



## CodingGirls Session 06

# Here We Built Software: Git & Github

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*01.24.2016*



# About Me

Mingyang Li

Mobile and Backend Developer

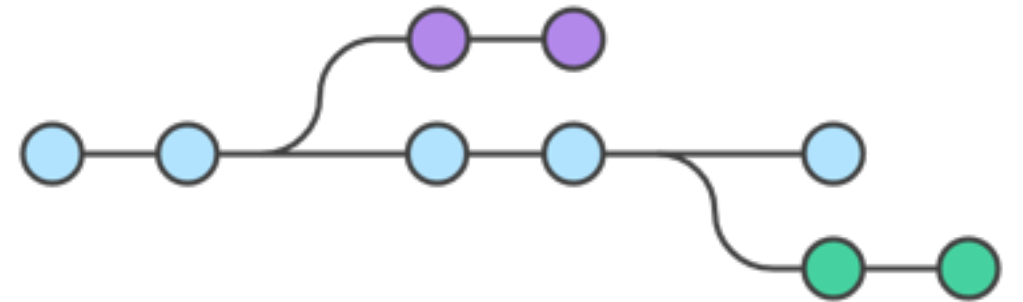
Computer Science, NUS

Founder of Ready! 

Alumni of NUS Overseas College - Silicon Valley



# Contents



1. Introduction to Git & Github
2. Git Commands
3. Host websites on Github
4. Git Client: SourceTree
5. Team Collaboration: Git Flow
6. Explore on Github



# Introduction to Git & Github

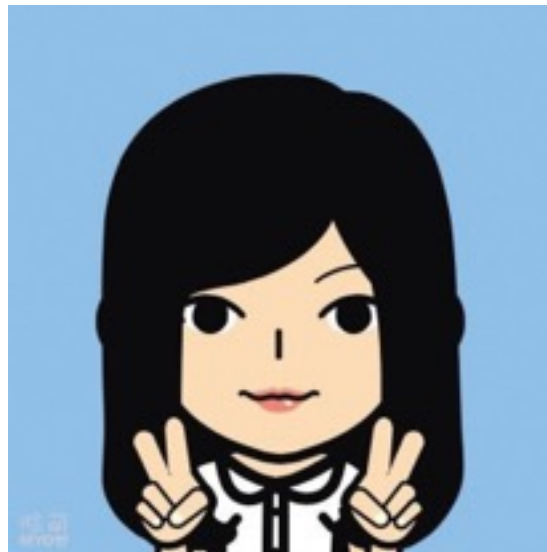


## Git

a widely-used source code management  
system for software development



# Introduction to Git & Github



Taylor  
Clerk



# Introduction to Git & Github



1.0% increase in the  
second quarter



1.5% increase in the  
second quarter



# Introduction to Git & Github

## Save Each Copy



draft\_1



draft\_2



draft\_3



final



latest\_final



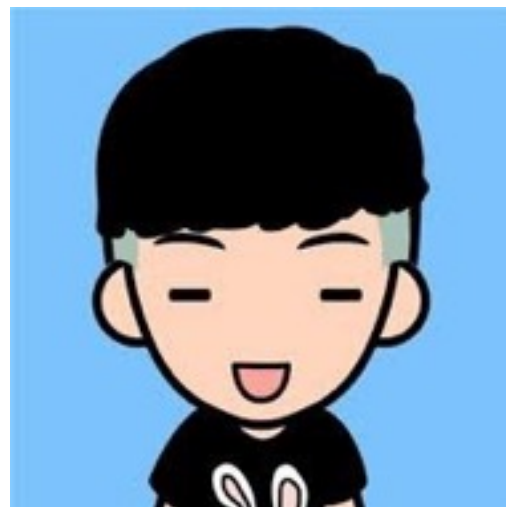
sh\*t\_very\_last\_final



well\_another\_final



# Introduction to Git & Github



Jason  
Developer





# Introduction to Git & Github

## Without Git



app\_v1.proj



app\_v1.1.proj



app\_v1.2.proj



app\_v1.3.proj



app\_v1.4.proj



app\_v1.5.proj



app\_v1.6.proj



# Introduction to Git & Github

## With Git



app.proj



# Introduction to Git & Github



## Github

a Web-based Git repository  
hosting service



# Introduction to Git & Github



(Software/Service)

Git

(Provider)



Github



Gitlab



Bitbucket



# Git Installation



# Git Installation

<http://git-scm.com/downloads>



# Git Installation



## Installation

<https://www.sourcetreeapp.com/>



# Git Installation

## Mac

1. Double-click the **DMG** to expand it.
2. Double-click the **PKG** file to install it
3. Open a terminal on your system.
4. `$ git --version`

## Windows

1. Open **installer** and follow prompts
2. Open **Git Bash.vbs** from the Git folder of the Programs directory



## Git Installation

# Save your information to Git

1. Configure your global username

```
$ git config --global user.name "name"
```

2. Configure your global email address

```
$ git config --global user.email "email"
```





## Git Installation

Save your information to Git

### 3. Configure your Github username

```
$ git config credential.https://github.com.username  
<username>
```

### 4. Configure helper

```
$ git config --global credential.helper "$helper  
$options"
```



# Github Signup

Website: [github.com](https://github.com)

**GitHub**

[Explore](#) [Features](#) [Enterprise](#) [Pricing](#) [Sign up](#) [Sign in](#)

## Where software is built

Powerful collaboration, code review, and code management for open source and private projects. Public projects are always free. Private plans start at \$7/mo.

Use at least one lowercase letter, one numeral, and seven characters.  
[Sign up for GitHub](#)  
By clicking "Sign up for GitHub", you agree to our [terms of service](#) and [privacy policy](#). We will send you account related emails occasionally.



## Git Commands

# Download Repo

```
$ git clone https://github.com/username/  
new.git
```

When you clone another repository,  
git automatically creates a remote named "origin"  
and points to it



# Git Commands

## Create new local repo

```
$ git init
```

Transform the current directory  
into a Git repository



# Git Commands

## Status

```
$ git status
```

List the files you've changed  
and those you still need to add or commit)



## Git Commands

# Add file to staging

```
$ git add filename
```

Add one or more files to staging (index)



## Git Commands

# Commit Changes

```
$ git commit -m "Commit message"
```

Commit changes to head  
(but not yet to the remote repository)



