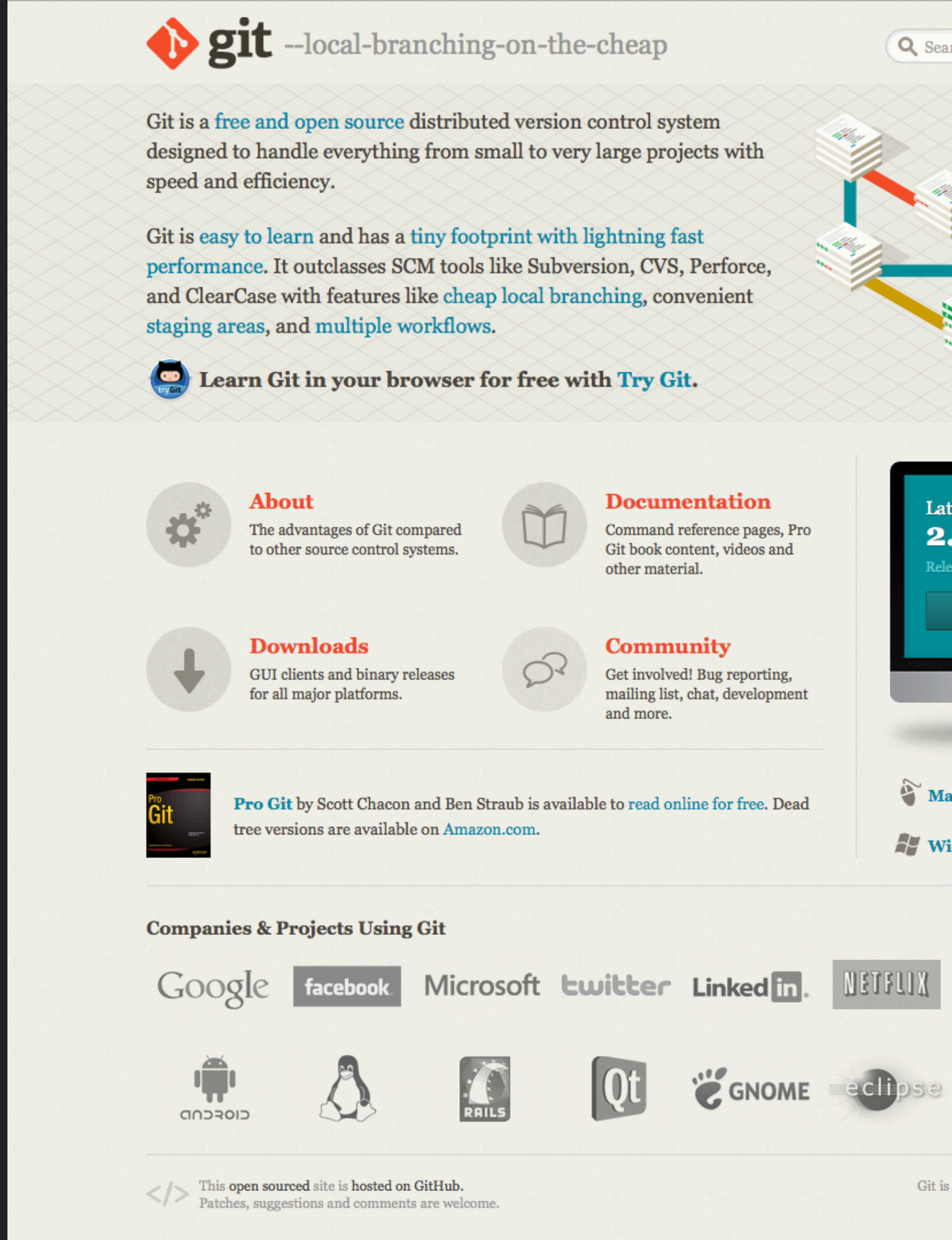
GIT UP GIT GIT

GIT DOWN

(Adapted from a lecture by TA Hall-of-Famer Dylan Lederle-Ensign)

