

# THOU SHALT CONTROL THY VERSIONS

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*Amin Adibi - 5 October 2017*

# "FINAL."doc



FINAL.doc!



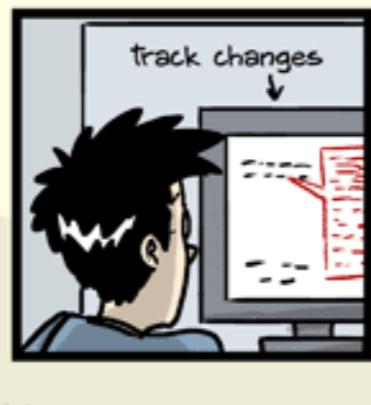
FINAL\_rev.2.doc



FINAL\_rev.6.COMMENTS.doc



FINAL\_rev.8.comments5.  
CORRECTIONS.doc



FINAL\_rev.18.comments7.  
corrections9.MORE.30.doc



FINAL\_rev.22.comments49.  
corrections.10.#@\$%WHYDID  
ICOMETOGRAD SCHOOL????.doc

JORGE CHAM © 2012

# VERSION CONTROL

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- The idea is to efficiently manage revision history, especially when collaborating with others
- Can be done:
  - Manually vs. Automatically
  - Locally vs. On Cloud
  - Publicly vs. Privately

# VERSION CONTROL

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- Choice of approach based on the complexity of a task
- Suggestions:
  - Naming conventions
  - Incremental Back ups
    - Local: e.g. Mac OS Time Machine / Time Capsule
    - Cloud-based: e.g. Dropbox Extended Version History
  - *Version Control Systems*
    - *Local*: e.g. *git*
    - *Cloud*: e.g *GitHub*

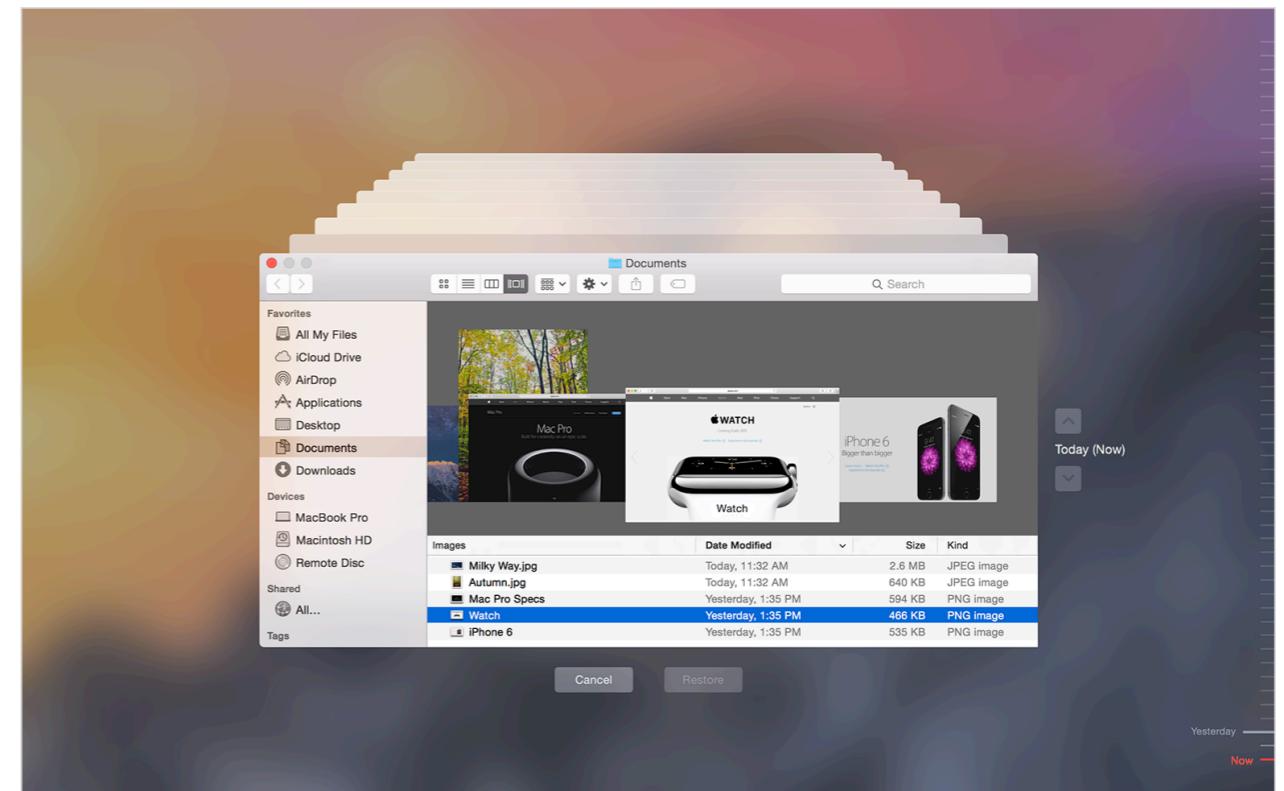
thou shalt control thy versions.key Version history