# Git Commands

## Check log

```
$ git log
```

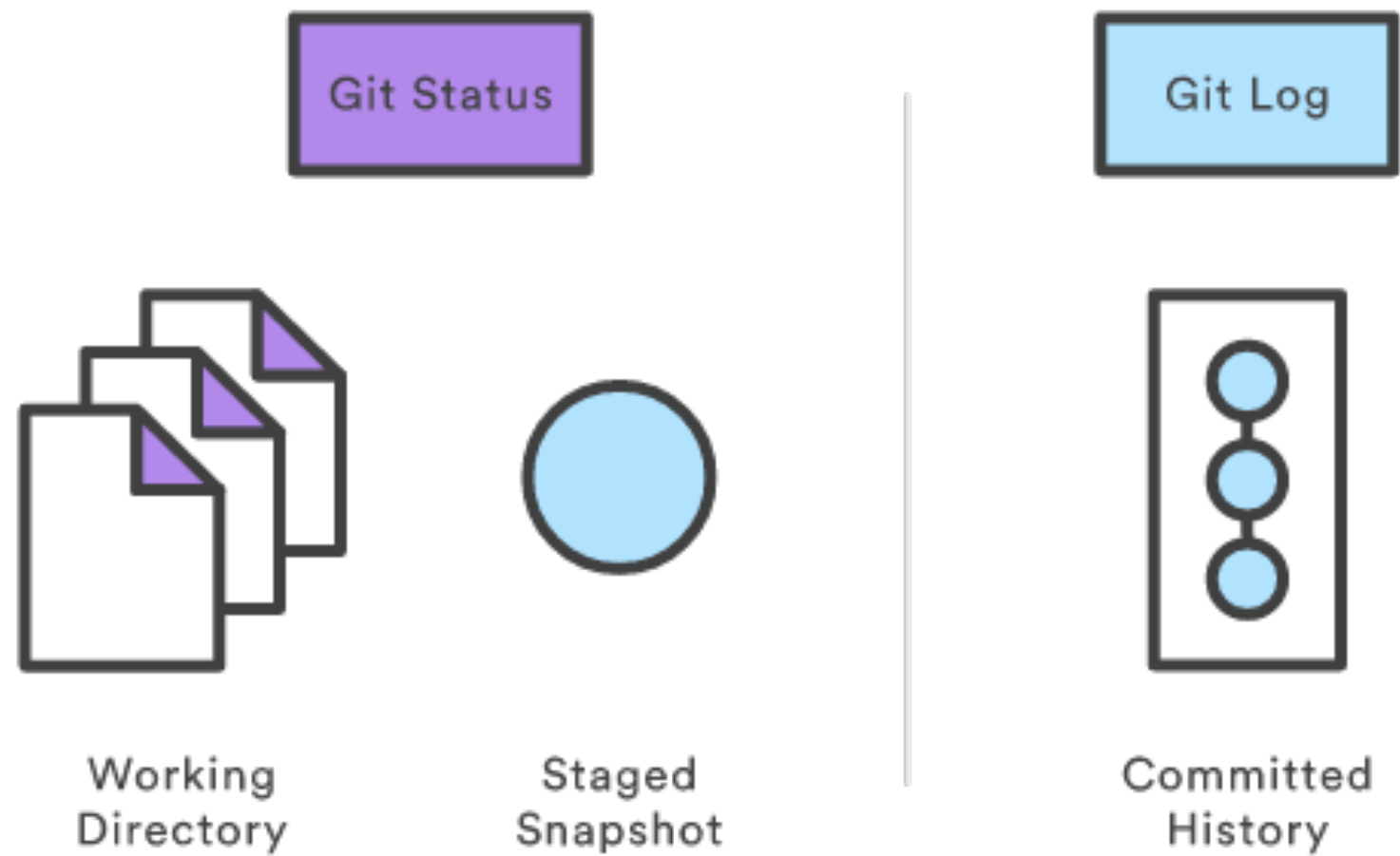
displays committed snapshots





# Git Commands

## Check log





# Git Commands

## View branches

```
$ git branch
```

view all branches



# Git Commands

## View old commits

```
$ git checkout <commit>
```

checking out old commits



# Git Commands

## Get back

```
$ git checkout <branch>
```

get back to the “current” state of your project



## Git Commands

# Push to Github

```
$ git push origin master
```

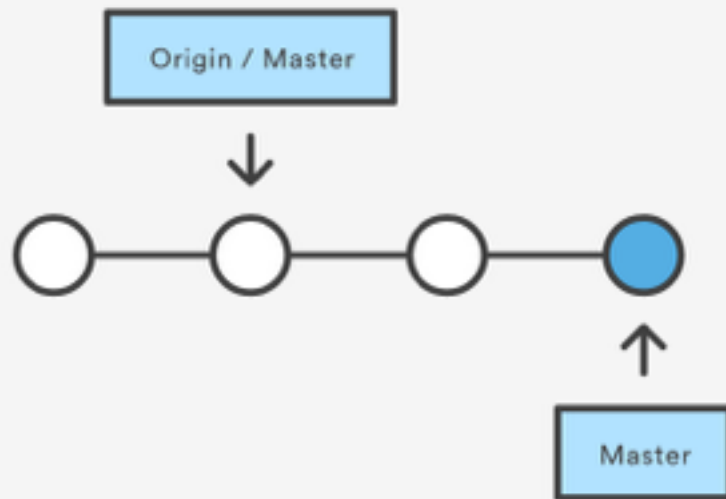
Send changes to the master branch  
of your remote repository



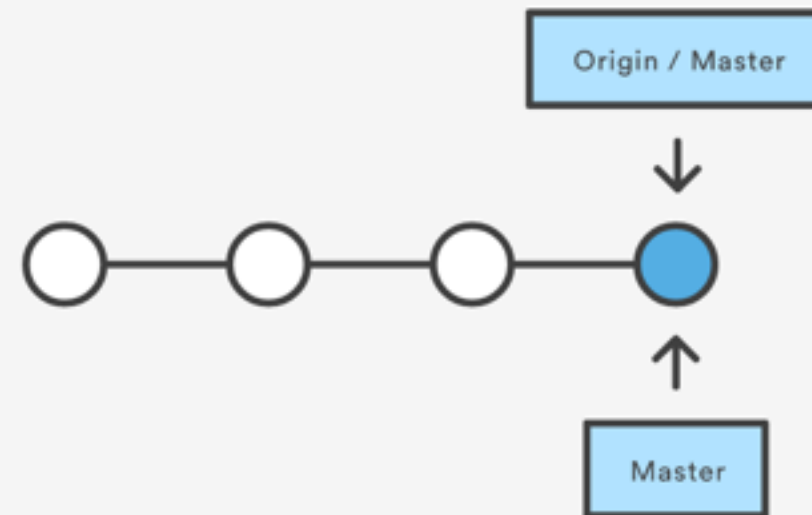
# Git Commands

## Push to Github

Before Pushing



After Pushing





# Host Websites on Github

## Fetch

```
$ git fetch
```

Imports commits from a remote repository  
into your local repo



# Host Websites on Github

## Merge

\$ git merge

lets you take the independent lines of development created by git branch and integrate them into a single branch





# Git Commands

## Pull

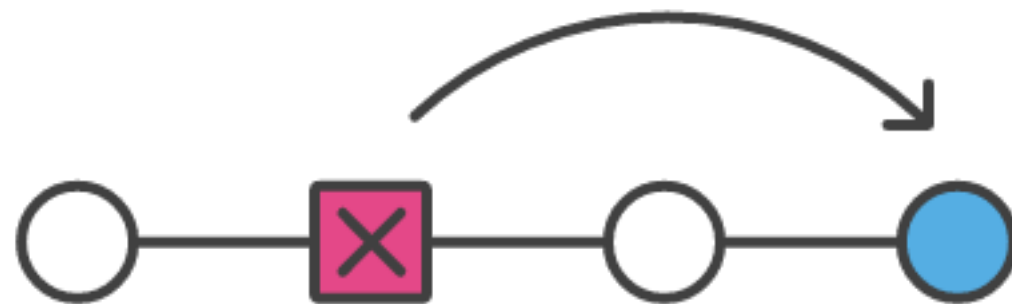
```
$ git pull
```

Git pull rolls this into a single command



# Git Commands

## Undo changes



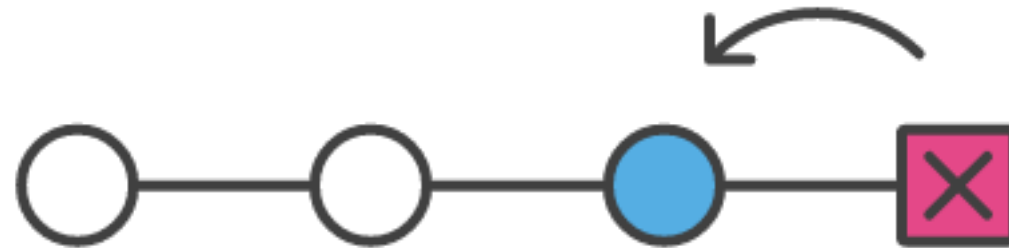
\$ git **revert** <commit>

Generate a new commit that undoes all of the changes introduced in <commit>, then apply it to the current branch.



# Git Commands

## Undo changes



```
$ git reset
```

Reset the staging area to match the most recent commit  
(dangerous)



# Host Websites on Github

Host a website  
on Github!



# Host Websites on Github

Clone the repository

```
$ git clone https://github.com/username/  
repo
```



# Host Websites on Github

## Hello World

```
$ git branch -m gh-pages
```

```
$ echo "Hello World" > index.html
```



# Host Websites on Github

Push it

```
$ git add --all
```

```
$ git commit -m "Initial commit"
```

```
$ git push origin gh-pages
```



# Host Websites on Github

You are done!