git is “a free and open source distributed version control system”

git-scm.com



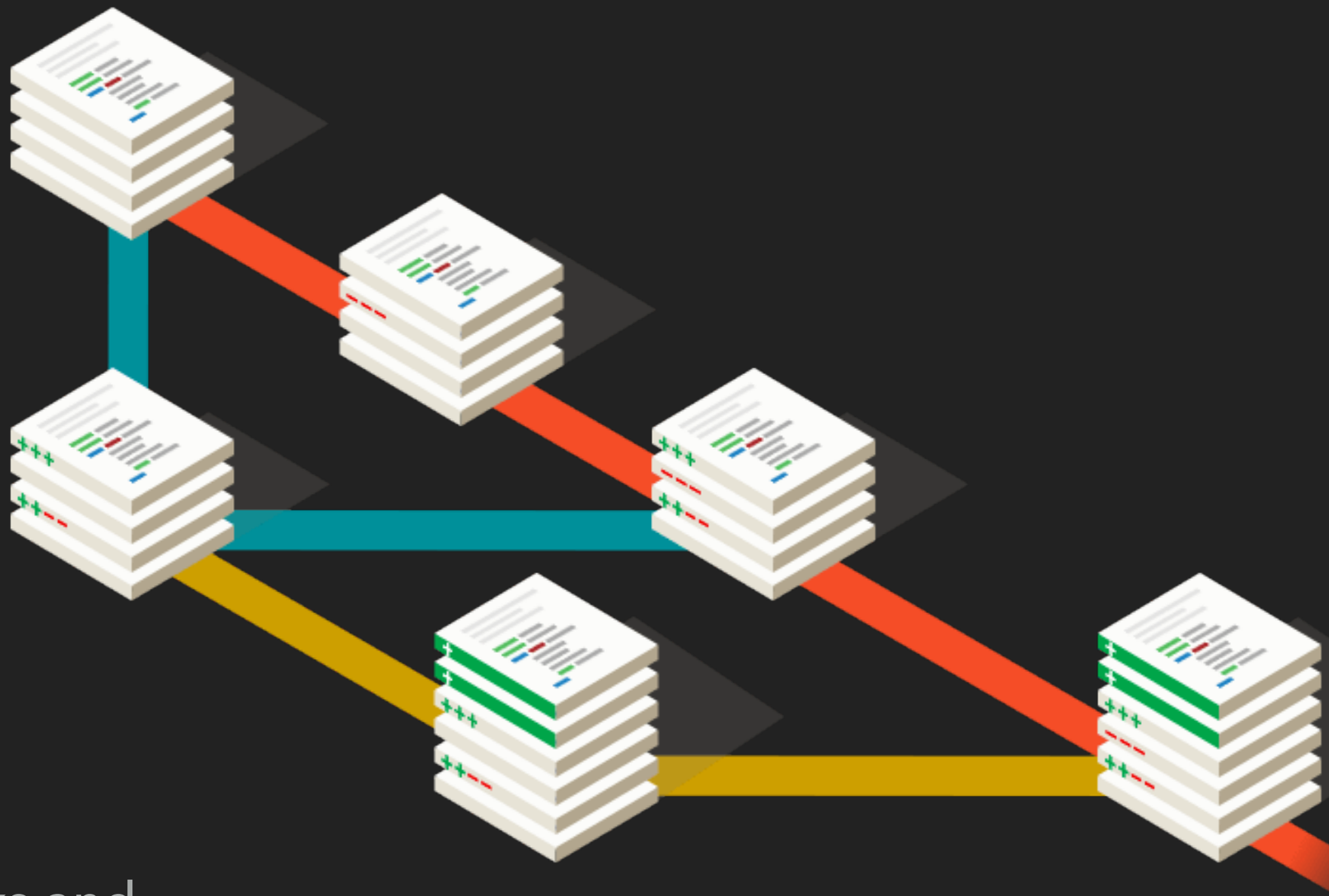
Originally built by Linus Torvalds to manage the development of the Linux kernel.