Search

Yesterday

 Thou Shalt Control Thy Versions.key 10:33 PM	Edited by amin adibi. Desktop	539.0
 Thou Shalt Control Thy Versions.key 10:29 PM	Edited by amin adibi. Desktop	522.4
 Thou Shalt Control Thy Versions.key 10:27 PM	Edited by amin adibi. Desktop	520.0
 Thou Shalt Control Thy Versions.key 10:27 PM	Edited by amin adibi. Desktop	517.3

```
$ git init
Initialized empty Git repository in /tmp/tmp.1MBYSY7R8Y/.git/
$ cat > README << 'EOF'
> Git is a distributed revision control system.
> EOF
$ git add README
$ git commit
[master (root-commit) e4dcc69] You can edit locally, and push
to any remote.
 1 file changed, 1 insertion(+)
 create mode 100644 README
$ git remote add origin git@github.com:cdown/thats.git
$ git push -u origin master
```



# WHAT IS GIT?

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- “Git is a fast and modern implementation of version control”
- Provides history of revisions
- Facilitates collaborative changes
- Extensive documentation of changes
- It’s basically collaborative development, documentation, and back up on steroids!



# GIT VS. GITHUB

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- git
  - local and distributed
  - interaction usually through terminal
- GitHub
  - different entity: git on a cloud
  - additional features: issue tracking, wiki, web pages, software release, automatic integration, etc.

