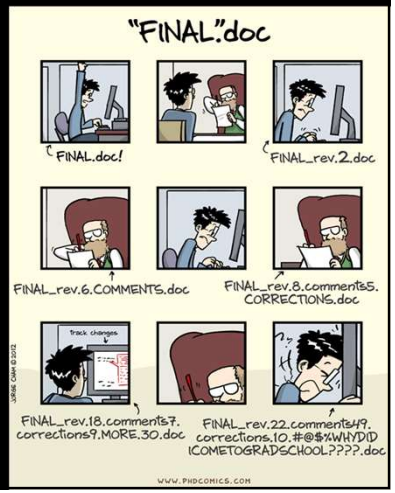
Version Control with Git

1

Version Control

Why track/manage different versions of code?

- Some well-known version control systems are CVS, Subversion, Mercurial, and Git

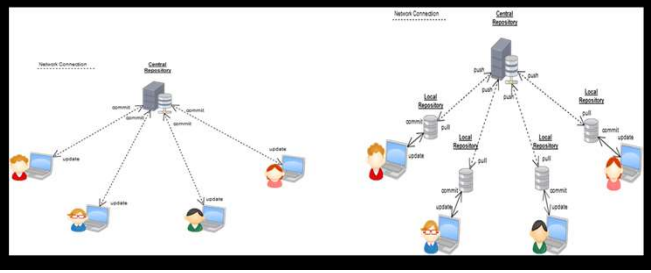


2

Version Control

Why track/manage different versions of code?

- Backup: Undo or refer to old stuff
- Branch: Maintain old release while working on new
- Collaborate: Work in parallel with teammates



3

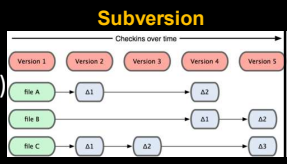
Version Control Systems (VCSs)

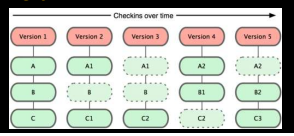
- Help you track/manage/distribute revisions
- Standard in modern development
- Examples:
  - Revision Control System (RCS)
  - Concurrent Versions System (CVS)
  - Subversion (SVN)
  - Git

older

newer

Our focus



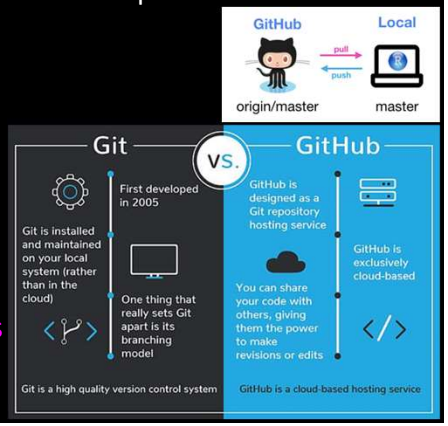


4

Version Control Hosting Services

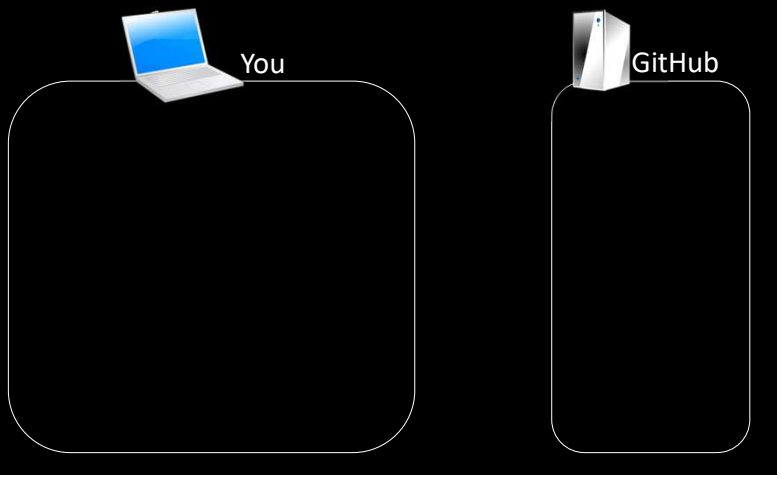
- Enable sharing version control repos
- Internet/Web based
- Examples:
  - SourceForge
  - Bitbucket
  - GitLab
  - GitHub