The scale and complexity of the Linux project requires a globally-distributed, fast, and flexible version control system.

Linux

Yoshi's cousin?

Q: WHAT IS VERSION CONTROL?



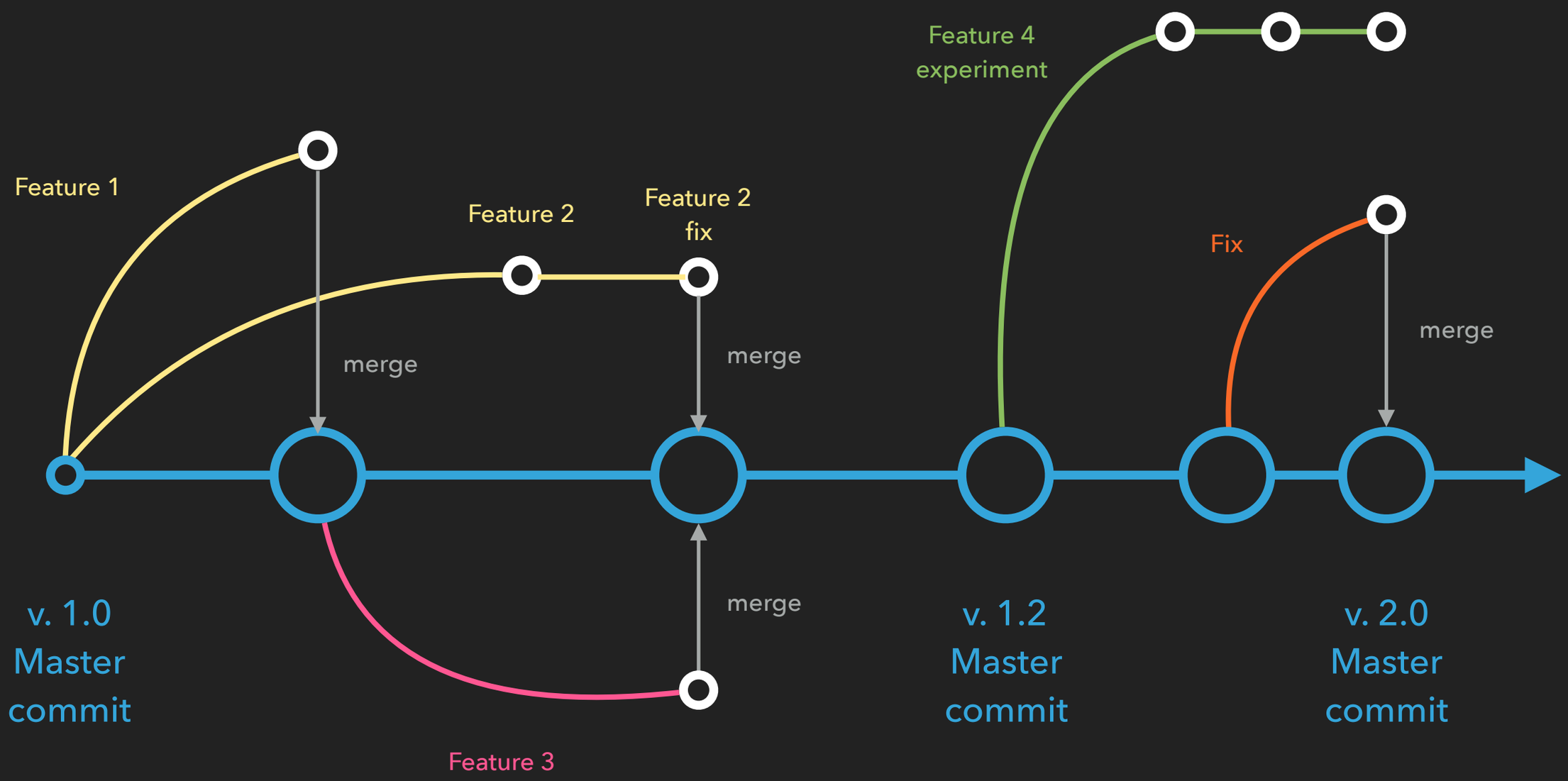
Version control tracks and manages your software (and other) project history, including collaboration with team members.