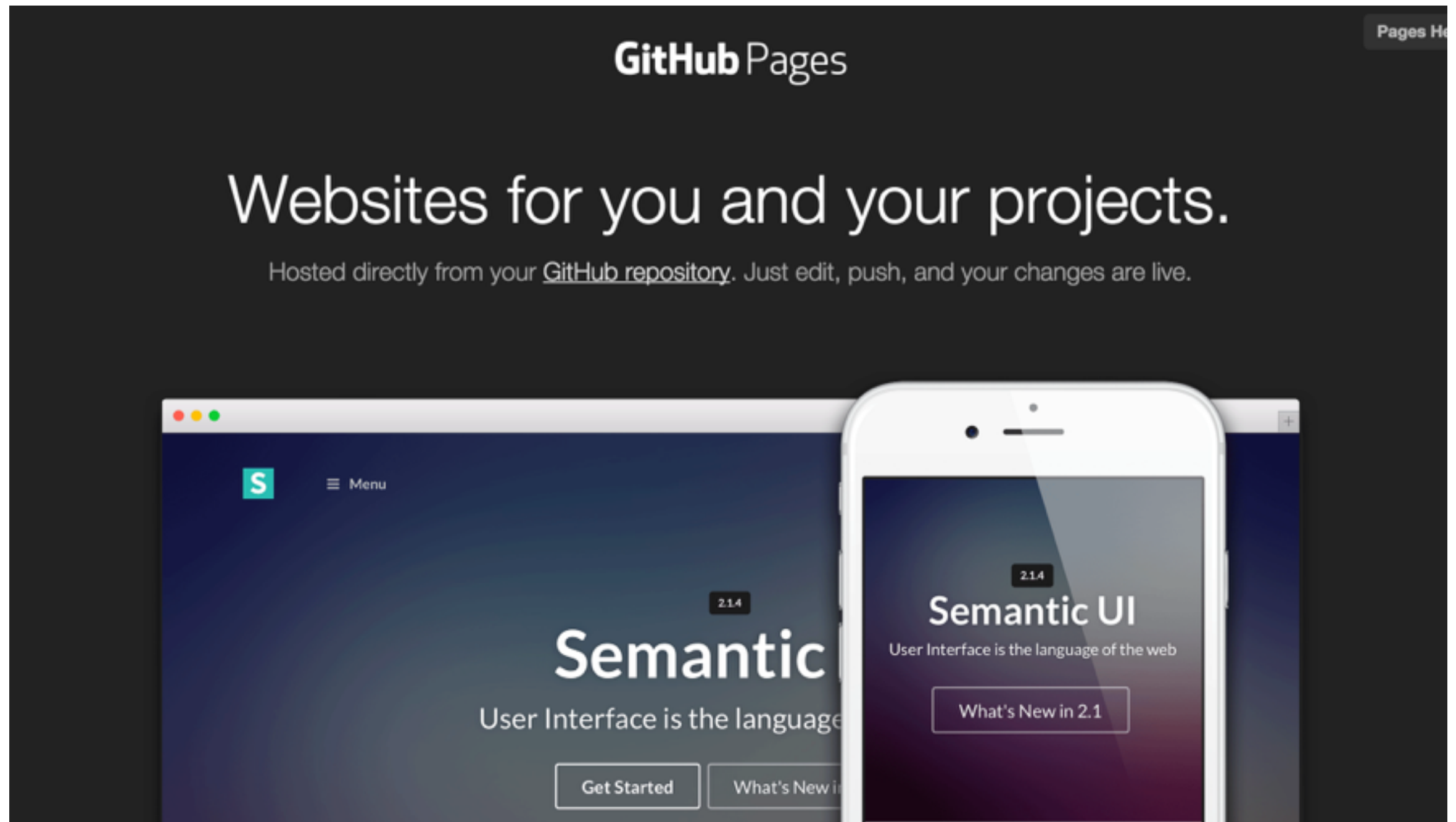
Fire up a browser and go to  
<http://username.github.io/reponame/>





# Host Websites on Github

<https://pages.github.com/>





Break Time



# Git Client

# SourceTree

Sparkle (Git)

View Commit Checkout Reset Stash Add Remove Add/Remove Fetch Pull Push Branch Merge Tag Show in Finder Git Flow

FILE STATUS  
Working... 12

BRANCHES  
master

TAGS  
sparkle-1.5b1  
sparkle-1.5b2  
sparkle-1.5b3  
sparkle-1.5b4  
sparkle-1.5b5  
sparkle-1.5b6

REMOTES

STASHES

SUBMODULES

SUBTREES

All Branches Show Remote Branches Date Order Jump to:


Graph	Commit	Description	Author	Date
	f341d0c	Corrected minor spelling errors	Christian Zachariasen <c...	Feb 22, 2012, 11:35 AM
	e27828d	Merge pull request #144 from mattstevens/custom-defaults...	Andy Matuschak <andy@...	Feb 14, 2012, 5:52 PM
	44cf0d0	Merge pull request #145 from mattstevens/install-on-quit...	Andy Matuschak <andy@...	Feb 14, 2012, 5:48 PM
	6be5568	Clean up after install on quit updates	Matt Stevens <matt@allo...	Feb 13, 2012, 3:02 AM
	29b7321	Support a custom user defaults domain	Matt Stevens <matt@allo...	Feb 11, 2012, 10:31 PM
	449b00e	Merge pull request #139 from mattstevens/pathToRelaunch	Andy Matuschak <andy@...	Feb 9, 2012, 6:37 AM
	4c25737	Merge pull request #142 from mzch/master	Andy Matuschak <andy@...	Feb 9, 2012, 6:14 AM
	88d4b34	Improved Japanese translations	Koichi MATSUMOTO <mz...	Feb 8, 2012, 6:37 AM

Sorted by path

SUConstants.m

SUHost.h

SUHost.m

Commit:   
e27828d2485a9f8db8cf21c6b1617dcec22f423c  
[e27828d]  
Parents: [44cf0d0e51](#), [29b7321094](#)

Hunk 1 : Lines 25-33 Reverse hunk

```
25 25 SULog(@"Sparkle Error: the bundle being updated at %@",
26 26
27 27 defaultsDomain = [[bundle objectForKey:@"SUDefaultsDomainKey"] retain];
28 28 if (!defaultsDomain)
29 29 defaultsDomain = [[bundle bundleIdentifier] retain];
```