Our focus



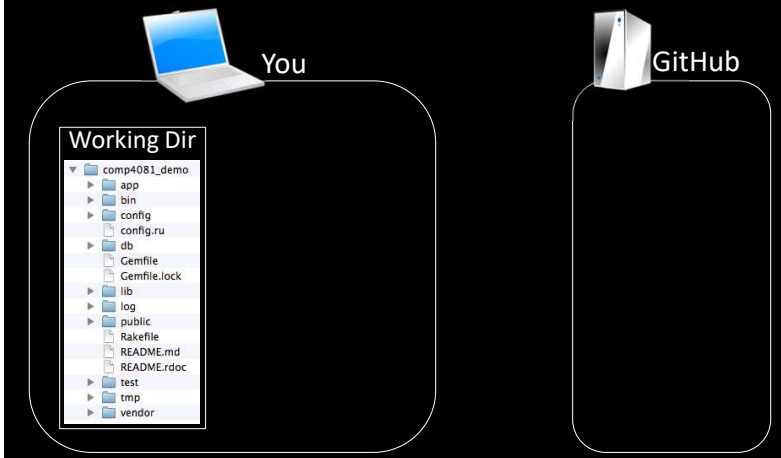
5

GitHub-User Perspective



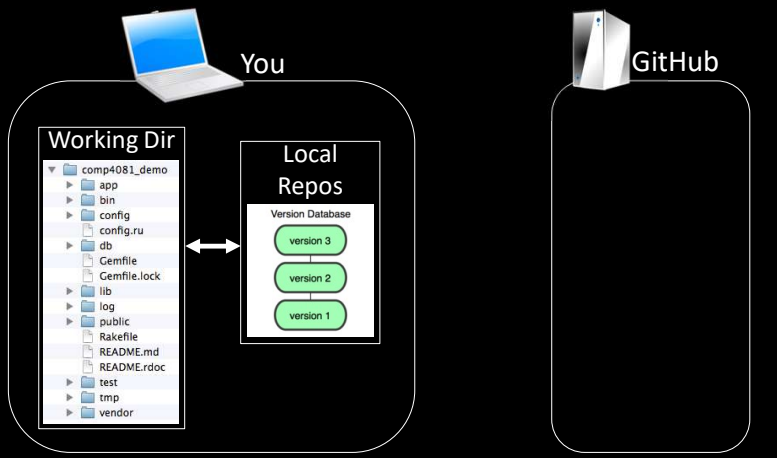
6

GitHub-User Perspective

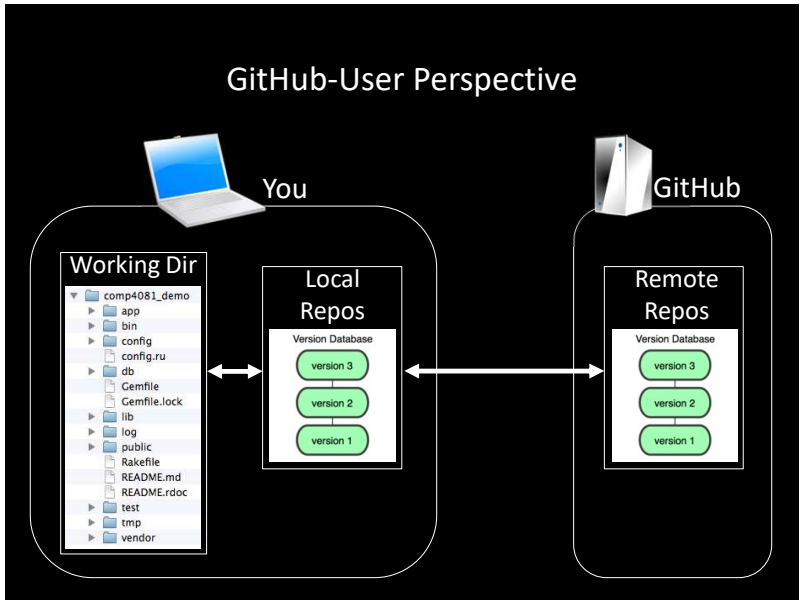


7

GitHub-User Perspective



8


GitHub-User Perspective
You
GitHub
Working Dir
comp4081_demo
app
bin
config
config.ru
db
Gemfile
Gemfile.lock
lib
log
public
Rakefile
README.md
README.rdoc
test
tmp
vendor
Local Repos
Version Database
version 3
version 2
version 1
Remote Repos
Version Database
version 3
version 2
version 1