LIFE BEFORE VERSION CONTROL

game-backup.js
game.js
gameNEW.js
gameNEWv2.js
gameNEWv2.1.js
gameRealNew.js
game-fixes-v2.js
game-final.js
game-final-fantasy-xv.js
game-final-dev.js
game-release.js
game-release-actual.js
game-FINAL-deathAwaits.js

WHY USE GIT?

1. I make you use it
2. It makes collaborative coding easier
3. It makes experimental coding easier
4. It makes open source contributions easier
5. “GitHub is my resume”

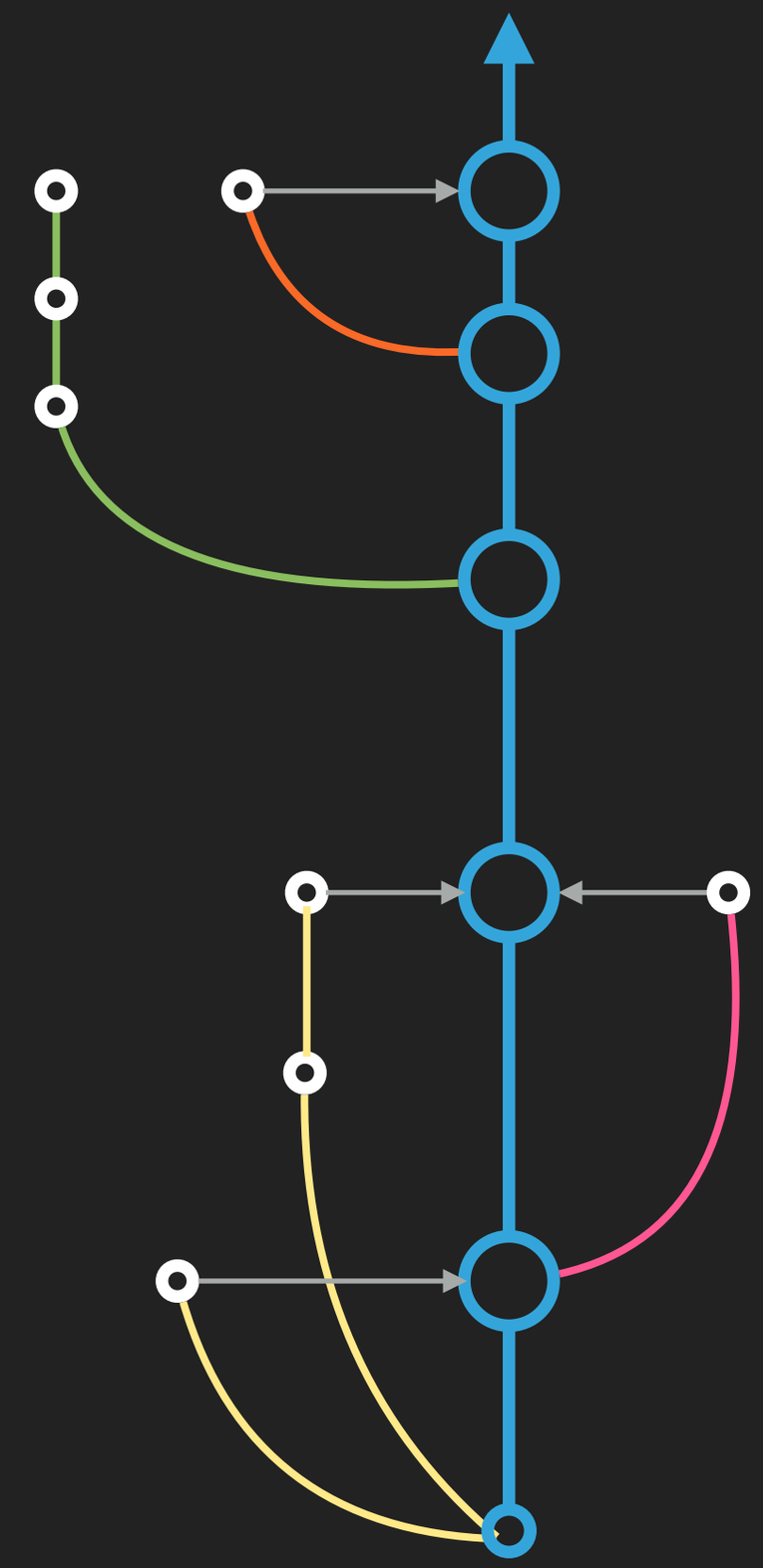