Atlassian



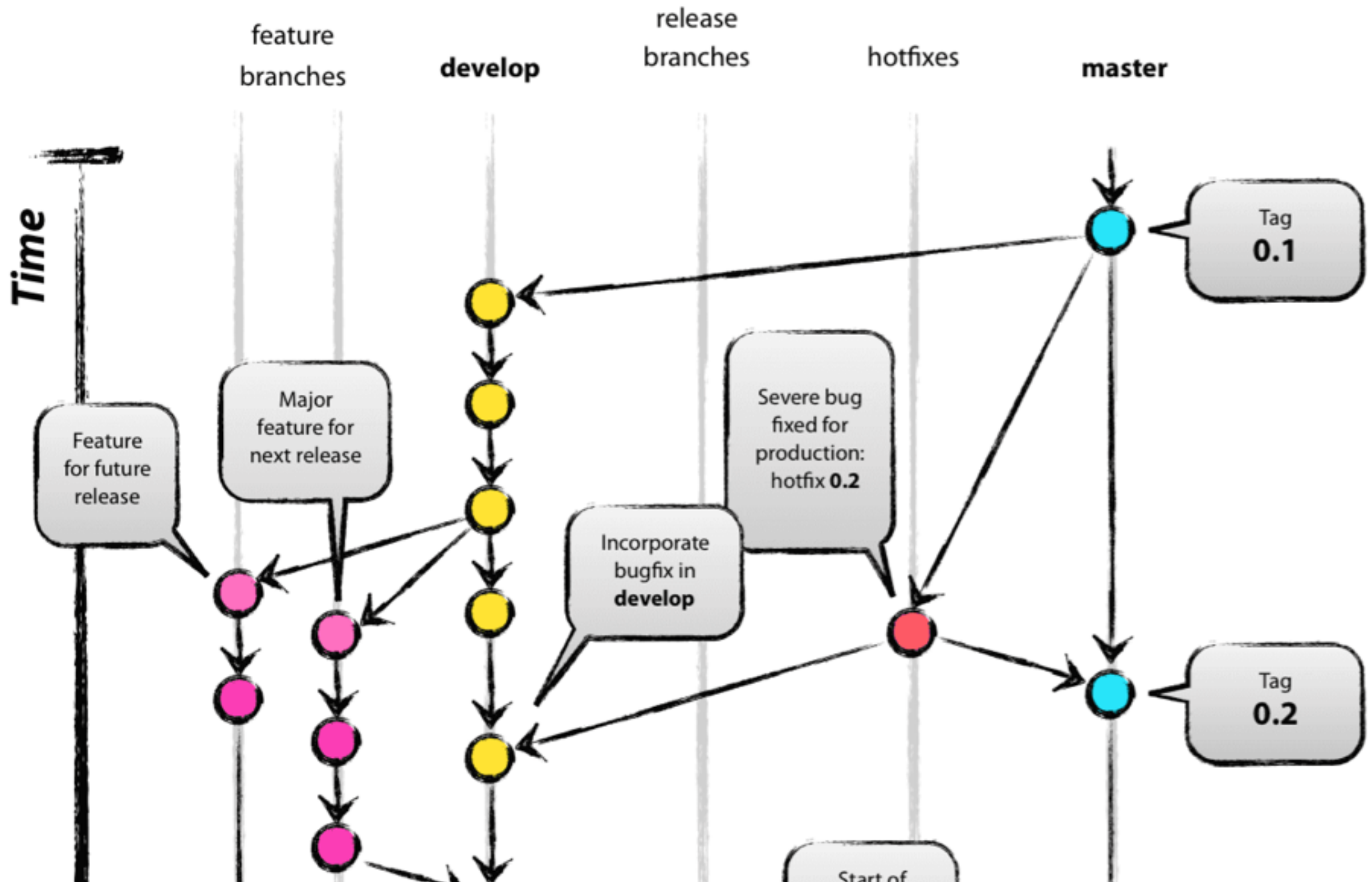
# Branch & Git Flow

## Git Flow

A collection of Git extensions to  
provide high-level repository  
operations



# Git Flow







# Git Flow



## Vincent Driessen

<https://github.com/nvie/gitflow>



# Preparation for Git Flow

## Clone Project

<http://codinggirlssg.github.io/session6/>

```
$ git clone https://github.com/  
CodingGirlsSG/session6.git
```