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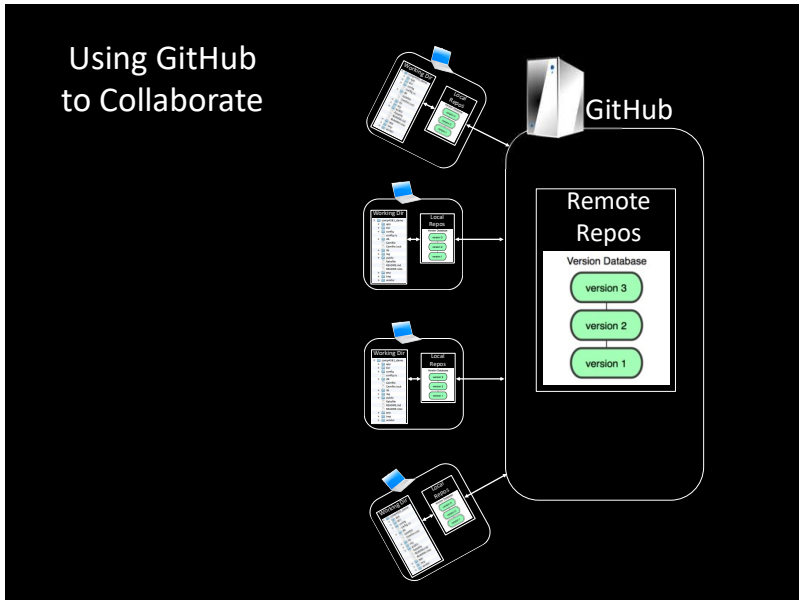
Using GitHub to Collaborate
GitHub
Remote Repos
Version Database
version 3
version 2
version 1

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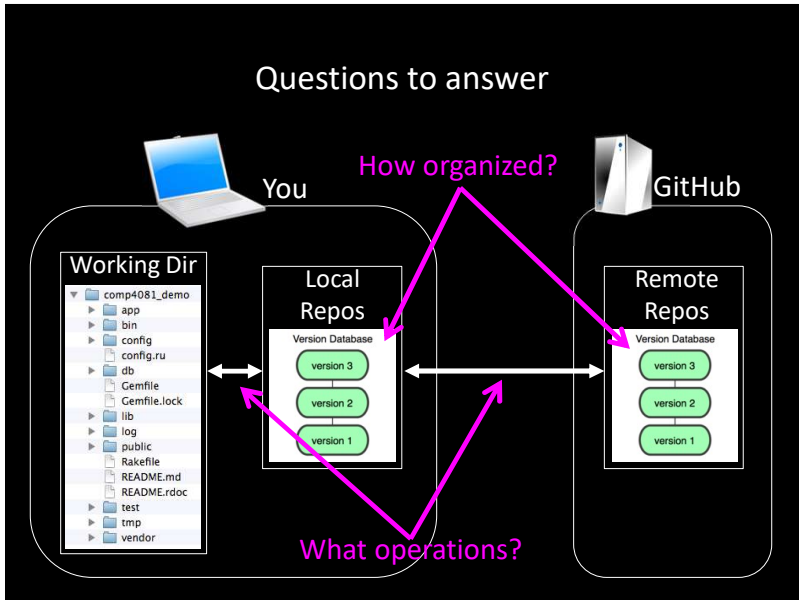
Questions to answer
You
GitHub
How organized?
What operations?
Working Dir
comp4081_demo
app
bin
config
config.ru
db
Gemfile
Gemfile.lock
lib
log
public
Rakefile
README.md
README.rdoc
test
tmp
vendor
Local Repos
Version Database
version 3
version 2
version 1
Remote Repos
Version Database
version 3
version 2
version 1