git's "beads on a string" model

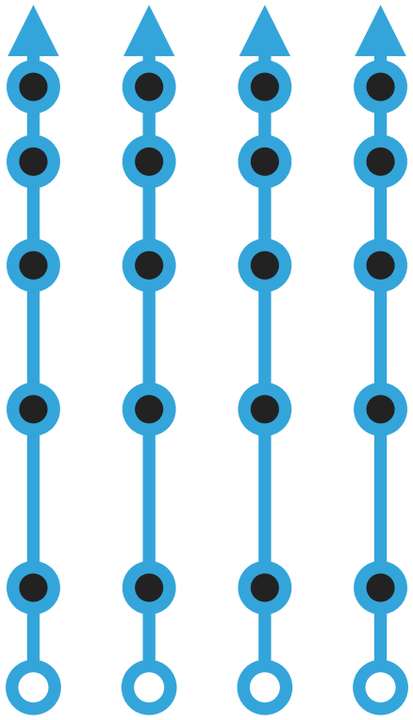
commit: add new content, a "snapshot in time"

branch: new segment of development history

merge: bring changes from one branch into another



GIT AND PROJECT ORGANIZATION



Git is distributed, non-hierarchical, and flexible.

Every repository contains all of the development history that has been committed to it.

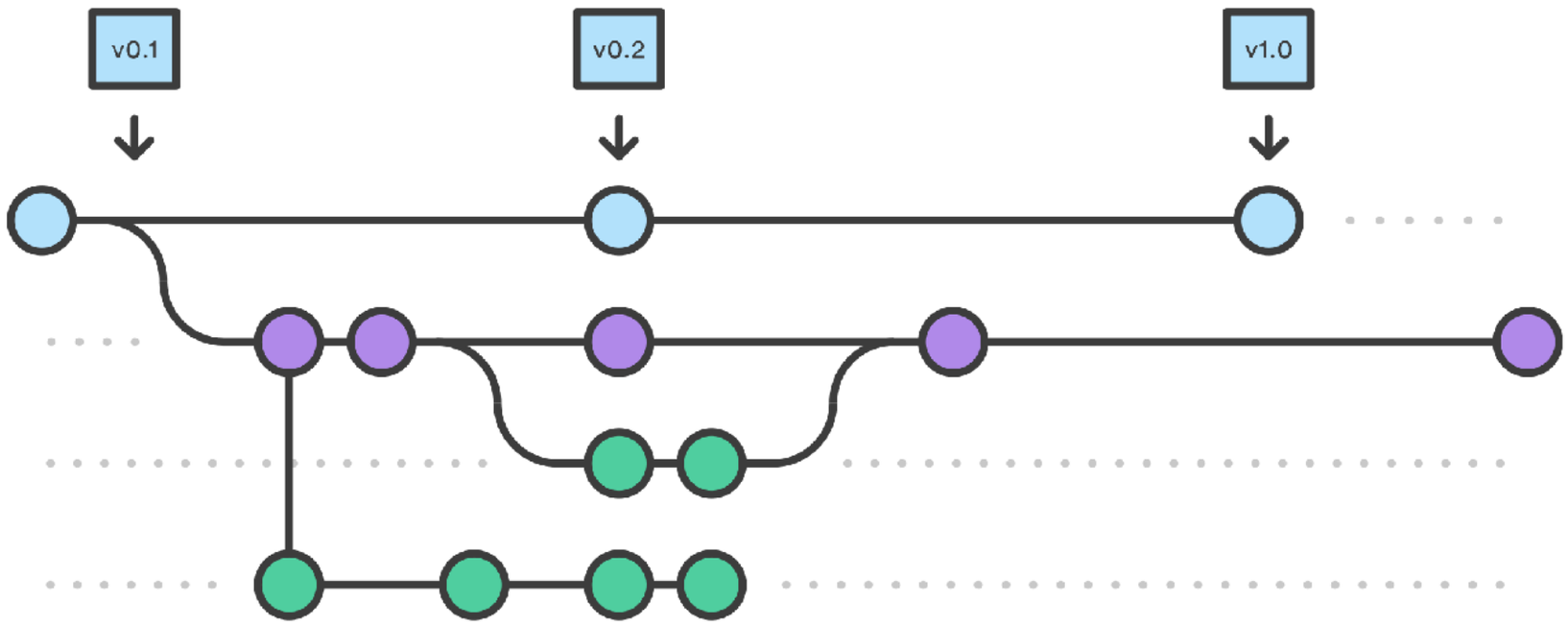
Git does not impose a branching model on your project structure.