# TERMINOLOGY

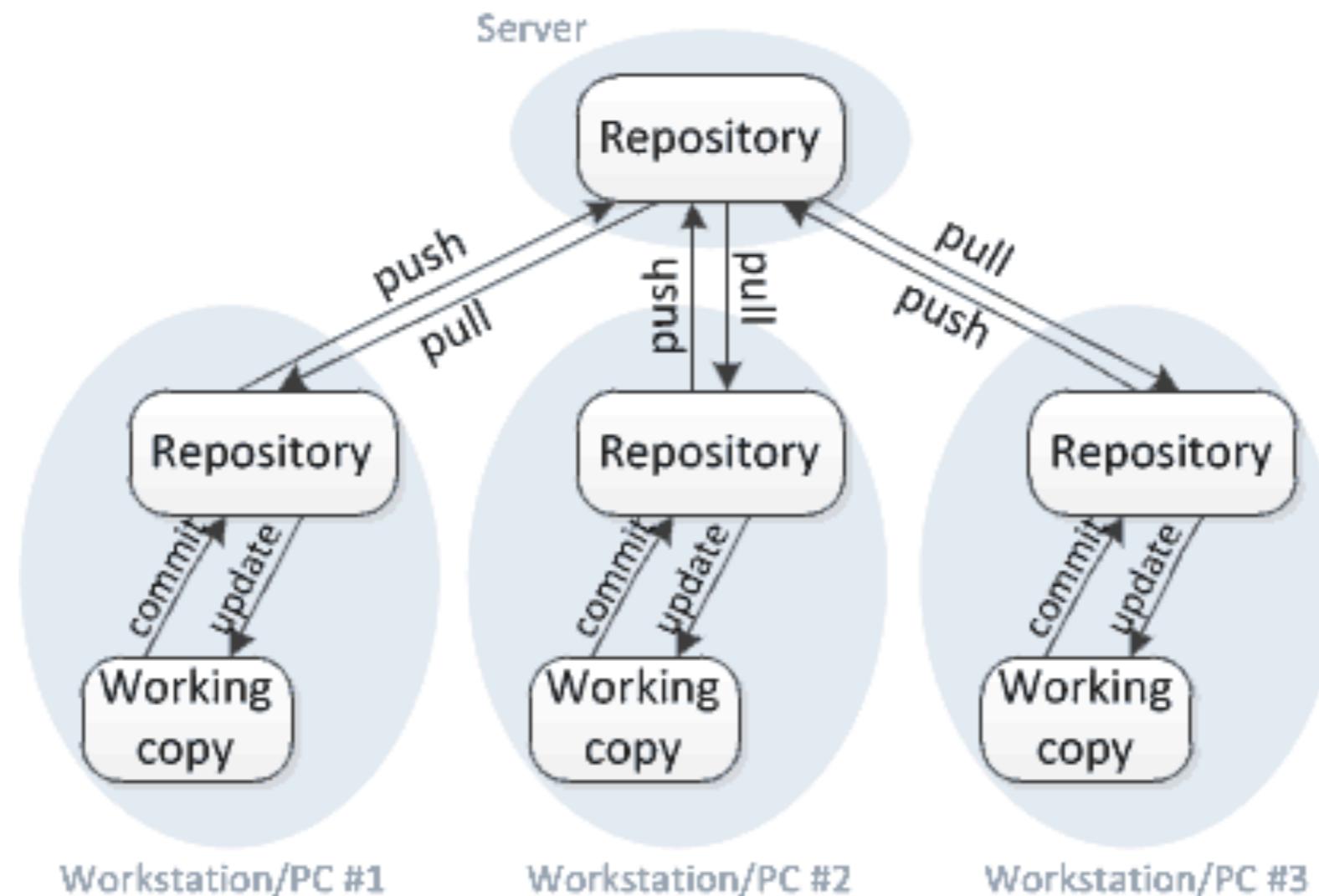
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- Repo: a repository, a piece of work, a project containing multiple files
- Branches: Parallel lines of work. Default is “master”
- Commit: Document and save a change
- Pull: Sync from server to local repo
- Push: Sync from local repo to serve
- Merge: Merge changes back to “master” branch
- Pull Request: update owner’s repo (open source software development)