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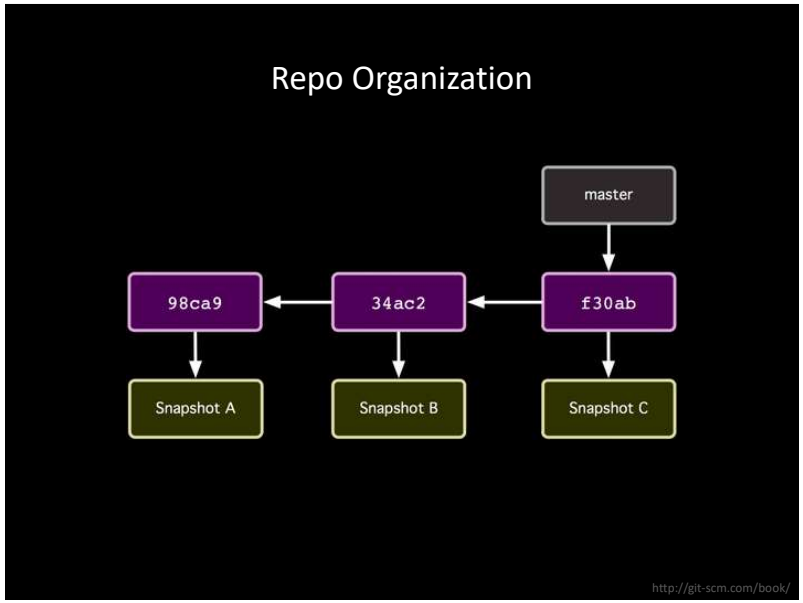
Repo Organization
master
98ca9
34ac2
f30ab
Snapshot A
Snapshot B
Snapshot C
http://git-scm.com/book/

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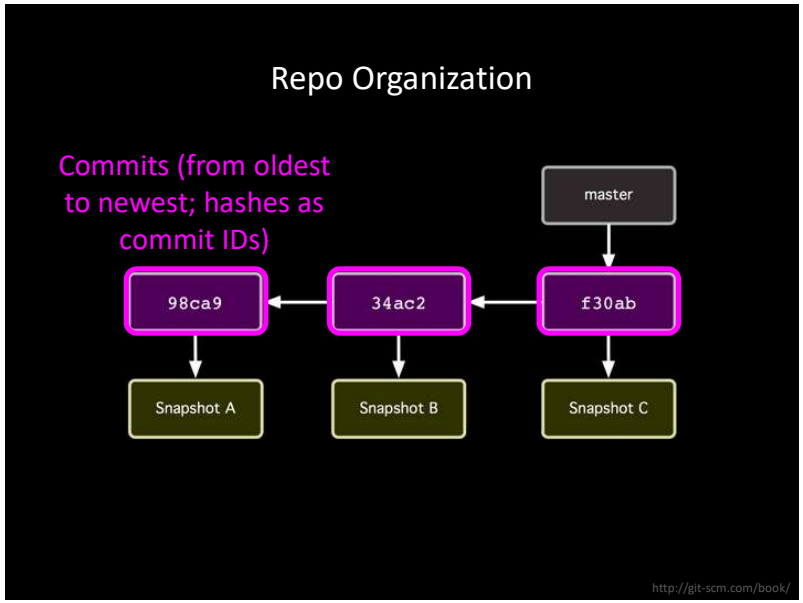
Repo Organization
Commits (from oldest to newest; hashes as commit IDs)
master
98ca9
34ac2
f30ab
Snapshot A
Snapshot B
Snapshot C
http://git-scm.com/book/