However...

...WE WILL USE A PATTERN CALLED GITFLOW

Basic structure:

- Master is always demoable
- Develop is functional but untested
- Feature-*n* is a specific task



[Check out this atlassian tutorial]

GOOD PRACTICES FOR FEATURE BRANCHES

Yep:

```
feature-add_scrolling
feature-implement_physics
feature-level_data_input
feature-enemy_prefabs
feature-menu_state
```

Nope:

```
todds-rad-branch
feature-things
tmpbranch
gitSux
adlfkadflkasdjflaksdj
```

Pretty much everything you need to know about git for class is in this nice tutorial :)

git-scm.com/docs/gittutorial

NAME

gittutorial - A tutorial introduction to Git

SYNOPSIS

```
git *
```

DESCRIPTION

This tutorial explains how to import a new project into Git, make changes to it, and share chan
other developers.

If you are instead primarily interested in using Git to fetch a project, for example, to test the la
you may prefer to start with the first two chapters of The Git User's Manual.

First, note that you can get documentation for a command such as `git log --graph` with

```
$ man git-log
```

or:

```
$ git help log
```

With the latter, you can use the manual viewer of your choice; see git-help[1] for more informa

It is a good idea to introduce yourself to Git with your name and public email address before d
operation. The easiest way to do so is:

```
$ git config --global user.name "Your Name Comes Here"
$ git config --global user.email you@yourdomain.example.com
```

Importing a new project

Assume you have a tarball project.tar.gz with your initial work. You can place it under Git revis
as follows.

```
$ tar xzf project.tar.gz
$ cd project
$ git init
```

Git will reply

```
Initialized empty Git repository in .git/
```

FUN TIMES ON THE COMMAND LINE

`$ git init` = initialize new repository (a hidden directory called .git)

`$ git add .` = add everything in directory, i.e. ‘staging’ (note the period!)