# MULTIPLE USERS, MULTIPLE COMPUTERS

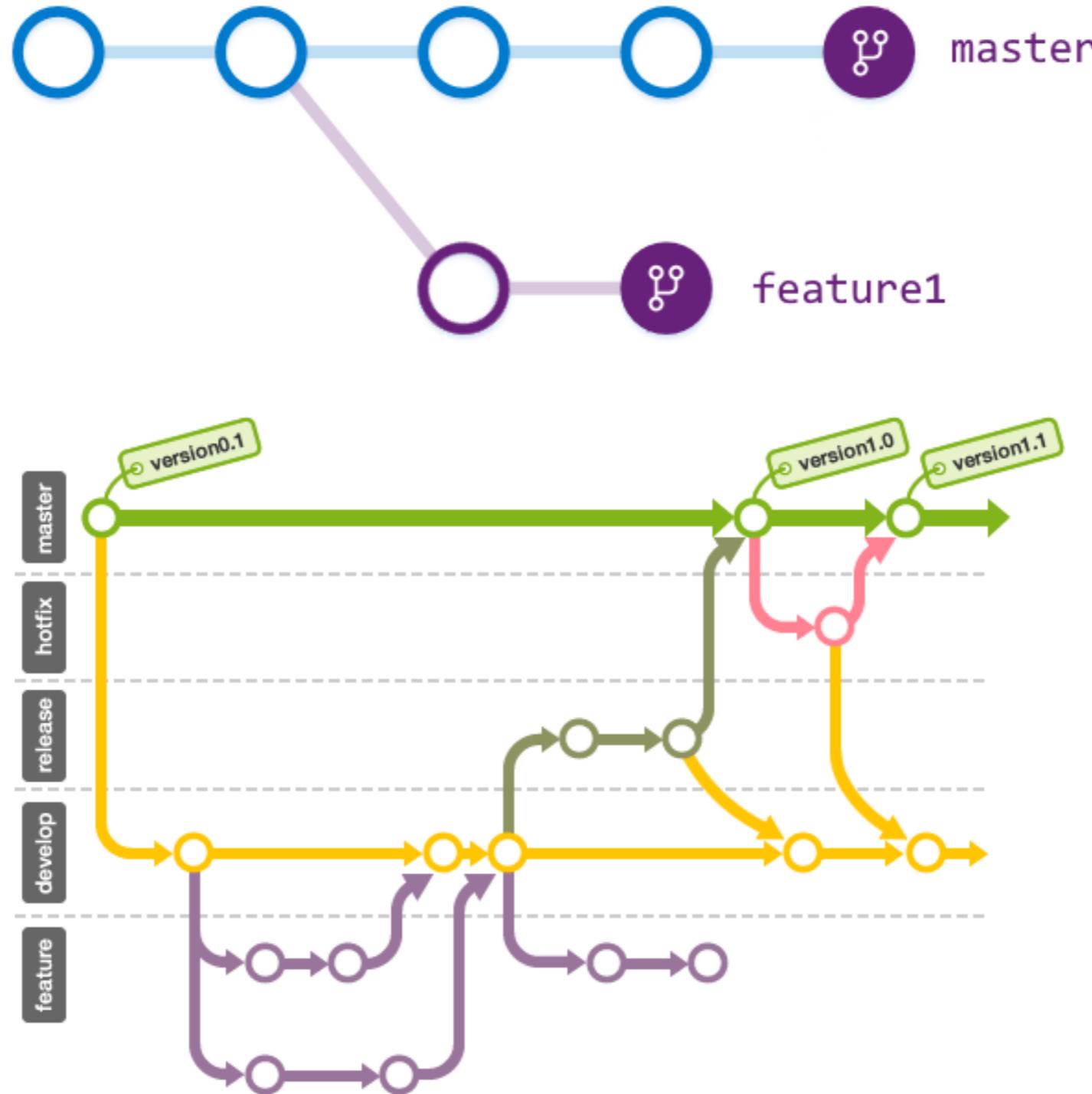
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## Distributed version control