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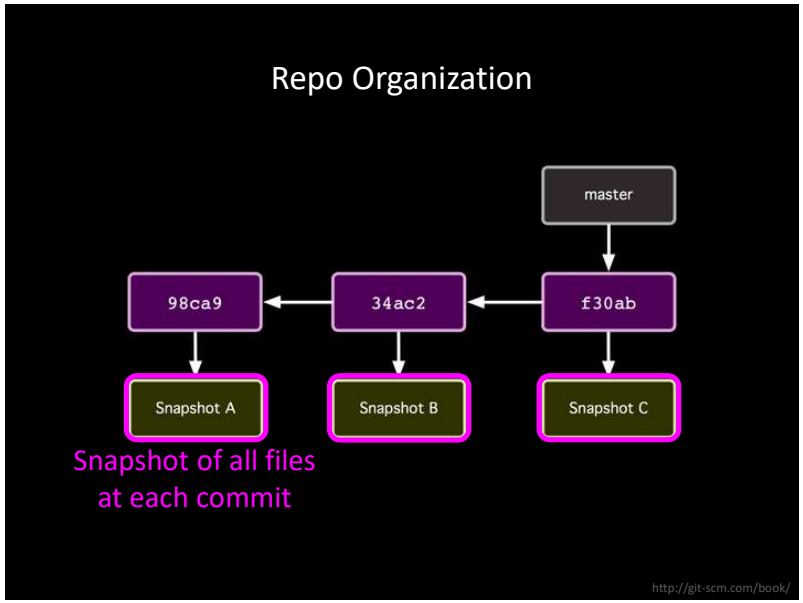
Repo Organization
master
98ca9
34ac2
f30ab
Snapshot A
Snapshot B
Snapshot C
Snapshot of all files at each commit
http://git-scm.com/book/

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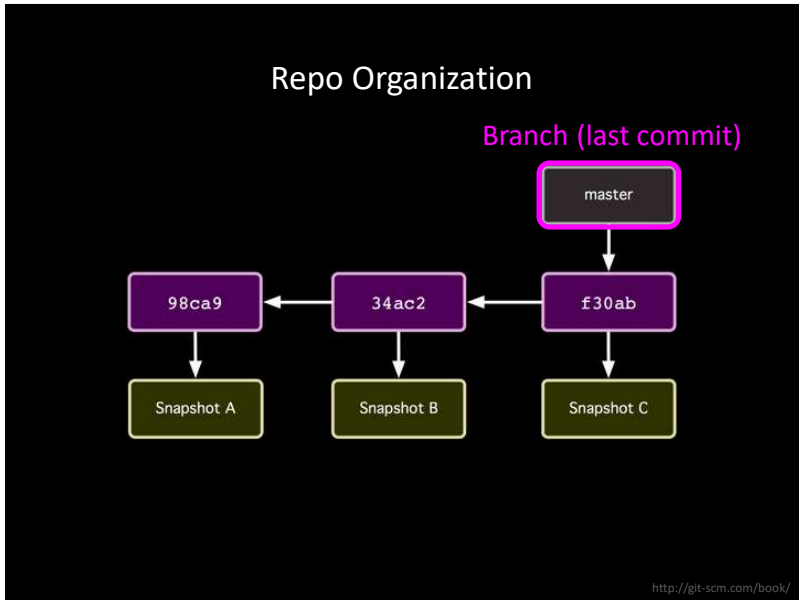
Repo Organization
Branch (last commit)
master
98ca9
34ac2
f30ab
Snapshot A
Snapshot B
Snapshot C
http://git-scm.com/book/

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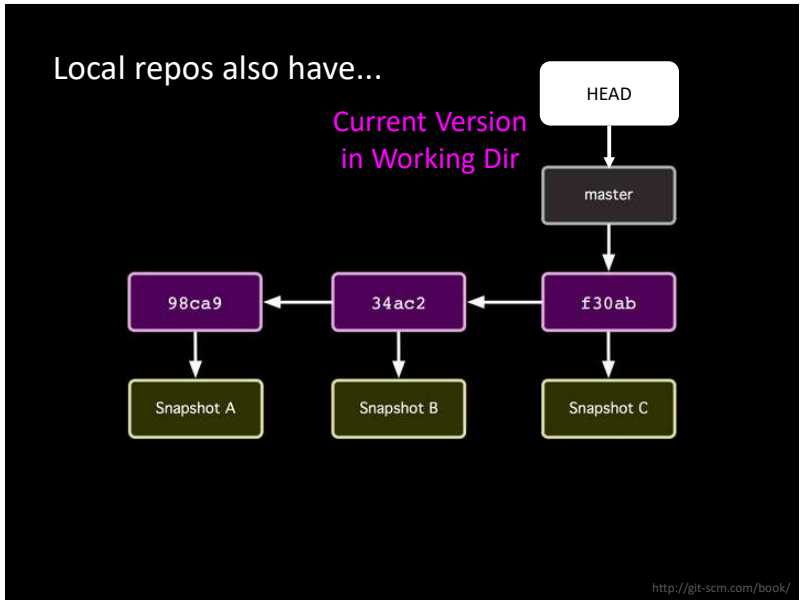
Local repos also have...
HEAD
Current Version in Working Dir
master
98ca9
34ac2
f30ab
Snapshot A
Snapshot B
Snapshot C
http://git-scm.com/book/