# Git Flow

## Existing Model

- master
- develop



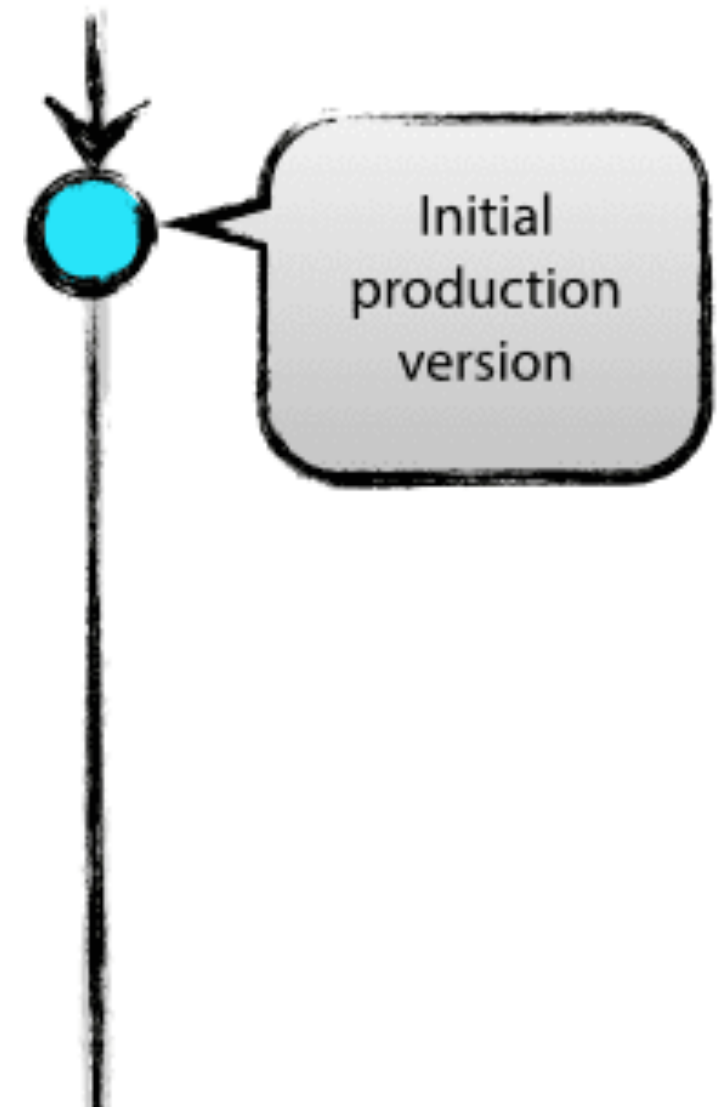


# Git Flow

## Existing Model

- master  
always reflects a  
production-ready  
state

master

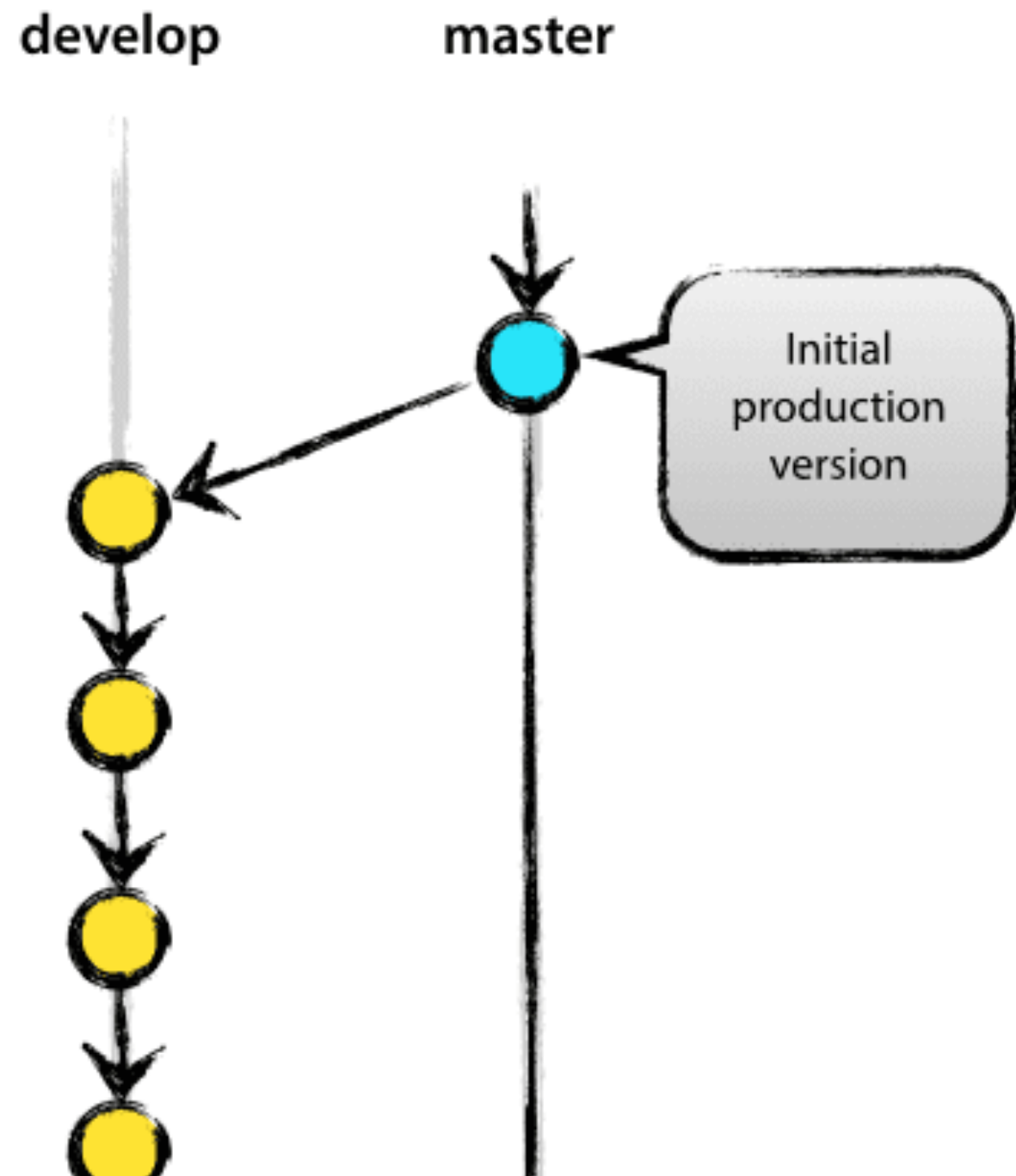




# Git Flow

## Existing Model

- develop  
latest delivered  
development  
changes for the  
next release

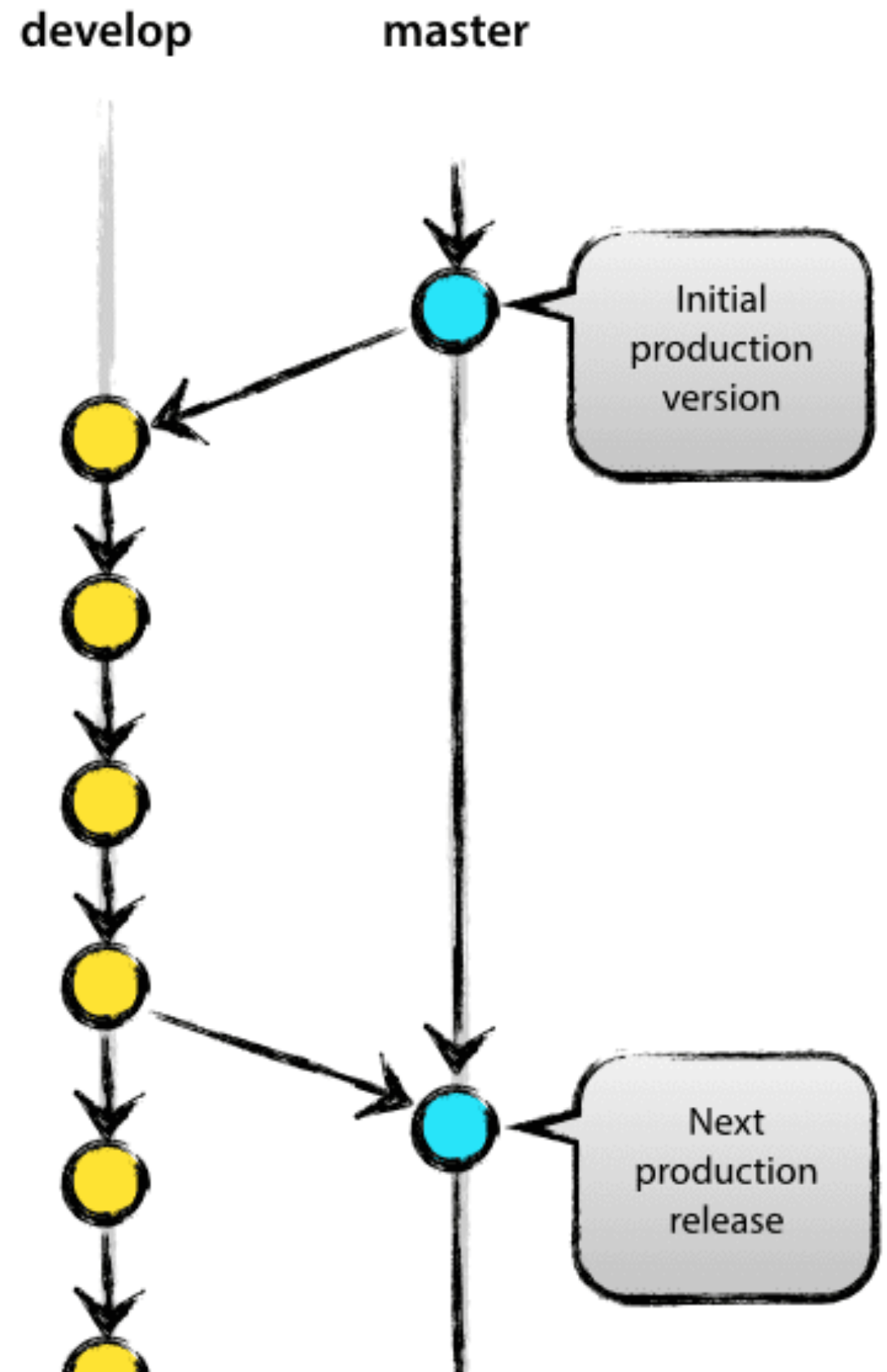




# Git Flow

## Existing Model

ready to be released  
merge all changes  
back to **master**





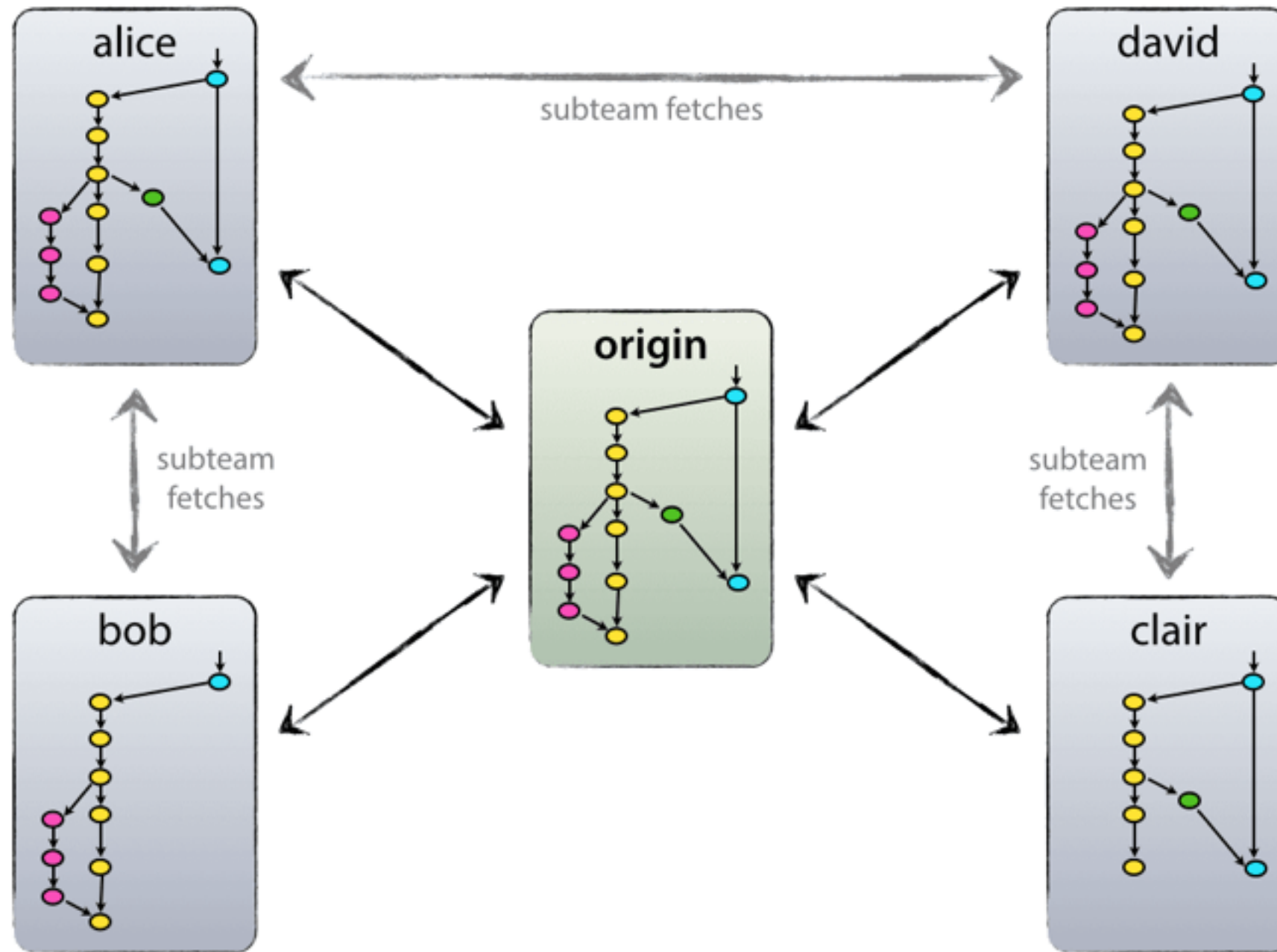
# Git Flow

## Supporting branches

parallel development  