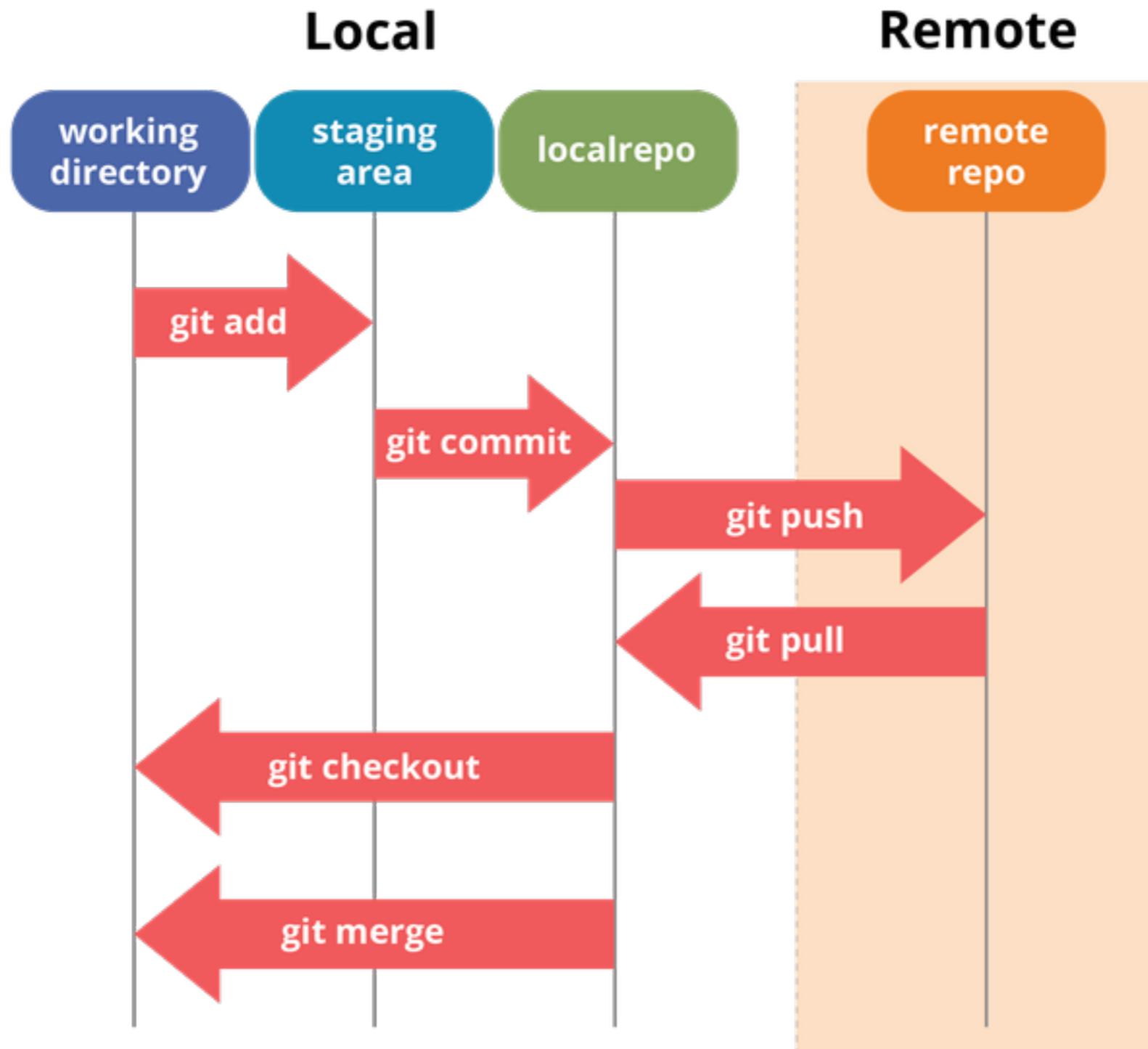
# BRANCHING

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# WORKFLOW

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**LET'S GET OUR HANDS  
DIRTY**

# BENEFITS OF USING GITHUB

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- Efficient collaborative development
- Every single change saved and documented, forever.
- Open Source development: other ppl's codes
- You are not confined to one workstation
- Reproducibility facilitates publication and citation.
- It's free! Unless you want private repos.
- It's a great resume!