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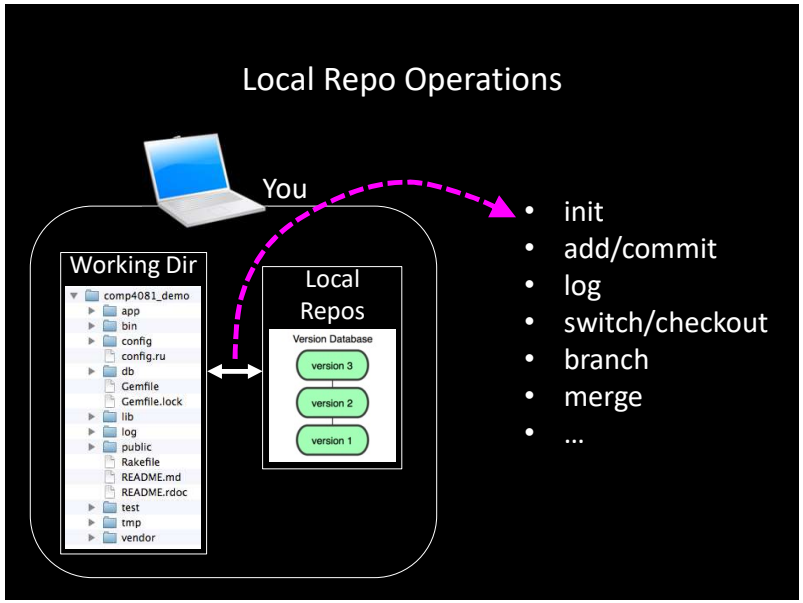
Local Repo Operations
You
Working Dir
comp4081_demo
app
bin
config
config.ru
db
Gemfile
Gemfile.lock
lib
log
public
Rakefile
README.md
README.rdoc
test
tmp
vendor
Local Repos
Version Database
version 3
version 2
version 1
init
add/commit
log
switch/checkout
branch
merge
...

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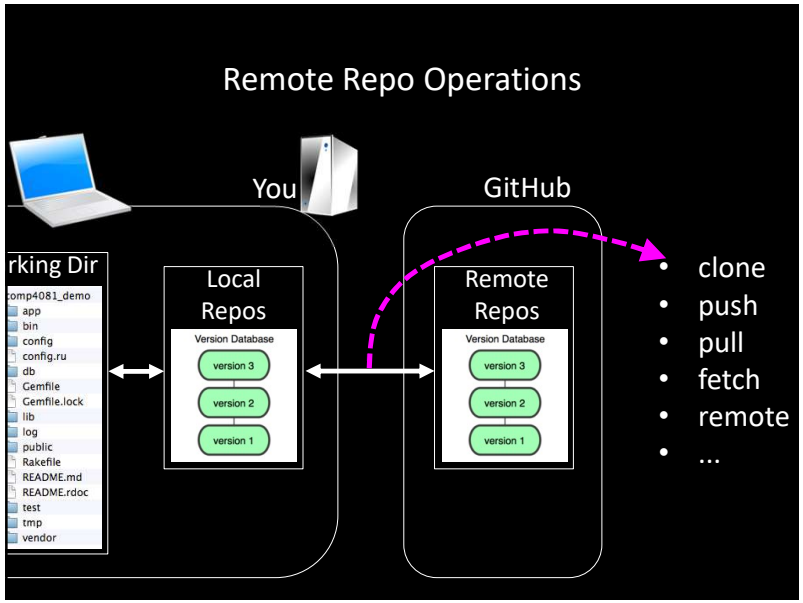
Remote Repo Operations
You
GitHub
rking Dir
comp4081_demo
app
bin
config
config.ru
db
Gemfile
Gemfile.lock
lib
log
public
Rakefile
README.md
README.rdoc
test
tmp
vendor
Local Repos
Version Database
version 3
version 2
version 1
Remote Repos
Version Database
version 3
version 2
version 1
clone
push
pull
fetch
remote
...