between team members



# Git Flow





# Git Flow

## Supporting branches

- Feature branches
- Release branches
- Hotfix branches



# Git Flow

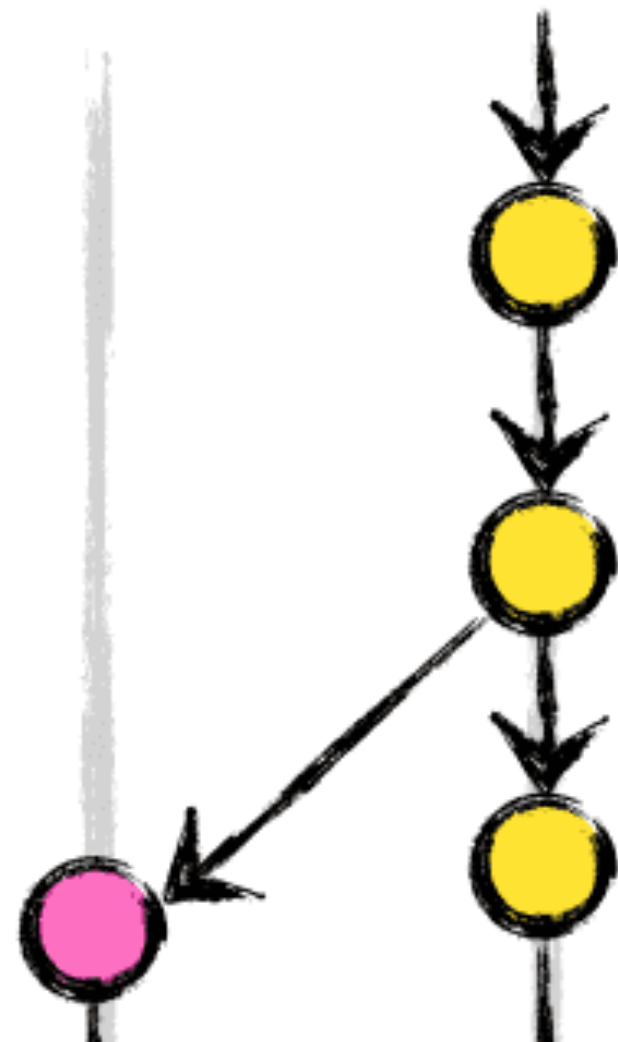
## Supporting branches

- Feature

develop new features  
for the upcoming or a  
distant future release

feature  
branches

develop





# Git Flow

## Supporting branches

Create a feature branch

```
$ git checkout -b myfeature develop
```





# Git Flow

## Supporting branches

Switch to 'develop'

```
$ git checkout develop
```



# Git Flow

## Supporting branches

Merge 'feature' to 'develop'