`$ git commit -m “NDA - initial master commit”` = commit with message

`$ git log` = view the history of all changes made to repository

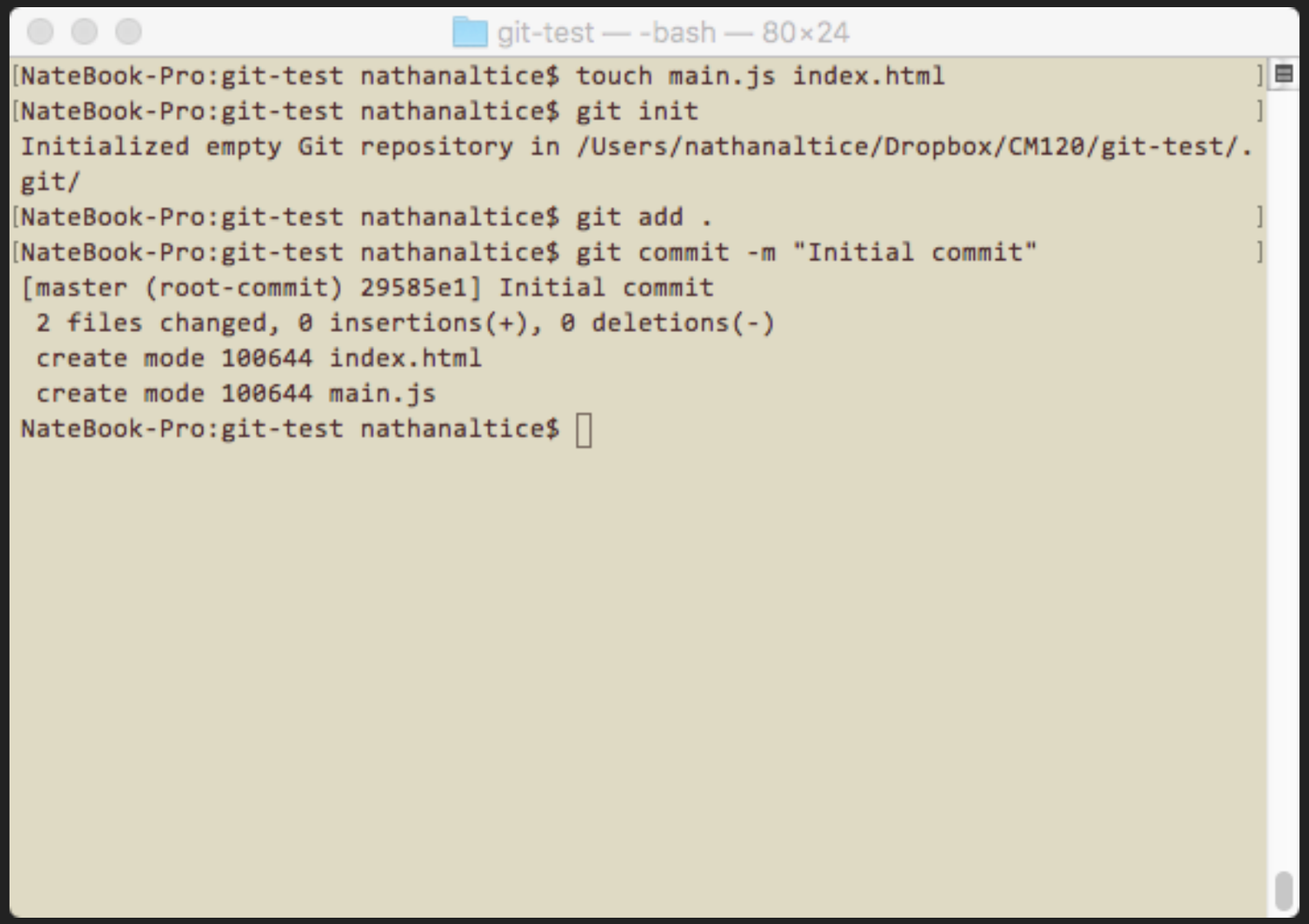
`$ git branch movement-system` = create new branch

`$ git branch` = display a list of existing branches

`$ git checkout -b movement-system` = “check out,” i.e., switch to, a branch

`$ git merge movement-system` = merge branch into master

`$ git status` = where we’re at, what’s going on



[Let’s do a git demo]

GIT ≠ GITHUB

git is an open source, command line version control system.

GitHub is VC-funded startup that provides git repository hosting along with a social web interface for managing projects.