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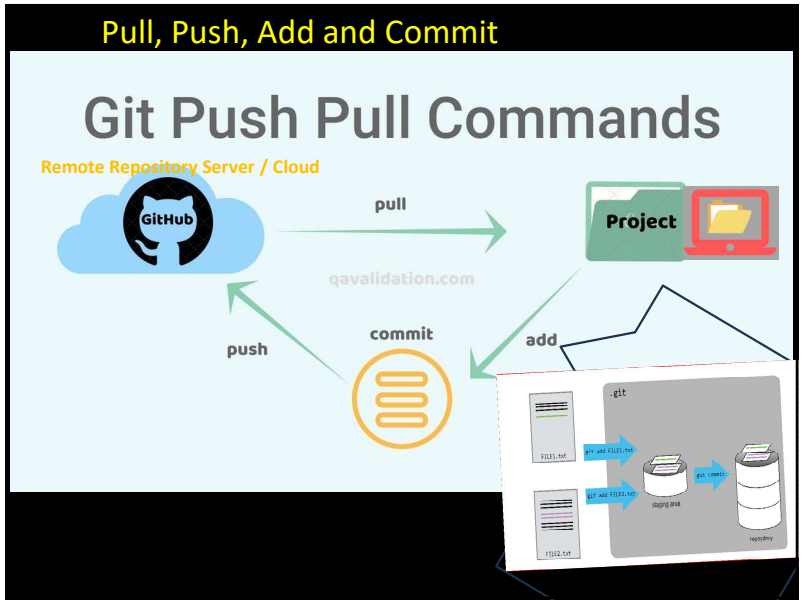
Pull, Push, Add and Commit
Git Push Pull Commands
Remote Repository Server / Cloud
GitHub
pull
Project
qavalidation.com
push
commit
add

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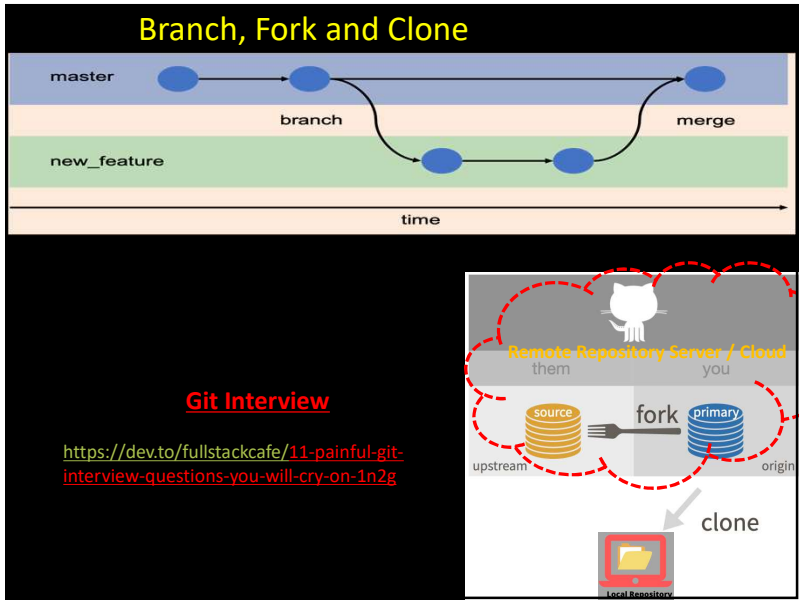
Branch, Fork and Clone
master
branch
merge
new_feature
time
Git Interview
https://dev.to/fullstackcafe/11-painful-git-interview-questions-you-will-cry-on-1n2g
Remote Repository Server / Cloud
them
you
source
fork
primary
upstream
origin
clone

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