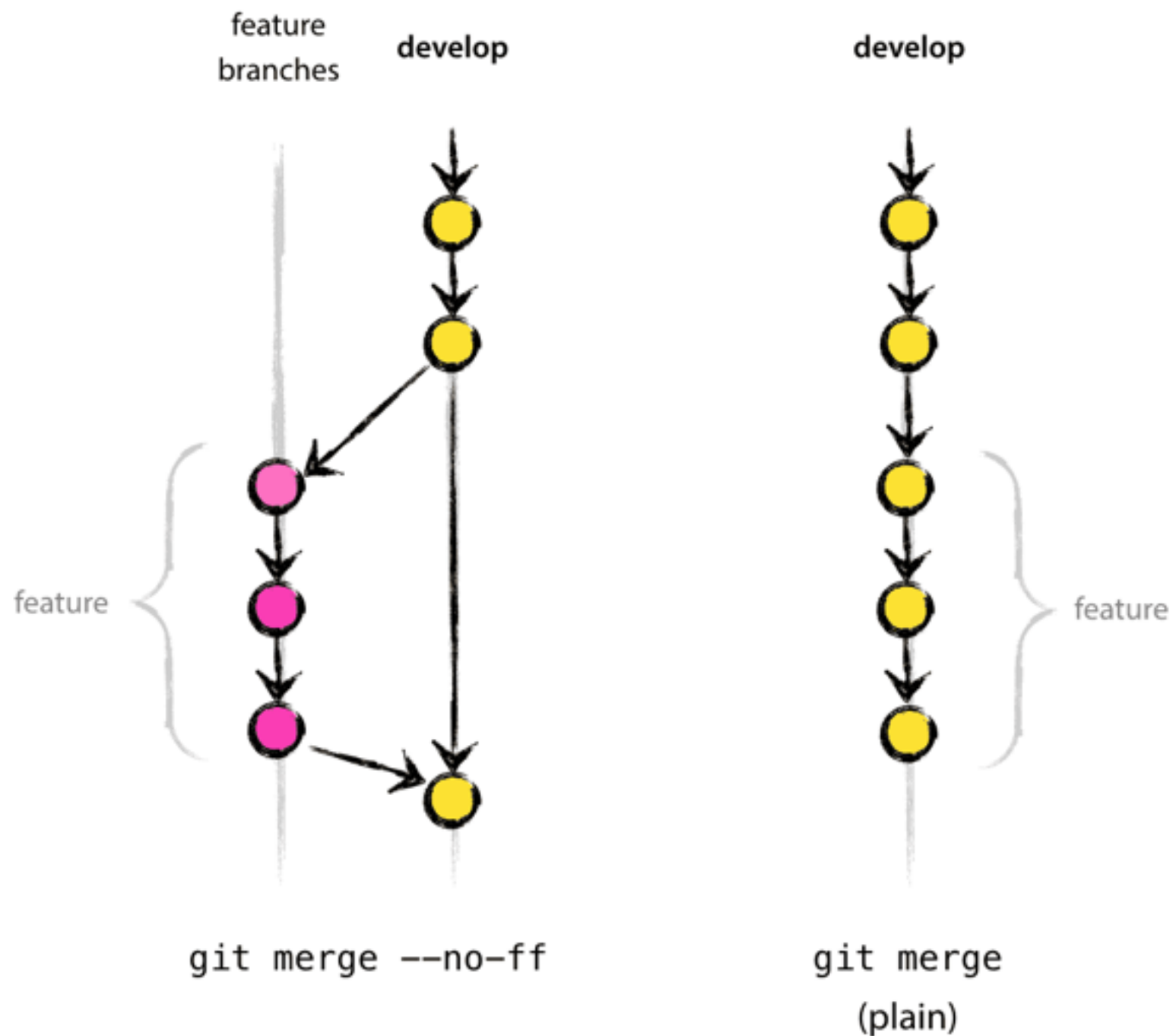
```
$ git merge --no-ff my feature
```

--no-ff flag causes the merge to always  
create a new commit object



# Git Flow

## Supporting branches





# Git Flow

## Supporting branches

Delete branch 'myfeature'

```
$ git branch -d myfeature
```



# Git Flow

## Supporting branches

Push 'develop'

```
$ git push origin develop
```



# Git Flow

## Supporting branches

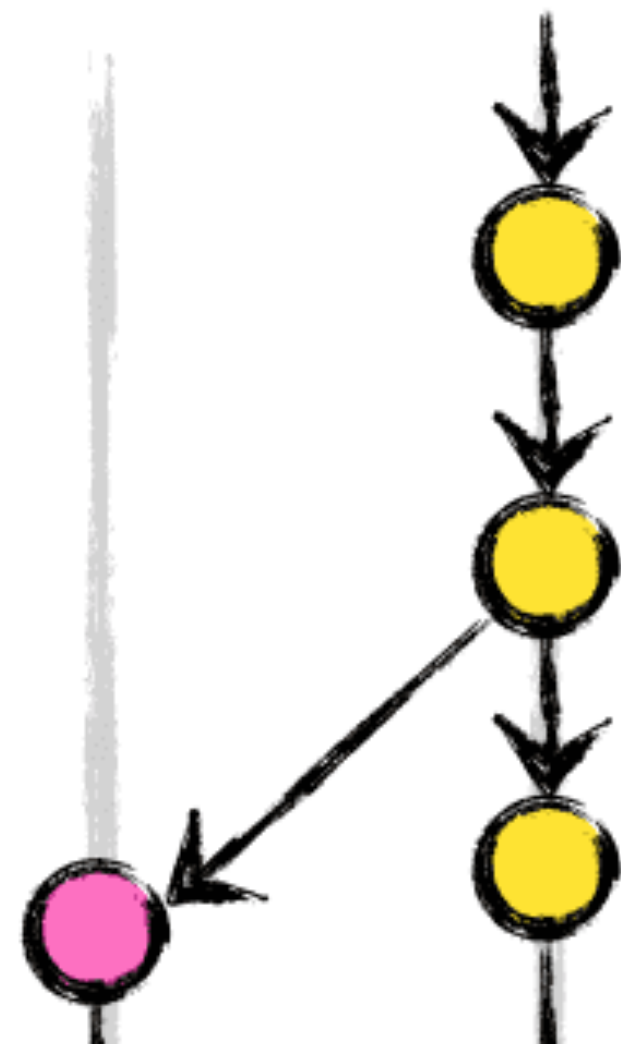
- Release

preparation of a new  
production release

minor bug fixes and  
meta-data for a release

feature  
branches

develop





## Git Flow

### Supporting branches

Switch to a new branch 'release-0.1'

```
$ git checkout -b release-0.1 develop
```



# Git Flow

## Supporting branches

Switch to 'master'

```
$ git checkout master
```





# Git Flow

## Supporting branches

Merge 'release-0.1' to 'master'

```
$ git merge --no-ff release-0.1
```



# Git Flow

## Supporting branches

Tag as version 0.1

```
$ git tag -a 0.1
```



# Git Flow

## Supporting branches

To keep changes in 'release-0.1'  
Merge back into 'develop'

```
$ git checkout develop
```

```
$ git merge --no-ff release-0.1
```