IT MATTERS WHO OWNS THE TOOLS

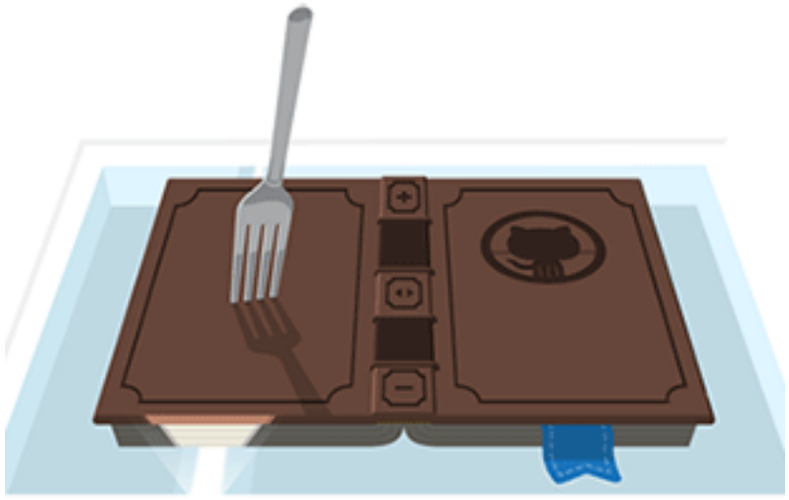
Three key GitHub features:

- Forking
- Pull requests
- Octocat?

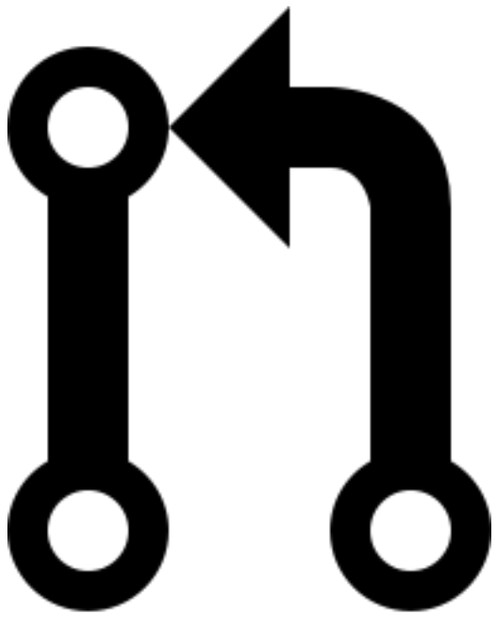
“A fork is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project.

Most commonly, forks are used to either propose changes to someone else’s project or to use someone else’s project as a starting point for your own idea.”

GitHub Help



VERY LITERAL PUN



“Pull requests let you tell others about changes you’ve pushed to a repository on GitHub. Once a pull request is opened, you can discuss and review the potential changes with collaborators and add follow-up commits before the changes are merged into the repository.”

GitHub Help

For class:

Forking ensures that no one team member is the “central repo.”

Pull requests ensure that your team has built-in code review.

Important: git is great at version control for text, but not so great for binary files. In general, we want track changes to our source, not our assets. To do so, we use a .gitignore file. This file is a set of rules that tells git which files to ignore before a commit. Be sure to do this first!

octocat / .gitignore
Created 3 years ago

Some common .gitignore configurations

.gitignore Raw

```
# Compiled source #
###################
*.com
*.class
*.dll
*.exe
*.o
*.so

# Packages #
############
# it's better to unpack these files and commit the raw source
# git has its own built in compression methods
*.7z
*.dmg
*.gz
*.iso
*.jar
*.rar
*.tar
*.zip

# Logs and databases #
######################
*.log
*.sql
*.sqlite

# OS generated files #
######################
.DS_Store
.DS_Store?
._*
.Spotlight-V100
.Trashes
ehthumbs.db
Thumbs.db
```

[GitHub’s sample .gitignore]

Learn Git and GitHub without any code!

Using the Hello World guide, you'll create a repository, start a branch, write comments, and open a pull request.

Read the guide | Start a project

dlederle forked iscarabaid/CMPM120 to dlederle/CMPM120 on May 10

calebAvaldez starred iscarabaid/CMPM120 on May 8

ShadowDai starred iscarabaid/CMPM120 on May 7

cyreb7 starred iscarabaid/CMPM120 on May 7

ProTip! Edit your feed by updating the users you follow and repositories you watch.

Subscribe to **your** news feed

Your repositories 1 | New repository

Find a repository...

All Public Private Sources Forks

CMPM120

[Back to the demo]