# ANY DRAWBACKS

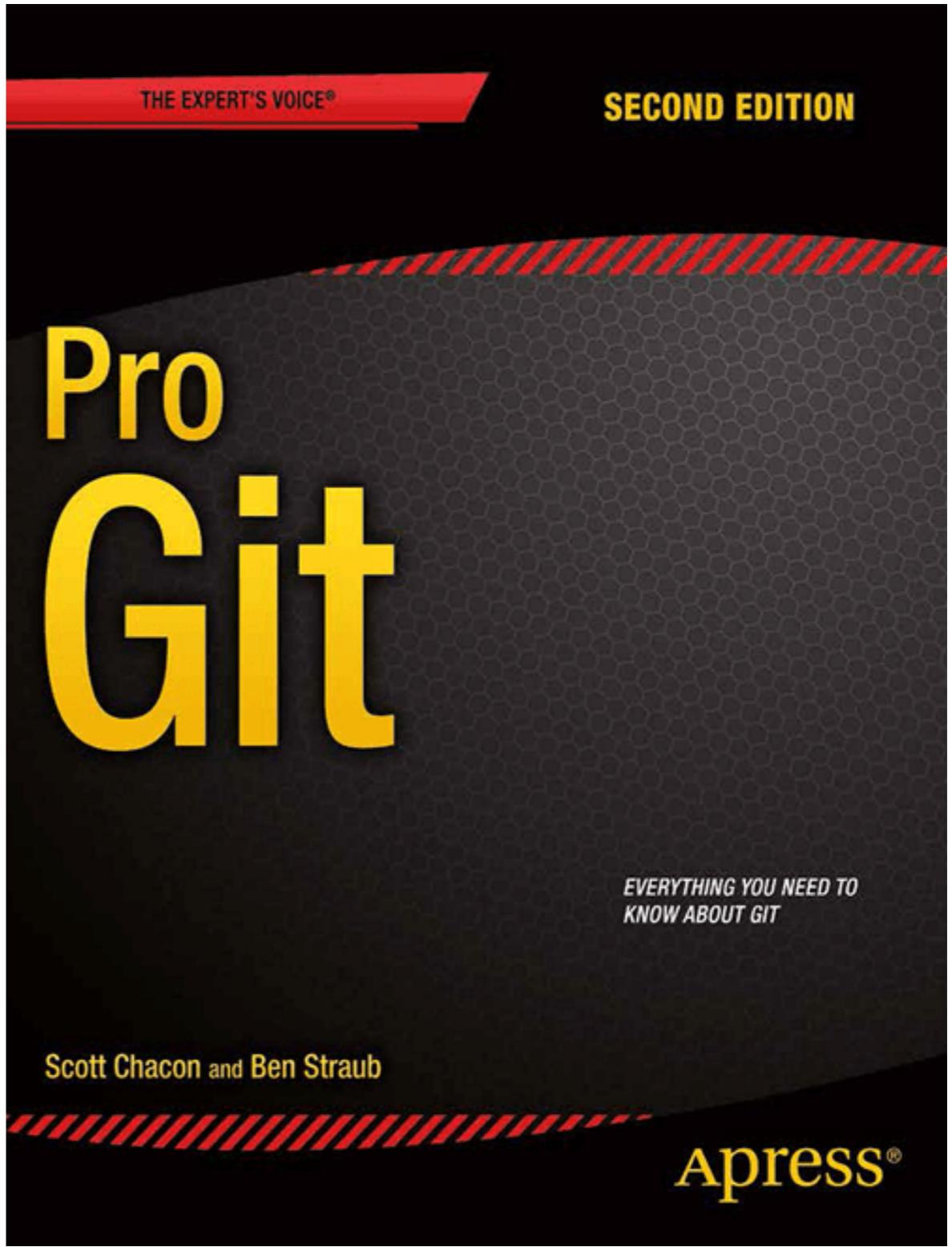
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- Can't upload large files.
- Technically works with any file, but is mainly designed for text-based files
- Server outside country. Privacy issues, patient data
- UBC Hosted GitHub

# MORE RESOURCES

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- We've only scratched the surface here
- ProGit a good resource, freely available online
- There's a wealth of third party add-ons



# THE TEN COMMANDMENT OF GOOD DATA PROGRAMMING

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- Use version control.
- Harness the power of cloud computing.
- Back it up!
- Code in style.
- Choose good names (for functions, variables, file)
- Make your code easy to understand.
- Document! Document! Document!
- Use continues integration.
- Visualize effectively.
- Learn a mark-up language. Make it readily reproducible.