# Git Flow

## Supporting branches

Delete release-0.1

```
$ git branch -d release-0.1
```

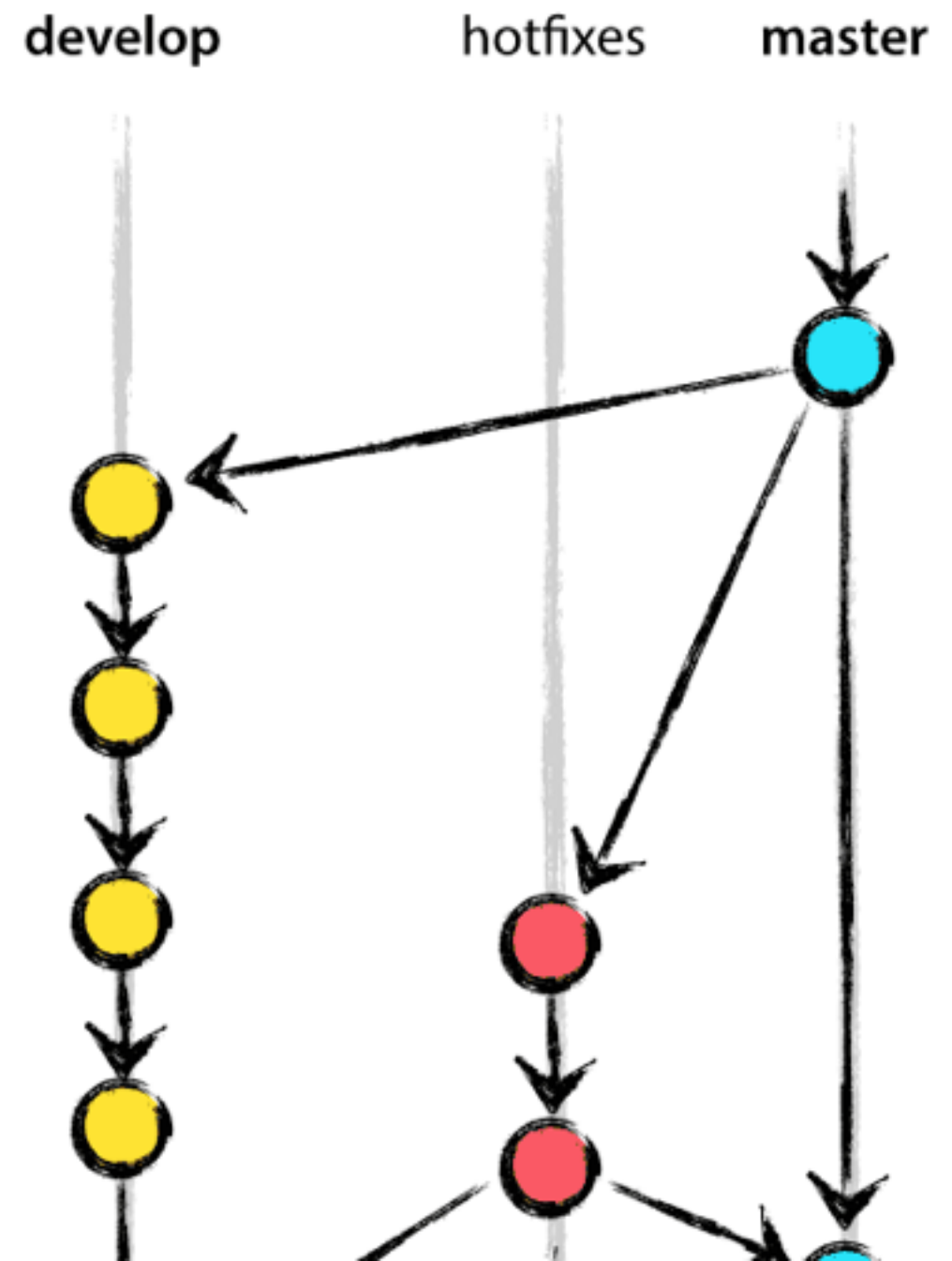


# Git Flow

## Supporting branches

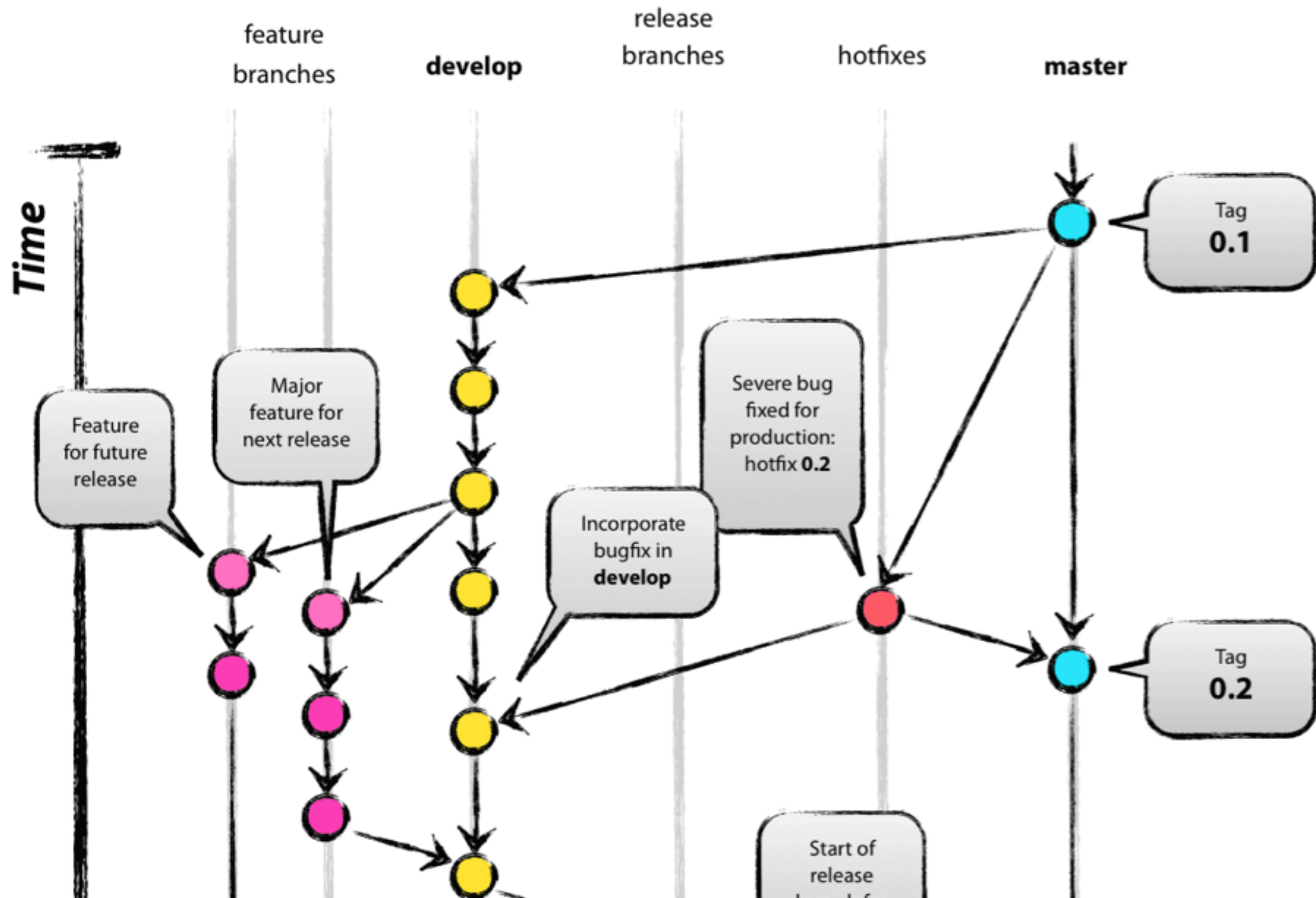
- Hotfix

fix critical bugs in a production version





# Git Flow





# Git Flow

## Git Flow Commands

### Creating feature/release/hotfix/support branches

- To list/start/finish feature branches, use:

```
git flow feature  
git flow feature start <name> [<base>]  
git flow feature finish <name>
```

For feature branches, the `<base>` arg must be a commit on `develop`.

- To push/pull a feature branch to the remote repository, use:

```
git flow feature publish <name>  
git flow feature pull <remote> <name>
```

- To list/start/finish release branches, use:

```
git flow release  
git flow release start <release> [<base>]  
git flow release finish <release>
```



# Github Organization

[Pull requests](#) [Issues](#) [Gist](#)

## Create an organization



**Completed**  
Set up a personal account



**Step 2:**  
Set up the organization



**Step 3:**  
Invite organization members

### Set up the organization

**Organization name**

The organization will live at <https://github.com/>

**Billing email**

Receipts will be sent here

### Choose the organization's plan



Plan	Cost <a href="#">(view in SGD)</a>	Private repositories	
Diamond	\$450/month	300	<a href="#">Choose</a>
Platinum	\$200/month	125	<a href="#">Choose</a>

### Organizations

- ✓ Repository management
- ✓ Fine-grained permissions
- ✓ Focused dashboard

The credit card and plan you choose on this screen will be billed to the organization — not your user account ([mingyang511](#)).

[Learn more](#)





# GitHub Education

<https://education.github.com/>



The screenshot shows the GitHub Education website. At the top, the 'GitHub Education' logo is on the left, and navigation links for 'Stories', 'Events', 'Student pack', 'Classroom guide', and 'Contact us' are on the right. The main banner features a chalkboard background with the text 'TEACH AND LEARN BETTER, TOGETHER' in white chalk. To the left of the text is a chalk drawing of a chemistry flask on a stand. To the right is a cartoon character in a white lab coat and goggles, holding a flask. A green button labeled 'Request a discount' is centered below the text. Below the banner, a section titled 'STUDENT DEVELOPER PACK' features a yellow backpack with the GitHub logo on the left. To the right of the backpack, the text 'Get the Student Developer Pack' is displayed, followed by the subtitle 'Dozens of free resources from great companies to help students learn.' and a blue button labeled 'Get the pack'.

GitHub Education

Stories Events Student pack Classroom guide Contact us

TEACH AND LEARN  
BETTER, TOGETHER

Request a discount

STUDENT DEVELOPER PACK

Get the Student Developer Pack

Dozens of free resources from great companies to help students learn.

Get the pack



# Explore Github

Another Google for developer


Open Source Projects

School Projects



# Explore on Github

<https://github.com/explore>



[Pull requests](#) [Issues](#) [Gist](#)

Explore GitHub

All

Showcases

Trending

Stars

Explore

Browse interesting projects, solving all types of interesting problems.

Open data

Front-end JavaScript frameworks

Machine learning

Design essentials

Whether you float to the left or float to the right, you'll find these I...

18 <> 4

Made in Africa

Open source organizations

CSS preprocessors



Explore Github

Open Source Projects

Apple: <https://github.com/apple>



Facebook: <https://github.com/facebook>

Google: <https://github.com/google>





# Explore Github


## Open Source Projects


 Pull requests Issues Gist + 

Search  Search

 Repositories 32

 Code 319,313

 Issues 636

 Users

### Languages

Objective-C	26
Swift	1
JavaScript	1

[Advanced search](#) [Cheat sheet](#)

### We've found 32 repository results

Sort: Best match ▾

[jeyben/IOSLinkedInAPI](#) Objective-C ★ 217 128

Simple and non intrusive library to get access tokens for **LinkedIn** using OAuth2.  
Updated 15 days ago

[ahmetkgunay/LinkedIn IOSHelper](#) Objective-C ★ 28 2

**LinkedIn** **IOS** Fetch Member Information Library  
Updated on Oct 7, 2015

[sachinkesiraju/SKPanoramaView](#) Objective-C ★ 143 19


Create beautiful animated panorama views. Inspired by the intro view on the **LinkedIn** **IOS** app.  
Updated on Apr 29, 2015

[marcelfalliere/LinkedIn ios](#) Objective-C ★ 5 2




# Explore Github

## Open Source Projects

 This repository Search

Pull requests Issues Gist

 **apple / swift**

Watch 1,710 Star 26,001 Fork 3,283


**<> Code** Pull requests 50 Pulse Graphs

The Swift Programming Language <https://swift.org/>

31,875 commits 7 branches 9 releases 267 contributors

Branch: master New pull request

New file Find file HTTPS <https://github.com/apple/> Download ZIP

 **rudkx** Revert "[Runtime][StdLib] Migrate mirrors to use CustomReflectable AP... Latest commit 8917eb0 26 minutes ago



apinotes	Update README.md	2 months ago
benchmark	bulid-script: simplify code and use more idiomatic variable names	a month ago
bindings/xml	[Markup] Slurp fenced code block info string	a month ago
cmake	Link Swift images on ELF using -Bsymbolic.	2 days ago
docs	[docs] LibraryEvolution: All public entities must be versioned.	15 hours ago
include	Fix typo in getCurrentLanguageVersion doc comment	11 hours ago
lib	[gardening] Make parameter name in forward declaration match name in	7 hours ago







# Explore on Github


## School Projects


 Pull requests Issues Gist + 

Search  Search

 Repositories 3

 Code 31

 Issues

 Users

### Languages

Shell	1
PHP	1
Java	1

[Advanced search](#) [Cheat sheet](#)

[shawntan/CS3244](#) Shell ★ 0 🔗 0

Updated on Nov 8, 2011

[biran0079/cs3244-machine-learning](#) Java ★ 0 🔗 0

Automatically exported from code.google.com/p/cs3244-machine-learning  
Updated on Mar 4, 2015

[jarvis57/Text-Classification-with-WEKA](#) PHP ★ 0 🔗 0

**CS3244** Machine Learning Assignment 2: Text Classification with WEKA  
Updated on Dec 18, 2015



# Thank you!



<http://facebook.com/mingyang93>



<http://mingyang.li>



mingyangli511@gmail.com



*Girls*  
**& CODING**